

3.2 CEREAL DISEASE BYDV TRIALS

3.2.1 BARLEY YELLOW DWARF VIRUS TRIAL – ASSESSING INSECTICIDE CONTROL (GNARWARRE)

Location: “South Roxby” Gnarwarre

Background:

Barley Yellow Dwarf virus can reduce the yield of susceptible wheat, barley and oat varieties in years where aphid numbers are high, particularly in the autumn. Aphids spread the virus to susceptible plants by sucking the leaves.

The normal control strategy is to delay planting until later in the season to miss the main flight periods of the aphids. This does not always work, as aphids can vary the time of attack according to climatic conditions.

Some growers are using insecticides to control aphid populations. To this stage there is no clear evidence as to whether this programme is effective.

Aim:

To assess the value of an insecticide programme on the control of Barley Yellow Dwarf Virus in wheat.

Researchers:

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Take Home Messages:

- It was cost effective to apply an insecticide for the control of BYDV in wheat
- The best treatment was the split application of insecticide at approximately 4 weeks and 10 weeks post sowing.
- Chara was a superior variety to Kellalac for yield at the Gnarwarre site.

Trial Design:

13 treatments * 2 varieties * 4 reps. Plot length 60m

Varieties: Kellalac & Chara

Sowing Rate: 90 kg/ha

Sowing Date: 31st May 2002

Seed Treatment: Raxil

Spray 1: 24th June 2002

Spray 2: 29th July 2002

Fertiliser: 100 kg/ha Granulock 15 at sowing
75kg/ha Urea at late tillering



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Brewed using Tasmanian Malting Barley

Treatment List:

- Tr1 : Control (no spray)
- Tr2 : 250 ml/ha Dominex approx 4 weeks after sowing + 0.5% Hasten oil
- Tr3 : 125 ml/ha Dominex approx 4 weeks after sowing + 125 ml/ha late tillering approx 10 weeks after sowing + 0.5% Hasten oil
- Tr4 : 250 ml/ha Dominex late tillering approx 10 weeks after sowing + 0.5% Hasten oil

Table 13: Results

Treatment	Yield kg/ha			Net Return ^v
3	4,806	I		\$1,229
4	4,734	I	I	\$1,220
2	4,634	I	I	\$1,194
1	4,546		I	\$1,182
LSD	227			
CV	6.05			

Variety	Yield kg/ha	Return/Ha
Chara	4,868	\$1,265
Kellalac	4,491	\$1,168
LSD	161	

^v Net return is calculated on a grain price of \$260/T and a cost of \$10 per spray application

Discussion:

Visually there appeared to be no BYDV disease in the trial. Consequently, no difference was expected between insecticidal treatments.

From Table 13 it can be seen that there is a significant yield difference between treatments, with the best treatment being the split application of insecticide at 4 and 10 weeks after sowing. This result highlights the fact that even though BYDV symptoms are not particularly evident, low levels of infection may cause yield depression.

The cost of \$10 per hectare for each insecticidal spray could be argued to be too high, as the application of the insecticide may well occur with another operation such as applying a herbicide or fungicide.

Table 13 indicates that Chara is a superior variety to Kellalac for yield in this trial. In fact in each of 13 comparisons, with Chara and Kellalac side by side, Chara gave a superior yield to Kellalac.



Photo 2: Classic symptoms of BYDV in wheat not seen in the trial.