



**REPUBLIC OF TOGO**

Travail-Liberté-Patrie



**AGENCY FOR PROMOTION AND  
DEVELOPMENT OF AGROPOLES IN TOGO**

**STAPLE CROPS PROCESSING ZONES (SCPZ)  
PROGRAMME: PROMOTING SUSTAINABLE  
AGRICULTURAL VALUE CHAINS**

**TOGO**

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**Pest and Pesticide Management Plan (PPMP)**

**Final updated version**

**Date: November 2020**

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## List of Acronyms and Abbreviations

ADAPT	: Adaptation of Agricultural Production Systems to Climate Change in Togo
ATCs	: Agricultural Transformation Centres
APRODAT	: Agency for the Promotion and Development of Agropoles in Togo
DNA	: Deoxyribonucleic acid
AFITO	: Association of Agricultural Input Suppliers of Togo
ANGE	: National Environmental Management Agency
ANPAT	: National Association of Poultry Professions of Togo
APRODAT	: Agency for the promotion and development of agropoles in Togo
AfDB	: African Development Bank
BOAD	: West African Development Bank
CAGIA	: Central purchasing and management centre for agricultural inputs
CAPAL	: Commission for Professional Approvals, Authorisations and Licences
CCS	: Control and Monitoring Commission
CBD	: Convention on Biological Diversity
ECOWAS	: Economic Community of West African States
ICE	: Inter-ministerial Commission on the Environment
CILSS	: Inter-State Committee for Drought Control in the Sahel
CITES	: Convention on International Trade of Endangered Species (Convention on International Trade in Endangered Species of Wild Fauna and Flora)
IPPC	: International Plant Protection Convention
CNCE	: National Committee for the Quality Control of Ferrous Metalworkers
CNDD	: Commission Nationale du Développement Durable (National Commission for Sustainable Development)
NPMC	: National Pesticide Management Committee
COAHP	: West African Committee for the Registration of Pesticides
COS	: Strategic Orientation Framework (Cadre d'orientation stratégique)
CPC	: Central of cereal producers of Togo
CPP	: Committee on Phytopharmaceutical Products
CRT	: Centre rural de transformation (Rural Processing Centre)
CT	: Toxicology vigilance Commission
CTA	: Agricultural Processing Centre
CTOP	: Togolese Coordination of Farmers' and Agricultural Producers' Organisations
DE	: Livestock management
DFV	: Plant Industry Directorate
DDS	: Health District Directorates
DDT	: Dichlorodiphenyl trichloroethane
DPAT	: Togo's agricultural policy document
DPDA	: Agricultural Development Policy Statement
DPV	: Directorate for Plant Protection
DSID	: Directorate of Agricultural Statistics, Informatics and Documentation
ECOWAP	: Agricultural Policy of the Economic Community of West African States
ESA-UL	: Ecole supérieure d'agronomie-Université de Lomé
ESOP	: Service Companies and Producer Organisations
EXAMS	: Exposure Analysis Modeling System
FAO	: Food and Agriculture Organisation of the United Nations.
FCFA	: Franc of the African Financial Community
FENOMAT	: National Federation of Vegetable Growing Organisations of Togo
FNE	: National Fund for the Environment
FNGPC	: National Federation of Cotton Producers' Groups of Togo
FUPROCAT	: Federation of Unions of Coffee and Cocoa Producers of Togo

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GCF	:Green Climate Fund
GENEEC	: GENeric Estimated Exposure Concentration
GVPCR	: Groupement des vétérinaires privés en clientèle rurale (Group of private veterinarians in rural areas)
ICAT	: Institute for Technical Advice and Support
INH	: National Institute of Hygiene
ITRA	: Institut Togolais de Recherche Agronomique (Togolese Agricultural Research Institute)
LAV	: Larval Control
LTC	: Togolese League of Consumers
MAEDR	: Ministry of Agriculture, Livestock and Rural Development
MAEH	: Ministry of Agriculture, Livestock and Hydraulics
MERF	: Ministry of the Environment and Forest Resources
MIFA	:Agricultural Incentive and Financing Mechanism
MSHPAUS	: Ministry of Health, Public Hygiene and Universal Access to Care
MTV	: Vector-borne diseases
NEPAD	: New Partnership for Africa's Development
NPA	: Agricultural Policy Note
NSCT	: New cotton company in Togo
MDGs	: Millennium Development Goals
NGO	: Non-Governmental Organisation
SDO	: Sustainable Development Objectives
ODEF	: Office for the Development and Exploitation of Forests
GMO	: Genetically modified organism
WTO	: World Trade Organization
UNIDO	: United Nations Industrial Development Organization
OP	: Producers' Organization
OTR	: Togolese Revenue Office
CAP/ECOWAS	: Common Policy of the Economic Community of West African States
PADAT	: Agricultural Development Support Project in Togo
PARTAM	: Project for the Development and Rehabilitation of Agricultural Land in the Mission Tové area
PAU	: Agricultural Sector Support Project
PAU	: WAEMU Agricultural Policy
PBVM	: Lower Mono River Valley hydro-agricultural development project
PCBs	: Polychlorinated biphenyls
PPF	:Project Preparation Facility
PPMP	: Pest and Pesticide Management Plan
IRDP	: Integrated Rural Development Project
PDPR-K	: Kara Rice Production Development Project
PIED	: Developing Island States
PIRI	: Pesticides Impact Rating Index
PMP	: Pest and Pesticide Management Plan
LDC	: Least Developed Countries
PNAE	: National Action Plan for the Environment
PND	: National Development Plan
NIP	: National Environmental Policy
PNIASAN	: National Investment Programme for Agriculture and Food and Nutritional Security
NIP	: National Implementation Plan
PNPER	: National Project for the Promotion of Rural and Medium Entrepreneurship
CAADP	: Comprehensive African Agriculture Development Programme
POPs	: Persistent Organic Pollutants
WAAPP	: West Africa Agricultural Productivity Programme-Project

PRIASAN	: Regional Investment Programme for Agriculture and Food and Nutritional Security
ProDRA	: Programme for Rural and Agricultural Development
PSMS	: Pesticide Stock Management System
PTA-Togo	: Togo PTA-Kara agro-food processing project
PTA-Kara	: Kara agro-food processing project
REDD+	: Reducing Emissions from Deforestation and Forest Degradation
RENAP	: Asia-Pacific Regional Network on the Promotion and Use of Biopesticides
PRTR	: Pollutant Release and Transfer Register
SA	: Public limited company
SF	: Saemaul Foundation
ODS	: Ozone-depleting substance
ISS	: Integrated Safeguard System
OS	: Operational Safeguards
SIGEP	: Integrated Pesticide Management System in West Africa
SPS Agreement	: Agreement on the Application of Sanitary and Phytosanitary Measures,
SWOT	: Strengths, Weaknesses, Opportunities and Threats,
HAT	: Human African Trypanosomiasis
UEMOA	: West African Monetary Union
ZAAP	: Planned Agricultural Development Zone

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## EXECUTIVE SUMMARY

Poor incentives, inadequate infrastructure and weak structuring of the Togolese agricultural sectors has greatly constrained private sector investment into agriculture. Given the importance of agriculture as a major growth driver in Togo, the government has taken all necessary steps in developing agricultural, manufacturing and extractive industry transformation poles, as part of the National Development Plan (PND 2018-2022). It, therefore, drafted the Strategic Plan for the Agropoles Development 2017-2030 and set up Agropoles Promotion and Development Agency (APRODAT) with the assignment to implement a program for ten agropoles, including that of Kara.

It is expected that this process of modernising the Togolese agricultural sector through sustainable agricultural intensification, will lead to a much greater use of agricultural inputs by producers (pesticides and fertilisers, among others). As a consequence of these practices, there will be potential negative effects on human and animal health on the one hand, and on the environment on the other.

Therefore, the elaboration of this revised PPMP within the framework of the implementation of APRODAT activities at the Kara agropole, has the general objective of preventing or mitigating the impacts of pests and pesticides on the human and biological environment. It equally proposes an effective pest control framework.

More specifically, the revised PPMP framework aims at:

- Proposing measures to build capacity and fill any legal, regulatory and institutional gaps in the management of plagues and pesticides;
- Carrying out a SWOT analysis of the capacity to manage pests and pesticides in agriculture in the Kara region;
- Articulating the potential environmental and health risks in relation to the interventions envisaged within the framework of the project and relating to the use of pesticides;
- Focusing on efficient agriculture with a low impact on health and the environment;
- Focusing on agroforestry management systems;
- Proposing a management plan for pests and pesticides in agriculture and vector control;
- Defining the institutional arrangements for follow-up and monitoring to be made before, during and after the implementation of the project;
- A proposed plan for an efficient management of livestock farming and transhumance; and,
- An exploration of potential sustainable forest management plans and community charters for management and income sharing.

In addition, this plan highlights the different categories of actors whose roles and modes of involvement have impacts that can have a differentiated influence on the effectiveness of management at the environmental and health level. These actors include the Ministries in charge of the Environment, Agriculture, Health, Trade, Private Operators, Local Authorities, Laboratories and Research Institutions, Health and Environmental NGOs, Producers' Organisations, etc.

In terms of preventive measures, the plan focused on training, information, education and awareness-raising campaigns focusing on communication for behavioural change; the establishment of infrastructure for the storage and disposal of packaging, appropriate materials, protective equipment, etc.; and the development of a system of information and communication campaigns.

As for the curative measures described in the said plan, they will contribute to improving the current system for managing pests and pesticides (training of staff in the prevention and

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management of pesticide-related poisoning, strengthening laboratory capacities, etc.).

In all, the objectives pursued and described in this revised PPMP are : (i) Identification and implementation of measures to build capacity and fill possible legal, regulatory and institutional gaps; (ii) Promotion of environmentally sound and sustainable management of pests and pesticides; (iii) Improvement of pest and pesticide use and management systems to protect the environment and the health of handlers and populations; (iv) Strengthening the capacities of actors and communities in the management of pests and pesticides; (v) Raising awareness of populations on the risks linked to pesticides and involving communities in the implementation of activities; (vi) Promoting efficient livestock and transhumance management; (vi) Supporting the development of production and market access; (vii) Ensuring the monitoring and evaluation of the implementation of the plan, among others.

The estimated cost for the implementation of the plan is ninety-five million (195,000,000) FCFA.

## 1. INTRODUCTION

The Staple Crops Processing Zone (SCPZ) Project of Togo, developed in the Kara basin, commonly known as "Agropole of Kara" or PTA-Kara, is part of the new agricultural policy that aims to create more value added through production, processing and exports, while ensuring social inclusion and environmental protection.

This project whose formulation was supported by the African Development Bank (AfDB) through a project preparation fund (PPF) and for the implementation of which the West African Development Bank (BOAD) and the South Korean Foundation for the Globalisation of Saemaul (Saemaul Foundation) are contributing alongside the Togolese government, aims, on the one hand, to promote the development of agro-industry by setting up hydro-agricultural developments and other necessary infrastructures (Agro-Park) and, on the other hand, to strengthen priority and/or high value-added sectors: targeted by supporting producers and the installation of processing units in the Agro-Park.

This document, which contains the revised "Version A" of the PPMP for the Kara Agropole, and which becomes the **updated version**, was drawn up according to the new conditions of use of pesticides in compliance with national, regional and international regulations, notably the African Development Bank's (AfDB) Operational Safeguard 4 (SO4) on "Prevention and Control of Pollution, Hazardous Materials and Efficient Use of Resources".

Ultimately, this PPMP aims to :

- Identify all potential health and environmental risks in relation to the interventions envisaged in the framework of the project and relating to the use of pesticides and fertilisers;
- Promote the rational and safe use of pesticides and fertilisers which, by their nature, are mostly of chemical origin and also by their handling (transport, storage, use, management of empty packaging, destruction, disposal) cause less damage to human health and the environment;
- Strengthen the capacities of actors in the agricultural sector to comply with the code of good practice for the management of pests, pesticides and fertilisers, through the rational, safe, sanitary and environmentally acceptable use of these inputs;
- Define the institutional arrangements for monitoring and surveillance to be made before, during and after project implementation and the implementation of activities to mitigate the related environmental and social impacts;
- Propose a plan for the ecological management of pests and pesticides.

Within the framework of the PTA-Kara, in addition to the promotion of the plant, animal and fisheries sectors, institutional strengthening and sectoral coordination, it is planned that research, advisory and extension activities will be carried out to support production and the acquisition of inputs (seeds, fertilisers and pesticides), all to stimulate agriculture and boost production.

Also, due to the exponential increase in population and the increase in the area under cultivation, not to mention the increase in predators, these activities will lead directly or indirectly to the increased use of inputs such as pesticides and fertilisers.

However, the use of pesticides or other non-integrated methods for the control of insect vectors and/or pests or weeds may, depending on their nature or mode of use, cause social, health and environmental damage that may delay the achievement of project objectives. Hence, the need to have a management plan for these chemicals that is far from being environmentally friendly.

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The pest and pesticide management plan (PPMP) is designed to minimise the potential negative effects of pesticides on human and animal health and on the environment by promoting the use of environmentally friendly methods of control (biological, integrated pest management).

Taken all together, the objective of this plan is to strengthen the capacities of the institutional, regulatory and technical framework for the rational, ecological and safe management of pests with the use of pesticides.

The updated version of the PPMP contains the following sections:

- *Overview of the PTA and the Kara Agropole development project ;*
- *General information on crop production in the region ;*
- *Policy, legal and institutional frameworks for pest and pesticide management in Togo;*
- *Inventory of the commercialization of pesticides and chemical fertilizers in Togo and the Kara Region;*
- *Plague management in Togo and the Kara Region ;*
- *Analysis (SWOT) of the capacities for the management of pests and pesticides in agriculture in Togo and the Kara region;*
- *Direct and indirect impacts of pesticides ;*
- *Analysis of the negative impacts and the environmental and social risks of pesticides;*
- *Promotion of efficient agriculture with low impact on health and the environment*
- *Plan for the management of pests and pesticides in agriculture and in vector control;*
- *Measures for capacity building and filling possible legal, regulatory, institutional gaps.*

The methodological approach adopted is based on the concept of a participatory approach, in consultation with all the actors and partners concerned by the PGP in the project's intervention zone, the Kara area. The study favoured this participative approach, which made it possible to integrate the opinions and arguments of the various actors as the project progressed. To achieve the results of the study, the following approach was adopted:

- 1) A bibliographical analysis of the legal regulatory texts governing the management of pesticides and the environment in Togo.
- 2) A review of the environmental and social safeguard policies established by the African Development Bank, in particular SO4: Prevention and control of pollution, greenhouse gases, hazardous materials and efficient use of Integrated Safeguard System (ISS) resources, which triggers the development of a PPMP.
- 3) An understanding of the components of the SMP and its potential activities;
- 4) Information from other partners and other reliable sources, as well as on the experience gained by the consultant in carrying out similar studies in the country and in the sub-region, not forgetting references on other studies carried out in the same direction.
- 5) Site visits and interviews using questionnaires, interview guides with beneficiaries, local officials and resource persons in the different localities concerned.

The cost of implementing the PPMP in the agropole of the Kara basin is estimated at one hundred and ninety-five million (195,000,000) CFA francs.

## **2. OVERVIEW OF THE STAPLE CROPS PROCESSING ZONE PROJECT IN TOGO (PTA-Kara)**

### **2.1 Context and Justification of the Study**

Despite the important contribution of agriculture to the country's GDP (estimated to be over 40%), and a source of livelihood to more than 60% of the population, and 87% of the entire workforce, often family workers, whose main activity is agriculture, Togo's level of investment in the agricultural sector remains low compared to the sector's needs. Private investment is very insufficient compared to the needs and potentialities of the agricultural sector, due in particular to lack of incentives, insufficient infrastructure and the weak structuring of the agricultural sectors.

Low levels of investment and supervision largely explain the low agricultural productivity and insufficient access to domestic (high share of imported products in domestic demand) and external (exports) markets. To remedy this and take up this challenge, the government of Togo, through various policies and programmes to revive the sector, has included agriculture and processing as the second of the three areas identified in the NDP. Thus, it has drawn up the Strategic Plan for the Development of Agropoles 2017-2030, created the Agency for the Promotion and Development of Agropoles (APRODAT), which will promote the implementation of a programme of ten agropoles, and launched the Agricultural Incentive and Financing Mechanism (MIFA).

The implementation of the Togo Staple Crops Processing Zone Project, (PTA-Kara), based essentially on the strategic orientation framework at national level materialised by the National Development Plan (PND), the Government's National Strategic Plan for the period 2020-2025, the National Programme for Agricultural Investment, Food and Nutritional Security (PNIASAN) and the National Quality Policy (PNQ), must necessarily comply with the legislative, regulatory and institutional framework defined for integrated pest management and the safe use of pesticides. The respect of this framework added to the consideration of environmental and social concerns and the respect of environmental safeguard measures established by Togo's partners, the World Bank and the AfDB, the achievement of Sustainable Development Objectives (SDOs) will not be a utopia.

Indeed, SO4 Prevention and Control of Pollution, Greenhouse Gases, Hazardous Materials and Efficient Use of Resources of the Integrated Safeguard System (ISS) requires consideration of pesticide use and management for projects involving the use of pesticides through the implementation of an Integrated Pest Management Program or Integrated Vector Management.

### **2.2 Objective of the SCPZ Project in Togo**

The overall objective of the Kara Staple Crops Processing Zone Project (PTA-Kara), is to contribute to agricultural growth that can reduce poverty, create jobs and reduce the country's dependence on food imports.

The specific objectives are :

- (i) facilitate private investment in key value chains through support policies, governance and incentives;
- (ii) promote priority value chains by setting up the infrastructure of production and processing; and
- (iii) strengthening the capacities of actors in the sectors major players, especially producers.

## **2.3 Description of the Project Components including the main Activities**

Project preparation was largely informed in the framework of several PPF-funded studies, including the following: (i) Studies on priority agricultural sectors, potential markets, and the business environment; (ii) Study on the development of the agro-industrial park master plan; (iii) preliminary design study of dams, irrigation schemes, DWS and electrification of 6 villages; (iv) Detail design study of Agro-park electrification and access to the ICT network. These studies underpinned the design of this pilot project, which is developed as the first Staple Crops Processing Zone Project in the Kara region and in the country. It includes measures to support political, regulatory and institutional reforms with a view to attracting private investment, as well as measures to improve rural infrastructure in the project area and build the capacities of stakeholders in priority areas in terms of import substitution (rice, maize, soybean, broiler meat) and exports (cashew nuts and sesame).

At the institutional level, several measures in favour of private investment were planned under the project, including: 1) Capacity building of the Agropoles Promotion and Development Agency of Togo (APRODAT), established by Decree No. 2018-036/PR of 27 February 2018 to achieve the objective of implementing ten agropoles in the next 15 years; 2) Support for the future semi-public company for the promotion and management of the Kara Agro-Park, to promote private investment in agro-processing and input supply, and agricultural services; and 3) Improvement of the regulatory and institutional framework for private investment in agribusiness, in particular through the operationalisation of land reform voted by the National Assembly on 5 June 2018.

### **Component A: Support Policy, Governance and Incentive Measures**

#### ***Sub-component A1: Improvement of the policy, regulatory and operational framework***

- Technical assistance for the preparation of instruments for implementation of the Land Code (voted by the National Assembly on 5 June 2018), the specifications of the Agro-park management company and operationalization of the single window
- Support for the development of a legal, regulatory and operational framework for the Strategic Environmental and Social Assessment (SESA)
- Support for the national departments responsible for quality, standards and meteorology (facilities, training) at the Ministry of Industry
- Technical assistance for the implementation of private investment promotion measures in the Agro-park (including instruments and incentives), financial and management procedures and support for project management (APRODAT)
- Convening of an investment promotion forum for the PTA

#### ***Sub-component A2: Establishment of the SCPZ governance system***

- Institutional support for APRODAT's capacity building (staff, legal, technical and management assistance, training, etc.)
- Support for the preparation of the specifications of the Agro-park management company, its recruitment (CAT) and monitoring of performance quality
- Feasibility study for two new Agro-parks (OTI and Haut Mono regions)

#### ***Sub-component A3: Strengthening state and non-state public institutions***

- Support for non-financial institutions (computer and laboratory equipment and training): research institutes (Togo Institute for Agronomic Research (ITRA)), consulting (Technical Advice and Support Institute (ICAT)), training (CIDAP, INFA-Tové), Technical Advice and Support Institute (ICAT), universities, etc.) and seed control/certification.
- Support for financial institutions: Establishment of a risk insurance fund, procurement of equipment (computer hardware and software), and capacity building for banks and financial institutions (including in agribusiness)



## **Component B. Infrastructure for Processing and Accessing Agricultural Inputs and Services**

### ***Sub-component A3: Agro-park development infrastructure***

- Architectural, detailed engineering design/bidding documents studies and supervision of construction work;
- Site development works & roads and sundry networks (roads, drinking water supply, sanitation, electricity, telecommunication, fencing, etc.); drinking water supply station, water treatment, etc.
- Construction of buildings: (i) administrative and residential block; (ii) services block (training centre, conference centre, laboratories, etc.); (iii) socio-collective infrastructure block (school, health centre, hotel, etc.); (iv) etc.
- Agro-park electricity supply (CEET) and fibre optic telecommunication works. *Installation of 4,302 kW of solar energy for lighting, processing, drying and packaging of staple food crops to be financed under GCF financing*
- Assistance for the establishment of a business incubator (provider)

### ***Sub-component B2: Infrastructure for aggregation and access to agricultural inputs and services***

- Establishment of basic infrastructure for 10 Agricultural Transformation Centres (ATCs) located in 10 village centres (Figure 1) covering the three agricultural production areas (irrigated, lowlands, rain-fed), under the AfDB and GCF: *Support access to finance for smallholder farmers to invest in drip irrigation technology powered by solar pump (1,018.25 kW installed capacity), which will support horticulture and market gardening of vegetables and fruits including other cash crops in at least 15,428 ha.*
- Technical studies and supervision of the construction of ATCs
- Construction works on 10 ATC (harvest storage stores, input storage hangars, cooperative offices)
- Procurement of agricultural, cleaning and logistical equipment
- Detailed preliminary design study of the main road (100 km) and secondary roads (50 km):
- Work on the rehabilitation of roads (100 km) including ancillary structures
- Control and supervision of rehabilitation works on the main road

### ***Sub-component B3: Support infrastructure for agricultural production***

- Detailed engineering design/bidding documents studies for three minidams and irrigated areas (1,500 hectares)
- Supervision of the construction of two mini-dams (Vol>15 Mm3)
- Full technical and economic studies on the B9 dam with irrigated areas
- Construction of two mini-dams for agricultural use (potential of 1,500 hectares) and industrial use (4,000 - 5,000 m3/day for the Agro-park).

### ***Sub-component B4: Climate resilient agricultural (CRA) practices, technologies and innovation adoption among smallholder farmers:***

- *Under this GCF financed activity, the programme will focus on agricultural practices that enhance resilience to climate change in the region. The program will therefore invest in the promotion and use selected CRA practices including the deployment of climate-resilient rice, maize, coffee, potato, mango and cashew varieties, including seed production and multiplication, in collaboration with the National Food Crop Research Institutes in the respective countries.*
- *Furthermore, the program will assist farm households to create sustainable managed forests (about 10,000 ha) for income generation from woodlot, cashew nuts, mango and coffee orchards for carbon sequestration.*

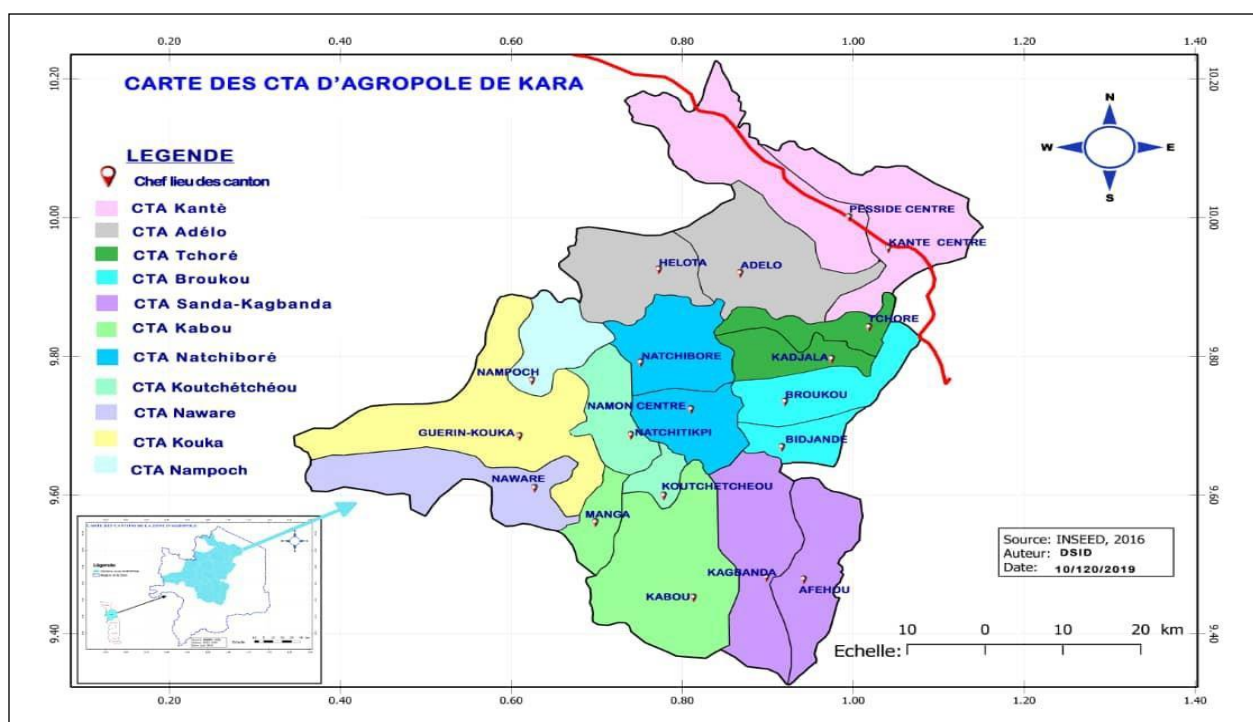
### ***Sub-component B5: Deploying low-carbon energy technologies***

*The focus of this activity is to specifically reduce GHG emissions in the agricultural value chains in the project, through the use of low carbon energy sources. This will involve the installation of 8 MW of renewable energy from biogas generation or about 18,996 m<sup>3</sup> of biogas digester to treat livestock manure and produce biogas for heating or power generation. The energy provision will support processing of produce, powering of cold storage facilities where applicable to ensure that farmers can offer their produce with the required market standards. The energy will also provide them with opportunities that will help them diversify their sources of income.*

## 2.4 Description of the Agricultural Transformation Centres (ATCs)

In order to facilitate access to technologies, advisory support, inputs and resources on the one hand, and to group, sort and package agricultural products on the other, it is planned to punctuate the production area with rural processing centres (CRTs), also known as agricultural processing centres (APCs).

The agricultural processing centre (APC) is a geographical area grouping together one or two cantons, depending on the case, and thus becomes a technical division or a technical supervision unit within the framework of the pilot agropole of the Kara basin. The entire area of influence of the Kara pilot agropole, covering four (4) prefectures (Dankpen, Bassar, Doufelgou and Kéran) and extending over nineteen (19) cantons, is divided into eleven (11) APCs as shown in Figure 1.



stakeholders involved.

The APC is also designed to be a multifunctional platform. It will have structures and infrastructure to enable grassroots actors to strengthen and/or improve their capacity. Indeed, the lack of infrastructure for storing agricultural inputs and crops at the community level is respectively one of the causes of limited access to inputs and post-harvest losses. Difficulties in crop aggregation largely explain the vulnerability of farmers to fluctuations in agricultural commodity prices. For this



reason, ATCs will be set up as essential relays between the private sector, particularly in the agro-park, and producers in the three agricultural zones (irrigated, lowland and under-rainfall).

The Kara Agropole project area covers an area of about 165,000 ha (the equivalent of a circle with a radius of about 20 km), i.e. less than 15% of the area of the Kara Administrative Region.

The boundaries of this perimeter are as follows:

- On the east side: the Kara Forest, the Manda Forest and the Défalé Mountains.
- On the north side: the southern confines of the Kéran National Park.
- On the West side: the National Road N°17 (N17) linking Guérin-Kouka to Kabou.
- On the South side: the National Road N°19 (N19) linking Kabou to Kara.

The area thus delimited corresponds to the alluvial plain of the Kara and its tributaries "Niantin" (left bank) and "Mabo" and "Nangboa" (right bank), with an altitude varying from 250 m (upstream) to 150 m (downstream), i.e. a very slight slope of around 0.3%.

However, the zone of influence of the agropole can extend well beyond these limits, particularly on the western side, where good land is available, but the distances from the Agro-Park site, located at the Village of Broukou / Canton d'Alloum, become constraining.

Administratively, four of the seven prefectures of the Kara Region are within the perimeter of the zone: Doufelgou, Kéran, Dankpen and Bassar.

There are 19 cantons concerned:

- Four in the Prefecture of Doufelgou: Tchore, Kadjalla, Aloum and Léon.
- Four in the Prefecture of Kéran: Helota, Atalote, Pesside and Kande.
- Seven in Dankpen Prefecture: Guérin-Kouka, Naware, Natchitikpi, Nampoch, Namon, Koutchitchéou and Natchibore.
- Four in the Prefecture of Bassar: Manga, Sanda-Afohou, Kabou and Sanda-Kagbanda.

Situated straddling the prefectures of Doufelgou, Kéran, Dankpen and Bassar, the area where the pilot agropole of Kara is located enjoys several natural assets (climate, relief, topography, hydrography) and has some infrastructures which, if reinforced, will allow a harmonious development of the activities of production, processing and marketing of agricultural products in the locality (Figure 2).

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**Figure 2: Map of the Kara agropole project area**  
 Source: IDEA Consult, Pest and Pesticide Management Plan, PRODAT 2018

### **3. GENERAL INFORMATION ON PLANT PRODUCTION IN THE REGION**

#### **3.1. Types of Production**

The report on the establishment of the reference situation and the implementation of the monitoring and evaluation system in the pilot agropole of Kara (MAEH/DSID, October 2017) shows that, at the regional level, agricultural production is dominated by cereals (maize, sorghum), tubers (cassava and yam) and legumes (groundnuts, beans and soya). Depending on the types of combinations practised under the different crops (pure crop or combination of crops), yields vary from one prefecture to another.

The same study revealed that cereal yields (maize, sorghum and millet) generally observed are less than one (01) tonne per hectare except in Doufelgou and Dankpen prefectures. As for rice, the average yield is about 1.5 t/ha. For tuber crops, yields vary from 4 t/ha for cassava to 7 t/ha for yam. However, in Bassar and Dankpen prefectures the average yam yield exceeds 10 t/ha. Overall, legume and oilseed yields are around 0.5 t/ha.

The most important productions in Kara Region, according to their national position in terms of cultivated areas, are fonio (54.8%), groundnuts (34.6%), sorghum (29.1%), millet (26.5%), yam (25.6%), soya (22.2%). There has been an increase in the share of cultivated areas except for fonio (a significant relative drop from 79.3% to 54.8% while maintaining its relative preponderance at the national level) during the 2010-2016 period and millet (almost stagnation of areas at 26%).

In terms of rainfall, the average annual rainfall in the Kara region is around 1200 mm/year, of which 50% is generally obtained during the rainy season (June, July and August). The cultivation system in the Kara region is predominantly rainfed. Thus, crops are mainly cultivated during the rainy season: from April/May when the first rains occur until October/November when the harvests are finalized. During the wet season, all crops are cultivated and the staggered planting/sowing system is applied in order to fully exploit the seasonality of the water potential through the use of various types of seed (early, seasonal or late).

In other words, around March-April farmers start to introduce less water-demanding crops such as cowpeas, then in May they start millet and in June it's maize, sorghum. Furthermore, towards the end of June and mid-July, it's rice, the most water-demanding crop. During the dry season, market gardening is practiced in wadis and rivers (small wadis) or water reservoirs (artificial hill lakes). Many crop associations are made at the Kara level during the wet season, when water is sufficiently available, we speak of maize / rice / yam, maize / sorghum, tomato / corn or vegetable crops such as cabbage / guinea sorrel and okra / corn / sesame / vegetables in addition to monocultures such as rice, maize, pepper, groundnuts, cowpea, tomato. The combination of crops aims at the total exploitation of the land to compensate for the lack of water potential at certain times of the year but could, on the other hand, have undesirable effects such as :

- soil depletion ;
- the spread of pests (maize caterpillars that could attack other crops such as sorghum);
- reduced yield due to inter-plant competition.

This crop combination system counters conventional and beneficial crop rotations such as the introduction of legumes at the head of the crop rotation before cereals. Nevertheless, there are a few small plots that have been developed or used for demonstration purposes that grow legumes (e.g. mucana) following rice cultivation.

The use of fertilizers according to the development of the crop cycle and the phytosanitary treatment are not regularly applied, but are generally used as an amendment or a cure.

For rice cultivation, most producers exploit the lowlands during the rainy season. The lowlands are U-shaped, so those of Kara are more favourable for rice cultivation because of their greater

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water retention capacity and natural partial water control (e.g. compared to those of the Plateaux region, which are V-shaped). Most of these lowlands are not developed except those managed under the PDPR-K project, which now cover 350 Ha.

In the Kara region, we are still in the phase of partial water control. The plots with total water control are very small. The analysis of agricultural statistics from 2000 to 2016 revealed the average areas/productions per food crop and per prefecture are as follows:

- Cereal crops (maize, sorghum and millet): Kozah Prefecture is first for maize/sorghum together (22%). Dankpen is well positioned in maize, Doufelgou has a large sorghum area, while Bassar is largely preponderant in millet cultivation (30% of the area and regional production).
- Paddy rice: Binah prefecture predominates at the regional level with almost 35% of the area and production. Kozah is also among the prefectures most involved in this crop with 25% of the regional contribution.
- Tubers (yam and cassava): Bassar prefecture is a flagship area with a yam/sorghum combination that accounts for a third of the regional production/area. Assoli is highly developed in cassava (37% of production) and Dankpen succeeds Bassar in terms of yam with 27% of production and 28% of the regional area.
- Pulses: beans are mainly grown in Kozah and Keran, while groundnuts are the main crop in Dankpen prefecture (40% of regional production). Bassar ranks second in the region and contributes a fifth of the production.

There are no data for other crops, but it should be noted that the prefectures of Assoli and secondly Bassar, have the largest share of cashew nut production. In addition, sesame and cotton are widespread in Doufelgou. Fonio is practised in Doufelgou and Kéran, while soya is widespread in Dankpen and to a lesser extent in Bassar and Kozah prefectures.

As far as market gardening is concerned, it is concentrated in the prefecture of Kozah. Tomatoes, chilli peppers, okra, green beans and guinea sorrel are the main crops. These crops are characterised by low yields, thus greatly reducing their contributions in terms of volume, and this is mainly due to the insufficient availability of water throughout the plant cycle. The previous results can be summarised to provide a cultural portrait of the different prefectures as presented in Table 1 and the map of production areas (Figure 2).

**Table 1: Cultural profile of Kara Region**

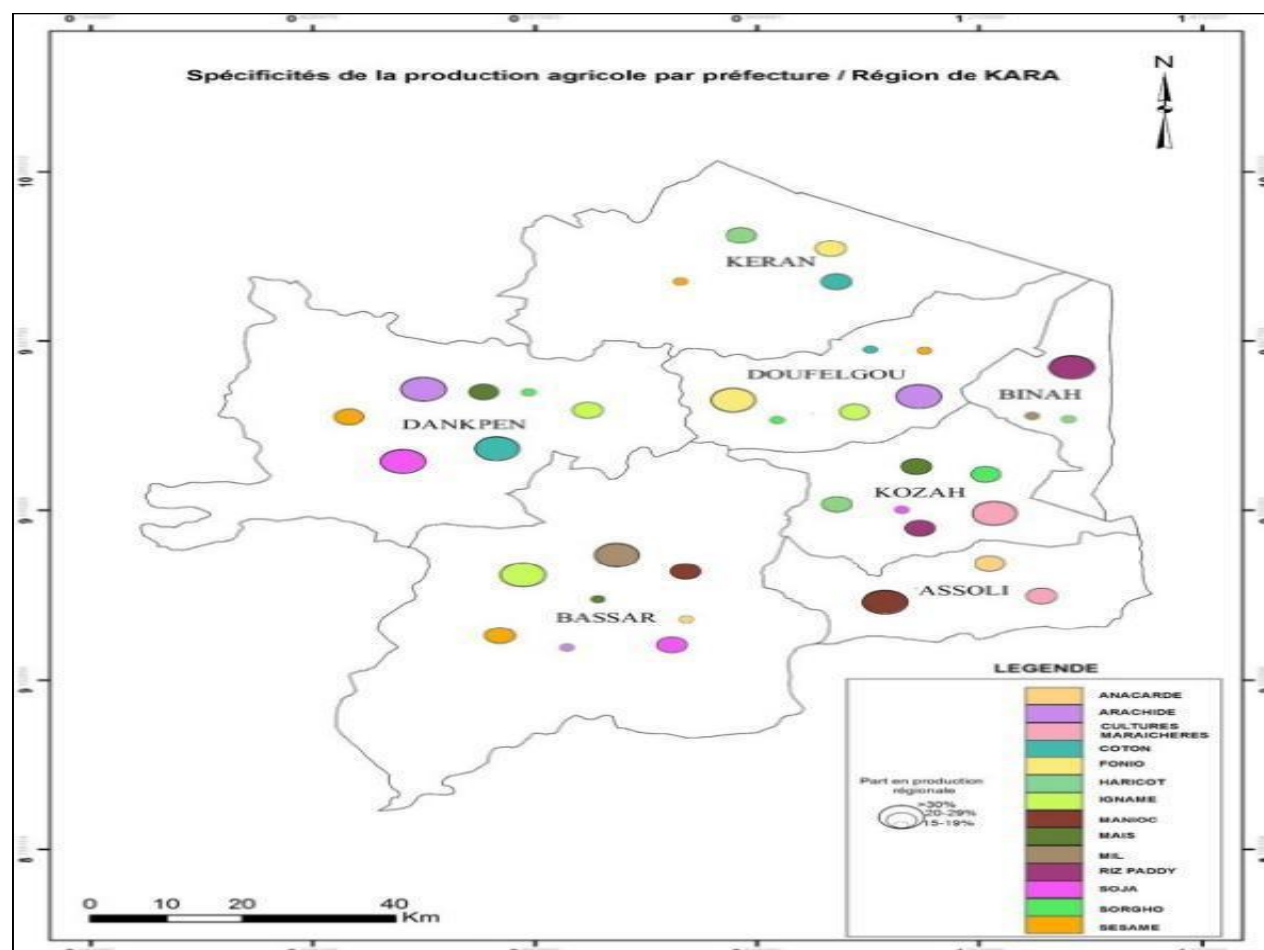
Cultures	Kozah	Binah	Assoli	Bassar	Dankpen	Keran	Doufelgou
Corn	xx			x	xx		
Sorghum	xx				x		x
Mil		x		xxx			x
Paddy rice	xx	xxx			x		
Yam				xxx	xx		
Manioc			xxx	xx			
Bean	xx	x				xx	
Peanut				xx	xxx		
Cashew nut			xx	x			
Sesame				xx	xx	x	x

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Cotton					XXX	XX	X
Fonio						XX	XXX
Soy	X			XX	XXX		
Vegetable Crops	xxx	X	XX				

Source: Diagnostic report, IDEA Consult, Plan for the Management of Pests and Pesticides, PRODAT 2018

xxx: More than 30% of regional production  
xx regional production



**Figure 3: Map of the main production areas by crop**

Source: IDEA Consult, Pest and Pesticide Management Plan, PRODAT 2018

### 3.2. Region's Contribution to National Production

The most dynamic productions are those whose contribution in relative terms to production is greater than the allocated areas. The most dynamic crops are cassava and paddy rice:

- Cassava production in the Kara region now contributes 58% of total national production, while the share in terms of area is 11%, revealing high productivity.
- Paddy rice production accounts for 22% of production, while the area is only 13% of the total, which shows notable productivity, especially since it is rainfed rice grown mainly in the lowlands.
- Yam produces 28% of the national production with areas representing 25% of the total.

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Stable productions are those that maintain their production with a comparable extension of the areas.

- Sorghum has seen an increase in the area allocated to sorghum from 22% to 29% of the national area, with production increasing from 18% to 22% of national production.
- Groundnut production has been progressing steadily since 2000: 20% of national production and 35% of the total groundnut area.
- The same is true of soya, with 22% of the land area and 11% of national production.
- The same is true for maize, which accounts for 10% of the area and 9% of national production.



