ግብርና ሚኒስቴር
MINISTRY OF AGRICULTURE

NEWSLETTER

Rural Economic Development & Food Security
REDFS Sector Working Group

Date: November/2023 Vol 8 Edition: 8

REDFS News and Current Events

1 Contract law has come up as a practice since business civilization in non-commercial societies started------

2 Ethiopia is believed to have the largest livestock population in Africa with a national herd estimated at 70 million cattle, 60 million sheep and goats, and 9 million pack animals----------

3 SWR Ethiopia is an affiliate office with Wageningen University & Research (WUR), in the Netherlands, which is engaged in Ethiopian food system transformation through diverse Research for Food System Transformation (R4FST) projects.---------

Together we can make a difference !

Contents

About the RED&FS

REDFS SWG is an accronomy for the Rural Economic Development and Food Security Sector Working Group. It is primarily Government and Development Partners' coordination platform for the broader agriculture sector coined in the context of the Ethiopian Food System Transformation. The primary objective of the REDFS is to jointly review sector level implementation status and coordinate efforts of various Development Partners supporting the sector

The REDFS platform is govrned by Paris Declaration principles and Busan Commitments. Since its establishment the REDFS has maintained a three-layered structure having an Executive Committee (an oversight body), Technical Committees and Task Forces. The SWG is currently Chaired by H.E. Dr. Girma Amente, Minister for the Ministry of Agriculture and Co-Chaired by two DP representatives, notably Mr. Mawira Chitima from IFAD, and Mr. Erik Slingerland from the Netherlands Embassy.

The RED&FS SWG is assisted by the Secretariat whose main responsibility is to provide overall program support for the different RED&FS's structures with major roles in communication, networking, knowledge management and coordination.

This Newsletter, as part and parcel of the secretariat's responsibility, is prepared through a series of consultations with all providers of information. We hope such information will enable you to know and get insights on the overall flagship programs and projects of MoA and that of DPs' affilated NGOs which will serve as an avenue further interactions and collaboration works.

Notes on the New Proclamation on Contract Farming

Contract law has come up as a practice since business civilization in non-commercial societies started. Most primitive societies have used various ways of enforcing the commitments of individuals; for example, through ties of kinship. Contracts still define our world in many ways, from the governments to the homes we live in. Their value in binding parties to their word encourages accountability and offers an avenue for retribution when the contract is breached. Whether for privacy permissions, sales, business agreements, employment, or equal treatment, contracts continue to shape our history and help define our future.

Considering the need for improvements in quality, efficiency, and competitiveness as well as development of agro-processing backward linkages to the agriculture sector, the Ethiopian Government enacted the law for Contract Farming. This comprehensive legal framework facilitates transfer of technology, knowledge and skills, and market linkage between a producer and a contractor to improve production and productivity. In accordance with Article 55(1) of the Constitution of the Federal Democratic Republic of Ethiopia, it is hereby proclaimed as "Agricultural Production Contract Proclamation No. 1289/2015". It includes eight major and twenty-six sub articles whereby each article comprises all the necessary parts to make the proclamation complete.

Accordingly, all the provisions of this Proclamation shall be applicable to contracts that are formed, signed, and registered in accordance with the provisions of this Proclamation and right of parties to a contract to bargain and create terms of their agreement as their desire shall be respected.

On the formation and content or initiation and negotiation of a contract, the Proclamation includes five articles including; the formation of an Agricultural Production Contract to be initiated through an offer by either a contractor or a producer. The form of an Agricultural Production Contract shall be made in writing using simple and standard language. An Agricultural Production Contract shall as a minimum include 13 major sections where the names and addresses of the Producer and the Contractor are among others.

Part three of the proclamation includes types of agricultural production contract; rights and obligation of parties where for the purposes of this Proclamation, there are two types of Agricultural Production Contracts: that include a) Agricultural production and marketing contractual agreement between a Contractor, in particular a commercial farmer, and a Producer, in an area surrounding a commercial farmer, under which the Contractor is obligated to supply input to the Producer; and b) Agricultural marketing contractual agreement between a Producer and a Contractor, in particular agro industries, exporters, supermarkets, prisons, and hotels, under which the Contractor is obligated to supply input to the Producer only when agreed between the Parties in their Agricultural Production Contract.

