

Spring Canola Best Management Practices (Grey SCIA Major Grant Project)

Purpose:

Evaluate the benefit of foliar fungicide alone and in combination with boron and insecticide on yield and seed quality of spring canola.

Methods:

Ten farms (eight southern, two northern) participated in the trial. Foliar treatments of fungicide, fungicide + boron, and fungicide + boron + insecticide, were applied at 10-30% flower stage. Fungicide and insecticide were applied at recommended labeled rate. Boron was applied with the other products at a rate of 0.3 lb/ac (actual).

Results:

Growing conditions were excellent with moderate temperatures and adequate (or excessive) rainfall, resulting in average to phenomenal canola yields. The average yield achieved by co-operators was an incredible 2,583 lb/acre (2,935 kg/ha)! Table 1 presents a summary of the treatment response across the sites.

Table 1. Yield Results of Best Management Practices in Canola

Location	Yield lb/acre ¹			
	Check	Proline (fungicide)	Proline + Boron	Proline + Boron + Matador
Alliston	1870	1765	1752	1940
New Liskeard	2264	2251	2196	2164
Owen Sound	3221	3445	3555	3470
Grand Valley	2718	2708	2649	2718
Sturgeon Falls	2842	2791	3048	2993
Palmerston	2549	2609	2684	2671
Durham	2360	2339	2412	2388
Meaford	3036	2989	3253	3166
Chatsworth	3158	3410	3535	3343
Average Yield lb/ac	2669^c	2701^{bc}	2787^a	2762^{ab}
Yield Increase vs check		32	118	74
Return over check ²		(-\$33)	(-\$38)	(-\$42)

¹ LSD 87 lb/acre

² Return based on \$400/t canola price, \$23/acre –Proline, \$5.50/ac – boron, \$4.00/ac – Matador

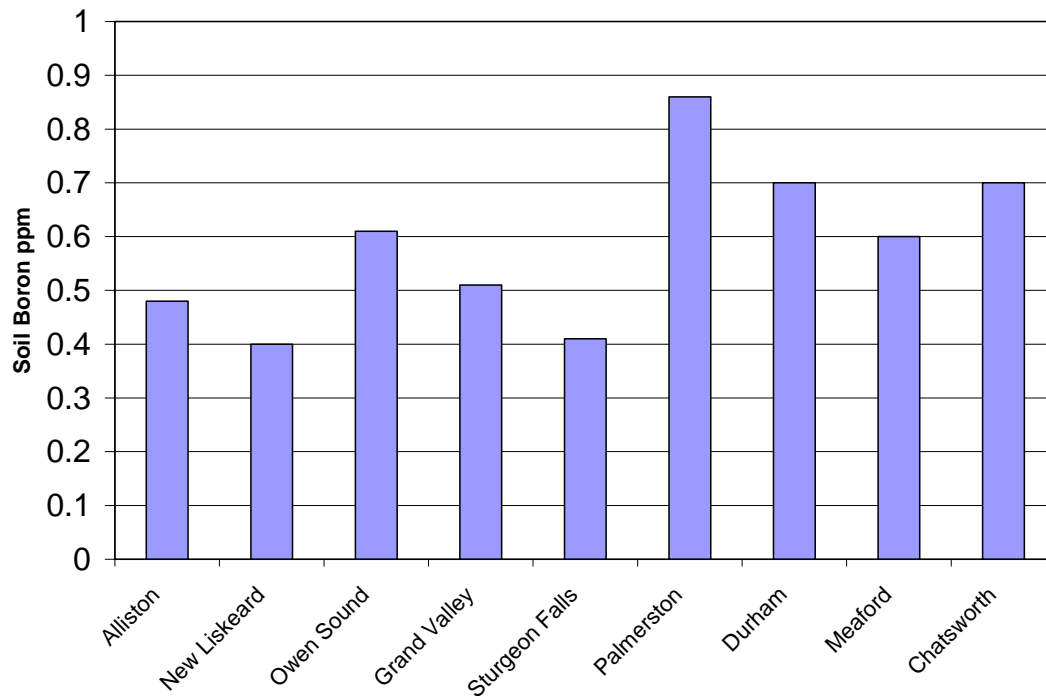
Small Yield Improvements:

