

# ADOPT

## Agricultural Demonstration of Practices and Technologies

*Final Report – November 13, 2012*

ADOPT Project #20100227

### Agronomics of Fall Planted Haskap

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#### **Objectives:**

The objective of this project is to document the benefits of fall planting haskap versus spring planting

#### **Rationale:**

Early experience shows some benefits of fall planting of Haskap. This crop starts growth very early in the spring. Producers have experienced limited growth in the 1<sup>st</sup> year when spring planting due to Haskap's tendency to go dormant if not planted early enough. If planted too late in spring, vegetative growth is compromised and the plant goes into a rooting phase. Fall planting of transplants may be an effective way to overcome this limitation and aid in bringing the crop into production earlier.

#### **Materials and Methods:**

Shrubs of each of three separate cultivars were transplanted on Sept 28; Oct 5; and Oct 12 of 2010, and again on May 27; June 6; and June 10 of 2011.

Treatments were replicated three times in an RCBD design. Plots consisted of 5 plants of each cultivar spaced 2 feet apart. In total, the trial consisted of 6 dates x 3 varieties x 3 reps x 5 plants = 270 plants.

In September 2011, measurements for stem height, mortality and drowning losses were made. Stem height was determined from measuring from ground level to the tip of the longest stem. Drowning losses were determined by physically removing the plant from the soil to inspect root structure; brittle stems



and root mass lacking healthy white roots with no evidence of vegetative growth. Mortality was determined in a similar method to drowning losses.

September 2012 was the next evaluation period. The 2012 growing season contributed to the lack of any meaningful new growth caused from saturated soils and vigour loss. The vigour of these plants, regardless of planting date, suffered greatly, to the point that a commercial grower would consider removal of the existing stock due to its loss of vigour. Overall, new growth in 2012 was unacceptable with less than 80% of expected new growth. Flushes of new stems from ground level did not occur which we feel was a result of the plant struggling to maintain its existing vegetative growth.

Table 1, describes the treatment structure used in the trial, while Table 2 describes how the experiment was laid out in the field.

Table 1. Description of Seeding Dates and Varieties Used in the Fall vs Spring Seeded Hascap Trial at the CLC.

| Treatment # | Planting Date              | Variety      |
|-------------|----------------------------|--------------|
| 1           | Early Fall Sept 27, 2010   | Borealis     |
| 2           | Early Fall Sept 27, 2010   | Tundra       |
| 3           | Early Fall Sept 27, 2010   | Indigo Treat |
| 4           | Mid Fall Oct 4, 2010       | Borealis     |
| 5           | Mid Fall Oct 4, 2010       | Tundra       |
| 6           | Mid Fall Oct 4, 2010       | Indigo Treat |
| 7           | Late Fall Oct 12, 2010     | Borealis     |
| 8           | Late Fall Oct 12, 2010     | Tundra       |
| 9           | Late Fall Oct 12, 2010     | Indigo Treat |
| 10          | Early Spring May 27, 2011  | Borealis     |
| 11          | Early Spring May 27, 2011  | Tundra       |
| 12          | Early Spring May 27, 2011  | Indigo Treat |
| 13          | Mid Spring June 6, 2011    | Borealis     |
| 14          | Mid Spring June 6, 2011    | Tundra       |
| 15          | Mid Spring June 6, 2011    | Indigo Treat |
| 16          | Late Spring, June 10, 2011 | Borealis     |
| 17          | Late Spring, June 10, 2011 | Tundra       |
| 18          | Late Spring, June 10, 2011 | Indigo Treat |



Table 2. Field Plot Plan for the Fall vs Spring Planted Hascap Trial at the CLC, Showing Locations of Treatments.

