

## 5.2 Plant Health Trial

**Location:** Yalla –Y- Poora

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**Summary of findings:** This experiment aimed at trialling some of the products which may have benefited a plant's capacity to fight diseases, rather than treating the infection itself. Conventional broad acre fungicides, biological products and products for home gardening were all tested. Unfortunately the dry season reduced incidence of diseases and gave no clear indication of the value of these products. However given the interest in, and potential of, using alternative products for disease control, there will be future trials aimed at independently analysing their effectiveness.

**Background:** It has been demonstrated that foliar fungicides are very effective at controlling leaf rust and stripe rust in wheat. Keeping the plant healthy may also have some effect on controlling leaf disease and some products available for plant health in gardening situations may be useful in broadacre cropping situations.

**Objectives:** To test a number of "plant health" products as to their effect in controlling leaf disease in wheat.

**Sowing date:** 8/6/06

**Variety:** Chara

**Growing Season Rainfall (Apr – Nov):** 269mm, 392 mm total amount

**Sowing Rate:** 200 plants/m<sup>2</sup> target plant population

**Harvest Date:** 18<sup>th</sup> January 2007

## **Treatments:**

Fertiliser -

100kg/ha MAP at sowing – GS00 (8/6/06)

40kg N/ha urea @ GS31 (stem elongation)

All other treatments applied at GS39 (flag leaf fully emerged) on the 3/10/06:

- 1 - Control (no fungicide)
- 2 - Opus 250ml/ha
- 3 - Amistar @ 400ml/ha
- 4 - Potassium Sulphate @ 50kg/ha
- 5 - Potassium Sulphate @ 50kg/ha + Opus 250ml/ha
- 6 - Grain Set product @ 500ml/ha
- 7 - Grain Set product @ 500ml/ha + Opus 250ml/ha
- 8 - Garden Gold @ 25g/square metre @ sowing
- 9 - Garden Gold @ 25g/square metre @ sowing + Opus 250ml/ha
- 10 - Stressguard @ 250ml/plot
- 11 - Gibberelic acid as 'Pro-Gibb' @ 0.025g/plot
- 12 - Seasol @ 0.5l/plot

## **Product descriptions:**

Stressguard – A gardening product which contains a polymer that protects plants from heat, water loss, drying winds, sunburn, droughts, frost and transplant shock. Reduces water usage by up to 50% and increases the survival of plants during dry times. Product is biodegradable and the protective film stretches up to 100% with leaf growth and lasts for up to 90 days. Ideal for reducing frost damage. Cost: \$8.90/500ml bottle or \$94.30/ha

Seasol – Seasol is made from Bull Kelp (seaweed). It stimulates growth because it contains naturally occurring hormones that have profound effects on plant metabolism. The hormones in Seasol produce strong healthy growth of leaves, stems and root systems, and result in enhanced flowering and fruiting. They also strengthen plant cell walls, thereby increasing resistance to stresses such as drought, heat and frost, as well as insect attack and disease. Seasol also contains many trace elements, vitamins and amino acid which are essential for plant health. Cost: \$12.50/5l bottle or \$26.48/ha

Gibberelic acid – Promotes plant growth via plant growth hormone Gibberelin. A foliar application to certain varieties of grapes, citrus and prunes to promote desirable harvest effects. Cost: \$1/g or 50c/ha

Grain Set – From Yield Enhancement Services who produce organic products to enhance microbiology health, mobilize available nutrients and encourage natural biology of plant system. 'Grain set' contains a balance of trace elements conducive to grain development. Higher yield, increased 1000 grain weights, increased number of grains per ear, increased grain size. Cost: \$45/l or \$22.50/ha

Garden Gold – Another gardening product. Quick and slow release fertilizer plus granular wetting agent. Cost: \$25/2kg or \$115.25/ha

Potassium Sulphate – Conventional fertilizer. Applied for the potassium content to help with plant cell wall strength and plant health. Cost: \$607/t or \$30.35/ha

Amistar – AMISTAR 250 SC is a fungicide based on naturally occurring substances found in certain species of wild mushrooms. The active ingredient (azoxystrobin), is unique and has a very wide spectrum of disease control across grapes, potatoes, tomatoes, cucurbits, avocados, mangoes, passionfruit and poppies. It is considered to be useful in Integrated Pest Management programs, because it is harmless to beneficial organisms such as predatory mites, parasitic wasps, honey bees and earthworms. Cost: \$40/ha

Opus – A broad spectrum contact and systemic fungicide for the control of rust. The active ingredient is epoxiconazole.  
Cost: \$20/ha

#### **Trial Results:**

**Table 1 : Yield and grain quality**

<b>Treatment</b>	<b>Yield T/Ha</b>	<b>Protein %</b>	<b>Retention %</b>	<b>Screen %</b>	<b>TGW g/1000 grains</b>	<b>TW kg/hl</b>
<b>1</b>	1.770	15.60	96.13	3.850	32.42	78.63
<b>2</b>	2.034	15.15	96.75	3.125	34.08	78.72
<b>3</b>	1.948	15.32	96.10	3.775	33.42	79.08
<b>4</b>	1.538	15.47	97.40	2.725	33.55	78.85
<b>5</b>	1.829	15.33	96.85	3.075	33.23	78.80
<b>6</b>	1.753	15.18	96.75	3.150	32.70	78.72
<b>7</b>	1.919	15.17	96.95	3.000	33.50	78.90
<b>8</b>	1.601	15.65	96.80	3.200	33.33	78.63
<b>9</b>	1.684	15.75	97.17	2.825	33.67	79.28
<b>10</b>	1.714	15.75	97.05	2.875	33.35	79.17
<b>11</b>	1.604	15.70	96.95	3.000	33.63	78.80
<b>12</b>	1.745	15.28	97.13	2.850	33.72	79.00
<b>Average</b>	<b>1.762</b>	<b>15.45</b>	<b>96.82</b>	<b>3.121</b>	<b>33.38</b>	<b>78.88</b>
<b>LSD 5%</b>	<b>0.5407</b>	<b>0.5064</b>	<b>0.8527</b>	<b>0.8127</b>	<b>1.1473</b>	<b>0.9312</b>
<b>Sig diff</b>	<b>no</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>yes</b>	<b>no</b>
<b>CV</b>	<b>25.17</b>	<b>2.86</b>	<b>0.66</b>	<b>19.60</b>	<b>2.64</b>	<b>0.81</b>

There was no significant difference in yield between treatments in this trial. There were very slight differences in grain quality parameters between some of the treatments, however too little to draw any firm conclusions