The combination of fungicide and boron was the only treatment to provide a significant but small increase (118 lb/ac) over the check. The boron + fungicide improved yield slightly at six of nine sites over fungicide alone. However, it is not clear if the increase was due to the boron or combination of boron + fungicide. It is interesting to note that there was a linear response to the Proline + Boron with increasing check yield. At sites

with highest check yield the response to Proline + Boron was the greatest. The treatment with insecticide did not increase yield which may have been due to low populations of seedpod weevil and plant bug. This finding highlights the value of IPM scouting prior to decisions on insecticide application. None of the treatments improved returns over the check. There was a noticeable visual difference in sclerotinia infection between the check treatments and those receiving fungicide.

No pattern was observed between soil or tissue boron levels and response to applied boron. (Table 2 & 3). Caution should be used in interpreting the soil boron test because no reliable soil test has been developed. Hot-water extractable soil boron levels of <0.35 ppm are suggested as deficient. Boron tissue levels of below 20 ppm are deficient, collected from uppermost leaf at flowering.

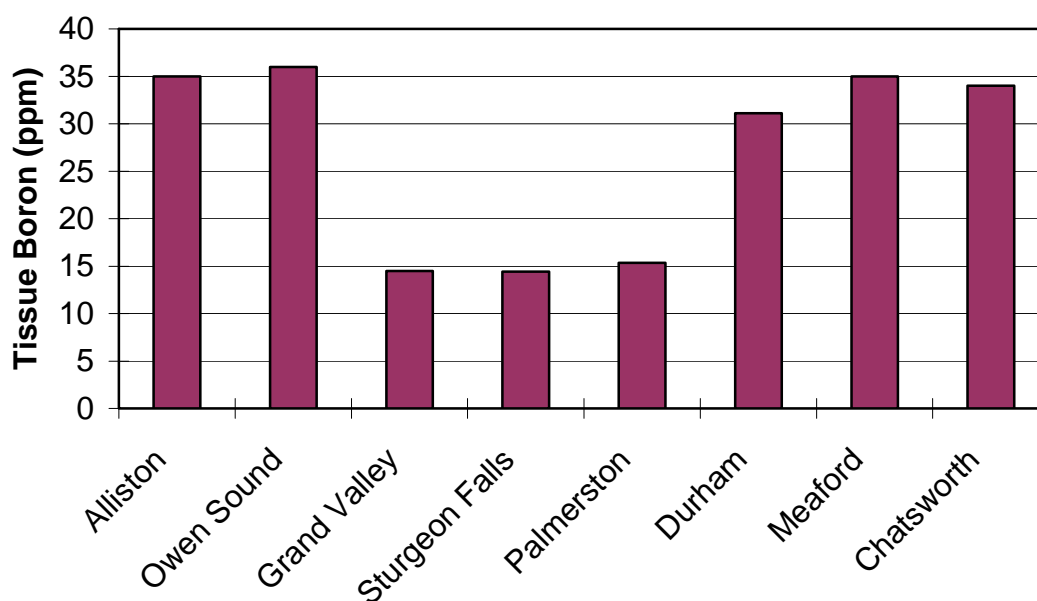
Figure 1. Boron Levels at Test Sites



Summary:

In 2008, Proline + Boron treatment produced a small but significant increase in yield. In comparing sites, those with higher check yields also had the greatest response to Proline + Boron. While this response may have been due to the boron, it is not certain because no separate boron treatment was included. Insect pressure at flowering was low, and there was no response to the insecticide treatments. None of the treatments improved returns over the check.

Figure 2. Tissue Boron Levels in Canola Foliage



Next Steps:

Further trials with boron alone and in combination with fungicide and insecticide are required to verify the response to these inputs. Timing of the boron treatment, soil vs. foliar application, also requires investigation.

Acknowledgements:

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