Trial 28

Management of Rhizoctonia Root Rot: Kinnabulla 1995

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Summary: At Kinnabulla, the best reduced tillage system to control rhizoctonia and increase yield was to cultivate, 5 to 10 cm below seed depth, in the week before sowing.

Aim: to demonstrate the best methods to control rhizoctonia root rot. This site is one of three located in NW Victoria during 1995; other sites are located at Chinkapook and Meringur.

In 1995, rhizoctonia root rot was not severe in barley sown at Kinnabulla and did not cause yield losses. The effect of fallow and different sowing points on establishment, rhizoctonia severity and grain yield are summarised in Table 1.

Fallow

There was no difference in emergence, rhizoctonia severity or barley yield between a summer/autumn chemical fallow or a knockdown herbicide applied just before sowing. In most years plants sown after a short chemical fallow will have significantly less rhizoctonia root damage**.**

Cultivation did not significantly reduce rhizoctonia severity in barley compared to short chemical fallow, however yield was 200 kg/ha higher following the cultivated fallow.

Points

The type of sowing point did not influence the amount of rhizoctonia root damage in barley at tillering. However, by flowering, plants in the conventionally sown plots, plants sown after a cultivation in the week before sowing and plants established with the long narrow point had the lowest amount of root damage. Plants established with the moisture seeking point, the depth modified combine or by direct drilling had the highest rhizoctonia root damage.

To Reduce the Impact of Rhizoctonia root rot:

- Avoid direct drilling in paddocks with a history of rhizoctonia.
- When the autumn break is early, control weed growth with a chemical fallow before sowing.
- If the autumn break is late, do not delay sowing past the optimum sowing date.
- Disturb the soil at, or just before, sowing with a long narrow point, a depth modified combine or a deep cultivation. Deep cultivation (5 to 10 cm) in the week before sowing was the best treatment to reduce rhizoctonia severity and increased yield at Kinnabulla in 1995.
- Cultivation of dry soil will not reduce the impact of the rhizoctonia.
- Provide crops with an adequate supply of phosphorous, nitrogen and zinc.

Table 1. Effect of different sowing systems on seed depth, emergence, rhizoctonia root damage and grain yield of barley; Kinnabulla 1995

Treatment	Seed depth (cm)	Emergence (plants/m$^{2)}$	Rhizoctonia severity[1] Tillering	Anthesis	Grain yield (t/ha)
Fallow					
Summer/Autumn	3.9	143	1.1	1.7	3.2
Knockdown	3.9	143	1.1	1.7	3.2
P<0.05	n.s.[2]	n.s.	n.s.	n.s.	n.s.
Mechanical	4.2	140	0.8	1.2	3.4
Chemical	3.9	143	1.1	1.7	3.2
P <0.05	n.s.	n.s.	n.s.	n.s.	0.2
Points[3]					
CC	4.8	220	0.7	0.9	3.5
DB	4.1	165	0.9	1.9	3.0
DD	4.2	165	1.2	1.7	3.2
CULT-1	4.5	117	0.9	1.2	3.4
LNP	1.9	123	0.9	1.3	3.1
DMC	4.2	139	1.3	2.0	3.3
MSP	4.5	151	1.1	1.9	3.3
LSD P<0.05	0.7	9.0	n.s.	0.5	0.2

[1]Severity based on 0-5 scale (0 = no disease, 5 = maximum disease)

[2]n.s.= not significantly different

[3]CC = Conventional Sowing, DB = Deep Banding, DD = Direct Drill, CULT-1 = Cultivation in the week before sowing, LNP = Long Narrow Point, DMC = Depth Modified Combine, MSP = Moisture Seeking Point.

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