## **4. POLICY, LEGAL AND INSTITUTIONAL FRAMEWORKS FOR MANAGING PLAGUES IN TOGO**

### **4.1. Policy Framework**

Togo's political framework for plagues management is derived from the following high level policy documents: the UEMOA Agricultural Policy (PAU), the New Common Agricultural Policy of ECOWAS (CAP/ECOWAS), the Agricultural Policy of Togo, the ECOWAS Strategic Orientation Framework (COS - 2025), the PRIASAN 2016-2020, the National Environment Policy (PNE), the National Environment Action Plan (PNAE), the National Plan for the implementation of the Stockholm Convention on Persistent Organic Pollutants, Togo's Agricultural Policy Document (DPAT) 2015-2030, and the National Investment Programme for Agriculture and Food and Nutritional Security (PNIASAN 2016 2025).

#### **4.1.1. International Policy Framework**

##### **4.1.1.1. *UEMOA Agricultural Policy (PAU)***

The UEMOA Agricultural Policy (PAU) was launched in 2000, with the overall objective to make a sustainable contribution to meeting the food needs of the population, the economic and social development of the Member States and to reduce poverty in rural areas. The PAU's three main areas of intervention are: (i) adaptation of production systems and improvement of the production environment; (ii) deepening of the common market in the agricultural sector and management of shared resources; and (iii) integration of national production into the regional and world markets. The scope of UEMOA's Agricultural Policy includes agriculture, livestock, fisheries and forestry, taking into account the criteria of sustainability, transparency in agricultural markets and the improvement of farmers' living conditions, without forgetting the adaptation of production systems, the improvement of the production environment and the management of shared resources which constitute solutions for an agriculture that respects human health and the environment.

##### **4.1.1.2. *ECOWAS Strategic Orientation Framework (COS - 2025)***

The Strategic Policy Framework takes into account factors such as the fight against hunger and malnutrition, adaptation to climate change that affects agricultural performance, the occurrence of climate risks and thus their impact on income and food security. Other factors include, strengthening the resilience to food and nutrition insecurity of vulnerable households and communities, the promotion of employment, vocational training and securing the status of producers, agricultural workers, women and youth, the systematic integration of gender in agricultural development policies and programmes, as well as an integrated framework for the definition of the five-year PRIASANS.

##### **4.1.1.3. *Comprehensive African Agriculture Development Programme (CAADP)***

CAADP is the agricultural component of the New Partnership for Africa's Development (NEPAD), which aims to encourage agriculture-led development in order to achieve and contribute to the achievement of the Sustainable Development Goals (SDGs), among which, the fight against climate change and environmental degradation have a prominent place. Following the approval of CAADP, one of whose specific objectives is to achieve an average annual growth rate of 6% by 2015, the Regional Economic Communities adopted it as a vision for restoring agricultural growth, food security and rural development in Africa.

#### *4.1.1.4. Regional Agricultural Investment and Food and Nutritional Security Programme (PRIASAN 2016-2020)*

The Regional Agricultural Investment Programme for Food and Nutrition Security was adopted on 12 December 2016, during the meeting of the Specialized Ministerial Technical Committee on Agriculture, Environment and Water Resources in Abuja, Nigeria.

This programme, which is part of the implementation of ECOWAP and the COS for 2025, contributes in a sustainable way to meeting the food and nutritional needs of the population, to economic and social development and to reducing poverty in the Member States, as well as inequalities between territories, areas and countries (general objective of ECOWAP).

Among the activities linked to the specific objective of "contributing to increasing productivity and agro-sylvo-pastoral and fisheries production through diversified and sustainable production systems and reducing post-production losses" are the preservation of forest areas and the promotion of sustainable exploitation techniques.

#### *4.1.1.5. Agricultural Development Policy Statement (ADPS)*

It was drawn up for the period 1993-1997 and then readjusted for the period 1996-2000. This DPDA, sponsored by the development partner community, focused on three main objectives below: (1) intensification and diversification of agricultural production; (2) poverty alleviation through improved rural incomes; and (3) environmentally sustainable agricultural growth.

### **4.1.2. Togo's Agricultural Policy**

Adopted in 2015, it constitutes the strategic reference framework for interventions in the agricultural sector for the period 2016-2030. It focuses on (i) sustainably increasing production and the creation of added value in the agricultural sector; (ii) improving access to factors of production and modernising production infrastructures; (iii) promoting technological innovation, vocational training and ensuring the dissemination of the best techniques to accompany the transformation of agriculture; (iv) improving governance, the institutional framework and developing support instruments adapted to the new vision integrating climate change.

#### *4.1.2.1. National Environment Policy in Togo (PNE)*

Adopted by the Government on 23 December 1998, its aim is, on the one hand, to serve as a national policy framework for the promotion of rational management of natural resources and the environment (in the areas concerned) and, on the other hand, to consolidate the framework of the country's economic recovery measures in order to put development on an environmentally sustainable footing, with alternative methods of using pesticides in agriculture.

#### *4.1.2.2. Agricultural Policy Note (NPA)*

The Agricultural Policy Note adopted in December 2006 contributes to the implementation of Axis 2 of PRSP-I and has the main objective of increasing farmers' income and contributing to the improvement of living conditions of rural people, in conditions of sustainable development, with a special focus on the poorest or most vulnerable populations (especially youth and women). More specifically, it aims to:

- to develop the capacities of all stakeholders in the agricultural sector;
- improving farm productivity and promoting sustainable agricultural development;
- reduce the rate of dependence on imports for food products;
- facilitate access to the promising market for agricultural products.



4.1.2.3. *Togo's Agricultural Policy Document 2015-2030*

Togo's Agricultural Policy Document was drawn up to replace the Agricultural Policy Note implemented over the period 2007-2011 and to which the National Agricultural Investment and Food and Nutritional Security Programme (PNIASAN) was attached. The vision of this document is: "A modern, sustainable and high value-added agriculture at the service of national and regional food security, a strong, inclusive and competitive economy generating decent and stable jobs by 2030". In its second strategic axis, the DPAT advocates the use of more appropriate techniques or technologies for the sustainable management of land and other natural resources (organic agriculture among others).

4.1.2.4. *National Pesticide Management Policy*

The National Pesticide Management Policy serves as a national policy framework for the promotion of rational pesticide management while enabling Togo to develop on an environmentally sustainable basis. Focused on integrated pest management, the programme has planned ways to considerably reduce the use of pesticides in the agricultural sector. These are :

- Axis 1: "Setting up programmes to reduce health and environmental risks";
- Axis 2: "Promotion of integrated pest management and alternative methods";
- Axis 5: "Strengthen networks for monitoring harmful organisms and the undesirable effects of pesticide use", it also serves as a reference framework for the GoT, importers and distributors of pesticides, treatment materials and protective equipment, pest control professionals, the food industry, pesticide users and public interest groups.

It is within this framework that public structures and institutions such as the Directorate of Plant Protection (DPV), the Togolese Institute for Agricultural Research (ITRA), the Institute for Technical Advice and Support (ICAT), the Higher School of Agronomy (ESA-UL) among others, with the technical support of partners, have carried out and are carrying out or are carrying out projects on alternatives to chemical pesticides in agriculture and in vector control.

4.1.2.5. *National Development Plan (PND) 2018-2022*

The National Development Plan (PND) 2018-2022 adopted in August 2018, with its three main strategic axes, the second of which is that of sustainable agriculture, respect for human health and the environment as a basis for economic growth.

4.1.2.6. *National Environmental Action Plan (PNAE)*

Adopted in July 2001, the aim of the National Action Plan for the Environment (PNAE) is to serve as a national policy framework for the promotion of rational management of natural resources and the environment in all areas, including agriculture.

Togo, in addition to the NAP, has developed a number of specific strategic documents related to the management of chemicals including pesticides, including:

- the National Implementation Plan (NIP) of the Stockholm Convention on Persistent Organic Pollutants (POPs) ;
- the National Profile to assess chemicals management infrastructure and capacity;
- the National Country Programme on Substances that Deplete the Ozone Layer (NCODP) ;
- the feasibility study for the establishment of a Pollutant Release and Transfer Register (PRTR).

The NIP and the NAWMP respectively aim to eliminate POPs including POPs pesticides and ODS including methyl bromide. The National Chemicals Profile assessed the infrastructure and capacity to manage chemicals. Furthermore, Togo has conducted a feasibility study for the establishment of a Pollutant Release and Transfer Register (PRTR), which is a coherent and integrated inventory of releases and transfers of pollutants, especially chemical pollutants, at the national level, intended to facilitate public participation in the environmental decision-making process and to contribute to the prevention and reduction of environmental pollution by toxic chemicals in order to protect human health. It shall periodically provide up-to-date and publicly available data on:

- discharges of certain pollutants into the air, water or soil;
- shipments of waste for recovery or disposal;
- transfers of pollutants in waste water.

The information provided also covers the origins of these emissions, their quantity and geographical distribution. PRTR data can be collected from point sources of pollution, such as factories, but also from diffuse sources, such as agricultural, artisanal, domestic or transport activities.

#### 4.1.2.7. National Agricultural Investment and Food and Nutritional Security Programme (2017-2026)

The National Programme for Agricultural Investment and Food and Nutritional Security (PNIASAN / 2017-2026), validated in December 2018, is designed for modern, sustainable and high value-added agriculture at the service of national and regional food and nutritional security.

Thus in this Programme, it is foreseen: the integration of vulnerability to climate change for the development of sustainable agriculture with high environmental value integrating an ecological management of pests and pesticides, in connection with the national REDD+ strategy; also, good governance of natural resources which are affected by many degradation factors resulting from irregular climatic conditions and activities.

#### 4.1.2.8. *REDD+ National Strategy Document*

The national REDD+ strategy document validated in 2019 integrating the Pest Management Plan (PGP) is developed within the framework of the Strategic Environmental and Social Assessment (SESA) of the national REDD+ strategy in Togo.

The main objective of this document is to provide guidance on how to prevent undesirable health and environmental effects of pesticides in pest management, how to mitigate the impacts of pests and pesticides on the human and biological environment, and how to provide an equally effective pest control framework.

Thus, accompanying measures and actions are proposed that could reduce the negative effects that could be generated during the implementation of the PGP, through the adoption of good agricultural practices while minimising the use of pesticides of synthetic chemical origin. These measures include the following: (i) identification of all potential environmental and health risks related to the use of pesticides in relation to the interventions envisaged under the Plan, (ii) proposal of an environmentally sound pest management plan, (iii) definition of institutional arrangements for monitoring and surveillance to be made before, during and after implementation of the Plan.

#### 4.1.2.9. Projects

The government of Togo, in its policy of promoting ecological and sustainable agriculture, has taken into account in these different Projects and Programmes, the ecologically sound management of pests and pesticides. As Projects and Programmes, we can cite: the Support

Project for Agricultural Development in Togo (PADAT) :

- the Agricultural Sector Support Project (PASA) ;
- The West Africa Agricultural Productivity Programme-Togo Project (WAAPP);
- the Lower Mono River Valley Hydro-Agricultural Development Project (PBVM) ;
- the Agricultural Land Development and Rehabilitation Project in the Mission Tové area (PARTAM) ;
- the Kara Rice Production Development Project (PDPR-K) ;
- the Integrated Rural Development Project (PDRI) of the Mô Plain;
- the Djaqlé Plain Development Project;
- the Rural and Agricultural Development Programme (ProDRA) ;
- the Oti plain development project ;
- the National Project for the Promotion of Rural and Medium-Sized Entrepreneurship (PNPER) ;
- the Project for the establishment and operationalisation of planned agricultural development zones (ZAAP) ;
- the Agropoles Development Project in Togo (PDAT-Project Agropole).

In order to be part of the national REDD+ strategy, all these projects, programmes and plans in their implementation take into account the environmental component in its preservation, through agriculture that is as sustainable as possible. Thus, for the implementation of this component, another project which is one of the components of the Agricultural Development Support Project in Togo (PADAT) has been set up. This is the Agricultural Farming Systems Adaptation to Climate Change in Togo (ADAPT) Project. The same is true for the PPAAO in the implementation of its **sub-component 1.1: Harmonisation of national texts with Community regulations on pesticide management.**

However, we remain convinced that, with these projects and programmes, efforts still need to be made in the management of plagues and pesticides, as we are dealing with such a vast field, taking into account the life cycle of pesticides, from the production of pesticides, to their use and disposal, to pesticide resistance.

With regard to compliance with the FAO Code of Conduct, since its creation in 1945, the UN agency has worked tirelessly to reduce poverty and hunger by promoting agricultural development, improved nutrition and the search for food security, access for all people at all times to sufficient food for an active and healthy life.

It is through this form of assistance that the FAO has been intervening in Togo since 25 June 1980, in various projects, programmes and policies, including that relating to food security. If the theme of "food security" is of particular interest due to climate change, it is nevertheless true that the respect of the FAO code of conduct to achieve this security is of particular interest.

## **4.2. Legal Framework**

### **4.2.1. International Legal Framework**

The protection of the environment and human health are among the major concerns of the government of Togo. Within this framework, it has signed and/or ratified several international legal instruments (conventional or non-conventional) concerned with the management of plagues and pesticides.

These include :

- Order No. 79-35 of 2 October 1979 authorising the ratification of the Phytosanitary Convention for Africa, signed in Kinshasa on 13 September 1967;
- Phytosanitary Convention for Africa, signed on 20 December 1979 ;

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- African Convention on the Conservation of Nature and Natural Resources, signed in Algiers on 15 September 1968, and entry into force on 20 December 1979 by decree n°80-27 of 26 Feb. 1980 ;
- Vienna Convention on the Protection of the Ozone Layer, signed in 1985 [accession on 25 February 1991];
- Decree n°80-26 of 26 February 1980 ordering the publication of the Phytosanitary Convention for Africa signed in Kinshasa on 13 September 1967;
- International Plant Protection Convention (IPPC), accession on 6 January 1986 ;
- Law No. 86-03 of 6 January 1986 authorising Togo's accession to the International Plant Protection Convention, signed in Rome on 6 December 1951; Convention on Biological Diversity (CBD), signed on 12 June 1992 [ratified on 4 October 1995 and entered into force on 2 January 1996] ;
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, signed on 9 September 1999, accession of Togo, 23 June 2004;
- Cartagena Protocol on Biosafety to the CBD, signed on 24 May 2000 and ratified on 22 July 2004 and entered into force on 30 September 2004;
- Stockholm Convention on Persistent Organic Pollutants (POPs), signed on 23 May 2001 and ratified on 22 July 2004;
- Basel Convention on the Transboundary Movements of Hazardous Wastes and their Disposal and its Protocol on Liability and Compensation for Accidents Resulting from Transboundary Movements of Hazardous Wastes and their Disposal, accession 2 July 2004;
- Strategic Approach to International Chemicals Management (SAICM) adopted in Dubai in February 2006;
- International Code of Conduct on Pesticide Management adopted in June 2013 by resolution 3/2013, amending the International Code of Conduct on the Distribution and Use of Pesticides of 1 November 2002;
- Revised FAO Code of Conduct on the Use of Pesticides: It was adopted in November 2002 in Rome, Italy. The objectives of the code are to establish voluntary rules of conduct for all public and private bodies concerned with, or intervening in, the distribution and use of pesticides, in particular where national legislation regulating pesticides is non-existent or insufficient: PRODAT will have negative impacts on the environment because of the use of different inputs. It will have to prohibit the import and use of hazardous chemicals not registered in Togo and do everything possible to enable Togo to meet its commitments to the international community.

These legal texts, including the conventions mentioned above, have a common objective, which is to protect human health and the environment against POPs (aldrin, dieldrin, chlordane, endrin, heptachlor, hexachlorobenzene, mirex, toxaphene, DDT and PCBs) and hazardous pesticides, all for sustainable agriculture.

The PPMP thus developed must comply with the guidelines of these laws and conventions. Thus, on the one hand, control measures such as integrated pest control measures will be proposed, and on the other hand, alternative products will be proposed, which are always control products, but the least polluting possible, or those of biological or botanical origin whose danger to human health and the environment is of no consequence.

#### **4.2.2. Regional Legal Framework**

The regional Phytosanitary legislative and regulatory instruments to which Togo is a party are proof of the country's commitment to better management of pests and pesticides. These instruments include

- Resolution No. 8/34/CM/99 of 16 December 1999 on the Common Regulations of the CILSS Member States on the Registration of Pesticides;
- Regulation n°C/REG.3/05/2008 of 18 May 2008 harmonising the rules governing the approval of pesticides in the ECOWAS region;
- Regulation n°04/2009/CM/UEMOA of 27 March 2009 on the harmonisation of rules governing the approval, marketing and control of pesticides within WAEMU;
- Regulation C/REG.4/05/2008 of 18 May 2008 harmonising the rules governing quality control, certification and marketing of plant seeds and seedlings in the ECOWAS region;
- Regulation C/REG.21/11/10 of November 2010 on the harmonisation of the structural framework and operational rules on food, plant and animal health safety in the ECOWAS region;
- the Implementing Rules of 2 June 2012 relating to the attributions, organisation and functioning of the West African Pesticides Registration Committee (COAHP);
- Regulation C/REG.13/12/12 relating to the quality control of fertilisers in the ECOWAS region (69th ordinary session of the Council of Ministers, Abidjan 30 November - 2 December 2012);
- The Implementing Regulation ECW/PEC/IR/02/03/16 relating to the labelling and tolerance limits of fertilizers marketed in the ECOWAS area (Abuja, 31 March 2016);
- Implementing Regulation ECW/PEC/IR/05/12/16 on the Terms of Reference, Organisation and Functioning of the West African Fertilizer Control Committee (Abuja, 15 December 2016);
- the Implementing Regulation ECW/PEC/IR/06/12/16 relating to the Manual of Fertilizer Analysis in the ECOWAS region (Abuja, 15 December 2016);
- the Implementing Regulation ECW/PEC/IR/07/12/16 relating to the Fertilizer Inspection Manual in the ECOWAS region (Abuja, 15 December 2016).

All these common regulations whose aims are to : (i) protect people and the environment from the potential dangers of pesticide use; (ii) facilitate intra- and inter-state trade in pesticides through the establishment of regionally agreed rules and principles to dismantle trade barriers; (iii) facilitate timely and adequate access to quality pesticides for farmers; (iv) contribute to the creation of a climate conducive to private investment in the pesticide industry; and (v) promote public-private partnership, dealing in their entirety with pesticides as regards their experimentation, registration, marketing, use/handling, transport, control for a judicious chemical control practice, respectful of the environment, all within the framework of an integrated crop pest management approach in the Member States of the three ECOWAS/UEMOA/CILSS community spaces.

Moreover, these regulations have immediate applicability and automatically acquire the status of positive law and their transposition into the national law of each Member State is compulsory through publication in the Official Journal. This is the case of Regulation C/REG.3/05/2008 which was published in the Official Gazette of the Togolese Republic. However, it should be noted that in Togo, these various regulations are experiencing difficulties in their implementation due to the lack of additional texts relating to their application.

The Regional Strategy for the Promotion of Fertilizer in West Africa, a strategy adopted on 13 April 2006 by the Summit of ECOWAS Heads of State held in Abuja, aims at achieving productive agriculture through the promotion of fertilizer use. Its overall objective is to promote the increased and efficient use of fertilizers in order to sustainably improve agricultural productivity to ensure food security and fight against poverty in West Africa.



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All in all, the implementation of the Project will have to respect the provisions of the said Plan, in order to enable Togo to contribute to the achievement of its various objectives.

PRODAT is a modern project of intensive cultivation that will require the use of fertilizers in order to be a productive agriculture that takes into account the regional strategy of fertilizer promotion. However, as in the case of pesticides, provisions will have to be made so that the use of fertilizer is really effective and efficient for a sustainable agriculture, respectful of human health and the environment.

### 4.2.3. National Legal Framework

Togo has a national legal framework that provides a range of provisions for the management of pests and pesticides, the implementation of which contributes to the achievement of sustainable development (SDO) objectives. Among these provisions are the following:

- Togolese Constitution of 14 October 1992, which explicitly recognises the State's obligation to guarantee the right to a healthy environment in its Article 41, pesticides in their use and others would not be welcome.
- Law n° 96-007/PR of 3 July 1996 on plant protection and its implementing texts.

Composed of 50 articles grouped in 5 main chapters, this law prohibits the import, manufacture, packaging or repackaging, storage, experimentation, use or placing on the market of any unauthorised or registered plant protection product. The aim of this law is to make the least toxic and least polluting pesticides available on the country's markets and to make them available to producers.

- Law No. 2004-020 of 30 September 2004 establishing the Order of Veterinary Doctors
- Framework Law on the Environment No. 2008-005 of 30 May 2008 sets the general legal framework for environmental management in Togo.

It aims to :

- preserve and sustainably manage the environment; to ensure an ecologically sound and balanced living environment for all citizens;
- create the conditions for rational and sustainable management of natural resources for present and future generations;
- establish the basic principles for managing, preserving the environment against all forms of degradation in order to enhance the value of natural resources, to fight against all kinds of pollution and nuisances; and,
- sustainably improve the living conditions of the population while respecting the balance with the surrounding environment.

It enshrines the conservation of the environment, the preservation of natural areas, landscapes, animal and plant species, the maintenance or restoration of ecological balances and natural resources, the prevention of risks, the limitation of activities likely to degrade the environment and cause damage to the health of people or their property, the repair or compensation of damage to the environment, the protection of natural resources and the environment in general as actions of general interest conducive to sustainable development.

- Law n° 99-002 of 12 February 1999 relating to animal health in the territory of the Togolese Republic aims essentially at :
  - providing Togo with an efficient legal framework in terms of animal health;
  - ensuring effective protection of animals against epizootic diseases;
  - regulating animal health in the territory of the Togolese Republic.

Under the terms of article 43 of this law, "health police actions must be carried out in compliance

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with the texts organising the protection of nature and the environment, in particular the environmental code. Penalties are provided for cases of infringement of the provisions of this law".

Other decrees have also been issued to regulate the pesticide sector in Togo. These are those relating to :

- placing on the market and making available to producers the least toxic and least polluting pesticides possible (Order n°24/MAEP/SG/DA of 30 October 1998);
- the professional approval required for importing, placing on the market, formulating, repackaging plant protection products and their uses by service providers (order n°03/MAEP/SG/DA of 20 January 2000);
- setting the amounts and procedures for recovering fees for the processing of applications for authorisations, approvals and registration of plant protection products (order n°27/MAEP/MEFP of 16 September 2004);
- setting the conditions for issuing the different types of authorisations for approval and registration of plant protection products in Togo (decree n°29/MAEP/SG/DA of 20 September 2004);
- the ban on the import and use of methyl bromide in Togo (order n°30/MAEP/SG/DA of 21 September 2004);
- the ban on the import and use of organochlorines in Togo (decree n°31/MAEP/SG/DA of 21 September 2004);
- the provisional authorisation for the sale of plant protection products (order n°34/MAEP/SG/DA of 20 October 2004);
- the creation, allocation, composition, organisation and operation of the national technical commission for veterinary medicinal products (order no. 45/MAEP/SG/DEP of 8 June 2005);
- the conditions for exercising the profession of wholesaler, distributor of veterinary products (decree n°73/MAEP/SG/DEP of 24 August 2005);
- setting the conditions for importing and removing veterinary medicinal products (order n°84/10/MAEP/SG/DEP of 24 September 2010);
- amending Order n°24/MAEP/SG/DA of 30 October 1998 creating, allocating and composing the Committee for Phytopharmaceutical Products (CPP) (Order n°86/10/MAEP/Cab/SG/DPV of 15 October 2010);
- the setting of conditions for issuing authorisations, approvals and registration of pesticides in Togo (decree n°106/15/MAEP/Cab/SG/DPV of 18 June 2015);
- the organisation and functioning of the National Pesticide Management Committee (inter-ministerial order n°068/16/MAEH/MERF/MSPS of 17 March 2016), a committee acting as a multi-sectoral, multi-institutional consultation framework within which any subject relating to pesticides and their management will be debated;
- the designation of fertiliser analysis laboratories (decree n°070-16/MAEH/Cab/SG of 21 March 2016);
- setting the amounts and methods of recovery of fees for the processing of applications for authorisation, approval and approval of pesticides in Togo (inter-ministerial decree n°087/16/MAEH/MEFPD of 12 April 2016);
- Setting the conditions for the exercise of import, export, distribution, manufacturing and testing activities of fertilizers in Togo (inter-ministerial decree N°077-17/MAEH/MEF of July 17, 2017);
- the allocation, composition and organisation of the commissions of the National Pesticides Management Committee (CNGP), including the Commission for Professional Approvals, Authorisations and Licences (CAPAL), the Control and Monitoring Commission (CCS) and the Toxicology vigilance Commission (CT) (decree n°129/17/MAEH/Cab/SG/DPV of 08 November 2017);
- the organisation and attributions of the National Fertilizer Quality Control Committee (CNCE) (decree n°013-17/MAEH/Cab/SG of 23 November 2017);
- the ban on the import and use of certain plant protection products in Togo (decree n°0078/18/MAEP/Cab/SG/DPV of 17 May 2018);
- the procedures for issuing prior authorisations for the importation of pesticides and

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- biopesticides into Togo (decree n°160/19/MAPAH/MEF of 03 October 2019); and,
- the ban on the import and use of Glyphosate and any product containing it (order n°183/19/MAPAH/Cab/SG/DPV of 16 December 2019);

In order to promote the import and use of bio-pesticides in Togo, a draft inter-ministerial decree has just been issued (inter-ministerial decree n°141/20/MAPAH/MEF of 22 September 2020), reducing by half the costs of obtaining professional approval for the import and distribution of bio pesticides as well as the costs of their registration, amending and supplementing the inter-ministerial order n°141/20/ MAPAH/MEFPD of 12 April 2016 setting the amounts and methods of recovery of fees for the processing of applications for authorisation, approval and registration of pesticides in Togo.

It should also be remembered that in addition to the pesticides in question, there are also persistent organic pollutants (POPs) regulated by the Stockholm Convention. By ratifying this Convention, Togo has committed itself alongside the international community in the fight to eliminate these substances. Thus, it has begun the process of its implementation, through inventory studies that led to the elaboration of the National Plan of Implementation of the said Convention and the Profile on the management of chemicals in Togo.

### 4.3. Institutional Framework

The institutional framework for pesticide management in Togo is governed by a number of ministries with their directorates and supervisory institutions, the private sector (distributors, producer organisations, agro-industry, etc.) and Associations, NGOs and Civil Society representatives.

#### 4.3.1. Ministry of Environment and Forest Resources (MERF)

The Ministry in charge of the Environment was created in 1987 by Decree No. 87-24/PR of 12 March 1987. The mission of this ministerial department is to draw up legislation on the preservation of the environment and the prevention and control of pollution and nuisances. It is also responsible for coordinating the development and implementation of government policy on the environment, sustainable development and nature protection.

The main central services of this Ministry involved in pesticide management are:

- the Environment Directorate ;
- the Water and Forestry Directorate ;
- the Directorate of Wildlife and Hunting.

The bodies and institutions attached to the MERF are :

- the Interministerial Commission for the Environment (CIE) ;
- the Office for the Development and Exploitation of Forests (ODEF) ;
- the National Environment Management Agency (ANGE) ;
- the National Commission for Sustainable Development (CNDD) ;
- the National Environment Fund (FNE).

#### 4.3.2. Ministry of Agriculture, Livestock and Rural Development (MAEDR)

The current organisation of the MAEDR is set by Decree No. 2012-006/PR of 7 March 2012, on the organisation of ministerial departments, which substantially amended Decree No. 2008-090/PR dated 29 July 2008. The structures and institutions involved in the management of pesticides within the MAEDR are :

- the Plant Protection Directorate (DPV), for control and capacity building in crop protection;



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- the Direction de la filière végétale (DFV), for the promotion of promising sectors;
- the Togolese Institute for Agricultural Research (ITRA) for research ;
- the Institute for Consulting and Technical Support (ICAT) for advice, support and extension ;
- the Central Agricultural Inputs Purchasing and Management Centre (CAGIA) for the national management of fertilisers, mainly N, P, K and Urea ;
- the Directorate for Livestock (DE) for the management of veterinary products ;
- the New Cotton Company of Togo (NSCT), a semi-public company with the legal form of a public limited company (SA), placed under the joint supervision of the Ministry of Agriculture and the Ministry of Finance, for importing from tenders and distributing pesticides for the protection of cotton to cotton growers, for which it provides training, supervision and awareness raising on the rational and safe management (use, handling, transport, storage) of agricultural pesticides.

It should be remembered that the NSCT has just entered into privatisation, with the acquisition of majority of 60% of the capital by the Singaporean Olam and the remaining 40% of the capital being in the hands of the producers' organisation. It should be remembered that a National Pesticide Management Committee (CNGP) was created by inter-ministerial decree on 17 March 2016. This committee, whose permanent secretariat is housed within the Directorate of Plant Protection, is a technical body for consultation, guidance, execution and implementation of recommendations for effective and efficient management of pesticides in Togo. It is subdivided into three commissions which are: the Commission for Professional Approvals, Authorisations and Licences (CAPAL); the Control and Monitoring Commission (CCS); and the Toxico vigilance Commission (CT).

### 4.3.3. Ministry of Health, Public Hygiene and Universal Access to Health Care (MSHPAUS)

It is responsible for implementing the State's policy on health and public hygiene. In addition, it is responsible for drawing up programmes to improve health coverage as well as strategies to prevent and combat endemic diseases, particularly malaria.

Furthermore, the law of 13 May 2009 on the Health Code states in its Article 2: every natural person has an inalienable right to health without distinction of origin, sex, age, social condition, race and religion.

At the central level, Decree No. 2008-090/PR of 29 July 2008 organised the various Departments within MSHPAUS into six Technical Departments, each divided into at least two divisions, which in turn were divided into a chain of technical services. Following an audit carried out in 2009, which revealed the inadequacy of this system to meet the challenges of the MDG (Millennium Development Goals), now the SDO (Sustainable Development Goals), the government restructured its health system. The decree on the organisation of the Ministry of Health was signed in 2012 and reduced the number of directorates to four.

Togo currently has a general directorate for studies and planning, a general directorate for health action, a general directorate for resources, a directorate for regulation and litigation and finally a permanent secretariat for the regions.

At the regional level, MSHPAUS has six directorates and forty health district directorates (DDS) at the peripheral level. The structures and institutions involved in pesticide management within MSHPAUS are :

- the Directorate of Primary Health Care to take into account pesticide-related accidents;
- the Directorate of Pharmacies, Laboratories and Technical Equipment ;
- the National Service for Information, Education and Communication ;
- the National Institute of Hygiene, which is the reference laboratory for the physico-chemical, bacteriological and microbiological analysis of water, foodstuffs and other environmental substances.

#### **4.3.4. Ministry of Commerce, Industry and Local Consumption (MCICL)**

This department is involved in the management of chemical products, including pesticides, through the Directorate of Foreign Trade, the Directorate of Internal Trade and Price Control and the Directorate of Quality and Meteorology, which are in charge of the formalities for setting up industrial and commercial units.

Bodies have been set up to facilitate the coordination and consultation of environmental management actions in general and of chemical products including pesticides and fertilisers in particular. These bodies are essentially :

#### **4.3.5. Committee on Phytosanitary Products (CPP)**

Order N°24/MAEP/SG/DA of 30 October 1998 creates, allocates and composes the Committee for Plant Protection Products (CPP). The CPP is responsible for proposing and monitoring compliance with the principles and general guidelines of the regulation of plant protection products and professional approvals. The hygiene services monitor food safety standards and take a series of protective measures to prevent foodstuffs from being contaminated by adulteration and/or as a result of poor environmental hygiene and inappropriate treatment at the various stages of the chain.

#### **4.3.6. National Pesticide Management Committee (CNGP-Togo)**

This Committee created by inter-ministerial Order n° 068/16/MAEH/MERF/MSPS, of 17 March 2016, and placed under the supervision of the Ministry in charge of agriculture. Its mission is to collaborate with the West African Committee for the Approval of Pesticides (COAHP), to include :

- proposing principles and general guidelines for the regulation of pesticides;
- analysing and issuing opinions on health problems caused by pesticides;
- analysing and issuing opinions on problems of pollution and environmental degradation caused by pesticides;
- implementing, monitoring and evaluation of the resolutions and recommendations of the COAHP ;
- implement, monitor and evaluate pesticide regulations at the national level;
- implementing, monitoring and evaluation of international conventions on pesticides;
- studying applications for approvals, authorisations and/or licences to carry out various activities in the pesticide sector;
- regularly check, register and publish the list of authorised or used, regulated, prohibited, obsolete or banned pesticides;
- analysing, advising on and monitoring the disposal of obsolete, obsolete pesticides and empty packaging;
- analysing, monitoring and evaluating toxico vigilance ;
- issue opinions on all matters concerning pesticides and materials for use;
- ensure the monitoring and pre- and post-registration control of pesticides.

#### **4.3.7. National Fertilizer Quality Control Committee (CNCE)**

The CNCE was created by Order N°013-17/MAEH/Cab/SG of 23 November 2017 on the organisation and attributions of the National Fertilizer Quality Control Committee (CNCE). Its missions are defined by Article 2 of the said decree.

**4.3.8. Central Agricultural Inputs Supply and Management Centre (CAGIA)**

The CAGIA was created on 29/08/2008 by Decree N°2008-114/PR relating to the Central Agricultural Inputs Supply and Management Centre which placed it under the supervision of the Ministry in charge of Agriculture. This decree abrogated decree n°2006-023/PR of 08 March 2006 creating an office of fertilizers, fertilizers and pesticides. The CAGIA's purpose is the purchase and resale of fertilisers, pesticides and other inputs needed for agricultural production. Its attributions are defined by Article 5 of the said decree.

In addition, Order 0174-16/MAEH/CAB/SG of 10/11/2016 designated the Directorate of CAGIA as the national structure in charge of the implementation of ECOWAS Regulation C/REG.13/12/12.

**4.3.9. National Committee for Chemical Safety**

The National Committee for Chemical Safety is relatively operational. It is the framework for consultation and monitoring of the implementation of international conventions and agreements relating to chemicals. As such, it is the most widely used framework in the management of the Persistent Organic Pollutants (POPs) project.

**4.3.10. National Commission for the Registration of Medicines and other Pharmaceutical Products**

Created by framework law n° 2001-002 of 23 January 2001 on medicines and pharmacy, this commission is responsible for examining applications for registration in the national nomenclature.

**4.3.11. National Ozone Committee**

As pesticides are one of the elements contributing to the destruction of the ozone layer, this committee is the framework for information, consultation and monitoring of the implementation of the 1985 Vienna Convention and the 1987 Montreal Protocol and its amendments.

**4.3.12. National Environment Committee**

Also instituted by the Environment Code and restructured by Order No. 008/MERF of 19 November 1997, which is a body structured into several sub-committees whose designations define the respective areas of consultation. It is made up of representatives of public and private structures, NGOs, trade unions and local authorities dealing not only with issues relating to the environment and the management of natural resources, but also those relating to pesticides and their harmful effects on the environment.

**4.3.13. Higher Council for Standardisation**

It is responsible, among other things, for defining a general standardisation and quality control policy on behalf of the State and ensuring its application, setting the general and scientific guidelines to be followed in the establishment of the various standards and overseeing the process of their approval.

#### **4.3.14. National Steering Committee for Standardisation, Accreditation and the quality**

This committee is in charge of guiding and monitoring the implementation of the Joint European Union / UEMOA Programme for the promotion of agricultural product quality and laboratory accreditation in the UEMOA space.

#### **4.3.15. Local Committees for the Protection and Management of the Environment**

Created by Order No. 02/MDMET-DPNRFC-DPCEF of 18 January 1995 at the level of prefectures, sub-prefectures, cantons and villages. They are responsible for information, education and awareness-raising among the population in terms of environmental protection and management and the fight against bush fires.

#### **4.3.16. Local Authorities**

Charged with the responsibility and enforcement of laws and regulations on the management of stockpiles and sites contaminated by pesticides, including POPs. In Togo, Law No. 98 006 of 11 February 1998 on decentralisation confers important environmental attributions to local authorities. In particular, it establishes in each territorial entity a permanent commission for state affairs and the environment. All in all, local authorities play an important role in the fight against bushfires, a form of unintentional POPs production.

#### **4.3.17. Other Actors**

These are associations and producer organisations. There are a number of agricultural producer organisations, non-governmental organisations, licensed distributors, all involved in pest and pesticide management in terms of awareness raising and training of producers and their members on the wise, rational and safe use of pesticides. They include, among others:

- the Fédération nationale des groupements de producteurs de coton du Togo (FNGPC), responsible for training its members on the judicious and safe use of pesticides on cotton, pesticides received from the NSCT ;
- The Fédération des Unions de Producteurs de Café Cacao du Togo (FUPROCAT) also trains its members on the judicious handling of pesticides used on the coffee and cocoa tree;
- the Centrale des producteurs de céréales du Togo (CPC), on cereal crops;
- the Togolese Coordination of Farmers' and Agricultural Producers' Organisations (CTOP) ;
- the National Federation of Market Garden Organisations of Togo (FENOMAT), on market gardening;
- the National Association of Poultry Professions of Togo (ANPAT), on poultry ;
- the Groupement des vétérinaires privés en clientèle rurale (GVPCR), trains rural livestock farmers and others on the professional use of pesticides for veterinary use;
- the Togolese Consumers' Association (ATC), raises public awareness of the harmful effects of the anarchic use of pesticides on agricultural products;
- the Ligue togolaise de consommateurs (LTC), as well as the ATC ;
- the Association of Agricultural Input Suppliers of Togo (AFITO), trains their clients before any delivery on how to use pesticides rationally while avoiding health and environmental damage.

## **5. STATUS OF THE MARKETING OF PESTICIDES AND CHEMICAL FERTILISERS IN TOGO AND THE KARA REGION**

### **5.1. Supply and Marketing of Pesticides**

In Togo, there are two distribution channels. One is based on the system of calls for tender to companies specialising in the field. These phytosanitary companies sell part of their products directly to their main customers, the NSCT, CAGIA, to farmers' organisations such as FUPROCAT and to small and medium retailers such as KEUR CHIMIE. The other marketing channel for pesticides is mainly based on informal direct sales to users, i.e. growers. Checks carried out by plant protection services on marketing channels and research into sources of supply have shown that these products come mainly from border countries.

This is due mainly to the porous nature of borders, which are sometimes less subject to customs duties and other taxes on finished products. Indeed, the lack of Community harmonisation in the use of plant protection products, combined with the free movement of goods, undoubtedly increases the temptation to break free from regulation.

Thus, the vast majority of shopkeepers and sometimes some storekeepers in the sector carry out an anarchic, uncontrolled and unauthorised sale in public places such as rural markets. This constitutes a danger for producers, sellers and the surrounding population. The informal sales sector deserves to be taken to task and to be regulated, organised, supervised and monitored (for example: improving regulations; training and awareness-raising of vendors and their empowerment for a professionalization of sales (help in obtaining authorised and approved shops; strengthening the means of control and monitoring of DPV agents, inspectors and other stakeholders to enable them to carry out their work properly); etc.). Specifically, and in order to succeed in the cross-border control of the movement of pesticides, it will be judicious to involve agents of the Ministry of Security, Health, Environment and the OTR (Customs) in the control of the movement of products, particularly between Togo and its border countries. The harmonization of sub-regional texts, particularly those of ECOWAS, UEMOA and CILSS, with the operationalization of the West African Pesticides Approval Committee (COAHP), a more coordinated and harmonized control of pesticides will be a great asset.

### **5.2. Supply and Marketing of Fertilizers**

The acquisition of fertilizers in Togo, which in the past was done exclusively by the Center for the Supply and Management of Agricultural Inputs (CAGIA), is currently done after liberalization of the sector, by private companies that have applied for and obtained approvals for importation and distribution.

During the 2018/2019 agricultural season, twenty-five (25) private companies including Ceco Agro, CGCO, CIAT, CIL-Togo, Elisée Crane SAU, Fredo Vanos, Global African Building Logistics, Gracias-Togo, Groupe Alleluia SA, Monfith Sarl U, Phyto-Santé Plus, Qualitas, Sada, STIEA Sarl and Univers 4, applied for, and obtained approvals for the importation and distribution of fertilizers in Togo against twenty-two (22) in 2017/2018.

In addition, this acquisition is made through a call for tenders and the fertilisers thus received are distributed to sales outlets throughout the country's regions and prefectures, before the start of the agricultural season. It is at the level of these shops that producers purchase their crops.

