Framework for Strategic Communication during Pest Outbreaks

Learning from fall armyworm

KNOWLEDGE FOR LIFE

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Foreword

The invasion of a highly destructive plant pest can have devastating effects on a country's crop production, ecosystem and agricultural trade. In Africa, where a large share of the population lives in rural areas and subsistence agriculture represents the mainstay of rural livelihoods, plant pest infestations can cause severe damage to an already fragile economy and seriously impact the food and nutrition security of millions of poor smallholder farmers.

The fall armyworm (FAW) is an invasive Lepidopteran pest that feeds on the leaves, stems and cobs of maize in particular but has the potential to be hosted by other plant species including rice, sorghum, sugarcane as well as vegetable crops and cotton. Native to tropical and subtropical regions of the Americas, FAW was first reported in Africa in 2016 where it has caused significant damage to maize crops. It has spread more recently to parts of Asia where countries are facing similar challenges to those experienced by African countries three years ago.

This Framework is the result of a consultative process which started at a high-level workshop convened by CABI in Lusaka, Zambia, on 29 and 30 August 2018. The workshop, titled "Fighting the fall armyworm through strategic communication and cross-sectoral knowledge management" brought together communication and knowledge management stakeholders with key agricultural government representatives from Ethiopia, Kenya, Ghana, Uganda and Zambia, as well as representatives from CIMMYT, IITA, FAO, Precision Agriculture, Farm Radio International, AATF and AU-IAPSC, among others, to critically review the role of communication to date, identify lessons learned, develop collaborative future plans, and identify research and knowledge gaps for further study.

These actors, who have been instrumental in managing the response to fall armyworm since the initial outbreak in Africa, committed to contribute to the development of this Framework with the aim of providing a set of guiding principles and tools to assist their respective governments with the production of Country-Level Communication Strategies for FAW and other major pests.

The development of the Framework entailed an extensive literature review of publications and articles related to FAW and other types of pest outbreaks, including outbreak communication practices in other continents. It also benefited from a series of interviews with key members of the FAW Technical Reference Group (FAW-TRG), scientists, communication professionals and government officials who contributed their valuable expertise and direct personal experience with the FAW outbreak in various countries in Africa.

It is our hope that in reading this Framework, governments will gain a better understanding of the communication issues and considerations that must be considered when preparing an FAW preparedness plan and communication strategy. We are also confident that the principles and information presented in this Framework are wide-ranging enough to apply not only to FAW but also to other outbreaks that may occur in the future.

The FAW Framework is a work in progress and will be periodically updated to reflect more recent developments and current practices in outbreak communication. Therefore, comments and suggestions for improvement are most welcome. Contact details can be found at the end of this document.

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Definitions

The following terms can be found in the document and their definitions are taken from the list of International Plant Protection Convention definitions found in the Glossary of phytosanitary terms, ISPM 5 (FAO, 2017).

Containment: Application of phytosanitary measures in and around an infested area to prevent spread of a pest

Control of a pest: Suppression, containment or eradication of a pest population

Entry of a pest: Movement of a pest into an area where it is not yet present, or present but not widely distributed and being officially controlled

Eradication: Application of phytosanitary measures to eliminate a pest from an area

Establishment: Perpetuation, for the foreseeable future, of a pest within an area after entry

Incursion: An isolated population of a pest recently detected in an area, not known to be established, but expected to survive for the immediate future

Introduction of a pest: The entry of a pest resulting in its establishment

Monitoring: An official ongoing process to verify phytosanitary situations

Occurrence: The presence in an area of a pest officially recognized to be indigenous or introduced and not officially reported to have been eradicated

Outbreak: A recently detected pest population, including an incursion, or a sudden significant increase of an established pest population in an area

Pest: Any species, strain or biotype of plant, animal or pathogenic agent injurious to plants or plant products

Quarantine pest: A pest of potential economic importance to the area endangered thereby and not yet present there, or present but not widely distributed and being officially controlled

Spread of a pest: Expansion of the geographical distribution of a pest within an area

Executive Summary

Plant pest infestations can have devastating effects on a country's crop production, ecosystem and agricultural trade and seriously impact the food and nutrition security of millions of poor smallholder farmers. They can cause a great deal of stress for the people directly engaged in the agricultural sector, and the governments that must quickly provide technical assistance, resources and suitable response mechanisms. An efficient coordination and communication system can support the management of the outbreak while mitigating its social and economic impacts.

The purpose of this Framework is to enable governments to harness communication to respond to, manage and mitigate future pest outbreaks such as the fall armyworm, while significantly reducing the costs of the pest management strategy being implemented by the government.

Intended users and format

The Framework is aimed at government policy and decision makers responsible for designing and implementing response mechanisms to pest outbreaks, as well as other key users, who can support its adoption and implementation. It supports guidance given by the International Plant Protection Convention (IPPC) on phytosanitary measures for pest surveillance, risk identification, reporting and management and complements the recently published IPPC *Guide to Pest Risk Communication*.

The Framework gives an overview of the main communication challenges faced by governments during the current fall armyworm outbreak and provides a set of key concepts, guiding principles and tools for planning strategic communication interventions in support of wider response efforts.

Communication experiences and challenges from the FAW outbreak in Africa

Lessons learned from the FAW outbreak point to the need for improved collaboration among communication professionals, research, extension and government institutions, as well as the development of appropriate policies that systematically integrate communication in outbreak preparedness and management. The major lessons learned can be summarized as follows:

- Communication budgets should be properly planned in **coordination with ministries of agriculture and ministries of finance and information or communication**.
- Cross-governmental coordination and support is needed to respond to major pest outbreaks. The Ministries of Trade and Environment can support Agricultural Ministries in responding in a timely, appropriate and safe manner by working together to develop joint strategies. The National Plant Protection Organization (NPPO) has responsibility for reporting pests and may sit as an organization in its own right, or be a part of the Ministry of Agriculture, depending on the country.
- For fear of potential negative trade impacts of quarantine and/or invasive pest species, some governments do not disclose pest occurrence and status during the early stages of pest establishment. Withholding information on the extent and damage of a given pest should be discouraged and open discussion encouraged for rapid response purposes.
- **Media must work closely with National Plant Protection Organizations** in order to produce accurate and consistent reports on the pest outbreak, particularly in responding to misinformation as it emerges. Governments should promote and support research communication on pest ecology and biology. Technical information should be made available in languages and formats that can be easily understood by extension officers and farmers.

Guiding principles of outbreak communication

Communication is about dialogue, inclusiveness, knowledge exchange and the active participation of all concerned individuals. Its aim is to promote positive change and ownership. Development Communication (DevCom) approaches can help in understanding the information and communication needs of affected farmers and provide, through multiple communication channels, timely and relevant information.

In a pest outbreak emergency situation, mass communication will be needed in order to reach large numbers of people in a short space of time and this will often be broadcast orientated. This approach doesn't allow for dialogue and isn't as suitable for sharing complex information about management practices, but the approaches used can still consider the needs and preferences of the audience, for example, the preferred language, radio station or timing.

A communication strategy that fits within the broader pest response plan will ensure that all communication activities are harmonized, relevant and mutually agreed upon by all stakeholders. Planning must be carried out by communication specialists who are skilled at analysing complex communication issues and must strategically apply all available means to resolving them. The following key principles underpin a communication strategy development process:

Timeliness
Pest outbreaks generate confusion, disorientation and misunderstandings. If not properly and promptly addressed they can elicit stress and anxiety, as well as cause significant social disruption and loss of trust and confidence in government's responses. Timely and strategic communication cannot be improvised.

Participation
Stakeholders should be encouraged from the very beginning to contribute with ideas and take the lead in the communication process. This will develop a sense of responsibility – and ownership – for the outcomes of the adopted control methods.

Inclusiveness
Participation can only be achieved if all concerned parties are given the opportunity to do so. Being part of an outbreak planning process does not guarantee "active participation". Communication planners should be sensitive to community roles, gender differences and the needs of marginalized groups.

Goal-orientation
DevCom approaches in outbreak situations should explicitly spell out the goals they intend to attain along with the required tools and methodology.

Trust and credibility
Opinions are shaped by personal experiences, values and attitudes, rather than official communications and data. Understanding these and communicating through trustworthy information sources are critical in an outbreak response. Informing and involving stakeholders early in the management of the pest outbreak can help in building trust and credibility, minimize rumours and increase confidence in government's actions.

Dialogue
Dialogue among farmers, extension workers, scientists and policy makers are the necessary ingredient in building trust, sharing knowledge and ensuring mutual understanding.

Accuracy
Policy makers and response team managers need accurate and timely evidence to evaluate complex issues and propose the most suitable solutions for providing technical support and securing the necessary funding. Good communication can positively influence decision-making processes, reduce the information overload, mitigate conflicting messages and avoid duplication of efforts.

Relevance
Too often, critical messages in emergencies and outbreaks fail their purpose because they were either communicated in an inappropriate format or through an inaccessible channel. The information exchanged or disseminated must be specifically tailored to the intended audiences.

Communication planning

Communication planning entails five distinct phases: **information and communication needs assessment, communication strategy formulation, implementation, evaluation and revision**.

Information and communication needs assessment – Understanding the information and communication needs of all stakeholders will help in the selection of the most appropriate tools and resources necessary to design, implement and evaluate a communication strategy. The needs assessment collects data about the context, characteristics and gender specificities of communities, communication habits, available resources, existing media, ongoing development communication initiatives, and internal and external communication flows.

Communication strategy formulation, implementation, evaluation and revision – The communication strategy is a systematic process of implementing communication activities through a well-thought-out methodology and using a variety of tools and channels. The strategy clearly identifies the specific objectives to be met and provides a reference document against which communication activities can be measured and evaluated.

