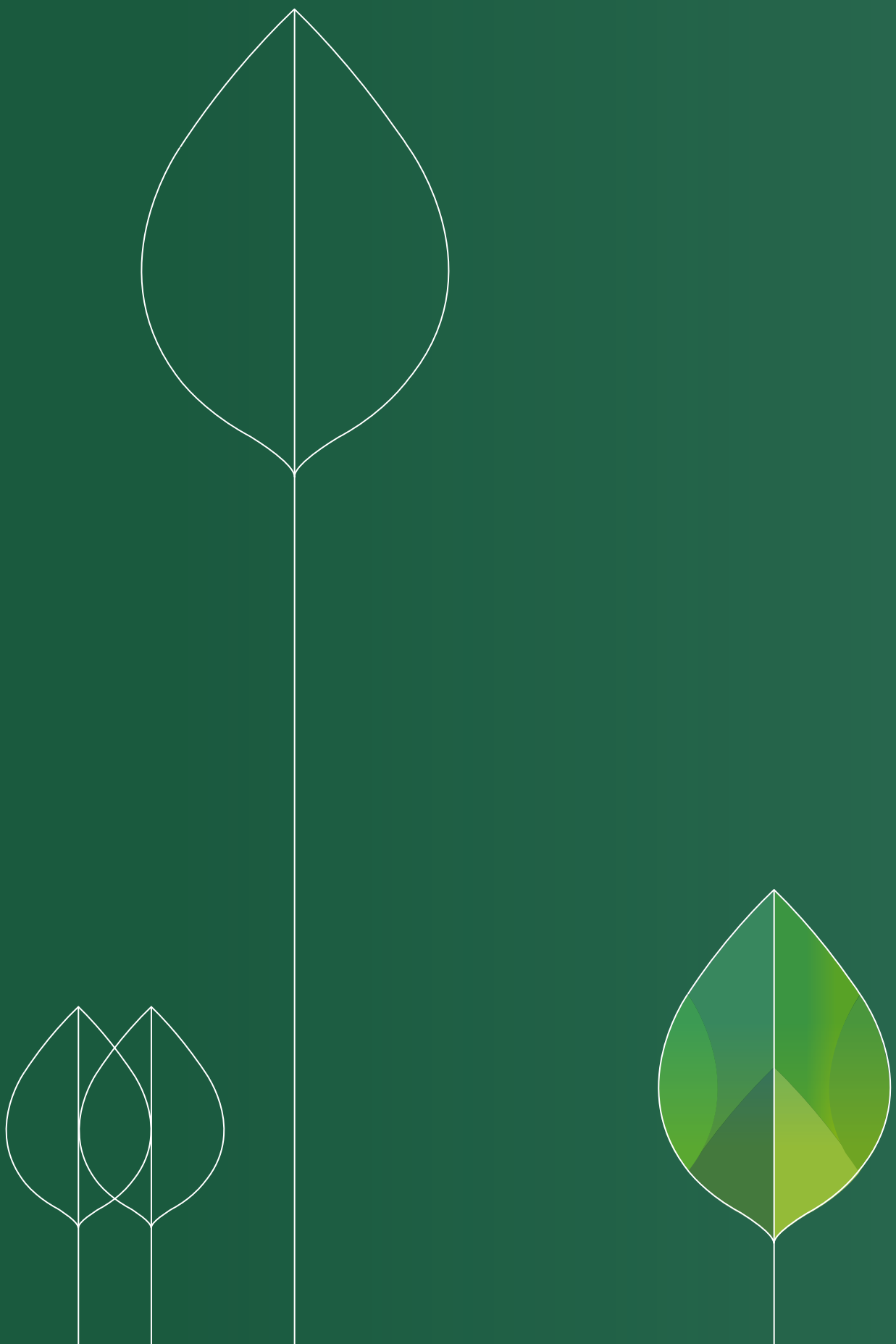
Food and Agriculture Organization of the United Nations

ANNUAL REPORT 2020

Plant Production and Protection



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Plant Production and Protection

Food and Agriculture Organization of the United Nations
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Welcome message

I am pleased to share with you the *2020 Annual Report of the Plant Production and Protection Division (NSP).*

2020 was marked by extraordinary challenges. COVID-19 shook the world, causing loss of life, compromising livelihoods and disrupting our normal ways of living. But for many people, this pandemic was just one more hardship – in addition to poverty, hunger, endemic diseases, conflict, drought, extreme weather events and many other life-threatening difficulties.

For the fourth year in a row, the number of hungry people around the globe increased, as reported by FAO in *The State of Food Security and Nutrition in the World*. Plant production was again threatened by biotic and abiotic constraints, including diminishing areas of arable land, water scarcity, decreasing biodiversity, pests, diseases and extreme weather events.

2020 also brought important change for the Plant Production and Protection Division. Taking a new name, NSP, it was repositioned under the Partnerships and Outreach Stream as part of the FAO organizational renewal. NSP has put in place a five-year communication strategy (2021–2025), as well as a series of transformative measures to enhance internal management and strategic development. The Division is acting on key issues, such as the promotion of technology transfer for seed security, agroecology, plant nutrition, sustainable mechanization, urban and peri-urban agriculture, monitoring and control of desert locust and fall armyworm, and pesticide risk management.

"Plant Production and Protection is at the core of FAO's mission. Plants make up 80 percent of the food we eat and are responsible for 98 percent of the oxygen we breathe – without plants, life as we know it would not exist."

"Building back better" to a more sustainable and equitable post-pandemic world is at the heart of FAO's new *Strategic Framework 2022–2031,* with the aim of *"leaving no one behind through MORE efficient, inclusive, resilient and sustainable agri-food systems* for **better production, better nutrition, a better environment, and a better life**".

Under the new Strategic Framework, FAO will make a more distinct connection between its work and the achievement of the Sustainable Development Goals (SDGs), particularly those most relevant to the Organization's mandate. By aligning itself more closely to the 2030 Agenda and the United Nations system,

FAO acknowledges that only through holistic, system-wide approaches will it be able to deliver on its mission of ensuring food security and nutrition for all, both today and in the future.

The United Nations Food Systems Summit (UNFSS) 2021 will give us a tangible opportunity to put these approaches into action. Other major global fora, such as the Twenty-sixth session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCC COP26) and the Fifteenth meeting of the Conference of the Parties to the Convention on Biological Diversity (CBD COP15), will also provide such occasion.

Plant production and protection is at the core of FAO's mission. Plants make up 80 percent of the food we eat and are responsible for 98 percent of the oxygen we breathe – without plants, life as we know it would not exist. NSP and its wider global community will play a fundamental role in implementing the new FAO Strategic Framework, particularly in promoting "better production", and in contributing to its mission of "*enabling the transition to more efficient, inclusive, resilient and sustainable crop production and protection through optimization and minimization*".

2021 is already proving to be another important year for NSP. Under its annual theme, "*Ensuring food security and nutrition (SDG 2)*", NSP is leading key initiatives related to the International Year of Fruits and Vegetables, and the celebrations of World Pulses Day and World Bee Day. In addition, the Division will organize the Global Conference on the Green Development of the Seed Industry, as well as launch and contribute to the Global Action on Green Development of Special Agro-Products, the Global Programme on Sustainable Dryland Agriculture, and the Global Action on Highly Hazardous Pesticides with the World Health Organization (WHO) and the United Nations Environment Programme (UNEP).

I am delighted by NSP's achievements and excited by the direction it is taking. I truly look forward to working with the Division over the coming year and beyond to build back better and support sustainable development, together.

Beth Bechdol,
Deputy Director-General,
Food and Agriculture Organization of the United Nations (FAO)

Foreword

It is my distinct honour to introduce the *2020 Annual Report of the Plant Production and Protection Division (NSP)* — the first ever Annual Report for the division.

The year 2020 was extraordinary, with unprecedented challenges brought on by the COVID-19 pandemic. It was also a milestone year for NSP as the Division's acronym changed from AGP to NSP as a part of the transformation of FAO.

Several noteworthy activities took place in 2020 to help mitigate the impact of COVID-19 on NSP's work programme. Policy briefs on *Sustainable crop production and COVID-19* and *COVID-19 and the role of local food production in building more resilient local food systems* were published to provide technical advice to stakeholders on actions to mitigate the disruptive effects of COVID-19. Meanwhile, over 700 virtual activities and events were organized at global, regional and nation levels, to promote a wide range of professional, coordination, communication and management activities.

The most significant milestone for the Division in 2020 was its transformation. The emphasis for internal management is to move towards a "One Dynamic NSP" by increasing internal solidarity and external visibility. The Division's new strategic development aims are to build NSP as the centre of excellence for technology promotion and transformation to support MORE efficient, inclusive, resilient and sustainable plant production and protection through optimization and minimization. A new NSP communication strategy (2021–2025) was developed by establishing one annual theme for each year, linked to the Sustainable Development Goals (SDGs).

Important progress in 2020 was made in transferring production technology: (i) 44 Member Nations received support to develop strategies, capacities and tools for plant conservation, breeding and seed systems; (ii) agroecology practices were disseminated in 16 countries and 4 regions through capacity building for sustainable agriculture and land management assessment; and (iii) 47 countries and 43 projects received technical assistance in implementing protected cultivation systems.

Important results in 2020 were also achieved in transferring protection technology: (i) support to FAO's efforts to monitor and control desert locust in over 30 affected countries received USD 211 million in support, protected 4 million metric tonnes of cereal and secured food for 34 million people; (ii) a new strategy was launched to implement the FAO Global Action on Fall Armyworm Control by identifying 8 demonstration projects and 53 pilot countries in Africa, Asia and the Pacific, and the Near East regions; and (iii) capacity building was strengthened in 89 countries covering important aspects of the pesticide lifecycle, and work was carried out in 15 African, Caribbean and Pacific (ACP) countries on minimizing pesticide risks and mainstreaming biodiversity.