On the General Rights and Obligations of the Contractor: the Contractor shall have the rights and obligations to: a) Inspect the Agricultural Produce at delivery with agreed quality, quantity, place and time as agreed in the Contract; b) Ensure the provision of inputs to the Producer as agreed in their Contract; and c) Effect payment to the Producer at time agreed in the Agricultural Production Contract

On the General Rights and Obligations of the Producer, the Producer shall have the rights and obligations to: a) Get input or

payment from the Contractor as agreed in the Agricultural Production Contract; b) Inspect quality and quantity of input provided by the Contractor at delivery and comply with the agreed application of the input; c) Get and apply the technical assistance provided by the Contractor; d) Comply with the agreed specifications and follow and apply the technical advice provided by the Contractor; and to take appropriate measures to enhance quality of the Agricultural Produce and e) Ensure delivery of the Agricultural Produce at agreed place and time with quantity and quality specified in the Agricultural Production Contract.

As price, mode, and term of payment for agricultural produces to be considered as important factor for the parties, price for the Agricultural Produce be clearly stated in the contract taking into account production and other related costs; and also the parties shall clearly specify in their contract either total price or unit price of the Agricultural Produce and without prejudice the parties shall state the basis for price revision in the event where quality of the Agricultural produce goes either below or above from what agreement was originally reached.

In addition, the parties shall clearly specify method and time of payment for the Agricultural Produce, the parties may agree to renegotiate price in the event where the price of the Agricultural Produce subject to the Contract goes above the agreed price at time of delivery taking into account equity and long-term interest of both parties. Particulars shall be determined in a Directive to be issued by the Ministry and the Contractor, after taking delivery of the Agricultural Produce as per the Contract and after deducting price of input if any and any other prior payment to the Producer from the total price of the Agricultural Produce, shall deposit the amount payable to the Producer to the nearest Bank in an account opened in the name of the Producer.

As part of the contract Specification of Quantity of Agricultural Produce: the parties shall clearly specify average quantity and quantity measurement of the Agricultural Produce in their Contract; the parties shall also clearly specify circumstances that might cause quality of the Agricultural Produce to go either above or below from the agreed quantity and effects thereof on the performance of **the** Agricultural Production Contract: Particulars shall be determined in a Directive to be issued by the Ministry and if parties fail to clearly specify quantity and quantity measurement of the Agricultural Produce in the Contract, they may re-negotiate to agree on its quantity and quantity measurement.

On specification of quality: the parties shall clearly specify quality and quality verification mechanisms of Agricultural Produce in their Contract; without prejudice the parties shall clearly specify circumstances that might cause quality of the Agricultural Produce to vary from the agreed quality and effects thereof on the performance of the Agricultural Production Contract. Particulars shall be determined in a Directive to be issued by the Ministry and the parties shall clearly specify packaging and or labelling requirements, if any, including the party that shall bear the cost of packaging and/or labelling.

The proclamation clearly specifies issues related to Input Supply and Payment; Delivery of Agricultural Produce and Transfer of Rights and Obligations between the Producer

Events to constitute

force majeure where such events prevent a Producer to the Agricultural Production Contract from undertaking his obligations; include serious illness, extreme high or low rainfall; extreme low or high temperature; flood; fire accident; landside; earthquake or extreme animal or crop disease or pest outbreaks; and the occurrence of an event that constitutes force majeure is either agreed between the parties or verified by the appropriate authority. Notwithstanding the provisions to the Agricultural Production Contract may specify the events that can be considered as force majeure and the effects thereof.

