Comparing Turnips versus Mixed Grass Pastures

by
Mark Landefeld and Clif Little
OSU Extension Agents

Alternative forages have been the buzz word in extending grazing conversations. At the Eastern Ohio Research and Development Center, we decided to evaluate animal performance and the cost of grazing turnips versus stockpiled grass. On Aug. 14, 2 acres were disked to prepare a seed bed for planting turnips. Purple Top turnips were seeded at a rate of 4.5 pounds per acre; broadcast by a hand seeder with the opening set as small as possible, but still allowing the seed to pass through the opening. A cultipacker was run over the seed to assure good seed-soil contact.

Ammonium nitrate fertilizer (34-0-0) was applied three weeks after planting at a rate of 150 pounds per acre or 51 pounds actual nitrogen using a broadcast spreader. Ammonium nitrate was used to eliminate nitrogen volatilization if a soaking rain did not occur soon after application.

Sixty-one days after seeding, four samples of the turnips in a 2- x 2-foot section were taken and weights added together, averaged, and the amount of forage available per acre was calculated. Dry matter (DM) was tested from these samples and found to be 7.5% DM for the tops and bulbs, which amounted to 8,281 pounds of DM per acre. Approximately 75% or 6,260 pounds was found in the tops and 25% or 2,021 pounds in the bulbs.

Forty-six heifers were randomly divided into two groups of 23 head and weighed. Group number 1 was placed on the turnips and group number 2 was placed on a 9-acre paddock of mixed grass. One hundred pounds of urea fertilizer (46-0-0) was applied per acre to the mixed grass on Aug. 3rd and growth was allowed to stockpile for 75 days prior to the test. The paddock was monitored during the test period to insure an adequate amount of forage dry matter was available and would not restrict any possible weight gain, but the paddock was not strip grazed.

Group number 1 on the turnips was strip grazed to reduce trampling and waste. No back fence was used and round bales, of the lowest quality hay from the farm, were offered free choice to increase the fiber level because turnips are low in fiber and have a high moisture content. Ten round bales, approximately 800 pounds each, were used during the 41-day feeding period.

Yield data was collected on the turnips Oct. 16 and the heifers turned into the turnips and the grass paddock on Oct. 18. Both groups were taken off Nov. 27. Table 1 outlines the results.

This trial shows the variation in cost between two forages, turnips and stockpiled grass, and what it costs the producer per ton of DM consumed. Weight gain differences were not significant from the type of crop being grazed. Heifers grazing the turnips averaged 1.78 pounds per day while the heifers on grass gained 1.73 pounds per day. If the farm manager is lacking pasture through the summer rotations and has limited area to stockpile forage for the fall/winter feeding period, turnips may be a good crop to establish. A greater quantity of forage dry matter was produced per acre with the turnips, but the cost per ton of dry matter consumed was higher.

TABLE 1.

	Group No. 1	**Group No. 2**
Days on test	41	41
Number of head	23	23
Ave. start wt.	806.3 lb.	799.57 lb.
Ave. finish wt.	877.39 lb.	868.7 lb.
Ave. gain for trial	71.09 lb.	69.13 lb.
Ave. daily gain	1.78 lb.	1.73 lb.
Costs	**Turnips**	**Grass**
9 lb. turnip seed	$24.75	$0
Fertilizer $11.25 & $10/cwt.	$33.75	$90
10 round bales ($10 ea.)	$100	$0
Land charge ($30/ac)	$60	$270
Equipment ($10/ac)	$20	$0
Broadcast seed ($4/ac)	$8	$0
Total	$246.50	$360
	(2 acres)	(9 acres)

Cost per ton of DM consumed
Turnips:
8281 lbs. x 2 A + 8000 lbs. (hay) =24,562 lbs.
24,562 ÷ 2000 lbs. = 12.28 ton
$246.50 ÷ 12.28 = $20.07/ton DM

Grass:
4366 lbs. x 9 A = 39,294 lbs.
39,249 ÷ 2000 lbs. = 19.65 ton
$360.00 ÷ 19.65 = $18.23/ton D