It should be recalled that Togo has a natural phosphate deposit which is not exploited for the production of phosphate fertilizers. The problems inherent in the supply and management of fertilizers are essentially constraints of several kinds, which among other things are related to :

- finance with the very high cost of purchasing fertilisers; the lack of funds does not make it



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possible to acquire the quantity of fertiliser needed to cover the needs expressed by producers

- on-time delivery, with non-compliance with the delivery dates of the fertilisers ordered leading in turn to a delay in supplying the shops;
- management which, in turn, relates to a cowardly sense of responsibility on the part of certain actors involved in fertiliser management, not to mention the phenomenon of speculation that is plaguing the sector.

However, in order to remedy this state of affairs and above all, in order to : (i) pursue the achievement of the Zero Hunger Goal in our country; (ii) accelerate agricultural growth by at least doubling current levels of agricultural incomes; (iii) ensure sustainable and reliable production and access to quality inputs at affordable prices; (iv) create and/or strengthen public-private partnerships for agricultural commodity value chains with strong farmer linkages ; (v) triple intra-African trade in agricultural commodities and services, in short, implement agricultural policy in line with Axis 2 of the National Development Plan, which the Government of Togo each year, through the ministry in charge of agriculture and in collaboration with approved private companies, increases the quantity and ensures the quality of fertilizers to be imported. Thus, for the 2020-2021 Campaign, more than 120,000 tonnes of food crop fertilisers, including 40,000 tonnes of Urea 46%N and 80,000 tonnes of NPK15-15-15 and biofertilisers, have been ordered and made available to producers.

It should be recalled that local fertiliser production is carried out by WABCO COTIA SA, a company with a blending plant in Lomé in the port area. It produces food and cotton fertilisers. Production is made to order and by formula. The current production capacity of the production unit is 1000 tons per day for an annual production of 300,000 tons.

In the Kara agropole zone, recent surveys have revealed that most people in this area have good access to fertiliser. In fact, seven (07) of the nineteen (19) localities have access rates of 50% or more, and three (03) have access rates of around 40%. The use of improved seeds is also widespread in the area, with rates varying from place to place. They are higher in Helota (54.5%) and Kanté (91.2%). These localities are followed by Guerin-Kouka (45.0%) and Nampoch (37.5%).

### 5.3. Quantitative and Qualitative Assessment of Pesticides and Fertilisers Used

It is very difficult to have complete statistics on pesticide consumption in Togo given the complexity of the supplying operators (formal and informal) in the sector.

For pesticide consumption in the public and animal health and domestic use sectors, no trends can be identified. The lack of a database on pesticide management is a major constraint and the absence of centralised statistics no longer makes it possible to monitor its evolution and its main actors. On a qualitative level, there is no infrastructure necessary for carrying out this control (control of formulations, residue analysis, etc.) in Togo. Tables 2 to 6 show the main indicators and specific listings of priority sectors for the year 2020.

**Table 2: Quantities of food crop seeds consumed (tonnes) by region from 2018 to 2020**

Regions	Achievements 2018 (T)	2019		2020
		Forecasts (T)	Achievements (T)	Forecasts (T)
Maritime	94	73	147	110
Trays	370	601	468	737
Central	606	874	818	836
Kara	115	166	307	303



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<b>Savanes</b>	267	682	663	689
<b>Total</b>	<b>1 452</b>	<b>2 395</b>	<b>2 402</b>	<b>2 675</b>

Source: Togo's 2020 citizen budget,  
([https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget\\_citoyen\\_TOGO\\_2020\\_51-100.pdf](https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget_citoyen_TOGO_2020_51-100.pdf)).

**Table 3: Quantities of Food Fertilizers Consumed (tonnes) by Region from 2018 to 2020**

Regions	Achievements 2018 (T)	2019		2020
		Forecasts (T)	Achievements (T)	Forecasts (T)
<b>Maritime</b>	6 179	10 500	4 951	10 500
<b>Trays</b>	16 976	21 000	15 680	21 000
<b>Central</b>	7 508	12 000	5 421	12 000
<b>Kara</b>	13 908	19 000	15 777	19 000
<b>Savanes</b>	20 905	22 500	20 085	22 500
<b>Total</b>	<b>65 476</b>	<b>85 000</b>	<b>61 914</b>	<b>85 000</b>

Source: Togo's 2020 citizen budget,  
([https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget\\_citoyen\\_TOGO\\_2020\\_51-100.pdf](https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget_citoyen_TOGO_2020_51-100.pdf)).

**Table 4: Quantities of cereals produced (tonnes) by region from 2018 to 2020**

Regions	Achievements 2018 (T)	2019		2020
		Forecasts (T)	Achievements (T)	Forecasts (T)
<b>Maritime</b>	159 109	165 777	162 008	163 484
<b>Trays</b>	545 456	567 924	560 300	565 405
<b>Central</b>	221 511	228 145	227 842	229 918
<b>Kara</b>	147 587	151 411	151 699	153 081
<b>Savanes</b>	265 444	267 755	270 511	272 976
<b>Total</b>	<b>1 339 106</b>	<b>1 381 012</b>	<b>1 372 361</b>	<b>1 384 864</b>

Source: Togo's 2020 citizen budget,  
([https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget\\_citoyen\\_TOGO\\_2020\\_51-100.pdf](https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget_citoyen_TOGO_2020_51-100.pdf)).

**Table 5: Quantities of tubers produced (tonnes) by region from 2018 to 2020**

Regions	Achievements 2018 (T)	2019		2020
		Forecasts (T)	Achievements (T)	Forecasts (T)
<b>Maritime</b>	416 534	419 194	419 194	429 002
<b>Trays</b>	583 792	604 213	604 213	618 348
<b>Central</b>	590 349	599 344	599 344	613 365
<b>Kara</b>	359 394	368 046	371 693	380 389

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<b>Savanes</b>	23 160	23 716	23 716	24 271
<b>Total</b>	<b>1 973 230</b>	<b>2 014 513</b>	<b>2 018 160</b>	<b>2 065 375</b>

Source: Togo's 2020 citizen budget,  
([https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget\\_citoyen\\_TOGO\\_2020\\_51-100.pdf](https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget_citoyen_TOGO_2020_51-100.pdf)).

**Table 6: Quantities of pulses produced (tonnes) by region from 2018 to 2020**

Regions	Achievements 2018 (T)	2019		2020
		Forecasts (T)	Achievements (T)	Forecasts (T)
<b>Maritime</b>	51 688	53 546	49 903	54 733
<b>Trays</b>	110 989	116 328	107 873	118 315
<b>Central</b>	42 608	43 880	42 909	47 062
<b>Kara</b>	42 344	43 959	43 803	48 044
<b>Savanes</b>	68 392	69 768	69 726	76 475
<b>Total</b>	<b>316 021</b>	<b>327 482</b>	<b>314 213</b>	<b>344 629</b>

Source: ogo's 2020 citizen budget,  
([https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget\\_citoyen\\_TOGO\\_2020\\_51-100.pdf](https://finances.gouv.tg/wpcontent/uploads/files/2020/03%20%20Mars/Budget_citoyen_TOGO_2020_51-100.pdf)).

## 6. MANAGEMENT OF PLAGUES AND PEST IN TOGO AND THE KARA REGION

The strategies developed in Togo to fight against plagues in agriculture can be summed up as preventive, curative and integrated pest management, among others.

### 6.1. Plagues and Pathologies encountered in Togo and the Kara Region

An identification of the main plagues and pests encountered in agriculture and agroforestry in Togo and the Kara region is presented in Tables 7 to 10.

### 6.2. Pesticides used

The updated list (September 2020) of pesticides registered, marketed and used in Togo is given in Annex B of this document. These registered pesticides are in compliance with WHO and FAO requirements and recommendations.

#### 6.2.1. Types of Pesticides Used

In Togo, the pesticides used are those used in agriculture, public health and animal health. In agriculture, the use of pesticides includes plant protection and the prevention of post-harvest losses. In public health, pesticides are used in vector control to prevent diseases such as malaria, onchocerciasis and disinfection of premises. In animal health, they are mainly used in the fight against ectoparasites and disease vectors.

According to the Directorate of Agricultural Statistics, about 81% of producers use insecticides to protect their crops on areas ranging from 194,447 to more than 266,424 ha. Several classes of insecticides including organophosphates, carbamates and synthetic pyrethroids are imported and

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used. Overall, this represents 70% of imports, with tonnages increasing annually (between 2,281 and 3,278 tonnes) on the national territory. The areas where the use of these pesticides is increasing are respectively the cotton fields, the forest areas for coffee and cocoa cultivation, the rice fields and finally the market gardening areas.

These quantities of imported pesticides are still not under the control of the regulatory services, as more than 70% of import and distribution companies do not have professional accreditation and 80% of pesticides in circulation have not been homologated. Dosages, although advised and monitored by support and control staff, are not always respected by users and producers. As a reminder, the list of registered pesticides in Togo can be found in Annex B of the document.

Togo, on the other hand, has no infrastructure for pesticide production, but imports and uses pesticides for both crop protection and vector control. The information on the labels of these products is mostly in English and sometimes in Chinese and not assimilated by the vast majority of users and producers. As a result, this does not allow their rational and safe use, for a healthier environment.

This situation is favoured by :

- Togo's geographical location, which serves as a market for the sale and use and/or transit of various products with often uncertain characteristics;
- porous borders, sometimes less subject to customs duties and other taxes on finished products;
- the ignorance of the population about certain products based on extremely and highly dangerous active ingredients;
- the low-cost accessibility of non-registered products compared to registered products;
- the non-availability of registered pesticides everywhere;
- insufficient control/repression of the sale of pesticides of dubious quality;
- insufficient phytosanitary control personnel at control posts
- ;
- the insufficient supervision of producers in general and, above all, food crop producers
- the slow pace of implementation of Community legislation on the marketing and use of plant protection products, combined with the free movement of goods, undoubtedly increases the temptation to break free from regulation.

In terms of quantitative and qualitative assessment of pesticides imported and used in Togo, it is very difficult to have reliable statistics, given on the one hand, the complexity of the largest circuit, which is the informal circuit of marketing and distribution of pesticides, and on the other hand, the reluctance of approved suppliers of the formal circuit to provide data on their imports.

Fortunately for this state of affairs, thanks to the interministerial decree introduced on 03 October 2019 (inter-ministerial decree No. 160/19/MAPAH/MEF of 03 October 2019 on the modality of issuing prior authorisations for the import of pesticides and bio pesticides in Togo), data on imports and uses of pesticides in Togo will be available. However, as if by chance, this data will be limited to formally licensed operators.

As regards pesticides used in the public health sector for domestic use and in veterinary medicine, it is practically impossible to have an idea and to calculate the margin of error, given the informality of this sector, as well as that of agriculture. The lack of a database on pesticides is a major constraint and the absence of centralised statistics does not in fact allow their management to be monitored. All in all, since the most important circuit is not yet well controlled, it is impossible to know the total quantity of pesticides imported, marketed and used in the country. Such a situation should draw the attention of the competent regulatory and environmental services to the fate of these pesticides dumped here and there in the wild on the national territory.

At the qualitative level, no infrastructure (laboratory) exists in Togo for carrying out controls (active ingredients, formulations, adjuvants, purity, residues, etc.) of pesticides. The only accredited

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laboratory that exists in Togo and that of the National Institute of Hygiene (INH), only deals with microbiological analyses and the ITRA, the non-accredited Togolese Institute of Agronomic Research, with simple physico-chemical analyses.

**Table 7: Main pests and pests encountered in agriculture and agroforestry in Togo and the region**

GUEST SPECIES	PESTS/PESTS			REFERENCES
	Pathologies	Pesticides used	Scientific name of plagues	
AGRICULTURE				
Rice  (Any agro-ecological area)	Destruction of leaves and stems	Insecticide	<i>Sitophilus oryzae</i> ; <i>Tetraneura nigriabdominalis</i> ; <i>Sesamia inferens</i> ; <i>Hydrellia griseola</i> ; <i>Trichispa sericea</i>	Crop Protection Compendium/ PV List Togo  Scholz and Scholz, 1983 Invasive species compendium (2013)  Mikkelsenet et al. 2006
	Root attacks	Nematicide	<i>Hirschmaniella oryzae</i>	
	Drying of leaves and stems	Herbicide	<i>Ischaemum rugosum</i> ; <i>Echinochloa colona</i> ; <i>Echinochloa crus-galli</i> ;  <i>Rottboellia cochinchinensis</i> ;  <i>Ageratum conyzoides</i> ; <i>Cyperus difformis</i> ;  <i>Cyperusiria</i> ; <i>Fimbristylis miliacea</i> ; <i>Monochoria vaginalis</i> ; <i>Rhamphicarpa fistulosa</i>	
	Leaf, stem and fruit rot	Fungicide	<i>Sphaerulina oryzina</i> ; <i>Magnaporthe grisea</i> ; <i>Sclerophthora macrospora</i> ; <i>Entyloma oryzae</i> ; <i>Bipolaris oryzae</i> ; <i>Fusarium spp</i> ;  <i>Rhizoctonia solani</i> ; <i>Pyricularia oryzea</i>	
	Fringing and yellowing of the leaves	Bactericide	<i>Xanthomonas campestris pv</i> ; <i>Oryzae</i> ; <i>Xanthomonas oryzae pv</i> ; <i>Oryzicola</i>  <i>Erwinia chrysanthemi</i> ; <i>Burkholderia glumae</i>	

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	Fringing and yellowing of the leaves	Virucide	<i>Rice black streak dwarf virus; RGSDV;</i>  <i>Rice necrotic mosaic virus, RNMV;</i> <i>Rice stripe virus, RStV</i>	
<b>Café</b>  (Forest area)	Destruction of leaves and stems	Insecticide	<i>Cephalonomia stephanoderis</i>	Decazy, 1989, Wegbe et al, 2007
			<i>Bixadus sierricola; Phymastichus coffea;</i> <i>Zonocerus variegatus; Epicampopterastrandi</i>	Crop Protection Compendium
	Leaf, stem and fruit rot	Fungicide	<i>Hemileia vastatrix; Colletotrichum coffeanum</i>	

Source: Direction de la Protection des Végétaux-Togo, October 2020



**Table 8: Main pests and pests encountered in agriculture and agroforestry in Togo and the region (continued 1)**

GUEST SPECIES	PESTS/PESTS			REFERENCES
	Pathologies	Pesticides used	Scientific name	
AGRICULTURE (continued)				
Corn  (Any agro-ecological area)	Destruction of leaves and stems	Insecticide	<i>Helicoverpa armígera</i> ; <i>Mussidia nigrivenella</i> <i>Spodoptera exempta</i> ; <i>Spodoptéra frugiperda</i>  <i>Sesamia nonagrioides</i> ; <i>Ostrinia nubilali</i> <i>Geomyza tripunctata</i> ; <i>Rhopalosiphum maidis</i>  <i>Sitophilus zeamais</i> ; <i>Zonocerus variegatus</i> ; <i>Prostephanus truncatus</i>	Crop Protection Compendium
	Leaf, stem and fruit rot	Fungicide	<i>Pythium ultimum</i> ; <i>Colletotrichum graminicola</i> <i>Cercospora zea-maydis</i> and <i>Cercospora zeina</i> <i>Puccinia sorghi</i> ; <i>Basidiomycets</i> ; <i>Uredinales</i> <i>Setosphaeria turcica</i>  <i>FuSarium verticilloides</i> ; <i>Puccinia polysora</i> <i>Helminthosporium turcicum</i> ; <i>Cercospora zea maydis</i>	Idem
	Fringing and yellowing of the leaves	Virucide	<i>Maize dwarf mosaic virus</i> ; <i>Maize streak virus</i>	Idem
Mil	Destruction of leaves and stems	Insecticide	<i>Lema planifrons</i> ; <i>Sesamia sp.</i>	Idem
	Leaf, stem and fruit rot	Fungicide	<i>Sclerospora graminicola</i> (Sacc.) J. Schrot; <i>Sphacelotheca reiliana</i> or <i>Sporisoriumholci-sorghi</i>	Singh and Shetty, 1990 Shetty et al, 1977 Halisky, 1963  Kruger, 1962

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(agroecology Wet savannahs and dry saavans)	Fringing and yellowing of the leaves	Virucide	<i>SorghumDwarfMosaicVirus</i>	Crop Protection Compendium
	Drying of leaves and stems	Selective Herbicide, Manual Harvesting	<i>Striga hermonthica</i>	List PV Togo EPPO, 2009 M'Boob SS, 1994
<b>Sorghum</b> (agroecology Humid savannahs and dry saavans)	Fringing and yellowing of the leaves	Virucide	<i>SorghumDwarfMosaic Virus</i>	Crop Protection Compendium
	Destruction of leaves and stems	Insecticide	<i>Microterms sp.; Caelifera sp. Mythimna lorei; Sesamia calamistis Eurystylus oldi</i>	
	Drying of leaves and stems	Selective Herbicide, Manual Harvesting	<i>Striga hermonthica</i>	List PV Togo EPPO, 2009 M'Boob SS, 1994

Source: Direction de la Protection des Végétaux-Togo, October 2020

**Table 9: Main pests and pests encountered in agriculture and agroforestry in Togo and the region (continued 2)**

GUEST SPECIES	PESTS/PESTS			REFERENCES
	Pathologies	Pesticides used	Scientific name	
AGRICULTURE (continued)				
Cotton (agroecology Wet savannahs and dry saavans)	Destruction of leaves and stems	Insecticide	Helicoverpa armigera Pectinophora gossypiell Thaumatotibia leucotreta  Cryptophlebia peltastica; Aphis gossypii Bemisia tabaco; Dysdercus	Crop Protection Compendium
	Leaf, stem and fruit rot	Fungicide	Polyphagotarsonemus latus; Fusarium spp.	
	Fringing and yellowing of the leaves	Bactericide	Xanthomonas malvacearum (E. F. Smith)	
Cowpea (agroecology Wet savannahs, etc.) and dry saavans)	Drying of leaves and stems	Selective Herbicide, Manual Harvesting	Striga gesnerioides	Invasive species compendium (2013)
	Destruction of leaves and stems	Insecticide	Aphis craccivora; Taeniothrips sjostedti Maruca vitrata; Anoplocnemis curvipes Megalurothrips sjostedti; Maruca testalis Empoasca spp; Vigna unguiculata (L.) Walp Helico verpa armigera; Tetranychus urticae Liriomyza trifolii; Clavigralla tomentosicollis Acanthoscelides obtectus  Callosobruchus rhodesianus Callosobruchus maculatus	Crop Protection Compendium
	Destruction of leaves		Sahlbergella singularis; Distantiella theobromae Eulophonotus myrmeleon; Planococcus kenya  Ferrisia virgate; Planococcoides njalensis; Planococcoides longispinus	

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<b>Cocoa</b> (Forest area)	and stems	Insecticide	<i>Planococcoides hargreavesi</i> ; <i>Planococcoides kenyae</i>	Crop Protection Compendium
	Leaf, stem and fruit rot	Fungicide	<i>Phytophthora palmivora</i> ; <i>Phytophthora megakarya</i>	
	Fringing and yellowing of the leaves	Virucide	<i>Cocoa Swollen Shoot Virus (CSSV)</i>	
<b>Fruits and citrus fruits</b> (Any agro-ecological zone)	Destruction of leaves and stems	Insecticide	<i>Ceratitis spp</i> ; <i>Bactrocera invadens</i> ; <i>Rastrococcus invadens</i> <i>Paracoccus marginatus</i>	Crop Protection Compendium
	Leaf, stem and fruit rot	Fungicide	<i>Phaeoramularia angolensis</i>	

Source: Direction de la Protection des Végétaux-Togo, October 2020

**Table 10: Main pests and pests encountered in agriculture and agroforestry in Togo and the region (continued 3)**

GUEST SPECIES	PESTS/PESTS			REFERENCES
	Pathologies	Pesticides used	Scientific name	
AGRICULTURE (continued)				
Market gardening (Any agro-ecological area)	Destruction of leaves and stems	Insecticide	<i>Aphidoidea; Ostrinia nubilalis; Lygus lineolaris; Delia radicum</i> ;  <i>Pieris brassicae; Brevicoryne brassicae; Peridroma saucia</i> <i>Thysanoptera; Helicoverpa armígera; Aleyrodoidea; Tuta absoluta</i>	Crop Protection Compendium
	Leaf, stem and fruit rot	Fungicide	<i>Fusarium oxysporum Schlecht. f. sp. Radices; Lycopersic Jarvis and Shoem/</i>  <i>Fusarium oxysporum f.sp.; Lycopersici; F solani f. sp. Phaseoli</i>	
	Wrinkle, Rot, yellowing of leaves, stems and fruit	Virucide/Bactericide	<i>Fulvia fulva; Pseudomonas solanacearum</i>	
AGROFORESTRY				
Forest species ( <i>Tectona grandis</i> , <i>Terminalia superba</i> , <i>Milicia excelsa</i> Khaya <i>grandifoliola</i> , <i>Mitragyna stipulosa</i> , <i>Triplochiton scleroxylon</i> , <i>Antiaris</i> )	Destruction of leaves and stems	Insecticide	<i>Hypsipyla robusta; Carpophilus fumatus</i>  <i>Curculionidae; Nitidulidae; Pyralidae; Scolytidae; Loxodonta africana; Hoplocerambyx spinicornis; Cerambycidae; Buprestidae; Lymexylidae</i>  <i>Bostrichidae; Melandryidae; Meloidae; Isoptera; Aphidididae</i>	McGraw-Hill, 1961

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<i>africana</i> , <i>Swietenia</i> , <i>Chlorophora</i> , <i>Pluviisylves</i> , etc.).  (Agroecological forest area)	Drying of leaves and stems	Herbicide	<i>Loranthaceae</i>	Unasylla, vol. 19, no. 3, 1965b Browne, F. G., 1968  Brunck, F.; Fabre, J. P., 1970.  B.K. Bakshi; Franz, 1965 Kuntz, 1965; McNabb, 1965  Lamb, 1974
	Leaf, stem and fruit rot	Fungicide	<i>Corticium salmonicolor</i> ; <i>Ganoderma Lucidum</i>	

Source: Direction de la Protection des Végétaux-Togo, October 2020



### **6.2.2. Pesticide Imports**

Togo no longer has a local pesticide formulation unit. Pesticides are imported as ready-to-use formulations. Pesticides are imported, distributed and sold mainly through the following channels:

- The formal channel: the products are imported through the tender system, by the cotton company and distributed on credit to the cotton growers. The companies participating in these tenders are those specialised and approved in the field of pesticides for marketing and distribution. These companies sell part of their products directly to their main clients, which are the NSCT (New Cotton Company of Togo), the CAGIA (Centrale d'Achat et de Gestion des Intrants Agricoles), farmers' organisations such as FUPROCAT (Fédération des Unions de Producteurs de Café Cacao du Togo) and small and medium-sized retailers, working under their approvals.
- The intermediate channel: In this formal circuit, the approved companies supply part of their products directly to their main customers, which are agricultural producers' organisations, intermediate distributors and a large number of small retailers.
- The informal channel, which is difficult to control and represents around 70% of the circuits (DSID; 2011), is essentially based on illicit direct sales to users, i.e. producers.

The checks often carried out by the plant protection services and the research carried out on the sources of supply in this circuit have shown that most of these products are of dubious origin.

### **6.2.3. Registration of Pesticides**

Togo has a list of authorised pesticides, i.e. those registered by another body, the Committee on Phytopharmaceutical Products (CPP), but now replaced by the Commission on Professional Approvals, Authorisations and Licences (CAPAL) of the National Pesticide Management Committee (CNGP). The list of authorised products is presented in Annex 2 of this document. The CNGP, an inter-ministerial committee was set up on 17 March 2016 by inter-ministerial order No. 068/16/MAEH/MERF/MSPS, repealing the one created on 30 October 1998 by order No. 24/MAEP/SG/DA. It should be recalled that the CNGP brings together 35 members from public and private institutions, NGOs and civil society organisations, and is a technical body for consultation, guidance, execution and implementation of recommendations.

It has three (03) Commissions (Commission des agréments professionnels, des autorisations et des licences (CAPAL); Commission de contrôle et de suivi (CCS); Commission de toxicovigilance (CT)). Its main role is the effective and efficient management of pesticides in Togo and its mission is to :

- propose principles and general guidelines for the regulation of pesticides;
- analyse and issue opinions on the one hand on the health problems caused by pesticides and on the other hand on the pollution and environmental degradation still caused by pesticides;
- implement, monitor and evaluate: the resolutions and recommendations of the West African Committee for the Homologation of Pesticides (COAHP), pesticide regulations in Togo and international conventions on pesticides;
- studying applications for approvals, authorisations and/or licences to carry out various activities in the pesticide sector;
- regularly check, register and publish the list of authorised or registered, regulated, prohibited, obsolete or banned pesticides;
- analysing, advising on and monitoring the disposal of obsolete, obsolete pesticides and empty packaging;
- analysing, monitoring and evaluating toxicovigilance ;

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- issue opinions on all matters concerning pesticides and materials for use;
- ensure the monitoring and pre- and post-registration control of pesticides.

The Commission for Professional Approvals, Authorisations and Licences grants approvals and authorises the placing on the market of products on the basis of certain technical information, such as biological effectiveness, physico-chemical properties, toxicological and ecotoxicological risks, the residue of the product in the plant, etc. The Commission is also responsible for the marketing of the products. Thus, any plant protection product that has not been authorised by the said commission is automatically considered as prohibited for use or placing on the market in Togo.

On the other hand, a number of texts have been taken to specifically ban certain pesticides, in order to comply with regional obligations (ECOWAS/UEMOA/CILSS) and international conventions to which Togo is a party. These are essentially Order No. 30/MAEP/SG/DA dated 24 September 2004 prohibiting the import and use in Togo of Methyl Bromide (BrCH<sub>3</sub>) and Order No. 31/MAEP/SG/DA dated 24 September 2004 prohibiting the import and use in Togo of organochlorines (Aldrin, Endrin, Dieldrin, DDT and its derivatives, Mirex, Toxapene, Hexachlorocyclohexane, Chlorane, Heptachlor), recognised as a hazardous pesticide for human, animal and environmental health.

The list of plant protection products registered in Togo is presented in Annex 2, while the list of active ingredients of chemicals and pesticides banned in Togo is presented in Annex 3. The conditions for obtaining professional approval for import and distribution of pesticides and the conditions for registering a pesticide in Togo are summarized in Annexes 4 to 7.

### **6.3. Pesticide management**

#### **6.3.1. *Level of Knowledge of Producers***

The relatively low level of education among farmers severely limits knowledge about pesticides, particularly on application methods, residues, compliance with withdrawal periods and the precautions to be taken before, during and after treatment. Only 34% of market gardeners have the Brevet d'études du second degré (Kanda et al., 2011).

The quantities of imported insecticides are not always under the control of the regulatory services, as more than 70% of the companies distributing the products are not approved by the competent services. Dosages, although advised and recommended by support and control staff, are still not respected by users and producers.

Togo, on the other hand, has no infrastructure for pesticide formulation and production, but is an importer and user country of pesticides, both for crop protection and vector control.

In terms of appreciation of knowledge and pesticide management practices, knowledge is relatively well mastered in formally established producer organisations, following various training and awareness-raising sessions conducted by the technical services of the Ministries (Agriculture, Health, Environment, etc.). On the other hand, among informal vendors and uninformed populations, there is a huge need for information, training and awareness-raising on the phytosanitary regulations in force in Togo, the characteristics of phytosanitary products and on good phytosanitary practices such as protection and safety measures before, during and after treatments.

Failure to control phytosanitary techniques (treatment methods and conditions) followed by the abusive use of pesticides can have direct consequences or impacts on human health and the environment in terms of disruption of the natural balance with the disappearance of non-target organisms such as birds, bees, earthworms, frogs, not to mention the appearance of new pests (weeds, pests) and the acquisition of pesticide resistance in other insects. Other consequences

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are the depreciation of food quality, with the increased risk of toxicity, the decrease in nutritional value and the reduction of pastures.

Within the framework of integrated pest and pesticide management, most users are unaware of alternative protection techniques and methods that are the most respectful of human health and the environment.

The lack of training and information as well as the lack of respect for the legal framework on the marketing and use of pesticides are factors that aggravate the health situation of populations in general and that of producers in particular. This situation leads to the degradation of the natural ecosystem, especially that of forest species, with the aim of expanding agricultural fields through the use of harboricides acquired clandestinely on local markets. These highly toxic products, introduced into the bark of trees, systematically dry them out. With this drying up, these populations can more easily obtain agricultural land and authorisation from the competent services to exploit these woods (firewood, charcoal).

Pesticides are used in agriculture and in public health programmes. However, some of these pesticides in their handling and use are likely to generate multiple environmental impacts (reduction of biodiversity, soil and water pollution, etc.) and represent a serious health problem for the populations concerned.

Among the major strategies for controlling crop pests such as insects, fungi, nematodes, weeds or unwanted grasses, the use of pesticides, most of which are chemical, has come to the forefront and their unreasonable use is not without consequences for environmental biodiversity. As environmental impacts, the irrational, anarchic use of pesticides in agriculture generates ultra-resistant pathogens. Fungi, bacteria and viruses, under the effect of chemical stress, become increasingly resistant and virulent. Insects that are "harmful" to crops become stronger every year and grasses become resistant to herbicides.

The problem linked to the phenomenon of pollination is partly due to the disappearance of certain species such as pollinating insects, raptors and other pest predators, and that of soil degradation (destruction of soil microfauna and microflora such as bacteria, fungi, algae, earthworms, among others, responsible for soil fertilisation), with the result that fragile forest species, among others, are gradually disappearing, all partly linked to the uncontrolled and abusive use of pesticides.

All in all, these toxic substances can directly destroy certain species, thus interrupting the cycles of matter (carbon, oxygen, nitrogen, etc.) and thus disrupting the various ecosystems. In the long term, far from getting rid of pest problems, pesticides create more of them.

In order to make a real assessment of this recurrent phenomenon, it was necessary to make an inventory of the use of pesticides in Togo in order to assess their impacts in the precise context of deforestation. To this end, a multidimensional survey was conducted in the country, bringing together the actors involved in the regulation, management, distribution and use of these various products, in order to have an overall idea of the current state of pesticide use in Togo.

The results of the survey conducted in 2017 showed that about 81% of producers use insecticides to protect their crops, which occupy a total area ranging from 194,447 to more than 266,424 ha. Several classes of insecticides are imported, including organochlorines, which are banned in Togo, organophosphates, carbamates and pyrethroids, which together make up 70% of imports.

The tonnages of these products imported each year (between 2,281 and 3,278 tonnes) are increasing on the national territory, not only in the cotton, rice and market gardening zones, but

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also in the forest zones for coffee and cocoa cultivation (Etat des lieux de la gestion des insecticides au Togo, Afrique de l'Ouest; K. Accrobessy, M. J. Dorkenoo, R. Osse, K. Oboussoumi, M. Akogbeto, A. Glitho).

### **6.3.2. Storage of Pesticides and Use of Obsolete Products**

Pesticides can become obsolete if stored and not used for long periods of time. In addition, prolonged storage of pesticides can cause leaks and contaminate soil and water in storage areas. According to the report of the last inventory of POPs pesticides, obsolete pesticides and associated wastes in Togo, inventory carried out in 2017 through the GEF/UNEP/BSCRC/Green Cross Project - GEF ID : 3969 "Capacity Building and Technical Assistance to Least Developed Countries (LDCs) and Small Island Developing States (SIDS) in Africa for the Execution of National Implementation Plans (NIPs) of the Stockholm Convention in the West and Central African Sub-Regions (ECOWAS)", sites and shops potentially polluted by obsolete pesticides were identified.

### **6.3.3. Packaging Management**

Packaging in rural areas is used for the repackaging of food products, such as cooking oils and salt, drinking or drinking water, flour, local beverages, cereals, etc. This way of reusing empty packaging is a proven and unconditional source of acute or chronic intoxication. Other packaging, if not reused, is discarded in nature, burnt or leaked into the ground, resulting in environmental pollution.

In Togo, there is no system for the management and disposal of empty packaging and the rest of the phytosanitary products. Recent FAO recommendations stipulate that these empty packages should be taken back by pesticide distributors for appropriate treatment.

### **6.3.4. Disposal Provisions**

Pesticides can become obsolete if stocks in the country are not used for a long time. In addition, prolonged storage of pesticides can cause leaks and contaminate soil and water in storage areas. The healthy and ecological destruction of these obsolete products requires enormous financial means and adapted state-of-the-art technologies that Togo does not have.

### **6.3.5. Environmental Control of Pesticides**

The Plant Protection Directorate, supported by law enforcement, security and customs officers, is in charge of control with seizures in the field of non-registered pesticides. However, it is important to underline the notorious insufficiency of staff to cover all markets and sales outlets throughout the country.

Also, the lack and insufficiency of phytosanitary inspectors at certain checkpoints, and given the porous nature of our borders, informal distributors and agricultural producers, in an illicit and illegal manner, bring in large quantities of fraudulent products from neighbouring countries across these borders.

In practice, shortcomings are noted in monitoring and inspection, but also in awareness raising and the effective application of certain legislative provisions.

However, with the introduction and requirement of a permit for each import, the creation and establishment in Togo of the National Pesticide Management Committee (CNGP), also counting on the ongoing harmonization of rules governing the approval, marketing and control of pesticides within the ECOWAS, UEMOA and CILSS spaces with the forthcoming

operationalization of the West African Committee for the Approval of Pesticides (COAHP), a halt will be brought to this phenomenon of cross-border and illegal circulation of unregistered pesticides.

#### **6.4. Control methods in Togo and in the Region**

##### **6.4.1. Preventive Struggle**

Preventive control is focused on a number of pests such as the autumn armyworm on cereals and especially maize, fruit flies, whiteflies and other pests such as locusts. With the help of projects and programmes, supported by technical and financial partners, surveys are carried out in the field at the indicated times of the year, in order, on the one hand, to monitor the dynamism of their population and, on the other hand, to evaluate the intervention threshold in terms of phytosanitary treatment. The monitoring of other agricultural pests is the responsibility of farmers. However, with regard to food safety, the plant protection service identifies pests in order to determine the areas at risk of infestation.

##### **6.4.2. Curative Struggle**

This fight is carried out in Togo through chemical control. Farmers confronted with plague problems contact the competent services to receive advice on appropriate control methods and techniques. The decentralised plant protection services also play a very important role in providing support and advice in this respect.

##### **6.4.3. Integrated Pest Management**

The most effective control strategy recommended for the control of plagues in Togo is the integrated one, which brings together all control methods. The use of resistant varieties to control insect pests and diseases is also part of the methods used in Togo.

It should be pointed out that in loss management, the predominance in Togo is that of chemical control, no doubt due to the immediacy or shock effects on pests. But alongside chemical control, there are other methods, such as: cultural techniques, shifting sowing dates or early sowing, early weeding of weeds, prospecting for ootheca in the dry season, use of resistant varieties, biological control (fungus, insect pests).

In public health, apart from vector-borne diseases (VBDs) such as malaria (*Anopheles gambiae*), bilharziasis (*Schistosoma haematobium*), onchocerciasis (*Onchocerca volvulus*), lymphatic filariasis (*Wuchereria bancrofti*), arbovirosis (*Aedes furcifer*, *Aedes luteocephalus*, *Aedes taylori*, *Aedes neo africanus*), *Aedes vitatus* and *Aedes aegypti*), dracunculiasis (*Dracunculus medinensis*), and human African trypanosomiasis (HAT) (*Glossina palpalis gambiensis*, *Glossina morsitans morsitans*), another pandemic with corona virus, called "Covid19", has just made its appearance at the end of 2019, all of which constitutes a major health problem in Togo.

Togo has several programmes to fight these diseases. The trend is to focus on the diagnosis and treatment of cases. The result is certainly a decrease in mortality and morbidity.

In response to this situation, vector-borne disease control strategies should therefore combine curative measures targeting the parasite with preventive measures incorporating anti-vector interventions that for a long time have relied exclusively on the use of insecticides, which are not without consequences for human health and the environment.

#### **6.4.4. Summary of Approaches Used**

Knowledge (biology, life cycle) of the main pests and crop pests to be controlled, as well as the techniques and methods to control them, is essential for any effective and efficient plant



protection programme. Thus, some approaches and control methods in agriculture and plant protection are used to combat plagues. These are chemical, biological, organic or botanical, physical, integrated and those related to the human factor. As noted above, the most widely used method in modern agriculture today is the chemical method, hence the importance of paying particular attention to this method when drawing up pest management plans involving the use of pesticides.

#### **6.4.4.1. Chemical control**

The control method commonly used to control crop pest invasions remains the chemical one, which accounts for more than half of the measurements. Among the chemical pesticides used, we find any formulation (EC: Emulsifiable Concentrate, EG: Emulsifiable Granule, EO: Oil-type Emulsion, ES: Seed Treatment Emulsion, FS: Seed Treatment Suspension Concentrate, OD: Oleo Dispersible, OL: Liquid miscible with an organic liquid, SC : Suspension concentrate, SG: Water soluble granule, SL: Soluble concentrate, WG: Dispersible granule, WP: Wettable powder, WS: Wettable powder for wet seed treatment) including fumigants (FT: Fumigant tablet) for the treatment of stored goods. This chemical approach has resulted in : (i) numerous cases of pollution and poisoning were reported each time; (ii) the resistance of many pests to several chemicals (case of *Helicoverpa armigera* to pyrethrinoids); (iii) the destruction of useful species such as bees and certain parasitoids; (iv) the disturbance of the balance of the ecosystem; (v) the dependence on synthetic chemical pesticides; (vi) the growing debt of peasants forced to invest more and more in the purchase of increasingly expensive products; (vii) the deviations in the use of cotton pesticides on certain food crops such as cowpeas, etc.; (viii) the use of cotton pesticides on certain food crops such as cowpeas.

In agroforestry, most control methods use biocides or pesticides (insecticides, fungicides, nematicides, herbicides etc.). The ease of use and effectiveness of these chemical compounds in the tropics vary enormously according to pests, regions and trees (Gray, 1972a). Chemical control of diseases and pests in forest areas is much more difficult. The same applies to large plantations.

In many plantations on less favourable locations, such as hills or hilly terrain, the use of pesticides has rarely been successful because of the inaccessibility or the presence of undergrowth in these plantations.

With the wide range of pesticides currently available, it has often been possible to achieve excellent results in experimental trials under natural conditions or in very localised applications. But once the pesticide that seems most attractive is used over a large area, it usually proves ineffective.

#### **6.4.4.2. Physical Wrestling**

Physical control or all the methods (trapping, weeding and hannetonnage against animal pests, weeding and mulching against weeds) representing 2/5 of the measures, uses physical and mechanical means that can be used both during the cultivation phase (growing period) and after the harvest to protect stored foodstuffs. Some of these methods can also be used in the veterinary, domestic and urban fields. During the vegetative period of the crops, this control consists of collecting the infested plants and destroying the pests.

For this agricultural technique, knowledge of the mode of attack of the pests and that of their natural enemies, the evaluation of the damage caused by the pests and the decision making from the threshold of intervention by the producer are of capital importance.

#### **6.4.4.3. Cultural Control**



Crop control is a method of controlling pests and diseases of cultivated plants and weeds using appropriate cultural techniques or cultivation methods. These techniques aim to inhibit the development of pests and weeds by modifying their natural environment and disrupting their life cycle.

They may include, for example, the practice of adapted crop rotations, modification of soil pH (by adding compost or peat for too calcareous or basic soil, and limestone in the form of agricultural or magnesian lime for too acidic soil), the level of fertilisation, irrigation techniques, mulching, removal of crop residues, etc. This fight, together with the physical fight, represents 2/5 of the measures.

#### **6.4.4.4. Biological Control**

Biological control is one of the methods of controlling pests such as crop pests (insects, mites, nematodes etc.), diseases (fungal, bacterial, viral etc.) of plants and animals, or weeds (weedy plants) by means of antagonistic living organisms, called parasitoids or biological control agents.

In Togo, those used in the agricultural sector and which have proved their worth are : the control of the mealy bug *Phenacoccus manihoti* of cassava; the green mite of cassava (*Mononychellus tanajoa*); the maize mealybug (*Prostephanus truncatus*) with *Teretriosoma nigrescens* in granaries containing stored maize; the water hyacinth (*Eichhornia crassipes*) with the use of several species of natural enemies ; the mango mealy bug (*Rastrococcus invadens*); the fruit whitefly (*Aleurodicus dispersus*) and more recently, releases of natural enemies (*Anagyrus loeckii*) against the invasive papaya mealy bug (*Paracoccus marginatus*) have been conducted in Togo by the Plant Protection Directorate, with the support of technical and financial partners. These approaches using parasitoids as natural enemies are by far one of the recommendable alternatives to chemical pesticides, even if conventional biological control experiments against the cotton caterpillar have proved ineffective.

It should be remembered that the dynamism of nitrogen in the agroforestry system contributes effectively to the biological control of certain insect pests.

