

The 1995 Grain Project Summary

Barley Grain and Straw Production

Barley grain trials were conducted on 8 farms within four regions in Newfoundland and at the Agriculture and Agri-Food Canada (AAFC) Research Station in St. John's. Field conditions varied from farm to farm such as: soil pH, soil fertility, seeding dates and weed control. Grains that were grown on newly cleared land tended to be poor in fertility and as a result, yields were reduced greatly. The soil fertility can be amended through management of green manure crops or through the application of animal manures if they are available (consult your crop specialist).

Barley variety chapais and morrison were grown in St. John's at the AAFC Research Station on the Avalon Peninsula, Woodale in The Exploits Valley, Cormack and Humber Village in The Humber Valley and Robinson's and Maidstone in the Robinson's Area. Yields were unable to be taken for Morrison barley in the Robinson's Area and the only test site for Leger barley was at The AAFC Research Station in St. John's.

Table 1. Grain and straw yields of barley varieties grown within various regions in Newfoundland.

Crop	St. John's (Tonne/ha)		Exploits Valley (Tonne/ha)		Humber Valley (Tonne/ha)		Robinson's (Tonne/ha)	
	Grain	Straw	Grain	Straw	Grain	Straw	Grain	Straw
Chapais B.	5.24	3.63	5.37	4.44	3.64	3.50	5.70	4.78
Morrison B.	4.57	4.38	3.73	4.55	3.91	4.30	----	----
Leger B.	4.52	3.50	----	----	----	----	----	----

The above yields represent grain and straw production of barley grown within the four region in Newfoundland in 1995. Under optimum field conditions chapais barley tended to out yield morrison barley in grain yields. Field conditions in the Humber Valley were not optimal due to late seeding and low initial soil pH and may have affected chapais barley grain yields. Highest grain yields were observed for chapais barley in the Robinson's Area at 5.70 tonne/ha.

Under good field conditions within each region and at The AAFC Research Station in St. John's, morrison barley tended to out yield chapais in straw yields. Highest straw yields were reported for chapais barley in the Robinson's Area at 4.78 tonne/ha.

It was observed that morrison barley out yielded chapais barley in grain yields when grown on soils with low initial pH values, as illustrated by the Humber Valley results in Figure 1 (low fertility and late seeding). Figure 3 illustrates the affects of low fertility and late seeding on morrison and chapais barley grain yields. Results indicate that soil fertility and late seeding have a greater affect on chapais barley grain yields than on morrison barley. Morrison barley grain yields were reduced due to low fertility field conditions.

Morrison barley tended to out yielded chapais barley in straw yields under all field conditions represented in 1995. Both morrison barley and chapais barley were affected by low soil fertility although late seeding has reduced chapais barley grain yields.

Observation

Chapais barley is a six row barley variety and appears more sensitive to adverse field conditions than the two row barley variety morrison. Under field conditions such as: soil pH 5.8-7.0, good fertility, early seeding dates and successful eradication of weeds, chapais barley out yielded morrison barley in grain yields considerably. Morrison barley grain yields were less affected by field conditions such as: soil pH 5.0-5.8, poor to average fertility and late seeding dates. Morrison two row barley produced more tillers per plant than the six row barley chapais and thus in all field conditions represented in the 1995 Grain Project morrison barley out yielded chapais barley in straw yields.

Winter Wheat Grain and Straw Production

Winter wheat varieties fundulea, borden and ruby were grown in Loch Lomond of the Codroy Valley and Cormack of the Humber Valley in Western Newfoundland. The initial soil pH at both locations was 5.3 and seeding dates were September 21st and 19th, 1994 for Loch Lomond and Cormack respectively.

Table 2. Grain and Straw yields of winter wheat varieties grown in various locations in Newfoundland.