"The Division's new strategic development aims are to build NSP as the centre of excellence for technology promotion and transformation to support MORE efficient, inclusive, resilient and sustainable plant production and protection through optimization and minimization."

Even under the constraints of the pandemic, NSP was at the forefront of communication and advocacy activities for major events, including the International Year of Plant Health 2020, World Pulses Day, World Bee Day and World Food Day. The Division also contributed to the successful launch of the International Year of Fruits and Vegetables (IYFV) in 2021 and started publication of two bimonthly newsletters: *Plant Production and Protection* and *Fall Armyworm Control in Action*. Several major videos were also produced on subjects including seeds, protected cultivation, sustainable mechanization, conservation agriculture and farmer field schools.

Despite the impact of COVID-19, the Division's partnerships and network were strengthened in 2020. The Division actively collaborated with over 180 partners at global, regional and national levels, covering areas of policy, regulation, research and academia, education, NGOs and the private sector. The Division also formally launched its networking mechanism for the NSP Community.

The major achievements of 2020 can in large part be attributed to the strong support and positive contributions of NSP and the entire NSP Community across all regions, as well as to the close cooperation of all NSP partners. Taking this opportunity, I would like to express sincere gratitude to all of you.

The year 2021 will be another remarkable one for NSP and the NSP Community, as it will be the first year of implementing NSP's five-year communication strategy (2021–2025), with a specific focus in 2021 on "Ensuring food security and nutrition (SDG 2)".

I look forward to your continued support and dedication to the NSP vision of "developing sustainable crop production systems for a world free from hunger".

Jingyuan Xia

Jingyuan Xia,
Director,
Plant Production and Protection Division (NSP)

Acknowledgements

The FAO Plant Production and Protection Division (NSP) would like to acknowledge all partners for their participation in, and positive contribution to, the NSP work programme, including technical, knowledge and technological partners, project partners, research and academia, global and regional organizations, governments, farmers and farmers' organizations, media, the NSP Community and FAO Decentralized Officers.

Project implementation in 2020

The support from resource partners enabled to successfully implement the following projects in 2020. In addition, technical support related to Plant Production and Protection was provided to over 150 projects from various sources.

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DONOR	PROJECT TITLE	PERIOD	DELIVERY 2020 (USD)
Canada	Supporting the joint FAO/WHO scientific advice programme: JMPR, JEMRA, JEMNU	27 Mar 2017 – 30 Jun 2021	27 146
CropLife International	Voluntary contribution to Disposal of Obsolete Pesticide Stocks Projects	1 Sep 2012 – 31 Aug 2021	555 122
European Union	Capacity Building Related to Multilateral Environmental Agreements in ACP Countries – Phase III	15 Oct 2019 – 14 Apr 2024	512 458
	IOMC Toolbox for decision making in chemicals management – Phase III: From design to action	1 Jan 2018 – 31 Dec 2020	56 452
GEF	AVACLIM: Agroecology, ensuring food security and sustainable livelihoods while mitigating climate change and restoring land in dryland regions	1 Oct 2019 – 31 Mar 2023	478 182
	Disposal of POPs waste and Obsolete Pesticides in Mozambique (FSP)	1 Jul 2011 – 31 Dec 2021	2 096
	Implementing Sustainable Low and Non-Chemical Development in SIDS (ISLANDS)/FAO Component (PPG)	23 Oct 2019 – 31 Dec 2020	67 065
	Participatory assessment of land degradation and sustainable land management in grassland and pastoral systems (FSP)	1 Feb 2017 – 19 Nov 2021	229 858
Germany	Building the basis for implementing the Save and Grow approach: Regional strategies on sustainable and climate-resilient intensification of cropping systems	1 May 2016 – 30 Jun 2021	319 784
	Building climate resilience in city region food systems through adapted production systems	1 Dec 2018 – 30 Nov 2021	586 324
	Climate-Smart Crop and Mechanization Systems Scaling-Up (CSCS)	1 Jun 2019 – 31 Dec 2021	540 643
Global Pulse Confederation	Celebration of World Pulses Day	7 Feb 2020 – 7 Feb 2021	27 805
Japan	Project for Improvement of Locust Management (Phase 2)	28 Jul 2020 – 30 Jun 2025	427 131
McKnight Foundation	Strengthening Multi-stakeholder Cooperation on Agroecological Approaches for Sustainable Agriculture	1 Dec 2015 – 31 May 2023	189 109
Multidonor	FAO Commission for Controlling the Desert Locust in the Central Region (CRC)	15 Jun 2018 – 31 Dec 2021	1 831 129
	FAO Commission for Controlling the Desert Locust in South-West Asia (SWAC)	15 Jun 2018 – 31 Dec 2021	5 979
	FAO Commission for Controlling the Desert Locust in the Western Region (CLCPRO)	15 Jun 2018 – 31 Dec 2021	693 990
	FAO Desert Locust Control Committee (DLCC)	15 Jun 2018 – 31 Dec 2021	145 636
	HORTIVAR: Horticulture Cultivars Performance Information System	1 May 2013 – 31 Dec 2020	102 024
	Sustainable Management of the Fall Armyworm (FAW), FAO Programme for Action in Africa, North Africa and the Middle East	8 Nov 2018 – 31 Oct 2022	1 015 819
Republic of Korea	Smart Farming for the Future Generation	25 Jun 2020 – 24 Jun 2024	765
	Support for Horticulture Programme Development	14 Apr 2006 – 31 Jul 2021	207 305
UNEP	FAO/UNEP Secretariat to the Rotterdam Convention 2020–2021	1 Jan 2020 – 31 Dec 2021	1 219 567
	Letter of Agreement on the continuation of the Joint FAO/UNEP Secretariat Arrangements for the Rotterdam Convention	1 Jul 2005 – 31 Dec 2021	6 853
United States of America	Locust disaster risk reduction in Caucasus and Central Asia (CCA)	28 Sep 2018 – 30 Sep 2021	113 146
	Total		**9 361 388**

Key collaborators

We are particularly grateful for the support received from a number of strategic and technical partners to carry out global work in promoting sustainable plant production and protection.

51 Degrees Limited. NSP partnered with Vulcan to adopt its EarthRanger tracking tool to improve the management of up to 28 aircraft involved in desert locust survey and control operations in East Africa in 2020–2021. Real-time field data collected by eLocust3 digital tools flow into EarthRanger to help prioritize treatments, and results are integrated into national geographic information systems used in affected countries to manage the control campaign.

CGIAR Research Centers, CABI, icipe, Pennsylvania State University, Oregon State University, Lancaster University. These partners participated in online discussions and contributed to the development of the IPM guidelines on FAW and the Guidelines on Prevention and Preparedness for FAW Migration. They continue to provide technical guidance to the Global Action for Fall Armyworm Control via the Technical Working Groups and the Technical Committee.

French Development Agency (AFD). AFD funded a CLCPRO project in support of the preventive control strategy and to develop operational research on the desert locust in the Western Region, which includes the adaptation of prevention tools for climate change, better preservation of the environment by developing more respectful control methods and the development of technological innovations. The project also supports the Central Region Commission in strengthening its institutional, financial and operational mechanisms.

French National Institute for Agriculture, Food and the Environment (INRAE). FAO and INRAE partner to support transitions to sustainable food systems. Together, the two organizations produced the book *Enabling Sustainable Food Systems: Innovators' Handbook*; organized events during the One Planet Network Sustainable Food Systems Global Conference and with FAO RLC and partners from Latin America; advised farmer field school programmes; and are producing 15 policy briefs on innovations for sustainable food systems.

Global Crop Diversity Trust. NSP collaborates with the Global Crop Diversity Trust on the conservation of plant genetic resources for food and agriculture. Recent outputs include the co-organization of the First International Multi-Stakeholder Symposium on Plant Genetic Resources for Food and Agriculture and the development of four crop conservation strategies.

Global Partnership on Sustainable Urban Agriculture and Food Systems (RUAF). Building on close collaboration over the last decade, RUAF supported NSP City Region Food Systems to develop assessments for resilience to climate change and pandemics and, with PSU and ESS, an indicator framework and training package for the Milan Urban Food Policy Pact. These tools link local agricultural production to efficient value chains through improved urban planning to achieve the SDGs.

Global Pulse Confederation (GPC). Since 2015, GPC and FAO have worked together towards generating knowledge and creating greater awareness of pulses to enhance food security, health and nutrition, while improving environmental sustainability; the collaboration contributes to NSP's success and to FAO's core mandate to eliminate hunger, food insecurity and malnutrition.

Japan International Cooperation Agency (JICA). The five-year project (Phase II) for the improvement of locust management in Central Asia funded by JICA, commenced operations in November 2020. It is expected to provide substantial support for improving locust management through regional cooperation and for strengthening technical capacities on a wide range of topics, including in view of the operational use of the locust GIS entitled "Caucasus and Central Asia Locust Management System" (CCALM).

McKnight Foundation. Since 2015, the McKnight Foundation has supported FAO work in agroecology, including support to the Second International Symposium on Agroecology (2018), during which the Scaling Up Agroecology Initiative was launched. The Foundation supports the Agroecology Knowledge Hub, the development of the Tool for Agroecology Performance Evaluation (TAPE) and the Global Soil Organic Matter Database to support carbon recycling and soil health.

National Oceanic and Atmospheric Administration (NOAA). In 2020, the Desert Locust Information Service (DLIS) collaborated with NOAA to refine their HYSPLIT model and develop a web application to estimate desert locust swarm migrations up to 15 days forward or backwards in time. Trajectories produced by the model are integrated into DLIS analysis and early warning measures.

