

Urgent need for increased resistance monitoring and sharing information

Statement from the Working Party on Plant Protection Products to Council

The reduction in the number of available active substances, mainly due to environmental aspects in plant protection, and the lack of new active substances being developed means that there are a very limited number of active substances (often with the same mode of action) available for use in agriculture. This increases the risk of resistance development and increases the need to improve and establish efficient resistance management strategies. Without efficient resistance strategies some pests will not be adequately controlled in the future and some crops may no longer be produced economically in the EPPO region. Reduction of efficacy levels from remaining active substances may lead to higher dosage, more frequent applications, or both, and ultimately to increased plant protection product use. Therefore, regular surveys, checking the effect of selection pressures on pest populations, are essential and should be carried out before efficacy losses prevent the further use of concerned modes of action.

In the regulation process for plant protection products applicants need to provide data on possible resistance development for their products. To date, most data were provided by industry and there is very limited knowledge among national experts within the EPPO countries. This allows only a limited view of resistance and possible resistance development before the application of a product on a wide scale (under zonal regulation). The risk management and implementation in practical use has to be done on a regional scale or at country level. For this countries have to create and use knowledge created in their region to allow implementation of resistance strategies. Industry will not be able to provide such data because:

- there is a need for regional expertise, which is not possible for smaller companies (however, it is noted that a diversity of companies is needed for a high diversity of actives available for risky crop-pest situations)
- some active substances are produced by several companies but companies can only coordinate research between themselves to a limited extent via RACs due to competition and legal problems,
- development of active substances and products is becoming more expensive resulting in even fewer active substances and products being developed by industry.

Regional and national experts need to have fast and direct access to resistance data within their region and data transfer from industry to advisers may cause delays. In addition reports from industry might be less open (subject to confidentiality). This creates a need for additional monitoring on a regional scale with involvement of national experts being in charge of monitoring the resistance situation for risky crop-pest combinations. Some coordination between countries (data and mitigation strategies) with industry would be needed along with efficient knowledge transfer. The analysis of resistance and development of validated resistance test methods may need to be carried out at a larger scale within regions

of similar agricultural and climatic conditions to avoid duplication of work. Resistance analysis is highly scientific and specialized and requires high labour/resource input and cannot be provided by every country. So it seems advisable that mechanisms to undertake this work are established for larger regions.

Coordination between countries for the achievement of resistance analyses and the development of validated standardized resistance test methods is greatly needed and EPPO should play a role here.

The local Resistance Action Groups (RAGs) also have a role to play. The formation of new local RAG groups should be encouraged and communication between the RAGs could also be improved. The RAGs should be encouraged to publish lists of reported confirmed local cases of resistance.

Examples of experience in some member countries

French experience: France is one of the few EPPO countries having established a national resistance monitoring scheme that is not based on short term research projects. In France annual monitoring occurs at a national level, with close co-ordination between the different authorities in charge of registration (Agriculture Ministry (DGAL) and Anses)) and research (INRA). This survey is focused on different themes (a theme = a crop + a pest + a mode of action), chosen according to risk assessment and field data for risky crops/pests. This monitoring makes it possible to detect emerging new resistance and/or to survey the progression of already known cases of resistance.

All the data collected by this annual monitoring are shared with the authorities in charge of registration, who also receive, in some cases, complementary data from the industry (post-registration reports sent periodically by each company for some of their products). The synthesis of all these data is used to update the registration and conditions of use of the concerned products (e.g. reduction of the number of applications, withdrawal of a product).

At present, resistance analyses are carried out by the different laboratories of INRA and Anses specialized in the study of resistances in pests. These analyses are shared between these laboratories according to their specialized field. Currently a project is in progress to gather all these analyses (especially those that require primary studies on resistance characterization, such as for emerging resistance) in a unique location, with the supervision of INRA and Anses.

Danish experience: In Denmark a 3-year nation-wide herbicide resistance survey was initiated in 2013. The objective of the survey is to establish a baseline prior to introducing a pesticide tax system that potentially could promote the use of herbicide resistance prone active ingredients. The survey is conducted by collecting seeds of 7 weed species (3 grass and 4 broadleaf species) in the control plots of all herbicide efficacy trials conducted by GLP units and the farmer's advisory service. It is planned to repeat the monitoring in 4-6 years.

EU Northern Zone experience: Within NORBARAG (Nordic Baltic Resistance Action Group) an attempt has been made to coordinate pesticide resistance monitoring e.g. in the area of cereal diseases. As each country has limited resources it was decided to join forces in the region. At the yearly meeting it is agreed which diseases should be monitored, the number of samples to be collected in each country and which institute should do the testing. The agrochemical companies participate and collect their share of the samples. Data from the monitoring is shared among all partners at the yearly meeting and published in a yearly report providing an update on the resistance situation. It is also discussed to compile data from monitoring in wheat on the www.Eurowheat.com platform, and widen the activity to also include data from countries outside the EU Northern Zone.