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**Written reports from relevant international organizations - HighPrecise-
IPM: A New Plant Health Paradigm of CIHEAM¹**

Agenda item 14.3

Prepared by the CIHEAM²

English only

1. Plant health is one of the main pillars of the CIHEAM Strategic Agenda 2025 – adopted in 2016 by the Ministries of Agriculture of CIHEAM Member States - and it is approached through: *training* of researchers, officers, professionals; *applied research* linking local scientists with the international research communities; *participatory governance* encouraging discussions and interactions among scientific, institutional and private stakeholders; and *cooperational* developing programmes enhancing country capacity building and awareness raising.

2. Based on over 30 years of experience in the plant health sector, CIHEAM of Bari has developed a high-precision approach to integrated pest management (HighPrecise-IPM) that integrates several innovative tools and methods (remote sensing, computer science, statistics, forecasting models, biotechnology, metabolomics, sensors, etc.), both horizontally and vertically, to design advanced and environmentally friendly plant protection systems on a territorial and farm scale, even in inaccessible areas. This new plant health paradigm provides valuable decision support for early surveillance, detection and sustainable management of pests and diseases, primarily avoiding the risk of transboundary entry and spread. CIHEAM of Bari has promoted and participated in several research and

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cooperation initiatives in the field of plant health by developing innovative technological tools for the acquisition and accurate management of data on site, spatial surveillance and early detection of pests etc. (e.g. XylApp_{EU}, XylDataBase_{NENA}, algorithms for pest recognition; automatic procedure for counting trees; Copernicus program for crop status assessment). In view of the International Year of Plant Health in 2020, CIHEAM of Bari is strengthening cooperation with several international organizations for joint initiatives in the field of plant health, focusing on a high-tech approach, e.g. - jointly with IPPC, a course dedicated to "Plant Health Capacity Development" is held annually at CIHEAM of Bari for national plant protection officials from around the world as part of the MSc course on "Sustainable IPM Technologies for Mediterranean Fruit and Vegetable Crops"; - together with FAO and NEPPPO, dedicated workshops, training and specific IT tools for the surveillance and precise management of major quarantine pests (e.g. *X. fastidiosa*, Red palm weevil), which can have direct effects on the security of international trade, were provided to plant protection services, mainly from NENA countries; - jointly with EUPHRESKO and EPPO, a dedicated research project was developed to explore the opportunities and limitations of remote sensing applications in the field of plant health with regard to the mapping of plant hosts, pest surveillance, pest outbreak monitoring, spatial and temporal spread of pests, and to assess the effectiveness of plant health measures applied.

3. This new paradigm requires new professional figures with multidisciplinary knowledge to meet the challenges of precision plant health: maximum efficiency, i.e. "more output with less input", therefore less interventions and use of pesticides (less pollution of the environment, less risks for the operator, less residues in food etc.) but more production and quality, economic advantage, environmental safeguard and safety of international trade.