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STRENGTHENING ECOWAS COORDINATION AND COMMUNICATION ON FALL ARMYWORM (*SPODOPTERA FRUGIPERDA*) MONITORING AND IMPACT ASSESSMENT IN WEST AFRICAN COUNTRIES

February 2022

SDGs:



Countries: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo

Project Code: TCP/RAF/3705

FAO Contribution: USD 300 000

Duration: 15 November 2018 – 31 October 2021

Contact Info: FAO Regional Office for Africa
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Implementing Partner

ECOWAS Commission.

Beneficiaries

National Plant Protection Organizations (NPPOs), national agricultural extension agents, national agriculture researchers.

Country Programming Framework (CPF) Outputs

Strategic Objective 2 (SO2) - Increase and improve provision of goods and services from agriculture, forestry and fisheries in a sustainable manner.

ECOWAS Agricultural Policy (ECOWAP) Priority 5: Preventing and managing food crises and other natural disasters by i) promoting early warning systems, ii) developing crisis management systems, iii) assisting the recovery of crisis-hit areas, iv) formulating mechanisms for disaster-related insurance and compensation.

Africa's Regional Initiative 2 (RI 2): Sustainable production intensification and value chain development in Africa.

RI 3: – Building Resilience in Africa's Drylands.



BACKGROUND

The human food chain is under continued threat, owing to an alarming increase in the number of outbreaks of transboundary plant pests and diseases. Globalization, trade and climate change, as well as reduced resilience in production systems, as a result of decades of unsustainable agricultural intensification, have all played a role.

Over the years, 20 to 60 percent of harvest loss of various food crops in West Africa has been attributed to the prevalence of plant pest and diseases in the ECOWAS region. The presence of plant pathogens has significantly contributed to food insecurity, leading to health challenges such as stunting in children, and less competitiveness in regional and international trade.

In 2016, all 15 ECOWAS member states (Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, the Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo) experienced Fall Armyworm (FAW) invasions, resulting in great crop losses (about 40 percent). The occurrence of the new pest revealed the weaknesses in the handling and management of transboundary threat emergencies in the plant protection systems in countries. The lack of a well-structured and coordinated plant health system in the region continues to cause huge losses to crops and pastures, and to threaten the livelihoods of vulnerable farmers, national economies, global markets, and the food and nutrition security of millions of people.

National Plant Protection Organizations and countries agreed on the urgent need for swift and coordinated action to deal with threats, and to improve experience sharing on technical matters. In the phytosanitary sector, in particular, deficiencies in knowledge and capacity at national and regional levels were among the major concerns, including the implementation of pest risk analysis (PRA), phytosanitary inspections and treatment, field inspection and certification, laboratory diagnosis, and pest surveillance and monitoring. Against this background, the project aimed to strengthen ECOWAS coordination and communication on FAW monitoring and impact assessment in West African and Sahel countries.

IMPACT

The project contributed to the long-term resilience of agricultural livelihoods to threats on household incomes and food security, by strengthening West African and Sahel countries' FAW information, monitoring and early warning systems.

ACHIEVEMENT OF RESULTS

The project contributed to enhancing the capacity of national and regional plant health institutions to better coordinate ECOWAS member states in prevention, preparedness and response to plant pests and disease outbreaks. This was achieved through a number of activities, which included improving the knowledge and capacity of NPPOs and regional stakeholders on the use of various tools for early warning, monitoring and management of FAW, through capacity-building sessions, and field visits comprising Farmer Field Schools (FFS). In addition, research was carried out to address gaps in FAW control; and a regional FAW task force was established and institutionalized to strengthen regional coordination to address plant pest and disease outbreaks.

With regard to training activities, capacity building was provided for NPPO professionals and extension officers in monitoring, diagnostic and alert capacity for harmful organisms; and border surveillance training was organized for 15 member states. In addition, 25 NPPO professionals were trained in the identification and monitoring of FAW. In this context, training provided on the use of the Fall Armyworm Monitoring and Early Warning System (FAMEWS) mobile application, combined with the provision of pheromone traps and lures, among other key inputs, significantly developed technical capacities on FAW monitoring and early response.

A regional training workshop was also organized on improving the monitoring of the prevalence of FAW, and the mapping of FAW risks, dashboard and impact assessment, for the 15 member states of ECOWAS and the countries of the Sahel and Central Africa (Chad, Mauritania and Cameroon). In addition, each country developed a national action plan for managing FAW.