Norad. Since 2018, NORAD has been providing financial support for FAO's work on FAW management. Their contributions enabled the set up and implementation of the Global Action for Fall Armyworm Control.

Pennsylvania State University (PSU) – PlantVillage. In 2017, NSP partnered with PSU to develop the Fall Armyworm Monitoring and Early Warning System (FAMEWS), which was followed by the SusaHamra mobile app for red palm weevil. In early 2020 and because of these collaborations, PSU was able to rapidly develop eLocust3m, a mobile app for crowd-sourcing data and improving desert locust monitoring and response in countries affected by the 2020–2021 upsurge.

School of Agriculture Foundation, University of Buenos Aires. The Foundation has been an excellent service provider and partner, ensuring the timely delivery of products and showing robust technical competencies in providing high-quality reports, including risk assessments of Carbaryl pesticide, guides for pesticide risk evaluation, and human health and environmental impact studies.

Swedish Chemical Agency (KEMI). KEMI is a key partner in implementing the International Code of Conduct on Pesticide Management. It provides financial resources and technical expertise for strengthening institution and stakeholder capacities to address key challenges in the management of pesticides.

In addition to the partners mentioned here, a total of **31 FAO partners** generously contributed **USD 211 million** to support **FAO's Desert Locust Upsurge: Global Response Plan in 2020**. The Response Plan has been technically coordinated by NSP to curb the desert locust upsurge, safeguard livelihoods and promote early recovery, regional and national coordination, and preparedness.

The plant production and protection community

A brief history

FAO's Plant Production and Protection Division is almost as old as FAO itself! First established on 22 June 1947 as the Plant Industry Branch, by 1959 it was a full division focusing on crop production, improvement and protection. During the 1960s–1980s, the Division was broadly structured on crop and grasslands production services, plant protection service, and crop ecology and genetic resources. In 1980s–2000s there was an increased emphasis on fruits and vegetables. And, in 2020, the Division acronym changed from AGP to NSP, with a renewed focused transformation to MORE efficient, inclusive, resilient and sustainable plant production and protection through *optimization* and *minimization*.

Vision

Developing sustainable plant production systems for a world free from hunger.

Mission

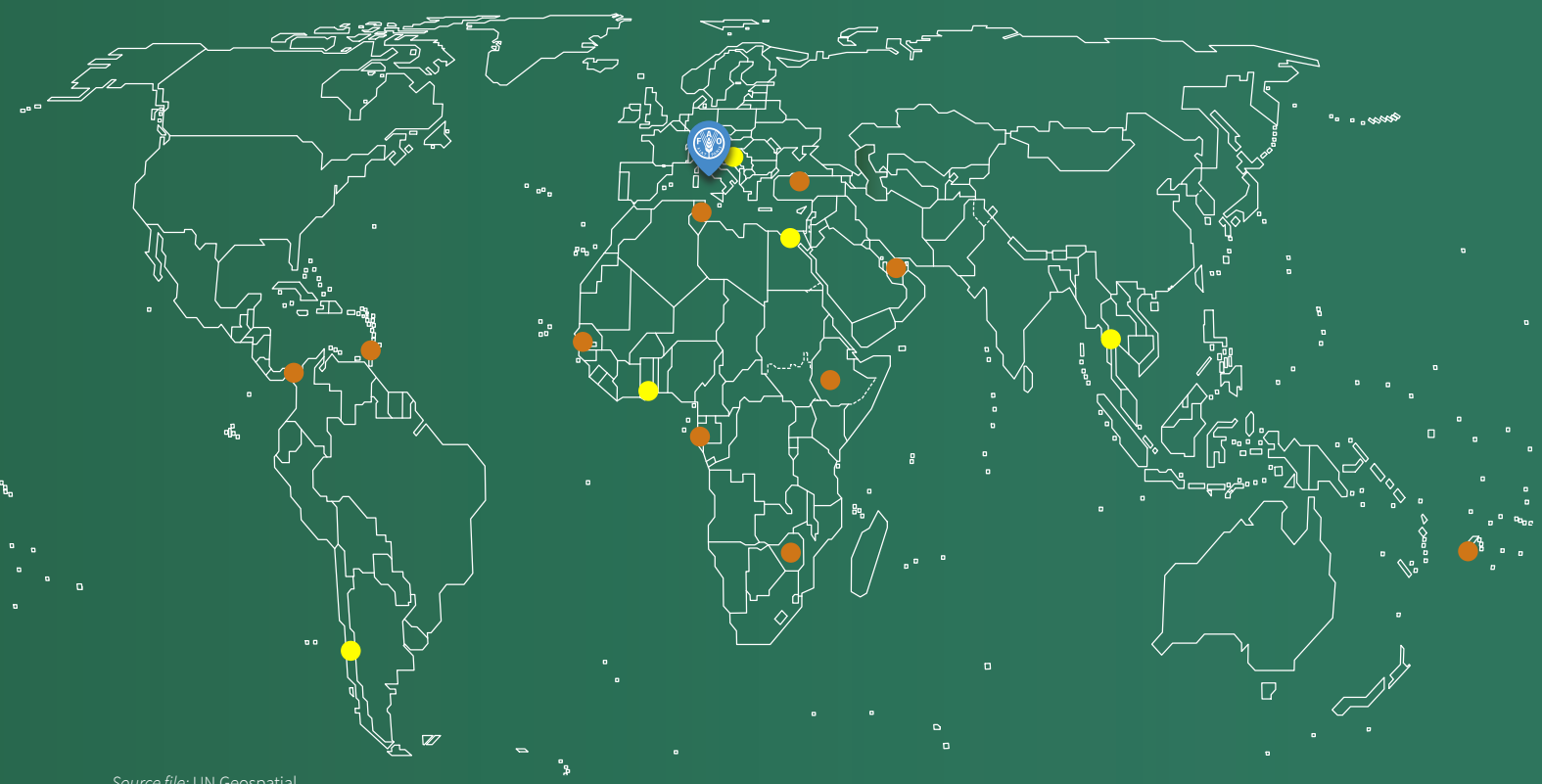
Enabling the transition to MORE efficient, inclusive, resilient and sustainable plant production and protection through ptimization and minimization.

Core activities

- plant genetic resources utilization and seed management;
- plant production system development and management;
- plant pest monitoring and management;
- pesticide risk reduction and management; and
- technology innovation and transformation.

Strategic objectives

- ensuring food security and nutrition;
- enhancing food quality and safety;
- protecting the environment and biodiversity; and
- facilitating safe trade and economic growth.



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Regional offices Subregional offices

Jingyuan Xia
Director

Rémi Nono Womdim
Deputy Director

International Plant Protection Convention

Office of the Director

Committee on Agriculture

Mr Chikelu Mba
Plant Genetic and Seed Resources
(NSPGD)

Mr Fenton Beed
Rural and Urban Crop and Mechanization Systems
(NSPLD)

Mr Baogen Gu
Pest and Pesticides Management
(NSPCD)

Mr Buyung Hadi
Fall Armyworm Secretariat
(FAW)

Mr Ronnie Brathwaite
Ecosystem Approach to Crop Production Intensification
(NSPED)

Mr Shoki AlDobai
Locust and Transboundary Plant Pests and Diseases
(NSPMD)

Ms Christine Fuell
Rotterdam Convention
(NSPRD)

FAO Regional Commissions for controlling the Desert Locust

Southwest Asia (SWAC)

Central Region (CRC)

Western Region (CLCPRO)

A global community

As of 31 December 2020, 171 FAO staff were working on plant production and protection, 148 of whom at FAO headquarters, and 24 in decentralized offices. This includes six teams specialized in various areas of plant production (NSPGD, NSPED and NSPLD) and protection (NSPMD, NSPCD and NSPRD), as well as the secretariats of the International Plant Protection Convention (IPPC), the Committee on Agriculture (COAG), and Fall Armyworm.

In addition, there are three desert locust commissions managed by the NSPMD team. Plant Production and Protection Officers are present across five regions and 11 sub-regions, demonstrating the importance of plant production and protection for the work of FAO.

Acronyms and abbreviations

A	**ACP**	African, Caribbean and Pacific
	ACT	African Conservation Tillage
	AFD	Agence Française de Développement
C	**CAAS**	Chinese Academy of Agricultural Science
	CBD	Convention on Biological Diversity
	CCA	Caucasus and Central Asia / climate change adaptation
	CLCPRO	Commission for controlling the Desert Locust in the Western Region
	CLI	CropLife International
	COAG	FAO Committee on Agriculture
	COP	Conference of the Parties
	CRC	Chemical Review Committee
	CRFS	City Region Food Systems
	CYMMIT	International Maize and Wheat Improvement Center
E	**EAC**	East Africa Community
	ETF	Enhanced Transparency Framework
	EU	European Union
F	**FAMEWS**	FAW Monitoring and Early Warning System
	FAW	Fall armyworm
	FFS	Farmer field school
	F-SAMA	Framework for Sustainable Agricultural Mechanization in Africa
G	**GCI**	Green Cities Initiative
	GEF	Global Environment Facility
H	**HHPs**	Highly hazardous pesticides
	HSRS	Harmonized Seed Regulatory System
I	**ICBA**	International Center for Biosaline Agriculture
	icipe	International Centre of Insect Physiology and Ecology
	IFA	International Fertilizer Association
	IFAD	International Fund for Agricultural Development
	INRAE	French National Research Institute for Agriculture, Food and Environment
	IPPC	International Plant Protection Convention
	ISF	International Seed Federation
	IYFV	International Year of Fruits and Vegetables
	IYPH	International Year of Plant Health