Insurance parties to Agricultural Production Contract may agree to obtain insurance against force majeure that prevents a party or the parties to the Agricultural Production Contract from undertaking their obligations; where the parties to the Contract agree to obtain insurance, the Agricultural Production Contract shall specify the party liable for payment of the premium and notwithstanding the provisions, the parties to the Contract may agree a third party, including a Government agency or a Non-Governmental organization, pays the insurance premium. The proclamation also clearly specifies duration, renewal or alteration and termination of the specified contract agreement

The proclamation also includes promotion, facilitation and coordination of agricultural production contracts. Here the Powers and Duties of the Ministry are clearly listed. The proclamation also includes miscellaneous provisions like Applicable Law, Inapplicable and also Power to Issue Regulations and Directives. Finally, the date of effectiveness has been set in the proclamation.

Dairy Development in Ethiopia: Challenges and Opportunities

Ethiopia is believed to have the largest livestock population in Africa with a national herd estimated at 70 million cattle, 60 million sheep and goats, and 9 million pack animals.Dairy production is one of the major sustenance factors for the rural economy of Ethiopia, which comprises considerable potential for smallholder income and employment generation. It is believed to contribute significantly to poverty alleviation and food and nutrition security of the country.

According to the Central Statistical Agency (CSA, 2021), there are over 15 million milking cows, 2,988,068, milking camel and 2,852,266 milking goats. Hence cattle contribute the largest share of the total national annual milk output followed by camels and goats, respectively. About 97.4% of the total cattle populations are indigenous breeds and the remaining are crossbreds (2.29%) and pure exotic breeds (0.31%) of Holstein Frisian and Jersey. 83 % of all milk produced in Ethiopia comes from cattle with the remainder coming from goats and camels (MoARD 2007) Sheep's milk is not commonly collected or consumed in Ethiopia.

Ethiopia has high potential for dairy development, huge livestock resources and conducive climatic conditions, but the performance of the dairy industry is not encouraging when evaluated even against the dairy performance of Eastern African countries.

Challenges for dairy development

Dairy-cows are estimated to be around 10 million and milking-cows are about 15 million heads. Ethiopia produces approximately 7.2 billion litres from 10 million milking cows, an average of 1.5 litres per cow per day over a lactation period of 180 days.

The rural dairy system, which includes pastoral, agro-pastoral and mixed crop-livestock system, contributes 98% of total production, while the peri-urban, urban and the commercial dairy farms produce only 2% of the total milk production of the country.

Smallholder farmers represent about 85% of the population and are responsible for 98% of the milk production. Productivity however is relatively low; quality feeds are difficult to obtain and support services are inadequate. There are immediate and growing shortages of dairy products in all major cities of Ethiopia. Dairy production in Ethiopia is constrained by several factors classified as: technical or biological, socio-economic and institutional factors and some major environmental constraints such as low rainfall and high temperature

There are different constraints affecting milk production potential of dairy cattle in most parts of Ethiopia including shortage of grazing land, disease and parasites, shortage of land for cultivation of improved forage, inadequate veterinary service, low milk production potential of local cattle, inadequate Artificial Insemination (AI) service and labour shortage. The average milk production per cow is 1.5 litters per day, well below international benchmarks. Poor genetics, insufficient access to proper animal feed and poor management practices all contribute to the low productivity levels.

In order to alleviate the aforementioned constraints, increasing efficiency of AI services, improvement in veterinary services, introduction of improved forage crops and fodder trees are to be considered important interventions.

The Dairy Value Chain

Ethiopia has a complex dairy value chain, with both formal and informal channels. In the formal marketing system, there are cooperatives and private milk collection and processing plants that receive milk from producers and channel to consumers, caterers, supermarkets and retailers. Informal market involves direct delivery of fresh milk by producers to consumers in the immediate neighbourhood and sale to itinerant traders or individuals in nearby towns. In Ethiopia, dairy products (fresh milk, butter, buttermilk and cottage types of cheese) are distributed through the informal and formal marketing systems. The informal market involves direct delivery of dairy products by producers to consumers in the immediate neighbourhood and sales to itinerant traders or individuals in nearby towns. Therefore, markets involve sales, locations, sellers, buyers and transactions. Milk-marketing group can be defined as a group of smallholder farmers who individually produce at least one litter of saleable milk and are willing to form a group with the objective of collectively processing and marketing milk.

