Food and Agriculture Organization of the United Nations

International Plant Protection Convention

INTERNATIONAL YEAR OF PLANT HEALTH 2020

PROTECTING PLANTS, PROTECTING LIFE

1 PLANT HEALTH AS A GLOBAL ISSUE

In December 2018, the United Nations General Assembly declared 2020 as the International Year of Plant Health (IYPH). The year is a once-in-a-lifetime opportunity to raise global awareness on how protecting plant health can help end hunger, reduce poverty, protect the environment, and boost economic development.

Why is plant health important?

Plants are the source of the air we breathe and most of the food we eat. Keeping plants healthy is crucial to ensure sustainable agriculture and food systems, as well as to protect the environment and ecosystems.

Healthy plants mean healthier people. However, we often overlook this important link. This can have devastating results. For example, the Food and Agriculture Organization of the United Nations (FAO) estimates that up to 40 percent of food crops are lost to plant pests and diseases annually. This leaves millions of people without enough food to eat and seriously damages agriculture – the primary source of income for poor rural communities.

Plant health is increasingly under threat. Climate change and human activities have altered ecosystems, reducing biodiversity and creating new niches where pests can thrive. At the same time, international travel and trade, which have tripled in volume in the last decade, can quickly spread pests and diseases around the world causing great damage to native plants and the environment.

What are we doing about it?

As with human health, protecting plants from pests and diseases is far more cost-effective than dealing with full-blown plant health emergencies. Indeed, plant pests are often impossible to eradicate once they have established themselves and managing them is time consuming and expensive. Prevention is critical to avoiding the devastating impact of pests and diseases on agriculture, livelihoods and food security.

Developing and supporting the implementation of international standards for phytosanitary measures is the core business of the International Plant Protection Convention (IPPC). By adhering to IPPC standards, pest risks are effectively managed, ensuring safe and efficient trade of plants and agricultural products and supporting developing and developed countries in accessing new markets.

Because of the strong links between plant health and environmental protection, FAO encourages environmentally friendly ways of dealing with pests, such as through integrated pest management. Minimizing the use of poisonous substances when dealing with pests not only protects the environment, it also protects pollinators, natural pest enemies, beneficial organisms and the people and animals who depend on plants.

