# S.M.A.R.T Canola 2009

## Georgian Regional SCIA Partner Project

### Purpose:

The goal was to evaluate the benefits of managing canola more intensively with foliar application of boron alone and in combination with fungicide and insecticide treatments to determine the impacts on yield and seed quality of spring canola.

### Methods:

Eight farms (6 southern, 2 northern) participated in the trial. Foliar treatments of boron, fungicide + boron, fungicide + boron + insecticide were applied at 10 - 30% flower stage. Fungicide and insecticide were applied at recommended label rates. Boron was applied with the other products at rate of 0.3 lb/ac (actual). Soil samples were collected prior to planting to measure soil boron. Plant tissue analysis was completed by collecting the uppermost open leaf at the beginning of flowering. The flowering stage of canola was noted prior to fungicide application.

### Results:

Heavy rains following planting resulted in erosion at a couple of the original sites that had to be abandoned. Eight other sites were acceptable for the trial. Growing conditions were favorable for canola with cool temperatures and adequate rainfall, resulting in average to phenomenal canola yields. The average yield achieved by co-operators was an incredible 2,677 lb/acre! (2,974 kg/ha). Table 1 presents a summary of the treatment response across the sites.

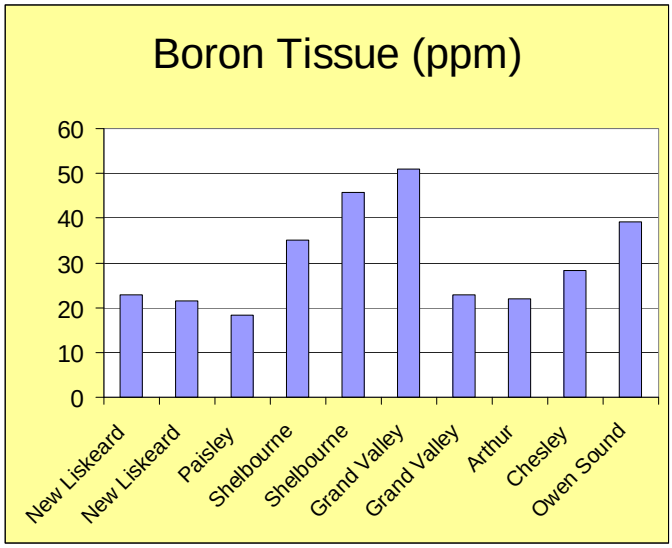
**Table 1: 2009 SMART Canola Trial Results**

| Location | Application Timing % Bloom | Yield lb/acre | | | |
|---|---|---|---|---|---|
| | | Check | Boron | Proline + Boron | Proline + Boron + Matador |
| | | | | | |
| New Liskeard | 30 | 1944 | 1962 | 2030 | 2052 |
| New Liskeard | 30 | 2652 | 2699 | 2829 | 2836 |
| Paisley | 20 | 2467 | 2513 | 2550 | 2433 |
| Shelburne | 30-40 | 3130 | 3210 | 3265 | 3256 |
| Shelburne | 10-20 | 2982 | 2985 | 3045 | 3074 |
| Grand Valley | 50+ | 2515 | 2469 | 2320 | 2679 |
| Grand Valley | 30 | 2269 | 2357 | 2578 | 2622 |
| Arthur[1] | 20 | 2881 | 3004 | 3062 | 2983 |
| **Average Yield lb/ac** | | **2605** | **2650** | **2710** | **2742** |
| Yield Increase vs. check | | | 45 | 105 | 137 |
| $ Return over Check[2] | | | -$6.51 | -$18.94 | -$16.76 |

1. Arthur trial - 1 replication
2. Return calculated on canola price $425/t, Fungicide $24/ac, Boron - $5/acre, app - $10/ac Matador - $4/ac

Boron tissue samples (Figure 1), showed that at only the one site at Paisley was below the critical level for boron of 20 ppm.

**Figure 1:**




## Summary:

### Small Yield Improvements

All the treatments provided a small increase in yield over the check. None of the treatments improved returns over the check (no product applied). In a similar trail in 2008, the fungicide with boron treatment was the only treatment to have a statistically significant higher yield (see 2008 Crop Advances report). There was a visual difference in sclerotinia infection between the check treatments and those receiving fungicide. However there was noticeable stem infection in all treatments at maturity. Cabbage seedpod weevil and tarnished plant bug populations were very low at flowering.

No pattern was observed between soil or tissue boron levels and response to applied boron. A boron tissue level collected from uppermost leaf at flowering of below 20 ppm has been suggested as being deficient. The ideal growing conditions resulted in excellent seed quality with no brown seed. In concert with this project, Dr Hugh Earl, University of Guelph is conducting a project investigating the impact of heat and moisture stress on brown seed production and the role boron may play in mitigating this.

## 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. Research trials indicate the optimum fungicide timing is at early flowering (20-30% flowers open). Application timing in 2009 often coincided with weed control in soybeans, fungicide application in cereals.

Although application was made during the 20- 50% flower stage, efforts will be made to apply at the early end of this window before significant petal drop.

## Acknowledgements:

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## Location of Project Final Report:

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