Households consume approximately 85% of the milk produced, 8% of the milk is processed into products with longer shelf life, and 7% is sold. During peak production in the wet seasons, rural farmers, not part of formal cooperatives, face challenges in marketing their milk as most regions experience a surplus. More surplus milk may be processed at the home into local cheese or butter.

The dairy value chain has a variety of entrepreneurial actors – smallholder and commercial producers, small and large processors, service and inputs providers, farmers' organizations and cooperatives. Similarly, dairy producers and downstream actors in the value chains face many challenges in getting milk to market. For the most part, milk collection, chilling and transporters of dairy products are not well organized. Cooperatives have been important in helping smallholders to market their milk and lower their operating costs, providing scale economies. Dairy cooperatives could reduce a farmer's transaction costs up to 45%. However, cooperatives are characterized as having poor records of service delivery. Many cooperatives lack technical, managerial and marketing skills, and are severely undercapitalized in terms of their working capital, investment capital and start-up assets (which are often not properly maintained). Most processors benefit from urban and peri-urban milk supply systems, and in several cases have invested in their own dairy farms to ensure adequate milk supply and quality. However, these processors only operate at 50-60% of capacity.

Opportunities for Dairy Production and Development

There is an existing culture of milk and dairy products production and consumption. Population increment and increasing urbanization favour the consumption of more animal products. The emerging middle-class segment of consumers in urban centres is also receptive to new products, including dairy products.

According to Azage et al. (2006) urban and peri-urban dairy production systems could contribute to overall development through income generation and employment opportunities. Some Studies within the highland of Ethiopia indicated that dairying could generate about 34% of the whole household income of farmers within Holleta area. The dairy sub-sector has economic relevance and potential for employment creation. The sustained growth and the positive economic outlook of Ethiopia are favourable to investments within the dairy sub-sector.

Other opportunities are increasing ever-sustaining demand by the community for milk and milk products and provoking prices for these products. Particular attention be paid to increasing the role of women in dairy development as they play a major role in dairy production and marketing. Environmental conditions are favourable for the dairy sub-sector. There is a substantial cattle population and a relatively high level of improved breeds; The establishment of the Integrated Agro-Industrial Park also will provide market opportunities for dairy producers.

Wageningen University's Engagement in the Ethiopian Food System Transformation

SWR Ethiopia is an affiliate office with Wageningen University & Research (WUR), in The Netherlands, which is engaged in Ethiopian food system transformation through diverse Research for Food System Transformation (R4FST) projects. SWR Ethiopia was registered in Ethiopia as Foreign Organization on March 21, 2021 with the objectives of promoting more resilient, inclusive and sustainable food systems in Ethiopia, to leverage transformation of Ethiopian food systems covering the continuum from food insecure households to better endowed that are food-secure and also commercially oriented household. It implements projects through collaboration and capacitating members of the national agricultural research systems to ensure sustainability of generating innovations that contribute to the transformation of food systems in Ethiopia.

Wageningen University & Research (WUR) has been engaged in research for development in Ethiopia with diverse agricultural projects from 2016 to 2021 as Bilateral Ethio-Netherlands Effort for Food, Income and Trade (BENEFIT) Partnership program with five projects (ISSD, CASCAPE, SBN, REALISE and ENTAG), which was a bilateral agreement between the Ethiopian government and the Embassy of the Kingdom of Netherlands in Addis Ababa.

Strategic objectives of SWR Ethiopia

The strategic objective of SWR Ethiopia as a research for food system transformation organization is to contribute to the demonstration and scaling of evidences of innovations in the areas of improved practices, policies, and institutions that will contribute to the transformation of the food systems. The organization focuses on leverage points in relation to functional seed and agricultural input systems, bridging productivity gaps, enhancing value chain performance, and improving human nutrition for improved food security while minimizing the impact on the environment and ensuring social inclusion.

SWR Ethiopia's approach to achieving its goals is through testing, validation and demonstration of evidences of innovations along with scalable business development and evidence-based interventions. SWR Ethiopia also provides technical assistance and capacity building to partners to ensure that interventions are implemented effectively in a sustainable manner.

