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Sunflower for Silage in Northern Peace Region of Alberta

Background: Sunflower is one of the few crop species that originated in North America. Records indicate that the western Native Americans domesticated the crop as early as 1000 BC. Its strong taproot and phototropic broadleaves allows the plant to increase light interception, photosynthesis, and resource use from soil. Although typically harvested for its seed, sunflower can also be used as a silage crop when seed crop is not possible due to early frost or other reasons. Earlier research has indicated that sunflower yields are generally less than corn but the nutritional quality is often higher.

Objectives: To assess the performance of sunflower for silage in the northern Peace region of Alberta.

Materials and Methods: The trials were done at three locations on the Experimental Farm near Fort Vermilion, AB. A linoleic type sunflower 63A21 was sown (2" deep) on May 17, 2006, with a ConservaPak air seeder at a rate of 40,000 seeds/ac (half a bag/ac). Granular fertilizer, mixture 26-15-5-5 (100 lbs/ac) was applied based on soil test recommendations. Centurion herbicide (+ Amigo) was applied at a rate of 152 mL/ac on June 19, 2006. Sunflower from all the 3 sites was harvested for silage on October 3. Samples were analysed for feed quality.

Results and Discussion: The sites were free of disease and insect damage. The establishment and growth of crop at Sites 2 and 3 was excellent. At Site 1, the high clay content in soil

and above normal rainfall in June and July resulted in poor soil drainage that negatively affected the crop growth and yield. There were two heavy frosts in late Sept., before the sunflower seeds had reached maturity.

The plant height and silage yield were lower at Site 1 than the other two sites (Table 1). At harvest, Plant moisture was much higher than the ideal level for ensiling sunflower between 30-40%. Feed quality analyses revealed that it had good relative value as feed. The lower crude protein levels were attributable to bird damage and subsequent missing seeds.

Reports from the cooperator indicated that the silage fermented well and was eaten by the cattle with minimal wastage.

In conclusion, sunflower is a good crop for silage in the northern Peace region. An alternate crop use plan is good management for new crops.

Acknowledgements: Cooperator's Ron Wieler for harvesting and testing the silage as feed; and Peter Wieler for use of your equipment. Blaine Calkins (Pioneer Hi-Bred Ltd.) for providing seed and expertise. Norwest Labs for nutrient analyses.

Summary: Kabal S. Gill, Res. Ext. Coordinator, with funds from Extension project of ARECA. For more information, please contact MARA.

Table 1. Sunflower plant height and yield in 2006.

Site	Wet yield tons/ac	Heights, cm	Moisture %	Dry Matter %	Protein %	ADF %	Relative Feed Value, %
		Range (Average)					
1	12.0	95-155 (131)	78.7	21.3	1.4	7.0	138
2	15.6	105-198 (160)	79.7	20.3	2.9	7.6	140
3	21.1	155-183 (168)	82.0	18.0	1.7	11.7	151