Training on FFS was organized at country level for extension agents in each of the 15 ECOWAS member states. A total of 290 agricultural support advisory officers from the extension, research and development divisions of the NPPOs was trained on FAW early warning, monitoring, prevention, and sustainable management.

National and regional NPPOs were trained on FAW dashboard and risk assessment tools. This contributed to improving coordination and strengthening communication mechanisms and information sharing among NPPOs. It also enhanced the participation of NPPOs in the International Plant Protection Convention (IPPC) standards-setting processes, and a harmonization mechanism is now in place, and regular harmonization and common position meetings are held at regional level.

A regional programme for plant pest control with emphasis on FAW was developed. In addition, communication on FAW was improved within the subregion, through the preparation of FAW-related materials, including newsletters, maps, and risk assessments, which were regularly shared with the NPPOs and regional stakeholders.



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Two Letters of Agreement (LoAs) were signed and implemented by Nazi Boni University and University Joseph KI-ZERBO of Burkina Faso respectively, to support priority research to address gaps in FAW control, leading to the following activities, among others: i) the development of a methodology for rearing *Telenomus remus*; ii) the assessment of the parasitism capacity of *Telenomus remus* in a controlled environment; iii) the assessment of FAW-tolerant maize varieties tolerance; and iv) the evaluation of the efficacy of several types of traps in FAW control.

A regional FAW task force was established and institutionalized, in order to improve regional coordination efforts in plant health, strengthen regional capacity in plant health and surveillance, and engage in the processes of harmonization of international standardization. The task force met regularly, and FAW status in each country, actions initiated, and constraints and perspectives were reported.

Finally, the project supported the participation of FAW stakeholders in various regional and international workshops, including: i) the regional conference on FAW in the Sahel and in West Africa on “invasion of the fall armyworm in the Sahel and in West Africa: inventory, solutions and resources to counter the scourge”, bringing together 346 participants from 21 countries; and ii) the regional conference for Africa, held at Cabo Verde in October 2019, which was attended by around 150 participants from countries, research and extension institutions, private-sector organizations, Non-governmental Organizations (NGOs), consumer associations, Regional Economic Communities, FAO, etc. Particular emphasis was placed on the regional coordination of prepared actions, integrated pest response, popularization and research for an effective and sustainable fight against FAW.

IMPLEMENTATION OF WORK PLAN AND BUDGET

The project required a no-cost extension to complete research activities. Some constraints were encountered in identifying service providers. The project promoted a holistic approach for Integrated Pest Management (IPM), by focusing on prevention, early warning, and FAW biological control and plant-varieties resistance. This approach was rooted in reducing harmful pesticides used to mitigate human health and environmental risks. Thus, the project promoted the use of IT technologies, and IPM packages by involving soil-plant and ecosystems in FAW management.

FOLLOW-UP FOR GOVERNMENT ATTENTION

As mentioned above, a regional programme for plant pest control with emphasis on FAW was developed, which received funding interest from the AfDB. It is expected that the funds will be provided in 2022.

SUSTAINABILITY

1. Capacity development

The regional Agriculture Transformation Strategies (ECOWAP, 2025) pointed out the need to strengthen institutional capacity to coordinate and respond to crises. The NPPOs and countries agreed on the urgent need for swift and coordinated action to deal with FAW, and for improving experience sharing on technical matters. Gaps in early warning systems, response and preparedness, contingency planning, information dissemination on alien pest, and effective coordination were highlighted as critical. The ECOWAS Agricultural Commission was the project's counterpart, facilitating the project implementation at country level.

As mentioned above, the project supported the institutionalization of a regional task force for plant pest management. This task force, led by ECOWAS Agricultural Commission, could help promote the value added of the project by adopting FAW monitoring tools, organizing regular meetings with the stakeholders, and developing and implementing coherent programmes.

With regard to strengthening partnerships that would contribute to the project's sustainability, partnerships were strengthened within and among the national plant protection offices and regional stakeholders (ECOWAS, West African Economic and Monetary Union [UEMOA], Permanent Interstates Committee for Drought Control in the Sahel [CILSS], G5-Sahel, West and Central African Council for Agricultural Research and Development [CORAF]), and international organizations (FAO, Centre for Agriculture and Biosciences International [CABI], International Centre of Insect Physiology and Ecology [ICIPE], International Institute of Tropical Agriculture [IITA]).

The project led to the development of a regional programme, which has received interest from the AfDB. This programme plans to strengthen the project results by implementing country-specific actions toward sustainable plant pest management in the region.