| Rep 1 |    | Rep 2 |    | Rep 3 |    |
|-------|----|-------|----|-------|----|
| 17    | 6  | 11    | 7  | 15    | 4  |
| 7     | 4  | 13    | 8  | 16    | 9  |
| 13    | 16 | 5     | 6  | 17    | 6  |
| 11    | 5  | 15    | 10 | 13    | 1  |
| 3     | 1  | 17    | 1  | 8     | 10 |
| 15    | 8  | 16    | 14 | 2     | 12 |
| 9     | 14 | 18    | 2  | 7     | 18 |
| 10    | 2  | 3     | 9  | 3     | 14 |
| 12    | 18 | 4     | 12 | 5     | 11 |

### **Results:**

Mortality was higher with fall than with spring planting for all cultivars (Table 1). Almost all Indigo Treat plants were lost when fall planted while almost all survived when spring planted. By contrast, Borealis mortality was only slightly higher for fall (37%) vs spring (32%) planting.

Two cultivars, Borealis and Tundra suffered considerable drowning losses when spring planted, but most of these losses were because they were located in low lying wetter areas of the trial.

Stem height of Borealis tended to be greater for fall than spring planting, while for Tundra and Indigo Treat, spring planting was favored. This along with lower mortality than other varieties fall planted, may suggest that Borealis has better winter hardiness than the other two varieties. In turn this may allow Borealis to begin growth earlier than other varieties when fall planted.

Table 3. Effect of Planting Date and Cultivar on Stem Height, Mortality and Drowning of Haskap Transplants at the CLC, 2011.

| Cultivar     | Planting Date | Stem Height (cm) | Mortality (%) | Drowned Plants (%) |
|--------------|---------------|------------------|---------------|--------------------|
| Borealis     | Fall          | 23.5             | 37.0          | 0.03               |
| Tundra       | Fall          | 7.0              | 68.0          | 0.08               |
| Indigo Treat | Fall          | n/a              | 98.9          | 0.00               |
| Borealis     | Spring        | 16.0             | 32.0          | 17.00              |
| Tundra       | Spring        | 22.0             | 23.0          | 11.00              |
| Indigo Treat | Spring        | 21.0             | 0.05          | 0.00               |



Overall results should be viewed in context of the moisture conditions that resulted in soil being waterlogged though much of 2012. These conditions resulted in very poor plant growth.

### **Conclusions:**

Fall planting of Borealis Haskap worked about as well as spring planting. With the other 2 varieties Tundra and Indigo Treat, fall planting was a failure. This may reflect that fall planting should be undertaken earlier than our earliest planting date (eg in mid August). Earlier fall planting may allow the plants to develop more extensive roots that would aid in winter survival.

### **Acknowledgements:**

We would like to express our gratitude to the Ministry of Agriculture for the funding support and in-kind support with this project. To recognize the ADOPT program and the Ministry we had signage at the sites.

Field Days:

- Conservation Learning Centre – Annual Field Day – July 17<sup>th</sup> - 45 people
- Conservation Learning Centre – Combine Clinic – Aug 9<sup>th</sup> – 55 producers
- Report on the project to be posted on our website  
[www.conservationlearningcentre.com](http://www.conservationlearningcentre.com)

### **Abstract**

To demonstrate potential benefits of fall planting of hascap we planted 3 cultivars of the crop at 3 dates in fall of 2010, and 3 dates in spring 2011. As measures of performance we evaluated plant mortality and stem height in September of 2011, and again in 2012. Mortality and stem height of the varieties Tundra and Indigo Treat were higher for fall than spring planting. The variety Borealis had relatively low mortality with fall planting, and high mortality with spring planting compared with other cultivars. This may be as a result of differing levels of dormancy between cultivars during fall planting dates. Overall mortality of Borealis was similar between spring and fall planting, as was stem height. Fall planting of Borealis Haskap worked about as well as spring planting. With the other 2 varieties Tundra and Indigo Treat, fall planting was a failure. This may reflect that fall planting should be undertaken earlier than our earliest planting date (eg in mid August). Earlier fall planting may allow the plants to develop more extensive roots that would aid in winter survival. It may also reflect that Borealis is better suited to fall planting than Tundra or Indigo Treat.