Capacity development

Training should be prioritized for extension staff, agro-dealers, farmers groups and the media to promote accurate, balanced, clear and well-targeted messages. Outbreak communication training should also involve senior managers and policy makers who are often required to make decisions about communication planning and budgeting.

Agricultural advisory services are now provided by multiple actors including the farmers themselves who participate in the innovation process through "educational platforms" such as: farmer field schools; field days and agricultural shows; plant health rallies; mobile plant clinics; and farmer-to-farmer training.

Internal communication framework

The communication strategy also spells out the internal communication framework that will facilitate information sharing across various government departments and levels of government, research organizations and extension. This document does not focus on the organization of partners at the national level, but this is an important aspect of the national response to a pest outbreak.

Introduction

By their very nature, pest outbreaks are unpredictable and marked by uncertainty, confusion and a certain degree of stress for the people directly engaged in the agricultural sector, particularly subsistence farmers who can suffer serious economic losses and devastating effects on their livelihoods and food security.

Equally, during an outbreak, national governments are under a lot of pressure to quickly provide technical assistance and resources as well as enact policies to support adequate response mechanisms across all sectors.

Each outbreak is unique, with its own characteristics and communication challenges. The rapid unfolding of events and the overwhelming demand for information from farmers, agricultural advisory services, government institutions and the public at large makes outbreak communication a daunting task. This is often aggravated by the influence of media reports which, on the one hand, are essential in spreading important information on the outbreak quickly and widely, but on the other hand can fuel public anxiety far out of proportion if they overstate the risks associated with the pest or are based on rumours rather than scientific evidence. All these actions call for an efficient coordination and communication system that will support the management of the outbreak while mitigating its social and economic impacts.

Participants of the high-level workshop held in Lusaka, Zambia, in October 2018 titled “Fighting the fall armyworm through strategic communication and cross-sectoral knowledge management” shared lessons learned from their respective countries and identified key communication issues experienced in the management of the continuous FAW threat in Africa. The importance and role of communication in keeping the public informed about the outbreak, in linking research and extension, in facilitating knowledge exchange and in enabling two-way articulation of farmers’ needs are just some of the issues that the workshop addressed.

Participants felt there was value in developing a resource that would support governments in managing their response to major pest outbreaks such as the fall armyworm by utilizing communication approaches to their full effect. To that end, this Framework has been written to:

- support understanding of the role of communication during a pest outbreak;
- share experiences and lessons learned from the communication response to fall armyworm;
- build capacity in development communication approaches to pest responses; and
- support the development of national communication plans for fall armyworm and future pest threats.

Using the Framework

The purpose of this framework is to enable governments to harness communication for preventing, managing and mitigating future pest outbreaks, while significantly reducing the costs of the pest management strategy being implemented by the government. It provides a set of guiding principles, considerations, best practices and concrete examples for formulating a communication process in support of national pest response. The principles shared in this document are relevant to all phases of a pest outbreak, from prevention through to management, though the approach used will be tailored according to the specific needs of the situation.

Structure

The Framework consists of three parts:

Part 1 looks at the experiences from the fall armyworm outbreak and the role of communication during pest outbreaks.

Part 2 deals with key outbreak communication concepts, issues and principles, including a detailed description of all the elements required to design a communication strategy.

Part 3 gives a number of useful tools and templates that can be easily adapted to the specific outbreak situation.

Country-specific case studies have been included to showcase communication experiences from pest outbreaks in Africa.

Intended users

The points of entry for the adoption of this Framework should be those with a role in national pest management including Permanent Secretary, Chief Director for Agriculture, and Director of Plant Protection in the ministry responsible for agriculture, as well as the National Plant Protection Organization (NPPO). While the Framework was written based on experiences in Africa, the principles, tools and lessons learned are equally relevant to any country.

The Ministry of Agriculture should identify champions from different ministries and departments, as well as non-governmental partners, who can support the adoption and implementation of the Framework. The champions may include the following: Office of the President/Prime Minister, Minister for Agriculture, NPPO Contact point, Director of Plant Protection, Regional bodies (e.g. East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC)).

The African Union should be able to take the lead for continental appropriation of the Framework, whose adoption stream should be cascaded down to countries (the relevant ministries), Regional Economic Communities as building blocks of the African Union, regional bodies such as FAO sub-regional office, CABI, IITA, CIMMYT, ICIPE, ASARECA, FARA, FAW communication task forces, and at events such as farmers' days, exhibitions and agricultural shows.

It is recommended that this Framework should belong to the Ministry of Agriculture, specifically in the Plant Protection Department/Directorate as well as the department responsible for agricultural information.

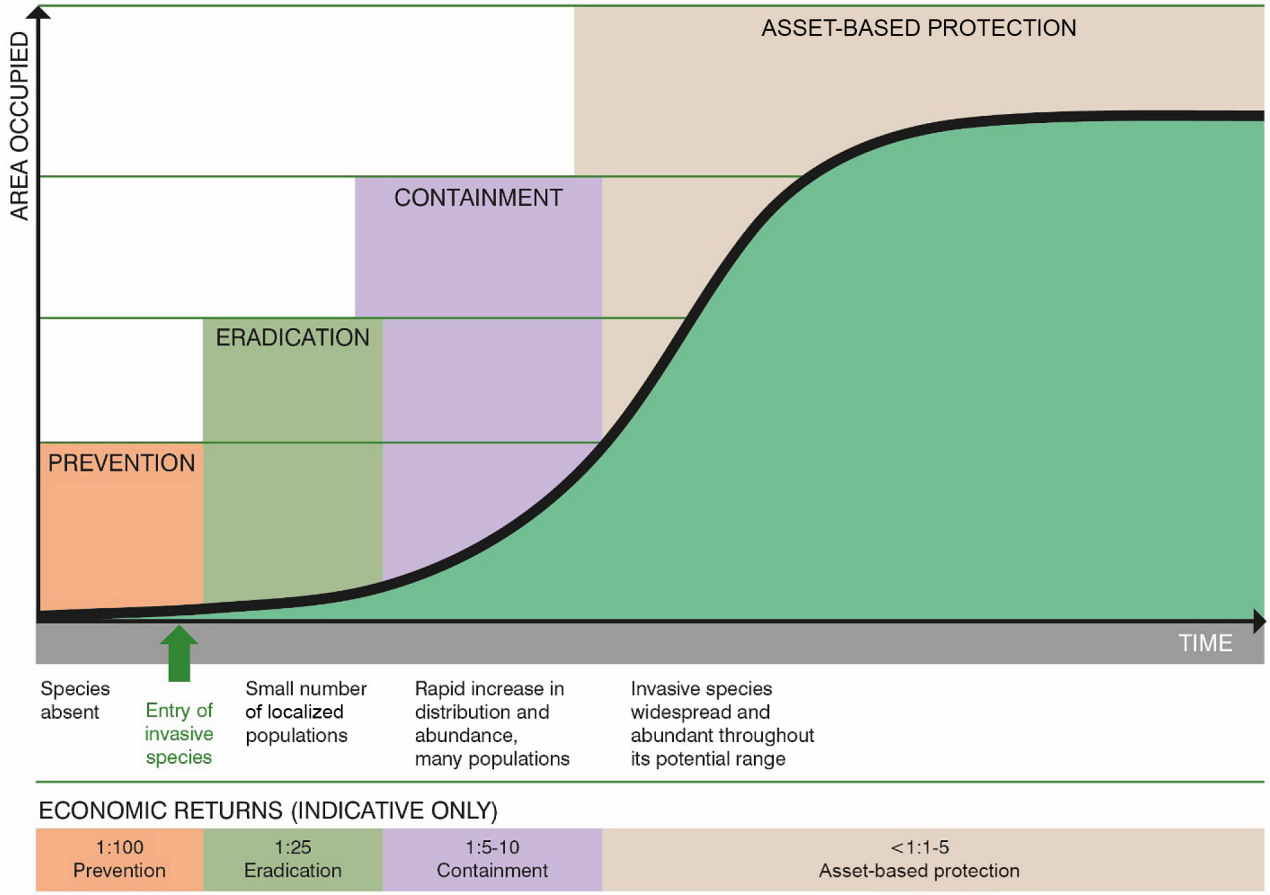
The Framework strongly encourages partnerships and collaborations with all relevant stakeholders in order to make the most of all available human and financial resources and to harmonize response activities in a coordinated manner.

International plant health: pest and disease management, the broader context

Plant pests and diseases cause significant pre- and post-harvest losses to food crops in Africa. Estimates vary but reach up to 40% in pre-harvest alone. These losses can be the result of: endemic pests and diseases already established in a country, migratory pests like locusts and African armyworm, whose movement often correlates with specific weather conditions, or invasive alien pests and diseases that move into new territories and establish, such as the fall armyworm.

The ability of countries to manage invasive alien pests and diseases that threaten food security and trade depends on the systems in place to prevent, manage or contain them as they enter and seek to establish in a new region. Investment in efforts to control invading species will necessarily depend on the risk to key crops and the likely cost and benefit of any intervention.

The diagram below highlights the differing focus of national responses during the course of an invasion depending on whether a pest is a) absent in the country; b) present in a small number of localized populations; c) rapidly increasing in abundance but still not present everywhere; and d) widespread and abundant throughout the potential range.



Pest invasion curve and actions at different stages. (Source: PARM (2017)).

This document, which focuses on the experience of fall armyworm, illustrates issues around communication during the "Asset-based protection" phase where, because the pest is widespread and there is little or no practical prospect or economic justification for attempting to create pest-free areas, the main strategy is to control them and prevent crop losses. The responsibility for this generally falls on the farmer, but often they will need advice on how to do this. Agricultural extension is the role of local government, though advice may be received from and through many other sources including NGOs, research institutes and mass media.