2. Gender equality

The project designed gender-responsive capacity-building initiatives, so that gender-specific limitations and opportunities could be documented and integrated into programmatic and outreach efforts.



3. Environmental sustainability

The project promoted a holistic understanding of IPM and FAW monitoring and information systems in a context of climate change adaptation.

4. Human Rights-based Approach (HRBA) – in particular Right to Food and Decent Work

This cross-cutting area was not applicable for this project.

5. Technological sustainability

The FAMEWS mobile application (app) that was promoted during the project enabled NPPOs to collect and share information on the spread and impact of FAW more effectively. The app can be used in different operating systems, and farmers can send their recorded data to a global server. This equipment and the data collection knowledge have increased farmers' flexibility and adaptability to their local circumstances, including to the varying degrees of Internet connectivity and remoteness of their farms.

Training modules focused on the management of FAW through the FFS can be replicated in another area, to contribute to local knowledge development.

With regard to the capacity of stakeholders and beneficiaries to pursue the project activities without further technical assistance, the project enabled NPPOs to pursue FAW monitoring and early warning activities in the field.

6. Economic sustainability

The FAMEWS is a free mobile application for Android cell phones. The app does not require Internet or network connection, enabling farmers to collect data in remote regions. Once they are in an area with network or Internet connection, data can be sent to the global platform.



DOCUMENTS AND OUTREACH PRODUCTS

Documents

- ❑ **FAO.** 2020. Programme document: Program on plant pest control in West Africa and the Sahel with emphasis on the fight against the fall armyworm. 46 pp.
- ❑ **Sanon, A. (Université Joseph KI-ZERBO).** 2021. LoA activities' report. *Rapport technique: Dans le cadre du projet: Action mondiale contre la chenille légionnaire d'automne, Spodoptera frugiperda (Protocole d'accord N°045/2021/FRBKF entre la FAO et l'Université Joseph KI-ZERBO).* 59 pp.
- ❑ **Somda, I. (Université Nazi BONI).** 2021. LoA activities' report. *Rapport technique de mise en œuvre des activités de recherché sur la chenille légionnaire d'automne menées dans le cadre du protocole d'accord 046/2021/FRBKF entre la FAO et l'Université Nazi Boni.*



Outreach materials

- ❑ The project produced relevant data from field scouting and traps, available on [FAMEWS global platform](#).
- ❑ The project produced a methodology and material for *Telenomus remus* rearing (see LoA activities' report).
- ❑ The project identified some FAW-tolerant maize varieties (See LoA activities' report).



ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

Expected Impact	Improved food security, trade and livelihoods through enhanced plant pest management and phytosanitary regulatory system in West Africa		
Outcome	Capacity of the national and regional plant health institutions is strengthened in order to better coordinate ECOWAS member States in prevention, preparedness and response to plant pests and disease outbreaks		
	Indicator	Number of national plant protection professionals (NPPO) trained on FAW monitoring (FAMEWS) and impact assessment (KoBo Collect).	
	Baseline	0	
	End Target	At least 15 national plant protection professionals trained on preparedness and prevention tools.	
	Comments and follow-up action to be taken	NPPO staff were trained as master trainers, enabling them to train national agricultural extension agents, and to support FAO's actions against FAW in the field.	
Output 1	Regional and national capacities to respond transboundary pest outbreak enhanced		
	Indicators	Target	Achieved
	Number of coordination meeting.	4 regional Taskforce meetings.	Yes
Baseline	1		
Comments	National and regional plant protection professionals were trained on preparedness and prevention tools.		
Activity 1.1	National and regional capacities to detect, prevent and respond to FAW reinforced		
	Achieved		
	Comments	<p>The activities implemented during various sessions that were organized included the following:</p> <ul style="list-style-type: none"> – Capacity building of NPPO professionals and extension officers in monitoring, diagnostic and alert capacity for harmful organisms: border surveillance training for 15 member states. In addition, 25 NPPO professionals were trained in the identification and monitoring of FAW. – Organization of a regional training workshop on improving the monitoring of the prevalence of FAW, the mapping of FAW risks, the dashboard and impact assessment: the 15 member states of ECOWAS and the countries of the Sahel and Central Africa (Chad, Mauritania and Cameroon) were trained. In addition, each country developed a national action plan (June-December 2019) for managing FAW. – Training of extension agents on FFS in each of the 15 ECOWAS member states. Three regional consultants, expert in FFS, were recruited, and training was provided at country level. Two hundred and ninety agricultural support advisory officers from the extension, research and development divisions of the NPPOs, including 48 women, were trained on FAW early warning, monitoring, prevention, and sustainable management. 	
Activity 1.2	Regional monitoring, risk assessment and early warning strengthened		
	Achieved	Yes	
	Comments	<p>National and regional NPPO professionals were trained on FAW dashboard and risk assessment tool. FAW presence was monitored through scouting and traps, and data were recorded on FAW global platform.</p> <p>A regional programme for plant pest control with emphasis on FAW was developed, which received funding interest from the AfDB. It is expected that the funds will be provided in 2022.</p>	
Activity 1.3	Communication on FAW improved within the sub-region		
	Achieved	Yes	
	Comments	Some FAW-related materials, including newsletters, maps, and risk assessments were regularly shared with the NPPOs and regional stakeholders.	

