



# SCIENCE around the use of multiple pesticides



In May 2020 the European Union (EU) published pesticide reduction targets as policy objectives under the EU Green Deal. By Paul Hardman

**T**hrough the Green Deal, the EU is hoping to reduce both pesticide use and more toxic pesticide use by 50% within 10 years. These are bold targets, and watching how producers and other stakeholders in the EU cope with fewer crop protection options will be of great interest.

## New food safety research

Against this policy backdrop, two important publications were recently released by the European Food Safety Authority (EFSA) and the Dutch Institute for Public Health (RIVM). These studies relate to consumer risks of simultaneous exposure to multiple plant protection product residues. This work has been on-going for a number of years and was effectively initiated by the debate on the "cocktail effect", which contends that consumers could be at greater health risk due to the combined effects of exposure to multiple residues.

The multi-year study looked separately at the chronic effects on the thyroid system and acute effects on the nervous system. The overall conclusion for both assessments

is that consumer risk from dietary cumulative exposures is below the threshold that triggers regulatory action for all the groups covered in the study.

What this means is that under current EU policy, none of the existing risk assessment parameters would be triggered that would lead to a decision to prevent multiple residues being permitted. These studies are consistent with work that was being done in the Netherlands on the "cocktail effect" over a decade ago.

The results of these studies are highly relevant in light of retailers having stipulations on the number of different active substance residues permitted on the fruit, and illustrates that there are no technical food safety justifications for such rules. More so, it highlights the arbitrary nature for the value set as a maximum permitted number of substances on the fruit.

The key point is that all parties in the supply chain should simply be looking to ensure consumers are provided with fruit that is safe, and this is determined through scientific procedure and rigour as set out in national laws. Outside of this legal framework, and to target residue numbers only, it ironically sometimes undermines these food safety objectives.

For example, growers would like to adopt newer chemistry options, but these solutions cannot be considered due to their residue profile. Specifically, these newer

substances tend to be pest-specific and due to their lower mammalian toxicity, tend to leave a higher but "safer for humans" residue on the fruit. Such solutions work well in IPM programmes due to their ability to be used as a corrective application later in the season. However, the fact that residues remain inevitably means that such products are not considered and harsher broad spectrum solutions are adopted at farm level.

A further consequence of not having appropriate crop protection options later in the season is that preventative application of pesticides is used, irrespective of the level of pest pressure. True IPM would only trigger an application of a crop protection treatment if thresholds were exceeded. If the pest pressure in a season was not high enough, no treatment would be applied at all. Now forced to make a decision early in the production cycle, producers are most likely to opt for a preventative treatment rather than have a failed crop.

## Conclusion

From the above, it is clear that official food safety policy, science and the practical application of crop protection products have to be aligned. Attempts to introduce additional requirements that disrupt this balance can sometimes lead to unintended consequences at other points along the supply chain. ■