According to studies by Huffaker (1974) and DeBack (1972), biological control in agroforestry is more feasible in tropical than in temperate environments, with 60 per cent success rate compared to 45 per cent for both environments. Biological control in Togo has a proportion of 1/5th of the controls.

However, the use of formulations of microbial agents (polyhedral core viruses) mixed with certain pyrethroids at low doses (1 gram of deltamethrin ingredients and 4 grams of active ingredients per hectare of cypermethrin) has given very encouraging results in Togo.

#### **6.4.4.5. Botanical Control**

Botanical or organic pest control uses pesticides derived from aqueous plant extracts called Organic Bio-Pesticides of Natural Origin. The best known are those extracted from the seeds or leaves of neem (*Azadirachta indica*), a biopesticide with insecticide (against a range of insects), acaricide (against mites), nematicide (against soil nematodes), fungicide (against fungi) properties.

To this end, a sub-regional pilot project for the formulation of field trials and the use of this neem seed-based biopesticide is currently being implemented and carried out in Togo. The national coordination of the said project is ensured by the Environment Directorate, of the Ministry in charge of the environment and the technical coordination, by the Plant Protection Directorate, of the Ministry in charge of agriculture.

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The technical and implementation arm of the project is the Higher School of Agronomy of the University of Lomé (ESA/UL), which, through this project, is currently producing neem grain powder, and more recently will be formulating emulsifiable concentrate of pesticides, still based on neem grains, for pest control in Togo.

The financial partnership for this project is with UNIDO (United Nations Industrial Development Organization) and the technical partnership is with RENPAP (Regional Network for the Promotion and Use of Biopesticides in Asia and the Pacific), which includes countries such as Afghanistan, Bangladesh, China, India, Indonesia, Iran, South Korea, Malaysia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Vietnam.

➤ **Traditional bio-pesticide production techniques**

The methodology used to obtain bio-pesticides with "neem" is described as follows:

- Powder 1 kg of well-dried neem seeds;
- Put the powder obtained in a container and add 10 litres of water. Cover and put in the shade for 1 to 2 days;
- Filter the mixture carefully. On the day of treatment, crush 20 freshly picked papaya leaves;
- Mix the crushed leaves in 1 litre of filtered water;
- Mix the solution of the papaya leaf with that of the "neem";
- Add 1 litre of fermented cow's urine and 20 g of indigenous soap to the resulting mixture;
- Mix in a little water ;
- Put the product in a ULV sprayer and treat a 1 hectare field.
- Repeat the treatment 6 to 7 times in one season.

➤ **Experimenting with a pesticide-free cowpea storage process**

Togo has been experimenting with a pesticide-free cowpea storage process under the Purdue Improved Cowpea Storage (PICS) project, or Purdue University's project on improved chemical-free cowpea storage in double-bottomed bags called PICS bags. The evaluation reports at the end of the project's experimentation made it possible to capitalise on the results, which have been replicated at the national level.

**6.4.4.6. Biotechnological Control**

Agricultural biotechnology is a set of scientific techniques for improving plants, animals and microorganisms. Thanks to technological science, DNA can be modified to produce plants that are resistant to pests and diseases. The result is the simplification of field work with an increase in agricultural production and productivity.

However, it should be noted that this GMO technology presents potential risks in terms of :

- toxicity and allergies linked to the presence of the inserted gene ;
- consumption of products derived from animals fed with GMOs;
- development of antibiotic resistance ;
- decrease in the nutritional value of certain foods.

This method of control is so far non-existent in Togo.

**6.4.4.7. Integrated Pest Management**

Integrated pest management or integrated protection alone represents 2/5 of the methods in

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Togo. It is defined as the concept of crop protection whose application involves a set of methods (physical, biological, biotechnological, cultural techniques, etc.) with a reasoned and less use of chemical pesticides. Integrated pest management, as a component of sustainable agriculture, is a response based on the observation and recognition of pests, and the farmer's understanding and knowledge of their ecology, biology and pest thresholds.

This management is based on basic principles and analytical and management practices and techniques capable of reducing the frequency of pest attacks, the incidence of plant diseases and the significant reduction in the use of synthetic chemical pesticides. Integrated Pest Management therefore allows for the lowest possible use of chemical pesticides with a significant reduction in the risks of poisoning and environmental pollution associated with them.

## **7. SWOT ANALYSIS OF PEST AND PESTICIDE MANAGEMENT CAPACITIES IN AGRICULTURE IN TOGO AND THE KARA REGION**

Several methods are used for the efficient, rational and safe management of pests and pesticides in Togo in general and in the Kara region in particular. These are the following methods with their SWOT analyses (Strengths, Weaknesses, Opportunities and Threats), an English word meaning: Strengths, Weaknesses, Opportunities and Measures or Dispositions to be taken.

### **7.1. Mechanical Wrestling**

#### **7.1.1. *Field of Intervention***

Mechanical pest control is the control of diseases and pests by mechanical means.

#### **7.1.2. *Current Status***

Existing mechanical control methods include :

- *insect trapping*. Flying insects can be captured using pheromone traps, plants, lamps, plates, trays, etc. ;
- *keeping insect pests away from the crop* by placing a screen over the crop or in front of the ventilation windows to keep out flying insects such as thrips, aphids, bugs, leafhoppers, whiteflies and butterflies;
- *manual destruction of larvae or caterpillars* (case of the autumn armyworm);
- *manual weed pulling, in the case of strigas* ;
- *weeding with a hoe or cutting unwanted weeds*.

The larvae of insects that feed on the leaves, roots or underground parts of the plant can in turn be controlled by covering the soil or substrate, for example with plastic film, canvas or collars. This also prevents the development and spread of larvae and pupae which have to pass from the plant into the soil to pupate.

The application of heat treatments to eliminate harmful organisms. Several methods are recommended:

- *Immersion of the plant material* (seeds, bulbs, tubers, cuttings) in hot water, eliminating harmful organisms such as insects, nematodes, mites, fungi and bacteria;
- *hot air treatment to* control harmful organisms in plants, bulbs, tubers and seeds;
- *Solar disinfection* by a rapid rise in temperature in a floor covered with a transparent plastic film, destroying harmful organisms;
- *steam sterilisation for* disinfecting soil, substrate, packaging, etc.

The use of the flooding system by covering the soil with water for a long period of time. This practice makes it possible to eliminate a large part of the harmful organisms that die by asphyxiation.

Removal and disposal of infected plants or plant parts.

### **7.1.3. Difficulties**

This method does not encounter any major difficulties.

## **7.2. Integrated Biological Control**

Biological control is one of the methods of controlling pests such as crop pests (insects, mites, nematodes, etc.), diseases (fungal, bacterial, viral, etc.) of plants and animals, or weeds (weedy plants) by means of antagonistic living organisms, called parasitoids or biological control agents.

### **7.2.1. Field of Intervention**

Integrated biological control in the mainly agricultural field in Togo applies to food, market gardening and fruit crops.

### **7.2.2. Current States**

The biological control techniques used and proven successful in Togo are the control of the mealybug *Phenacoccus manihoti* of cassava; the green cassava mite (*Mononychellus tanajoa*); the maize mealybug *Prostephanus truncatus* with *Teretriosoma nigrescens* in granaries containing stored maize; the water hyacinth *Eichhornia crassipes* with the use of several species of natural enemies; the mango mealy bug (*Rastrococcus invadens*); the fruit whitefly (*Aleurodicus dispersus*) and more recently, releases of natural enemies *Anagyrus loecki* against the invasive papaya mealy bug (*Paracoccus marginatus*).

These approaches to using parasitoids as natural enemies are alternatives to chemical pesticides.

Another technique is the use of aqueous plant extracts, mainly from neem (*Azadirachta indica*) seeds or leaves. A biopesticide with insecticidal (against a range of insects), acaricidal (against mites), nematocidal (against soil nematodes) and fungicidal (against fungi) properties.

### **7.2.3. Difficulties**

For appropriation, producers expect the formulation and industrial production of these pesticides based on aqueous plant extracts, mainly neem grains or leaves, as well as their availability on the market at reasonable cost.

## **7.3. Vector control**

### **7.3.1. Field of Intervention**

Vector control aims to increase the impact of early diagnosis and rapid treatment of cases of plant attack by vectors. It is applied in agriculture, human health and animal husbandry.

In agriculture, it is based on the use of pesticides and is aimed at plant protection, prevention of post-harvest losses and emergency campaigns to combat major plagues (migratory locusts, granivorous birds, rodents, etc.).

Interventions using vector control methods are based on larval control by reducing the source developing larvae and the use of larvicides and pesticides.

### **7.3.2.** *Current Status*

Apart from the most commonly used pesticides, such as herbicides against weeds, insecticides against insects and fungicides against fungi, there are also nematicides against nematodes, rodenticides against rodents, and rat and mouse raticides.

The application of pesticides is motivated by the existence of risks of the development of pests (weeds, fungal diseases, insect pests, etc.). These risks are all the greater when the bio-aggressor is found over large areas and continuously over time, conditions that are favourable to its development.

Pesticides in Togo are imported in the form of ready-to-use formulations by economic operators in the field of pesticides, distributors, after obtaining from the competent authorities, a professional approval for import and distribution.

### **7.3.3.** *Difficulties*

Large quantities of these pesticides are introduced from neighbouring countries by licensed and unlicensed traders. These are registered, unregistered or obsolete pesticides that sometimes lack appropriate labels and packaging.

Pesticides enter the country through various mechanisms and the uncompleted data on quantities are between different actors: private companies, NGOs, agro-pastoral project coordination.

The following efforts, during mixed or not mixed transport, must be made. These are those related to accidental spills of pesticides and other chemical pollutants and the disappearance or total absence of labels on packaging.

A 2017 survey of pesticide vendors shows that very few vendors store their products on shelves without making a difference. It is also noted that there is mixed storage: pesticides next to foodstuffs (Etat des lieux de la gestion des insecticides au Togo, Afrique de l'Ouest; K. Accrobessy, M. J. Dorkenoo, R. Osse, K. Oboussoumi, M. Akogbeto, A. Glitho).

Overall, the problems or deficits related to the management of plagues and pesticides in Togo are as follows:

- low user qualifications, inability to read labels, consequence of over- or under-dosing of pesticides which in turn leads to resistance of certain pests ;
- Pesticides are often not presented in their original packaging, in accordance with current legislation;
- the inability of users to differentiate between different types of pesticides;
- failure to comply with application standards and safety measures, especially with regard to protective and application equipment;
- the absence of personal protective equipment on the users' premises;
- lack of mastery of techniques and good practices in the use of pesticides;
- the lack or insufficiency of medical personnel specialised in the diagnosis of pesticide poisoning;
- the use of pesticides for other purposes (hunting, fishing, etc.) due to ignorance;

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- the insufficiency or non-application by producers of the lessons learnt during awareness-raising, information and education sessions on good practices in the use of pesticides;
- the reuse, through ignorance, of empty packaging in households, often leading to accidents (poisoning, water pollution, etc.);
- the lack of a national policy for the establishment of laboratories for the quality control of pesticides and pesticide residues;
- the lack of training and awareness among some producers on good practices in the handling and use of pesticides;
- the lack of qualified personnel in the management and control of pesticides;
- the inadequacy of the control system, resulting in the pillaging of unapproved and obsolete products on the market;
- the lack of shops specialising in the sale and marketing of pesticides;
- the lack of a policy for the establishment of specialised poison control centres;
- the lack of technical and financial means for the disposal of obsolete pesticides according to international standards;
- the absence of antidotes in case of pesticide poisoning;
- the lack of medical monitoring of pesticide users.

However, there are some opportunities in terms of pest and pesticide management. And these are :

- the emergence of expertise and professionals in pest and pesticide management;
- Increasing the level of responsibility of employees in the management of pests and pesticides;
- protection of the health and safety of people, health personnel and animals.



## **8. DIRECT AND INDIRECT IMPACTS OF PESTICIDES**

### **8.1. Impacts on the Environment**

The effects of pesticides on the environment mainly include effects on non-target species, as they are sprayed or broadcasted on cultivated plots. Thus, more than 98% of insecticides sprayed on crops and 95% of herbicides reach a destination other than their targets (source: Application des pesticides en agriculture maraichère au Togo: Madjouma Kanda, Gbandi Djaneye-Boundjou, Kpérkouma Wala, Kissao Gnandi, Komlan Batawila, Ambaliou Sanni and Koffi Akpagana, 2013).

#### **8.1.1.** *Impacts on the Air*

Pesticides, for the most part, contribute to air pollution and this pollution is influenced by temperature and relative humidity in terms of spread at the time of application. Pesticides applied to crops can volatilise and be blown by winds to other areas or to certain non-target species with the result that : (i) mortality of non-target species that perform important ecological functions: bees and other pollinators, natural enemies of certain pests (parasites, predators, pathogens); (ii) resistance in insect pest populations.

In addition, pesticides can bind to dust particles and travel far from their destination to other unexpected places. This increases the likelihood of these products mixing with other chemicals. Some pesticides produce volatile organic compounds that pollute the atmosphere when they react with other chemical pollutants. This reaction produces tropospheric ozone, which in high concentrations can have adverse effects on vegetation and the environment (necrosis on leaves, limitation of photosynthesis with reduced plant growth and forest dieback).

#### **8.1.2.** *Impacts on Water*

Factors that influence the ability of a pesticide to pollute or contaminate water include its water solubility, distance from the application site to bodies of water, weather conditions, soil type, the presence of a growing crop, and the application method used. Water can cause pesticides to be dispersed into the environment through leaf washing, runoff, leaching and leaching. Runoff contributes to the pollution of surface water while leaching and leaching contribute to the pollution of deep water or the water table. Although surface water and groundwater are often considered separately, they are linked almost everywhere by the hydrological cycle. Depending on the hydraulic gradients, it is surface water that feeds aquifers or aquifers that recharge surface water (Léonard, 1990). Admittedly, whatever the levels of pesticides in surface or ground water, the consequences in terms of health and the environment remain (degradation of aquatic fauna and flora).

#### **8.1.3.** *Impacts on the Soil*

The fate of pesticides in contaminated or polluted soil depends on the nature and chemical composition of the soil, and the risks to the environment are all the greater the more toxic they are. Used on surfaces and at high doses/frequencies pesticides are persistent and mobile in the soil. Thus, they are either degraded by microorganisms or by hydrolysis or absorbed by sediments or plant roots.

Indeed, a soil is made up of mineral and organic elements as well as living organisms and its microflora is essential to maintain its fertility, but the harmful effects of pesticides put it at risk or peril. This is the case of earthworms, major actors and active agents in the structuring of soils and whose capital ecological role is to aerate and micro-drain this environment. Nevertheless, these products reach them through contaminated infiltration water in the soil and go as far as their total elimination and consequently the deprivation of their primordial role.

#### **8.1.4.** *Impacts on Biodiversity*

Released into the environment, pesticides will obviously eliminate the target organisms against which they are used. However, most of these pesticides will also affect organisms other than those initially targeted, either directly (absorption, ingestion, respiration, etc.) or indirectly (via

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another contaminated organism, polluted water, etc.). The effects on biodiversity, particularly terrestrial and aquatic flora and fauna, are therefore undeniable. Among the species affected are those in the food chain (mammals, birds, etc.), insects (foragers or pollinators such as bees and butterflies). Cold-blooded animals (reptiles and amphibians) and terrestrial or aquatic micro-organisms are also affected. As for flora, both natural and artificial, the abusive use of all kinds of herbicides leads to their destruction.

### **8.2. Impacts on Humans**

Plant protection products to prevent and control pests and diseases in agricultural production or in vector control have initially proved to be harmful to humans and their environment. For example, in certain mainly rural areas, they cause burns, human poisoning (nausea, vomiting, dizziness, coma, death) and animal poisoning when the most basic safety measures or precautions are not taken.

Pesticides can enter the body through inhalation of aerosols, dusts and vapours containing pesticides, orally by consuming food or water, and through direct skin contact. Pesticides that seep into soil and groundwater can end up in drinking water and pesticide sprays can drift and pollute the air.

It is difficult to accurately quantify all the harms of pesticides to human health, but many of the dangers are already known. Even with low exposure, pesticides can have serious consequences on the body, such as causing male infertility, different types of cancers, but also seriously affect the foetus. In addition, pesticides can cause spontaneous abortions or serious congenital or foetal malformations. Many cases of acute pesticide poisoning, sometimes fatal, have also already been detected in agricultural settings, where pesticide exposure is highest. The effects of pesticides on human health depend on the degree of toxicity of the product and the duration and extent of exposure.

The populations at risk in terms of exposure remain agricultural workers and their families. In terms of sensitivity to pesticides, children, pregnant or nursing women, the elderly, disabled or sick are more sensitive, with weak immune systems for all, especially for growing children.

## **9. ANALYSIS OF THE NEGATIVE IMPACTS AND THE ENVIRONMENTAL AND SOCIAL RISKS OF PESTICIDES**

### **9.1. Assessment of Negative Impacts and Environmental Risks**

The use of all possible methods of pest control should be recommended as part of the national pest and pesticide management policy. Accompanying measures that should be implemented mainly concern training and awareness-raising of actors, research and promotion of sustainable alternatives to establish an environmentally sound management of pests and pesticides.

The biological or organic control methods strongly recommended in this context are all the more adoptions ensuring such a sustainable agriculture with several advantages including :

- improving water and soil conservation;
- the protection of ecosystems and natural habitats such as mangroves;
- the reduction of negative impacts on the environment ;
- reduction of the risks of intoxication for people and pets;
- participation in the promotion of the sustainable use of biotechnologies.

However, it will be necessary to involve the technical services of the ministry in charge of agriculture and those in charge of research in its implementation.

Still through the same policy, vector control should aim to: reduce the incidence of vectors where an urgent problem exists (e.g. in situations where the vector did not exist, with previously free plants suddenly exposed to a high risk of attack); restrict the spread of the vector in areas where resistance to phytosanitary treatment is widespread; prevent epidemics and reduce the risk of environmentally related spread.

The effective selection and implementation of selective control methods, with reference to the above policy, should adhere to the principles and strategies of reducing plant diseases and attacks. This will involve vector control actions, support mechanisms for producers, raising awareness among producers of the related risks and methods that are environmentally friendly.

In terms of environmental and social risk assessment, pesticides create risks of chemical contamination of air, water and soil which can have toxicological consequences for humans and eco-toxicological consequences for other organisms.

In addition, the environmental assessment of pesticide management methods is based on the examination of the toxicological and eco-toxicological properties of the active ingredients and their physico-chemical properties. It is generally agreed that the environmental impact of a pesticide depends on the degree of exposure (resulting from its dispersion and concentration in the environment) and its toxicological characteristics (Emans et al., 1992). The fate of pesticides in the environment, i.e. their retention, transport and degradation, therefore depends on their most specific properties: solubility, persistence, volatility, mobility and absorbability (Calvet et al., 2005).

On the other hand, the estimation of the potential risks of pesticides to contaminate the environment can be carried out using methods based on the use of numerical simulation models, which make it possible to obtain flows and concentrations of pesticides in different environmental compartments (air, soil, water) (Calvet et al., 2005, Mamy et al., 2008).

Most of the existing models each describe the dispersion parameters of pesticides in the

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environment, based on certain data. These data generally concern molecular (pesticide characteristics), pedological (soil characteristics), climatic (meteorological characteristics), topographical and technological (phytosanitary treatments) parameters (Gustafson, 1994).

These are for example :

- Pesticides Impact Rating Index (PIRI), a pesticide risk indicator for water quality (Kookana et al., 2005).
- Exposure Analysis Modeling System (EXAMS), a model related to the assessment of pesticides in surface water layers (EPA, 2012).
- GENeric Estimated Exposure Concentration (GENEEC), a surface water model used to assess pesticide exposure to aquatic organisms and the environment (EPA, 2012).

The basic chemicals that are used to make pesticides can be harmful to the environment even before they are combined with other chemicals. Nitrous oxide, for example, is a gas that causes the greenhouse effect, which results in global warming. Pesticides can have a negative impact on the environment and human health when certain safety measures during storage, handling, transport and handling are not respected. Poisonings, apart from cases of burns, are the main accidents caused by pesticides.

According to WHO data, it is estimated that in 2004, 346,000 people worldwide, 91% of them in developing countries, died as a result of accidental poisoning. In the same year, accidental poisoning resulted in the loss of more than 7.4 million years of healthy life. (<https://www.who.int/ipcs/poisons/fr/> (WHO Library Cataloguing-in-Publication Data. The global burden of disease: 2004 update).

The same UN organisation estimates that about 3 million people are poisoned by pesticides every year, with 10% of immediately observed fatalities (mainly suicides through ingestion), 99% of which are from low- and middle-income countries. The use and storage of pesticides are the main causes of acute poisoning in southern countries. Rural areas are particularly affected by the unplanned and uncontrolled use of pesticides that are recognised as highly toxic. The cause :

- the lack of information and training on these products;
- lack of body protection ;
- massive donation programmes for products that are often dangerous and stored in unsuitable conditions;
- the sale of adulterated products or products from neighbouring countries without legislation on uncontrolled markets;
- the use of pesticide packaging as a container for food, inadvertent food poisoning, the use of pesticides as a weapon for hunting and fishing;
- Unscrupulous industrialists who dispose of their stocks of pesticides banned by the laws of their countries at low prices to developing countries.

In addition, pesticides can actually be harmful to plants, even if they are used to protect them from pests. Sulphur dioxide is a basic chemical in some pesticides that blocks the sun when it builds up in the atmosphere and also contributes to global warming by trapping heat. Mixed with nitrogen oxide, sulphur dioxide helps create acid rain that falls to the ground and destroys plants, trees and other infrastructure such as buildings.

With Togo's policy framework, which advocates a significant reduction in the use of products that have a negative impact on human health and the environment, it is possible to reduce the number of these deaths by limiting the availability of and access to highly hazardous pesticides in developing countries.

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Tables 11 and 12 summarise the environmental and social risks of pesticides and the negative environmental and health impacts of their uncontrolled use.

**Table 11: Summary of environmental and social risks of pesticides**

Step	Determinant	Risks	
		Human Health	Environment
Transport	- Lack of training and information	- Inhalation of product: vapour, dust, risk of skin contact.	- Accidental spills, pollution of the water table by leaching
Storage	- Lack of means - Lack of training in pesticide management - Lack of suitable shops	- Accidental contamination - Population nuisance - nearby - Product inhalation - Skin contact by spillage caused by the small size of the area.	- Soil and air contamination
Handling	- Lack of training and awareness	- Contamination of water sources by washing containers. - Vapour inhalation, dermal splash contact during preparation or decanting	- Soil contamination by accidental or intentional spillage, pollution of groundwater, surface water and air
Disposal of packaging	- Lack of training, information and awareness raising	- Ingestion of products through the reuse of containers - Dermal contact and breathing apparatus	- Soil congestion and pollution
Container washing	- Lack of training, information and awareness raising	- Dermal contact - Water contamination - Inhalation of products, food poisoning	- Acute and chronic poisoning of fish and other crustaceans and animals - Pollution of wells and ponds, water tables

**Table 12: Summary of the negative impacts of uncontrolled use of pesticides on the environment**

Environment	Nature of the impact
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<b>Floor</b>	<ul style="list-style-type: none"> <li>- Pollution</li> <li>- Modification of the microbial flora</li> <li>- Decreased fertility</li> <li>- Alkalisisation</li> <li>- Salinisation</li> </ul>
<b>Surface waters (flat, shallow)</b>	<ul style="list-style-type: none"> <li>- Pollutions</li> <li>- Loss of quality (contamination)</li> <li>- Modification of the PH</li> </ul>
<b>Well water or borehole water, Groundwater</b>	<ul style="list-style-type: none"> <li>- Contamination</li> <li>- Modification of the PH</li> </ul>
<b>Air</b>	<ul style="list-style-type: none"> <li>- Air Contamination</li> <li>- Odour nuisances</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>- Chemo-resistance of pests</li> <li>- Wildlife poisoning</li> <li>- Poisoning and mortality</li> <li>- Breaking the ecological balance</li> <li>- Loss of natural habitats or useful species</li> <li>- Loss of biodiversity</li> <li>- Modification of the aquatic flora (disappearance of certain algae and proliferation of exotic plants)</li> </ul>
<b>Human Health</b>	<ul style="list-style-type: none"> <li>- Acute poisoning : <ul style="list-style-type: none"> <li>• Headaches, dizziness, nausea, chest pain, vomiting, skin rashes, muscle pain, sweating, excessive sweating, cramps, diarrhoea and breathing difficulties, nail colouring and falling nails, poisoning, death.</li> </ul> </li> <li>- Chronic poisoning : <ul style="list-style-type: none"> <li>• Decreased cholinesterase, effects on the nervous system (neurotoxins), effects on the liver, effects on the stomach, decreased immune system, disturbance of hormonal balance (brain, thyroid, parathyroid, kidney, adrenal, testes and ovaries), risk of abortion (embryotoxins), mortality at birth (foetotoxins), birth defects, infertility in humans (spermatotoxins).</li> </ul> </li> </ul>

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	<p>- Intoxication - Alteration :</p> <ul style="list-style-type: none"> <li>Embryonic development, growth of individuals, reproduction, poisoning, etc.</li> </ul>
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## 9.2. Proposals for Mitigation and Prevention Measures

The abusive and irrational use of chemical pesticides by users and handlers could lead to increased environmental and social impacts or risks. Pesticides can cause soil fertility to decline, acidification and heavy metal content to increase, with various consequences detrimental to the food chain.

Their intrusion or discharge into surface or ground water contributes to an increase in the levels of heavy metals and nitrates, which can cause eutrophication phenomena and/or inconvenience or even destroy fauna and flora, with the large-scale use of sulfonylurea herbicides, triazines and probably also sulfonamides and imidazolinones, presenting a risk in terms of massive destruction of non-target plants, algae and ecosystems.

Pesticides could also make a major contribution to the decline in wildlife populations, particularly birds whose eggs do not hatch due to the low texture of their shells. In humans and animals, the impacts can be shock effects through mortality or be more insidious with long-term accumulation that can cause mutagenic effects, loss of fertility, bronchopulmonary problems, types of cancer, etc.

Table 13 outlines some measures that can mitigate these negative impacts of pesticides.

**Table 13: Mitigation measures for the negative impacts of pesticides**

Environment	Nature of the impact	Mitigation measures
	Decreased fertility	<ul style="list-style-type: none"> <li>- To popularise the use of manure or compost, use of biofertilisers</li> <li>- Rational use of mineral fertiliser</li> <li>- Apply appropriate cultivation techniques</li> </ul>



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<b>Floor</b>	Acidification	<ul style="list-style-type: none"> <li>- Minimise and respect the dosage of nitrogenous fertilisers.</li> <li>- Encouraging the use of legumes and fertilising plants</li> <li>- Apply appropriate cultivation techniques</li> </ul>
	Pollution by phosphates, heavy metals (Pb++, ZN++, Mn++)	<ul style="list-style-type: none"> <li>- Strengthening the pesticide control system</li> <li>- Provide disposal facilities for obsolete pesticides and waste</li> <li>- Using pesticides rationally</li> <li>- Popularise and encourage integrated pest management</li> <li>- Set up warehouses to shop empty containers and require manufacturers to remove them.</li> <li>- Disseminate periodically the list of registered pesticides</li> </ul>
<b>Surface and ground water</b>	Pollution by nitrates and heavy metals	<ul style="list-style-type: none"> <li>- Minimise the use of nitrogen fertilisers</li> <li>- Encouraging the use of legumes and fertilising plants</li> <li>- Set up warehouses to shop empty containers and require manufacturers to remove them.</li> </ul>
<b>Flore</b>	Deforestation	<ul style="list-style-type: none"> <li>- Fighting deforestation by banning the misuse of herbicides and defoliants</li> <li>- Apply appropriate cultivation techniques</li> </ul>
<b>Biodiversity</b>	Chemoresistance of pests	<ul style="list-style-type: none"> <li>- Identify pests and pesticides specific to them</li> <li>- Rational application of pesticides</li> <li>- Diversification of pesticides used</li> <li>- Promoting pest resistant crops</li> <li>- Apply appropriate cultivation techniques</li> </ul>
	Intoxication of aquatic and terrestrial fauna	<ul style="list-style-type: none"> <li>- Raise users' awareness of the risks of intoxication</li> <li>- Raise awareness among livestock farmers about safe watering points</li> <li>- Securing at-risk water points</li> <li>- Encouraging the installation of appropriate watering sites</li> </ul>
	Loss of terrestrial biodiversity	<ul style="list-style-type: none"> <li>- Apply integrated pest management (biological, genetic control, use of attractants, repellents, hormones, etc.).</li> </ul>

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<b>Health</b>	Intoxication, Poisoning, Death, Decrease in cholinesterase levels	<ul style="list-style-type: none"> <li>- Respect the conditions of storage, storage of pesticides</li> <li>- Raising awareness of the risks of food poisoning</li> <li>- Strictly apply rational use measures</li> <li>- Use personal protective equipment</li> <li>- Training producers on the rational use of pesticides</li> </ul>
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## **10. PROMOTION OF EFFICIENT AGRICULTURE WITH LOW IMPACT ON HEALTH AND THE ENVIRONMENT**

The strategic options that can contribute to efficient agriculture with low health and environmental impacts in agropoles such as Kara's are: (i) promotion of alternative modes of production (CRA), (ii) promotion of agroforestry systems, (iii) support for the development of agricultural growth poles. These options aim, among other things, to promote farming practices that make it possible to put an end to slash-and-burn agriculture, promote intensive farming practices and integrate agroforestry into farming methods.

### **10.1. Promotion of Alternative Modes of Production for the Benefit of Producers**

This option concerns both plant, animal and fish production with effective management of transhumance.

From an environmental point of view, it is clear that current agricultural practices are a major issue in the deforestation process and that significant changes are needed. In this sense, the main sources of negative effects retained for this option are :

- the massive use of chemical fertilisers and pesticides, whether or not they are registered;
- the practice of intensive agriculture.

The development of intensive farming practices involves the massive and sometimes uncontrolled use of fertilisers and pesticides to improve production yields, which could lead to soil contamination, air and water pollution. The use of unregistered products may, among other things, be an issue to be considered.

The misuse of chemicals could have effects on the physical and biological environment as well as on human health. Although measures can be put in place to favour the use of natural inputs, it would be illusory to think that the use of natural products can fully and effectively meet the needs of soil enrichment, so that the establishment of sound mechanisms for the management of chemicals will be a necessity.

### **10.2. Promotion of Agroforestry Systems**

The restoration of degraded land will be done mainly through the planting of vegetation in non-valued savannah areas, while the integration of agroforestry will be done through the planting of trees in agricultural production systems, as well as the development of tree nurseries. The sources of potential negative effects considered here are the use of fertilisers and pesticides to protect plants and crops that could lead to soil contamination, air and water pollution. The use of unregistered products may, among other things, be an issue to be considered. At the human level, the health of the population and of pesticide users could also be affected.

The use of non-registered products may, among other things, be an issue to be considered.

### **10.3. Support for the Development of Agricultural Growth Poles**

With regard to support for the development of agricultural growth poles, the concept of an agropole such as Kara, the anchor point for agricultural growth poles, should be subject to a strategic environmental and social assessment and specific environmental management measures should be identified.

The main activities that can represent sources of negative effects related to the management of

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pests and pesticides, in the framework of agro-processing development and the creation of agro-park, agro-industrial units and planned agricultural development zones (ZAAP) according to analysis are :

- changes in agricultural practices, including the use of machinery;
- the intensification of agricultural practices in well-defined sectors, leading among other things to large-scale agricultural production.

As mentioned in the first option, the development of intensive farming practices linked to the development of agricultural growth poles will again involve the use of fertilisers and pesticides to improve production yields, which could lead to soil contamination, air and water pollution. The use of non-registered products may, among other things, be an issue to be considered. At the human level, the health of the population and of pesticide users could also be affected.

## **11. PEST AND PESTICIDE MANAGEMENT PLAN IN AGRICULTURE AND VECTOR CONTROL**

For an effective and efficient management of pests and pesticides in agriculture and public health in Togo and more particularly in agropoles including the Kara agropole, the following constraints and shortcomings have been identified:

➤ **At the level of plans and programmes**

- Insufficient implementation in the effectiveness of actions in plans, programmes and projects.

➤ **At the institutional level**

- Insufficient coordination in the interventions of the actors;
- Insufficient ownership of sectoral initiatives by stakeholders and populations;
- Lack of organisation (anarchy) of small producers for the acquisition of products;
- Lack of a national poison control centre.

➤ **At the legislative and regulatory level**

- Insufficient regulation of larval control (LAV) ;
- Lack of regulations on biological control (larvicides).

➤ **At the level of actors' capacities**

- Insufficient ownership of sectoral initiatives by stakeholders and populations;
- Insufficient training and awareness-raising of stakeholders and users, on the one hand on the dangers of pesticides and on the other hand on their rational and safe use, without forgetting the appropriate management of their empty packaging;
- Non-appropriation by stakeholders and users of the results of some of the training received on the use of pesticides, in terms of rationalisation and safety;
- Insufficient coordination and availability of alternative packages to pesticides;
- Lack of information on incidents/accidents related to pesticide poisoning.

➤ **In terms of technical management and infrastructure**

- Inexistence of reliable data on pesticides used in Togo ;
- Inexistence/inadequacy of product storage infrastructures ;
- Unsafe application of pesticides ;
- Difficulties of access to full personal protective equipment ;
- Timid experimentation and low uptake of alternative methods to pesticides and integrated pest management ;
- Absence or inadequacy of systems for the treatment and disposal of empty pesticide containers and associated wastes, related to spills of obsolete pesticides and others ;
- Lack of a collection system, storage and disposal infrastructure for empty pesticide packaging.

➤ **At the level of control and monitoring**

- Insufficient means and control mechanisms, resulting in the illegal and fraudulent introduction of pesticides of dubious quality;
- Lack of a system to withdraw unregistered pesticides from the market;
- Insufficient and non-monitored village crop surveillance and phytosanitary protection

brigades;

- Inexistence of a toxicovigilance system to control and monitor the negative effects linked to pesticides (pollution, intoxication, etc.), despite the existence of a toxicovigilance commission (not operational due to budget deficits).

### **11.1. Principles and Approaches for Pest Management in Agriculture and Vector Control**

The following principles and approaches are recommended for the management of pests and pesticides in agriculture and vector control in Togo:

- institutional, legal and political strengthening ;
- the precautionary and care principle ;
- capacity building for actors involved in pest management in agriculture and vector control;
- transparency and traceability of imported and used products;
- sustainable product management and public health approach ;
- intersectoral coordination and cooperation ;
- the development and strengthening of technical standards and norms ;
- information and data management relating to the management of plagues ;
- the rationalisation and strengthening of risk monitoring and prevention structures ;
- monitoring and evaluation of the health and environmental effects and impacts of pesticides;
- Anchoring IPM in extension/information systems for producers;
- the effectiveness of the participation of all the actors concerned.

### **11.2. Axes of Intervention of the Action Plan**

In essence, the Action Plan is structured around the following axes:

#### ➤ **Institutional and legal strengthening**

- Strengthen legal-institutional and technical capacities for pest management in the areas of agriculture, livestock, fisheries and public health.
- Develop and implement a mechanism for information exchange between stakeholders.

#### ➤ **Technical measures and capacity building**

- To support research programmes on issues of the relationship between varietal resistance and biological control.
- Promote integrated pest management (IPM) in the management of pests and pesticides.
- Make an inventory and popularise cultivation techniques and alternatives to pesticides.
- Carry out inventory, collection, storage and disposal if possible of chemicals including obsolete and outdated pesticides.
- To have a reliable database on pesticides imported, distributed and used in Togo.
- To have a reliable database on obsolete and obsolete pesticides, as well as on contaminated sites, in accordance with FAO's PSMS (Pesticide Stock Management System) standards.
- Put in place a plan for the assessment and decontamination of contaminated sites and the management of obsolete stocks based on the FAO's PSMS (Pesticide Stock Management System) standards.
- Implement in Togo, the harmonised system of labelling of chemicals (including translation of packaging labels into literate local languages).
- Bringing registered pesticides closer and making them accessible to growers.
- Support producers in the acquisition of processing equipment and personal protective equipment.
- Provide the competent technical services with adequate and sufficient means of control and monitoring.
- Strengthen and equip village brigades or young entrepreneurs in crop surveillance and



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phytosanitary protection, treatment materials and personal protective equipment.

- Set up a toxico vigilance system to control and monitor the negative effects of pesticides (pollution, intoxication, etc.).
- Implement a monitoring programme (monitoring in environmental and biological matrices) of the effects and impacts of pesticides.
- Promote an incentive policy for the collection and recovery of empty pesticide packaging.
- Raising awareness and training people and users on the dangers and risks of pesticides and on good practices for the rational and safe handling and use of pesticides.
- Train all actors involved in the management of pesticides on the Globally Harmonised System of Classification and Labelling of Chemicals.
- Raise awareness on the protection of vulnerable people (women, children and the elderly) against the negative effects of pesticides.
- Train health workers on the management of pesticide poisoning cases (toxicology).
- Strengthen laboratory capacities for the determination of pesticide residues in food, plants, water, soil and air.

### ➤ Control and monitoring

- Reinforce controls at customs borders on national territory.
- To ensure better organisation of the standards control service and the packaging of chemical products.
- Strengthen risk assessment infrastructures.

It should be noted that, for the implementation of this last axis, and within the framework of the implementation of the common regulations of the 17 Member States of ECOWAS, UEMOA and CILSS (Interstate Committee for Drought Control in the Sahel), a training of trainers workshop on the use of the CNGP (National Pesticide Management Committee) module of SIGEPAO (Integrated Pesticide Management System in West Africa) was held from 2 to 4 October 2019 in Lomé. The objective of this workshop was to contribute to the improvement of the system of inspection, control and management of pesticides at the level of the countries, the 3 intergovernmental organisations.

Table 14, below, provides a preliminary cost estimate for the main activities in the plan.

**Table 14: Costs of the main activities of the plan**

N°	Activity	Cost (F CFA)
1	Institutional and legal strengthening	30 000 000
2	Technical measures and capacity building	110 000 000
3	Strengthening the control and monitoring system	55 000 000
<b>Total Budget</b>		<b>195 000 000</b>

### 11.3 Monitoring and Evaluation of the Implementation of the Pest and Pesticide Management Plan in Agriculture and Vector Control

Monitoring is supported by data collection and analysis to check whether the implementation of activities is proceeding as planned and to make adjustments if necessary. It is therefore an evaluation activity focused on the short term, in order to enable real-time action.

The frequency of monitoring will depend on the type of information needed. However, it will be

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continuous throughout the implementation of the action plan.

Overall monitoring will be ensured by an established implementation structure. A comprehensive monitoring plan will be drawn up and made available to the actors involved in implementation, each for their own monitoring purposes.

The operationalisation of community monitoring will be an asset for follow-up.

### 11.2.1. *Monitoring Indicators*

The indicators for monitoring the implementation of capacity building and research activities, as well as those relating to agricultural extension by the deconcentrated services of the Ministry of Agriculture, the Ministry of the Environment and the Ministry of Health, NGOs, agricultural producers' organisations and researchers are as follows:

#### ➤ **Indicators of a strategic nature to be followed by specialists in environmental protection**

The strategic indicators for monitoring by specialists in environmental protection are as follows:

- appointment of Environmental Managers at the level of the structures involved;
- holding workshops to share and disseminate the PPMP ;
- level of articulation and synergy of the PPMP with programmes, plans and projects in progress/in sight at the national level;
- processes, steps and environmental criteria in activities ;
- number of actors trained/aware of good pesticide management practices;
- effectiveness of national environmental monitoring and reporting.

### 11.2.2. *Indicators for Monitoring by the Established Coordination Unit*

The indicators below are proposed:

#### ➤ **Health and environment**

- Degree of toxicity of the products used.
- Available quantity of protective equipment.
- Level of knowledge of good management practices (pesticides, empty packaging, etc.).
- Level of impact on pets, aquatic organisms and wildlife.
- Toxicity level of the decomposed substances.
- Level of contamination of water resources.

#### ➤ **Storage conditions / management of pesticides and empty packaging**

- Percentage of adequate and available storage facilities.
- Level of risks associated with transport and storage.
- Level of mastery of spraying and impregnation processes.
- Number of functional packaging disposal equipment amount of packaging disposed of.

#### ➤ **Staff training - information/awareness-raising for the population**

- Number of training sessions carried out.
- Number of agents trained by category.
- Number of farms converted to organic farming.
- Number of farmers adopting integrated pest management, good pesticide management practices.
- Percentage of population reached by awareness campaigns.
- Level of knowledge of the users about the products and the associated risks.

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- Level of knowledge of the traders/distributors about the products sold.

