Mini Simposium

Towards EXPO 2015: Feeding the world

Verso EXPO 2015. Nutrire il mondo: produrre di più, produrre meglio

con AIPP, SEI/SEA e SIGA e con il patrocinio di EXPO 2015 e Ministero Affari Esteri

EXPO MILANO 2015

Ministero degli Affari Esteri
e della Cooperazione Internazionale

KEYNOTE PRESENTATIONS

PLANT PATHOLOGY AND COOPERATION FOR THE DEVELOPMENT

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Plant diseases and related effects are detrimental for any Country and rural community. The crop losses caused by pathogens before and/or after the harvest threaten both the security and the safety of the agricultural production but worse are their effects occurring in periphery Countries.

The necessity of food and its sustainable production deserve to be considered with a global approach, able to lead at a "harmonious" and proper development of integrated protection and production. Then, the increasing demand of food and/or better food is the challenge for the coming years with the consciousness that this is a basic need for any kind of population.

In addition, increasing trade activities and global plant material exchanges imply the potential spread of pathogens and diseases, often threats for production and biodiversity preservation, in particular in those areas where suitable plant quarantine institution lacks or it is weak.

Up to now, cooperation and collaboration among researchers, Extension and Phytosanitary Services contributed to share information, exchanges and production of scientific achievements and, in some cases, development and technology transfer. Several Italian projects focused on plant protection for emergency issues and IPM (Integrated Pest Management) programs are often carried out in collaboration with researchers of local Countries, Donors and NGOs (Non Governmental Organization).

Therefore, such collaboration frame might form a robust and broad network among the different players, entailing the need of an effective coordination. In this perspective the support and the contribution of Italian Cooperation and its Local Technical Units might give an important impulse, in particular in the perspective of EXPO 2015 and its peculiar task.

INTERNATIONAL COOPERATION IN PLANT PROTECTION

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Plant protection can significantly improve food availability, as well as food security and safety, in developing countries. Integrated Pest Management (IPM) i.e., as stated by the Office of Technology Assessment (1990), "the optimization of pest control measures in an economically and ecologically sound manner, by the coordinated use of multiple tactics to assure stable crop production and to maintain pest damage below the economic injury level whilst minimizing hazards to humans, animals, plants and the environment", is presently considered the most suitable method for achieving a sustainable reduction of yield losses, of toxicological hazards for human and animal health and of environmental pollution. IPM is widely applied in Italy, due to the intense cooperation between research institutes and phytosanitary services which lead to the formulation of integrated production protocols concerning the main crops cultivated in each region. IPM application requires a correct identification of the causal agent of diseases/infestations which is often lacking in developing countries. Continuative field schools, based on weekly crop surveys, can greatly improve the expertise of the farmers and be used for collecting information useful for the formulation of specific integrated plant production protocols. Biodiversity which is usually higher in developing than in developed countries should be carefully preserved and the most promising genotypes eventually collected and characterized. Numerous means usually utilized in IPM, such as resistant cultivars and suitable Plant Protection Products (PPPs) are often not available in developing countries. In particular, PPPs regulation is in the great majority of countries approximate or lacking, leading to the import and use of PPPs that are not allowed in Europe or USA. Regulatory difficulties affect not only the farmer, animal and environment security, but also prevent the export of many crops and especially of high revenue crops, such as coffee, cocoa and so on. The Italian Ministry of Agriculture and phytosanitary services are currently working in the framework of Twining Projects with various extra-European countries which are expected to enter soon into the European Community, in order to update their regulation concerning PPPs. Cooperation in plant protection with developing countries should be focused on teaching activities involving practical lessons in the field, on developing site-specific integrated production protocols with local extension services, on preserving the local biodiversity and, finally, on the harmonization of the PPPs regulation.