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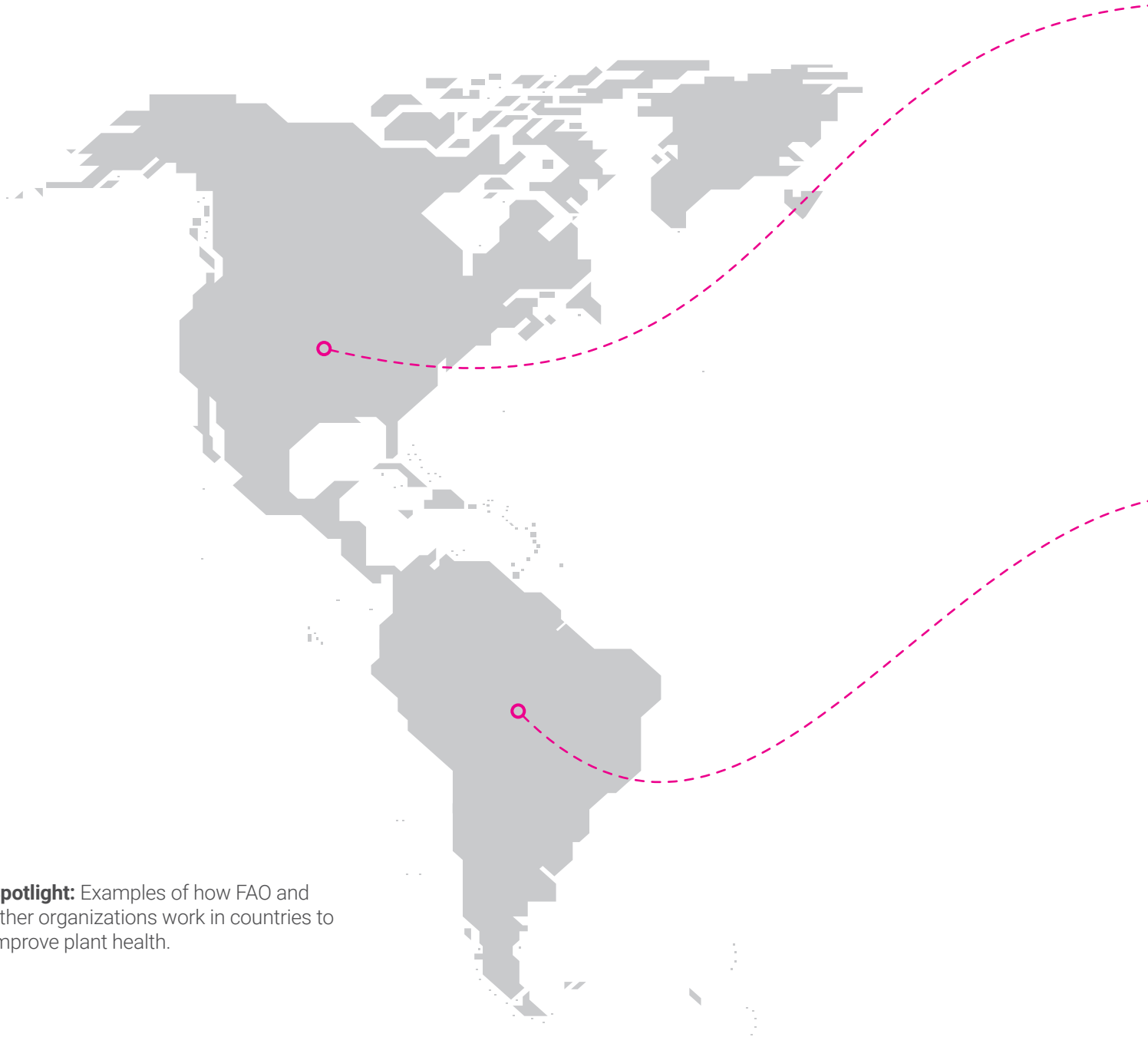
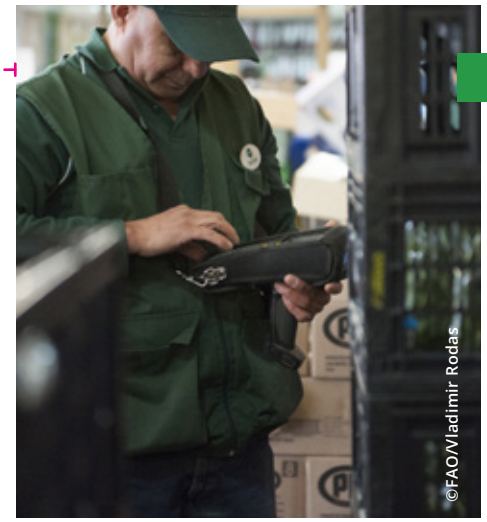
2 IMPROVING PLANT HEALTH AROUND THE WORLD



Spotlight: Examples of how FAO and other organizations work in countries to improve plant health.