SWR Ethiopia recognizes that achieving its goals requires collaboration with a range of stakeholders, including government, non-governmental organizations, private sector actors, and communities. Accordingly, it works closely with these stakeholders to ensure that interventions are tailored to local contexts and are sustainable over the long-term.

Strategic objectives of SWR Ethiopia

The projects hosted by SWR Ethiopia focus on different thematic areas, which ultimately contribute to leveraging food system transformation in Ethiopia. The current project portfolio of SWR Ethiopia includes Resilient Agriculture for Inclusive and Sustainable Ethiopian Food system (RAISE-FS), Ethio-Netherlands Seed Partnership (ENSP), Circularity in Integrated Systems: Resource Recovery for Feed, Fuel and (Organic) Fertilizer Self-sufficiency in Ethiopia (Circularity), and Food Futures Eastern Africa (REFOOTURE II).

1. The RAISE-FS project focuses on building resilient agriculture systems that can withstand the impact of climate change and other external shocks. The project aims to promote inclusive and sustainable agricultural practices, policies and institutional innovations that can improve the livelihoods of small-scale farmers and other value chain actors while also protecting the environment. For more information (About – RAISE-FS)
2. The ENSP project aims to improve the quality and availability of seeds in Ethiopia. The mission of the Ethiopia-Netherlands Seed Partnership is to enable the private sector in Ethiopia to deliver farming men and women high quality seed of improved varieties much needed for food security and nutrition, and climate resilience. For more information (About ENSP – ENSP – Ethiopia-Netherlands Seed Partnership (ensp-seed.org)
3. The REFOOTURE II project aims to contribute to food systems transformation in Ethiopia in addition to two other East African countries (Kenya and Uganda) by fostering regenerative and inclusive food systems (RIFS). Its way of working is evidence based, with pathways developed by collecting, reflecting, learning, and acting upon evidence of RIFS practices that fit best into the East African context. For more information (REFOOTURE - Food Futures Eastern Africa - WUR)
4. The Circularity project targets the development of circularity indicators for integrated systems in Ethiopia focusing on on-farm and regional feed, fuel and (organic fertilizer) self-sufficiency. For more information (Circularity in Integrated Systems in Ethiopia - WUR

Collaboration and alignment

SWR Ethiopia facilitates innovation co-creation through active engagement of implementing partners namely, Ethiopian Institute of Agricultural Research, Regional Agricultural Research Institutes (ARARI, OARI, SARI and TARI), Universities (currently Bahir Dar University, Haramaya University, Hawassa University and Mekelle University) and Private Sector platforms. In the implementation process, SWR Ethiopia considers alignment and collaboration with other development partners for synergy. It is also engaged closely with its scaling partners namely the Ministry of Agriculture (MoA), Ministry of Women and Social Affairs (MoWSA), Ministry of Trade (MoT), Ministry of Industry (MoI) and private agribusiness and seed sector players.

Projects in SWR Ethiopia target smallholder farmers, young, male, female, and/or commercial, rural youth, investors, processors, researchers, development practitioners, and policymakers all benefit from projects, both directly and indirectly.

The Ethiopian Strategic Investment Framework for Sustainable Land Management (ESIF)

Introduction

The Ethiopian Strategic Investment Framework for Sustainable Land Management (ESIF) was adopted in 2010 and served as the GoE/MoA key policy document for Natural Resource Management in the Ethiopian highlands. A key contribution of ESIF was to inform the design of WB-financed flagship programs (SLMP/RLLP/CALM) and to provide orientation for development partners' alignment and harmonization. ESIF was meant to function up to the end of 2023. It was partly reviewed in 2019. It is now time for a comprehensive review and redesign of ESIF within the framework of the GoE's key development and sector policies, the Ten-Year-Plan to the MoA's Strategic Directives and 10 x 10 Programs. The redesign will also be informed by more than 15 years of experience with program implementation in NRM.