### ➤ Responsibilities for monitoring the PPMP

Proximity monitoring will be carried out by the institutions involved in the implementation of the PPMP. Each institution will intervene in the phase that concerns it, specifically in the agropoles:

- the Plant Protection Directorate Services will be responsible for the internal environmental monitoring of the PPMP ;
- the Services of the Environment Directorate will be responsible for the external environmental monitoring of the PPMP ;
- the Health Directorate Services will be responsible for the external health monitoring of the PPMP.

### 11.2.3. Evaluation

Two evaluations will be carried out for each action: an internal mid-term evaluation and an external evaluation during the month following the end of implementation, in order to maintain the objectives of the action plan.

The mid-term evaluation will be carried out by an External Consultant. The purpose will be to determine the correct evolution of the management plan, the mid-term results. The financial partners, project beneficiaries and other partners involved will fully participate in this evaluation. The external evaluation will consist in measuring the effectiveness of the project as well as its performance and in identifying lessons learned.

### 11.2.4. Training of Actors involved in Pesticide Management

In order to guarantee the effective integration of environmental concerns in the implementation of the PPMP, a capacity building programme (training and awareness-raising) will be implemented for all stakeholders, which will be based on the following axes: (i) operationalisation of the pesticide management plan, (ii) raising the level of responsibility of employees in pesticide management, (iii) protection of the health and safety of populations.

The training should be targeted and adapted to the following target groups: Researchers, Plant Protection, Management and Extension Service Officers, Agricultural Producers' and Livestock Producers' Organisations, Civil Society and other NGOs active in pest and vector control. Typically, the best trainers are to be found among the staff of the Ministries of Agriculture, Environment and Health. Training should also involve village focal points and other local people active in pest and vector control.

The training modules will focus on: good practices in importing, transporting, distributing, storing, applying and managing empty packaging of plant protection products, in order to mitigate their negative impacts on human and animal health and the environment; appropriate behaviour and good environmental practices; maintenance of facilities and equipment; protective measures and measures to be adopted in case of poisoning etc. Particular emphasis will be placed on the requirements for safe storage, to avoid mixing with other products of common household use, but also on the management of empty packaging.

It is recommended to train the trainers by getting them to produce a good practice guide on pesticide use/management themselves, rather than instructing them passively. An indication of the content of the training modules is described below.

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➤ **Some training modules**

- Phytosanitary regulations in the region and in Togo.
- Knowledge about pesticides (type, classification, main routes of entry into the body, related intoxications).
- Knowledge of the different precautionary measures.
- Information on risks as well as health and safety advice.
- Knowledge of the Harmonised System of Labelling of Chemicals.
- Basic knowledge of handling and risk management procedures.
- Good practices for import, transport, distribution, storage, application and management of empty packaging of plant protection products.
- Wearing protective and safety equipment.
- Risks related to the production, use, storage, transport, distribution/marketing, use/handling, disposal of pesticides.
- Vehicle equipment.
- Protective equipment.
- Outline of the processing and operation process.
- Health and safety in relation to operations.
- Emergency and rescue procedures.
- Technical procedures.
- Equipment maintenance.
- Emission control.
- Process and residue monitoring.
- Biological monitoring of pesticide exposure.

**11.2.5.** *Information and Awareness-raising for Users and the General Public*

In the field of agriculture, the most imminent dangers come from the irrational and uncontrolled use of pesticides usually used for plant protection. Also, unfortunately, these pesticides are used for the preservation of cereals and for market gardening. Hence the need to raise awareness of their proper use. Awareness-raising action must be aimed first and foremost at the users of chemical products, particularly producers and traders speculating on the risks of their use. This awareness should aim to seek out and popularise modern methods of conservation and even traditional granary methods, which are as effective as biological and natural methods of pest control.

For importers and traders, it is essential to require that products be accompanied by detailed and simple leaflets informing about the best use and risks. Similarly, consumers must be informed about the quality of products and packaging methods.

Regular popular media broadcasts should be organised for the public. The risk of poisoning by chemical products (fertilisers, pesticides) is a serious public health problem. A distinction must therefore be made on the one hand on:

- (i) health problems resulting from eating, i.e. eating food (especially vegetables or cereals) contaminated by dangerous chemicals;
- (ii) health problems due to the consumption of damaged products (due to the expiry date) that have been chemically decomposed or contain chemical sweeteners;
- (iii) health problems due to the use of outdated plant protection products whose chemical components are corrupted or disintegrated due to failure to comply with storage rules or normal duration; (iv) health problems due to overdosing.

All in all, there is a lack of information and awareness in the country about the environmental and health risks associated with fertilisers and pesticides. Specific actions carried out by public services and the willingness to regulate through legal texts remain marginal. It is necessary to develop long-term strategies and effective approaches to inform and raise awareness among all

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stakeholders (shop window sellers, wholesalers, agricultural users, rural populations, etc.), by focusing on the following lines of action :

- developing and disseminating videos and posters/flyers/posters on the different risks and good practices in the use of pesticides;
- raise awareness of stakeholders through radio and television talk shows ;
- to support associations and trade unions operating in the various sectors concerned in raising their members' awareness of the occupational risks associated with chemicals in their respective fields;
- support consumer associations in raising awareness among the general public;
- Strengthen the training of rural supervisors and extend their action through rural radio stations;
- establish a national and local standards commission for both agricultural and industrial production;
- set up a commission on chemical safety in the field of chemicals.

### **11.2.6.** *Institutional Arrangements for Implementing and Monitoring of the PPMP*

For a better coordination of implementation and monitoring of the PPMP, the National Pesticides Management Committee (CNGP), whose members come from public institutions such as the Ministries of Agriculture, Health, Environment, Trade, Industry, Finance, Communication and Transport, of Justice, Security, Labour and Social Security, Grassroots Development, Social Action, Territorial Administration and Decentralisation, Higher Education, Security and Civil Protection, Research, NGOs, Civil Society Organisations, etc.), would be the most appropriate body. Thus :

- The Plant Protection Directorate of the Ministry in charge of Agriculture, which provides the permanent secretariat of the said body, will be responsible for the internal monitoring of the implementation of the "agriculture" component of the PPMP and will regularly report to the Coordination Unit for this purpose.
- The Directorate of Hygiene and Basic Sanitation of the Ministry in charge of health will ensure external monitoring of the implementation of the "health" component of the PPMP and will draw up regular reports to this effect.
- The Environment Directorate will ensure external monitoring of the implementation of the "environment" component of the PPMP.
- The Research and Analysis Institutions and Laboratories will assist in the analysis of environmental components (analysis of pesticide residues in water, soil, plants, crops, fish, foodstuffs, etc.) to determine the different parameters of pollution, contamination and toxicity related to pesticides.
- Agricultural research centres for testing the biological effectiveness of pesticides, identification of natural enemies of crop pathogens, development of biological control, testing of non-chemical pesticides, development of disease-resistant seeds.
- Agricultural Producer Organisations, on the other hand, must have and apply procedures and good environmental practices for the environmentally sound and safe use and management of pesticides.
- Civil Society, NGOs, Associations, Grassroots Development Communities (CBD), Agricultural Producers' Organisations and other Environmental Organisations will also be able to contribute to inform, educate and raise awareness among agricultural producers and populations on the environmental and social aspects related to the implementation of the PPMP, but also to the monitoring of the implementation and the surveillance of the environment.

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**Table 15: Preliminary estimate of the costs of the main monitoring activities**

N°	Domain	Activities	Cost (FCFA)
1	Indicators for monitoring by other state institutions	Implementation of the indicator by other state institutions	5 000 000
2	Evaluations	Implementation of the internal and external evaluations of the plague management plan in the Kara Region	10 000 000
3	Training of actors involved in the management of pesticides	Organisation of training and awareness-raising workshops for stakeholders	5 000 000
4	Institutional arrangements for implementation and monitoring of the PPMP	Implementation of institutional arrangements	10 000 000
<b>Total Budget</b>			<b>30 000 000</b>



## 12. MEASURES FOR BUILDING CAPACITIES AND FILLING UP OF ANY LEGAL, REGULATORY, AND INSTITUTIONAL GAPS

Measures to build capacity and address potential legal, regulatory and institutional gaps include the following:

- the acceleration of the decentralisation process ;
- setting up and operationalizing national poison control and toxico vigilance centres;
- Strengthening legal, institutional and technical capacities for pesticide management in the fields of agriculture, livestock, fisheries and public health;
- the development and implementation of a chemicals policy;
- the provision of an annual budget for the National Pesticide Management Committee (CNGP), which is a framework for consultation/coordination;
- strengthening the control system on the use, storage, handling, transport, distribution/marketing, management of empty packaging and disposal of pesticides;
- the development of a national strategy that is part of a sub-regional strategy for the environmentally sound management of hazardous wastes including Persistent Organic Pollutants (POPs) and obsolete pesticides;
- taking regulatory measures to protect vulnerable people, especially women, children and the elderly from the harmful effects of pesticides;
- the development and implementation of a mechanism for the exchange of information between stakeholders.

Table 16 below provides a preliminary cost estimate of the main activities of the strengthening measures, while the intervention strategy and action plan are summarized in Table 17.

**Table 16: Costs of the main activities of strengthening measures**

N°	Activity	Cost (FCFA)
1	Support for the acceleration of the decentralisation process in the Kara Region	20 000 000
2	Support to the Kara Regional Hospital Centre for an anti-poison and toxicovigilance unit	15 000 000
3	Support for the strengthening of legal, institutional and technical capacities in the following areas pesticide management in the fields of agriculture, livestock, fisheries and public health	20 000 000
4	Support for the development and implementation of a chemicals policy	15 000 000
5	Support for the strengthening of the control system on the use, storage, handling, transport, distribution/marketing, management of empty packaging and of pesticides	20 000 000
6	Support for regulatory measures for the protection of individuals vulnerable groups, including women, children and the elderly, against the adverse effects of pesticides	15 000 000
7	Support for the development and implementation of an information exchange mechanism between stakeholders in the Region	5 000 000
<b>Total Budget</b>		<b>110 000 000</b>

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**Table 17: Intervention strategy and action plan**

PROPOSED MEASURES	ACTIVITIES TO BE CARRIED OUT	INDICATOR	RESPONSIBLE AUTHORITY	COST (FCFA)	EXECUTION CHRONOGRAM							
					A1		A2		A3		A4	
					S1	S2	S1	S2	S1	S2	S1	S2
<b>Sharing the PPMP</b>	Organisation of regional workshops to share the PPMP	Workshop report	NCGP / APRODAT coordination	45 000 000								
<b>Strengthen legal-institutional and technical capacities for pesticide management in the fields of agriculture, livestock, fisheries and public health.</b>	Implementation of the reinforcement mechanism	Strengthened legal, institutional and technical capacities	NCGP / APRODAT coordination	50 000 000								
<b>Accelerating the decentralisation process</b>	Strengthening the capacities of local elected officials on the consequences of the abusive and uncontrolled use of unregistered pesticides and on their management	Local elected officials available	Minister of Territorial Administration, Decentralisation and Territorial Development// APRODAT	50 000 000								
<b>Provide the National Pesticide Management Committee (NCMPC), which is a framework for consultation/coordination, with an operating budget.</b>	Development of the NCGP PWBP	PTBA developed and available	CNGP/ MAEDR / Ministry of Economy and Finance/ APRODAT	100 000 000								
<b>Develop and disseminate a national strategy that is part of a sub-regional strategy for the environmentally sound management of pesticides, hazardous wastes including persistent organic pollutants (POPs) and</b>	Development and dissemination of the strategy	Strategy developed and disseminated	CNGP/ MAEDR / APRODAT									

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<i>obsolete pesticides.</i>				50 000 000								
<b>Disseminating regulatory texts</b>	Confession publishing and dissemination of texts on pesticides	Numbers of documents confessed, edited and disseminated	DPV / MAEDR / APRODAT	50 000 000								
<b>Support to the DPV in rolling stock for field checks</b>	Purchase of equipment	Number and type of equipment purchased	MAEDR / APRODAT	100 000 000								

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**Table 17: Intervention strategy and action plan (continued1)**

PROPOSED MEASURES	ACTIVITIES TO BE CARRIED OUT	INDICATOR	RESPONSIBLE AUTHORITY	COST (FCFA)	EXECUTION CHRONOGRAM							
					A1		A2		A3		A4	
					S1	S2	S1	S2	S1	S2	S1	S2
<i>Annual support to the DPV in the field control of unregistered pesticides in shops and local markets</i>	Additional and annual budget allocation	Funds available	MAEDR / APRODAT	20 000 000								
<i>Training of those involved in the management (use, storage, handling, transport, distribution/marketing, empty packaging) of pesticides</i>	Organisation of training and awareness-raising workshops for stakeholders	Report of the workshops	DPV / MAEDR / APRODAT	70 000 000								
<i>Information, awareness-raising and training on the rational and safe use of pesticides and the management of empty packaging</i>	Organisation of information, awareness-raising and training campaigns and workshops for producers	Number of campaigns and workshops organised, Report on campaigns and workshops	DPV / MAEDR / APRODAT	45 000 000								
<i>Preparation and dissemination of a guide to good user practices translated into three languages (French, Ewé and Kabyè)</i>	Organisation of a workshop retreat for the development of the guide, Dissemination of the guide	Workshop report, Number and type of media contracts	DPV / MAEDR / APRODAT	50 000 000								
<i>Raising the awareness of agricultural users, informal vendors and the population about the dangers of pesticides</i>	Organisation of awareness-raising campaigns, radio broadcasts  Confession of posters, leaflets	Number of campaigns organised, Contracts signed with local radio stations Number of posters and leaflets confessed	DPV / MAEDR / APRODAT	45 000 000								

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**Table 17: Intervention strategy and action plan (continued1)**

<b><i>Support for experimentation and promotion of biological control</i></b>	Organisation of experimentation and promotion	Reports on experimentation and promotion	MAEDR /APRODAT/ Ministry of Research	100 000 000								
<b><i>Establishment and harmonisation of national pesticide databases</i></b>	Organisation of the implementation	National databases developed and available	DPV / MAEDR /APRODAT	10 000 000								
Known quantity of empty packaging collected and secured	Organisation of collection workshops		MAEDR / MERF / APRODAT	10 000 000								

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**Table 17: Intervention strategy and action plan (cont'd2)**

PROPOSED MEASURES	ACTIVITIES TO BE CARRIED OUT	INDICATOR	RESPONSIBLE AUTHORITY	COST (FCFA)	EXECUTION CHRONOGRAM							
					A1		A2		A3		A4	
					S1	S2	S1	S2	S1	S2	S1	S2
<b>Sharing the PPMP</b>	Organisation of workshops to share the PPMP	Workshop report	NCGP Coordination, APRODAT	5 000 000								
<b>Support for the strengthening of legal, institutional and technical capacities for the management of pesticides in the fields of agriculture, animal husbandry, fisheries and public health.</b>	Implementation of the reinforcement mechanism	Strengthened legal, institutional and technical capacities	NCGP Coordination, APRODAT	20 000 000								
<b>Support for the acceleration of the decentralisation process</b>	Strengthening the capacities of local elected officials on the consequences of the abusive and uncontrolled use of unregistered pesticides and on their management	Local elected officials available	Ministry of Territorial Administration, Decentralisation and Territorial Development / APRODAT	20 000 000								
<b>Support for the dissemination of regulatory texts on agricultural pesticides</b>	Confession edition and dissemination of texts on pesticides	Numbers of documents confessed, edited and disseminated	DPV/MAEDR/ APRODAT	5 000 000								
<b>Support to the DPV in the field control of unregistered pesticides in shops and local markets</b>	Allocation of funds	Funds available	MAEDR/ APRODAT	10 000 000								

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**Table 17: Intervention strategy and action plan (cont'd2)**

<b><i>Support for the training of stakeholders involved in the management (use, storage, handling, transport, distribution/marketing, empty packaging) of pesticides</i></b>	Organisation of training and awareness-raising workshops for stakeholders	Report of the workshops	DPV/MAEDR/ APRODAT	10 000 000								
<b><i>Support for information, awareness-raising and training on the rational and safe use of pesticides and the management of empty packaging</i></b>	Organisation of information, awareness-raising and training campaigns and workshops for producers	Number of campaigns and workshops organised, Report on campaigns and workshops	DPV/MAEDR/ APRODAT	10 000 000								



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**Table 17: Intervention strategy and action plan (continued1)**

PROPOSED MEASURES	ACTIVITIES TO BE CARRIED OUT	INDICATOR	RESPONSIBLE AUTHORITY	COST (FCFA)	EXECUTION CHRONOGRAM							
					A1		A2		A3		A4	
					S1	S2	S1	S2	S1	S2	S1	S2
<i>Support for the development and dissemination of good practice guides translated into three languages (French, Ewé and Kabyè)</i>	Organisation of a workshop retreat for the development of the guide, Dissemination of the guide	Workshop report, Number and type of media contracts	DPV/MAEDR/ APRODAT	5 000 000								
<i>Support for raising awareness of agricultural users, informal vendors and populations on the dangers of pesticides</i>	Organisation of awareness-raising campaigns, radio broadcasts  Confession of posters, leaflets	Number of campaigns organised, Contracts signed with local radio stations Number of posters and leaflets confessed	DPV/MAEDR/ APRODAT	5 000 000								
<i>Support to the Kara Regional Hospital Centre for an anti-poison and toxicovigilance unit</i>	Setting up an anti-poison and toxicovigilance unit	Unit set up and available	Ministry of Health and Public Hygiene, CNGP/ APRODAT	15 000 000								
<i>Support for the training and equipment of village contractors in crop protection</i>	Organisation of training and equipment workshops	Report of the workshops	DPV/MAEDR/ APRODAT	10 000 000								
<i>Support for regulatory measures to protect vulnerable people, including women, children and the elderly from the adverse effects of pesticides.</i>	Establishment of the mechanism for taking action	Regulatory measures available	CNGP/ MAEDR / MERF / APRODAT	15 000 000								
<i>Support for capacity building of structures/stakeholders</i>	Organisation of capacity building workshops	Number and type of reinforced	Coordination CNGP,									

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		structure	APRODAT	10 000 000								
<b><i>Support for the development and implementation of an information exchange mechanism between stakeholders</i></b>	Establishment of a mechanism to enable such development and implementation	Mechanism available	Coordination CNGP, APRODAT	5 000 000								

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**Table 17: Intervention strategy and action plan (cont'd2)**

PROPOSED MEASURES	ACTIVITIES TO BE CARRIED OUT	INDICATOR	RESPONSIBLE AUTHORITY	COST (FCFA)	EXECUTION CHRONOGRAM							
					A1		A2		A3		A4	
	Close monitoring	Follow-up report	Coordination CNGP, APRODAT	10 000 000								
	Supervision	Supervision report	Coordination CNGP, APRODAT	10 000 000								
	Mid-term evaluation	Evaluation report	Coordination CNGP, APRODAT	10 000 000								
	Final evaluation	Evaluation report	NCGP Coordinati on	10 000 000								
	Environmental monitoring	Monitoring report	Coordination CNGP, APRODAT	10 000 000								
<b>TOTAL : 195 000 000</b>												

### **13. CONCLUSION**

The setting up of agricultural growth poles with the objective of reviving the agricultural sector in Togo, is one of the eight priority projects of the National Development Plan (PND) by 2022. Known as "agropoles", these agricultural growth poles respond to a strategy of "massive, simultaneous and coordinated investments" aimed at eradicating hunger and rural poverty.

Thus, for the sustainability of the ten agropoles planned by the NDP, including the one in the Kara basin (North-East), the first and which covers an area of 165 000 hectares, including about 5 000, currently secured and hosting 200 cooperatives around value chains for maize, rice, sesame, cashew nuts, chicken and fish is a reality. In preparations for its implementation, like other plans, a strategy for the rational and safe management of pests and pesticides (PPMP), is warranted.

In addition, the effective implementation of this PPMP will have positive environmental and social impacts, as well as economic benefits for the communities at the national level and particularly for those in the Kara agropole.

It is only at this price that the objectives set for this first agropole will be achieved, with the creation of income-generating activities and jobs for women and young people, not forgetting the deficit in the agricultural balance, which would be reduced to 38% (compared with 44% at present) by 2022.

The cost of implementing the PPMP in the agropole of the Kara basin is estimated at one hundred and ninety-five million (195,000,000) CFA francs.

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## **ANNEXES**

### **ANNEX 1: LIST OF QUARANTINE PESTS OF TOGO**

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**CEREALS**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Oats: <i>Avena sativa</i></b>				
<b>Insects</b>	<i>Tanymechus dilaticola</i> Germar, 1817	Leaves and fruits	Unconfirmed presence in Togo	Invasive Species Compendium, 2018 <a href="http://www.interreseaux.org/IMG/pdf_FAO_rapport_legal_textes_securite_sanitaire.pdf">www.interreseaux.org/IMG/pdf_FAO_rapport_legal_textes_securite_sanitaire.pdf</a> , 2018
<b>Mushrooms</b>	<i>Fusarium culmorum</i> (W.G. Sm.) Sacc.	Inflorescences, leaves, roots, stems.	Unconfirmed presence in Togo	CABI, 2018
	<i>Gibberella avenacea</i> R.J. Cook	Inflorescences, leaves, roots, seeds and stems.	Unconfirmed presence in Togo	CABI, 2018
	<i>Gibberella zeae</i> (Schwein.) Petch	Inflorescences, leaves, roots, seeds and stems.	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Barley Yellow Dwarf Virus	Leaves, whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Helicotylenchus pseudorobustus</i> (Steiner, 1914) Golden, 1956	Racine	Unconfirmed presence in Togo	CABI, 2018
	<i>Heterodera avenae</i> Wollenweber, 1924	Leaves, roots and stems.	Unconfirmed presence in Togo	CABI, 2018
<b>Fonio : <i>Digitaria exilis</i></b>				
	<i>Magnaporthe griseae</i> (T.T. Hebert) M.E. Barr (1977)	Leaves, stems, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018



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<b>Mushrooms</b>	<i>Drechslera oryzae</i> (Breda de Haan) Subramanian & B.L. Jain (1966)	Leaves, stem, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Digitaria Streak Virus	Leaves, whole plant	Unconfirmed presence in Togo	Greber, 1989
<b>Barley: <i>Hordeum vulgare</i></b>				
<b>Mushrooms</b>	<i>Fusarium graminearum</i> ( <i>Gibberella zeae</i> Telomorph)	Epis	Unconfirmed presence in Togo	CABI, 2013
<b>Bacteria</b>	<i>Xanthomonas campestris</i> pv. <i>translucens</i>	Glumes, leaves	Unconfirmed presence in Togo	Benjama, 1997 CABI-CPC, 2014
	<i>Pseudomonas syringae</i> pv. <i>Syringae</i> van Hall, 1902	Leaves, Spurs	Unconfirmed presence in Togo	Benjama, 1997 CABI, 2018
<b>Adventitious plant</b>	<i>Elymus repens</i> (L. )	The whole plant	Unconfirmed presence in Togo,	Peeters, et al, 1991

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Gould, 1947		Transmissible with grains	

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Rice: <i>Oryza</i> spp.</b>				
	<i>Sesamia inferens</i> Walker, 1856	The rice panicle	Unconfirmed presence in Togo	UEMOA, 2007 Crop Protection Compendium Scholz and Scholz, 1983 Invasive species Compendium, 2013 Mikkelsen et al, 2006
	<i>Spodoptera mauritia</i> Boisduval, 1833	The leaves	Unconfirmed presence in Togo	Crop Protection Compendium Scholz and Scholz, 1983 Invasive species Compendium, 2013 Mikkelsen et al, 2006 UEMOA, 2007
	<i>Spodoptera frugiperda</i> J. E. Smith, 1797	Leaves; stems	Present in Togo and the subject of an official struggle	<a href="http://www.fao.org/fall-armyworm/fr/">www.fao.org/fall-armyworm/fr/</a> , 2018 CAE Report, 2017
	<i>Diatraea saccharalis</i>	Leaves; stems	Unconfirmed presence in Togo	Invasive Species Compendium, 2013

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<b>Insects</b>	Fabricius, 1794			
	<i>Lissorhoptrus oryzophilus</i> Kuschel, 1951	stems	Unconfirmed presence in Togo	Invasive Species Compendium, 2013
	<i>Orseolia oryzae</i> Wood-Mason, 1889	Stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Valanga nigricornis</i> Burmeister, 1838	Leaves; Stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Susumia exigua</i> Hinckley, 1963	Sheets	Unconfirmed presence in Togo	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Scirpophaga incertulas</i> Walker, 1863	Stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Chaetonecma basalis</i> Baly, 1877	-	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Chilo suppressalis</i> Walker, 1863	Stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Nymphula depunctalis</i> Guenee, 1854	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Tilletia barclayana</i> (Briefly.) Sacc. & P. Syd, (1899)	Grains	Unconfirmed presence in Togo, Seed-borne diseases	Crop Protection Compendium, 2013
	<i>Sclerophthora macrospora</i> (Sacc.) Thirum, (1953)	Grains	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013
<b>Bacteria</b>	<i>Xanthomonas oryzae</i> pv. <i>oryzae</i>	Seeds, the whole plant	Limited distribution in Togo, Seed transferable	Crop Protection Compendium, 2013 <u>Bradbury, 1986</u> CABI/EPPO, 1997 <u>EPPO, 2014</u>
	<i>Xanthomonas oryzae</i> pv. <i>oryzicola</i>	Grains, leaves	Unconfirmed presence in Togo,	Crop Protection Compendium, 2013

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			Seed-borne	
<b>Virus</b>	<i>Rice Black Streaked Dwarf Virus</i>	The whole plant and the seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018
	<i>Rice Ragged Stunt Virus</i>	Inflorescences, leaves, seeds, the whole plant	Unconfirmed presence in Togo,	Plantwise Knowledge Bank, 2018 UEMOA, 2007
	Grassy Stunt Virus	Inflorescences, leaves, roots, seeds, the whole plant	Unconfirmed presence in Togo,	Plantwise Knowledge Bank, 2018 UEMOA, 2007
	Rice Dwarf Virus	Inflorescence, seeds, whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 UEMOA, 2007
<b>Weed plants</b>	<i>Ischaemum rugosum</i> Salisb, 1791	Weed (especially lowland rice)	Confirmed presence in Togo, transmissible with seeds, Difficult to control	Akobundu and Agyakwa, 1989
	<i>Rhamphicarpa fistulosa</i> (Hochst.) Benth, 1846	Parasite: the roots	Confirmed presence in Togo,	Kayeke et al, 2010

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
		(especially lowland rice)	Transmissible with seeds Difficult to control	POCANAM, 2016
	<i>Oryza longistaminata</i> (wild rice) A. Chevelier&Roehrich, 1914	Adventice	Confirmed presence in Togo, Transmissible with seeds Difficult to control	OkezieAkobundu and C. W. Agyakwa, 1989
	<i>Oryza barthii</i> (wild rice) A. Chevelier, 1910	Adventice	Confirmed presence in Togo, Transmissible with seeds Difficult to control	OkezieAkobundu and C. W. Agyakwa, 1989
<b>Millet: <i>Pennisetum glaucum</i></b>				
<b>Insects</b>	<i>Lema nigriventris</i> Weise	Sheets	Unconfirmed presence in Togo	Crop ProtectionCompendium, 2013
	<i>Spodoptera frugiperda</i> J. E. Smith, 1797	Leaves, stem, spikes	Presence confirmed in Togo and the subject of an official struggle	www.fao.org/fall-armyworm/fr/, 2018 DPV, 2017
<b>Mushrooms</b>	<i>Sclerospora graminicola</i> (Sacc.) J. Schröt, (1886)	Whole plant, seeds	Confirmed presence in Togo, Transmissible by seeds, Difficult to control	PV list (GTZ), 2018 Singh and Shetty, 1990 Shetty et al, 1977
	<i>Sporisorium sorghi</i> <u>Ehrenb. ex Link</u> (1825)	Whole plant, seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Mushrooms</b> <i>(Continued)</i>	<i>Sphacelotheca reiliana</i> (J.G.Kühn) G.P.Clinton (1902) or <i>Sporisorium holci-sorghi</i> (Rivolta) Vánky (1985)	Whole plant, seeds	Confirmed presence in Togo, Transmissible by seeds	PV list (GTZ), 2018  Halisky, 1963  Kruger, 1962  <u>UK, CAB International, 1987</u>
	<i>Gibberella fujikuroi</i> (Sawada) Wollenw. , 1931	Whole plant, seeds	Confirmed presence in Togo, Transmissible by seeds	Crop Protection Compendium, 2018 <u>UK CAB International, 1990</u>
<b>Virus</b>	Sorghum Dwarf Mosaic Virus = Maize Dwarf Mosaic Virus	The whole plant and the seeds	Confirmed presence in Togo, Transmissible by seeds, Difficult to control	Crop Protection Compendium, 2018 Plantwise Knowledge Bank, 2018
PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES



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	Sorghum Streak Virus =Maize Streak Virus	The whole plant and seeds	Confirmed presence in Togo, Transmissible by seeds	Crop Protection Compendium, 2018 Anon, 1983  <u>CABI and EPPO,1997</u> <u>EPPO2014</u>
	Sorghum Mosaic Virus	The whole plant and seeds	Unconfirmed presence in Togo, Seed-borne	Koike and Gillaspie, 1976 CABI, 2018
<b>Weed plants</b>	<i>Striga hermonthica</i> (Delile) Bentham, 1836	Parasite: the roots	Confirmed presence in Togo, transmissible with seeds, Difficult to control	EPPO, 2009 M'Boob SS, 1994 Agbobli, 1987
<b><i>Sorghum : Sorghum bicolor</i></b>				
	<i>Spodoptera frugiperda</i> J. E. Smith, 1797	Leaves, stem, spikes	Presence confirmed in Togo and the subject of an official struggle	www.fao.org/fall-armyworm/fr/, 2018 CAE Report, 2017
	<i>Mythimna separata</i> Walker, 1865	Panicle leaves	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Tanymechus dilaticollis</i> Germar, 1817	Sheets	Unconfirmed presence in Togo	Invasive Species Compendium, 2013 www.inter-reseaux.org/IMG/ pdf_FAO_legal_report_health_securi ty_texts.pdf, 2018
	<i>Blissus leucopterus</i> Say, 1832	Leaves and stems	Unconfirmed presence in Togo	Invasive Species Compendiu, 2018 <u>https://www.</u> <u>cabi.org/isc/datasheet/ 9351</u> , 2018

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<b>Insects</b>	<i>Atherigona oryzae</i> Malloch, 1925	Stem Driller	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Diatraea saccharalis</i> Fabricius, 1794	Leaves; stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Sesamia inferens</i> Walker, 1856	Stems	Unconfirmed presence in Togo	UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Mushrooms</b>	<i>Sporisorium sorghi</i> <u>Ehrenb.</u> ex <u>Link</u> (1825)	Whole plant, seeds	Unconfirmed presence in Togo,	Crop Protection Compendium, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
			seed-transmissible	
	<i>Gibberella fujikuroi</i> (Sawada) Wollenw, (1931)	Whole plant, seeds	Confirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2018 <u>UK CAB International, 1990</u>
<b>Virus</b>	Sorghum Dwarf Mosaic Virus = Maize Dwarf Mosaic Virus	The whole plant and seeds	Confirmed presence in Togo, transmissible by seeds, Difficult to control	Crop Protection Compendium, 2018 Plantwise Knowledge Bank, 2018
	Sorghum Streak Virus = Maize Streak Virus	The whole plant and seeds	Confirmed presence in Togo, transmissible by seeds	Crop Protection Compendium Anon, 1983  <u>CABI and EPPO, 1997</u> <u>EPPO2014</u>
	Sorghum Mosaic Virus	The whole plant and seeds	Unconfirmed presence in Togo, transmissible by seeds	Koike and Gillaspie, 1976 CABI, 2018
<b>Weed plants</b>	<i>Striga hermonthica</i> (Delile) Bentham, 1836	Parasite: the roots	Confirmed presence in Togo, Transmissible with seeds, Difficult to control	EPPO, 2009  M'Boob SS, 1994  Agbobli, 1987
	<i>Striga asiatica</i> (L.) O. Ktze, 1891	Parasite: the roots	Confirmed presence in Togo, transmissible with seeds.  Difficult struggle	  Agbobli, 1987
<b>Wheat: <i>Triticum</i> spp.</b>				

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<b>Insects</b>	<i>Contarina tritici</i> Kirby	Glumes of the flower	Unconfirmed presence in Togo	<a href="http://www.livre-blanc-cereales.be/wp-content/uploads/2017/02/LBfev2007.pdf">http://www.livre-blanc-cereales.be/wp-content/uploads/2017/02/LBfev2007.pdf</a> , 2018
	<i>Sitodiplosismesellana</i> Gehin	Epis	Unconfirmed presence in Togo	<a href="http://www.livre-blanc-cereales.be/wp-content/uploads/2017/02/LBfev2007.pdf">http://www.livre-blanc-cereales.be/wp-content/uploads/2017/02/LBfev2007.pdf</a> , 2018
	<i>Liriomyzahuidobrensis</i> Blanchard	Sheets	Unconfirmed presence in Togo	<a href="http://www.vegaplan.be/sites/all/themes/pp/doc/handleiding_leonwerk/en/6.3.2.02.pdf">www.vegaplan.be/sites/all/themes/pp/doc/handleiding_leonwerk/en/6.3.2.02.pdf</a> , 2018
	<i>Liriomyzatrifolii</i> Burgess, 1880	Sheets	Unconfirmed presence in Togo	<a href="https://www7.inra.fr/hyppz/RAVAGEUR/6lirtri.htm">https://www7.inra.fr/hyppz/RAVAGEUR/6lirtri.htm</a> , 2018
	<i>Sitobionavenae</i> Fabricius, 1794	Peas, leaves	Unconfirmed presence in Togo	Invasive species Compendium

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
				<a href="http://www.cabi.org/isc/datasheets/5137">www.cabi.org/isc/datasheets/5137</a> , 2018
	<i>Psammotettixalienus</i> Dahlbom, 1850	Epis	Unconfirmed presence in Togo	<a href="https://fauna-eu.org/cdm_dataportal/taxon/cfd30a20-bf09-4715-9120-732faf42b162">https://fauna-eu.org/cdm_dataportal/taxon/cfd30a20-bf09-4715-9120-732faf42b162</a> , 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Claviceps purpurea</i> (Fr.) Tulle, 1853	Inflorescence, Seeds	Unconfirmed presence in Togo	CABI, 2018
	<i>Mycosphaerella holci</i> Tehon, 1937	Leaves, glumes, grains, stems.	Unconfirmed presence in Togo	CABI, 2018
	<i>Fusarium asiaticum</i> O'Donnell, T. Aoki, Kistler & Geiser, 2004	Epis	Unconfirmed presence in Togo	CABI, 2018
	<i>Fusarium crookwellense</i> <u>L.W. Burgess, P.E. Nelson &amp; Toussoun, 1982</u>	Thorns and leaves	Unconfirmed presence in Togo	CABI, 2018
	<i>Puccinia triticina</i> Erikss. & Henn. <u>Henn., 1904</u>	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Pythium graminicola</i> Subram, 1928	Roots, seeds, the whole plant	Unconfirmed presence in Togo	CABI, 2018 Mycobank, 2018

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<b>Mushrooms</b>	<i>Sclerophthora macrospora</i> (Sacc.) Thirum. C.G. Shaw & Naras. 1953	Inflorescence, leaves, roots, stems, seeds	Unconfirmed presence in Togo	CABI, 2018
	<i>Controversial lime tree</i> J. G. Kühn, 1874	Inflorescence, whole plant	Unconfirmed presence in Togo	CABI, 2018 Mycobank, 2018
	<i>Tilletia indica</i> Mitra, 1931	Inflorescence, seeds	Unconfirmed presence in Togo	CABI, 2018
	<i>Tilletia tritici</i> (Bjerk.) G. Winter (1874)	Inflorescences, seeds, the whole plant	Unconfirmed presence in Togo	CABI, 2018 Mycobank, 2018
	<i>Urocystis agropyri</i> (Preuss) A.A. Fisch. Waldh, 1867	Inflorescence, leaves, seeds, stem	Unconfirmed presence in Togo	CABI, 2018
<b>Bacteria</b>	<i>Erwinia rhapontici</i> (Millard, 1924) Burkholder 1948	Fruits, apex, leaves, stem, seeds, whole plant	Unconfirmed presence in Togo	CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Xanthomonas translucens</i> pv. <i>cerealis</i> (Hagborg 1942) Vauterin et al. 1995	Leaves, glumes, seeds,	Unconfirmed presence in Togo	CABI, 2018 EPPO Quarantine List, 2018
<b>Virus</b>	Maize Streak Virus	Leaves, stem, whole plant.	Presence in Togo, Transmissible by seeds, Difficult struggle	Crop Protection Compendium, 2018 CABI, 2018
	Soil-Borne Wheat Mosaic Virus	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	Rice Hoja Blanca Virus	Inflorescences, leaves, roots, seeds, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	Wheat Streak Mosaic Virus	Apex, inflorescence, leaves, roots, seeds, whole plant	Unconfirmed presence in Togo	CABI, 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Nematodes</b>	<i>Anguina tritici</i> (Steinbuch, 1799) Chitwood, 1935	Flower, leaves, seeds, stems, whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Helicotylenchus pseudorobustus</i> (Steiner, 1914) Golden, 1956	Roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Paratrichodorus minor</i> (Colbran, 1956) Siddiqi, 1974	Roots	Unconfirmed presence in Togo	CABI, 2018



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	<i>Trichodorus</i> sp. (from Man, 1876) Micol. 1922	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Weed plants</b>	<i>Avenafatua</i> <u>L., 1753</u>	The whole plant	Unconfirmed presence in Togo, Transmissible with grains	INRA-Dijon, 2000
	<i>Elymusrepens</i> (L. ) Gould, 1947	The whole plant	Unconfirmed presence in Togo, Transmissible with grains	A. Peeters et al, 1991.
<b>Maïs: Zea mays</b>				
<b>Insects</b>	<i>Helicoverpa zea</i> Boddie, 1850	Leaves, stem	Unconfirmed presence in Togo	<a href="https://www.cabi.org/isc/datasheet/26776">https://www.cabi.org/isc/datasheet/26776</a> , 2018  <a href="https://gd.eppo.int/taxon/HELIZE">https://gd.eppo.int/taxon/HELIZE</a> , 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Spodoptera frugiperda</i> J. E.Smith, 1797	Leaves, stem, spikes	Present in Togo and the subject of an official struggle	www.fao.org/fall-armyworm/fr/, 2018 CAE Report, 2017 CABI, 2018
	<i>Spodoptera eridania</i> Cramer, 1782	Leaves, stem	Unconfirmed presence in Togo	www.iita.org, 2018
	<i>Prostephanus truncatus</i> Horn, 1878	Seeds	Present in Togo but not widely disseminated and the subject of an official struggle.	EPPO global data base <a href="https://gd.eppo.int/taxon/PROETR">https://gd.eppo.int/taxon/PROETR</a> , 2018
	<i>Diabrotica virgifera virgifera</i> Le Conte, 1868	Roots	Unconfirmed presence in Togo	Invasive Species Compendium, 2018 <a href="https://www.cabi.org/isc/datasheet/18637">https://www.cabi.org/isc/datasheet/18637</a> , 2018
	<i>Tanymechus dilaticollis</i> Germar, 1817	Sheets	Unconfirmed presence in Togo	Invasive Species Compendium, 2018 <a href="http://www.interreseaux.org/IMG/pdf_FAO_rapport_juridique_textees_securite_sanitaire.pdf">www.interreseaux.org/IMG/pdf_FAO_rapport_juridique_textees_securite_sanitaire.pdf</a> , 2018
	<i>Susumia exigua</i> Butler	Leaves, stems	Unconfirmed presence in Togo	<a href="https://www.cabdirect.org/cabdirect/abstract/20056600365">https://www.cabdirect.org/cabdirect/abstract/20056600365</a> , 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR	REFERENCES
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			CLASSIFICATION	
<b>Insects (Continued)</b>	<i>Mocis repanda</i> Fabricius, 1794	Leaves, stems	Unconfirmed presence in Togo	EPPO global data base, 2018 <a href="https://gd.eppo.int/taxon/MOCIRE">https://gd.eppo.int/taxon/MOCIRE</a> UEMOA, 2007
	<i>Nacoleia octasema</i> Meyrick, 1886	Leaves, stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Elasmopalpus lignosellus</i> Zeller, 1848	Leaves, stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Blissus leucopterus</i> Say, 1832	Stems	Unconfirmed presence in Togo	Invasive Species Compendium; 2018 <a href="https://www.cabi.org/isc/datasheet/9351">https://www.cabi.org/isc/datasheet/9351</a> , 2018