This Framework for Communication contributes to the broader response to the outbreak in a country. It will include activities such as research into management options, monitoring of pest distribution, input regulation and control as well as extension.

The table below is useful in illustrating the stakeholders involved in implementing actions from prevention to control. For fall armyworm, the strategy has been "control".

Table 1: Roles of key stakeholder groups in implementing actions from prevention to control and costs incurred by the different groups.

	Key stakeholders				
Action or strategy	**Ministry of Agriculture/ National Plant Protection Organization**	**Local gov't/ Extension Services**	**Farmers, traders, transporters**	**Occurrence**	**Costs**
Prevention	Lead role. Border controls, inspections, specific surveillance	General surveillance; reporting of possible incursions	General surveillance; reporting of possible incursions; compliance with biosecurity regulations	Continuous	Mainly government Farmers
Eradication	Lead role. Implementation, checks on pest status	Participate in eradication. Might share costs	Possible compulsory actions	Rare, but high intensity when attempted	Mainly government. Maybe some local government or private sector contribution – ideally as per a pre-agreed plan
Containment	Lead coordination role; sometimes implementation	Major role in local implementation, depending on specific details; enforcing (making) regulations	Major role in complying with containment procedures	Uncommon, but might require sustained and moderately intensive activity	Central or local government; farmers' cost of compliance with any regulations
Control	Regulation of inputs; monitoring overall plant health situation; plant health strategy; coordination of stakeholders; occasionally major if area-wide control method used (e.g. sterile insect technique for fruit flies), or major outbreak such as armyworm	Major provider of advice to farmers. Monitoring local situation. Enforcement of regulations on inputs	On-farm decision making and implementation. Compliance with regulations and standards for inputs and material movement.	Continuous	Mainly farmers, unless area-wide approach

Source: Adapted from PARM (2017)

Case Study

Invasion of the fall armyworm in Ghana: a communication experience

Patrick K. Beseh, Plant Protection and Regulatory Services Directorate, Ministry of Food and Agriculture, Ghana

The fall armyworm (FAW), a destructive invasive Lepidopteran pest native to tropical and subtropical regions of the Americas, was first reported in mainland Africa in Nigeria in January 2016 and in Ghana in April 2016 at Somanya in the eastern region of the country through a CABI plant clinic. The pest infestation was then confirmed later in November of the same year. It has since spread to over 44 countries across the continent and was recently reported in Asia. Though FAW has a wide host range, the infestation in Ghana has mainly been on maize, which is a major staple crop for millions of citizens.

In response to the outbreak, an action plan was developed and a multi-stakeholder task force was set up to coordinate its implementation. The task force consists of key directorates of the Ministry of Food and Agriculture, development partners, research, media, farmer groups, EPA and NADMO. The task force is structured around three subcommittees: coordination and collaboration, research and management, and awareness creation. Funds/resources were provided by the government and development partners, namely FAO, CABI, USAID, AGRA, DFID, DGIS and GIZ.

The main communication challenges experienced include:

- Inadequate technical experts to educate the public, build the capacity of extension agents and develop concise, precise and effective communication materials on early identification, monitoring and management.
- Inconsistency of messages disseminated to the farmers and the general public.
- Over-sensationalized media resulting in misinformation.
- High cost of airtime, especially in the cities, to sensitize the public on the pest.

To address the above challenges the following options were considered:

- Communication materials (posters, jingles, flyers, videos) developed by various agencies were harmonized and approved by the committee before airing/distribution.
- Synopses were developed to guide discussions on the pest in the media.
- Only authorized persons such as members of the task force and MOFA staff were allowed to hold discussions in the media.
- Emergency hotlines were created for farmers to call for assistance to manage the pest.
- Regular engagement and training of the media on FAW situation and accurate reporting.
- Annual review of communication materials as new knowledge and information on the pest's behaviour and management become available.

These strategies were very effective in sensitizing the general public on the pest, minimizing the misinformation and sensationalism from the media, and ensuring consistency, accuracy and reliability of the message about the pest to the public.

Conclusion

The formation of the subcommittee was timely in ensuring coordination and consistency of communication activities. The impact of the various communication interventions should be assessed.

PART 1

The Role of Communication in the FAW Response

1. The FAW Communication Experience in Africa

1.1. First responses to FAW: the role of media

"Crop pests and animal diseases are among the costliest disasters in Africa, accounting for over USD 6 billion in agricultural loss between 2005 and 2015[1]

FAW is one of the most serious crop pests to have ever emerged in Africa.

In some countries, FAW was initially mistaken for the "maize stalk borer" which was already familiar to them and so not reported to national authorities' services for identification. Stalk borer attacks mostly cereals, including maize, but it is not as devastating as FAW. Therefore, when larger numbers of what was believed to be stalk borer appeared, it was not considered a serious threat at first. Concerns started to arise only when the extent of the damage became apparent to farmers and plant protection services who, in any case, were unable to provide the required support due to lack of accurate technical knowledge on FAW.

When FAW was first reported in Africa, media management was initially very poor. There was too much speculation on the outbreak from the media, and government spokespeople had to repeatedly make amends because of erroneous information being disseminated. In some cases, this issue was resolved by organizing regular briefings for the media to provide useful information on the pest and update them on progress made for its containment.

The level of collaboration that response teams have with media representatives is crucial in ensuring effective media management. The absence of official communication at the onset of an outbreak provides a fertile ground for rumours to arise. As the sociologist Tomatsu Shibutani explains, rumours evolve from uncertainty, from the absence of context and of concrete information.[2] Rumours about the FAW outbreak have travelled rapidly within and across countries in Africa, particularly through social media. When these rumours are relayed over mass media they are interpreted as true accounts of the outbreak reality.

If properly managed through collaboration and partnerships, the media can be a powerful ally in supporting response mechanisms by raising awareness and educating farmers and the public. Above all, media can help in establishing an open and constructive dialogue with the public, for building trust and fostering positive change.

1.2. FAW communication challenges and lessons learned

The emergence of FAW has prompted varied communication responses across different African countries, which include, but are not limited to: carrying out locally based training workshops for NPPOs, extension workers and farmers; rolling out field excursions, farmer field schools, mobile plant clinics, and field days etc.; mass media campaigns through radio and television broadcasts, as well as the use of mobile SMS, WhatsApp and Telegram platforms, and Information Education and Communication (IEC) materials.

However, there is a shared concern among agriculturalists and policy makers that though communication has played an important role in the current efforts by African governments and their partners in the management and mitigation of FAW so far, it could be better planned and utilized to manage and mitigate the continued threat of FAW and the possible threat of future major pests going forward.

Some of the lessons learned from the current government responses to the FAW outbreak, which make a case for the governments to develop robust Pest Management Communication Plans, point to the need for improved collaboration and coordination among professionals working in the communication field, research and extension, and government institutions, as well as the development of appropriate policies that systematically integrate communication in outbreak preparedness and management.

1 FAO (2018) The impact of disasters and crises on agriculture and food security.

2 Shibutani (1966) Improvised news: a sociological study of news.

The major lessons learned in FAW outbreak communication can be summarized as follows:

- Little to no **coordination between ministries of agriculture and ministries of finance and information** resulted in inadequate budgets for communication interventions. Governments' funding priority was for research and provision of pesticides to farmers.
- **Lack of adequate knowledge and information on pest management** among policy makers responsible for overseeing ministries mitigating the effects of FAW outbreak led them to choosing and prioritizing inappropriate pest management options. Some countries bought and distributed large quantities of pesticides without first taking into consideration other environmentally safe pest management options.
- Farmers first learned about the outbreak from FM radios, community centres, churches, markets and television but were unable to make informed decisions and take immediate action due to **incoherent and inconsistent messages and advice** being disseminated from various sources. This is a symptom common to major new pest outbreaks, where farmers want information about how to manage a pest, but researchers are just beginning experiments to find out the answers. During this period before the research finds the answers, there is often a need to share "best guess" techniques for managing the pest, which will evolve and improve as knowledge and trials go on. Coordination and orientation activities involving media and information points for farmer communities are crucial at an early stage.
- Media reports on the FAW infestation and crop damage levels were either inaccurate or sensationalized, leading to over-use of pesticides or using the wrong type of pesticide or local products. In some cases, **farmers lost confidence in the use of environmentally safe pest management options such as intercropping** and, in extreme cases, farmers even abandoned their farms thinking all their crops were destroyed. There was a lack of media knowledge and capacity which contributed to this situation.
- In this communication "chaos", typical of peak outbreak periods, pesticide controls were more relaxed in some countries thus opening the doors to the commercialization of unregistered, high-risk/hazardous pesticides, often without proper instructions on their handling and application. In other countries the existing system remained in place, with testing and licensing of chemicals for efficacy against the fall armyworm taking several years and therefore of little support to affected farmers in the short term.
- A big challenge in the FAW outbreak is the **lack of timely research communication** on the pest ecology and biology, and the efficiency of FAW management options, such as botanical, landscape and cultural methods. Where such information was readily available, it was sometimes provided in technical formats that are difficult to process for field extension officers and farmers. In addition, communication tools were not systematically integrated into pest surveillance, scouting and monitoring strategies.
- The role of the private sector wasn't always clear in the response to the FAW outbreak. If countries can involve the agrochemical sector as a stakeholder in the response to major pest outbreaks, it would at least provide a greater opportunity to coordinate pest management responses and to monitor the value of contributions from this sector. This is important given the prevalence of farmers seeking pest management advice from their local agro-dealers.
- Under the obligations of the parties to the IPPC, countries must report outbreaks. **The politics of pest outbreak acknowledgment and reporting can seriously impede control** if governments withhold information on the extent and damage of the outbreak. In the case of FAW, governments were reluctant to provide detailed information and statistics they perceived to be detrimental to the image and reputation of the government and its capacity to prevent, manage and mitigate disasters. News about an outbreak gets around anyway despite government efforts to control how the information is shared. Therefore, official government channels should keep the public informed from the very beginning.