J	**JMPM**	Joint Meeting on Pesticide Management
	JMPR	Joint Meeting on Pesticide Residues
	JMPS	Joint Meeting on Pesticide Specifications
M	**MRLs**	Maximum residue limits
N	**NGO**	Non-governmental organization
	NORAD	Norwegian Agency for Development Cooperation
	NSPCD	Pest and Pesticide Management
	NSPED	Ecosystem approach to crop production intensification
	NSPGD	Plant Genetic Resources and Seeds
	NSPLD	Rural and Urban Crop and Mechanization Systems
	NSPMD	Locusts and Transboundary Plant Pests and Diseases
	NSPRD	Rotterdam Convention
O	**OACPS**	Organisation of African, Caribbean and Pacific States
P	**PGRFA**	Plant Genetic Resources for Food and Agriculture
	PPE	Personal protective equipment
	PRAGA	Participatory Rangelands and Grasslands Assessment
R	**RC**	Rotterdam Convention
S	**SAM**	Sustainable agricultural mechanization
	SADC	Southern African Development Community
	SDGs	Sustainable Development Goals
	SHARP	Self-evaluation and Holistic Assessment of Climate Resilience of Farmers and Pastoralists
	SHPFs	Severely hazardous pesticide formulations
	SOP	Standard operating procedures
	SSC	South–South cooperation
T	**TAPE**	Tool for Agroecology Performance Evaluation
	TFCA	NSP Task Force for Communications and Advocacy
	TFPF	NSP Task Force of Planning and Finance
	TFSD	NSP Task Force on Strategic Development
U	**UNEP**	United Nations Environment Programme
	USAID	United States Agency for International Development
	USDA	United States Department of Agriculture
W	**WFP**	World Food Programme
	WHO	World Health Organization
	WIEWS	World Information and Early Warning System on PGRFA
	WTO	World Trade Organization

Executive summary

The year 2020 was an eventful one for NSP. The COVID-19 pandemic meant the Division had to abruptly adapt to new ways of working. Despite the disruption, NSP had the pleasure of welcoming its new Director, Dr Jingyuan Xia, who brought new dynamism and direction to the Division. In addition, the Division was placed under a new reporting line to the Deputy Director General for Partnerships and Outreach, Ms Beth Bechdol, as part of an overall restructuring within FAO in the lead up to a proposed new Strategic Framework for the Organization (2022–2031). This framework will more closely align the work of FAO and NSP with the goals of the 2030 Agenda for Sustainable Development.

NSP continued to be FAO's reference point for all matters on plant production and protection, through activities related to seeds, ecosystems-based approaches to agriculture, sustainable crop production intensification, urban and peri-urban agriculture, sustainable mechanization, protection against transboundary pests such as desert locust and fall armyworm, and reduction of risks related to pesticides, fertilizers and other chemicals.

While many major events had to be cancelled or held virtually, strong support from a broad range of stakeholders, and the hard work and commitment of NSP employees and the NSP Community around the globe, meant the Division still managed to deliver in the highest professional manner and serve its partners globally, regionally and nationally. It also made significant progress in many areas of work.

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Outstanding FAO achievements in 2020

Mitigation of COVID-19

FAO published major policy briefs on *Sustainable Crop Production and COVID-19* and *COVID-19 and the role of local food production in building more resilient local food systems*, as well providing advice on ongoing activities related to many areas of work including seed systems, fall armyworm and desert locust. Over 700 virtual activities and events were organized at global, regional and national levels.

Production technology

FAO was at the forefront of promoting agroecology through capacity building for sustainable agriculture and land management assessment in 16 countries and 4 regions using TAPE and PRAGA training. FAO led the formulation divisions, NSP led the formulation of the new Global Programme on Sustainable Dryland Agriculture, endorsed at the Twenty-seventh Session of Committee on Agriculture (COAG), and brought forward its work with the African Union on the Framework for Sustainable Agricultural Mechanization in Africa (F-SAMA).

Seed technology

FAO provided technical and policy support to 44 Member Nations for developing strategies, capacities and tools for plant conservation, breeding and seed systems. FAO also supported 48 countries to restart crop production after natural disasters and crises through the provision of quality seeds worth over USD 30 million.

Normative work

Preparation work was finalized for 59 countries for the *Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture*, using the World Information and Early Warning System (WIEWS) reporting tool. Capacity development of sound pesticide management was enhanced in 89 countries, with 456 new international standards and technical guidelines developed. Preparations took place for the Tenth Conferences of the Parties (COP10) of the Basel, Rotterdam and Stockholm conventions, scheduled for 2021.

Protection technology

NSP was the lead technical division on FAO's efforts to control desert locust in affected countries (with 2.5 million hectares treated) and migratory locust in 10 Caucasus and Central Asian (CCA) countries. A new strategy was adopted for the Global Action for Fall Armyworm (FAW) Control (GA) with over 60 countries in Africa, the Near East and North Africa involved, 8 of which as demonstration countries for the Global Action. In African, Caribbean and Pacific (ACP) countries, NSP supported initiatives for pesticide risk reduction and mainstreaming biodiversity, while two regional guidelines for harmonization of pesticide management were developed and endorsed for implementation.

Communications and advocacy

FAO promoted various plant production and protection-related initiatives including the International Year of Plant Health (IYPH), World Pulses Day, World Bee Day and World Food Day. The Division contributed to the successful launch of the International Year of Fruits and Vegetables (IYFV). Two new bimonthly newsletters were launched on plant production and protection and FAW. Six new FAW guidance notes covering 8 demonstration and 53 pilot countries (with 8 translations) were published. Videos were produced on agroecology, seeds, protected cultivation, sustainable mechanization, farmer field schools and conservation agriculture. The Task Force on Communications and Advocacy (TFCA) was formed.

Strategic planning

FAO developed a new five-year plant production and protection strategy (2021–2025) based on a different annual theme each year linked to the Sustainable Development Goals (SDGs).

2021: Promote food security and nutrition (SDG 2)

2022: Minimize crop loss and residual risk (SDGs 3 and 12)

2023: Enhance environmental protection (SDGs 13 and 15)

2024: Facilitate safe trade (SDGs 8 and 17)

2025: Support poverty reduction (SDG 1)

Partnerships and network

NSP strengthened its networks on locust control, FAW control, pesticide management, agroecology and sustainable mechanization. It led cross-FAO activities related to the Technical Network on Sustainable Crop Production and Agroecology. It also enhanced existing and built new relationships with 180 partners. The global NSP Community was reinforced through stronger links between FAO headquarters and plant production and protection officers in the regions and subregions.

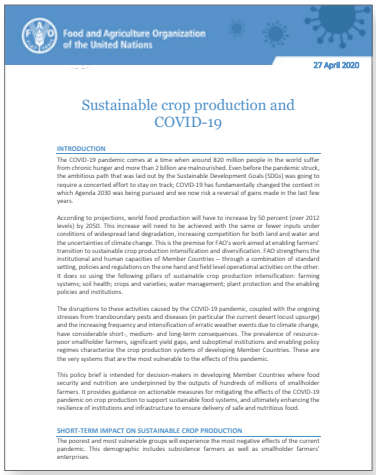
Optimization of internal management

Standardization was strengthened through the adoption of standard operating procedures for meeting arrangements (12 items), the streamlining of official communications in 3 areas, quality control related to 10 items, and 18 new divisional and FAW communications templates. Teamwork and team building were strengthened through the establishment of the TFCA, the Task Force on Planning and Finance (TFPD), the Task Force on Strategic Development (TFSD); assistant Team Leaders were nominated to strengthen the technical teams; two workshops on team building were organized; and outstanding employees were recognized by the NSP Director.

Transformation of FAO Plant Production and Protection

The FAO Plant Production and Protection Division went through a major transformation in the second half of 2020 focused primarily on two areas: internal management and professional development. With regard to internal management, emphasis was placed on the need for a “One Dynamic NSP”, which will be more innovative and build approaches that are people-first, demand-driven, result-oriented and performance-based. In terms of professional development, a new focus was put on innovation and technology and the two mainstreams of optimization and minimization.

Mitigation of COVID-19



Food and Agriculture Organization of the United Nations

27 April 2020

Sustainable crop production and COVID-19

INTRODUCTION

The COVID-19 pandemic comes at a time when around 820 million people in the world suffer from chronic hunger and more than 2 billion are malnourished. Even before the pandemic struck, the ambitious path that was laid out by the Sustainable Development Goals (SDGs) was going to require a concertied effort to stay on track; COVID-19 has fundamentally changed the context in which Agenda 2030 was being pursued and we now risk a reversal of gains made in the last few years.

According to projections, world food production will have to increase by 50 percent (over 2012 levels) by 2050. This increase will need to be achieved with the same or fewer inputs under conditions of widespread land degradation, increasing competition for both land and water and the uncertainties of climate change. This is the premise for FAO's work aimed at enabling farmers' transition to sustainable crop production intensification and diversification. FAO strengthens the institutional and human capacities of Member Countries – through a combination of standard setting, policies and regulations on the one hand and field level operational activities on the other. It does so using the following pillars of sustainable crop production intensification: farming systems; soil health; crops and varieties; water management; plant protection and the enabling policies and institutions.

The disruptions to these activities caused by the COVID-19 pandemic, coupled with the ongoing stresses from transboundary pests and diseases (in particular the current desert locust upsurge) and the increasing frequency and intensification of erratic weather events due to climate change, have considerable short-, medium- and long-term consequences. The prevalence of resource-poor smallholder farmers, significant yield gaps, and suboptimal institutions and enabling policy regimes characterize the crop production systems of developing Member Countries. These are the very systems that are the most vulnerable to the effects of this pandemic.