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	<i>Anomala orientalis</i> Waterhouse, 1875	Roots and flowers	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Adoretus sinicus</i> Burmeister, 1855	Stems, leaves	Unconfirmed presence in Togo	Invasive Species Compendium, 2018 <a href="https://www.cabi.org/isc/datasheet/3282">https://www.cabi.org/isc/datasheet/3282</a> , 2018
	<i>Diatraea saccharalis</i> Fabricius, 1794	Leaves; stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Sesamia inferens</i> Walker, 1856	Stems	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Sclerophthora macrospora</i> (Sacc.) Thirum, C.G.Shaw & Naras. , 1953	Seeds, Leaves	Present in Togo but limited distribution and seed transferable	Crop Protection Compendium, 2018 Sastry, 2017
	<i>Peronosclerospora maydis</i> (Racib.) C. Shaw E.J. Butler 1913	Leaf, seeds	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013
	<i>Cercospora zae-maydis</i> Tehon & E. Y. Daniels (1925)	The whole plant, seeds	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013
	<i>Kabatiella zae</i> Narita & Y. Hirats. 1959	Whole plant, seeds	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018
	<i>Puccinia polysora</i> Underw, 1897	Seed, leaves, stem	Present in Togo, transmissible by seeds, difficult to combat.	Crop Protection Compendium, 2013 Plantwise Knowledge Bank (2018)

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				EPPO, 2018
	<i>Stenocarpella macrospora</i> (Earle) B. Sutton, 1977	The whole plant and the seeds	Present in Togo, transmissible by seeds,	Crop Protection Compendium, 2013 CABI/EPPO, 2012
	<i>Peronospora philippinensis</i> Bary, 1863	The seeds	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Ustilago zeae</i> Unger, 1836	Inflorescence, leaves, seeds, stem	Unconfirmed presence in Togo,	CABI, 2018 UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Bacteria</b>	<i>Acidovorax avenae subsp. avenae</i>	Leaves and seeds	Unconfirmed presence in Togo,	Crop Protection Compendium, 2013

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	(Manns 1909) Willems et al, 1992		Transmissible by seeds	Cabi, 2018
	<i>Clavibacter michiganensis subsp. nebraskensis</i> (Vidaver & Mandel 1974) Davis et al, 1984	Whole plant, seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 IAPSC, 1985  CABI, 2018
	<i>Pantoea stewartii</i> (Smith) = <i>Erwinia stewartii</i> (Smith 1898) Mergaert et al. 1993	The whole plant and the seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018 EPPO, 2018
<b>Virus</b>	Maize Dwarf Mosaic Virus	The whole plant, the seeds	Confirmed presence in Togo, seed-borne, Difficult to control	Crop Protection Compendium, 2013 Mikkelsen <i>et al.</i> 2006
	Maize Streak Virus	The whole plant, the seeds	Confirmed presence in Togo, seed-borne, Difficult to control	Crop Protection Compendium, 2013
	Maize Chlorotic Dwarf Virus	Leaves, stem, whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 WAEMU, 2018
	Maize Chlorotic Mottle Virus	Leaves, whole plant	Unconfirmed presence in Togo	UEMOA, 2018  CABI, 2018
	Maize Rough Dwarf Virus	Inflorescences, leaves, roots, stem, entire plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 WAEMU, 2018
	Maize Stripe Virus	Inflorescences, Leaves, whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 WAEMU, 2018

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<b>Weed plants</b>	<i>Striga hermonthica</i> (Delile) Bentham, 1836	Parasite: the roots	Confirmed presence in Togo, spread by seeds, difficult struggle	EPPO, 2009  M'Boob S.S., 1994  Agbobli, 1987
	<i>Striga asiatica</i>  (L.) O. Ktze, 1891	Parasite: the roots	Confirmed presence in Togo, transmissible with seeds, difficult to control	  Agbobli, 1987

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**TUBER AND STARCHY PLANTS**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Taro: <i>Colocasia esculenta</i></b>				
<b>Mushrooms</b>	<i>Cladosporium colocasiae</i> Sawada, 1916	Sheets	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 Awuah, 1995
	<i>Phytophthora colocasiae</i> Racib. 1900	Leaves, Tubes	Unconfirmed presence in Togo	CABI, 2018 Ooka, 1994
<b>Virus</b>	Colocasia Bobone Disease Virus	Leaves, whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 Kenten et al, 1973
	Taro Bacilliform Virus	Leaves, whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 Kenten et al, 1973
	Dasheen Mosaic Virus	Leaves, whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 Kenten et al, 1973
<b>Yam: <i>Dioscorea</i> spp.</b>				
<b>Insects</b>	<i>Prostephanus truncatus</i>  Horn, 1878	Yam Cossettes	Confirmed presence in Togo but not widely disseminated and subject to official control.	EPPO global data base, 2018 <a href="https://gd.eppo.int/taxon/PROETR">https://gd.eppo.int/taxon/PROETR</a> , 2018  DPV, 2016



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<b>Insects</b>	<i>Cryptophlebia peltastica</i> Meyrick, 1921	Sheets	Unconfirmed presence in Togo	UEMOA, 2007  EPPO global data base, 2018 <a href="https://gd.eppo.int/taxon/">https://gd.eppo.int/taxon/</a> PROETR, 2018
<b>Mushrooms</b>	<i>Urocystis dioscorea</i> Rabenh. ex Fuckel1870	Leaves, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, Corneluis, 1998  UEMOA, 2007
<b>Virus</b>	Dioscorea Latent Virus	Leaves, tubers	Unconfirmed presence in Togo, transmissible by seeds	Hearon et al, 1978 Phillips and Brunt, 1988
<b>Sweet potato: <i>Ipomoea batata</i></b>				
<b>Insects</b>	<i>Pseudaulacaspis pentagona</i> Targini Tozzetti, 1886	Sheets	Presence confirmed in Togo but not widely spread	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Aceria sheldoni</i> Ewing, 1937	Leaves, stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Macrosiphum euphorbiae</i> Thomas, 1878	Sheets	Unconfirmed presence in Togo	UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Mushrooms</b>	<i>Elsinoe batata</i> Viégas & Jenkins, 1943	Leaves and stems	Unconfirmed presence in Togo, transmissible by plant material	Plantwise 2018 CABI, 2018
	<i>Monilochaetes infuscans</i> Harter, 1916	Stems, roots,	Unconfirmed presence in Togo, transmissible by plant material	Plantwise 2018
<b>Bacteria</b>	<i>Streptomyces ipomeae</i> Waksman and Henrici, 1948	Leaves, roots, stems	Unconfirmed presence in Togo, transmissible by plant material	Plantwise 2018
<b>Virus</b>	Sweet Potato Mosaic Virus A	Sheets	Unconfirmed presence in Togo, transmissible by plant material	Plantwise 2018
	Sweet Potato Feathery Mottle Virus	Sheets	Confirmed presence in Togo but limited distribution transmissible by plant material	UEMOA, 2007Plantwise, 2018 CABI/EPPO, 2003 EPPO, 2014

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				CABI, 2018
<b>Phytoplasma</b>	Sweet Potato Little Leaf	Leaves, roots, stems	Unconfirmed presence in Togo, transmissible by plant material	UEMOA, 2007  Plantwise, 2018 EPPO global database, 2018
<b>Weed plants</b>	<i>Striga gesnerioides</i> (Willdenow) Vatke, 1875	Parasite: the roots	Confirmed presence in Togo, seed transmission Difficult to control	Invasive species compendium, 2013 Pocanam, 2016
<b>Manioc : Manihot esculenta</b>				
	<i>Prostephanus truncatus</i> Horn 1878	Cassava Cossettes	Presence confirmed in Togo and the subject of an official struggle	EPPO global data base <a href="https://gd.eppo.int/taxon/PROETR">https://gd.eppo.int/taxon/PROETR</a> , 2018
	<i>Paracoccus marginatus</i>	Leaves and stems	Present and being fought for	www.iita.org, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Insects</b>	Williams & Granara de Willink, 1992		official	
	<i>Spodoptera eridania</i> Cramer, 1782	Leaves and stems	Unconfirmed presence in Togo	www.iita.org, 2018
	<i>Pseudotheraptus devastans</i> Distant, 1917	Leaves, stems	Unconfirmed presence in Togo	UEMOA, 2007 <a href="https://www.cabi.org/isc/abstract/19840510320">https://www.cabi.org/isc/abstract/19840510320</a> , 2018
<b>Mushrooms</b>	<i>Uromyces</i> spp. (Link) Unger 1833	Leaves, stems	Unconfirmed presence in Togo, transmissible by cuttings	Crop Protection Compendium, 2013 Mikkelsen <i>et al</i> , 2006 CABI, 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Cassava Brown Streak Virus	The whole plant	Unconfirmed presence in Togo, transmissible by cuttings	Crop Protection Compendium Leeg <i>et al</i> , 2003  Otim and Colvin, 2007 IAPSC, 1985  CABI, 2018

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<b>Virus</b>	Uganda Cassava Brown Streak Virus	The whole plant	Unconfirmed presence in Togo, transmissible by cuttings	Crop Protection Compendium, 2013 Mbanzibwa et al, 2009  Hillocks et al, 1999 CABI, 2018
<b>Potato: <i>Solanum tuberosum</i></b>				
<b>Insects</b>	<i>Leptinotarsa decemlineata</i> Say, 1824	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Euzophera osseatelle</i> Treitschke, 1832	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Pseudococcus maritimus</i> Westwood, 1840	Sheets	Unconfirmed presence in Togo	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Empoasca fabae</i> Harris, 1841	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Tipula paludosa</i> Meigen, 1830	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Xylotrupes gideon</i> Guérin-Méneville, 1830	Roots	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mites</b>	<i>Tetranychus canadensis</i> Dufour, 1832	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Synchytrium endobioticum</i> (Schilb.) Percival 1909	Whole plant, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 CABI, 2018
<b>Bacteria</b>	<i>Erwinia carotovora</i> subsp. <i>carotovora</i>	Tubes, leaf	Unconfirmed presence in Togo, transmissible by seed.	Crop Protection Compendium, 2013 UEMOA, 2017
	<i>Corynebacterium sepedonicum</i> (A. Spieckermann & P. Kotthoff, 1914) J.B. Skaptason & W.H. Burkholder, 1942	The whole plant and the tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 CABI, 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
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<b>Phytoplasmas</b>	Potato Witches Broom Phytoplasma	Leaves, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 CABI, 2018
<b>Virus</b>	Potato X Virus	Leaves, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 Kaiser <i>et al</i> , 1978  CABI, 2018
	Potato Yellow Dwarf Virus	Whole plant, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018
	Potato Yellow Mosaic Begomovirus	Whole plant, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013
<b>Viroid</b>	Potato Spindle Tuber Viroid	The whole plant and the tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 Diener, T.O., 1971

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
				Diener, T.O., 2003 Flores et al, 2005  Owens and Verhoeven, 2009 CABI, 2018
<b>Nematode</b>	<i>Heterodera schachtii</i>	Leaves, roots, tubers	Unconfirmed presence in Togo, transmissible by seeds	Crop Protection Compendium, 2013 CABI, 2018

**MARKET GARDENING**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>okra: <i>Abelmoschus esculenta</i></b>				
	<i>Batrocera dorsalis</i>		Presence confirmed and being officially combated	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> ,



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<b>Insects</b>	Hendel, 1912	Fruits		2018
	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruit.	Presence confirmed and being officially combated	EPPO quarantine pest <a href="http://www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/ data_sheets/insects/ DACUCU_ds.pdf</a> , 2018
	<i>Epitrix cucumeris</i> Harris, 1851	Roots	Presence confirmed in Togo but not widely spread	Catalogue of Life: Epitrix cucumeris (Harris, 1851) [archive], 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Leucinodes orbonalis</i> Guenée, 1854	Fruits	Presence confirmed in Togo but not widely spread	UEMOA, 2007
	<i>Scrobipalpa blapsigona</i> Janse, 1951	Fruits	Presence confirmed in Togo but not widely spread	UEMOA, 2007
	<i>Jacobiasca libyca</i> (Bergevin and Zanon 1922) (Hemiptera: Cicadellidae)	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Colletotrichum coccodes</i> (Wallr. ) S.Hughes (1958)	Leaves, stem, fruit	Unconfirmed presence in Togo	CABI, 2018
	<i>Colletotrichum dematium</i> (Pers.) Grove, (1918)	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Macrophomina phaseolina</i> (Tassi) Goid. , (1947)	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Hibiscus Yellow Vein Mosaic Virus	Leaf, fruit, whole plant	Unconfirmed presence in Togo	Ghosh, 2007
	Okra Leaf Curl Virus	Leaf, fruit, whole plant	Unconfirmed presence in Togo	CABI, 2018
	Okra Mosaic Virus	Leaf, fruit, whole plant	Unconfirmed presence in Togo	CABI, 2018
	Okra Yellow Vein Mosaic Virus	Leaf, fruit, whole plant	Unconfirmed presence in Togo	CABI, 2018

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<b>Nematodes</b>	<i>Meloidogyne arenaria</i> Chitwood (1949)	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Meloidogyne incognita</i> Kofoid & White, 1919	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Pratylenchus penetrans</i> Cobb, 1917	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Onion : <i>Allium cepa</i></b>				
<b>Mushrooms</b>	<i>Peronospora destructor</i> (Berkeley) Caspary, (1849)	The whole plant	Unconfirmed presence in Togo Not confirmed Seed-borne	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018
	<i>Puccinia asparagi</i>	The whole plant	Unconfirmed presence in Togo,	Crop Protection Compendium, 2013

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	DC, 1805		Transmissible by seeds	Plantwise Knowledge Bank, 2018
	<i>Sclerotinia sclerotiorum</i> (Lib. ) deBary, (1884)	The whole plant	Unconfirmed presence in Togo Not confirmed Seed-borne	Crop Protection Compendium, 2013 CABI, 2018
	<i>Urocystis cepulae</i> Frost, 1877	The whole plant	Unconfirmed presence in Togo Transmissible by bulb	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018
	<i>Sclerotium cepivorum</i> Berk. 1841	The whole plant	Unconfirmed presence in Togo Transmissible by bulb	Crop Protection Compendium, 2013 CABI, 2018
<b>Mushrooms</b>	<i>Botryotinia squamosa</i> Viennot-Bourgin, 1953	Sheets	Unconfirmed presence in Togo Transmissible by bulb	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018 APPS, 2010
<b>Virus</b>	Onion Yellow Dwarf Virus	Leaf, whole plant	Unconfirmed presence in Togo Transmissible by bulb	Crop Protection Compendium, 2013 Plantwise Knowledge Bank, 2018
<b><i>Amaranthus: Amaranthus spp.</i></b>				
<b>Mushrooms</b>	<i>Choanephora cucurbitarum</i> (Berk. & Ravenel) Thaxt. 1903	Stems and leaves	Unconfirmed presence in Togo	CABI, 2018
	<i>Pythium myriotylum</i> Drechsler, 1930	Roots and leaves	Unconfirmed presence in Togo	CABI, 2018 Plantwise, 2018
<b><i>Beetroot: Beta vulgaris</i></b>				

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<b>Insects</b>	<i>Bothynoderes punctiventris</i> Germar, 1824	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Piesma quadratum</i> Fieber, 1844	Leaves, Stems	Unconfirmed presence in Togo	UEMOA, 2007
<b>Cabbage: <i>Brassica oleracea</i></b>				
<b>Mushrooms</b>	<i>Hyaloperonospora parasitica</i> (Pers.) Constant, 2002	Sheets	Unconfirmed presence in Togo,	Plantwise, 2018
	<i>Botryotinia fuckeliana</i> (byBary) Whetzel, (1945)	Sheets	Unconfirmed presence in Togo,	Plantwise, 2018
	<i>Alternaria brassicicola</i> (Schwein.) Wiltshire, (1947)	Leaves, seeds	Unconfirmed presence in Togo,	Plantwise, 2018
	<i>Albugo candida</i> (Pers.) Kuntze	Sheets	Unconfirmed presence in Togo,	Plantwise, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Bacteria</b>	<i>Erwinia carotovora</i>	Apex, leaves, roots, stem, whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Pseudomonas syringae</i> pv. <i>maculicola</i> Van Hall, 1904	Sheets	Unconfirmed presence in Togo	CABI, 2018 Plantwise, 2018
<b>Virus</b>	Cauliflower mosaic	Leaves, whole plant	Unconfirmed presence in Togo	CABI, 2018 Plantwise, 2018
<b>Nematodes</b>	<i>Meloidogyne</i> spp. Goldi, 1877	Roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Heterodera schachtii</i> A.Schmidt, 1871	Roots	Unconfirmed presence in Togo	CABI, 2018
<b>Pepper: Capsicum spp.</b>				
<b>Insects</b>	<i>Bactrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
	<i>Bactrocera latifrons</i> Hendel, 1915	Fruits	Unconfirmed presence in Togo	Invasive Species Compendium <a href="https://www.cabi.org/isc/datasheet/8719">https://www.cabi.org/isc/datasheet/8719</a> , 2018
	<i>Ceratitis capitata</i> Wiedemann, 1824	Fruits	Presence confirmed in Togo and the subject of official control	<a href="http://www.iita.org">www.iita.org</a> , 2018 DPV, 2017

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	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruits	Presence confirmed in Togo and the subject of official control	EPPO quarantine pest <a href="http://www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/ data_sheets/insects/ DACUCU_ds.pdf</a> , 2018
<b>Mushrooms</b>	<i>Phytophthora cryptogea</i> Pethybr.& Laff.(1919)	Leaves, roots, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018  UEMOA, 2007
	<i>Puccinia pittieriana</i> Henn. (1904)	Leaves, Stem	Unconfirmed presence in Togo	CABI, 2018  UEMOA, 2007
<b>Bacteria</b>	<i>Ralstonia solanacearum</i> Smith (1914)	The whole plant	Unconfirmed presence in Togo	CABI, 2018  UEMOA, 2007
<b>Phytoplasms</b>	Tomato Big Bud (mycoplasma) = <i>Phytoplasma aurantifolia</i>	Leaves, flowers, fruit, stem, apex	Unconfirmed presence in Togo	Plantwise, 2018  UEMOA, 2007  Jackson, 2017

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Aster Yellows Phytoplasma Group	Whole plant, seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 CABI, 2018
	Potato Witches broom	Leaves, stems, roots, the whole plant	Unconfirmed presence in Togo,	UEMOA, 2007 Plantwise, 2018
<b>Virus</b>	Mottle Dwarf Virus	Leaf, stem, whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Viruses (Continued)</b>	Tomato Spotted Wilt Virus	Fruits, leaves, the whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	Tomato Bushy Stunt Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007 Martelli et al, 2001, 2016
	Tomato Black Ring Virus	Fruits, leaves, the whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007
	Tomato Aspermy Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007
<b>Watermelon: <i>Citrullus lanatus</i>; Melon: <i>Cucumis melo</i>; Squash and Zucchini: <i>Cucurbita</i></b>				



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spp.				
<b>Insects</b>	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed and being officially combated	<a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruits	Presence confirmed and being officially combated	<a href="http://www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf</a> , 2018
	<i>Bactrocera cucumis</i> English	Fruits	Unconfirmed presence in Togo	<a href="https://gd.eppo.download/doc/917_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/917_ds_DACUCM_en.pdf</a> , 2018
<b>Mushrooms</b>	<i>Fusarium arthrosporioides</i> Sherb., 1915	Apex, inflorescences, roots, seeds, stems,	Unconfirmed presence in Togo	UEMOA, 2007 Nene et al, 1996 CABI, 2018
	<i>Phytophthora drechsleri</i> Tucker, 1931	Apex, leaves, stems, roots, the whole plant.	Unconfirmed presence in Togo	Plantwise, 2018 UEMOA, 2007
PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
				Mansoori et al, 1982
	<i>Xanthomonas cucurbitae</i> (Bryan 1926) Vauterin et al. 1995	Leaves, fruits	Unconfirmed presence in Togo	UEMOA, 2007 CABI ISC, 2018 Babadoost et al, 2012

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<b>Bacteria</b>	<i>Acidovorax avenae subsp. citrulli</i> (Schaad et al., 1978) Willems et al. 1992	Leaves and fruits	Unconfirmed presence in Togo	Scaad et al, 2003 CABI, 2018
<b>Nematodes</b>	<i>Meloidogyne enterolobii</i> Yang & Eisenback, 1983	Roots	Unconfirmed presence in Togo	CABI, 2018
<b>Cornet: <i>Corchorus olitorius</i></b>				
<b>Mushrooms</b>	<i>Thanatephorus cucumeris</i> (A.B. Frank) Donk (1956)	Sheets	Unconfirmed presence in Togo,	CABI, 2018
	<i>Sclerotinia sclerotiorum</i> (Lib. ) ofBary (1884)	Leaves, stems	Unconfirmed presence in Togo,	CABI, 2018
<b>Virus</b>	Okra mosaic virus Givord, Pfeiffer & Hirth (1972)	Sheets	Unconfirmed presence in Togo,	CABI, 2018
<b>PESTS BY HOST SPECIES</b>		<b>ORGANIZATION ATTACKED</b>	<b>REASONS FOR CLASSIFICATION</b>	<b>REFERENCES</b>
<b>Cucumber: <i>Cucumis sativus</i></b>				
<b>Insects</b>	<i>Acalymna vittatum</i> Frabricius, 1775	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Epilachna borealis</i> (Frabricius, 1775)	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Alternaria brassicicola</i> NeesVonEsenb. ex Fries, 1816	Fruit, inflorescence, leaves, seeds, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Botryotinia fuckeliana</i> Whetzel, 1945	Leaves and stems	Unconfirmed presence in Togo	CABI, 2018

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<b>Mushrooms</b>	<i>Choanephora cucurbitarum</i> (Berk. & Ravenel) Thaxt. 1903	Fruits, inflorescence, apex, leaves, stems and seeds	Unconfirmed presence in Togo	CABI, 2018
	<i>Cladosporium cucumerinum</i> Link 1816	Fruits, inflorescence, apex, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
<b>Bacteria</b>	<i>Pseudomonas marginalis</i> sp. <i>marginalis</i>	Fruits, inflorescence, leaves and roots	Unconfirmed presence in Togo	CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Migula, 1894			
	<i>Pseudomonas syringae</i> pv. <i>lachrymans</i> Migula, 1894	Fruits, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Arabismosaic virus	Fruits and leaves	Unconfirmed presence in Togo	CABI, 2018
	Beet curly top virus	Fruits, apex, inflorescence, leaves, stems and roots	Unconfirmed presence in Togo	CABI, 2018
	Cucumber green mottle mosaic virus	Fruits, leaves, stems and roots	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Meloidogyne arenaria</i> Neal, 1889	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018
<b>Carrot: <i>Daucus carota</i></b>				
<b>Virus</b>	Carrot mottle Dwarf Virus	Leaves, whole plant	Unconfirmed presence in Togo	Jones et al, 2005 Gungoosingh-Bunwaree et al, 2009
<b>Mycoplasma</b>	Aster Yellows	Inflorescences, leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Guinea sorrel: <i>Hibiscus sabdariffa</i></b>				
<b>Insect</b>	<i>Paracoccus marginatus</i> Williams & Granara de Willink, 1992	Leaves and stems	Presence confirmed in Togo and the subject of an official struggle	www.iita.org, 2018
<b>Mushroom</b>	<i>Phytophthora nicotianae</i> Breda de Haan, 1896	Roots, stems, fruits and leaves	Unconfirmed presence in Togo	CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Lettuce : <i>Lactuca sativa</i></b>				
<b>Virus</b>	Lettuce Necrotic Yellow Virus	Leaves, whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018
	Okra Mosaic Virus Givord, Pfeiffer & Hirth (1972)	Sheets	Unconfirmed presence in Togo,	CABI, 2018
	Tomato Spotted Wilt Virus	Leaves, whole plant	Unconfirmed presence in Togo	CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Radish: <i>Raphanus sativus</i></b>				
<b>Insects</b>	<i>Liriomyza huidobrensis</i> Blanchard, 1926	Sheets	Unconfirmed presence in Togo	<a href="https://gd.eppo.int/download/doc/945_ds_LIRIHU_en.pdf">https://gd.eppo.int/download/doc/945_ds_LIRIHU_en.pdf</a> , 2018
<b>Mushrooms</b>	<i>Alternaria raphani</i> J.W. Groves & Skolko, 1944	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Alternaria japonica</i> Yoshii, 1941	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Tomato: <i>Solanum lycopersicum</i></b>				
	<i>Tuta absoluta</i> Meyrick, 1917	Fruits	Unconfirmed presence in Togo	DPV Togo, 2011 EPPO, 2018
	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruits	Presence confirmed in Togo and the subject of official control	EPPO quarantin pest, 2018 <a href="http://www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf</a> , 2018
	<i>Bactrocera latifrons</i> Hendel, 1915	Fruits	Unconfirmed presence in Togo	Invasive Species Compendium, 2018 <a href="https://www.cabi.org/isc/datasheet/8719">https://www.cabi.org/isc/datasheet/8719</a> , 2018
	<i>Bactrocera cucumis</i>			EPPO quarantine pest, 2018 <a href="https://gd.eppo.int/download/doc/917_ds_DACUCM_en.pdf">https://gd.eppo.int/download/doc/917_ds_DACUCM_en.pdf</a> ,

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<b>Insects</b>	English	Fruits	Unconfirmed presence in Togo	2018
	<i>Bactrocera zonata</i> Saunders	Fruits	Unconfirmed presence in Togo	Invasive Species Compendium, 2018 <a href="https://www.cabi.org/isc/datasheet/17694">https://www.cabi.org/isc/datasheet/17694</a> , 2018
	<i>Spodoptera ornithogalli</i> Guenee	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Heliothis virescens</i> Fabricius, 1777	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Epitrix fasciata</i> Blatchley, 1918	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Euzophera osseatella</i> Treitschke, 1832	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Brevipalpus californicus</i> Banks	Sheets	Unconfirmed presence in Togo	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Mites</b>	<i>Tetranychus pacifus</i> Dufour, 1832	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Tetranychus canadensis</i> McGregor, 1950	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Phytophthora cryptoge</i> Pethybr. & Laff, 1919	Leaves, roots, stem, entire plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	<i>Puccinia pittieriana</i> Henn. 1904	Leaves, stem	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
<b>Bacteria</b>	<i>Ralstonia solanacearum</i> Smith, 1914	The whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
<b>Phytoplasmas</b>	Tomato Big Bud ( <i>mycoplasma</i> )= <i>Phytoplasma aurantifolia</i>	Leaves, flowers, fruit, stem, apex	Unconfirmed presence in Togo	Plantwise, 2018 UEMOA, 2007 Jackson, 2017
<b>Phytoplasmas</b>	Aster yellows phytoplasma group	Whole plant, seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 CABI, 2018
	Potato Witches broom Phytoplasma	Leaves, stems, roots, the whole plant	Unconfirmed presence in Togo,	UEMOA, 2007 Plantwise, 2018
	Mottle Dwarf Virus	Leaf, stem, whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007



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<b>Virus</b>	Tomato Spotted Wilt Virus	Fruits, leaves, the whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	Tomato Bushy Stunt Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007 Martelli et al, 2001, 2016
	Tomato Black Ring Virus	Fruits, leaves, the whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007
	Tomato Aspermy Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007
<b>Aubergine: <i>Solanum melongena</i></b>				
<b>Insects</b>	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Bactrocera latifrons</i> Hendel, 1915	Fruits	Unconfirmed presence in Togo	Invasive Species Compendium <a href="https://www.cabi.org/isc/datasheet/8719">https://www.cabi.org/isc/datasheet/8719</a> , 2018
	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruits	Presence confirmed in Togo and the subject of official control	EPPO quarantine pest <a href="http://www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf</a> , 2018
	<i>Leucinodes orbonalis</i> Guenée, 1854	Fruits	Presence confirmed in Togo but not widely spread	UEMOA, 2007
<b>Mushrooms</b>	<i>Phytophthora cryptogea</i> Pethybr. & Laff. (1919)	Leaves, root, stem, whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	<i>Puccinia pittieriana</i> Henn. 1904	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
<b>Bacteria</b>	<i>Ralstonia solanacearum</i> Smith, 1914	The whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
<b>Phytoplasmas</b>	Tomato Big Bud ( <i>mycoplasma</i> )= <i>Phytoplasma aurantifolia</i>	Leaves, flowers, fruits, stems, appexes	Unconfirmed presence in Togo	Plantwise, 2018 UEMOA, 2007 Jackson, 2017
	Aster Yellows Phytoplasma Group	Whole plant, seeds	Unconfirmed presence in Togo,	Crop Protection Compendium,

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<b>Phytoplasmas</b>			Seed-borne	CABI, 2018
	Potato Witches Broom	Leaves, stems, roots, the whole plant	Unconfirmed presence in Togo,	UEMOA, 2007 Plantwise, 2018
<b>Virus</b>	Mottle Dwarf Virus	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	Tomato Spotted Wilt Virus	Fruits, leaves, the whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	Tomato Bushy Stunt Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007 Martelli et al, 2001, 2016
	Tomato Black Ring Virus	Fruits, leaves, the whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007
	Tomato Aspermy Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
				CABI, 2007
<b>Nightshade: <i>Solanum</i> spp.</b>				
<b>Mushrooms</b>	<i>Phytophthora cryptogea</i> Pethybr. & Laff. (1919)	Leaves, Root, Stem, Whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	<i>Puccinia pittieriana</i> Henn. (1904)	Leaves, Stem	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
<b>Bacteria</b>	<i>Ralstonia solanacearum</i> Smith (1914)	The whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Phytoplasmas</b>	Tomato Big Bud (mycoplasma)= <i>Phytoplasma aurantifolia</i>	Leaves, flowers, fruits, Stem, appex	Unconfirmed presence in Togo	Plantwise, 2018 UEMOA, 2007 Jackson, 2017
	Aster Yellows Phytoplasma Group	Whole plant, seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 CABI, 2018
	Potato Witches Broom Phytoplasma	Leaves, stems, roots, the whole plant	Unconfirmed presence in Togo,	UEMOA, 2007

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				Plantwise, 2018
<b>Virus</b>	Mottle Dwarf Virus	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	Tomato Spotted Wilt Virus	Fruits, leaves, Whole plant	Unconfirmed presence in Togo	CABI, 2018 UEMOA, 2007
	Tomato Bushy Stunt Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007 Martelli et al, 2001, 2016
	Tomato Black Ring Virus	Fruits, leaves, Whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2007
	Tomato Aspermy Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
				CABI, 2007

**SPICE AND AROMATIC PLANTS**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Turmeric: <i>Curcuma longa</i></b>				
<b>Insects</b>	<i>Aleurocanthus woglumi</i> Ashby, 1915	Leaves and stems	Unconfirmed presence in Togo	EPPO Quarantine Agency <a href="https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf">https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf</a> , 2018
<b>Nematodes</b>	<i>Xiphinema</i> sp. Cobb,1913	Roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Trichodorus</i> sp Cobb ,1913	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Pratylenchus coffeae</i> Goodey, 1951	Leaves, roots and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Radopholus similis</i> (Cobb (en), 1893) Thorne, 1949	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Common basil: <i>Ocimum basilicum</i></b>				

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<b>Mushrooms</b>	<i>Peronospora belbahrii</i> Thines, 2009	Sheets	Unconfirmed presence in Togo	Serdani, 2011
	<i>Fusarium oxysporum</i> f. sp. <i>basilicum</i> Schltldl., 1824	Roots, whole plant	Unconfirmed presence in Togo	Plant Disease Diagnostic Clinic, 2011  CABI, 2018
	<i>Rhizoctonia solani</i> J.G. Kühn, 1858	cCollar and roots	Unconfirmed presence in Togo	Plant Disease Diagnostic Clinic, 2011  CABI, 2018
	<i>Pythium</i> spp Pringsh, 1858	Collar and roots	Unconfirmed presence in Togo	Plant Disease Diagnostic Clinic, 2011;  CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Bacteria</b>	<i>Pseudomonas cichorii</i> (Swingle, 1925) Stapp, (1928)	Sheets	Unconfirmed presence in Togo	Plant Disease Diagnostic Clinic, 2011 CABI, 2018
	<b>Pepper tree: <i>Piper nigrum</i></b>			
<b>Bacteria</b>	<i>Pseudomonas syringae</i> pv. <i>syringae</i> Van Hall, 1904	Stems, inflorescences, fruits	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Pratylenchus coffeae</i>	Roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Radopholus similis</i> (Cobb, 1893) Thorne, 1949	Roots	Unconfirmed presence in Togo	CABI, 2018
<b>Sesame: <i>Sesamum indicum</i></b>				
<b>Insects</b>	<i>Antigastra catalaunalis</i> Dup.	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Asphondylia sesami</i> Felt	Flowers and Fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Verticillium dahliae</i> Kleb, 1913	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Mushrooms</b>	<i>Cylindrosporium sesami</i>	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Alternaria sesami</i> Mohanty & Behera, 1958	Sheets	Unconfirmed presence in Togo	CABI, 2018



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	<i>Fusariumoxysporum</i> f. sp. <i>sesami</i> Castellani, 1950	Leaves, whole plant, roots	Unconfirmed presence in Togo	El-Shazly et al, 2010 Elewa et al, 2011
<b>Bacteria</b>	<i>Pseudomonas syringae</i> pv. <i>sesami</i>	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018 Firdous et al, 2009
	<i>Rhizobiumradiobacter</i> (Rikeret al. 1930) Young et al. 2001	Roots, whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Rhizobium rhizogenes</i>	Stems, roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Xanthomonas campestris</i> pv. <i>sesami</i>	Stems, roots	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Pratylenchus penetrans</i> (Cobb, 1917) Filipjev and Schuurmans Stekhoven, 1941	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Ginger : <i>Zingiber officinale</i></b>				
<b>Insects</b>	<i>Aleurocanthus woglumi</i>	Leaves and stems	Unconfirmed presence in Togo	EPPO quarantine agency

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Ashby, 1915			<a href="https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf">https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf</a> , 2018
<b>Mushrooms</b>	<i>Fusarium primer</i>	Roots, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Fusarium oxysporum fsp zingiberi</i> E.E. Trujillo, 1963	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Coniothyrium zingiberi</i> Corda, 1840	Leaves, stems, the whole plant	Unconfirmed presence in Togo	Crop Knowledge Master, 2018 Duke, 1993
	<i>Phyllosticta zingiberi</i> T.S. Ramakrishnan, 1942	Leaves, stems, the whole plant	Unconfirmed presence in Togo	Ramakrishnan, 1941
	<i>Pythium aphanidermatum</i> (Edson) Fitzp. (1923)	Leaves, stems, the whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018
	<i>Cochliobolus heterostrophus</i> (Drechsler) Drechsler, (1934)	Leaves, stems, the whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018
<b>Bacteria</b>	<i>Ralstonia solanacearum</i> (Smith 1896) Yabuuchi <i>et al</i> , 1996	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Xiphinema americanum</i> Cobb, 1913	Rhizomes	Unconfirmed presence in Togo	CABI, 2018
	<i>Tylenchorhynchus</i> sp. Cobb, 1913	Root, leaves	Unconfirmed presence in Togo	CABI, 2018

**LEGUMINATORS**

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Peanut: <i>Arachis hypogea</i></b>				
<b>Insects</b>	<i>Stegasta bosquella</i> Chambers, 1875	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Cylindrocladium parasiticum</i> Crous, M.J. Wingf. & Alfenas (1993)	Neck, roots, seeds	Unconfirmed presence in Togo, Seed-borne	Gai et al, 2012 Mothilal Alagirisamy, 2016
<b>Virus</b>	Tomato Ringspot Virus	Whole plant, seeds	Confirmed presence in Togo, Transmissible by seeds	Crop Protection Compendium, 2013 OPPE, 2014  CABI/EPPO, 2015
	Peanut Clump Virus	Whole plant, seeds	Unconfirmed presence in Togo,	Crop Protection Compendium, 2013

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			Transmissible by seeds	CABI, 2018
<b>Angolan peas: <i>Cajanus cajanus</i></b>				
<b>Insects</b>	<i>Paracoccus marginatus</i> Williams & Granara de Willink, 1992	Stems, leaves	Presence confirmed in Togo and the subject of official control	DPV, 2017
<b>Mites</b>	<i>Aceria cajani</i> Channabasavanna	Sheets	Unconfirmed presence in Togo	Plantwise Knowledge Bank <a href="https://www.plantwise.org/KnowledgeBank/Datasheet.aspx?dsid=2584">https://www.plantwise.org/KnowledgeBank/Datasheet.aspx?dsid=2584</a> , 2018
	<i>Schizotetranychus cajani</i> Gupta, 1976	Sheets	Unconfirmed presence in Togo	Boland <i>et al</i> , 1998
<b>Mushroom</b>	<i>Albonectria rigidiuscula</i>	Fruits, seeds and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Colletotrichum lindemuthianum</i> Briosi & Cavara, 1889	Fruits, seeds and leaves	Unconfirmed presence in Togo	CABI, 2018
	<i>Colletotrichum truncatum</i> Andrus & W.D. Moore, 1935	Fruits, inflorescence, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Gibberella indica</i> B. Rai & R.S. Upadhyay 1982	Leaves and stems	Unconfirmed presence in Togo	CABI, 2018
<b>Bacteria</b>	<i>Rhizobium radiobacter</i> Beijerinck and van Delden, 1902	Fruits, stems and roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Xanthomonas axonopodis</i> pv. <i>Cajani</i> Kulkarni et al, 1950	Sheets	Unconfirmed presence in Togo	CABI, 2018

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	<i>Rhizobium rhizogenes</i> Riker 1930 Conn 1942	Roots	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Pigeon Pea Sterility Mosaic Virus	Sheets	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Heterodera cajani</i> Koshy, 1967	Fruits, leaves, stems and roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Hoplolaimus seinhorsti</i> Luc, 1958	Roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Pratylenchus penetrans</i> Cobb, 1917	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018
<b>Soya: <i>Glycine max</i></b>				
<b>Insects</b>	<i>Spodoptera ornithogalli</i> Guenée, 1852	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Epilachna varivestis</i>	Sheets	Unconfirmed presence in Togo	ASEAN, 1987

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Chevrolat in Dejean, 1837			
	<i>Leguminivora glycinivorella</i> Matsumura, 1900	Sheets	Unconfirmed presence in Togo	ASEAN, 1987
<b>Mushrooms</b>	<i>Peronospora manshurica</i> (Naumov) Syd, (1923)	Whole plant, seeds	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 UEMOA, 2007
	<i>Sphaceloma wisteria</i> Kurata & Kurib. 1954	Leaves, stems, pods	Unconfirmed presence in Togo	UEMOA, 2007
PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Bacteria</b>	<i>Pseudomonas glycinea</i>	Leaves, seeds	Unconfirmed presence in Togo	EPPO global database, 2018 Cros et al, 1966
	<i>Xanthomonas wisteria</i>	Leaves, fruits	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018
	<i>Corynebacterium flaccumfaciens</i> (F. Hedges, 1922) W.J. Dowson, 1942	Fruits, the whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Harveson et al, 2008
<b>Virus</b>	Soybean Stunt Virus	Leaves, whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Roechan et al, 1975
	Soybean Mosaic Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018

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<b>Nematodes</b>	<i>Heterodera wisteria</i> Ichinohe, 1952	Roots	Unconfirmed presence in Togo	CABI, 2018 Plantwise Knowledge Bank, 2018 UEMOA, 2007 Evans et al, 1993
	<i>Belonolaimus longicaudatus</i> Rau, 1958	Roots	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018
<b>Bean: <i>Phaseolus</i> spp.</b>				
<b>Bacteria</b>	<i>Corynebacterium flaccumfasciens</i> (Smith 1903) Vauterin et al (1995)	Leaves, pods, seeds	Unconfirmed presence in Togo,	EPPO quarantine pest, 2018
<b>Virus</b>	Beet Curly Top Virus	Leaves, stem, root, fruit, flowers	Unconfirmed presence in Togo,	Plantwise, 2018
<b>Weed plants</b>	<i>Striga gesnerioides</i> (Willdenow) Vatke, 1875	Parasite: the roots	Confirmed presence in Togo, transmission with seeds, difficult fight	Invasive species compendium, 2013 Pocanam, 2016