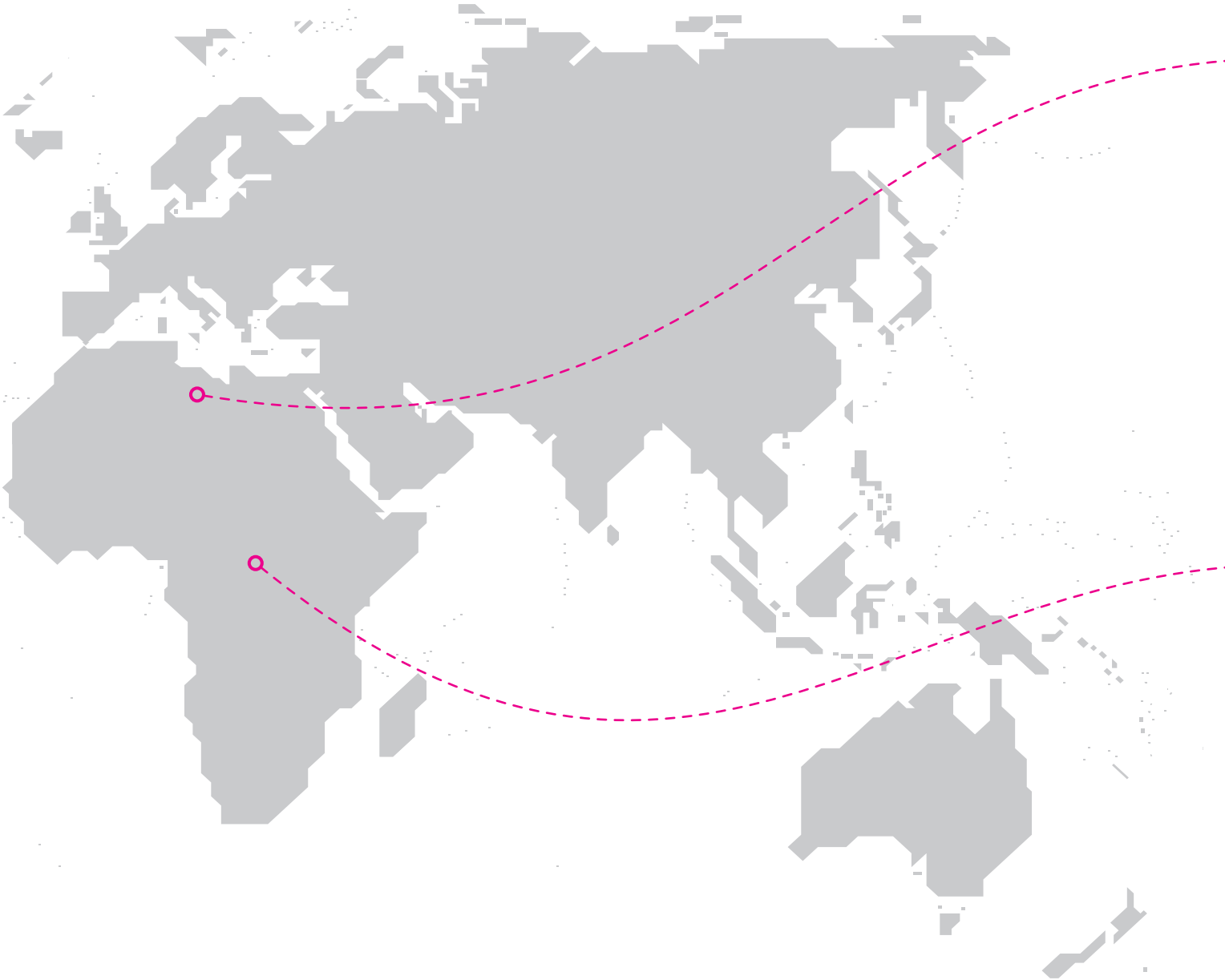


North America

The incident command system was developed in the United States of America in the 1970s and is now used throughout state and federal programmes for emergency response, including eradication programmes for plant pests such as the European cherry fruit fly and spotted lanternfly. The incident command system is based upon five management functions – command, planning, operations, logistics and finance/administration – providing a standardized approach to the command, control and coordination of emergency response, with clear lines of authority and responsibility. For every incident or event, the problem must be identified and assessed, a plan to deal with it developed and implemented, and the necessary resources procured and paid for.

Latin America and Caribbean

The Organismo Internacional Regional de Sanidad Agropecuaria (OIRSA) is the regional plant protection organization for Central America, with nine member countries. It has a well-established and functioning pest outbreak alert-and-response system. This system once facilitated the successful eradication of a flying-locust incursion within 18 hours of its detection, thanks to excellent coordination with government authorities and appropriate communication procedures. The pine bark beetle, pink hibiscus mealybug, citrus Huanglongbing, coffee rust, Mediterranean fruit fly (medfly), yellow sorghum aphid and Fusarium wilt Tropical race 4 are also included, among others, in the system. The system includes the designation of specific financial resources solely available for emergencies and having an interdisciplinary pool of subject-matter experts ready to intervene as “commandos” in the event of an outbreak. In order for countries to be prepared, OIRSA organizes simulation exercises, and helps the NPPO to organise an emergency response.

