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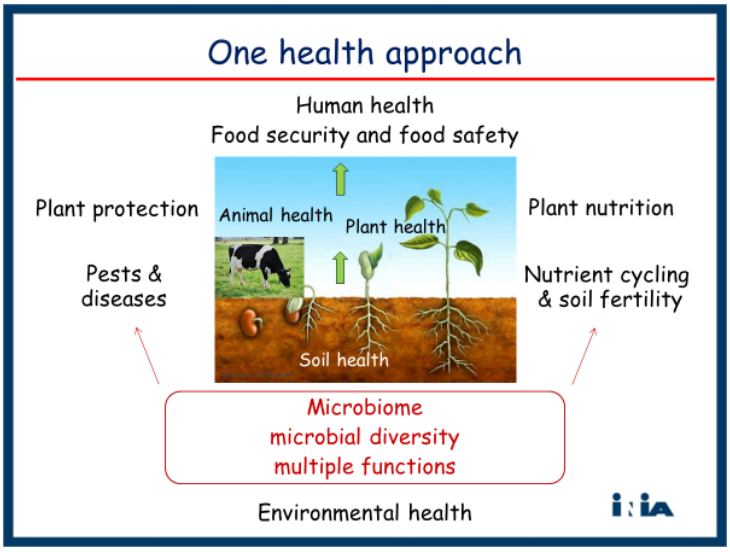
THE "ONE HEALTH" APPROACH: CONSIDERATIONS IN THE INTERNATIONAL YEAR OF PLANT HEALTH

The concept of "one health" has gained strength at a global scale. It became more relevant since the emergence of Covid-19, acting as a reminder that many pandemics in human history originated from the transmission of animal pathogens to human hosts. The term summarizes a notion that has been known for more than a century: human and animal health are interdependent and linked to the ecosystems in which they coexist. In the International Year of Plant Health 2020, as declared by the United Nations General Assembly, it is crucial that the agricultural sciences call attention to the need for considering the plant health as a fundamental pillar of the "one health" approach. Plant health is closely linked to soil health, and both are influenced by the microbial communities that inhabit and affect them: the microbiome.



Plants and their microbiome are the basis of life on earth. Plants are custodians of our air, our food and our environment. A threat to plant health is also a threat to food safety and security, and thus a threat to the health, well-being and prosperity of people around the world, especially the most vulnerable ones. Proofs of this can be found in historical events such as the epidemic of late blight in potato (caused by *Phytophthora infestans*), which triggered the Irish famine in 1845 and killed millions of people; or the devastation of crops and pastures caused by locusts, biblical plagues that are re-emerging with increasing frequency and voracity.

On the other hand, agricultural practices that base crop health on the exclusive use of agrochemicals imply a risk to human health from the direct or indirect exposure to residues in food and can also have a negative impact on the environment. In the context of agroecological production based on the sustainable management of natural resources, integrated pest management

has been promoted to reduce the use of pesticides and mitigate negative effects on human and environmental health. The combination of genetic resistance with cultural and biological control have contributed to achieving this goal. Additionally, the management of the microbiome offers the opportunity of addressing both plant nutritional and health issues through engineering of the continuum between environmental, plant, animal and human health. An understanding of the microbiome structure and functions will lead to new biological, chemical and breeding strategies to improve crop health, productivity and sustainability.

There is a need for increased investment in research and communication capacities that focus on plant health to mitigate the damage caused by pests and diseases, and to promote the health of the soil as a source of nutrients. It is also necessary to strengthen the training of young human resources in the area of plant health, incorporating the concept of "one health" to the new generations.