This policy brief is intended for decision-makers in developing Member Countries where food security and nutrition are underpinned by the outputs of hundreds of millions of smallholder farmers. It provides guidance on actionable measures for mitigating the effects of the COVID-19 pandemic on crop production to support sustainable food systems, and ultimately enhancing the resilience of institutions and infrastructure to ensure delivery of safe and nutritious food.

SHORT-TERM IMPACT ON SUSTAINABLE CROP PRODUCTION

The poorest and most vulnerable groups will experience the most negative effects of the current pandemic. This demographic includes subsistence farmers as well as smallholder farmers' enterprises.

COVID-19 policy brief

COVID-19 has fundamentally changed the context in which Agenda 2030 is being pursued, with the risk that gains made in recent years may be reversed. The poorest and most vulnerable groups – including subsistence farmers and smallholder farmers' enterprises – will experience the most negative effects of the pandemic. In April 2020, a policy brief for decision makers in developing Member Nations where food security and nutrition issues have affected smallholder farmers. The policy brief highlighted a policy brief was developed for decision makers FAO's commitment to work with Member Nations, organizations and partners to stabilize food production and distribution during the COVID-19 crisis. https://doi.org/10.4060/ca8807en

Farmer field schools: sharing information & new practices

The global farmer field school platform responded to the COVID-19 pandemic by providing ongoing technical support to countries and projects. A global communication and training campaign was launched to incorporate awareness-raising on COVID-19 into farmer field school programmes, and to adapt training and extension in the light of the pandemic. A handbook on Running Farmer Field Schools in times of COVID-19 and multiple posters and national communication campaigns were released in 10 languages in partnership with FAO field offices and external partners.

More information:

http://www.fao.org/farmer-field-schools/ffs-overview/covid-19/en/

Addressing the impact of COVID-19 on the global action for FAW control (http://www.fao.org/3/ca8652en/ca8652en.pdf)

City region food systems and COVID-19

COVID-19 disrupted city region food systems (CRFS) worldwide, posing challenges for cities and local governments obliged to deal with rapid changes in food availability, affordability and the food security and nutrition situation of urban populations. Consequently, a pandemic component was added to the CRFS programme, with 17 articles and case studies published on the impact of COVID-19. Based on the information collected, the CRFS assessment methodology is being modified to include pandemic-related indicators. CRFS indicators are also contributing to the Green Cities Initiative (GCI) indicator framework. Policy Brief: Urban food systems and COVID-19: The role of cities and local governments in responding to the emergency.

COVID-19: FAW Secretariat continued support

A Guidance Note was issued on addressing the impact of COVID-19 on Global Action for Fall Armyworm Control; particularly, how FAW control work would continue despite the pandemic. http://www.fao.org/documents/card/en/c/ca8652en/

The Global Action for Fall Armyworm Control continued to support countries in managing FAW throughout the COVID-19 pandemic by conducting webinars and virtual training sessions on FAW monitoring and management, and by implementing activities where possible. This included a capacity-building workshop conducted in Gabon in December 2020.

Seed technology

Crop varietal development

FAO strengthened capacities to develop crop varieties suited to local agroecologies and farming systems. In 2020, the Republic of Moldova was supported in strengthening its value chain for berries, which included breeding improved varieties and enhancing smallholder capacities and access to markets. Similarly, in Mongolia, farmers were provided assistance to access quality planting materials for 36 improved new fruit varieties. In Africa, the adoption of improved crop varieties was facilitated in 15 countries: Angola, Benin, Cameroon, Côte d'Ivoire, Eswatini, Guinea, Kenya, Mali, Namibia, Nigeria, Senegal, Uganda, United Republic of Tanzania, Zambia and Zimbabwe.

Seed sector development

FAO continues to support countries in developing national seed policies, legislations and/or regulatory frameworks. In 2020, 11 countries were supported in this regard. Seed value chains were strengthened in 30 countries. In five southern African countries, the production of Crop Specific Field Inspection Manuals was supported along with the promotion of sustainable seed production practices. In Latin America and the Caribbean, production capacity for quality legume seeds was strengthened in one country, while three others were supported with the dissemination of three new cassava varieties per country.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Conservation of genebanks

In 2020, FAO supported national genebanks to collect, conserve, regenerate, multiply, characterize and evaluate crop germplasm. These interventions resulted in sustained targeted germplasm collection and the expanded conservation of more crops and their wild relatives in four SADC countries. NSP worked with its partners to support informed decision-making processes in large germplasm collections and to develop national genebanks in Organization of Islamic Cooperation Member States. With the support from GEF, technical assistance was provided in Bolivia (Plurinational State of), Chile, China, Cuba, India, Indonesia, Mauritania, Mexico, Philippines and Tajikistan on *in situ* conservation of PGRFA and managing on-farm diversity.

Seed security

Natural disasters, transboundary pests, conflict and COVID-19 have increased the vulnerability of millions of small-scale farmers. Providing access to quality seeds and productive, nutritious and resilient farmer-preferred crop varieties is a core part of FAO's assistance to farmers in post-crisis situations. In 2020, FAO supported emergency seed relief activities totalling USD 30 million in 48 countries through 144 projects.


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Production technology

Productive reconversion programme: Santa Fe, Argentina

FAO provided support to Santa Fe Province, Argentina, to implement a productive reconversion programme aimed at strengthening local added value through agroecology in combination with short circuit markets and sustainable land use planning. In 2020, the programme supported 93 farmers on 1 300 ha, trained 80 technicians in 50 training sessions, published the Basic Guide for Agroecological Planning and Management of Crops, and established a number of schemes to support agroecology and productive reconversion in the province.

Extension officers, farmers trained on protected cultivation

FAO has been promoting protected cultivation systems as a way to increase food security and grow crops more productively. Technical support was provided to Member Nations through the development of an online training course. It was delivered to 4 countries with a total of 120 participants, targeting private-sector stakeholders, extensionists and farmers. A total of 47 countries and 43 projects received technical support to develop projects and obtain approvals for protected cultivation items.

Capacity development supporting conservation tillage in Africa

The Framework for Sustainable Mechanization in Africa (F-SAMA) was launched, in collaboration with the African Union Commission, providing guidance, providing guidance on how to aid the development of sustainable mechanization in agri-food systems. Together with NSP partners, capacity building included: developing a training guide for mechanization hire service providers; conducting training in seven countries; conducting high-levelssessionsforinvestorsinagriculturalmechanization; and conducting a webinar series on F-SAMA, with 641 participants from 71 countries.

Improving farming, food and feeding in Mozambique

Through a six-year, EU-funded initiative, the Government of Mozambique, FAO, WFP and IFAD worked together to enhance agricultural production, improve access to food and improve dietary intake and feeding practices in Mozambique. Project demonstration plots evaluated the adaptability and performance of maize, rice and bean varieties in terms of yield, pest and disease resistance, and climate adaptation. In addition, 72 groups of seed producers were trained in seed production and seed enterprise development.

Mainstreaming biodiversity in Africa, Caribbean and Pacific

FAO is working to mainstream biodiversity into agriculture with funding from the EU and in collaboration with OACPS and UNEP. The joint programme will build capacities to overcome the socio-economic and political barriers preventing countries and farmers from adopting ecosystem-based agricultural practices and approaches to biodiversity and chemical management. In 2020, despite restrictions associated with the COVID-19 pandemic, the programme managed to validate 6 focus and 19 scale-out countries.

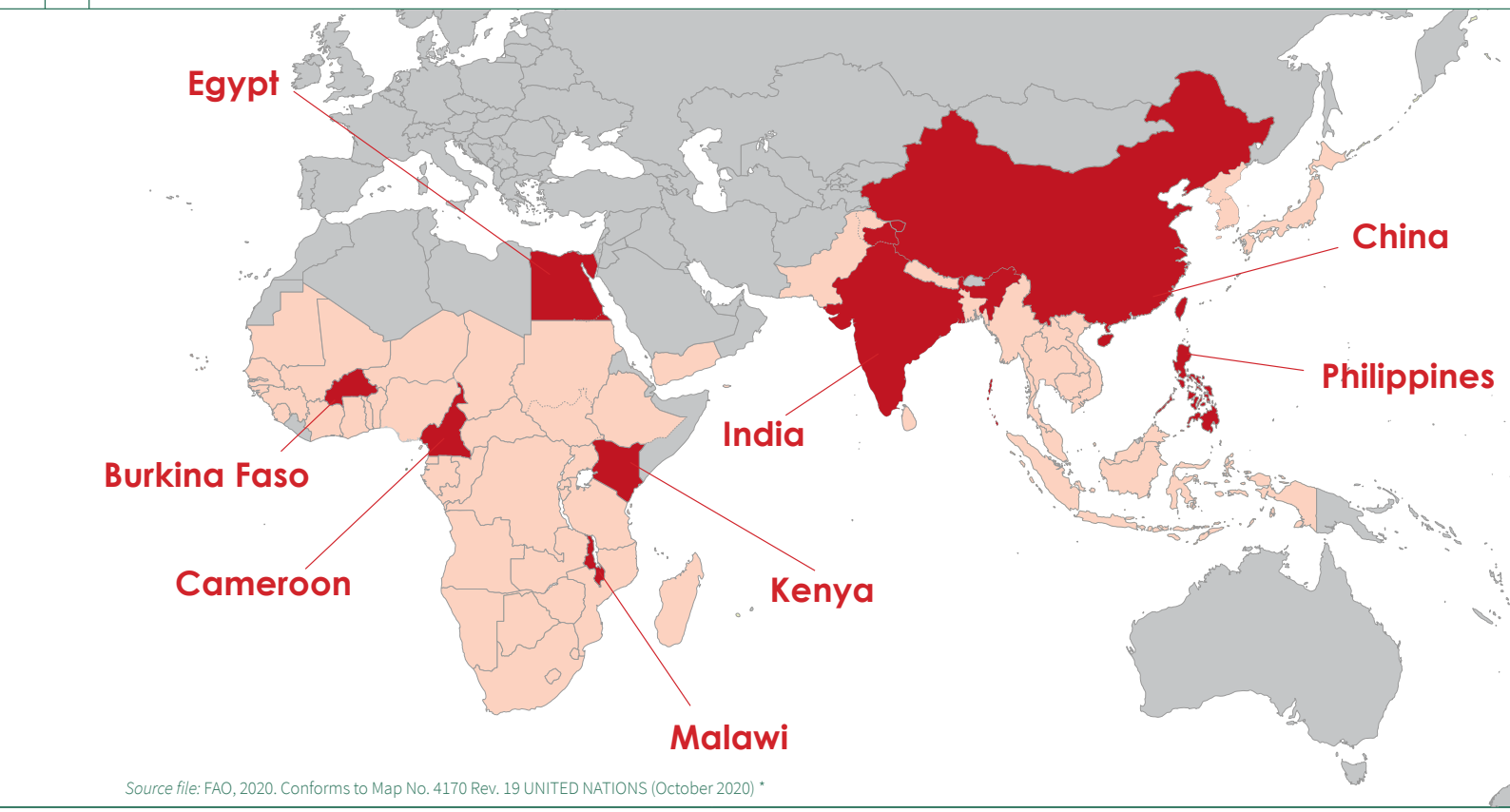
Agroforestry: improving livelihoods and climate change resilience