Despite the progress in restoring degraded watersheds in the highlands, land degradation continues to be a major challenge to agricultural production and ecosystem functions. While broadly successful, SLM implementation experience of the last 15 years calls for broader impact and enhanced sustainability of SLM interventions at the landscape level. Building on this and in view of new challenges, such as the need to adapt to and mitigate climate change, it has become evident that a broader and at the same time more integrated approach is required that essentially aims at an ecological transition of landscape management. This entails the need for strong coordination and prioritization of local, regional, and national resources and redesigning the investment framework. Therefore, the investment framework has to be updated to ensure the restoration and sustainable use of the ecosystem. In addition, the ESIF-1 is in its final phase/year and hence requires a comprehensive review and updating/redesigning to enhance its strategic framework functions.

With the leadership of the MoA, a quality assurance team (core team) under the NRM Sector has been established comprising of officials from the MoA, WB, Ethiopian Agriculture Research Institute, GIZ-projects, and other relevant institutions and sectorial ministries.

With this context, the MoA in collaboration with key development partners and stakeholders has already started to redesign/upgrade ESIF-1 into ESIF-II for Sustainable Landscapes. Four (4) Technical Task Forces (TTFs) were established from line Ministries, Research Institutes, Universities, NGOs & CSOs and Development Partners (representing various disciplines) to work on different chapters/topics of the ESIF. In addition, three consultants were deployed to facilitate and coordinate the TTFs,

Besides, draft, and final ESIF-II documents upon completion will be presented to the National and Regional SLM-TC platforms and REDFS executive committee members to include their views and get the documents endorsed/ approved.

Objective

The main objective of redesigning ESIF is to provide a comprehensive policy framework for landscape and NR management that guides the broad spectrum of government,

civil society, and development partner stakeholders towards a common set of economic, social, and environmental considerations for public and private investments towards the sustainable management of landscapes and agrarian ecosystems.

The next ESIF (ESIF-II) will deal with the "Ecological Transition of Landscape Management" and thus goes beyond land management (watershed management). The revision of the framework shall give a comprehensive view and take a wider look at the human interaction with nature for introducing a new paradigm for SLM and a new vision for the natural resources – a landscape-based approach on selected basins. It deals with social and economic dynamics that impact nature, especially in the face of climate change. It also considers options for climate mitigation/adaptation.

Specific objectives

- A comprehensive review of the implementation status, efficiency, effectiveness, and impact of the existing ESIF and identification of gaps
- Review and analysis of relevant policy and strategic documents as input for the revision of ESIF
- Map stakeholders and define their roles in landscape management and livelihood development at national, regional, district, and community levels
- Review the institutional arrangements used to implement ESIF and their effectiveness
- Ensure a consultative process with governmental and non-governmental stakeholders on the structure and elements of a revised ESIF
- Design key components that serve for the design of the new ESIF document

Finally, a comprehensive draft ESIF-II document will be ready by November for approval at the appropriate policy level and the final document will be endorsed by the end of December 2023.

Integrated Pest Management-Farmers Field School (IPM-FFS) Experience of Participatory Small-scale Irrigation Devt Program II/PASDIP II

1. Introduction

IPM is an ecosystem-base strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Study results of pesticides only after monitoring indicates that they are needed according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and nontarget organisms, and the environment. Now-a-days, it is considered as an approach to reduce reliance on synthetic chemical pest control. To this end, the Ministry of Agriculture, in its Ten-Year Strategic Plan laid down strategic direction to implement IPM on ten selected crops and pests to minimize the pre- and post-harvest loss by one percent. To align with this Participatory Small Scale Irrigation Development Programme II (PASIDP II) is promoting IPM through FFS to complement the ten years strategic plan at targeted intervention with the aim of reducing reliance on synthetic agricultural chemicals.

2. IPM Approaches and Components

2.1. IPM Compontents

IPM is an Approach that combines different management Approaches for greater effectiveness The most effective, long-term way to manage pests is by using a combination of methods that work better together than separately. Approaches for managing pests are often grouped in the following categories.

Biological control

Biological control is the use of natural enemies—predators, parasites, pathogens, and competitors—to control pests and their damage. Invertebrates, plant pathogens, nematodes, weeds, and vertebrates have many natural enemies.