ASPECTS RELATED TO DECISION SUPPORT TOOLS AND INTEGRATED PEST MANAGEMENT OF STORED PRODUCT PROTECTION IN AFRICA

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Stored-product insects have an economic impact in three general ways: direct loss of biomass due to insects consuming stored commodities; loss of product 'quality' or 'value' due to the presence of insects; and costs associated with preventing or treating insect infestations. It has been estimated that 5-10% of stored grain in developed countries and 35% of stored grain in developing countries is lost to insects damage. However, in many parts of the developing world, stored grain loss due to insect consuption and contamination can range up to 75% and directly threaten human health.

In Sub-Saharan Africa (SSA) losses of grain quantity (weight losses) and losses of grain quality both deprive the farmers of the benefits of their labours. The significance of grain losses has been reviewed in the 'Missing Food' report (World Bank, 2011). This report emphasises the importance of viewing cereal losses not just as a loss of food but as a loss of all the resources that go into creating food, i.e. labour, land, water, fertiliser, insecticide etc. It suggests that the value of losses amounts to about US$ 4 billion for SSA, which exceeds the value of total food aid received by SSA in the decade 1998-2008, equates to the value of cereal imports to SSA in the period 2000-2007, and is equivalent to the annual calorific requirement of at least 48 million people.

There are a number of tools available for pest management in stored product protection, but often the effectiveness of these approaches and how best to integrate them into a coherent and effective Integrated Pest Management (IPM) programme are not well understood. Many questions remain about the use of these tools, from the very practical issues such as how many traps are needed and which types work best, to fundamental issues concerning the relationship between trap captures and pest population density, distribution and level of product infestation. Limited acceptance of IPM in stored-product is partially explained by a combination of: costs of responsive pest control interventions; difficulty in sampling properly, combined with unreliable sampling data; calculations of action thresh- olds being too simplistic. In operational practice precise treatment thresholds and economic injury levels have not been developed, and standards and rejection criteria are inconsistent and difficult to apply. As a result, treatments based on an economic threshold are not typically performed and control strategies are often applied preventively, even when using tactics that do not have any residual effect. In current practice, many locations still rely on calendar-based pesticide applications and have little understanding of the basis of pest management.

INTERNATIONAL EFFORTS IN THE CONTROL OF PLANT PESTS AND DISEASES

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Pests and pathogen agents are threatening farmers' life since the beginning of agriculture. Often the control of these problems does not depend on the ability and commitment of single farmers, since pests and disease agents do not respect neither farmers' fields, or Country borders. Thus, an inter-institution, trans-boundary and/or international cooperation is required.

The presentation provides a set of examples in international cooperation in the control of insects (locust, cassava mealybug, hessian fly), weeds (Stiga) and diseases (Ug99).

MANAGING PLANT DISEASE THREATS FOR ENHANCED FOOD SECURITY: CHALLENGES AND APPROACHES OF FAO

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Food security and sustainable food production are among the main mandates of FAO. To achieve these goals, the concept of Save and Grow has been developed emphasizing sustainable crop production intensification through ecosystem management and enhancing resilience of agricultural systems. In this respect, effective management of transboundary plant diseases is crucial to minimize their economic, social, environmental and public health impacts. Currently major crops that are crucial for the livelihoods of millions of people in food insecure countries have been facing numerous emerging disease threats at regional or global level. Among others, these include rust diseases of wheat in all continents, coffee leaf rust in Central America, wilt diseases of banana in Asia and Africa and viral diseases of cassava and maize in Africa. Challenges associated with management of such threats are diverse, and efficient strategies are needed for their management at local and global level. In this respect FAO implements and hosts various projects, programs, initiatives and frameworks to strengthen national capacities and to enhance international collaboration. These are clustered as follows:

- The Emergency Prevention System (EMPRES) promoting preventive measures and timely response for effective management of transboundary plant diseases,
- Many Integrated Pest Management programs which focus on adaptation of specific solutions to local needs involving also the local communities,
- Famers Field Schools as an accepted methodology to develop capacities for local advisors and farmers,
- Hosting of International Plant Protection Convention secretariat to ensure international collaboration and coherence to prevent spread of pests and diseases.

All these initiatives are effectively coordinated in context of the new FAO Strategic Framework through participatory processes.