In Ghana, FAO supported the training of 40 extension staff and 3 000 farmers on a cocoa-based agroforestry system, in collaboration with the Ghana Cocoa Board, local NGOs and the Tokyo University of Agriculture and Technology. The system – developed by Japanese-Brazilian farmers – was adapted to the Ghanaian context through a South–South and triangular cooperation mechanism between Japan, Brazil and Ghana.

Protection technology

Fall armyworm threat

A new strategy was adopted for the Global Action for Fall Armyworm (FAW) Control, (GA) with over 60 countries in three regions involved, 8 of which were designated as demonstration countries and 54 designated as pilot countries for the GA. Regional integrated pest management strategies (IPM) are being developed by these countries, with lessons learned in the demonstration countries shared with the pilot countries. The GA continues to support countries in managing FAW by conducting webinars and virtual training sessions on FAW monitoring and management, and by implementing activities where possible. The guidelines distilled several hundred primary resources to assess the efficacy, safety, sustainability and scalability of IPM interventions.



Source file: FAO, 2020. Conforms to Map No. 4170 Rev. 19 UNITED NATIONS (October 2020) *

Demonstration and pilot countries

North-East Asia: China, Democratic People's Republic of Korea, Japan, Republic of Korea

South-East Asia: Cambodia, Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Philippines, Thailand, Timor-Leste, Viet Nam

South Asia: Bangladesh, India, Nepal, Pakistan, Sri Lanka

Western Africa: Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Mali, Niger, Nigeria, Senegal, Sierra Leone, Togo

Eastern Africa: Burundi, Ethiopia, Kenya, Rwanda, South Sudan, Uganda

Southern Africa: Angola, Botswana, Eswatini, Lesotho, Madagascar, Malawi, Mozambique, Namibia, South Africa, United Republic of Tanzania, Zambia, Zimbabwe

Central Africa: Cameroon, Central African Republic, Chad, Congo, Democratic Republic of the Congo, Gabon, Sao Tome and Principe

Near East and Northern Africa: Egypt, Mauritania, Sudan, Yemen

FAW coordination

The Steering Committee (SC) for the Global Action for FAW Control was established in 2020, chaired by FAO DG with over 20 members from resource, research and development partners across the globe. The SC is supported by a Technical Committee (TC) chaired by the chief scientist of USAID with over 30 members from international and national research institutes. During 2020, three SC meetings and three TC meetings were organized.

Innovations and tools to fight fall armyworm

FAMEWS, a mobile app and global platform to collect and summarize data on FAW field scouting and pheromone trapping was updated, while FAMEWS data (showing infestation and prevalence) were integrated into the Tanzania Agrometeorology (TMA) Database. Further, a digital monitoring and an early warning system was developed for crop diseases and insect pests in China, as well as a quick-identification tool.

FAO promotes sound pesticide management

FAO continued to facilitate pesticide risk reduction throughout all steps of pesticide lifecycle management, including support to national policies and laws on pesticide management in five countries, environmental management plans in six countries and environmental risk assessment reports for six countries, pilot schemes for empty pesticides containers management in four countries, plus four international tenders for environmentally sound disposal of more than 900 tonnes of obsolete pesticides. FAO also provided over 100 pesticide clearance requests from various FAO Country Offices.

Promoting alternatives to hazardous pesticides

In 2020, teams in four sub-Saharan countries were trained on promoting safer alternatives to severely hazardous pesticide formulations (SHPFs) using the FFS methodology. In Rwanda, FFS/IPM training plots demonstrated the effectiveness of botanical pesticides in controlling plant pests and built strong community awareness on the negative effects of SHPFs. In Burkina Faso, Mali and Senegal, alternatives to synthetic chemical pesticides were tested, with a market study carried out to assess the accessibility and profitability of alternative plant protection methods. The most promising alternatives were proposed to farmers through established FFSs.

FAO responds to desert locust upsurge

In 2020, the worst desert locust upsurge in 25 years affected 13 countries in East Africa, the Near East and Southwest Asia. In total, 2 825 000 ha were treated in 22 countries, of which 1 958 000 with direct FAO support across the ten most affected countries. With USD 194 million mobilized, FAO supported the affected countries with material, equipment and innovative technologies for aerial and ground survey and control operations. FAO-supported operations averted the loss of an estimated 3 130 000 tonnes of cereal in East Africa and Yemen alone – enough grain to feed 21 million people for an entire year.

Innovations in monitoring, control of desert locust

The 2020 desert locust upsurge necessitated the development and implementation of innovative monitoring and early warning tools, and control systems. The eLocust3 system was expanded to include mobile phone (eLocust3m) and GPS (eLocust3g) versions. EarthRanger, a geospatial tracking system, was modified to manage aerial survey and control operations in three countries, with all field data made publicly available on the FAO/ESRI Locust Hub. New remote sensing products were developed to detect soil moisture and guide survey teams to potential breeding areas. And drones were deployed so survey teams could monitor larger areas for breeding conditions and locust infestations.

Technology promotion

Mechanization

Through an FAO partnership, African Conversation Tillage (ACT) carried out scoping studies in 2020 to address knowledge gaps and training needs of stakeholders with regard to sustainable agricultural mechanization (SAM). Studies took place in Kenya, Uganda, United Republic of Tanzania and Zambia, with outputs including knowledge and information products, online workshops and training.

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Scaling-up farmer field schools

Scaling-up of farmer field schools (FFS) was supported with the engagement of rural communities, governments and partners in 40 countries. Membership in the Global FFS Platform reached 131 countries. Ten new guides and reference documents were published to support FFS field work, including a report on *Integrating ICTs in FFS*, a book on *Farmer field schools, gender equality, social inclusion and community empowerment*, and FFS modules on agroecology, soil and watershed functions.

Evaluating agroecological performance

TAPE was developed in a collaboration between FAO and more than 70 experts to produce evidence on the performance of agroecological systems. TAPE uses and is closely linked to the 10 Elements of Agroecology framework, and both of these in turn support the Scaling Up Agroecology Initiative along agroecological transitions to sustainable agrifood systems.

Holistic assessment of climate resilience of farmers and pastoralists

The self-evaluation and holistic assessment of climate resilience of farmers and pastoralists (SHARP) tool was customized to serve as a reporting tool under the Paris Agreement's Enhanced Transparency Framework (ETF) in collaboration with FAO's Office of Climate Change, Biodiversity and Environment (OCB). New material was developed and training on SHARP undertaken in multiple countries in Africa and Asia. Use of the tools is being mainstreamed in the Global Environment Facility (GEF) portfolio.

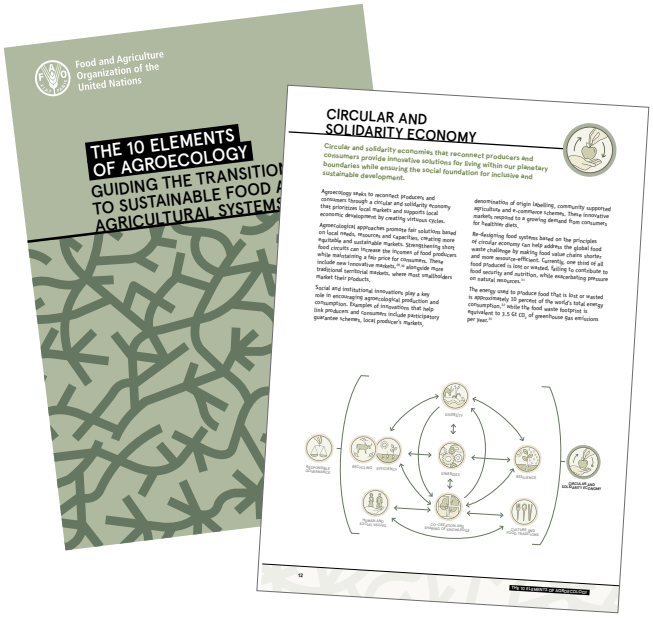
Normative work

Preparing the *Third Report on the State of the World's PGRFA*

Over 250 National Focal Points for PGRFA from approximately 60 countries attended training sessions for country reporting and the use of the online WIEWS Reporting Tool. The country reports form the basis for *The Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture*, which is expected to be submitted for endorsement to FAO's Commission on Genetic Resources for Food and Agriculture in 2023.

