



# Understanding weeds

This year's BCPC Weed Review focused on some of the weed control challenges growers are facing, and offered new thinking on ways to address them. **Heather Briggs** went along

**T**he increasing number of weed species developing multi-site resistance is a global problem, partly due to the low number of modes of action (MOA) used for herbicides, said Dr Mark Bartlett, head of weed biology at MOA Technology.

Dr Bartlett is on a mission to speed up the discovery of effective new modes of action which work in the field, are safe for the crop and do not damage the environment. So far, several new families of chemistry with novel modes of action have been detected to have strong potential as herbicides and these will be put through further trials.

The speed of detection is thanks to the use of a unique platform comprising a high-throughput screen in miniaturised plants for new MOAs, a combination of genetics and bioinformatics



to discover exactly how the molecule really works, and then the use of related tools to discover additional chemistries with a particular new MOA, all feeding a robust testing programme for safety and efficacy in weeds and crops.

"This will help us speed up the development of new modes of action for the market," he said.

## Potatoes

There is a potential new herbicide active for potato

crops in the wings, revealed agronomist Graham Tomalin, of VCS Potatoes.

Effective as a pre-emergence herbicide for use in combination, it is effective on groundsel and nightshade, two key weeds in Britain, and already has approval in the United States.

However, some of the currently-approved products are under threat and on yearly renewals; metribuzin has already been withdrawn in Norway and Denmark.

Addressing EU proposals to reduce pesticide use by 50% by 2030, he noted that terms were unclear whether this meant actives in use or area applied and whether spot spraying might be a way forward.

"A lot of direction of travel is towards lowering greenhouse gas emissions, and indeed this should be the biggest target. However, pesticides and other



environmental concerns seem to become mingled and blur the real issues," Mr Tomalin said.

## IPM

Working with nature, improving soil health is more profitable and reduces weed burdens, said Martin Lines, who farms in Cambridgeshire and is UK chair of Nature Friendly Farming Network.

Talking about the new Environmental Land Management (ELM) scheme IPM standards which will be introduced, he explained these will focus on cultural, biological physical and chemical tools to manage, weeds, pests and



disease in an environmentally sensitive way.

He pointed out that although sustainable management systems can create positive responses in yields, it takes time for biological systems to respond to changes. For example, using cover crops can improve soil health and reduce weed burdens.

He presented preliminary results from trials in cereal and OSR crops, which showed that creating flower margins and applying organic matter to the soil resulted in yield increases of 16.3% after four years: when cover crops and in-field strips were added, yields went up by 17.9%.

### Mechanical weed control

Pesticide reduction targets will make weed control using conventional controls more challenging, and Will Smith, of NIAB, pointed out that despite evidence of uptake of integrated weed management (IWM) such changes in drilling dates, alternative in-crop tools

are going to be needed in the future.

As such, mechanical cultivation and banded herbicides could play an important role in delivering effective weed control, he said. This is because as herbicide performance declines, mechanical weed control can support them and help them deliver better weed control.

Although inter-row cultivation only targets the inter-row gap, it is economically viable and is likely to become more so as herbicides efficacy declines, he said.

### Herbicides

Weed consultant Dr Stephen Moss, who has more than 40 years of experience in the weed industry, reported on his latest research into black-grass control using clethodim followed by propyzamide (as reported in the October edition of *Agronomist and Arable Farmer*).

Joe Martin, from Corteva reminded delegates, that



Pam Chambers

propyzamide remains useful in the rotation and has no known resistance.

It works best when applied to cold, moist soils, but this must be balanced with the need to protect watercourses, he said. Soil temperature affects degradation rates, which means that some growers who apply too early tend to go back and re-apply the product, which is not recommended, Mr Martin highlighted adding

that timing of application, soil temperature, moisture and dose are all crucial to effective and safe use.

He advised growers to follow the Corteva checklist to assess factors before application, such as whether they are in high risk areas, reviewing risk of heavy rainfall, field drain status, field slopes, nearby watercourses, buffer strips, recent subsoiling or mowing, and tillage practices.

“Pesticides and other concerns seem to become mingled and blur the real issue”

Pam Chambers, of UPL, pointed to loss of actives, weed resistance and pressure to use fewer plant protection products as among the principal challenges the sector is facing.

There are currently eight actives to use on conventional sugar beet crops, although one of them may be under threat when they come up for renewal. 🍷



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