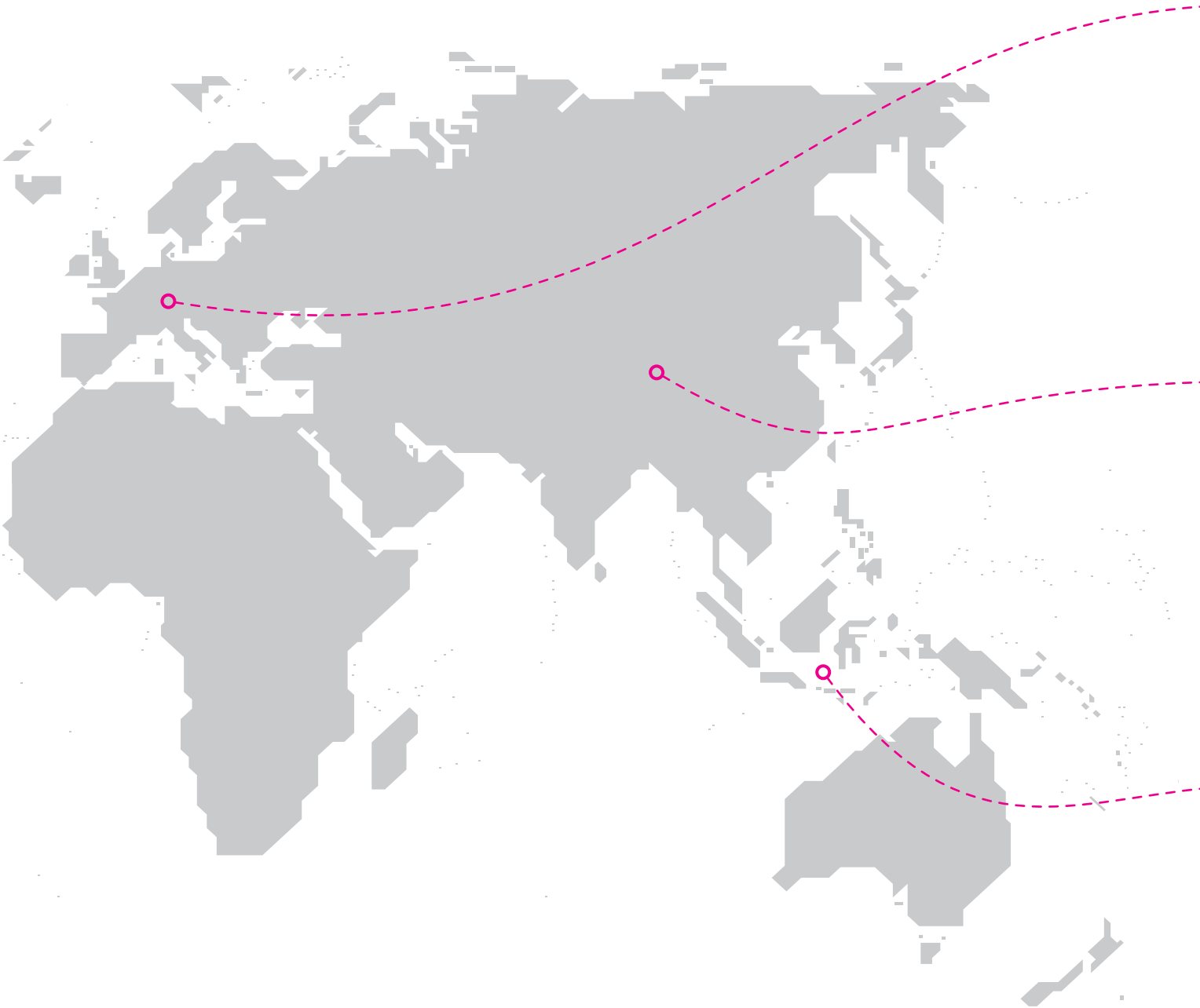


North Africa and Near East

FAO worked with the government of Libya to provide emergency assistance to manage the date palm green pit scale insect in infested areas, and limit its spread to non-infested areas in other regions of Libya. The project aimed to preserve the wealth of the Libyan oases, which represent a social and economic asset, with more than 6 million date palm trees spread over a wide geographical area. FAO's intervention increased the capacity of farmers and government specialists to identify and control the insect, and improved skills among key stakeholders for surveillance and enforcement measures, enhancing coordination in fighting against the pest.

Africa

In Gabon, the Congo and Cameroon, FAO supports schools in the development of school gardens through the green classes approach. This initiative aims at producing healthy fruits and vegetables to improve the nutritional quality of foods consumed by students. The project promotes the development of micro-gardens without chemical pesticides and the use of recycled containers (bags, plastic bottles, cans, etc.). Schools use biological alternatives and physical traps to control plant pests. This approach allows schools to produce and consume healthy products while protecting the environment and the health of consumers.



Europe

Integrated Pest Management Farmer Field Schools are part of an FAO initiative that supports farmers to increase crop production in sustainable ways. In the Republic of Moldova, it has enabled farmers to grow tomatoes in an environmentally friendly manner. Farmers received training on managing the most widespread pests and diseases as well as supporting materials for symptomatic detection, diagnostics, prevention and control methods. As a result of the training, farmers have started using shadow and insect nets in greenhouses as well as pheromone and sticky traps against insects. The project has increased the capacity of farmers to adapt to sustainable crop management practices, while also preventing the spread of pests.

Asia

Unmanned (or uncrewed) aerial vehicles, commonly known as drones, are widely used in the agricultural sector, including for plant protection. This is particularly the case in China, where the number of drones used for plant protection reached 50 970 in 2019, covering a working area of 29.4 million hectares. Technological changes in recent years have allowed the deployment