10 elements of agroecology

The 10 elements of agroecology analytical framework was approved by FAO Member States to guide FAO's vision on agroecology and facilitate improved decision-making by policymakers, practitioners and other stakeholders. A review paper was published describing the rationale and development process of the analytical framework; it brought together different streams of scientific evidence to support social-ecological transitions structured around the 10 Elements of Agroecology framework. *Link here:* https://www.tandfonline.com/doi/full/10.1080/26395916.2020.1808705



Heading to Rotterdam Convention COP10

A vigorous push was given to preparations for the Tenth Conference of the Parties of the Rotterdam Convention (COP10), with all relevant documents for the first round of distribution submitted ahead of time. The Bureau and President meetings, which were held online, reached important decisions to ensure the success of this important event on pesticide and chemical management. COP10 was agreed to be held in two segments: online in July 2021 and in-person over two weeks in 2022.

Joint meetings on pesticides

The 13th FAO/WHO Joint Meeting on Pesticide Management (JMPM) meeting took place on 20–21 October 2020. The meeting approved one new guidance on pesticide licensing and one revised guidance on pesticide labelling. The 19th FAO/WHO Joint Meeting on Pesticide Specifications (JMPS) was conducted virtually in two sessions in June and October 2020, with 56 new specifications and equivalences evaluated. The 2020 plenary session of the FAO/WHO Joint Meeting on Pesticide Residues (JMPR) was rescheduled to 2021 due to COVID-19. Group meetings were conducted virtually, with 35 compounds evaluated and more than 300 maximum residue limits (MRLs) estimated.

Communication and advocacy

World Pulses Day

FAO highlights pulses to fight hunger

The theme of World Pulses Day 2020 was "Plant proteins for a sustainable future", aiming to highlight pulses as an important plant protein source and to point to their valuable contribution to the 2030 Agenda. During a special ceremony held on 7 February 2020 at FAO headquarters, the Organization reiterated its commitment to continue working with all partners to improve the production and consumption of pulses as a means of contributing to healthy nutrition and sustainable agricultural and food systems.

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World Bee Day

World Bee Day 2020: safeguard declining food heroes

Protecting bees and beekeepers is crucial to supporting livelihoods in the light of COVID-19. This was the key takeaway from virtual celebrations of World Bee Day 2020, organized on 20 May by FAO in partnership with the Government of Slovenia, the Chinese Academy of Agricultural Sciences (CAAS) and Apimondia. The "Bee Engaged" theme focused on apiculture and good practices adopted by beekeepers to support their livelihoods, deliver quality products and ecosystem services.

International Year of Plant Health

The International Year of Plant Health (IYPH) 2020 promoted and recorded 700 events on plant health globally, which raised awareness of the importance of plant health among the public and policy makers. The IYPH was launched at a successful face-to-face event on 2 December 2019 in the presence of FAO Director-General Qu Dongyu. The IYPH portal and communication toolkit were also introduced, and are available at: http://www.fao.org/iyph.

The IYPH increased stakeholder engagement all over the world. Examples include IYPH airport and tram campaigns in Milan, Italy, IYPH flags flying on public buildings in the Republic of Korea, and the green lighting of landmarks, monuments and buildings in Canada, Mexico and the United States of America. EPPO launched the "Beastie the Bug" campaign and rebranded its "Don't Risk It" campaign to highlight the importance of preventing plant pest introduction when travelling.

Belgium minted 600 000 two-euro coins as regular-issue currency, while Italy and Mexico minted commemorative coins. 29 countries from all regions issued IYPH commemorative stamps. FAO Governing Bodies endorsed the establishment of an International Day of Plant Health, proposed by Zambia. Lastly, the IYPH saw the launch of the Scientific Review of the Impact of Climate Change on Plant Pests and the Youth Declaration on Plant Health, sparking further public interest on the topic.

Newsletters

Two new bimontly newsletters are published: *Plant Production and Protection*, on raising awareness of sustainable crop production and protection, and *Fall Armyworm Control in Action*, on measures being taken to address the threat of FAW. The *FAO Agroecology Newsletter* is published every month in English, French and Spanish on agroecology initiatives around the world, as well as its bulletins for desert locust.

Partnerships and network

NSP cooperates with over 130 different external partners, including over 30 key organizations to create synergies and achieve common goals. We are grateful to all our partners for the invaluable support they provide.
The following is a list of our leading partners by category.

11 United Nations Organizations

- Codex Alimentarius
- Convention on Biological Diversity (CBD)
- International Fund for Agricultural Development (IFAD)
- International Treaty on Plant Genetic Resources for Food and Agriculture
- United Nations Centre for Sustainable Agricultural Mechanization (UN-CSAM)
- United Nations Development Programme (UNDP)
- United Nations Environment Programme (UNEP)
- United Nations Office for the Coordination of Humanitarian Affairs (OCHA)
- United Nations Resident Coordinator Office (UNRCO)
- World Health Organization (WHO)
- World Meteorological Organization (WMO)

17 International/ Regional Organizations

- African Union (AU)
- Caribbean Community (CARICOM) Secretariat
- East African Community (EAC)
- European Commission Directorate-General for International Partnerships (INTPA)
- Global Crop Diversity Trust
- Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)
- International Coconut Community (ICC)
- International Seed Testing Association (ISTA)
- International Union for Conservation of Nature (IUCN)
- Islamic Organization for Food Security
- North American Pollinator Protection Campaign (NAPPC)
- Organisation for Economic Co-operation and Development (OECD)
- Organization of African, Caribbean and Pacific States (OACPS)
- Plant Genetic Resources Centre, Southern African Development Community
- Secretariat for the Pacific Community, Fiji (SPC)
- Secretariat of the Pacific Regional Environment Programme (SPREP)
- Southern African Development Community (SADC)

72 Academic and Research Organizations

- Aerospace Information Research Institute, Chinese Academy of Sciences, China (CAAS)
- Africa Rice Center
- African Forum for Agricultural Advisory Services
- Arizona State University, United States of America
- Bioversity International
- Brazilian Agricultural Research Corporation (EMBRAPA)
- Caribbean Agriculture Research and Development Institute (CARDI)
- Centre for Agriculture and BioScience International (CABI)
- Tropical Agricultural Research and Higher Education Center (CATIE)
- China Agricultural University, Beijing, China
- Climate Prediction and Applications Centre (ICAPC/IGAD)
- Columbia University International Research Institute for Climate and Society, United States of America
- Conservation Tillage Research Center (CTRC)
- Cornell University, United States of America
- EC Joint Research Centre (JRC)
- ETH Zurich
- European Centre for Medium-Range Weather Forecasts (ECMWF)
- European Confederation of Soil Science Societies
- Federal University of Rio Grande do Sul (UFRGS), Brazil
- French Agricultural Research Centre for International Development (CIRAD)
- French National Research Institute for Agriculture, Food and Environment (INRAE)
- Global Soil Biodiversity Initiative
- Institute for Agriculture and Food Industry, Rhone-Alpes (ISARA)
- Institute of Biometeorology of the National Research Council (IBIMET)
- Institute of Plant Protection, Chinese Academy of Agricultural Sciences (CAAS)

- Institute of Space Technique and Technology (ISTT), Kazakhstan
- Instituto de Investigaciones en Ecosistemas y Sustentabilidad, Universidad Nacional Autónoma de México (UNAM)
- International Center for Agricultural research in the Dry Areas (ICARDA)
- International Center for Biosaline Agriculture (ICBA)
- International Centre for Research in Agroforestry (ICRAF)
- International Center for Tropical Agriculture (CIAT)
- International Centre of Insect Physiology and Ecology (icipe)
- International Crop Research
- Institute for the Semi-Arid Tropics (ICRISAT)
- International Institute of Tropical Agriculture (IITA)
- International Livestock Research Institute (ILRI)
- International Maize and Wheat Improvement Center (CIMMYT)
- International Potato Cener (CIP)
- International Rice Research Institute (IRRI)
- International Water Management Institute (IWMI)
- Joint Research Centre – European Commission (JRC-EC)
- Latin American Scientific Society of Agroecology (SOCLA)
- Leeds University, United Kingdom of Great Britain and Northern Ireland
- Lund University, Sweden
- Michigan State University, United States of America
- National Agricultural Technology Institute (INTA), Argentina
- Nordic Genetic Resource Center
- Pennsylvania State University, United States of America
- School of Agriculture Foundation, University of Buenos Aires, Argentina
- School of Life Sciences, Chongqing University, China
- SERVIR, NASA
- Sorbonne University, France
- Sudan University of Science and Technology, Sudan
- TMG Research GmbH
- Tokyo University of Agriculture and Technology, Japan
- Transformative Partnership Platform (TPP)
- Trinity College Dublin, Ireland
- Tropical Agricultural Research and Higher Education Center (CATIE)
- Universidad de Guadalajara, Mexico
- Universidad de la República – Facultad de Agronomía, Uruguay
- Université Catholique de Louvain, Belgium
- University of Cambridge, United Kingdom of Great Britain and
- Northern Ireland
- University of Cape Town, South Africa
- University of Hamburg, Germany
- University of Konstanz, Germany
- University of Technology, Jamaica
- University of Zambia
- Vietnam Academy of Agricultural Sciences (VAAS)
- Wageningen University, Netherlands
- Warwick University, United Kingdom of Great Britain and Northern Ireland
- Wilfred Laurier University, Canada
- World Agroforestry Centre (ICRAF)/ Center for International Forestry Research (CIFOR)
- World Vegetable Center
- Zambia AgricultureUnited States

