

3.2.3 BARLEY YELLOW DWARF VIRUS TRIAL (HAMILTON, VIC)

Abstract:

Barley Yellow Dwarf Virus is a significant disease of cereals in the high rainfall zone. Spread by aphids, the only way to control the disease is to prevent the aphids from feeding in the crop either by an appropriate foliar insecticide used soon after sowing, or by the use of insecticidal seed dressings

Growing Season Rainfall (April-Oct): 404 mm

Location: Lake Linlithgow (near Hamilton)

Background/Objectives:

Barley Yellow Dwarf Virus (BYDV) is an important disease of cereals in the high rainfall zone cropping areas of Victoria. This disease is spread by aphids feeding within the crop. This virus is not transmitted through seed and its only form of spread is when an aphid acquires the virus from an infected plant. It will then transmit the disease to any other plant it feeds on. Hence if aphids can be deterred from feeding on susceptible crops then the disease will not be spread throughout the crop.

Researchers:

Steve Holden, Department of Primary Industries

Methodology:

The aim of this trial is to evaluate the timing of insecticide treatments and the use of insecticide seed dressings on deterring aphids from feeding on newly sown wheat

Sowing Date: 11/05/2004

Sowing Rate: 100 kg/ha

Fertilizer: DAP

Rate: 100 kg/ha

Insecticide:

Alpha-cypermethrin @ 3 weeks emergence

Rate: 50 ml/ha

Seed dressing: Imidacloprid

Harvest date: 13/01/2005

Summary Discussion:

For the second year in a row there was no economic losses due to BYDV. Aphids were not observed in the trial until spring by which time losses due to BYDV are usually minimal. BYDV was not reported as a major problem in the western districts in 2004 and the symptoms of the disease were not observed in the trial near Hamilton.

There appeared to be a slight yield increase where the insecticide (either as a foliar spray or as a seed dressing) was used, however it was not significant and the only differences were between the two varieties (Table 1).

Yields were lower than expected which was probably due to a combination of the hot dry spring at flowering, stripe rust and also the extremely wet conditions early in the season that essentially pruned the roots.

Table 1: Results of 2004 BYDV Trial

Insecticide Treatment	Kellalac Yield (t/ha)	Chara Yield (t/ha)
Nil	1.89	2.97
Alpha-cypermethrin @ 3 weeks emergence	2.33	2.62
Imidacloprid seed dressing	2.28	3.15
Imidacloprid seed dressing and alpha-cypermethrin @ 3 weeks emergence	2.18	3.07
LSD 5%	Not sig.	Not sig.

Conclusions:

There are a number of products registered for aphid control in cereals including foliar applied insecticides such as alpha-cypermethrin and the seed dressing imidacloprid. Alpha-cypermethrin controls a wide range of insect pests but unfortunately it can be detrimental to any beneficial insects that may also be present at spraying. It should be applied three weeks after crop emergence to control any insects present and to also act as an anti-feeding agent for a number of weeks. There are two new seed dressings available on the market this coming year containing imidacloprid. The advantage of these products is that they only control insects that actually feed on the cereal and hence are gentler on off target species that be beneficial to the crop.

This trial has run for two years with no significant responses obtained, due to extremely low aphid numbers early in the season. It is hoped to continue this trial this coming season.