Cultural controls

Cultural controls are practices that reduce pest establishment, reproduction, dispersal, and survival. For example, changing irrigation practices can reduce pest problems, since too much water can increase root disease and weeds.

Mechanical and physical controls

Mechanical and physical controls kill a pest directly, block pests out, or make the environment unsuitable for it. Traps for rodents are examples of mechanical control. Physical controls include mulches for weed management, steam sterilization of the soil for disease management, or barriers such as screens to keep birds or insects out.

Chemical control

Chemical control is the use of pesticides. In IPM, pesticides are used only when needed and in combination with other approaches for more effective, long-term control. Pesticides are selected and applied in a way that minimizes their possible harm to people, nontarget organisms, and the environment. With IPM you'll use the most selective pesticide that will do the job and be the safest for other organisms and for air, soil, and water quality; use pesticides in bait stations rather than sprays; or spot-spray a few weeds instead of an entire area.

2.2. IPM Components

Six major components are common to all IPM programs:

1. Pest identification
2. Monitoring and assessing pest numbers and damage
   Monitoring and correct pest identification is the key area to decide whether management is needed. Monitoring means checking your field, landscape, forest, or building—or other site—to identify which pests are present, how many there are, or what damage they've caused. Correctly identifying the pest is key to knowing whether a pest is likely to become a problem and determining the best management strategy.
3. Guidelines for when management action is needed
   After monitoring and considering information about the pest, its biology, and environmental factors, you can decide whether the pest can be tolerated or it is a problem that warrants control. If control is needed, this information also helps you select the most effective management methods and the best time to use them. The most effective, long-term way to manage pests is by using a combination of methods that work better together than separately.
4. Preventing pest problems
5. Using a combination of biological, cultural, physical/mechanical and chemical management tools
6. After action is taken, assessing the effect of pest management,

3. IPM-FFS Approach

In the Promotion of Integrated Pest Management (IPM) in smallholder farmers the following points are considered as approaches in Ethiopia. The Ministry of Agriculture set a policy direction to promote IPM as the preferred strategy to manage economic pests in the country. Farmers' field school, an open field school, was recognized as an approach to organize smallholder farmers to manage selected economic pests of major crops identified by farmers using IPM as an approach. In this case the Promotion of IPM in smallholder farmers considers combination of the following approaches mainly in the selection of Famers, Crop and Kebele.

- Target crop to be selected should be dominant in the kebele and sustains economic damage from pests;
- The Kebele is critically prone to the target economic pest damage;
- Kebeles where there is plant science graduated DA residing in the target kebele
- Farmers should be permanent resident in the kebele, own plots of land and are volunteer to join the IPM-FFS group
- Farmers who are dedicated and better growers of the target crops,
- Willingness to join the FFS after receiving the briefing on the importance of IPM and working as a group in an FFS,
- FFS members should be farmers whose plots are adjacent to one another,
- Farmers who are better growers of the target crops by carrying out all agronomic practices as per the required production recommendations,
- Farmers who have the potential to implement the planned activities, including good financial capacity to afford paying for inputs and implement new skills and technologies as recommended,
- Farmers with access to irrigation and their relative location to irrigation scheme.
- FFS group leaders are picked within the group based on the following criteria:
  - farmers recognized by other farmers as role model,
  - farmers who actively participate in kebele community leadership,

- farmers who are keen to learn new skills,
- farmers who are very good agricultural technology recipients and implementers,
- farmers who have the ability to work with and demonstrate to others, i.e., capable of communicating what they have acquired to others,
- farmers who have good financial capacity,

Following crop, farmers and kebele selection the following activities continues.

- Conduct training for those farmers who are willing to take part in an IPM-FFS on pesticides handling and application, impact on human health and the environment and also on the significance of using FFS for implementing IPM;
- Hold discussion on farm site and selection of group leaders, crop-pest combination(s) to be addressed and also plan the season long (seed-to-seed) activities to be performed by the IPM-FFS groups.
- Set aside a piece of the land based on the recommendation to grow the selected crop. The entire cluster is to be ploughed repeatedly by bringing together the draught power available to them;
- Share with farmers the skills on how to effectively apply organic and bio fertilizers, synthetic fertilizers before sowing;
- Share with farmers the required skills on safe handling of pesticides during mixing and application;
- Conduct visit by a facilitator to IPMFFS fields planted in cluster at seedling stage. This is the stage of a crop on which often agroecosystem analyses start.