39 Industry and NGO Partners

- 51 Degrees
- Access Agriculture
- African Conservation Tillage Network (ACT)
- AGRHYMET Regional Center
- Agriterra
- AgroCare
- Agronomes et Veterinaires Sans Frontières
- Associação para a Cooperação e o Desenvolvimento (ACTUAR)
- Basel Convention Regional Centre for Training and Technology Transfer for the Caribbean (BCRC–Caribbean)
- Bioprotection global Biovision
- CARE International
- Coalition of the Willing on Pollinators (Promote Pollinators)
- Cooperativas Agrarias Federadas
- CropLife International
- CSA Alliance (China)
- Dan Church Aid (DCA)
- Digital Green
- Eastern Africa Field Schools Hub
- Eclosio
- Esri
- European Agricultural Machinery (CEMA)
- European Conservation Agriculture Federation (ECAF)
- Foundation PLAGBOL (Plaguicidas Bolivia)
- Garmin
- Global Food Security Cluster
- Global Pulse Confederation (GPC)
- Google
- GRUPO GEA (Peru)
- HEMAV Foundation
- Indian Meteorological Department
- Institute for Research and Promotion of Alternatives in Development (IRPAD)
- International Biocontrol Manufacturers Association (IBMA)
- International Federation of Organic Agriculture Movements (IFOAM)
- International Fertilizer Association (IFA)
- International Seed Federation (ISF)
- Lobelia/isardSAT
- Louvain Cooperation
- Mercy Corps

Transformation of FAO Plant Production and Protection

Internal management and professional development

With the appointment of Jingyuan Xia as the new Director for NSP, the Division embarked on a process of internal restructuring based on clearly defined standardization principles. Director Xia stressed the need to foster a "One Dynamic NSP", built on strategies to increase internal solidarity and external visibility, and to promote mindset, management and cultural innovations. It was agreed that approaches should be people-first, demand-driven, result-oriented and performance-based, all designed to bring positive transformation to NSP. By December 2020, two new sets of standard operating procedures had been adopted to facilitate workflow and clearance procedures (3 SOPs) and to improve quality control (10 SOPs). A new emphasis was placed on professional development in NSP. Specifically, plans were put in place to encourage technology promotion and transfer, while focusing on strengthening the two mainstreams of *optimization* (of yields, input efficiency, etc.) and *minimization* (of crop losses, pesticide residual risks, environmental contamination, etc.). To achieve the two mainstreams, four key technologies were identified: seed technology, cropping technology, protection technology and high technology.

Internal management

ONE goal	One Dynamic NSP
TWO strategies	**Solidarity; Visibility**
THREE innovations	Mindset; Management; Culture
FOUR approaches	People-centralized; Demand-driven; Result-oriented; Performance-based
FIVE outcomes	New mission; New structure; New mechanism; New performance; New glories

Professional development

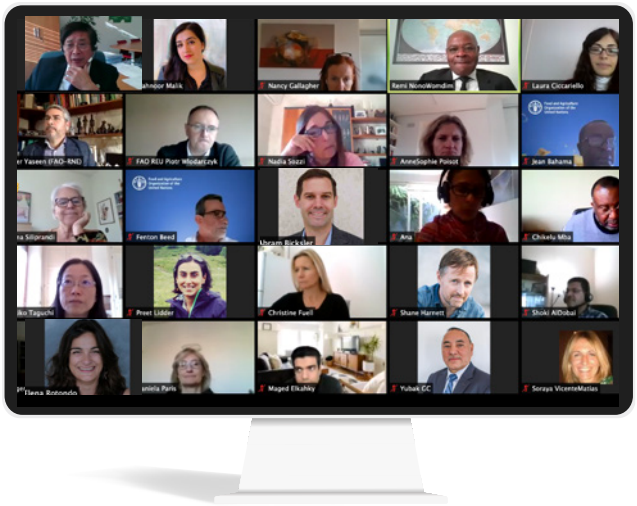
ONE goal	Technology Promotion and Transfer Center
TWO main streams	**Optimization; Minimization**
THREE innovations	Integration; Demonstration; Extension
FOUR technologies	Seed; Cropping; Protection; Modern
FIVE highs	Productivity; Quality; Diversity; Profitability; Sustainability

Desert Locust control team – a success story

The Desert Locust control team has worked tirelessly to rapidly roll out a multi-country desert locust response to tackle the worst upsurge of a generation. The team's response has produced significant successes, protecting millions of people's livelihoods and food security across the affected regions thanks to cross-cutting strategies and collaborations. The achievements did not go unnoticed by FAO Director-General Qu Dongyu, who assigned one of the ten team awards to the Desert Locust control team for the excellent work done during 2020. The team was proud to receive such recognition and has continued to work hard to improve upon the achieved successes.

Teamwork

NSP underwent important restructuring geared towards bolstering teamwork and improving working mechanisms across the Division. The process involved the creation of three brand-new task forces – Task Force for Communications and Advocacy (TFCA), Task Force on Professional Development (TFPD) and Task Force of Planning and Finance (TFPF) – and a dedicated Women's Group and Youth Group. The initiatives were welcomed as a positive step towards further connecting NSP employees from across different teams and encouraging a sense of working together for one common goal under difficult circumstances relating to COVID-19.



Culture building

NSP efforts to support team building in 2020 also extended to hosting an exciting end-of-year party, organized by the NSP Youth Group. Games were played, songs were sung – sometimes badly! – stories were told, and Director Xia took time to explain to NSP employees the great significance of the Chinese Year of the Ox, being celebrated in 2021.

Way forward

Dear Reader,

As you can see, we have achieved a lot in 2020, despite the challenging circumstances brought about by COVID-19. And in 2021 there will be no let-up!

With a new global focus on "building back better", FAO's Plant Production and Protection Division (NSP) plans to use this unique opportunity to reaffirm the importance that plant life on Earth plays in providing food security and nutrition, ecosystems services, livelihoods and a host of other benefits.

NSP will focus its activities for 2021 around the annual theme of "Enabling Food Security and Nutrition", in line with Sustainable Development Goal (SDG) 2. NSP will also align its work plans with FAO's proposed new Strategic Framework 2022–2031, which aims to achieve "MORE efficient, inclusive, resilient and sustainable agri-food systems for better production, better nutrition, a better environment, and a better life, leaving no one behind".

NSP will play a key role in FAO's contribution to the United Nations Food Systems Summit – with a pre-Summit in Rome in late July – which aims to increase understanding of the choices that affect the future of agri-food systems and to accelerate progress toward the SDGs. NSP will lead on FAO's new Global Action on Green Development of Special Agro-Products: One Country–One Commodity (OCOC), a five-year initiative that will integrate the economic, social and environmental dimensions of sustainable development targeted in the United Nations 2030 Agenda. The Division will also launch the Global Programme on Sustainable Dryland Agriculture, with the support of other FAO divisions and Decentralized Offices.

NSP will co-lead with other FAO divisions the International Year of Fruits and Vegetables 2021 (IYFV) and, with the IPPC, coordinate activities for the extended International Year of Plant Health 2020 (IYPH), including the IYPH closing ceremony on 1 July. NSP will lead celebrations for World Pulses Day 2021, the theme of which is "Love pulses – for a healthy diet and a healthy planet", and World Bee Day 2021, the theme of which is "Bee engaged – Build back better for bees", as well as being a key partner for World Food Day 2021. NSP will also organize a two-day "Global Conference on Green Development of Seed Industries" at FAO headquarters on 4–5 November 2021.

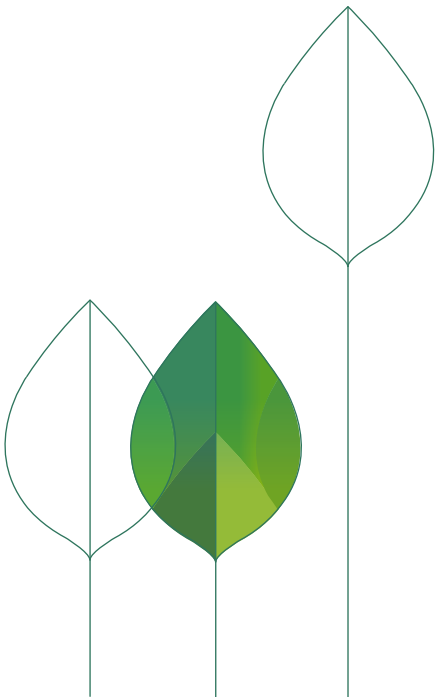
After USD 194 million were mobilized by FAO in 2020 to combat desert locust, NSP will continue to provide technical support and lead on capacity development in affected countries and develop innovative solutions to the desert locust crisis, including drones for surveillance. Meanwhile, work will continue on implementing regional integrated pest management (IPM) packages in all eight FAW Global Action demonstration countries (Burkina Faso, Cameroon, China, Egypt, India, Kenya, Malawi and the Philippines) and developing capacities for prevention and preparedness in countries where FAW has not been detected.

"NSP will focus its activities for 2021 around the annual theme of' Enabling Food Security and Nutrition', in line with SDG 2"

FAO, along with the United Nations Environment Programme (UNEP) and the World Health Organization (WHO), will launch the Action Plan on Highly Hazardous Pesticides (HHPs). The Action Plan will seek to eliminate harm associated with HHPs, and increase knowledge so that countries can make informed decisions on phasing out problematic pesticides, disseminate knowledge and good practices, and encourage adoption of non-toxic alternatives to HHPs.

And the Rotterdam Convention Secretariat will continue to reach out with all possible electronic tools to its 164 Parties and ensure the continuous successful delivery of technical assistance for the sound management of certain hazardous chemicals and pesticides.

As ever, we will rely on the support of all partners to achieve the best results over the coming year.



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