

Grass weeds in cereals

Isoproturon and trifluralin

Jim Orson (Writing in the TAG Bulletin)

'To lose one parent may be regarded as a misfortune... to lose both seems like carelessness' is the famous quote by Lady Bracknell in the Importance of being Ernest. Well, in March we 'lost' two important herbicides in a week. This may have been inevitable rather than careless but the industry does not want to lose any more important herbicides through carelessness. There is now a cause for concern because propyzamide (e.g. Kerb) and carbetamide (e.g. Crawler) are being found in water courses at levels that frequently exceed the EU directives. So, the discussion cannot stop at surviving without IPU and trifluralin and a wider debate is required on how to prevent other herbicides being 'lost'.

The reality is that isoproturon and trifluralin are not completely dead. Isoproturon could be still be approved at a dose lower than 1,500 g a.i./ha if it meets the criteria for registration. The generation of additional data on trifluralin may result in its listing in the EU but it would still have to get approval for use in the UK. On both counts it would be wise not to hold one's breath.

The question is where next in terms of annual grass weed control, not only in cereals but also through the rotation.

Black-grass control in cereals

In many cases there are high levels of enhanced metabolic resistance and also target site resistance to the 'fops' and the 'dime's'. In addition, there is growing concern over the development of target site resistance to Atlantis (iodosulfuron and mesosulfuron). This product has had a great run and put the issue of black-grass control on the back-burner over the last few years. However, can it last? Farmers and advisers are talking about more black-grass survivors this season and these, if target site resistant, could be the foundation for problems for Atlantis and other sulfonylureas, such as Lexus (flupyrsulfuron) in future years. Therefore, it would be unwise to bet the future on Atlantis, although high levels of control may still be achieved if it is applied to newly emerged target site resistant black-grass (Bulletin 13, page 9). In the short term, using isoproturon and trifluralin in programmes that provide a break from the sulfonylureas may be a smart move in delaying the development of target site resistance to Atlantis.

What remains?

Pendimethalin (e.g. Stomp and in Crystal) is now widely used. Unfortunately there are now fields containing black-grass with high levels of enhanced metabolic resistance to pendimethalin. Perhaps this is not too much of a surprise but it does mean that there is a limit to the reliance that can be placed on it in the future. Resistance may be less of an issue if it is applied pre-emergence of the weed.

Chlorotoluron (e.g. Tolugan) usage will increase when isoproturon is not an option. There are two or three issues with the herbicide. When introduced to the market, it was red hot on black-grass but its usage slipped rapidly away during the early stages of

resistance development. This perhaps is because it is the herbicide whose efficacy is most affected by the enhanced metabolism mechanism of resistance. This form of resistance is ubiquitous in intensive winter tillage systems and so chlorotoluron is not a substitute isoproturon in these situations. In addition, more usage will result in more appearing in water and it may eventually go the same way as isoproturon. Finally, of course, it cannot be applied to all varieties.

Flufenacet (e.g. in Liberator and Crystal) has proved its worth over recent years and there will have to be even more reliance on it in the future. Its efficacy on black-grass is reduced by the enhanced metabolism mechanism of resistance but it still provides good control for a pre-emergence product, possibly because at the time of application this form of resistance is less developed.

Triallate (Avadex) has had a tough couple of years since being reintroduced to the market. This is because of the performance of the flufenacet based products and the fact that it requires specialist application machinery. However, when used in a pre-emergence sequence in trials it has provided a good increase in the control achieved with the flufenacet based products. Hence, it may have an increased role in the future

Prosulfocarb (Defy) is another herbicide which like the others has reduced efficacy because of the enhanced metabolism mechanism of resistance in black-grass but probably its pre-emergence time of application means that the impact is not that great. Pre-emergence mixtures with the flufenacet products are currently being tested in TAG trials.

Flurtamone (in Ingot) is not used to any great extent for black-grass control and then only in mixture with IPU. Good weed control is very dependent on the weeds being newly emerged at the time of application.

This short review suggests that in the future there may be more reliance on pre-emergence products and there may have to be 'stacking' of pre-emergence products. This is not an attractive proposition but perhaps inevitable when it is considered that the impact of the enhanced metabolism mechanism resistance on herbicide efficacy increases with increasing weed size. TAG has been experimenting with stacking pre-emergence products over the last couple of years or so and has trials in the ground this season.

Can other herbicides be saved?

The lessons of the experience with isoproturon have to be learnt by the industry when discussing the issue of leaching to water of herbicides like propyzamide and carbetamide. Continuing to use them in the current way may mean losing them. These two herbicides are critically important in controlling herbicide resistant black-grass in rotations that are based around wheat and rape. Methods have to be identified to ensure that the doses used/ha in the future are well below those used currently. TAG has identified some possible approaches that may achieve this objective and hope to commence experimental work this autumn/winter.

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