The worldwide economic damage by insect pests to agricultural and horticultural crops and to orchards stands yearly at hundred billion dollars. The strategies to limit the damage fall into three categories:

1. Treatment of crops and their pests with chemicals. Drawbacks of the use of chemicals are the development of resistance in insects to the chemicals and the toxicity of many pesticides for the environment.
2. Development of insect resistant crops by hybridisation and by genetic modification. However, the application of this last method in food crops is under strong criticism.
3. Introduction of natural enemies to further biological balance with limited damage.

For all these strategies, but certainly for the last and most popular one, it is of paramount importance to know which pest species may cause damage at a certain place and time. Quick and reliable identification of the species and monitoring of their geographical distribution and life history is the basis for all effective policies to control insect pests.

Worldwide, there are several thousands of insect pest species known, each with their own characteristic damage, distribution and natural enemies. The knowledge and expertise in this scientific field is scattered over thousands of publications published all over the world in many different languages, and only a limited number of experts are active in this field.

A regional approach to the development of expert systems training and capacity building

The approach to develop new technologies for quick and reliable identification of pest species is supported by BioNET-INTERNATIONAL (www.bionet-intl.org). This global network is dedicated to removing the taxonomic constraint to conservation and to sustainable use of biodiversity and the equitable sharing of its benefits.

As partners in this network, the University of Amsterdam, the Expert Center for Taxonomic Identification (ETI), and CAB-International have formed an alliance to develop digital expertise in diagnosing pest insects, and to develop strategies for the application of natural enemies. These products are offered in combination with training and capacity building on site.
The consortium is developing global expert systems with very large databases and advanced methods for the identification of pest insects (and their look-alikes), including the latest information on distributions and natural enemies. These global expert systems can only be applied effectively when regional or national derivatives are compiled, that include regional knowledge and expertise, and focus on the specific regional problems. Apart from the involvement of local expertise, this requires additional training programs and capacity building. The consortium has the facilities and expertise to provide for these additional activities. So far, interaction with partners in South-East Asia has shown considerable interest from this region. Consultations with other regions around the world are underway.

The Global Taxonomy Initiative, as endorsed by the Conference of Parties to the CBD, will focus on taxonomy related products. In this respect, digital tools for the identification of pest insects in support of sustainable agriculture have a very high priority. The Global Environment Facility (GEF) is proposed to promote the development and funding of national and/or regional initiatives to produce these tools in cooperation with the consortium, and combine them with focused training and capacity building.

A regional approach to the development of expert systems training and capacity building

More information

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