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Pea: <i>Pisum sativum</i></b>				
<b>Mushrooms</b>	<i>Aphanomyces euteiches</i> Drechsler, 1925	Leaves, stems and roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Ascochyta pisi</i> Lib. (1830)	Fruits, leaves, stems and seeds	Unconfirmed presence in Togo	CABI, 2018
	<i>Botryotinia fuckeliana</i> (from Bary) Whetzel, (1945)	Leaves and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Choanephora cucurbitarum</i> (Berk. & Ravenel) Thaxt, (1903)	Fruits, apex, inflorescence, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Colletotrichum truncatum</i> (Schwein.) Andrus & W.D. Moore, (1935)	Fruits, inflorescence, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Erysiphe diffusa</i>	Fruits, leaves, stems and seeds	Unconfirmed presence in Togo	CABI, 2018
	<i>Erysiphe pisi</i> var. <i>pisi</i> DC, (1821)	Fruits, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Gibberella avenacea</i> R.J. Cook (1967)	Roots, apex, inflorescence, seeds and stems	Unconfirmed presence in Togo	CABI, 2018
	Bean Leaf Roll Virus	Sheets	Unconfirmed presence in Togo	CABI, 2018
	Bean Yellow Mosaic Virus	Sheets	Unconfirmed presence in Togo	CABI, 2018



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<b>Virus</b>	Broad Bean Wilt Virus	Fruits, leaves, stems and seeds	Unconfirmed presence in Togo	CABI, 2018
	Pea Aarly-Browning Virus	Leaves and seeds	Unconfirmed presence in Togo	CABI, 2018
	Pea Seed-Borne Mosaic Virus	Sheets	Unconfirmed presence in Togo	CABI, 2018
	Peanut Mottle Virus	Fruits, leaves and seeds	Unconfirmed presence in Togo	CABI, 2018
<b>Bacteria</b>	<i>Curtobacterium flaccumfaciens</i> (Hedges 1922) Bergey <i>et al.</i> 1923	Sheets	Unconfirmed presence in Togo	CABI, 2018
	<i>Pseudomonas syringa</i> pv. <i>pisi</i> Van Hall, 1904	Fruits, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Ditylenchus dipsaci</i> , Kuhn, 1857	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Heterodera goettingiana</i> Liebscher, 1892	Leaves, roots and stems	Unconfirmed presence in Togo	CABI, 2018
<b>Voandzou : <i>Vigna subterranea</i></b>				

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<b>Mushrooms</b>	<i>Fusarium oxysporum</i> Schldl., 1824	Leaves and stems	Unconfirmed presence in Togo	CABI, 2018 PlantUse, 2018
	<i>Phomopsis</i> sp Sacc. & Roum. 1884	Leaves, seeds and stems	Unconfirmed presence in Togo	Plantwise, 2018 PlantUse, 2018
<b>Virus</b>	Blackeye Cowpea Mosaic Virus	Sheets	Unconfirmed presence in Togo	Plantwise, 2018 PlantUse, 2018
<b>Nematodes</b>	<i>Meloidogyne incognita</i> Kofoid & White, 1919	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018 PlantUse, 2018
	<i>Meloidogyne javanica</i>	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018 PlantUse, 2018
<b><i>Cowpea: Vigna unguiculata</i></b>				
<b>Insects</b>	<i>Elasmopalpus lignosellus</i> Zeller, 1848	Leaves and stems (creepers)	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Cerotoma trifurcata</i> , Forster, 1771	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Elsinoe phaseoli</i> Jenkins, 1933	Seeds, roots, stems	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013
	<i>Phytophthora richardiae</i> Buisma, 1927	Roots, seeds	Unconfirmed presence in Togo	Crop Protection Compendium, 2013

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<b>Mushrooms</b>			Not confirmed Seed-borne	Jean Beagle Ristaino, 2018
	<i>Phytophthora vignae</i> Purss, 1957	Roots, seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 CABI, 2018
<b>Weed plants</b>	<i>Striga gesnerioides</i> (Willdenow) Vatke, 1875	Parasite: the roots	Confirmed presence in Togo, Transmission with seeds Difficult to control	Invasive species compendium, 2013 Pocanam, 2016
<b>Bacteria</b>	<i>Xanthomonas axonopodis</i> pv. <i>vignicola</i> Burkholder, 1944  or <i>Xanthomonas campestris</i> pv <i>vignicola</i> (Pammel, 1895) Dowson, 1939 emend.Vauterin <i>and al.</i> , 1995)	The whole plant and the seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 Okechukwu and Ekpo, 2008  CABI, 2018
	<i>Pseudomonas syringae</i> pv. <i>Phaseolicola</i> Van Hall, 1904	The whole plant and the seeds	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013 CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Erwinia vitivora</i> Winslow <i>et al</i> , 1920 (AL 1980) <i>emend.</i> Hauben <i>et al</i> , (1998)	The whole plant	Unconfirmed presence in Togo, Seed-borne	Crop Protection Compendium, 2013

**OLÉAGINEUX OLÉAGINEUX**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Shea: <i>Butyrospermum parkii</i> (<i>Vitellaria paradoxa</i>)</b>				
<b>Insect</b>	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUC_M_en.pdf">https://gd.eppo.download/doc/823_ds_DACUC_M_en.pdf</a> , 2018; DPV, 2017
<b>Coconut tree: <i>Cocos nucifera</i></b>				
	<i>Rhinoceros Oryctes</i> Linnaeus, 1758	Sheets	Unconfirmed presence in Togo	EPPO Global Database, 2018 <a href="https://www.cabi.org/isc/datasheet/37974">https://www.cabi.org/isc/datasheet/37974</a> , 2018
	<i>Rhabdoscelus obscurus</i> Boisduval, 1835	Trunk	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Xylotrupes gideon</i> Guérin-Méneville, 1830	Trunk	Unconfirmed presence in Togo	UEMOA, 2007

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<b>Insects</b>	<i>Aleurodicus destructor</i> Mackie, 1912	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Parasa lepida</i> Pieter Cramer, 1799	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Setora nitens</i> Walker, 1855	Sheets	Unconfirmed presence in Togo	UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Insects (Continued)</b>	<i>Homona coffearia</i> Nietner, 1861	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Pseudococcus comstocki</i>	Leaves, fruits	Unconfirmed presence in Togo	EPPO Global Database, 2018

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	Kuwana, 1902			<a href="https://gd.eppo.int/taxon/PSECCO">https://gd.eppo.int/taxon/PSECCO</a> , 2018
	<i>Saphronica ventralis</i>	Cherries	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Brontispa limbata</i> Waterhouse, 1876	Leaves (leaflets)	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Melittoma insulare</i> Fairm.	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Phytoplasma</b>	Kerala wilt	Leaf, Inflorescence	Unconfirmed presence in Togo	UEMOA, 2007 <a href="http://www.kisansuvidha.com/">http://www.kisansuvidha.com/</a> , 2018
<b>Oil palm: <i>Elaeis guineensis</i></b>				
<b>Insects</b>	<i>Brontispa limbata</i> Waterhouse, 1876	Leaves (leaflets)	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Melittoma insulare</i> Fairm.	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Valanga nigricornis</i> Burmeister, 1838	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Fusarium oxysporum</i> f. sp. <i>elaeidis</i>	Leaves, pseudotrunc, the whole plant	Unconfirmed presence in Togo	CABI, 1996, 2018

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<b>Mushrooms</b>	Schltdl.,1824			
	<i>Cercospora elaeidis</i> Steyaert ,1948	Sheets	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018 CABI, 2018

**COFFEE, COCOA, COLA, COTTON**

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
Coffee tree: <i>Coffea</i> spp.				
<b>Insects</b>	<i>Aleurocanthus woglumi</i> Ashby, 1915	Leaves and stems	Unconfirmed presence in Togo	EPPO Quarantine Agency <a href="https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf">https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf</a> , 2018
	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018  DPV, 2016
	<i>Epicanoptera strandi</i> Bryk, 1913	Sheets	Presence confirmed in Togo but not widely distributed and subject to official controls	UEMOA, 2007  UTCC, 2016
	<i>Valanga nigricornis</i> Burmeister, 1838	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Zeuzena coffeae</i> Nietner	Stems	Unconfirmed presence in Togo	UEMOA, 2007
<b>Bacteria</b>	<i>Pseudomonas garcae</i> (Elliott 1920) Stevens 1958	Leaf, stem, whole plant	Unconfirmed presence in Togo	UEMOA, 2007  Plantwise Knowledge Bank, 2018
<b>Virus</b>	Coffee Ring Spot Virus	Leaves, fruits	Unconfirmed presence in Togo	UEMOA, 2007  Plantwise Knowledge Bank, 2018



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<b>Nematode</b>	<i>Meloidogyne exigua</i> Goeldi, 1892	Roots, Leaves, Stems	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018
<b>Cola tree : <i>Cola acuminata</i></b>				
<b>Mushroom</b>	<i>Marasmius scandens</i> Masee, 1910	Leaves, petioles, branches	Unconfirmed presence in Togo,	Plantwise Knowledge Bank, 2018
<b>Virus</b>	Swollen Shoot Virus	Leaves, fruits, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Cotton: <i>Gossypium</i> spp.</b>				
<b>Insects</b>	<i>Anthonomus grandis</i> Boheman	Flowers, capsules and cotton fibres	Unconfirmed presence in Togo	Quarantine pest EPPO www.eppo.int/QUARANTINE/ data_sheets: insect/ ANTHGR_ds.pdf, 2018
	<i>Spodoptera frugiperda</i> J. E. Smith, 1797	Leaves, capsules	Presence confirmed in Togo and the subject of an official struggle	www.fao.org/fall-armyworm/fr/, 2018 CAE Report, 2017

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Insects (Continued)</b>	<i>Spodoptera eridania</i> Cramer, 1782	Leaves, stems	Unconfirmed presence in Togo	www.iita.org, 2018
	<i>Spodoptera ornithogalli</i> Guenée, 1852	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Sacadodes pyralis</i> Dyar, 1912	Capsules	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Heliothis virescens</i> Fabricius, 1777	Leaves, capsules	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Platydent scutigera</i>	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	Hübner's <i>Alabama</i> Clay, 1823	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Atta cephalotes</i> Linnaeus, 1758	Leaves, stems	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Amrasca devastans</i> Distant	Capsules	Unconfirmed presence in Togo	UEMOA, 2007 EPPO Global Database ,2018 <a href="https://gd.eppo.int/taxon/ANTHVE">https://gd.eppo.int/taxon/ANTHVE</a> , 2018
	<i>Dysdercus koenigii</i> Fabricius, 1775	Leaves, Capsules	Unconfirmed presence in Togo	UEMOA, 2007

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	<i>Anthonomus vestitus</i> Boheman	Capsules	Unconfirmed presence in Togo	UEMOA, 2007 EPPO Global Database, 2018 <a href="https://gd.eppo.int/taxon/ANTHVE">https://gd.eppo.int/taxon/ANTHVE</a> , 2018
<b>Insects</b>	<i>Helopeltis antonii</i> Signoret, 1858	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Spodoptera exigua</i> Hübner, 1808	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushroom</b>	<i>Puccinia cacabata</i> Arthur & Holw., 1925	Leaves, stems, the whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise, 2018
	<i>Phymatotrichopsis omnivora</i> (Duggar) Hennebert (1973)	Roots, leaves, stems	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018
<b>Virus</b>	Beet Curly Top Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<i>Cocoa tree : Theobroma cacao</i>				
<b>Insects</b>	<i>Acrocercops cramerella</i> Snellen	Fruits	Unconfirmed presence in Togo	UEMOA, 2007  EPPO Global Database, 2018 <a href="https://gd.eppo.int/taxon/AROCER">https://gd.eppo.int/taxon/AROCER</a> , Invasive Species Compendium, 2018 <a href="https://www.cabi.org/isc/datasheet/7017">https://www.cabi.org/isc/datasheet/7017</a>
	<i>Parasa lepida</i> Cramer, 1799	Sheets	Unconfirmed presence in Togo	UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Insects (Continued)</b>	<i>Tiracola plagiata</i> Walker, 1857	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Helopeltis antonii</i> Signoret, 1858	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Crinipellis perniciosus</i> (Stahel) Singer 1943	Fruits, Leaves, Seeds, Stems	Unconfirmed presence in Togo	UEMOA, 2007  CABI, 2018
	<i>Moniliophthora roreri</i> Evans, Stalpers, Samson &	Fruits, Seeds	Unconfirmed presence in Togo	UEMOA, 2007

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<b>Mushrooms</b>	Benny, (1978)			CABI, 2018
	<i>Rosellina pepo</i>			UEMOA, 2007
	Pat, 1908	Roots, leaves, the whole plant	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018
	<i>Oncobasidium theobromae</i> P.H.B. Talbot & Keane, 1971	Leaves, roots, stems, the whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018 EPPO global database, 2018
	<i>Phytophthora megasperma</i> Drechsler, 1931	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018 CABI, 2018
	<i>Trachysphaera fructigena</i> Tabor & Bunting, 1923	Fruits	Unconfirmed presence in Togo	UEMOA, 2007 EPPO global database, 2018

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				Plantwise Knowledge Bank, 2018
<b>Virus</b>	Swollen Shoot Virus,	Fruits, leaves, stems, roots	Confirmed presence in Togo; Difficult to control, Restricted distribution. Object of official control	UEMOA, 2007 Plantwise Knowledge Bank, 2018 Cilas et al, 2005 DPV, 2018
	Cocoa Yellow Mottle Virus,	Leaves, whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018

**FRUIT AND WOOD TREES**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Cashew tree: <i>Anacardium occidentale</i></b>				
	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	EPPO Quarantine Organization, 2018  <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> ,

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<b>Insects</b>				2018  DPV, 2017
	<i>Aleurocanthus woglumi</i> Ashby, 1915	Sheets	Unconfirmed presence in Togo	EPPO Quarantine Agency <a href="https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf">https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf</a> , 2018
	<i>Anastrepha obliqua</i> Macquart, 1835	Fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Anastrepha recticulus</i>	Fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Helopeltis anacardii</i> Miller, 1954	Fruits	Unconfirmed presence in Togo	Rickson, 1998

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	<i>Helopeltis antonii</i> Signoret, 1858	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
<b>Pineapple : <i>Pineapple comosus</i></b>				
<b>Insects</b>	<i>Planococcus citri</i> Risso, 1813	Leaves and fruits	Confirmed presence in Togo, but not widely disseminated	CABI, 2018
	<i>Dysmicoccus brevipes</i> Cockerell, 1893	Leaves and fruits	Confirmed presence in Togo, but not widely disseminated	UEMOA, 2007 www.invasive.org/, 2018
	<i>Diaspis bromeliae</i> Kerner, 1778	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007 www.invasive.org/, 2018
<b>Mushrooms</b>	<i>Ceratocystis fimbriata</i> Ellis & Halst. , (1890)	Fruits, leaves, roots	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018 EPPO global database, 2018
	<i>Phytophthora cinamomi</i> Rands, 1922	Fruits, apex, leaves, roots, stems, whole plant	Unconfirmed presence in Togo	CABI, 2018 Plantwise Knowledge Bank, 2018 Kenten et al, 1973
	<i>Phytophthora parasitica</i> Dastur, 1913)= <i>Phytophthora nicotianae</i> Breda de Haan 1896	Fruits, apex, leaves, roots, stems, whole plant	Unconfirmed presence in Togo	CABI, 2018



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				Sixth Ed, 2001
	<i>Phyllosticta anonicola</i> , Vanev, 2002	Stems, leaves, inflorescences and fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Colletotrichum anonicola</i> , Spegazzini, 1911	Stems, leaves, inflorescences and fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Ceratocystis fimbriata</i> Ellis & Halst., 1890	Stems, leaves, inflorescences and fruits, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Armillariella mellea</i> , (Vahl) P.Kumm. (1871)	Stems, leaves, inflorescences and fruits, the whole plant	Unconfirmed presence in Togo	CABI, 2018 EPPO, 1997
<b><i>Blighia sapida</i> (Akee apple)</b>				
<b>Mushroom</b>	<i>Verticillium dahliae</i> Kleb. (en), 1913	Leaves, stems, the whole plant	Unconfirmed presence in Togo	Robert et al, 2003
<b><i>Papaya: Carica papaya</i></b>				
<b>Insect</b>	<i>Paracoccus marginatus</i> Williams & Granara de Willink, 1992	Leaves, stems, fruit	Presence confirmed in Togo and the subject of an official struggle	www.iita.org, 2018
	<i>Bactrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
	<i>Bactrocera cucumis</i>			EPPO quarantine pest <a href="https://gd.eppo.download/doc/917_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/917_ds_DACUCM_en.pdf</a> ,

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	English	Fruits	Unconfirmed presence in Togo	2018
<b>Mushrooms</b>	<i>Colletotrichumpapayae</i> Hennings, 1908	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Phytophthora nicotianae</i> Breda de Haan, 1896	Fruit, apex, leaf, roots, stem, whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Oidium caricae-papayae</i> J.M. Yen, 1966	Leaves, fruits	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Papaya Ringspot Virus	Leaf, fruit, stem, whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Meloidogyne incognita</i> Kofoed & White 1919	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Orange, Lemon, Grapefruit, Mandarin: <i>Citrus</i> spp.</b>				
<b>Insects</b>	<i>Ceratitidis capitata</i>	Fruits	Confirmed presence in Togo and	<a href="https://gd.eppo.download/doc/">https://gd.eppo.download/doc/</a>

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Wiedemann, 1824		subject to official control	928_ds_CERTCA_en.pdf, 2018  www.iita.org.org, 2018
	<i>Aleurocanthus woglumi</i> Ashby, 1915	Underside of the sheets	Unconfirmed presence in Togo	<a href="https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf">https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf</a> , 2018
	<i>Tiracola plagiata</i> Walker, 1857	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Pseudococcus maritimus</i> Ehrhorn, 1900	Leaves, stems, fruit	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Euproctis similis</i> Fuessly, 1775	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Diaprepes abbreviatus</i> L.	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed and being officially combated	<a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruits	Presence confirmed and being officially combated	<a href="http://www.eppo.int/QUARANTINE/data_sheets/inspects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/data_sheets/inspects/DACUCU_ds.pdf</a> , 2018  www.iita.org.org, 2018

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<b>Mites</b>	<i>Tetranychus pacifus</i> (Koch)	Leaves, fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Brevipalpus chilensis</i> Baker, 1949	Leaves, fruits	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Deuterophoma tracheiphila</i> Petri, 1930	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018
<b>Bacteria</b>	<i>Xanthomonas citri</i> (ex Hasse 1915) Gabriel et al. 1989	Fruit, leaf and trunk	Unconfirmed presence in Togo	UEMOA, 2007 Cabi, 2018
	<i>Spiroplasma citri</i> (Stubborn disease of citrus) Saglio et al. 1973.	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018
<b>Virus</b>	Citrus Tristeza Virus (CTV)	Leaves, stem, Whole plant	Unconfirmed presence in Togo	UEMOA, 2007
	Citrus impietratura agent	Fruits	Unconfirmed presence in Togo	EPPO global database, 2018 CABI, 2018

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<b>Viroid</b>	Citrus exocortis (Citrus exocortis viroid)	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007  Plantwise Knowledge Bank, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Apple tree: <i>Malus domestica</i></b>				
<b>Insects</b>	<i>Rhagoletis pomonella</i> (Walsh)	Fruit	Unconfirmed presence in Togo	UEMOA, 2007 ASEAN, M., 1987
	<i>Hoplocampa testudinea</i> Klug, 1816	Fruit	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Pseudococcus cryptus</i> Hempel, 1918	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mites</b>	<i>Tetranychus Canadensis</i> McGregor, 1950	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Eotetranychus carpini borealis</i> Ewing, 1913	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Eotetranychus williammenti</i>	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Alternaria alternata</i> ), (Fr.) Keissl. (1912)	Fruit	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018
	<i>Botrytis cinerea</i> Pers., 1794	Fruit	Unconfirmed presence in Togo	<a href="https://www.gbif.org/species/2583139">https://www.gbif.org/species/2583139</a> , 2018
	<i>Colletotrichum gloeosporioides</i>	Fruit	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018

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<b>Mushrooms</b>	= <i>Glomerella cingulata</i> , Penz. & Sacc. 1884			
	<i>Gymnosporangium juniperi-virginianae</i> (rust), Schwein. (1822)	Fruit	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018
	<i>Mucor piriformis</i> Scop, 1772	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species Compendium, 2018
	<i>Pezicula malicorticis</i> = <i>Neofabraea malicorticis</i> H.S. Jacks, 1913	Fruit	Unconfirmed presence in Togo	<a href="https://www.gbif.org/species/2583139">https://www.gbif.org/species/2583139</a> , 2018
	<i>Podosphaera leucotricha</i> , (Ellis& Everh.)E.S.Salmon,1900	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species Compendium, 2018
	<i>Rhizopus stolonifer</i> (Ehrenb. ) Vuill, (1902)	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species Compendium, 2018
	<i>Venturia inaequalis</i> (Cooke) G.Winter, 1875	Fruit	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018
<b>Bacteria</b>	<i>Erwinia amylovora</i> (Burrill 1882) Winslow <i>et al.</i> ,	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	1920			Compendium, 2018 Jones and Aldwinckle, 1990
	<i>Pseudomonas syringae</i> pv. <i>papulans</i> Van Hall, 1904	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species Compendium, 2018  Jones and Aldwinckle, 1990

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Virus</b>	Chlorotic Apple Stain Virus	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species Compendium, 2018
	Apple mosaic virus	Fruit	Unconfirmed presence in Togo	Cabi Invasive Species Compendium, 2018
<b>Viroid</b>	Viroid of scarred apple tree skin	Fruit	Unconfirmed presence in Togo	Plantwise Knowledge Bank, 2018

**Mango tree: *Mangifera indica***

	<i>Batrocera dorsalis</i>  Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	EPPO Quarantine Organization, 2018  <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
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<b>Insects</b>	<i>Zeugodacus cucurbitae</i> Coquillett, 1899	Fruits	Presence confirmed in Togo and the subject of official control	EPPO quarantin pest, 2018 <a href="http://www.eppo.int/QUARANTINE/data_sheets/insects/DACUCU_ds.pdf">www.eppo.int/QUARANTINE/ data_sheets/insects/ DACUCU_ds.pdf</a> , 2018
	<i>Ceratitidis capitata</i> Wiedemann, 1824	Fruits	Presence confirmed in Togo and the subject of official control	EPPO Quarantine Organization, 2018  <a href="https://gd.eppo.download/doc/928_ds_CERTCA_en.pdf">https://gd.eppo.download/doc/ 928_ds_CERTCA_en.pdf</a> , 2018
	<i>Bactrocera zonata</i> Saunders, 1841	Fruits	Unconfirmed presence in Togo	Cabi Invasive Species Compedium, 2018
	<i>Sternochetus frigidus</i> Fabricius	Fruit (stone)	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Anastrepha obliqua</i> Macquart, 1835	Fruits	Unconfirmed presence in Togo	UEMOA, 2007

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Anastrepha ludens</i> Loew, 1873	Fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Bactrocera tryoni</i> Froggatt	Fruits	Unconfirmed presence in Togo	Muthaiyan, 2009 UEMOA, 2007
	<i>Parasa lepida</i> Cramer, 1799	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007 <a href="https://www.plantwise.org/KnowledgeBank/Datasheet.aspx?dsid=38935">https://www.plantwise.org/KnowledgeBank/Datasheet.aspx?dsid=38935</a> , 2018
	<i>Zeuzera purina</i> Linnaeus, 1761	Branch and trunk wood	Unconfirmed presence in Togo	UEMOA, 2007 Cabi Invasive Species Compendium, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Mite</b>	<i>Oligonychus mangiferus</i> Rahman and Sapra	Sheets	Likely presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Elsinoe mangiferae</i> Bitancourt and Jenkins (1943)	Leaves, stems, inflorescences, fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Fusarium verticillioides</i> (Sacc) Nirenberg (1976)	Apex, leaves, flowers, the whole plant	Unconfirmed presence in Togo	Haggag et al, 2010 CABI, 2018
<b>Bacteria</b>	<i>Pseudomonas mangiferae</i> Patel et al, 1948	Fruits	Unconfirmed presence in Togo	Daniel et al, 1975
<b>Moringa : <i>Moringa oleifera</i></b>				
<b>Insect</b>	<i>Noorda blitealis</i> Walker, 1859 - Or <i>Noorda moringae</i> Tams, 1938	Sheets	Unconfirmed presence in Togo	<a href="https://en.wikipedia.org/wiki/Noorda_blitealis">https://en.wikipedia.org/wiki/Noorda_blitealis</a> , 2018
<b>Mushroom</b>	<i>Fusarium pallidoroseum</i> (Cooke) Saccardo (1886)	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Tomato Yellow Leaf Curl Virus	Leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Banana and Plantain: (<i>Musa spp</i>)</b>				
	<i>Bactrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018

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<b>Insects</b>	<i>Aleurocanthus woglumi</i> Ashby, 1915	Leaves and stems	Unconfirmed presence in Togo	EPPO Quarantine Agency <a href="https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf">https://gd.eppo.download/doc/921_ds_ALECSN_en.pdf</a> , 2018
	<i>Chaetanaphothrips signipennis</i> Bagnall, 1914	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Tiracola plagiata</i> Walker, 1857	Sheets	Unconfirmed presence in Togo	<a href="http://inter-reseaux.org/IMG/pdf_FAO_legal_report_security_textes_sanitaire.pdf">http://inter-reseaux.org/IMG/pdf_FAO_legal_report_security_textes_sanitaire.pdf</a> , 2018
	<i>Nacoleia octasema</i> Meyrick, 1886	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Trialeurodes floricola</i> Quaintance, 1900	Sheets	Unconfirmed presence in Togo	UEMOA, 2007 EPPO Global Database, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Xylotrupes gideon</i> Guérin-Méneville, 1830	Sheets	Unconfirmed presence in Togo	UEMOA, 2007 EPPO Global Database, 2018
<b>Mushrooms</b>	<i>Trachysphaera fructigena</i> Tabor & Bunting, 1923	Fruits	Unconfirmed presence in Togo	UEMOA, 2007 EPPO Global Database, 2018 Plantwise Knowledge Bank, 2018
	<i>Phyllachora musicola</i> C. Booth & D.E. Shaw, 1961	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Uredo musae</i> Cummins, 1941	Sheets	Unconfirmed presence in Togo	UEMOA, 2007 Jackson, 2017
<b>Mushrooms</b> (Continued)				
<b>Bacteria</b>	<i>Ralstonia solanacearum</i> (Smith 1896) Yabuuchi <i>et al.</i> 1996.	Leaves, fruits	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018 CABI, 2018
	<i>Xanthomonas celebensis</i> Dowson, 1939	Sheets	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018
<b>Virus</b>	Bunchy Top Virus	The whole plant	Confirmed presence in Togo but not widely distributed in Togo	UEMOA, 2007 www.iita.org, 2018
	Banana Streak Virus	The whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018

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<b>Nematodes</b>	<i>Pratylenchus goodeyi</i> Sher & Allen 1953	Roots	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018 CABI, 2018
	<i>Pratylenchus coffea</i> Zimmermann, 1898	Roots, whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise Knowledge Bank, 2018 CABI, 2018
	<i>Radopholus similis</i> (Cobb (en), 1893) Thorne, 1949)	Roots, whole plant	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018 Promoted, 2018
<b>Passion fruit: <i>Passiflora edulis</i></b>				
<b>Insect</b>	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
	<i>Ceratitis capitata</i>	Fruits	Confirmed presence in Togo and	EPPO quarantine agency

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	Wiedemann, 1824		subject to official control	<a href="https://gd.eppo.download/doc/928_ds_CERTCA_en.pdf">https://gd.eppo.download/doc/928_ds_CERTCA_en.pdf</a> , 2018  DPV, 2016
<b>Mushrooms</b>	<i>Alternaria passiflora</i> Nees Von Esenb. ex Fr ies, 1816	Stems, leaves and fruit	Unconfirmed presence in Togo	CABI, 2018
	<i>Fusarium oxysporum</i> Schltdl., 1824	Leaves and stems	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Meloidogyne incognita</i> Kofoid & White, 1919	Leaves and roots	Unconfirmed presence in Togo	CABI, 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Avocatier : <i>Persea americana</i></b>				
<b>Insects</b>	<i>Batrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	Quarantine agency EPPO <a href="https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.download/doc/823_ds_DACUCM_en.pdf</a> , 2018
	<i>Ceratitidis capitata</i> Wiedemann, 1824	Fruits	Presence confirmed in Togo and the subject of official control	EPPO Quarantine Agency <a href="https://gd.eppo.download/doc/928_ds_CERTCA_en.pdf">https://gd.eppo.download/doc/928_ds_CERTCA_en.pdf</a> , 2018
	<i>Helopeltis antonii</i> Signoret, 1858	Leaves and fruits	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Amblypelta nitida</i> Stål, 1873	Fruits	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mushrooms</b>	<i>Sphaceloma perseae</i> Jenkins, 1934	Leaves, fruits,	Unconfirmed presence in Togo	UEMOA, 2007 CABI, 2018 Plant health Australia, 2018
	<i>Colletotrichum gloeosporioides</i> (Penz.) Penz. & Sacc. (1884)	Leaves, fruits, Stem	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise, 2018
	<i>Ceroplasts floridensis</i> Gray, 1828	Fruit, apex, leaf, stem, whole plant	Unconfirmed presence in Togo	UEMOA, 2007 Plantwise, 2018



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	<i>Phytophthora cinnamoni</i> Rands , 1922	Fruit, apex, leaf, roots, whole plant	Unconfirmed presence in Togo	UEMOA, 2007  CABI, 2018
	<i>Pseudocercospora purpurea</i> (Cooke) Deighton, (1976)	Fruits, leaves	Unconfirmed presence in Togo	UEMOA, 2007  CABI, 2018
<b>Bacteria</b>	<i>Pseudomonas syringae</i> Van Hall, 1904	Fruits, leaves, seeds, roots, stems, whole plant	Unconfirmed presence in Togo	UEMOA, 2007  CABI, 2018
<b>Virus</b>	Avocado Sun Blotch Virus	fruit, leaves, stem, apex, whole plant	Unconfirmed presence in Togo	UEMOA, 2007  CABI, 2018
<b>Date palm: <i>Phoenix dactylifera</i></b>				
<b>Insects</b>	<i>Ectomyelois Ceratoniae</i>  Zeller, 1839	Fruits	Unconfirmed presence in Togo	<a href="http://www.agri.huji.ac.il/mepests/pest/Ectomyelois_ceratoniae/">http://www.agri.huji.ac.il/mepests/pest/Ectomyelois_ceratoniae/</a> , 2018

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Pseudarenipses insularum</i> Chapind, 2002	Fruits	Unconfirmed presence in Togo	<a href="http://www.chez.com/palmiers/alertecastnia.php">http://www.chez.com/palmiers/alertecastnia.php</a> , 2018
	<i>Cerataphis brasiliensis</i> Hempel	Sheets	Unconfirmed presence in Togo	<a href="https://gd.eppo.int/taxon/CEATVA">https://gd.eppo.int/taxon/CEATVA</a> , 2018
	<i>Pistonia dactyliferae</i> Maulik, 1919	Roots	Unconfirmed presence in Togo	<a href="http://www.fredon-corse.com/standalone/5/D9D56Wbpy91le2P31fAPSQ6j.pdf">http://www.fredon-corse.com/standalone/5/D9D56Wbpy91le2P31fAPSQ6j.pdf</a> , 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Mushrooms</b>	<i>Fusarium oxysporum</i> f.sp. <i>albedinis</i>	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Alternaria alternata</i>	Fruits	Unconfirmed presence in Togo	BABI, 2018
	<i>Colletotrichum acutatum</i>	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Fusarium torulosum</i> , (Berk. & M.A. Curtis) Nirenberg 1995	Fruits	Unconfirmed presence in Togo	CABI, 2018  Gruyter & J.H.M. Schneider 1991 Yearbook. Plant Protection Service 168:  135, 2018
	<i>Gibberella intricans</i>	Fruits	Unconfirmed presence in Togo	CABI, 2018

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	<i>Aspergillus fumigatus</i> Fresenius 1863	Fruits	Unconfirmed presence in Togo	CABI, 2018
<b>Nematodes</b>	<i>Helicotylenchus dihystra</i> , (Cobb, 1893) Sher, 1961	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Pratylenchus penetrans</i> (Cobb, 1917) Filipjev and Schuurmans Stekhoven, 1941	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Rotylenchulus reniformis</i> Linford and Oliveira, 1940	Fruits	Unconfirmed presence in Togo	CABI, 2018
<b>Phytoplasma</b>	<i>Candidatus phytoplasma Asteris</i> Yellow Disease Phytoplasmas)	Fruits	Unconfirmed presence in Togo	CABI, 2018
<b>Guava tree: <i>Psidium guajava</i></b>				
<b>Insects</b>	<i>Anastrepha ludens</i> Loew	Fruits	Unconfirmed presence in Togo	<a href="https://gd.eppo.int/download/doc/">https://gd.eppo.int/download/doc/</a>

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PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
				12_datasheet_ANSTLU.pdf, 2018
	<i>Anastrepha obliqua</i> Macquart	Fruits	Unconfirmed presence in Togo	<a href="https://gd.eppo.int/download/doc/802_ds_ANSTOB_en.pdf">https://gd.eppo.int/download/doc/802_ds_ANSTOB_en.pdf</a> , 2018
	<i>Anastrepha suspensa</i> Loew	Fruits	Unconfirmed presence in Togo	Invasive Species Compendium <a href="https://www.cabi.org/isc/datasheet/5668">https://www.cabi.org/isc/datasheet/5668</a> , 2018
	<i>Bactrocera dorsalis</i> Hendel, 1912	Fruits	Presence confirmed in Togo and the subject of official control	<a href="https://gd.eppo.int/download/doc/823_ds_DACUCM_en.pdf">https://gd.eppo.int/download/doc/823_ds_DACUCM_en.pdf</a> ; 2018  www.iita.org, 2018
	<i>Ceratitidis capitata</i> Wiedemann, 1824	Fruit	Presence confirmed in Togo and the subject of official control	<a href="https://gd.eppo.int/download/doc/800_ds_ANSTFR_en.pdf">https://gd.eppo.int/download/doc/800_ds_ANSTFR_en.pdf</a> , 2018  www.iita.org, 2018
<b>Mushrooms</b>	<i>Puccinia psidii</i> (G. Winter) Beenken (2017)	Fruit, apex, inflorescence, leaves stem, whole plant	Unconfirmed presence in Togo	CABI, 2018  UEMOA, 2007

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
Pear tree: <i>Pyrus communis</i>				

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<b>Mushrooms</b>	<i>Armillaria mellea</i> (Vahl) P. Kumm.	Apex, leaves, roots, stems, whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Botryotinia fuckeliana</i> (from Bary) Whetzel	Leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Diaporthe eres</i> Nitschke, 1870	Leaves, stems, fruit	Unconfirmed presence in Togo	CABI, 2018
	<i>Globisporangium splendens</i> (Hans Braun) Uzuhashi, Tojo & Kakish.,2010	Leaves, roots, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	<i>Gymnosporangium fuscum</i> DC.,1805	Fruits, leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Monilinia fructigena</i> Honey ex Whetzel, 1945	Fruits, apex, flowers, leaves, stems	Unconfirmed presence in Togo	CABI, 2018

**PEST AND PESTICIDE MANAGEMENT PLAN (PPMP)**  
**AGROPOLE OF THE KARA BASIN (Final updated version)**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Phymatotrichopsis omnivora</i> (Duggar) Hennebert (1973)	Leaves, roots, stems	Unconfirmed presence in Togo	CABI, 2018
<b>Bacteria</b>	<i>Acetobacter aceti</i> (Pastor 1864) Beijerinck, 1898	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Acetobacter pasteurianus</i> (Hansen 1879) Beijerinck & Følpmers, 1916	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Erwinia amylovora</i> (Burrill 1882) Winslow et al. 1920	Fruits, leaves, stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Gluconobacter oxydans</i> (Henneberg 1897) De Ley (1961)	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Pantoea agglomerans</i> (Beijerinck 1888) Gavini et al. 1989	Fruits	Unconfirmed presence in Togo	CABI, 2018
	<i>Pectobacterium carotovorum</i> subsp. <i>carotovorum</i> (Jones, 1901) Hauben et al, 1999	Apex, leaves, roots, stems, whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Apple Chlorotic Leaf Spot Virus	Apex, leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	Apple Stem Grooving Virus	Fruits, leaves, stems, the whole plant	Unconfirmed presence in Togo	CABI, 2018
	Apple Stem Pitting Virus	Fruits, leaves	Unconfirmed presence in Togo	CABI, 2018

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	Carnation Ringspot Virus	Inflorescence, Leaves, roots, seeds, whole plant	Unconfirmed presence in Togo	CABI, 2018
<b>Nematode</b>	<i>Helicotylenchus dihystera</i> (Cobb, 1893) Sher, 1961	Leaves, roots, the whole plant	Unconfirmed presence in Togo	CABI, 2018

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Vineyard: <i>Live is vinifera</i></b>				
<b>Mushrooms</b>	<i>Botryotinia fuckeliana</i> (from Bary) Whetzel	Leaves and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Coniella diplodiella</i> (Speg.) Petr. & Syd.	Fruit, leaves and stems	Unconfirmed presence in Togo	CABI, 2018
PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
	<i>Plasmopara viticola</i> (Berk. & M.A. Curtis) Berl. & de Toni	Fruits, inflorescence, leaves, roots and stems	Unconfirmed presence in Togo	CABI, 2018

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	<i>Elsinoë ampelina</i> Shear	Fruits, inflorescence, leaves, roots and stems	Unconfirmed presence in Togo	CABI, 2018
	<i>Guignardia bidwellii</i> (Ellis) Viala & Ravaz	Fruits, inflorescence and leaves	Unconfirmed presence in Togo	CABI, 2018
<b>Virus</b>	Arabid Mosaic Virus	Fruits and leaves	Unconfirmed presence in Togo	CABI, 2018
	Grapevine Fanleaf Virus	Fruits, inflorescence, leaves, roots and stems	Unconfirmed presence in Togo	CABI, 2018

**FODDER PLANTS**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Alfalfa: <i>Medicago sativa</i></b>				
<b>Insects</b>	<i>Heliothis punctisera</i>	Sheets	Unconfirmed presence in Togo	<a href="https://dokodoc.com/mise-en-uvre-du-programme-special-regional-for-safety.html">https://dokodoc.com/mise-en-uvre-du-programme-special-regional-for-safety.html</a> , 2018
	<i>Sitona hispidula</i> Fabricius, 1776	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
	<i>Sitona cylindricollis</i> <i>Fahraeus</i> , 1840	Sheets	Unconfirmed presence in Togo	UEMOA, 2007
<b>Mites</b>	<i>Tetranychus pacificus</i> McGregor, 1919	Sheets	Unconfirmed presence in Togo	UEMOA, 2007



**PEST AND PESTICIDE MANAGEMENT PLAN (PPMP)**  
AGROPOLE OF THE KARA BASIN (Final updated version)

**OTHER CULTIVATED PLANTS**

PESTS BY HOST SPECIES		ORGANIZATION ATTACKED	REASONS FOR CLASSIFICATION	REFERENCES
<b>Tiger Nutsedge: <i>Cyperus esculentus</i></b>				
<b>Insects</b>	<i>Papillia japonica</i>	Leaves, roots	Unconfirmed presence in Togo	www.inspection.gc.ca, 2018
<b>Mushrooms</b>	<i>Cercospora caricis</i> Oudem, 1892	Leaves, stems, roots	Unconfirmed presence in Togo	CABI, 2018
	<i>Puccinia canaliculata</i> (Schweinitz) Lagerheim(1894)	Leaves, stems, roots	Unconfirmed presence in Togo	CABI, 2018

**INVASIVE AQUATIC PLANTS**

AQUATIC PLANTS		INFESTED AREA	REASONS FOR CLASSIFICATION	REFERENCES
<b>Tiger Nutsedge: <i>Cyperus esculentus</i></b>				
<i>Eichhornia crassipes</i> (Mart.) Solms, 1885	Lakes, rivers	Confirmed presence in Togo, Transmissible with flowerpot imports  Difficult struggle	Pocanam, 2012 Agounke, 2002 Mouvi, 2003	<i>Eichhornia crassipes</i> (Mart.) Solms, 1885
<i>Pistia stratiotes</i> L. 1753	Lakes, rivers	Confirmed presence in Togo, Transmissible with seafood imports  Difficult struggle	Agounke, 2002 Mouvi, 2003	<i>Pistia stratiotes</i> L. 1753

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<i>Salvinia molesta</i> D. S. Mitch.	Lakes	Confirmed presence in Togo, Transmissible with seafood imports  Difficult struggle	Agounke, 2002  Mouvi, 2003	<i>Salvinia molesta</i>  D. S. Mitch.
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Source: DPV-Togo, October 2020

**ANNEX 2: LIST OF PLANT PROTECTION PRODUCTS REGISTERED OR AUTHORISED  
IN TOGO**



**TOGOLESE REPUBLIC**  
**NATIONAL PESTICIDE MANAGEMENT COMMITTEE (CNGP-TOGO)**  
**COMMISSION DES AGRÉMENTS PROFESSIONNELS, DES AUTORISATIONS**  
**ET DES LICENCES (CAPAL)**