1.3. Approaches to resourcing communication interventions

Which organizations support communication interventions?

Communication should be an integral component of the work carried out by National Plant Protection Organizations (NPPOs).

When are communication interventions needed?

It is crucial to invest not only in response mechanisms but also in preparedness measures.

Be prepared

- Contingency communication plans clearly defining roles and responsibilities, channels of communication and how internal and external communications will be handled are an important part of preparing for pest outbreaks.
- Build communication capacity of farmers and agricultural support services in responding effectively to the pest threat and reduce its impact.

The role of data

Pest outbreak preparedness, containment and recovery all require effective data collection and information sharing to inform priority actions and support decision-making processes. Often this information is held by different stakeholders and is therefore difficult to access easily and promptly. Consequently, cost effective communication approaches and tools should be made available both at national and local level to provide up-to-date information about the current situation, pest impacts and location, and effective containment approaches.

How much does it cost?

As a rule of thumb, 5% of the total plant protection pest response programme budget[3] should be devoted to the communication component.

Costs have reduced from a 10% budget, which was needed in the 1990s, due to the advent of digital technologies for communication, which is good news.

Funding sources

Where government funding for communication is limited or not available, countries should seek external support from relevant Development Partners and private entities. Collaborative partnerships play a crucial role in supporting African countries in the management of invasive species. This type of support may take many forms such as direct funding, knowledge exchange or technical assistance, and be provided by various partners including governments, international organizations, private sector, foundations and NGOs.

In the context of the FAW outbreak, there has been a global call for support to African countries. Bilateral and multilateral organizations are providing support in managing the impacts for farmers and national economies.

3 Fraser and Villet, 1994.

PART 2

Key Outbreak Communication Concepts

1. Communication in Pest Outbreak Management

1.1. Applying communication principles

The word “communication” can have various connotations. Within the context of pest outbreaks it is sometimes used interchangeably with “information”. This reflects the idea that communication is a one-way process where information is shared from one source with many recipients who are ready and waiting to be “informed” and then act accordingly.

Of course, this is not the reality of the world we live in and, although there is a role for dissemination of information during a pest outbreak (usually at the beginning of a major outbreak affecting a large number of farmers) in development work, communication is a lot more than just information dissemination; it is about two-way communication, dialogue, inclusiveness, knowledge sharing and the active participation of all concerned individuals. Its aim is to promote positive change and ownership.

In an outbreak situation, the main development communication functions are to understand the information and communication needs of affected farmers and provide, through multiple communication channels, timely and relevant information. During this process it is imperative to work with communities, solicit their feedback on response actions and build a dialogue with them that will enhance transparency and accountability. This is also in line with the objectives of the Africa 2063 Agenda, Aspirations 1 and 3, which call for the active participation of citizens in social, economic and political development, particularly with respect to the transformation of African agriculture into a modern and productive sector.

Development communication has a crucial role to play throughout the life-cycle of a pest outbreak, from monitoring and preparedness through to coordination of internal agencies, immediate response, regulation and long-term management and outreach. Development communication activities fit within wider response strategies such as the *Plantplan Emergency Plant Pest Response Plan 2018*.

Development communication principles and approaches offer the tools for engaging with communities and other multi-level audiences to encourage their participation. The underlying assumption is that, to be effective, communication is not only about exchanging information but is also two-way process of sharing ideas and knowledge for building trust and encouraging participation and inclusiveness in decision-making processes.

Participation in communication is often overlooked and it is not always understood in the same way. Pretty (1994) identifies 7 different types of participation in development programmes and projects[4]:

Participation Levels (adapted from Pretty, 1994)

Typology	Characteristics of each type
Passive participation	People participate by being told what is going to happen or has already happened. It is a unilateral announcement by an administration or project management without any listening to people's responses.
Participation in information giving	People participate by answering questions posed by researchers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings.
Participation by consultation	People participate by being consulted, and external agents listen to views. These external agents define both problems and solutions and may modify these in the light of people's responses. There is no shared decision making, and professionals are under no obligation to take on board people's views.
Participation for material incentive	People participate by providing resources, such as labour, in return for food, cash or other material incentives. Much on-farm research falls into this category, as farmers provide the fields but are not involved in the experimentation or the process of learning.
Functional participation	People participate by forming groups to meet predetermined objectives related to the project, which can involve the development or promotion of externally initiated social organization. Such involvement does not tend to be at the early stages of project cycles or planning, but after major decisions have been made.
Interactive participation	People participate in joint analysis, which leads to action plans and the formation of new local institutions or the strengthening of existing ones. It tends to involve interdisciplinary methodologies that seek multiple perspectives and make use of systemic and structured learning processes. These groups take control over local decisions, and so people have a stake in maintaining structures or practices.
Self-mobilization	People participate by taking initiative independent of external institutions to change systems. They develop contacts with external institutions for resources and the technical advice they need, but retain control over how resources are used.

Policy makers and planners should be mindful of the above levels of participation as these will have a significant bearing on the success of the outbreak management plan being rolled out. Sustained stakeholder engagement and commitment are key to sound communication planning and to reducing the impact of the outbreak during its initial stages and in the long term.

4 Pretty J, 1994.

Key takeaways

- Understanding people's perceptions and interpretation of messages is crucial in communicating effectively with diverse audiences during pest outbreaks.
- Communication and information are two different concepts, but are interrelated. In development work, communication is recognized as a driver of change and an essential component of development policies.
- Development communication approaches play a crucial role throughout the life-cycle of a pest outbreak, from monitoring and preparedness through to coordination of internal agencies, immediate response, regulation and long-term management and outreach.
- Development communication supports consensus building, ownership and collaborative action.
- Stakeholders' engagement and commitment are crucial at the onset of the outbreak and in the long-term containment of the plant pest.
- Development communication principles applied to outbreak communication include: dialogue, consensus, participation and ownership.

Key facts in outbreak communication

- Stakeholder mapping is critical to pest control, before, during and after an outbreak.
- A deep understanding of the cultural context in which an outbreak occurs is critical to successful pest control strategies for effectively communicating and engaging with stakeholders and policy makers.
- Information addressed to farmers, advisory services, national and local leaders, media and agro input dealers, must be relevant, appropriate, timely and tailored to their specific needs.
- The inability of scientists to adequately communicate basic facts about plant pests and diseases has often resulted in media criticism, distortion of information, public resentment and a general lack of trust in science.
- During emergencies, pandemics and outbreaks, media often tap non-referenced sources to generate content that, once disseminated, becomes a credible news item.
- There is very little research or training on how to best communicate science-based information to stakeholders and decision makers. Scientists often do not know how the people impacted will respond to epidemics or the wider implications beyond loss of yield or environmental disruption.
- Communication during outbreaks is most effective when messages are disseminated over different media.
- Pest damage assessment must be clearly interpreted and communicated: FAW has been said to account for 40% of crop losses in some parts, but some of these losses are also due to poor harvest management and different cropping systems.
- There is a need to build the capacity of the media in covering, packaging and disseminating information on pests in general and pest outbreaks in particular.

1.2. Guiding principles of outbreak communication

Planning for communication interventions entails the formulation of a communication strategy to ensure that all communication activities are harmonized, relevant and mutually agreed upon by all stakeholders. Planning must be carried out by communication specialists who not only have a thorough understanding of the communication elements and factors mentioned above, but are also skilled at analysing complex communication issues and strategically applying all available means to resolving them. In outbreak control, communication skills are just as important as the work of extension agents, researchers and plant protection experts.

The following key principles uphold a communication strategy development process and are also reflected in all the communication activities, materials and messages:

Timeliness

During pest outbreaks, farmers, agricultural supply chain providers and traders, as well as the general public, rely heavily on rapid and consistent information that will enable them to adequately respond to the pest outbreak. The climate of uncertainty that distinguishes pest outbreaks generates confusion, disorientation and misunderstandings among farmers and the services that support them. Farmers will search for immediate answers to their problems and are willing to experiment with whatever "hasty" means are available to them in order to find quick solutions. These events not only elicit stress and anxiety if not properly and promptly addressed but can also cause significant social disruption and loss of trust and confidence in government's responses.

Communicating with farmers and the public on a regular basis not only ensures a smooth coordination of response efforts but also helps in reducing distress, encouraging public support and increasing the perceived effectiveness of containment measures.

Too often, communication planning is done when an outbreak has already started and in the rush for setting up a communication activity, hasty solutions are put in place. Outbreaks are not linear events so the communication plan will have to be adapted to the changing scenarios as and when appropriate. Therefore, it is better to modify an existing plan rather than develop a new one that will have to be changed shortly after.

Communication activities must be launched immediately in order to provide farmers, local governments and relevant stakeholders with information specific to their interests and needs, which will enable them to take quick decisions and coordinate response actions accordingly.

Timely and strategic communication is a fundamental ingredient in the successful management of a pest outbreak, and as such must be integrated into the response plan from the outset. It cannot be improvised, overlooked or regarded as an add-on feature that is only contingent upon the availability of funds or staff.

Participation

As already emphasized several times in this Framework, participation is an essential feature of development communication and a key success factor in pest management. At the same time, only genuine communication can facilitate effective participation, especially in its most advanced forms"[5].