Activity 1.4	Support priority research to address gaps in FAW control		
	Achieved	Yes	
Activity 1.4	Comments	<p>Two LoAs were signed and implemented by Nazi Boni University and University Joseph KI-ZERBO of Burkina Faso respectively, leading to the following:</p> <ul style="list-style-type: none"> – development of a methodology for rearing <i>Telenomus remus</i>; – assessment of the parasitism capacity of <i>Telenomus remus</i> in a controlled environment; – assessment of FAW-tolerant maize varieties' tolerance; – evaluation of the efficacy of several types of traps in FAW control; – evaluation of the efficacy of local strains of entomopathogens for FAW control; – assessment of parasitism capacity of some FAW local natural enemies. <p>Laboratory and on-field trials reports are available, and scientific papers are to be edited and published.</p>	
	Regional coordination to address plant pest and disease outbreaks strengthened		
Output 2	Indicators	Target	Achieved
	Number of countries with a formal and functioning national taskforce in place.	15	
Baseline	3		
Comments	A number of countries now have a formal and functional national task force.		
Activity 2.1	ECOWAS' Agriculture and Rural Development Directorate technical capacity on FAW enhanced		
	Achieved	Yes	
Activity 2.1	Comments	Project steering committee meetings led by ECOWAS directorate were established and operationalized.	
	Establish an experts network for monitoring, surveillance and rapid response to address emergency outbreaks		
Activity 2.2	Achieved	Yes	
	Comments	<p>The regional FAW task force was established and institutionalized. The objectives of this taskforce were to: i) improve the regional coordination efforts in plant health; ii) strengthen regional capacity in plant health and surveillance; and iii) engage in the processes of harmonization of international standardization.</p> <p>The task force met regularly through training and information sessions, where FAW status in each country, actions initiated, and constraints and perspectives were reported. A total of 290 national and regional NPPO professionals were trained on FAW dashboard and risk assessment tools.</p> <p>This contributed to improving coordination and strengthening the communication mechanism and information sharing among NPPOs. It also contributed to the participation of NPPOs in the IPPC standards-setting processes, as a harmonization mechanism is now in place and regular harmonization and common position meetings are held at regional level.</p>	
Activity 2.3	Sharing information and report among stakeholders		
	Achieved	Yes	
Activity 2.3	Comments	<p>The established task force serve as an information channel, where training and south-south cooperation opportunities were released.</p> <p>The project supported the participation of FAW stakeholders in various regional and international workshops including:</p> <ul style="list-style-type: none"> – The regional conference on FAW in the Sahel and in West Africa, whose theme was: "invasion of the fall armyworm in the Sahel and in West Africa: inventory, solutions and resources to counter the scourge", was held in Ouagadougou, Burkina Faso, in September 2019. It brought together 346 participants from 21 countries, including 17 countries from CILSS - UEMOA-ECOWAS, from Southern Africa, Central and East; lecturer-researchers from universities and research institutions, representatives of various actors involved in the fight against FAW, as well as subregional and regional organizations (ECOWAS, UEMOA, CILSS, G5-Sahel, CORAF), and international organizations (FAO, CABI, ICIPE, IITA). – The regional conference for Africa, held at Cabo Verde in October 2019. It was attended by around 150 participants from countries, research and extension institutions, private-sector organizations, NGOs, consumer associations, Regional Economic Communities, FAO, etc. Particular emphasis was placed on the regional coordination of prepared actions, integrated pest response, popularization and research for an effective and sustainable fight against FAW. 	
	Assessment of FAW prevalence, risk and impact		
Activity 2.4	Achieved	No	
	Comments	The budget did not cover the complete collection of risk and impact assessment data, as a representative sample at national level; therefore, this activity was not carried out.	

Partnerships and Outreach

For more information, please contact: Reporting@fao.org

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