



PR Alliance Contributing Author Biopesticides & Biocontrols

Challenges and solutions with Biorationals in the field

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From political, retail and consumer perspectives there is a clear push to make all sectors of food production less dependent on conventional chemical crop protection products. Great progress has been made in the use of Biorational products in protected cropping for ornamentals, fruit and vegetables but there remains considerable discrepancy between the political demands and the practical realities at this moment in field crops. The struggle will not be to find new Biorational products, but to make them consistently effective in the field.

Biorationals are defined by Certis Europe's 'registered plant protection products generally derived from the natural environment, offering improved benefits for plants, people and the planet, which are increasingly important factors for Integrated Crop Production to satisfy requirements of the value chain and consumers'. They have **AgroDaily News** residue issues: as the active ingredients are naturally occurring substances degrading rapidly. Because of this feature Biorationals are also used in organic production and form the basis for Integrated Pest Management crop programs. Biorationals are generally nicely compatible with the use of beneficial arthropods as a tool to manage pests, having mostly no impact or minimal impact on pollinators, predators and parasitoids of the most important pests. Importantly they also pose a lower risk than conventional products to workers applying them, to bystanders and to consumers of the end produce. In fact their environmental profile is significantly better overall and a further significant advantage is that there is a low risk of resistance development with Biorational products. Their use is therefore strongly favoured by growers and produce buyers alike.

These Biorational products are already successfully used in a wide range of protected crops, to the extent that for many growers they have become the norm, enabling production of residue-free output with little or no conventional product usage, in line with the demands of retailers and consumers. If we want to be successful with Biorational products in 2030 in outdoor growing situations because, from the political, consumer and retail perspective, we wish to be less dependent on crop protection chemicals, we have to ensure that they actually work effectively. The challenge lies in transferring these products effectively into outdoor field-grown crops. We have learned from past experience with existing Biorational products that it is not a simple matter of 'cut and paste' the crop protection protocols from one situation to another: it is critical to get the application of the products absolutely right.

Especially greenhouse farming already involves many new techniques such as robotisation and automation including monitoring and screening of the crop to detect and identify pests and diseases. These developments will doubtless continue their rapid acceptance in both protected and field crops. Early detection, such as can be expected from monitoring by robots, is a great advantage for Biorationals so that treatment can begin at an earlier stage. However, Biorationals are not systemic in their mode of action, so if products such as Botanigard (used to control Thrips, Whitefly and Mites), Eradicoat (targeting Whitefly and Mites) or Karma / Armicarb (fungicide against Botrytis and Powdery Mildew in vines, table grapes, ornamentals, tomatoes, strawberries and fruit crops) are not correctly and precisely targeted to make contact with the pest or disease on every part of the plant where the problem is, control will not be as effective as with conventional products and the grower will still be dependent on chemicals.

It is worth remembering that significant changes occurred in indoor crop production techniques to enable effective control from the Biorationals developed over recent years. For example, in protected tomato production leaves are now routinely thinned or removed to reduce unproductive leaf mass, while making spraying from the underside of the crop more feasible, so that the products can make better contact with the pest or disease. Now it is vital that we apply parallel thinking processes to the outdoor situation, to work out how similar success may be achieved in various crops.

Everyone is working in the area of greening up production. If robots and automation become more successful in outdoor crops in the coming 10 years, the challenge from Governments to reduce chemical dependency will become even greater. Machines can check the crops 24/07 for deficiencies and so Biorational products could be applied at a very early stage of pest or disease development. The challenge then is to devise appropriate production and application technology innovations that will enable the effective use of Biorationals in field crops. Without such innovations, the successful use of Biorationals in outdoor crops will unfortunately stagnate.

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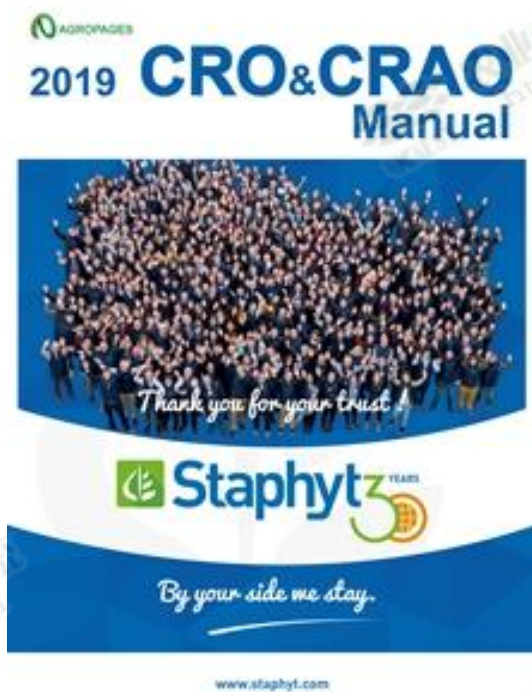


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