Participation of all concerned parties is required during all phases of outbreak communication planning and implementation. Stakeholders, particularly farmers, must be included from the beginning, not only to report infestations or provide data and information but also to express their ideas and concerns. This will encourage them to take the lead in the communication process and develop a sense of responsibility for the outcomes of the control methods adopted. Several participatory tools and techniques are available to facilitate people's engagement, build trust and achieve consensus.

Inclusiveness

Participation cannot be fully achieved unless all concerned individuals are given the opportunity to do so. Being part of an outbreak planning process does not guarantee "active participation". In addition to basic considerations such as language, geographic location, literacy levels etc., communication planners should be sensitive to community roles and gender differences, to issues related to marginalized groups, access to media and other communication tools. Above all, people affected by a pest outbreak should be encouraged to express their views even though we may think they do not have a contribution to make.

5 Mefalopulos, 2008.

Goal orientation

Theoretical assumptions in communication need to be verified in practical experiences in order for people to appreciate their value. Development communication approaches in outbreak situations should explicitly spell out the goals they intend to attain along with the required tools and methodology. Stakeholders should also be provided with a range of operational options so that they can choose what they consider to be the most relevant.

Trust and credibility

Informing stakeholders and involving them early in the management of the pest outbreak as well as being transparent and open in communicating facts can help in building trust and credibility. This also enhances public acceptance of government's leadership in the outbreak management efforts. As described earlier in this Framework, people's opinions are influenced mostly by personal experiences, as well as values and attitudes, rather than official communications and data. Therefore, understanding these factors and communicating through trustworthy sources of information are critical in a pest outbreak response. Failing to consider them can result in weak or inefficient communication outcomes.

Experience has also shown that communicating clearly and honestly about successes and failures of an outbreak management effort reduces public anxiety, minimizes rumours and increases confidence in government's actions.

Dialogue

Two-way communication is at the heart of any process that fosters participation and inclusiveness. Only through constant dialogue among "communication equals", as Freire (1970) suggests, will stakeholders be better informed, clarify misunderstandings and be able to voice their opinions freely and openly[6]. In a communication context typical of a pest outbreak, dialogue among farmers, extension workers, scientists and policy makers is the necessary ingredient in building trust, sharing knowledge and ensuring mutual understanding.[7] Communication experts and journalists should be part of this.

Accuracy

Policy makers and response team managers need to make timely and informed decisions during outbreaks. The constant flow of information requests and reports they receive from farmers, traders, advisory services, government units and media during these events must be assessed, interpreted, evaluated and prioritized. At the same time, critical information must be packaged and disseminated to various audiences in appropriate formats and through the appropriate channels.

Well planned communication can positively influence decision-making processes and reduce the information overload, the circulation of conflicting messages and duplication of efforts. Having clear channels of communication and well defined roles and responsibilities will help with the management of information gathering and distribution while fostering at the same time mutual understanding and healthy relationships with partners and stakeholders.

During an outbreak, policy makers need accurate and timely evidence to evaluate complex issues and propose the most suitable solutions to control the outbreak, provide technical support to farmers and secure the necessary funding. Communication is essential for policy makers to:

- establish a dialogue with researchers, nationally and globally, in order to access the most reliable and up-to-date research on the pest;
- define, through participatory communication processes, policy-relevant issues with the involvement of all concerned individuals; and
- improve coordination and collaboration among relevant stakeholders in the development and implementation of activities.

6 Freire's model underlines a fundamental shift in the farmer-extensionist relationship where the interaction is among "equal" development partners and not among expert and farmer, or communicator and audience.

7 Mefalopulos, 2008.

Relevance

The information exchanged or disseminated must be specifically tailored for the intended audiences. Too often, critical messages in emergencies and outbreaks fail their purpose because they were either communicated in an inappropriate format (i.e. written material to illiterate people) or through an inaccessible channel (radio, TV or Internet out of coverage), or, even worse, the message content did not reflect what audiences needed. For instance, if inputs are recommended, are they available where farmers are located? Are they affordable for them to use?

Ensuring the relevance of the content being exchanged entails the preparation of an information and communication needs assessment to identify what information is needed and what gaps there are that prevent the communication process from occurring.

Needs assessments not only provide useful data and information, but also contribute to people's participation and engagement, provided, of course, that their inputs are considered in the ensuing communication activities.

Key takeaways

- Effective communication practices must consider the characteristics of the audiences, their perceptions, information and knowledge needs.
- In pest outbreak management, communication skills are just as important as the work of extension agents, researchers and plant protection experts.
- A communication strategy ensures that all communication activities are harmonized, relevant and mutually agreed upon by all stakeholders.
- Well planned communication can positively influence decision-making processes and reduce the information overload, the circulation of conflicting messages and duplication of efforts.
- Keeping farmers and the public informed on a regular basis not only ensures a smooth coordination of response efforts but also helps in reducing distress, encouraging public support and increasing the perceived effectiveness of containment measures.
- Development communication principles and approaches can foster community engagement, promote two-way knowledge and information sharing as well as help in building trust and encouraging participation in decision-making processes.

2. Planning for Pest Outbreak Communications

Communication is an essential component of pest outbreak management, and as such should be properly planned before an outbreak occurs. At the onset of an outbreak, control methods may not be readily available, technical support could take time to organize and budget allocations may not be sufficient.

To support response efforts effectively and address the expectations of the communities, communication planning should be well coordinated, timely and strategic. Planning should be undertaken by communication specialists in collaboration with a multi-disciplinary team consisting of representatives of all the technical and operational units responsible for the outbreak response.

Successful communication planning depends largely on well designed methodologies that combine various tools and techniques to put across the right messages in a clear, unambiguous way, while at the same time engaging audiences in continuous learning and participation.

Planning the communication component for an outbreak entails five distinct phases: **information and communication needs assessment, communication strategy formulation, implementation, evaluation and revision**. When the whole process is supported by development communication principles, the resulting plan stands a better chance of being more focused, relevant, effective and sustainable. The methodologies and tools employed will also help, throughout its implementation, in building trust and a wider consensus among stakeholders.

2.1. Information and communication needs assessment

A key feature of a development communication approach is the relevance of each activity, message and channel to the specific needs of the intended audience in outbreak response. Understanding the information and communication needs of all stakeholders will help in the selection of the most appropriate tools and resources necessary to design, implement and evaluate a communication strategy. In addition, when designing the strategy, it will be fundamental to define its specific communication focus, since each communication approach differs, according to the field of application and the purpose it serves.

Ideally, the assessment below should be conducted prior to sharing messages about a pest outbreak with farmers, but given the fact that timeliness of information is crucial, as mentioned previously, this may not always be possible. Nevertheless, it is still useful to use this list as a checklist for consideration even when planning a mass communication activity.

It is recommended that the needs assessment be preceded by a desk review of existing baseline studies, reports and surveys carried out in the past as well as other communication frameworks previously developed for the species or similar invasive species.

The communication needs assessment, which should be developed with the full involvement of the farmers, extension services and researchers, will investigate communication and information needs and habits through the use of participatory qualitative and quantitative methodologies and collect data about the following:

- context (physical, economic, political, administrative, demographic, social, cultural);
- characteristics of communities: sociocultural and gender specificities (status, roles, beliefs, attitudes) and communication habits, including traditional and modern media consumption (highlighting opportunities and constraints), distinguishing the needs of the different population groups (men, women, youth);
- institutions/entities and available resources in the communication sector: existing mass media (coverage, access, cost, programmes, efficiency); other media (group, traditional, new media); other channels (community centres, religious gatherings, fairs, etc.), communication networks and languages;
- other communication opportunities and constraints;
- existing ICT infrastructures and latest developments in the sector; assessment of Internet and mobile phone applications;
- review of development communication initiatives conducted by other development partners in the same field and area of intervention (state, private, other), and potential collaborative partnerships;
- mapping of existing internal and external communication flow.

In conducting the assessment, it is also important to understand what the audiences already know about the FAW outbreak (knowledge), what their opinions are (attitudes), how they view response efforts and what they are doing about it (practices).

2.2. Communication strategy development

The communication strategy should be developed based on the results of the needs assessment. It clearly identifies the specific objectives to be met in order to achieve the overall goal of the communication component in outbreak response. It also provides a reference document against which communication activities can be measured and evaluated.

The strategy is a systematic process of implementing communication activities through a well-thought-out methodology, using a variety of tools and channels specifically suited to the intended audiences. Each activity should identify the message to be delivered, the materials to be produced and the results to be achieved.

To validate the effectiveness of the strategy, it is recommended that the materials be produced in a draft form and tested with small groups of people who are representative of the intended audiences so that adjustments can eventually be made before they are released to the wider audience. Field agents should also be trained on how to use the materials and complement them with good interpersonal communication.

The communication strategy document consists of the following elements:

- goals, objectives and aims of the strategy;
- target audiences (primary, secondary and tertiary);
- messages to be developed and disseminated;
- information and communication channels, tools and materials;
- implementation methodology;
- monitoring, evaluation and learning;
- operational plan (activities, scheduling and sequencing, responsibilities, beneficiaries, costs);
- capitalization of experiences and lessons learned.

A development communication approach in the formulation of the strategy will ensure the active participation of all stakeholders, so that they can contribute their ideas and opinions and take ownership of the process.

The strategy will provide guidance and ensure that everyone is working towards a well defined common goal. It will set realistic timelines, identify resources and assign responsibilities.

2.2.1. Goals, objectives and aims

The goals, objectives and aims of the pest management communication strategy should be clear and SMART Specific, Measurable, Achievable, Realistic and Time-bound.

The **overall programmatic goal** should clearly state how the communication plan will contribute to the national strategy of the government to manage and mitigate the effects and impact of the pest outbreak through effective and evidence-based public awareness-raising.