Methodology of agroecosystem analyses

Farmers go to the field in group of five, walk across the fields and choose adequate sample plants randomly, observe keenly each of these plants and record their observations:

- **Plant:** record the number of tillers, crop stage, plant height, nutrient deficiency symptoms, etc.
- **Pests:** record and count pests at different places on the plant.
- **Defenders:** observe and count parasitoids and predators.
- **Diseases:** observe fruits, leaves, stems and roots and identify any visible disease symptoms.
- **Rats:** count numbers of plants affected by rats and other vertebrate pests.
- **Weeds:** observe and identify the weeds in the field and their intensity.
- **Water:** observe the water situation of the field.
- **Weather:** record the prevailing weather condition at the time of the survey

Methodology of agroecosystem analyses

- While walking in the field, hand collect insects in plastic bags and plant parts with disease symptoms in paper bags and weed plant samples in used gazettes and blotting papers and keep them safely until processing them for species identity;
- Sit in a place as a group in a small circle make AESA drawings on a chart paper and hold discussions while making the drawing.
- Each group first identify the collected pests, defenders, diseases and weed species.
- Each group analyses the field situation and present their analysis in full on a drawing (AESA-drawing);
- During Each AESA;

- Facilitators assist the discussions by asking guiding questions and making sure that all participants become actively engaged
- At the end of each session, farmers groups draw common conclusion and decide on what field management is required.
- IPM-FFS group leader and the facilitator visit and confirm that the group decisions are carried out;
- The drawings are kept for comparison in the subsequent weeks discussions and recorded on the field books.

Farmers from the respective syndicates of an IPM-FFS participate in agroecosystem analyses. They take records of what they observed. Hold weekly meeting of the IPM-FFS members after they have carried out agroecosystem analyses in their fields and produced the AESA drawings on flip charts. The presenters are the FFS group members and the DAs to facilitate the discussions in the meetings while the group to decide on what actions to take to address the identified pest problem.

4. Results Observed

Farmers produced about 278 litres of botanicals and benefited 76 farmers and Protected their crops (Maize, Sorghum, Mango, Mung bean, Cheek pean, and Haricot Bean) from Fall armyworm (Spodoptera frugiperda), Ball worm (Helicoverpa armigera), Stalk borer (Busseola fusca), Cutworm (Agrotis segtum), and White mango scale (Aulacaspis cularis).

Figure :- Botanicals prepared by FFS, Cheleka scheme, Amhara region

5. Lesson Learnt

The main lesson that can be learnt is that there is huge tacit knowledge among farmers on integrated pest management and there are also many botanical plants that are useful for tackling different crop pests. Hence, what is more important is to focus on supporting and capacitating them through FFS approach so as they would be able to avoid dependency on synthetic chemicals and reduce the environmental and health impacts.

Furthermore, Keeping all agronomic practices right and carrying out routine pest monitoring in crop fields are basic to get significant harvest by preventing damaging pests.

6. What needs to be done to upscale FFS approach for promoting IPM

- The FFS botanical products have to be tested in the laboratory to know the contents, determine the rate of application, and check the impact on the environment and health. In doing so, research centres and universities are expected to support them in levelling the products.
- The challenges of FFS such as sufficient supportive materials, separate plots of land for testing their research products, acquiring land for the growing of botanical plants, water access, and an office have to be fulfilled to sustainably implement the IPM practice.
- Promoting FFS approach by way of training and continuous technical back-stopping to be encouraged;
- Experiences be documented for future upscaling;

RED&FS Secretariat
Ministry of Agriculture

Building B, 1st Floor
Gurd Sholla Area, Addis Ababa, Ethiopia
www.moa-redfs.gov.et
P.o.Box 62347