of drones with high-definition cameras for monitoring and surveillance activities, and the use of infrared cameras to estimate the number of live pests such as red imported fire ants. Drones can also be used for quantitative or precision spraying and spreading of pesticides, such as when tackling the vector of Huanglongbing in citrus orchards over wide areas and complex terrain.

South West Pacific

Citrus canker is a disease that affects citrus species. It was detected for the first time in the Solomon Islands in 2010. The infected citrus material was imported into a laboratory in New Zealand. While this laboratory had worked with many pathogens, they had not previously isolated *Xanthomonas citri* subsp. *citri* (Xcc) from infected plant material. By following IPPC Diagnostic Protocol 6, which outlines methods for isolation, identification and pathogenicity testing for Xcc, they were able to isolate the bacterium, validate the identification using biochemical and molecular tests, and conduct pathogenicity testing. IPPC diagnostic protocols enable rapid and accurate diagnosis of pests and diseases.

3 WHAT CAN COUNTRIES DO?

There are many ways in which governments can protect plant health, thereby enhancing food security, protecting the environment, and facilitating trade.

- Promote public awareness campaigns on the importance of plant health and what everyone can do to protect plants.
- Invest in plant protection organizations and ensure that they have adequate human and financial resources.
- Invest more in research related to plant health and in innovative practices and technologies, and provide incentives for the private sector and farmers to do so too.
- Ensure that phytosanitary import requirements are based on IPPC standards and are technically justified, consistent with the pest risk involved, represent the least restrictive measures available, and result in the minimum impediment to the international movement of people, commodities and conveyances.
- Enforce plant health standards and strengthen plant protection capacity, including by conducting a phytosanitary capacity evaluation (PCE) in collaboration with the IPPC Secretariat.
- Strengthen monitoring and early warning systems to protect plants and plant health.
- Align policies and actions with Sustainable Development Goals related to plant health, in particular those aimed at eliminating hunger and malnutrition and reducing poverty and threats to the environment.