The **aims and objectives** spell out exactly what we want to achieve in communicating with our audiences through specific and well defined activities. The change we wish to bring about is primarily in **knowledge, attitudes and practices**.

The objectives should clearly state how the communication and awareness-raising interventions will be coordinated and implemented by the responsible government ministries, research and academic institutions, local and international NGOs, Development Partners, media, private sector and the farmers themselves. They should also guide the various stakeholders on how to develop and use evidence-based messages, communication materials and outreach tools/platforms that can reach different audiences based on their respective roles in pest management or in mitigating the socio-economic effects of the outbreak.

The objectives must be linked to the information and communication needs of the audiences previously identified during the assessment phase. Well formulated objectives can be easily converted into specific, clear activities that can be monitored and evaluated. Vague or ambiguous objectives increase the likelihood of implementing irrelevant and ineffective activities.

2.2.2. Key audiences

The communication strategy should clearly identify and state the target audience for the government's strategy to address the pest outbreak. A Target Audience Analysis should be carried out in collaboration with the relevant departments in the Ministry of Agriculture, particularly those that are responsible for extension services. Specific and relevant messages should be developed for each of the target audiences listed below.

Primary audience

Farmers are the primary audience for communication and information on managing and mitigating the impact of the pest outbreak. The Target Audience Analysis should consider the socio-economic and cultural heterogeneity of the farmers as well as their varying levels of exposure to the pest and their susceptibility to the impact of its damage.

This can be established through Knowledge, Attitude and Perception surveys or any such survey data the Ministry of Agriculture has about its farmers. This will then inform the messages, channels and platforms that can be used to reach the farmers.

Secondary audience

Audience analysis of the people and institutions with direct influence over the farmers. This includes influential and respected individuals who are opinion leaders within farmers' communities, as well as individuals who have higher literacy levels and are able to comprehend some of the technical messages that have to be communicated. Examples include:

- traditional leaders – chiefs, village heads, lineage leaders, spirit mediums;
- religious leaders – Imams and pastors, sect leaders, community evangelists and koranic teachers, leaders of local faith-based organizations;
- political leaders – local party leaders, elected officials such as councillors and Members of Parliament;
- cultural groups – drama clubs, dance clubs, arts groups, cultural leaders, community-based artists;
- community-based organizations – local groups working various issues that might be agriculture-related, but the groups are connected to the community; for example, savings clubs, youth clubs, health clubs, special interest groups/societies etc.;
- local agro-dealers;
- farmers' groups;
- community media – community radio stations, community newspapers, citizen journalists etc.

Tertiary audience – key influencers

Key influencers are those actors who have influence over decision-making processes at local and national level during the management of the pest outbreak. These are individuals with the ability to influence important decisions that can be made regarding the management of the pest outbreak. Examples include:

- Ministry of Agriculture – the following should be champions of the communication strategy: Permanent Secretary, Principal/Chief Director, Plant Protection Department/Directorate, Department responsible for agricultural information, National Plant Protection Organization (NPPO), Extension Services;
- local government – i.e. heads of government departments, district councils, village and ward development committees etc.;
- media – i.e. national media organizations (broadcast and print);
- private sector actors involved in Agriculture – e.g. agro-dealers, manufacturers etc.;
- Office of the President/Prime Minister;
- Parliament – Chairman, Parliamentary Select Committee on Agriculture;
- African Union and regional bodies, e.g. The East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Economic Community of West African States (ECOWAS), and Southern African Development Community (SADC);
- research and academic institutions;
- international organizations, e.g. CABI, FAO, CIMMYT, IITA, etc.

2.2.3. Message development

The communication strategy will provide guidance to government ministries, research and academic institutions, development partners, local and international NGOs, media, private sector and farmers on how they can collaboratively develop appropriate evidence-based messages. Proper messaging is vital to complementing the government's overall efforts to effectively manage and mitigate the effects of the pest outbreak in a timely way.

Effective messages should be developed and disseminated based on **Communication Principles in Pest Outbreaks inspired by Development Communication Approaches**:

1. **Voice and representation of farmers in message development.** Messages should be produced in collaboration with farmers, integrating their ideas, needs and indigenous knowledge. Establishing dialogical/two-way communication processes allows farmers to express their concerns and recommendations on the proposed pest management practices. This will ensure that the messages are appropriate and relevant to the targeted communities.
2. **Transparent linkages between research institutions and extension service providers.** Results from ongoing research processes, such as pesticide efficacy trials and landscape and cultural management options, should be readily available to extension service providers in formats that are easily accessible to non-technical audiences. This will enable extension agents to disseminate technical information to farmers who are at the frontline of managing the pest outbreak.
3. **Development of appropriate, accessible and user-friendly content.** In order to be effective, technical information must be translated and adapted into local languages, using expressions and idioms that farmer communities can relate to. Scientific information about pests is complex and difficult to communicate to the general public and particularly to rural audiences, not only for the concepts it presents but also often for the lack of an equivalent terminology in the local language. Therefore, communicating technical information to farmers and extension services isn't just about translating it but is largely about adapting it in ways that the content is simplified while the information is still technically valid. Messages should be clear about the "implicit information" that is taken for granted by the communicator/scientist but may not be known to the farmer. For example, instructions on the use of certain control methods should not only focus on its application and the effects on the plant; they should also include other types of "complementary" information such as the best period to apply, the use of protective gear, tools, where to get advice, etc.
   Appropriate pictures and illustrations should be employed, relatable and tailored to the specific socio-economic structure of the target farmers' communities, including geographic location, culture, social norms and use of symbols and signs. Cartooning can also be used for message development.
4. **Quality control of messages and communication materials.** The communication task force should develop guidelines/protocols on appropriate messaging and communication formats on the biology of the pest, scouting practices for early detection, signs and symptoms of the pest, and the damage caused.
5. **Mainstreaming messages on responsible use of chemicals.** Prioritizing messages that build farmers' capacity and willingness to make safe-spray or no-spray decisions based on the Pest Action Thresholds, i.e. percentages of plants with typical pest damage/injury symptoms. The messages should encourage farmers to combine the responsible use of pesticides with other methods, including crop rotation or inter-cropping, selection of the pest-resistant crop varieties, and encouraging beneficial predator species such as ladybirds and beetles to control insect pests.
6. **Managing rumours and misinformation.** Proactively preventing and fighting rumours by using a "rumour bank" to track and detect rumours, myths, misinformation and misconceptions. Announcing projected or actual risk and damage assessment results early can reduce the spreading of rumours, myths, misconceptions and misinformation. Provide accurate and verified information on incidence and abundance of pest, and resultant damage to crops.

An approach that has been used effectively in the response to the fall armyworm outbreak has been the development of "technical briefs" which are developed collaboratively by bringing stakeholders together to debate knowledge available on pest identification, monitoring and management, and factor in the latest research outcomes, taking account of licensing and availability of inputs and farmer insights on management approaches. These briefs are then validated and formalized by the Ministry of Agriculture for use by all partners. This approach supports linkages and communication between stakeholders in countries and helps bring consistency to messages that are shared.

2.2.4. Tools, channels and materials

The communication strategy should employ a multimedia, multi-channel approach that will allow for information to reach farmers across the country, informed by their diverse various socio-economic statuses. Development communication practice calls for the use of appropriate channels, each one with its own specific features, to address the characteristics and habits of the intended audiences. Range, transmission method or device (radio, TV, mobile phones, print, Internet, face-to-face), interactivity and cost are just some of the considerations that the strategy must carefully consider when choosing the channel.

Different channels have different strengths and weaknesses and what works for one type of audience may not be suitable for another. The wrong choice of channel can often determine the failure of the communication, thus causing unnecessary delays in outbreak control and extended social and economic distress.

The quality of the communication (i.e. the shared understanding of the information being exchanged) over a specific channel depends also on the established lines of communication between sender and receiver. Reaching out to farmers, advisory services, research, farmers' organizations, and other relevant public/private stakeholders will be much faster and more efficient if the communication flow from one sender to a receiver is already established in advance, for instance as part of an outbreak preparedness programme. Agricultural radio programmes or thematic channels already have a guaranteed niche audience that they communicate to on a regular basis. Likewise, public or private advisory services can easily and rapidly reach their clients through their existing networks, either social or electronic.

Basic types of communication channels for properly communicating pest-related information and collecting feedback from audiences include, but are not limited to: field-based channels, School sensitization programs, public media and digital technologies.

Depending on local audience habits and characteristics, other channels could be: billboards, places of worship, cinemas, town criers or markets.

The type of content being shared also influences the choice of channels. For example, SMS messages are good at getting across bite-sized pieces of information such as an alert to look for a pest, but not as well suited to explaining the application procedure for a new biopesticide.

Field-based channels. These are essentially managed by organizations and public/private entities working at field level. They are most effective with small audiences since they entail direct, face-to-face interactions with people. The quality of the communication is very high since they allow audience feedback in terms of questions and comments, stimulate discussions and enable active participation. They include field visits, demonstrations, presentations, workshops, trainings etc. Key information and messages can be communicated through extension service providers, local and international NGOs with field presence, local farmers' groups, agro-dealers and other local service centres.

The downside of these channels is that they are costly with respect to the number of people reached and require skilled staff.

Basic school sensitization programmes. Working with schools is investing in the future. Children act as catalysts within their families and communities by disseminating information on the identification, early detection and management of pest outbreaks. Messages and contents for schools should be entertaining and properly packaged for the different educational levels. Programmes should be integrated within the regular study curriculum of science and environment courses. Content must also be adapted and could include practical in-classroom or external experiments, school trips to research facilities and lectures by visiting experts.

Mass media. Most suitable for reaching large audiences. They include:

- print media – national, regional and community newspapers, magazines, newsletters, posters, leaflets, booklets and flyers;
- broadcast media – which can produce announcements and interactive programmes on FM radio and TV.

