

Bulk Grain Bin Storage a Success in 1996

The grains project continues to be a success with grains reaching maturity in 4 consecutive years of testing. This year marks the beginning of grain storage trials in Newfoundland for small grains such as barley and winter wheat. One objective of the 1996 grains project was to work closely with existing grain producing farmers to demonstrate grain handling, storage and drying techniques. Three farming operations which have successfully utilized grain production management practices in the past were Glenfair Dairy Farm in Wooddale, Headline Holsteins Too Dairy Farm in Reidville and HillTop Beef/Sheep Farm in Robinsons. The two dairy farms were selected to demonstrate bulk grain storage using an 80 Tonne capacity bulk grain bin, aeration dryer and electric heater. The Beef/Sheep operation was selected to demonstrate small scale grain storage using a 30-40 Tonne capacity horizontal grain bin and two portable natural aeration dryers. Each bulk grain bin was constructed on the farm site for about \$16,000.00 plus \$2,000.00 for a 7"X 52' loading auger. The small scale horizontal grain bin (16' X 32' X 6') was constructed according to the Canada Plan Service plan number 7123 with some modifications to meet the farmers needs. The approximate cost of materials for the construction of the horizontal grain bin was \$2,000.00.

Grain harvest began this year with winter wheat in late August at Glenfair Farms and soon after, in early September, barley was being harvested on both Glenfair Farms and Headline Holsteins Too. With the weather cooperating, the harvest of almost 100 acres of grain was completed on these two farms by the third week of September with average yields of barley and winter wheat ranging between 1.75 and 2.0 tonne/ac. In total over 140 acres of grains were harvested in Newfoundland this year. As the grain was harvested and augured into the bulk grain bins the aeration fans were operating continuously to reduce the "field heat" in the grain to that of the ambient air temperature (outside air temp.). Using the aeration fans when the ambient air temperature was greater than 10°C and the relative humidity was below 90% reduced grain moisture content from about 18% to 14% for safe storage. Similar drying effects were observed with the small scale horizontal bin using the two portable natural aeration dryers.

The bulk grain bins have each been equipped with four temperature monitors that run vertically in the centre of the stored grain mass. These temperature monitors detect the grain temperatures at different levels in the grain bin. The farmer can then tell how well the stored grain is keeping. Convection air currents, which pick up moisture in one area of the bin and deposit it in another can increase the potential of grain spoilage during storage. The unstable area in the grain bin is usually signatred with an increase in temperature which can be detected by the temperature monitors. If the grain has not been properly dried down during the first few weeks after harvest than an electric heater may be necessary to dry the unstable grain. All three farms have been successful in storing bins. Proper management of stored grains will ensure quality and reduce spoilage.

GRAIN MOISTURE CONTENTS DURING STORAGE 1996

	DATE	BARLEY	DATE	BARLEY
Glenfair Dairy Farm	Sept. 4	12.3% - 18.0%	Oct. 16	8.5% - 15.8%
Headline Holsteins Too Dairy Farm	Sept. 9	12.9% - 19.0%	Nov. 22	13.3% - 14.9%
HillTop Beef / Sheep Farm	Sept. 28	17.0% - 18.3%	Nov. 14	16.2% - 17.5%

For further information contact your Alternative Feeds Coordinator