Crop	Loch Lomond (tonne/ha)		Cormack (tonne/ha)	
	Grain	Straw	Grain	Straw
Fundulea W. Wheat	4.80	5.77	5.10	4.79
Borden W. Wheat	4.44	8.00	4.43	4.99
Ruby W. Wheat	4.04	5.16	3.92	4.01

Fundulea winter wheat grain yields were highest in both locations at 4.80 tonne/ha in Loch Lomond and 5.10 tonne/ha in Cormack. Borden winter wheat out yielded ruby in both locations with grain yields at 4.44 tonne/ha in Loch Lomond and 4.43 tonne/ha in Cormack. Ruby winter wheat grain yields were 4.04 tonne/ha and 3.92 tonne/ha at Loch Lomond and Cormack respectively.

Fundulea and borden winter wheats over wintered very successfully and showed little yield loss through winter kill. Ruby winter wheat showed serious winter kill in some areas of the field and as a result reduced yields were experienced in both grain and straw at both locations.

Straw yields were highest for borden winter wheat at both locations with 8.00 tonne/ha in Loch Lomond and 4.99 tonne/ha in Cormack. Ruby and fundulea winter wheat straw yields in Loch Lomond were 6.16 tonne/ha and 5.77 tonne/ha respectively and in Cormack 4.79 tonne/ha and 4.01 tonne/ha respectively.

Observation

In both Loch Lomond of the Codroy Valley and Cormack of the Humber Valley, fundulea winter wheat out yielded borden and ruby in grain yields while borden out yielded fundulea and ruby in straw yields. Ruby winter wheat was observed to have experienced severe winter kill in both locations during the 1994/95 trials.

Spring Wheat Grain and Straw Yields

Spring wheat variety belvedere was grown in Robinson's, Woodale and at the AAFC Research Station in St. John's. Belvedere grain yields were highest in Robinson's and St. John's at 3.25 tonne/ha and 3.20 tonne/ha respectively. Grain yields were lower with 2.69 tonne/ha at Woodale due mainly to late seeding.

Table 3. Grain and Straw yields of Belvedere Spring Wheat at various locations in Newfoundland.

Crop	Robinson's (Tonne/ha)		Woodale (Tonne/ha)		St. John's (Tonne/ha)	
	Grain	Straw	Grain	Straw	Grain	Straw
Belvedere						
Spring Wheat	3.25	3.23	2.69	4.20	3.20	5.00

Seeding dates in Robinson's and St. John's were May 14 and 24, 1995 respectively while seeding dates in Woodale was June 5, 1995. Straw yields were highest in St. John's at 5.00 tonne/ha, lowest in Robinson's at 3.23 tonne/ha and at Woodale straw yields were 4.20 tonne/ha. Straw yields at Woodale were unaffected by late seeding dates.

Observation

Late seeding in Woodale resulted in reduced belvedere spring wheat grain yields compared to St. John's and Robinson's. Straw yields were unaffected by the late seeding date compared to St. John's and Robinson's.

Conclusion

In 1995 average grain yields for cereal grown in Newfoundland were 4.6 tonne/ha of winter wheat, 4.8 tonne/ha of spring barley and 3.9 tonne/ha of spring wheat. Chapais barley out yielded morrison barley in grain yields under field conditions such as: ph 5.8 - 7.0, good fertility, early seeding and good weed control. Field conditions such as: low pH, low fertility and late seeding reduced chapais barley grain yields greater than morrison barley. Morrison barley out yielded chapais barley in straw yields under all field conditions in Newfoundland in 1995. Winter wheat variety fundulea out yielded borden and ruby in grain yields and borden out yielded fundulea and ruby in straw yields. Among the winter wheat ruby appeared most susceptible to winter kill. Belvedere spring wheat grain yields were reduced by late seeding but straw yields were unaffected. During optimal harvest time Winter wheat and spring barley moisture content at harvest ranged between 13-23%, and spring wheat harvested in Robinson's had moisture content of 20% - 25%.

For further information contact your Alternative Feeds Coordinator