Group discussions or peer education. After farmers have received training on the pest identification and control strategy, they need to come together once in a while and discuss the pest and the knowledge acquired, as a refresher. This form of communication has been proved to be very effective when the community leaders are knowledgeable enough.

Digital communication technologies. These are quite flexible in terms of message delivery, they are relatively inexpensive, allow interactivity and can distribute messages to vast audiences rapidly and efficiently. They include Internet, email, chats, social networking media and mobile phones. The use of digital communication technologies brings together farmers, field agents and experts so that there is effective and timely flow of information, knowledge and expertise among them.

The integration and application of demand-driven digital approaches can enable smallholder farmers or those who work with them to recognize and take effective action against the pest.

Offline mobile communication technologies and applications can be used by farmers in areas with poor Internet connectivity. Such technologies are cheaper since they do not require farmers to purchase data to access information.

Communication technologies can be used by extension service providers to identify the presence of the pest and provide actionable information to farmers in a timely manner.

2.3. Implementation

In a good communication strategy, nothing is left to chance or improvisation. All elements come together in a coordinated and systematic fashion so that activities are fully implemented according to plan and responsibilities clearly defined. It is important to note that it is not the single activity that will produce a meaningful change but the combined outputs of a set of complementary activities "strategically" and sequentially carried out. For instance, during a pest outbreak the communication strategy will inform stakeholders about the risks associated with the pest while at the same time strengthen the capacities of extension agents, raise awareness of the general public and improve networking skills of management teams.

The methodology provides a set of instructions on how to use the different communication tools to achieve the set objectives. It includes a detailed plan defining all the activities, timeline, responsibilities of stakeholders and related budget. It should be flexible enough to account for unexpected events or take advantage of positive factors that may come up during the implementation.

Case Study

Inclusive message development for FAW management in Zambia

Catherine Mloza Banda, Development Communications Specialist, CABI

Introduction

FAW in Zambia was first reported in 2016 ravaging more than 172,000 ha across the ten provinces in the country. In order to lessen the impacts of FAW on food and income security in the 2018/19 growing season, CABI partnered with the Ministry of Agriculture in Zambia to implement a large-scale communication campaign through the Action on Invasives programme.

In order to ensure that the message development process was inclusive and evidence-based, CABI commissioned a number of studies to understand the impacts of FAW at smallholder level, as well as to understand the communication dynamics within communities, and the prevalent knowledge, attitudes and practices related to FAW management.

From these, it was noted that while farmers were able to correctly identify FAW in their fields, the main problem was in successfully managing it. Also, farmers reported mostly using pesticides to control FAW as they felt it was the most effective management method. In spite of this, they did not fully follow recommended safe chemical use guidelines. Furthermore, their low income levels affected their ability to purchase enough chemicals for their entire fields. Some of them have reported to have tried other cultural methods such as early planting, application of ash, boom, neem or sand, and handpicking. However, the efficacy of these methods was still quite questionable and varied from farmer to farmer. The smallholder farmers had requested information relating to sustainable FAW management, as well as safe pesticide use. Their preferred channels of information were extension workers, radio and mobile phones.

In order to guide the design of accurate messages, different stakeholders (research, extension, civil society, private sector, farmer groups, academia) working on FAW came together to design a technical brief that would guide message development. The brief was a simple and short document that provided concise information about how farmers can control FAW in their fields throughout different stages of crop growth. It also included a variety of control methods, as well as a section of safe chemical application and disposal. This technical brief was validated and approved by the Department of Crops under the Ministry of Agriculture.

Beyond that, CABI used the technical brief to work with the extension and communication services, as well as local radio stations to develop messages on FAW in different Zambian languages. These messages were broadcast throughout the growing season. Before these messages were broadcast, they were vetted by an appointed task force comprising researchers within the Zambia Agriculture Research Institute (ZARI), farmer representatives and other crop and extension specialists within the Ministry of Agriculture.

This systematic and inclusive method of involving partners to design the campaign assisted in obtaining stakeholder buy-in to support the campaign. It also helped to provide accurate and verified information on the management of FAW in the 2018/19 season.

2.4. Monitoring, evaluation and learning

The communication strategy should be complemented by a Monitoring, Evaluation and Learning (MEL) Framework. Evaluation starts from the beginning: given the dynamic nature of an outbreak, activities need to be constantly assessed and refocused if necessary. Reviewing the strategy frequently will help in understanding whether activities are successful and on track or need to be changed. Therefore, planning for the communication activities should be done in conjunction with the identification of the variables to be monitored.

The CABI Monitoring and Evaluation Strategy[8] is one of a number of useful guides available on how to "measure and optimize the results of interventions, ensure relevance and efficiency in the implementation and to learn what works, what doesn't". IFAD (2002) has a *Guide for Project M&E* as another example. M&E strategies such as these can be used by communication professionals to help answer the following questions:

1. **Are we doing what we said we would do? [internal validity]**
2. **Are we making any difference? [outcome/impact evaluation]**
3. **Are these the right things to do? [strategic relevance, testing the model]**

Developing an MEL plan with clear tasks, targets, indicators for the communications outputs, outcomes and impact can be used to track progress made towards attaining the goals, aims and objectives of the Communication Strategy for Pest Management.

The plan should also provide periodic and clearly benchmarked communication strategy review processes, e.g. quarterly, half-yearly or annual review sessions.

2.5. Education, training and capacity development

Capacity building should be prioritized for extension staff, agro-dealers, farmers groups and the media to promote accurate, balanced, clear and well targeted messages. Capacity building resources should be evenly distributed between central government and local government so that communication strategies are developed and implemented efficiently at a local level.

Outbreak communication training should involve senior managers as well. One common complaint that usually comes up in post-outbreak discussions is that senior managers with no communication training are often required to make decisions about communication planning and budgeting.

2.6. Community mobilization and farmer education platforms

Often small-scale farmers do not have access to the technical support services they need to improve their knowledge and skills required to effectively manage a pest infestation. Traditional extension methods of the past, based essentially on top-down transfer of knowledge, have failed and have been replaced by more farmer-led innovation systems, in which farmers play an active role in the management and sustainability of ecological processes.

Agricultural advisory services are now provided by multiple actors including the farmers themselves who participate in the innovation process through "educational platforms". These focus on the empowerment of farmers through field-based experiential learning processes.[9]

The platforms include:

- farmer field schools;
- field days and agricultural shows;
- plant health rallies;
- mobile plant clinics; and
- creating platforms for farmer testimonies (farmer-to-farmer training).

8 https://platform.cabi.org/Uploads/CABI/about-us/CABI_MandE_Strategy.pdf
9 FAO. 2016 Farmer Field School Guidance Document. FAO, Rome

Key takeaways

- Communication activities must be immediately launched when a pest outbreak occurs. Farmers, local governments and relevant stakeholders are in urgent need of information that will enable them to take quick decisions and coordinate response actions accordingly, which means the strategy must have been developed beforehand waiting for adaptation in specific cases of outbreak.
- The development of the communication plan should be undertaken by communication specialists in collaboration with a multi-disciplinary team consisting of representatives of all the technical and operational units responsible for the outbreak response.
- Planning the communication component for a pest outbreak entails five distinct phases: information and communication needs assessment, communication strategy formulation, implementation, evaluation and update.
- The communication strategy is a systematic process to implement communication activities through a well-thought-out methodology, using a variety of tools and channels specifically suited for the intended audiences.
- A communication strategy based on development communication approach will ensure the active participation of all stakeholders in sharing ideas and opinions and taking ownership of the process.
- The goals, objectives and aims of the pest management communication strategy should be clear and SMART (Specific, Measurable, Achievable, Realistic and Time-bound).
- The target audience consists of three main groups: Primary (farmers); Secondary (people and institutions with direct influence over farmers); Tertiary – key influencers (individuals who influence decision-making processes).

3. Internal Communication Framework

The communication strategy document should also clearly spell out the internal communication framework that will be used by all members and stakeholders of the National Pest Management Task Force.

The internal communication framework should facilitate information sharing across various government departments and levels of government. It should facilitate inter-agency information sharing, e.g. it should clearly spell out how information is shared and communicated between research organizations and departments of extension. Hence, the internal communication framework should clearly state the information flows and persons responsible for sharing information as well as persons authorized to give press releases.

The internal framework will also:

- provide a roadmap for communication with all stakeholders to keep them up to date on progress made in the outbreak response and make sure they all work for the same objectives;
- help in aligning (i.e. make the connection) the work of the individual teams to the overall goals;
- keep all stakeholders on track and focused on the priorities identified by the needs assessment and the communication strategy;
- ensure all stakeholders are given proper credit for their contribution;
- build consensus among partners and a sense of collective ownership of outbreak response actions; and
- create a forum for dialogue and exchange on planned activities and for evaluating outcomes.

PART 3

Communication Tools and Templates

1. Communication Strategy Template

1. Introduction

Briefly describe the nature and the context of the pest outbreak, the issues that communication activities will address and the rationale for having such a document. State the overarching communication goal and underline the critical factors that may have an impact on all communication activities as well as the desired change that the strategy is expected to achieve.