Spotlight: Aiming for excellence by conducting a phytosanitary capacity evaluation

A phytosanitary capacity evaluation (PCE) is a process which brings together all relevant national stakeholders to help countries identify strengths and weaknesses in their phytosanitary systems. As agriculture represents almost eight percent of Nicaragua's gross domestic product, Nicaragua's Instituto de Protección y Sanidad Agropecuaria (IPSA), in collaboration with The Food and Agriculture Organization of the United Nations (FAO), agreed to conduct a PCE. A major output of this PCE will be the revision of Nicaragua's phytosanitary legislation. Another output will be the elaboration of a National Phytosanitary Capacity Development Strategy, detailing very precisely the activities to be carried out to improve the National Plant Protection Organization (NPPO). This will be shared with donors in order to mobilize resources. High-level officials in the country are fully aware of the whole process. Stakeholders – including importers, exporters, producers, the environment and trade sectors, and representatives from universities and from the regional plant protection organization Organismo Internacional Regional de Sanidad Agropecuaria (OIRSA) – have been fully involved. The PCE process achieved its goal of developing important products for which IPSA and all relevant stakeholders in the country have ownership. In 2020, Nicaragua should have the latest and most updated phytosanitary law in the world and have a clear road map to improve its phytosanitary system!

4 WHAT CAN THE PRIVATE SECTOR DO?

Private businesses play a key role in plant health as they can contribute to the development of global plant health standards and help implement them. The private sector is also a driver of innovation in the plant health domain and a key player in the production and protection of plants and plant products.

- Promote environmentally friendly products and practices for preventing and managing pests.
- Make trading and transportation of plants and plant products safer by complying with international plant health standards and legislation.
- Inform clients that transporting plants and plant products may spread plants pests and diseases – sometimes with devastating results.
- Sustain plant health innovative practices and the use of new technologies to facilitate market access in line with international standards.

Spotlight: Plant health begins with seed health

The seed industry is a truly global and dynamic business, with breeding, production and trade taking place in numerous countries and across international borders every day. Seed companies contribute to plant health through the availability of healthy seeds that are routinely tested to prevent or control plant pests that may affect seed quality, seed movement, and their introduction into new territories. The International Seed Health Initiative for Vegetable Crops – a seed industry platform formed in 1993 under the aegis of the International Seed Federation – develops reference methods for vegetable crops for a consistent evaluation of seed health. Its methods for bacterial canker and viruses in tomato, for instance, are used all around the world. The seed industry also plays a significant role in gathering and sharing knowledge. The Regulated Pest List Initiative was launched in 2007 and has resulted in a dynamic database based on sound scientific information that serves as a resource for the industry as well as regulatory bodies when assessing the risk of seeds as potential carriers of unwanted pests.

5 WHAT CAN FARMERS AND AGRIBUSINESSES DO?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Men and women in agriculture play a vital role in protecting plant health. If you are a farmer or work in an agribusiness, you can have a direct influence on plants, and help to keep them healthy.

- Regularly monitor and report the occurrence of pests on your farms.
- Adopt environmentally friendly pest management practices – including those based on biological approaches that do not kill pollinators, beneficial insects and organisms.
- Take advantage of modern digital technology, such as mobile apps and software to access information about how to prevent and manage plant pests or diseases or report outbreaks.
- Prevent the spread of pests by using only certified pest-free seeds and seedlings.

Spotlight: Environmentally friendly pest management

Methyl bromide has been widely used as a fumigant for control of plant pests, but it has contributed to the depletion of the ozone layer. The University of Turin and Agroinnova in Italy has helped phase out the use of methyl bromide in Italy by developing alternative methods for soil and substrate disinfestation. These methods have been shared and implemented in China, Morocco and Kenya. Growers in these countries played a crucial role in making this initiative successful. Using a combination of grafting, soil solarization and simple methods of soilless cultivation, growers were able to greatly reduce, and ultimately phase out, the use of methyl bromide, while managing to keep soil-borne pests under control and avoiding production losses. This has proven to be a good example of cooperation between researchers, private companies, international agencies, and growers, for environmental benefit.

