REGULATED PESTS IN THE INTERNATIONAL SEED TRADE

Radha Ranganathan
Director, Technical Affairs

International Seed Federation
7 Chemin du Reposoir 1260 Nyon
Switzerland
Phone: +41 22 365 44 20
www.worldseed.org

The seed industry today is a global business. This applies not only to seed traded for commercial purposes but also to pre-commercial seed. Research and development is done internationally so that researchers can access new genetics, new environments and new knowledge. To determine if new crops are properly adapted local breeding and trials are a must. It is not uncommon for a seed company to have breeding programmes in 10-15 countries, to produce seed in more than 20 countries in the northern and southern hemispheres and to distribute commercial seed to more than 100 countries from a few logistic centers where seed is cleaned, treated, tested and packed.

From a phytosanitary regulatory perspective this results in some very specific challenges. Seeds produced in country A and exported to country B for processing, testing and packing, may then be re-exported in multiple small shipments to other countries of final destination over a long period of time. The use of parental lines for multiplication for ten years is not a rare event. Besides the organizational and logistic complexity that has practical implications in terms of meeting phytosanitary requirements, a seriously complicating factor is that many destination countries set requirements for pests for which seed is not the pathway.

Is seed a pest risk? A Pest Risk Analysis (PRA) is the foundation for fact-based and proportionate phytosanitary regulations instituted by a country. However, in practice many countries do not have the resources to perform all the PRAs needed, neither in a reasonable period of time nor with the thoroughness they require, and often do so without the specificity required for seed for sowing. As a result, many requirements for seed are not justified.

The three stage process of a pest risk analysis (ISPM 2 and ISPM 11) provides a basis for determining the potential of seed to be a pest risk. First the organism and pathway are identified: is the pest associated with the host? Is *seed* a pathway? Even though certain pests may be associated with a given species of plant, far fewer are actually directly associated with the seed. In stage 2 of the PRA, *viz*. the pest risk assessment, the potential for the pest to be *introduced* and *spread* and its economic impact is assessed. Numerous research papers on plant diseases are published every year. Many note that the pest in question "can or has been found on seeds." It is the view of the seed industry that such a remark is irrelevant as many such studies document seed transmission of seed-borne pests under laboratory and not under field conditions.

Stage 3 of the PRA, pest risk management, seeks to identify phytosanitary measures that (alone

or in combination) reduce the risk of introduction and spread to an acceptable level. The distinction between seed-borne and seed-transmitted pests is important. If a pest is located on the seed, preventing its entry, establishment and spread can be achieved by disinfectants and approved chemicals that in the form of seed treatment eliminate or deactivate it. Physical treatments such as heat are sometimes useful for pests located within the seed. The seed business today uses many recognized risk reduction and prevention measures for seed pests of concern.

In the ISF Regulated Pest List Initiative, company seed and field pathologists use their knowledge and experience to provide an expert assessment and interpretation of scientific publications on whether seed is a pathway for entry spread of regulated pests associated with vegetable species. Lists of regulated pests (bacteria, fungi, insects, nematodes, oomycetes, phytoplasma, viruses and viroids) for different vegetable species have been drawn from national phytosanitary regulations around the world. This expert industry assessment along with information on detection methods and risk mitigation measures for pests for which seed is a pathway are presented in the form of a database.