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ON-LINE TRAINING COURSE ON IPM OF DATE PALM PESTS AND DISEASES

As part of the date palm project in the Gulf countries "Development of Sustainable Date Palm Production Systems in the GCC Countries of the Arabian Peninsula**",** ICARDA organized an on-line training course on integrated pest management (IPM) of date palm pests and diseases from 30 November to 10 December 2020. A total of 12 participants (5 females, 7 males) attended this training course, 2 from KSA, 2 from Oman, 2 from Qatar, 1 from UAE, 2 from Bahrain and 3 from Kuwait. The objectives of this training were:

a. To get acquainted with IPM principles and practices

b. To learn about surveillance guidelines and methods of how to design, plan and conduct surveys of pests and diseases of date palm

c. To learn about management methods of pests and diseases of date palm

d. To learn how to design, collect and analyze IPM data from experiments on date palm pests and diseases

e. To learn about the geotagging of the field data, data fusion and spatial analysis

The trainers in this course were: Dr. Salim Al Khatri (Entomologist, Ministry of Agriculture, Fisheries and Water Resources, Oman), Dr. H. EL-Shafie (Entomologist, Date Palm Research Center of Excellence, King Faisal University, KSA), Dr. R. Faleiro (Red Palm Weevil specialist,

India), Dr. M. Z. Khalaf (Integrated Pest Control Research Center, Directorate of Agricultural Research, Ministry of Science & Technology, IRAQ), Dr. M. H. Sedra (date palm pathologist, Morocco), Mr. K. El Shamaa (Biometrics, ICARDA-Cairo), Dr. C. Biradar (Geoinformatics Unit, ICARDA-Cairo) and Dr. M. El Bouhssini (Entomologist, ICARDA, Morocco).

In addition to lectures, there was a practical session organized on the 9th of December. The trainees were asked to visit two date palm farms and make the following observations: 1) Pests/diseases present in each farm; 2) their incidence and damage severity; 3) current control and other management practices used at the farm; 4) suggest an IPM program for the key pests/diseases found. Participants from each country reported back their findings about their field visits on the 10th of December, which they presented and discussed with the lecturers.

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GUMMY STEM BLIGHT, AN EMERGING DISEASE OF BOTTLE GOURD

Gummy stem blight caused by the fungus *Didymella bryoniae* is one of the newly emerging problems of bottle gourd *(Lagenaria siceraria)* in Jammu and Kashmir in India. In Jammu division (Samba districts villages viz. Patli Morh, Jakh, Mawa, Bainglar, Sadoh, Kangwala) reported 50% infected crop exhibiting abnormal Gummy stem blight symptoms affect all above-ground vegetative and reproductive parts of cucurbits, including leaves, petioles, vines, stems, tendrils, pedicels, flowers, peduncles, fruit, and seed.

Generally, early symptoms include leaf spots at the margins of the leaves with half of the spots towards the margins. As leaf spots expand, they cause extensive blighting of the leaf. Actively expanding lesions on leaves, petioles, and pedicels are often water-soaked (typical symptoms in the picture on the left). Constricting lesions at the apex or the base of the petiole or on the mid rib of a leaf may cause the entire leaf to collapse. Gummy stem blight can be distinguished from cucurbit anthracnose by the larger leaf spots, larger lesions that encircle petioles, and crown cankers. During the year 2018 (35%), 2019 (51%) and in 2020 (59%) gummy stem blight occurred on seedlings of watermelon, muskmelon, and other cucurbits grown in the farmer's field. Surrounding seedlings can easily be infected by secondary spread of the disease.

Suggested management:

- Carbendazim 12% + Mancozeb 6.3 % WP @ 2 ml/L of water.
- Prophylactic method for the next season Seed treatment with *Trichoderma viride* @ 3 g / kg of seed.
- Application of Neem oil @ 10 ml / L or Copper Oxy chloride @ 3 g / L of water, especially drenching the area affected by this disease.
- Crop rotation: Rotate crops, carefully removing all diseased debris. Crop rotations with non-host plants like moong mash, corn, of two or more years are effective in reducing the incidence of these diseases.

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IAPPS Mission: to provide a global forum for the purpose of identifying, evaluating, integrating, and promoting plant protection concepts, technologies, and policies that are economically, environmentally, and socially acceptable.

It seeks to provide a global umbrella for the plant protection sciences to facilitate and promote the application of the Integrated Pest Management (IPM) approach to the world's crop and forest ecosystems.

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