**LIST OF REGISTERED PLANT PROTECTION PRODUCTS**

Tel: (+228) 22 51 44 04/ 96 73 92 02/90 86 71 72

(Updated in September 2020)



No	Type of product	Type of crops	Trade Name	Active Materials	Formulation	Doses	FAO/WHO class	Firm	Authorised Distribution Companies	Date Expiration Approval
01	HERBICIDE	RICE	DEKAT D, (2-4D)	2.4D 720g/l	SC	1L/ha	II	Hesenta Chemicals	ANTEOR Sarl	Jan. 2021
02	HERBICIDE	MAÏS	NICOMAS 40 SC	Nicosulfuron 40g/l	SC	1L/ha	III	Hesenta Chemicals	ANTEOR Sarl	“
03	INSECTICIDE	MAÏS	MONTAZ 45 WS	25% Imidacloprid + Thiram 20% + Thiram 20%	WS	500g/ 25kg Corn	III	Hesenta Chemicals	ANTEOR Sarl	“
04	HERBICIDE	COTTON	MALIK 108 EC	Haloxypop-R-Methyl 108 g/l	EC	1L/ha	III	SAVANA	ANTEOR Sarl	“
05	INSECTICIDE	COTTON	LAMBACAL P 165 EC	Lambdacyhalothrin 15g/l + Profenofos 150g/l	EC	1L/ha	II	Arysta LS	ARYSTA LS TOGO-SAU	“

06	INSECTICIDE	COTTON	LAMBDACAL P 315 EC	Lambdacyhalothrin 15g/l + Profénofos 300g/l	EC	0.25L/ha	II	Arysta LS	ARYSTA LS TOGO-SAU	“
07	HERBICIDE	COTTON	TEMPRA 80 WP	Diuron 800g/kg	WP	1kg/ha	III	Arysta LS	ARYSTA LS TOGO-SAU	“
08	INSECTICIDE	COTTON	DENIM SUPER 79 EC	Bifenthrin 60g/l + Emamectin Benzoate 19g/l	EC	0.5L/ha	II	Arysta LS & Syngenta	ARYSTA LIFE SCIENCE TOGO-SAU	“
09	INSECTICIDE	COTTON	CROTALE 46 EC	Acetamiprid 16g/l + Indoxacarb 30g/l	EC	1L/ha	III	Arysta LS & Syngenta	ARYSTA LS TOGO-SAU	“
10	INSECTICIDE	COTTON	BENEVIA 100 OD	Cyantraniliprole 100g/l	OD	0.4L/ha	III	Dupont	ARYSTA LS TOGO-SAU	“

11	INSECTICIDE	COTTON	SAVER 62 EC	Acetamiprid 32g/l + Lambdacyhalothrin 30g/l	EC	0.5L/ha	II	Arysta LS	ARYSTA LS TOGO-SAU	“
12	INSECTICIDE	COTTON	CALTHIO MIX 485 WS	Imidacloprid 350g/kg + Metalaxyl 35g/kg + Thiram 100g/kg	WS	500 ml/ 100kg semen	II	Jizhou Hengwei Chemical	ARYSTA LS TOGO-SAU	“
No	Type of product	Type of crops	Trade Name	Active Materials	Formu lation	Doses	Class FAO/ WH O	Firm	Companies Authorised Retailers	Date Expiration Homologation
13	INSECTICIDE	COTTON	MATCH FIT 50 WG	Emamectin benzoate 100g/kg + Lufenuron 400g/kg	WG	75g/ha	III	Syngenta	ARYSTA LS TOGO-SAU	“
14	FUMIGANT	STOCKED GOODS	PHOSTOXIN 56	Phosphure of Aluminium	FT	3-4 cp/t	Ib	DETIA Freyberg GmbH	STIEA Sarl	“
15	FUNGICIDE	CACAO CABOOS ES	METALM 72 WP	Metalaxyl 12g/kg + Copper Oxide 60g/kg	WP	400g/ha	III	ALM Int. SA	STIEA Sarl	“
16	INSECTICIDE	CACAO	IRON 30 SC	Imidacloprid 30g/l	SC	1L/ha	III	ALM Int. SA	STIEA Sarl	“
17	INSECTICIDE	CACAO	THIODALM 40 EC	Bifenthrin 20g/l + Acetamiprid 20g/l	EC	0.5L/ha	III	ALM Int. SA	STIEA Sarl	“

18	INSECTICIDE	TOMATE	PYRIFORCE 480 EC	Chlorpyrifos-ethyl 480g/l	EC	0.5L/ha	II	Scpa Sivex Int.	SPROCA Sarl	“
19	INSECTICIDE	COTTON	CYCLONE 372 EC	Cypermethrin 72g/l + Profenofos 300g/l	EC	0.5L/ha	II	Agrochina Chemical	FREDOVANOS	“
20	INSECTICIDE - ORGANIC	COTTON	BEDO-BIO	Oils (Soya+Coconut)	Oil	2L/ha	EO	Bedo Vertriebs Gmbh	STAGE	“
21	INSECTICIDE	COTTON	EMIR 88 EC	Cypermethrin 72g/l + Acetamiprid 16g/l	EC	0.5L/ha	II	Savana	ANTEOR Sarl	August 2021
22	INSECTICIDE	CACAO	IMIDA 30 EC	Imidacloprid 30g/l	EC	1L/ha	III	Savana	ANTEOR Sarl	“
23	INSECTICIDE	COTTON	EMACOT 19 EC	Emamectin Benzoate 19g/l	EC	0.5L/ha	III	Savana	ANTEOR Sarl	“
24	INSECTICIDE	COTTON	VIZIR C 92 EC	Cypermethrin 72g/l	EC	0.5L/ha	II	Savana	ANTEOR Sarl	“

				+ Abamectin 20g/l						
25	INSECTICIDE	COTTON	AKITO DM 318 EC	Betacypermethrin 18g/l + Dimethoate 300g/l	EC	1L/ha	II	UPL Limited	PROXIMA	“
26	INSECTICIDE	COTTON	AKITO CP 318 EC	Betacypermethrin 18g/l + Chlorpyrifos-ethyl 300g/l	EC	1L/ha	II	UPL Limited	PROXIMA	“
27	INSECTICIDE	COTTON	AKITO CP 15	Betacypermethrin 18g/l + Chlorpyrifos-ethyl 150g	EC	1L/ha	II	UPL Limited	PROXIMA	“
28	FUMIGANT	STOCKED GOODS	BEXTOXIN 57% FT	Phosphure 57% aluminium	FT	3-4 Comp/t	Ib	Agricultural Chemical Industry	NETRAPHY	“
No	Type of product	Type of crops	Trade Name	Active Materials	Formulation	Doses	Class FAO/ WHO	Firm	Companies Authorised Retailers	Date Expiration Homologation
29	INSECTICIDE	COTTON	FARIMAN 500 EC	Profenofos 500g/l	EC	1.5L/ha	II	Parijat Industries	PARIJAT-TOGO	“
30	INSECTICIDE	COTTON	DELCHLOR 310 EC	Deltamethrin 10g/l + Chlorpyrifos-ethyl 300g/l	EC	1L/ha	II	Parijat Industries	PARIJAT-TOGO	“
31	INSECTICIDE	COTTON	DANAYA 88 EC	Acetamiprid 16g/l +	EC	0.5L/ha	II	Parijat	PARIJAT-	“



				Cypermethrin 72g/l				Industries	TOGO	
32	INSECTICIDE	COTTON	TELEM 318 EC	Alphacypermethrin 18g/l + Profénofos 300g/l	EC	1L/ha	II	Parijat Industries	PARIJAT-TOGO	“
33	INSECTICIDE	COTTON	PROLAM FV 630 EC	Lambdacyhalothrin 30g/l + Profénofos 60g/l	EC	0.5L/ha	II	Shanghai Agrochina Chemical	FREDOVANOS	“
34	INSECTICIDE	COTTON	TITAN FV 720 EC	Profenofos 720g/l	EC	1L/ha	II	Shanghai Agrochina Chemical	FREDOVANOS	“
35	INSECTICIDE	COTTON	ATAC FV 40 EC	Deltamethrin 24g/l + Acetamiprid 16g/l	EC	0.5L/ha	II	Shanghai Agrochina Chemical	FREDOVANOS	“

36	INSECTICIDE	COTTON	DELTAPRO FV 620 EC	Deltamethrin 20g/l + Profenofos 600g/l	EC	0.5L/ha	II	Shanghai Agrochina Chemical	FREDOVANOS	“
37	INSECTICIDE	COTTON	ABALAM 58 EC	Lambdacyhalothrin 30g/l + Abamectin 28g/l	EC	0.5L/ha	II	SAVANA	ANTEOR Sarl	Jan. 2022
38	FUNGICIDE	CACAO	FONGEX FV PLUS 720 WP	Metalaxyl 120g/kg + Copper Oxide 600g/kg	WP	400g/ha	III	SHANGHAI AGROCHINA CHEMICAL	FREDO VANOS	“
39	SELECTIVE HERBICIDE	RICE	HERBEXTRA 720 SL	2,4-D (Amine salt)	SL	1L/ha	II	EASTSUN Chemical	SPROCA Sarl	“
40	INSECTICIDE	COTTON	BELT EXPERT 480 SC	Flubendiamide 240g/l + Thiacloprid 240g/l	SC	0.2L/ha	II	BAYER AG	STIEA Sarl	July 2022
41	INSECTICIDE	COTTON	INDOXAN 50 EC	Indoxacarb 50g/l	EC	0.5L/ha	III	SAVANA	ANTEOR Sarl	“
42	HERBICIDE	RICE	OXARIZ 250 SL	Oxadiazon 250g/l	SL	2 L/ha	III	SAVANA	ANTEOR	Feb. 2023
43	INSECTIDE	COTTON	BELUGA 480 SC	Diflubenzuron 480g/L	SC	0.31L/ha PC	II	Arysta LS (China)	ARYSTA LS TOGO	“
44	INSECTICIDE/ FUNGICIDE	COTTON	CALTHIO I 350 FS	Imidacloprid 250g/l + Thiram 10g/l	FS	400ml/ 100kg of seeds	II	ARYSTA LS (China)	ARYSTA LS TOGO	“

No	Type of product	Type of crops	Trade Name	Active Materials	Formulation	Doses	Class FAO/ WHO	Firm	Companies Authorised Retailers	Date Expiration Homologation
45	INSECTICIDE	COTTON	LAMBDACAL P 630 EC	Lambdacyhalothrin 30g/l + Profenofos 600g/l	EC	0.5L/ha	II	ARYSTA LS	ARYSTA LS TOGO	“
46	INSECTICIDE	COTTON	LAMBDACAL P 660 EC	Lambdacyhalothrin 60g/l + Profenofos 600g/l	EC	0.25L/ha	II	ARYSTA LS	ARYSTA LS TOGO	“
47	INSECTICIDE	COTTON	CONQUEST C 176 EC	Acetamiprid 32g/l+ Cypermethrin 144g/l	EC	0.25L/ha	II	ARYSTA LS	ARYSTA LS TOGO	“
48	INSECTICIDE	COTTON	CALFOS 720 EC	Profenofos 720g/l	EC	1L/ha	II	ARYSTA LS	ARYSTA LS TOGO	“
49	HERBICIDE	COTTON	LIBERATOR 500 SC	Flufenacet 400g/l + Diflufenican 100g/l	SC	0.5L/ha	III	Bayer AG	STIEA Sarl	“
				Emamectin Benzoate 24g/l + Emamectin Benzoate 24g/l +				Suzhou Everfortune	Arysta LS	“

50	INSECTICIDE	COTTON	ALATAK 44 EC	Emamectin Benzoate 24g/l Abamectin 20g/l	EC	0.5L/ha	II	Imp. & Exp	Togo-SAU	
51	INSECTICIDE/ ACARICIDE	COTTON	EMABA 40 EC	Emamectin Benzoate 20g/l + Emamectin Benzoate 20g/l + Emamectin Benzoate 20g/l Abamectin 20g/l	EC	0.5L/ha	II	SAVANA	ANTEOR Sarl	“
52	INSECTICIDE	COTTON	TRIDENT 92 EC	Bifenthrin 60g/l + Acetamiprid 32g/l	EC	0.5L/ha	III	SAVANA	ANTEOR Sarl	July 2023
53	INSECTICIDE	COTTON	AG-VANTAGE 150 EC	Indoxacarb 150g/l	EC	0,170 L/ha	III	ALM Int.	STIEA Sarl	“
54	SELECTIVE HERBICIDE	COTTON	FLUORALM P 500 SC	Fluometuron 250g/l + Prometryne 250g/l	SC	4L/ha	III	ALM Int.	STIEA Sarl	“
55	SELECTF HERBICIDE	MAÏS	STIMAÏS 40 OD	Nicosulfuron 40g/l	OD	1.5L/ha	III	Shanghai E-Tong Chemical	STIEA Sarl	“
56	INSECTICIDE	CACAO	IMILAMBDA FV 70 EC	Imidacloprid 40g/l + Lambdacyhalothrin 30g/l	EC	1L/ha	III	MOLOTUS Chemical	FREDO VANOS Sarl	“
57	INSECTICIDE/ FUNGICIDE	RICE AND CORN	MONCEREN GT 390 FS	Imidacloprid 233g/l + Pencycuron 50g/l + Thiram 107g/l	FS	Rice : 0.4/ha Maize: 0.5/ha	II	BAYER AG	STIEA Sarl	Feb. 2024

58	HERBICIDE SELECTF	RICE	STISTAR 250 EC	Oxadiazon 250g/l	EC	2L/ha	II	E-Tong Chemical	STIEA Sarl	“
59	SELECTF HERBICIDE	RICE	STIRIZ SUPER 560 EC	Propanil 360g/l + 2,4- D amine salts	EC	4L/ha	II	E-Tong Chemical	STIEA Sarl	“
60	INSECTICIDE	GREEN HARIC OT	STILAMDA 2,5 EC	Lambdacyhalothrin 25g/l	EC	0.6L/ha	II	E-Tong Chemical	STIEA Sarl	“
No	Type of product	Type of crops	Trade Name	Active Materials	Formu lation	Doses	Class FAO/ WH O	Firm	Companies Authorised Retailers	Date Expiration Homologation
61	SELECTF HERBICIDE	CORN AND RICE	HERBEXTRA SUPER 720 SL	2,4-D amine salt 720g/l	SL	1L/ha	III	TrustChem Co	PEASANTS' LIGHT	“
62	SELECTF HERBICIDE	MAÏS	LAGON 575 SC	Aclonifen 500g/l + Isoxaflutole 75g/l	SC	0.5L/ha	III	BAYER AG	STIEA Sarl	“
63	INSECTICIDE	COTTON	TIHAN 175 O-TEQ	Flubendiamide 100g/l + Spirotetramat 75g/l	OD	20/15g a.m.a/ha	III	BAYER AG	STIEA Sarl	“
64	INSECTICIDE	CULTURES MARAICHÈRES	ACARIUS 18 EC	Abamectin 18g/l	EC	0.75L/ha	II	SAVANA	ANTEOR Sarl	“
65	INSECTICIDE	COTTON	DELTAPYR 84 EC	Deltamethrin 24g/l + Pyriproxyfene 60g/l	EC	0.5L/ha	II	SAVANA	ANTEOR Sarl	“
66	INSECTICIDE	TOMATE	EMACOT 050 WG	Emamectin-Benzooate 50g/kg	WG	200g/ha	II	SAVANA	ANTEOR Sarl	“
67	FUNGICIDE	TOMATE	IDEFIX	Copper hydroxide 65,6%	WP	2kg/ha	II	SAVANA	ANTEOR Sarl	“

68	FUNGICIDE	TOMATE	MANGA PLUS 80 WP	Mancozeb 800g/kg	WP	2kg/ha	III	SAVANA	ANTEOR Sarl	“
69	INSECTICIDE	TOMATE	TAMEGA 25 EC	Deltamethrin 25g/l	EC	0.5L/ha	II	SAVANA	ANTEOR Sarl	“
70	SELECTF HERBICIDE	MAÏS	DINAMIC PLUS 500 EC	Amicarbazone 100g/l + Propisochlor 400g/l	EC	2.5L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
71	INSECTICIDE	CULTURES MARAICHIERES	LAMBDA SUPER 2.5 EC	Lambdacyhalothrin 25g/	EC	0.6L/ha	II	TrustChem Co	LIGHT OF PAYSANS	“
72	SELECTF HERBICIDE	RICE	BACCARA 435 EC	Propanil 260g/l + 2,4-D 175g/l	EC	4L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
73	FUNGICIDE	TOMATE	CALLICOBOK 50 WP	Copper oxychloride 500g/kg	WP	5kg/ha	III	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
74	INSECTICIDE	COTTON	CALLIFAN EXTRA COTTON	Acetamiprid 32g/l + Bifentrin 120g/l	EC	0.25L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
75	INSECTICIDE	TOMATE	CALLIFAN EXTRA TOMATO	Acetamiprid 32g/l + Bifentrin 120g/l	EC	0.25L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
76	HERBICIDE SELECTF	CORN AND RICE	CALLIHERBE 720 SL	2,4-D 720g/l	SL	1L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
77	SELECTF HERBICIDE	RICE	CALLISTAR 250 EC	Oxadiazon 250g/l	EC	2L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
78	SELECTF HERBICIDE	RICE	CALRIZ	Propanil 360g/l + Triclopyr 72g/l	EC	4l/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“

79	INSECTICIDE	COTTON	COBRA 120 EC	Acetamiprid 64g/l + Spinetoram 56g/l	EC	0.25L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
80	INSECTICIDE- FUNGICIDE	COTTON SEEDS	CRUISER EXTRA COTTON	Metalaxyl-M 3.34g/l, + Fludioxonil 8.34g/l + Thiamethoxam 350g/l	FS	300ml/ 100kg	III	SYNGENTA Agro AG Switzerland	ARYSTA LS Togo	“

No	Type of product	Type of crops	Trade Name	Active Materials	Formu lation	Doses	Class FAO/ WH O	Firm	Companies Authorised Retailers	Date Expiration Homologation
81	FUNGICIDE	TOMATE	IVORY 80 WP	Mancozeb 800g/kg	WP	3kg/ha	III	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
82	HERBICIDE	COTTON	PENCAL 500 EC	Pendimethalin 500g/l	EC	3L/ha	II	ARYSTA LS INDIA Ltd	ARYSTA LS Togo	“
83	INSECTICIDE	HARICOT GREEN	PILORI 15 EC	Lambdacyhalothrin 15g/l	EC	0.8L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
84	HERBICIDE	COTTON	SELECT 120 EC	Clethodime 120g/l	EC	1L/ha	III	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
85	HERBICIDE	COTTON	SNIPER 450 EC	Clomazone 150g/l + Pendimethalin 300g/l	EC	2L/ha	III	Sun Valley Hall Ltd	ARYSTA LS Togo	“
86	INSECTICIDE	COTTON	STEWARD 150 EC	Indoxacarb 150g/l	EC	170ml/ ha	II	FMC Int. Switzerland	ARYSTA LS Togo	“

87	INSECTICIDE	TOMATE	TITAN 25 EC	Acetamiprid 25g/l	EC	0.5L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS Togo	“
88	INSECTICIDE	COTTON	POLARIS 112 EC	Emamectin Benzoate 48g/l + Acetamiprid 64g/l	EC	0.25L/ha	II	ARYSTA LifeScience SAS En	ARYSTA LS Togo	August. 2024
89	HERBICIDE	RICE	COUNCIL ACTIV 30 WG	Triafamone 20% + Ethoxysulfuron 10%.	WG	120g/ha	III	Bayer AG	STIEA Sarl	“
90	INSECTICIDE	COTTON	IMPERATOR 200 SC	Cyhalodiamide 200g/l	SC	0.1L/ha	III	SAVANA	ANTEOR Sarl	“
91	HERBICIDE	RICE	RUBIS 100 SC	Bispyribac-sodium 100g/l	SC	0.5L/ha	III	SAVANA	ANTEOR Sarl	“
92	INSECTICIDE	COTTON	PREDATOR M 62 EC	Lambdacyhalothrin 30g/l + Acetamiprid 32g/l	EC	0.5L/ha	II	Shanghai MIO Chemical Co. Ltd. Cn	MONFITH SA	“
93	INSECTICIDE	COTTON	AKITO CP 2.5 EC	Beta-cypermethrin 25g/l	EC	1L/ha	III	United Phosphorus Ltd,	ARYSTA LS Togo	“
94	INSECTICIDE	COTTON	AKITO CP 15 EC	Beta-cypermethrin 18g/l + Chlorpyrifos 150g/l	EC	1L/ha	III	United Phosphorus Ltd,	ARYSTA LS Togo	“
95	INSECTICIDE	COTTON	AKITO CP 30 EC	Beta-cypermethrin 18g/l + Chlorpyrifos 300g/l	EC	1L/ha	III	United Phosphorus Ltd,	ARYSTA LS Togo	“



96	INSECTICIDE	COTTON	AKITO DM 318 EC	Beta-cypermethrin 18g/l + Dimethoate 300g/l	EC	1L/ha	III	United Phosphorus Ltd,	ARYSTA LS Togo	“
No	Type of product	Type of crops	Trade Name	Active Materials	Formulation	Doses	Class FAO/ WHO	Firm	Companies Authorised Retailers	Date Expiration Homologation
97	FUMIGNAT	DENREES STOKES	QUICKPHOS 56	Phosphure of Aluminium 560g/kg	FT	3-4 Comp/t	Ia	United Phosphorus Ltd,	ARYSTA LS Togo	
98	INSECTICIDE	COTTON	CYPALM P 180 EC	Cypermethrin 30g/l + Profenofos 150g/l	EC	1L/ha	III	ALM Int. Cn	STIEA Sarl	“
99	INSECTICIDE	COTTON	CYPALM P 330 EC	Cypermethrin 30g/l + Profenofos 300g/l	EC	1L/ha	III	ALM Int. Cn	STIEA Sarl	“
100	INSECTICIDE	COTTON	CORAGEN 20 SC	Chlorantraniliprole 200g/l	SC	0.1L/ha	IV	ALM Int. Fr	STIEA Sarl	“
101	BIO-INSECTICIDE	FRUIT FLIES	BIOFEED	Spinosad	SC	20 Traps /ha	IV	Biofeed Env Friendly	STIEA Sarl	“
102	INSECTICIDE	COTTON	TOP INSURANCE FV 80 EC	Emamectin 20g/l + Abamectin 20g/l + Acetamiprid 40g/l	EC	0.5L/ha	II	QCC Shanghai CO, LTD	FREDO VANOS Sarl	Nov. 2024
103	INSECTICIDE	COTTON	EMALU FV 500 EC	Emamectin 100g/l + Lufenuron 400g/l	EC	100 ml/ha	II	QCC Shanghai CO, LTD	FREDO VANOS Sarl	“

104	HERBICIDE	COTTON	PROPERSELECT-DA 800 SC	Diuron 800g/l	SC	1L/ha	II	QCC Shanghai CO, LTD	DA-LMS Sarl	“
105	INSECTICIDE	GRAIN MAIZE CONSERVATION	ANTOUKA 19 DP	Pirimiphos-methyl 16g/kg + Permethrin 3g/kg	PD	50g for 100kg of corn grain	U	SOLEVO France SAS	SPROCA Sarl	Jan. 2025
106	INSECTICIDE	CULTURES MARAICHIERES	K-OPTIMAL	Lambdacyhalothrin 15g/l +	EC	1L/ha	II	SOLEVO France SAS	SPROCA Sarl	“
				Acetamiprid 20g/l						
107	FUNGICIDE	TOMATE	MANCOZAN 80 WP	Mancozeb 800g/kg	WP	3 kg/ha	U	SOLEVO France SAS	SPROCA Sarl	“
108	HERBICIDE	COTTON	SCHIF 11 OD	Trifloxysulfuron sodium 11g/l	OD	1L/ha	III	SOLEVO Switzerland Ltd.	SPROCA Sarl	“
109	HERBICIDE	SOJA	SOJA PROSPECT GOLD	Haloxyp-p-Methyl 108g/l	EC	0.9L/ha	U	E-TONG CHEMICAL	STIEA Sarl	April. 2025
110	INSECTICIDE	COTTON	ACESTI 92 EC	Bifenthrin 60g/l + Acetamiprid 32g/l	EC	0.5L/ha	II	AGROHAO COMPANY	STIEA Sarl	“
111	INSECTICIDE	COTTON	STIMECTINE 56 EC	Cyfluthrin 36g/l + Abamectin 20g/l	EC	0.5L/ha	II	AGROHAO COMPANY	STIEA Sarl	“
112	INSECTICIDE	COTTON	STIPYRIFOS 636 EC	Cyfluthrin 36g/l + Chlorpyrifos-ethyl 600g/l	EC	0.5L/ha	II	AGROHAO COMPANY	STIEA Sarl	“

No	Type of product	Type of crops	Trade Name	Active Materials	Formulation	Doses	Class FAO/ WHO	Firm	Companies Authorised Retailers	Date Expiration Homologation
113	INSECTICIDE	COTTON	THUNDER 145 O-TEQ	Imidacloprid 100g/l + Betacyfluthrin 45g/l	OD	0.2L/ha	II	BAYER AG	STIEA Sarl	“
114	HERBICIDE	RICE	TOPSTAR 400 SC	Oxadiargyl 400g/l	SC	0.5L/ha	III	BAYER AG	STIEA Sarl	“
115	INSECTICIDE- FUNGICIDE	COTTON SEEDS	MONCEREN GT 390 FS	Imidacloprid 233g/l + Pencycuron 50g/l + Thiram 107g/l	FS	0,375L per 100kg of seed	II	BAYER AG	STIEA Sarl	“
116	HERBICIDE	MAÏS	MAIZE PROTECTOR 260 OD	Nicosulfuron 20g/l + Mesotrione 40g/l + Terbuthylazine 200g/l	OD	2L/ha	III	HEFEI Chemical	AGRITECH SOLUTIONS	“
117	HERBICIDE	SOJA	SOJA PROTECTOR 160 EC	Quizalofop-p-ethyl 35g/l + Fomesafen 125g/l	EC	1L/ha	III	HEFEI Chemical	AGRITECH SOLUTIONS	“
118	HERBICIDE	RICE	RICE PROTECTOR 100 SC	Bispyribac-sodium 100g/l	SC	750ml/ ha	III	HEFEI Chemical	AGRITECH SOLUTIONS	“
119	HERBICIDE	COTTON	MIRACULOUS	Trifloxysulfuron	OD	0.8L/ha	III	SAVANA	ANTEOR Sarl	“
			110 OD	sodium 10g/l + Haloxypol 100g/l						
		MIRIDES CACAO		Alphacypermethrin 20g/l +						“

120	INSECTICIDE		WASHER 40 EC	Acetamiprid 20g/l	EC	0.5L/ha	III	SAVANA	ANTEOR Sarl	
121	HERBICIDE	COTTON	POWER 80 WG	Diuron 800g/kg	WG	0.9-1kg/ha	III	SAVANA	ANTEOR Sarl	“
122	INSECTICIDE	COTTON	ALFAZOL 96 EC	Alphacypermethrin 36g/l + Etoxazole 60g/l	EC	0.5L/ha	III	SAVANA	ANTEOR Sarl	“
123	INSECTICIDE	COTTON SEEDS	MOMTAZ 45 WS	Imidacloprid 250g/kg + Thiram 200g/kg	WS	500g for 100kg of seed	II	SAVANA	ANTEOR Sarl	“
124	FUNGICIDE	CACAO CABOOS ES	FONGIPRO 82 WG	Cymoxanil 120g/kg + Copper oxychloride 700g/kg	WG	400g/ha	II	SAVANA	ANTEOR Sarl	“
125	INSECTICIDE	COTTON	AMSAC 150 SC	Indoxacarb 150g/l	SC	170ml/ha	II	ATUL LTD	ANTEOR Sarl	“
126	INSECTICIDE	COTTON	CALIFE 500 EC	Profenofos 500g/l	EC	1L/ha	II	SAVANA	ANTEOR Sarl	“

No	Type of product	Type of crops	Trade Name	Active Materials	Formulation	Doses	Class FAO/ WHO	Firm	Companies Authorised Retailers	Date Expiration Homologation
127	INSECTICIDE	CULTURES MARAICHERES	PACHA 25 EC	Lambdacyphalothrin 15g/l +	EC	1L/ha	III	SAVANA	ANTEOR Sarl	“

				Acetamepride 10g/l						
128	INSECTICIDE	STOC K CORN	PROTECT DP	Deltamethrin 18g/kg + Pirimiphos-methyl 15g/kg	PD	50g for 100kg of Corn	III	SAVANA	ANTEOR Sarl	“
129	INSECTICIDE	COTTON	EMIR ULTRA 208 EC	Cypermethrin 114g/l + Acetamiprid 64g/l	EC	0.25L/ha	II	SAVANA	ANTEOR Sarl	Sept. 2025
130	INSECTICIDE - FUNGICIDE	COTTON SEEDS	MOMTAZ FLO 450 FS	Imidacloprid 350g/l + Thiram 100g/l	FS	400ml for 100kg of Seed	II	SAVANA	ANTEOR Sarl	“
131	INSECTICIDE	COTTON	KOMPRESSOR 500 SC	Lambdacyhalothrin 100g/l + Diflubenzuron 400g/l	SC	0.20L/ha	II	SHANGHAI  Mio Chemical CO, LTD	MONFITH SA	“
132	HERBICIDE	MAÏS	ALLIGATOR 400 EC	Pendimethalin 400g/l	EC	3L/ha	III	SCPA  SIVEX INT.	SPROCA Sarl	“
133	INSECTICIDE	CULTURES MARAICHERES	CYPERCAL 50 EC	Cypermethrin 50g/l	EC	0.75L/ha	II	ARYSTA LS S.A.S.	ARYSTA LS TOGO SAU	“
134	HERBICIDE	RICE	HERBIX PLUS 720 SL	2,4-D 720g/l	SL	1-1,5L /ha	III	DVA Agro  GmbH	MONFITH SA	“
135	INSECTICIDE	TOMATE	INSECTIDO 5 EC	Lambdacyhalothrin 50g/l	EC	0.25L/ha	II	DVA Agro GmbH	MONFITH SA	“
136	HERBICIDE	COTTON	PENDI 500 EC	Pendimethalin 500g/l	EC	3L/ha	III	DVA Agro	MONFITH SA	“

								GmbH		
137	HERBICIDE	RICE	DARIL SUPER 432 EC	Propanil 360g/l + Triclopyr 72g/l	EC	4L/ha	II	DVA India Chemicals Pte Co,	MONFITH SA	“
138	INSECTICIDE	COTTON	EMACOT 19 EC	Emamectin benzoate 19g/l	EC	0.5L/ha	II	HEBEI Chemical CO, Ltd	ANTEOR Sarl	“
139	INSECTICIDE	COTTON	VIZIR C 92 EC	Cypermethrin 72g/l + Abamectin 20g/l	EC	0.5L/ha	II	HEBEI Chemical CO, Ltd	ANTEOR Sarl	“
140	INSECTICIDE	COTTON	EMIR 88 EC	Cypermethrin 72g/l + Acetamiprid 16g/l	EC	1L/ha	II	RED SUN Group Corporation	ANTEOR Sarl	“
141	HERBICIDE	COTTON	MALIK 108 EC	Haloxypop-R-Methyl 108g/l	EC	0.9L/ha	III	SAVANA	ANTEOR Sarl	“
142	HERBICIDE	MAÏS	NICOMAÏS 40 SC	Nicosulfuron 40g/l	SC	1L/ha	III	Trustchem CO., Ltd	ANTEOR Sarl	“
143	HERBICIDE	Rice	DEKAT D 720 SL	2,4 D Dimethylamine salt 720g/l	SL	1L/ha	II	Hesenta Chemicals CO, Ltd	ANTEOR Sarl	“
144	INSECTICIDE	MIRIDES CACAO	IMIDA 30 EC	Imidacloprid 30g/l	EC	1L/ha	III	RED SUN Group Corporation	ANTEOR Sarl	“

Source: DPV-Togo, October 2020

**ANNEX 3: LIST OF CHEMICALS AND PESTICIDES BANNED IN TOGO**

PRODUCTS	ACTIVE MATERIALS	DECISION
<b>Insecticides</b>	Aldrin or Aldrex or Hexachlorodimethanonaphthalene Endrin  Dieldrine  Toxaphene or Camphechlor, Octachlorocamphene or Polychlorocamphene Mirex or Dodecachloropentacyclodecane or Perchlorodecone  Chlordane or Chlortox Chlordecone  Heptachlor or Heptachlorenzypylene  DDT (DichloroDiphenylTrichloroethane) and its metabolites DDE Hexachloro-cyclohexane (HCH)	Order n° 31/MAEP/SG/DA of 21/09/2004
	Endosulfan  Lindane or gamma-hexachlorohexane Paraquat  Fipronil Carbosulfan Carbofuran Atrazine Triazophos Acetochlor  Hexazinone	Order n° 0078/18/MAEP/Cab/SG/DPV of 17/05/2018
<b>Herbicide</b>	Glyphosate and any product containing it	Order n° 183/19/MAPAH/Cab/SG/DPV



**PEST AND PESTICIDE MANAGEMENT PLAN (PPMP)**  
**AGROPOLE OF THE KARA BASIN (Final updated version)**

			of 16/12/2019
<b>Fumigant</b>	Bromomethane or methyl bromide		Order n° 30/MAEP/SG/DA of 21/09/2004
<b>Fungicide</b>	Hexachlorobenzene (HCB)		
<b>Unintentional production</b>	Furan Dioxins Polycyclic aromatic hydrocarbons (PAHs) Hexachlorobenzene (HCB)	By-product of combustion or other industrial processes	Rotterdam, Stokhlom and Basel Conventions ratified by Togo
<b>Products</b> <b>Chemical Industrial</b>	Polychlorinated biphenyls or biphenyls or chlorinated, Chlorinated biphenyls (PCBs)	Used as insulation electrical, heat transfer fluid, paint additive, and	Rotterdam Conventions, of Stokhlom and Bale ratified by Togo

**PEST AND PESTICIDE MANAGEMENT PLAN (PPMP)**  
**AGROPOLE OF THE KARA BASIN (Final updated version)**

		plastics	
	Hexachlorocyclohexane (HCH) and its Isomers ( $\alpha$ , $\beta$ , $\gamma$ , $\Delta$ , $\epsilon$ )	Intermediate product of the chemical industry	
	HexaChloroBenzene (HCB)	Used in the manufacture of ammunition and rubber	

*Source: DPV-Togo, October 2020*

**APPENDIX 4: CONDITIONS FOR OBTAINING PROFESSIONAL APPROVAL TO  
IMPORT, DISTRIBUTE AND PACKAGE PESTICIDES IN TOGO**

**MINISTRY OF AGRICULTURE,  
AND RURAL  
DEVELOPMENT**

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**SECRETARIAT GENERAL**

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**DIRECTORATE OF PLANTS  
PROTECTION**

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**COMMISSION FOR  
PROFESSIONAL APPROVALS,  
AUTHORISATIONS, AND  
LICENCES**

**REPUBLIC OF TOGO**  
*Travail-Liberté-Patrie*

**CONDITIONS FOR OBTAINING PROFESSIONAL APPROVAL  
FOR IMPORTERS, PACKERS AND DISTRIBUTORS OF PLANT  
PROTECTION PRODUCTS**

No	IDENTIFICATION
01	Stamped application addressed to the Minister in charge of Agriculture
02	A legalised copy of the unique business creation card
03	An original certificate of insurance, at least one year old.
04	A firm and original work contract signed with an Agricultural Engineer who is available and working full time within and for the company.
05	A legalized copy of the Agricultural Engineer's diploma
06	An original and certified curriculum vitae of the Agricultural Engineer
07	A quantified list of materials, equipment and infrastructures available within the company
08	Payment of a duty rate fixed at 500,000 CFA francs

*Source: DPV-Togo, October 2020*

## **APPENDIX 5: CONDITIONS FOR THE REGISTRATION OF A PLANT PROTECTION PRODUCT**

**MINISTRY OF AGRICULTURE,  
AND RURAL  
DEVELOPMENT**

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**SECRETARIAT GENERAL**

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**DIRECTORATE OF PLANTS  
PROTECTION**

**COMMISSION FOR PROFESSIONAL  
APPROVALS,  
AUTHORISATIONS, AND  
LICENCES**

**REPUBLIC OF TOGO**  
*Travail-Liberté-Patrie*

**APPROVAL CONDITIONS  
OF A PLANT PROTECTION PRODUCT TO THE TOGO**

No	IDENTIFICATION
01	Stamped application addressed to the Minister in charge of Agriculture.
02	Form of standardised A, B, C, D slips to be removed and filled in: A, B, D slips by the applicant and C slip by the centre where the product was tested.
03	Description of the product.
04	Certificate of origin of the active ingredient(s) of the product. Product composition.
05	Product analysis bulletin.
06	Product technical data sheet.
07	Certificate of approval from other countries, of the product,
08	if there is a Material Safety Data Sheet for the product.
09	Model of product label in three (03) copies.
10	Specification of the sample and product packaging.
	<b>Experimentation protocol, from an approved research centre in Togo.</b>
	<b>Experimentation report, from an approved research centre in Togo.</b>
	<b>Experimentation certificate, from an approved research centre in Togo.</b>
11	Toxicological summary.
12	Ecotoxicological summary.
13	Summary behaviour in the environment.
14	Summary Residues in the plant.

**PEST AND PESTICIDE MANAGEMENT PLAN (PPMP)**  
AGROPOLE OF THE KARA BASIN **(Final updated version)**

	Payment of a duty rate fixed at 200,000 CFA francs for each product.
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*Source: DPV-Togo, October 2020*

## **APPENDIX 6: CONDITIONS FOR OBTAINING PROFESSIONAL APPROVAL FOR SIMPLE APPLICATORS OF PLANT PROTECTION PRODUCTS**



**MINISTRY OF AGRICULTURE,  
AND RURAL  
DEVELOPMENT**

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**SECRETARIAT GENERAL**

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**DIRECTORATE OF PLANTS  
PROTECTION**

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**COMMISSION FOR  
PROFESSIONAL APPROVALS,  
AUTHORISATIONS, AND  
LICENCES**

**REPUBLIC OF TOGO**  
*Travail-Liberté-Patrie*

**CONDITIONS FOR OBTAINING PROFESSIONAL  
APPROVAL FOR SINGLE APPLICATORS OF  
PLANT PROTECTION PRODUCTS**

No	IDENTIFICATION
01	Stamped application addressed to the Minister in charge of Agriculture
02	A legalised copy of the unique business creation card
03	An original certificate of insurance, at least one year old.
04	A firm and original work contract signed with an agricultural technician who is available and working full time within and for the company.
05	A legalized copy of the agricultural technician's diploma
06	An original and certified curriculum vitae of the agricultural technician
07	A quantified list of application, security and infrastructure equipment
08	Payment of a duty rate fixed at 150,000 CFA francs.

*Source: DPV-Togo, October 2020*

## **APPENDIX 7: CONDITIONS FOR OBTAINING PROFESSIONAL APPROVAL FOR FUMIGATION AND OTHER PHYTOSANITARY TREATMENTS**

**MINISTRY OF AGRICULTURE,  
AND RURAL  
DEVELOPMENT**

**REPUBLIC OF TOGO**  
*Travail-Liberté-Patrie*

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**SECRETARIAT GENERAL**

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**DIRECTORATE OF PLANTS  
PROTECTION**

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**COMMISSION FOR  
PROFESSIONAL APPROVALS,  
AUTHORISATIONS, AND  
LICENCES**

**CONDITIONS FOR OBTAINING PROFESSIONAL APPROVAL FOR  
FUMIGATION AND OTHER PHYTOSANITARY TREATMENTS**

No	IDENTIFICATION
01	Stamped application addressed to the Minister in charge of Agriculture
02	A legalised copy of the unique business creation card
03	A certificate of insurance, civil liability policy of at least one year
04	A firm and original work contract signed with an Agricultural Engineer in plant protection, an Agrochemist or a Phytopharmacist available and working full time within and in the department. of the company
05	A legalised copy of the engineer's diploma
06	An original and certified curriculum vitae of the Engineer
07	A Quantified List of Application and Safety Materials
08	Payment of a duty rate fixed at 600,000 CFA francs

*Source: DPV-Togo, October 2020*

## COMPLETE REINSTALLATION PLAN (CPR)

PROJECT FOR HYDRO-AGRICULTURAL DEVELOPMENTS, TRACKS AND DRINKING WATER SUPPLY IN THE AGROPOLE OF THE BASIN OF  
THE KARA

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