Utilization of Fall-Grazed Cover Crops Following Weaning

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Using dual-purpose cover crops for agronomic and forage purposes is gaining popularity as a good method to meet conservation goals as well as to increase production per acre through forage utilization. Cover crops planted for grazing also have increased, though at a slower rate. Fencing, water, and lack of knowledge about grazing cover crops are three of the most cited barriers to incorporating cover crop grazing into an overall beef cow operation forage plan. Cover crops could be an excellent opportunity for stress-free weaning and backgrounding of young calves. However, University of Minnesota research demonstrated young cattle actually do not perform well on cover crops post-weaning. Average daily gains (ADG) for young calves weighing ~550 lbs was 1.0 lb/day and ranged from <0.5 to 1.7 lbs/day (Mousel 2011; Mousel and Matheson 2013). This is well below target ADG most farmers can accept to justify holding on to calves post-weaning. An additional project was conducted to evaluate performance of calves grazing a cover crop and being supplemented to increase performance.

Materials and methods. In July 2016, following cereal oat harvest, 16 acres in east central Minnesota were seeded to a cover crop mix consisting of cereal rye, purple top turnips, Graza radish, field peas, and vetch. On October 13, 53 Angus X heifers weighing 747 lbs each were turned out on the cover crop and strip-grazed 21 days. The cover crop was sampled weekly to determine yield, utilization, and forage quality. During the grazing period, heifers were supplemented with 2 lbs/head/day of a 50:50 mix of corn screenings and dried distiller's grain. Cattle had free choice access to dry hay. At the conclusion of the 21 days, cattle were weighed and ADG was calculated.

Results. Heifers grazing the cover crop mixture, while being supplemented, gained 2.95 lbs/day. A total of 42 lbs of the supplement mix was fed per head at a cost of $0.15/lb, resulting in a supplement cost of $6.30/head. Weigh-backs on the free choice hay indicated 2.12 lbs of hay was consumed per head over the three weeks. It is not clear how much the hay contributed to or detracted from performance, but likely the effect was negligible.

As expected, the cereal rye and turnip tops contributed significantly to the total yield (Figure 1). Furthermore, turnip bulbs also yielded a substantial amount. However, little is known about how much of the turnip bulb mass is actually consumed by grazing cattle.

The utilization data (Figure 2) indicated much of the forage consumed was cereal rye and turnips, as expected since those two species contributed the most to available forage. However, 70% of the available turnip bulb mass was consumed by cattle; a significantly higher proportion than expected.

Figure 1. Cover crop yield.

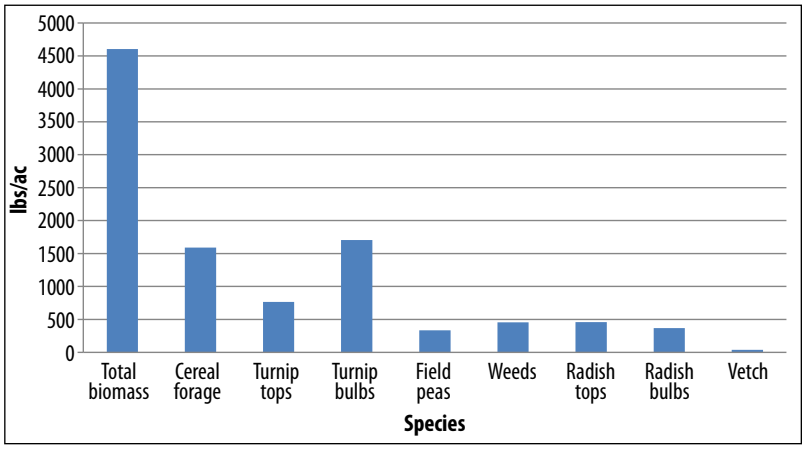
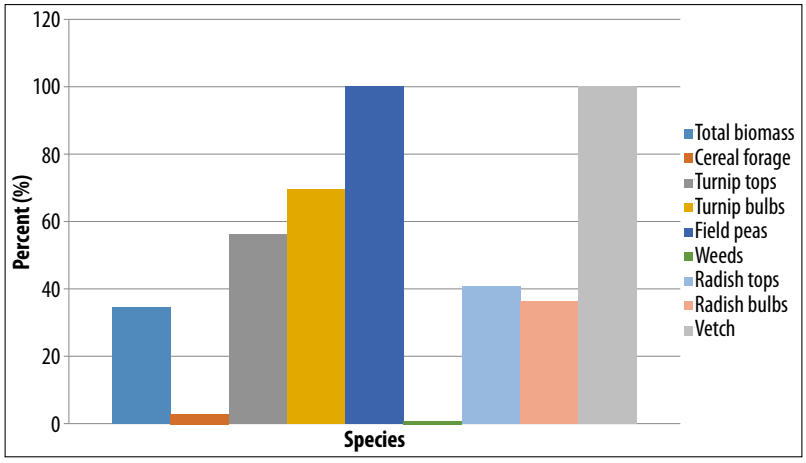


Figure 2. Overall utilization.



Forage quality of the cover crop species is shown in Table 1. Moisture content and crude protein (CP) of all species did not change considerably over the first two weeks of the trial. However, a light frost occurred on November 1 (~3 days before the end of the trial) and a noticeable drop in moisture and CP was detected as a result. Total Digestible Nutrients (TDN) is shown in Table 1 for some species but not others. Some instances of sampling error resulted in not enough material being collected from the field to obtain an accurate TDN reading, thus, those values are not reported as their accuracy cannot be verified.

Table 1. Forage quality.

		Moisture	CP	TDN
		----------%----------		
Week 1	Cereal	83.26	21.00	71.58
	Turnip top	88.22	18.59	-
	Turnip bulb	90.66	12.89	-
	Peas	89.74	18.56	68.12
Week 2	Cereal	88.47	19.31	64.14
	Turnip top	81.22	22.08	-
	Turnip bulb	83.52	11.91	-
	Peas	87.03	22.72	65.20
Week 3	Cereal	75.79	12.80	-
	Turnip top	85.96	24.10	-
	Turnip bulb	-	-	-
	Peas	78.49	17.07	-

Implications. This project demonstrates utilization of cover crops for growing cattle post-weaning can be an effective management strategy. Supplementing a small amount of concentrate to growing cattle grazing cover crops post-weaning can elevate performance to an acceptable level at a minimal cost. Furthermore, the utilization data from this project indicates it is appropriate to include turnip bulb yields into the proportion of roughage available for grazing when calculating stocking rates on these types of cover crop seedings.