2. Communication Needs assessment and analysis

Summary of communication needs assessments, audience and stakeholder analysis, findings of other relevant studies related to the communication activities. This summary will form the foundation of the strategy and will guide all communication efforts. It should include:

- list of documents examined and research methodology (highlight major data collection problems);
- main communication issues in plant pest outbreaks;
- context (physical, economic, political, administrative, demographic, social, cultural);
- audience analysis:
  - sociocultural characteristics and gender specificities (status, roles, beliefs, attitudes);
  - communication habits and media consumption, including traditional and modern media (opportunities and constraints), according to groups (men, women, youth);
  - communication barriers;
  - geographic distribution;
- resources (financial, human capital, content)
- communication environment;
  - existing communication channels, media, ICT infrastructures, Internet access and mobile phones (coverage, access, cost, programmes, efficiency);
  - other media (group, traditional, new media) channels, networks;
  - communication flows among stakeholders;
  - on-going initiatives of other development partners and collaboration opportunities;
  - areas for programmatic improvement (if strategy already exists), opportunities and constraints.

3. Objectives and Activities

Communication objectives indicate the expected change in knowledge, attitudes and behaviours. They should be Specific, Measurable, Achievable, Realistic and Time-bound (SMART). A communication objective is not an activity but the outcome of various activities. Communication objectives should not be confused with the overall impact/outcome of the pest outbreak response programme. Focus only on communication achievements.

Objective 1 (state objective)

- Activity 1.1
- Activity 1.2
- Activity 1.3

Objective 2

- Activity 2.1
- Activity 2.2
- Activity 2.3

4. Partners and Stakeholders

List stakeholders, their role and individual contribution to the implementation of the strategy. Specify at what level they should be involved, what their interests are and how you will communicate with them. Consider partnerships with the media, particularly those which offer public, community or humanitarian communication services.

5. Key Audiences

Define the key audience as accurately as possible according to the typologies identified in the Framework (Primary, Secondary and Tertiary) and consider breaking these down further if relevant to the communication objectives – i.e. group "farmers" into social categories such as sex, age, education, income. Include any other relevant information regarding audience information and communication needs, their values, interests and concerns.

6. Key Messages, Channels and Tools

List the key messages to be developed and disseminated. Messages should always refer to the main goal of the communication strategy and be tailored for the audiences they intend to reach using the most appropriate format – narratives, graphics, data, pictures, slogans etc. Carefully define the most appropriate channel to be used according to the characteristics of the audience. Messages are most effective when disseminated through different channels.

7. Methodology

A detailed statement describing how the strategy will be implemented, how the communication activities will be carried out, how the messages will be disseminated and feedback collected, through which tools/channels, by whom, with what resources and timeline. Specify how activities complement each other and collectively contribute to the planned objectives. Highlight particular, strategic considerations that are critical to the success of the strategy, any essential requirements, obstacles and risks.

8. Action Plan

Summary table with activities, scheduling and sequencing, responsibilities, costs and indicators. Include milestones and review dates. Remember that communications plans need systematic reviewing and updating.

9. Monitoring, Evaluation and Learning

Identify the approaches you will use to monitor and track activities over the lifetime of the strategy. Consider how you will know if you have reached your goal(s) and what the measures of success will be. Document your plans for assessing whether these goals have been reached and for gathering lessons learned. Remember to allocate some of the budget to this part of the plan.

2. Useful Resources

2.1. Communication guidelines for FAW outbreaks

***Workshop Proceedings: Fighting the Fall Armyworm through Strategic Communication and Cross-sectoral Knowledge Management,* August 2018. www.cabi.org/Uploads/projectsdb/documents/62665/Fighting%20The%20Faw%20Through%20Strategic%20Communication%20Workshop%20Proceedings.pdf.**

This workshop report focuses on two main areas: national communication plans on FAW for Zambia, and policy tool development for communication strategies on major pest outbreaks. The report focuses on a recent workshop that analyses key communication practices towards FAW outbreaks, particularly in Zambia.

Toepfer, S. *et al*. Communication, information sharing, and advisory services to raise awareness for fall armyworm detection and area-wide management by farmers. *Journal of Plant Diseases and Protection*, 126, (2) 103–106. doi:10.1007/s41348-018-0202-4.

This opinion paper offers some key insight on how various communication channels affect awareness-raising of FAW outbreaks. It includes a visual depicting how agricultural extensions influence awareness-raising, which can provide feedback on the usefulness and effectiveness of various communication platforms. In addition to this information, it provides a general background on the effects and outbreaks of FAW in various parts of Africa.

2.2. Communication frameworks for invasive species

FAO (2019) IPPC Guide to Pest Risk Communication. Published by FAO on behalf of the Secretariat of the International Plant Protection Convention (IPPC). Licence: CC BY-NC-SA 3.0 IGO. http://www.fao.org/3/ca3997en/ca3997en.pdf

This guide supports NPPOs in identifying and engaging with stakeholders, and in developing pest risk communication strategies to enhance phytosanitary decision making and plant health policy development. The guide first explains what pest risk communication is and why it is important, the key goals and concepts of pest risk communication, and the factors that may influence its success. It then describes the principles of good pest risk communication.

Hart, P. S. and Larson, B., B. "Communicating about invasive species: how "driver" and "passenger" models influence public willingness to take action." *Conservation Letters* 7, (6), 545–552. doi:10.1111/conl.12109.

This article explores how driver and passenger models can play a role in influencing public awareness and action within an invasive species context. The authors suggest how both models can assist in understanding people's awareness and willingness to address actions, which could help influence types of communication materials and strategies for outbreaks of invasive species.

***The Invasive Non-Native Species Media and Communications Plan for Great Britain*. GB Non-Native Species Secretariat, 2017.**

Although this publication is specific to Great Britain, it offers insight on how other countries tackle invasive species and what their communication and policy framework can suggest. The publication is a revision of the 2008 *Invasive Non-native Species Framework Strategy for Great Britain* with a greater emphasis on a Media and Communication Strategy. It analyses the various projects and strategies that were suggested, including feedback from public and key stakeholders on their impact towards better communication of invasive species strategies.

2.3. Guidelines for policy makers managing outbreaks of invasive species

Day, R. *et al.* Fall armyworm: impacts and implications for Africa. *Outlooks on Pest Management*, 28(5), 196–210. doi:10.1564/v28_oct_02.

This article provides insight on successful management practices to prevent any potential FAW outbreaks. Although it is specific to a certain pest, such practices could be easily applied to general invasive species outbreaks. The article proves to be more of a resource for policy makers; however, it does include FAW biology information and communication-related resources.

Wittenberg, R. and Cock, M.J.W. (2003). *Invasive Alien Species: A Toolkit of Best Prevention and Management Practices*. CABI Publishing.

This toolkit was designed at an international workshop in Kuala Lumpur. The toolkit is designed for a wide variety of audiences including the public, policy makers, quarantine services, conservationists, etc. The toolkit provides a broad overview on how alien species can be identified, what management and assessment tools can be used, building strategies with social marketing, and informative case studies. It also provides a user guide for the toolkit to make it more efficient in its use and deployment.

Kim, C.S. *et al.* Prevention or control: optimal government policies for invasive species management. *Agricultural and Resource Economics Review* 35 (1), 29–40. doi:10.1017/s1068280500010030.

This article addresses the importance of outbreak management when resources are limited, and time frames are constricted. It provides a model for optimal allocation of limited resources when outbreaks are sudden and/or uncertain in some cases. This would be a useful outlook for policy makers when managing FAW or invasive outbreaks in regions that may not have as many resources or tools at their disposal.

Plant Health Australia (2018) PLANTPLAN: Australian Emergency Plant Pest Response Plan. Version 3.2.

PLANTPLAN is the agreed technical response plan used to respond to an emergency plant pest incident. It provides nationally consistent guidelines for response procedures under the Emergency Plant Pest Response Deed (EPPRD), outlining the phases of an incursion, as well as the key roles and responsibilities of industry and government during each of these phases.

The South African Emergency Plant Pest Response Plan (also available at https://www.nda.agric.za/doaDev/sideMenu/plantHealth/docs/South%20African%20Emergency%20Plant%20Pest%20Response%20Plan%202013.pdf).

The Department of Agriculture, Forestry and Fisheries provides general guidelines for rapid response and effective control of emergency plant pests in this document.

2.4. Briefs, technical information, videos, step-by-step guides on the FAW

CABI fall armyworm portal containing distribution maps, technical recommendations, extension support materials and more. www.cabi.org/fallarmyworm

Outcomes from the Fall Armyworm E-Conference. *Sustainable Development Solutions Network* 26. October. 2018. unsdsn.org/news/2018/10/26/outcomes-from-the-fall-armyworm-e-conference/

This article provides a summary on the latest FAW E-Conference held by the Sustainable Agriculture and Food Systems. The article includes links to videos and slides used during the conference. Such resources include guidelines on sustainable management of FAW for farmers, FAW control programmes, expert advice, and questions and answers around the subject.

Fall Armyworm Photo Guide – Identification. www.plantwise.org/fallarmyworm, CABI Plantwise. www.plantwise.org/FullTextPDF/2017/20177801116.pdf.

This two-page identification provides farmers with a visual of the fall armyworm biology and reproduction. This visual guide is especially helpful for anyone who is not familiar with the pest and needs to either confirm or provide confirmation to others about the outbreak.

***Fall Armyworm*. Food and Agriculture Organization of the United Nations, 2019. www.fao.org/food-chain-crisis/how-we-work/plant-protection/fall-armyworm/en/.**

This website created by the Food and Agriculture Organization is dedicated solely to information and resources regarding the fall armyworm. The website provides background information, current programmes for the FAW, management and monitoring information, educational pieces and resources. This website can also be used as a resource for policy makers or communication officials as it provides a wide range of resources.

Prasanna, B.M., Huesing, J.E., Eddy, R. and Peschke, V.M. (eds) (2018) *Fall Armyworm in Africa: A Guide for Integrated Pest Management*, CDMX: CIMMYT.

This document provides a detailed report on integrated pest management related to case studies of the fall armyworm in Africa. The report includes monitoring and surveillance of the pest, and various control methods including risk management of either options.

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