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WINTER GRAZING STANDING CORN PLANTS FOR BEEF COWS UNDER MAINTENANCE CONDITIONS

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INTRODUCTION

Corn is known as a forage crop that has the potential of yielding more energy per acre than any other forage crop in the U.S. Additionally, corn has an advantage as a winter grazing crop because its stem cures well, it stands above the snow, and it stands up in windy conditions as well as providing a windbreak for cattle grazing it.

DESCRIPTION OF PROJECT

During the winter of 2001, 2.43 acres of standing silage-type corn (Roundup-Ready) were grazed by 16 dry, pregnant beef cows (1420 lbs) from November 1 through February 15. Grazing was controlled using the New Zealand-type polywire electric fencing system with step-in posts. The heavy-gauged steel rod at the end of these posts allowed use even in frozen ground. Two rows of corn plants were offered to the cows at each set. The first row remained standing while the second row was laid down using an ATV. The electric wire was stretched over the row that was laid down. The cows consumed the standing row first and usually consumed the cobs first, followed by the leaves and lastly the stalks. After consuming the standing row, cows would pull the laid down row from beneath the electric wire and consume it. When utilization of the two rows was complete, the cows were offered another two-row set in the same manner. This method allowed for high utilization with minimal waste.

RESULTS

The following is a summary of costs associated with the growing of the corn plants:

Variable Costs:	**$/acre**
Land preparation and seeding	58.67
Cultivation	14.96
Fertilization	41.96
Pesticides/herbicides	31.94
Irrigation	69.90
Interest on operating @9.75%	6.69
Total Variable Costs	224.12
Ownership Costs:	
Insurance	2.00
Machinery	29.65
Irrigation equipment	8.25
Land ownership	22.72
Total Ownership Costs	82.62
Total Costs:	**306.74**

Performance of the cows during the winter grazing period is shown below:

Item	November	December	January
Beginning weight, lbs	1421	1443	1499
Ending weight, lbs	1443	1499	1541
Weight change, lbs	22	56	42
AGD[1], lbs	.75	1.81	1.35
Beginning BCS[2]	4.8	5.1	5.8
Ending BCS	5.1	5.5	5.8
BCS change	.3	.4	.3

[1]average daily gain
[2]body condition score, 1 = extremely thin, 9 = extremely fat

The following are estimated dry matter (DM) yields and value of the standing corn plants through the winter grazing period:

Item	November	December	January
tons DM/acre	10.57	9.40	8.73
value of DM[1], $/lb	.0146	.0163	.0176

[1]based on a production cost of $306.74 per acre

The following are DM intake and total feed cost of cows grazing standing corn plants during the winter.

Item	November	December	January
lbs DM/cow/day	30.24	30.41	31.99
value of DM, $/lb	.0146	.0163	.0176
supplement[1], $/cow/day	.03	.03	.03
Total feed cost, $/cow/day	.4728	.5258	.5919

[1]calcium, salt, trace minerals, fat-soluble vitamins, nonprotein nitrogen

CONCLUSIONS

Cows performed well while grazing standing corn plants during the wintering period, gaining 120 lbs. of body weight and improving body condition by one full BCS.

The grazing of standing corn plants was cost effective compared to feeding mechanically harvested forage during the wintering period (30 lbs. DM hay x $.028/lb DM = $.84/cow/day versus $.51/cow/day grazing standing corn).

The carrying capacity of the standing corn plants was quite high requiring only (2.43 acres ÷ 16 cows ÷ 107 days) = .0014 acres/cow/day (about 61 sq. ft/cow/day).

This project demonstrates that substantial savings can occur when standing corn is offered as the roughage source for beef cows under maintenance conditions. Harvesting of the corn is accomplished by the cow resulting in lower operating costs. This would be a viable alternative for small or large producers who have access to land suitable for growing irrigated corn.

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