6 WHAT CAN WE ALL DO?

Plant health regulations are in place to protect agriculture, forestry and the environment. Many plants and plant products (e.g. seeds, vegetables, cut flowers) cannot be transported without official authorization.
If you intend to transport plants, make sure that you are not infringing these laws by contacting your national plant health authorities beforehand.

- Be careful when taking plants and plant products with you when you travel as they may spread plant pest and diseases.
- Be cautious when ordering plants and plant products online or through postal services as small packages can easily bypass regular phytosanitary controls.
- Contribute to the global awareness campaign on #PlantHealth throughout 2020 and beyond.
- Take daily actions to reduce your environmental impact and actively engage in initiatives to protect and manage natural resources.

Spotlight: Reducing the spread of pests through firewood

The movement of untreated firewood can lead to the spread of pests and diseases, including those harboured in the wood or bark. As such movement posed a substantial risk to Canada's economy and environment, the Canadian Food Inspection Agency mounted a public-awareness campaign highlighting the risks involved, and encouraging people to buy and burn their firewood locally, both when at home and when camping. Using eye-catching posters and stickers, the message was stark, that "a single piece of firewood can destroy millions of trees," and the action needed was clear: "Don't move firewood."

7 DID YOU KNOW?

PLANTS MAKE UP 80% OF THE FOOD WE EAT AND PRODUCE 98% OF THE OXYGEN WE BREATHE.

PLANT PESTS ARE RESPONSIBLE FOR THE LOSS OF UP TO 40% OF GLOBAL FOOD CROPS, AND FOR TRADE LOSSES IN AGRICULTURAL PRODUCTS EXCEEDING USD 220 BILLION ANNUALLY.

THE ANNUAL VALUE OF TRADE IN AGRICULTURAL PRODUCTS HAS GROWN ALMOST THREEFOLD OVER THE PAST DECADE, LARGELY IN EMERGING ECONOMIES AND DEVELOPING COUNTRIES, REACHING USD 1.7 TRILLION.

BENEFICIAL INSECTS ARE VITAL FOR PLANT HEALTH SINCE THEY POLLINATE MOST PLANTS, KEEP PESTS IN CONTROL, MAINTAIN SOIL HEALTH, RECYCLE NUTRIENTS, AND MORE.

FAO ESTIMATES THAT AGRICULTURAL PRODUCTION MUST RISE BY ABOUT 60% BY 2050 IN ORDER TO FEED A LARGER AND GENERALLY RICHER POPULATION.

MORE PLANT PESTS ARE APPEARING EARLIER IN THE SEASON AND IN PLACES WHERE THEY WERE NEVER SEEN BEFORE DUE TO CLIMATE CHANGE.

CLIMATE CHANGE IS HAVING A BIG IMPACT ON PLANT HEALTH. IT THREATENS TO REDUCE BOTH THE QUALITY AND QUANTITY OF CROPS, LEADING TO LOWER YIELDS. RISING TEMPERATURES ARE ALSO EXACERBATING WATER SCARCITY, AND CHANGING THE RELATIONSHIPS BETWEEN PESTS, PLANTS AND PATHOGENS.

WHEN YOU AS A CONSUMER ARE ABLE TO PURCHASE A FOREIGN FRUIT OR VEGETABLE IN YOUR LOCAL STORE, OR A FOREIGN HOUSEPLANT FROM YOUR LOCAL NURSERY, AN IPPC STANDARD HAD SOMETHING TO DO WITH IT – USUALLY AS A RESULT OF AN IPPC-DEVELOPED TREATMENT TO PREVENT A PEST OR DISEASE FROM COMING ALONG WITH IT FOR THE RIDE.

EVEN THE WOOD PALLET THAT HELD YOUR NEW TELEVISION SET OR WASHING MACHINE HAS BEEN TREATED THANKS TO AN IPPC STANDARD TO PREVENT A HARMFUL FOREST PEST MAKING THE TRIP WITH IT FROM THE MANUFACTURER.

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#PlantHealth #IYPH2020

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