

Pre-emergent control of ryegrass in wheat

The aim of this trial was to investigate pre-sowing options for the control of group A resistant ryegrass in wheat.



Summary

Trifluralin use has increased in the last decade and the threat of ryegrass developing resistance to group D herbicides (including trifluralin) is real, already occurring on some farms. In this trial a number of herbicides with activity on ryegrass were tested as mixes with trifluralin on their efficacy in controlling ryegrass as well as on grain yield.

The products used in the mixes were from different groups: Glean® (group B), Avadex® (group E) and Dual® (group K). In this trial, these products did not provide additional control of ryegrass above using trifluralin on its own. However, as a herbicide resistance management practices on the farm it is recommended to not solely rely on trifluralin but:

- add another product to the mix,
- use at least two different ways to control ryegrass, and
- NEVER use the same control practices year after year for controlling ryegrass. Use as many different practices for controlling ryegrass as is possible on your farm.

Background

Group A resistant ryegrass is a difficult weed to control during the wheat phase of a rotation.

Trifluralin use has increased exponentially in the last decade as group A herbicides lost efficacy. If group D herbicides are the only control option implemented for control of ryegrass on the farm, then ryegrass will develop resistance to group D herbicides (eg. trifluralin). It is known that when a mix of herbicides from different groups is used, it will take longer for ryegrass to develop resistance. In this trial the more common mixes of trifluralin are compared to some newer options.

Methods

A fully replicated (x4) trial was established to investigate mixes of trifluralin for effectiveness of controlling ryegrass. The trial was located at the resistant ryegrass site southwest of Charlton.

Plots were sprayed with a 6m trial boom (80L/ha water, XR11002 nozzles) and direct-drilled on May 27 with narrow points on a Jenke bar and a trailing prickle chain (Mitre wheat at 80kg/ha with MAP at 35kg/ha and urea at 40kg/ha as a single pass operation). Herbicide treatments are explained in Table 1.

Table 1. Herbicides used in Group D plus mixes trial for the control of ryegrass.

Herbicide	Active ingredient	Rate/ha	Timing	Group
TriflurX	trifluralin	1.5L	IBS	D
TriflurX + Glean	trifluralin, chlorsulfuron	1.5L, 20g	IBS	D, B
TriflurX + Avadex	trifluralin, tri-allate	1.5L, 1.0L	IBS	D, E
TriflurX + Dual	trifluralin, metolachlor	1.5L, 0.25L	IBS	D, K
TriflurX + Avadex + Dual	trifluralin, tri-allate, metolachlor	1.5L, 1.0L, 0.25L	IBS	D, E, K
TriflurX; Dual	trifluralin, metolachlor	1.5L, 0.25L	IBS; PSPE	D, K
BASF experimental			IBS	
Nufarm experimental			IBS	

Results

There was no significant difference between the herbicide treatments on the level of ryegrass control. There were no treatment effects on wheat yield (Table 2).

Table 2. The influence of herbicide treatments on ryegrass and wheat yield.

Herbicide treatment	Ryegrass heads (heads/m ²)	Wheat heads (heads/m ²)	Yield (t/ha)
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TriflurX	77	361	3.4
TriflurX + Glean	135	382	3.3
TriflurX + Avadex	175	378	3.5
TriflurX + Dual	175	402	3.3
TriflurX + Avadex + Dual	88	401	3.4
TriflurX; Dual	218	403	3.4
BASF experimental	228	365	3.3
NuFarm experimental	90	425	3.5
LSD (5%)	NS	NS	NS

Interpretation

There were no significant benefits of adding an additional herbicide to trifluralin to achieve better ryegrass control. At this stage trifluralin on its own is achieving a reasonable level of control. However, to reduce the risk of developing herbicide resistance to group D herbicides (ie. trifluralin) it is essential to add herbicides from different groups to the trifluralin mix. The products used in this trial, Glean®, Avadex® and Dual®, all have activity on ryegrass and can be used. Some important points in relation to these three herbicides:

- Glean® – has a long residual on alkaline soils and group B resistance is widespread
- Avadex® – has activity on ryegrass but is best suited when incorporated the traditional way (double harrowing)
- Dual® – also works well on ryegrass but it must rain within a week of application otherwise the product loses activity

Commercial Practice

To prolong or even avoid selecting for resistance to group D herbicides (ie. trifluralin) it is important not to use trifluralin on its own as the only herbicide for controlling ryegrass. To optimise the benefits of trifluralin it is essential to:

- Always use two or more ryegrass control techniques every year.
- Never use the same control techniques year after year.
- When using products such as trifluralin, add another herbicide from a different group to achieve additional control.