

Field Peas and/or Barley in Receiving Diets for Beef Calves

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Introduction

Field peas have proven to be a very nutrient dense and palatable feed in multiple NDSU and other universities creep feeding, backgrounding, and finishing studies. Peas are a nutrient dense annual grain legume with energy approximately equal to corn and crude protein consistently ranging from 23-25 percent. The combined palatability and nutrient density of peas make this feedstuff an ideal candidate for receiving diets where intake is often limited and palatability of a new feed is important.

Materials and Methods

Newly weaned calves (n=144) from 34 ranches in North Dakota and Montana were delivered to the Carrington Research Center on October 13, 2001. Three pens of calves with 48 head per pen were randomly assigned to 60 percent concentrate receiving diets with the primary grain source from 100 percent barley, 50 percent barley and 50 percent peas, or 100 percent peas.

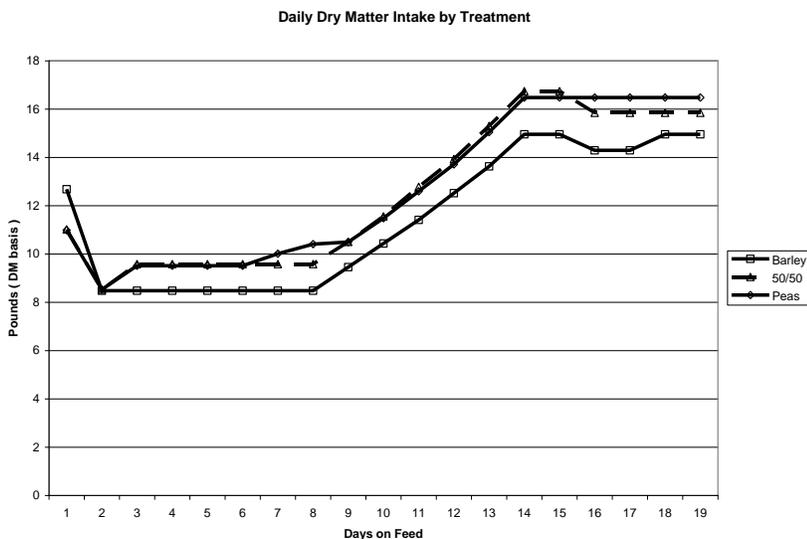
Totally mixed diets (Table 1) were fed once daily to appetite during the 42-day trial. An intermediate weight was taken at day 21. All calves were introduced to an ionophore (Rumensin®, monensin sodium, Elanco Animal Health) fed at 250 mg/hd daily from the start. Supplements used during the first 28 days were yeast (YeaSacc 1026®, Alltech, Inc.) and a coccidiostat (Deccox® decoquinate, Alphafarm Pty. Ltd.).

Morbidity (number getting sick) and mortality (number of deaths) were monitored and recorded. Calves were pulled and evaluated when exhibiting symptoms of off feed, runny nose, droopy, coughing, wheezing, panting, and general lethargy. Treatment for respiratory disease was administered when temperatures were 103 degrees or more, or animals exhibited multiple symptoms. The treatment regime for first and second pulls was Micotil® and Banamine®. Treatment for continued symptoms was Batril® and Predef®.

Results

Feed intake improved over time. Dry matter intake as a percent of initial body weight tended to increase with increasing peas in the diet. During the first 21 days, calves fed the 100 percent barley diet consumed 1.98 percent of initial body weight, while the 50/50 calves ate 2.14 percent and the 100 percent pea calves ingested 2.23 percent. This pattern continued into the second 21 days when the 100 percent barley calves ate 2.89 percent of their body weight, 50/50 calves consumed 2.99 percent and the 100 percent pea calves ingested 3.32 percent of body weight. Figure 1 presents the intake by treatment during the first 21 days of the trial. It appears that peas in the diet at either level consistently improved intake during the initial feeding period.

Figure 1



Gains were similar for all treatments (3.33, 3.25, and 3.32 lbs. per day respectively for 100% barley, 50/50, and 100% peas). Feed efficiency, reported as gain per unit feed, suggests an advantage in the 100 percent barley treatment with decreasing efficiency from increasing peas in the diet (.234, .218, and .209, respectively). Calves were co-mingled after the 42-day receiving trial and fed a corn-based finishing diet (63 mcal/lb) to market weight. Calves on the 50/50 receiving diet appear to have compensated for any slight reduction during the receiving trial and ended up gaining 3.48 pounds per day overall vs. 3.38 for barley, and 3.37 for peas.

Eight calves were pulled and treated from the barley diet, seven from the 50/50 barley/pea diet, and eight from the pea diet. One calf from the 50/50 diet was pulled two times. No calves died during the trial. The use of Micotil in a metaphylactic role may have limited susceptibility and possibly outbreaks of some infections. While peas appear to be a very palatable feed, their use has not been observed to improve animal performance or immune system in this very limited data set. This trial will be repeated in coming years for more replicates.

Table 1. Average intake of dietary ingredients by treatment for the 42 day receiving trial.

Item	100% Barley		50% Barley 50% Peas		100% Peas	
	As fed Lb	%, DM basis	As fed Lb	%, DM basis	As fed Lb	%, DM basis
Rumensin Supplement	.25	1.71	.25	1.63	.25	1.55
YeaSacc 1026®*	.12	.84	.12	.80	.12	.76
Deccox®*	.10	.70	.10	.67	.10	.63
Mineral	.19	1.34	.19	1.28	.19	1.22
Barley	8.81	55.82	4.60	27.83	-	-
Peas	-	-	4.60	27.52	9.87	56.09
Chopped alfalfa	4.08	25.26	4.37	25.84	4.46	25.05
Corn silage	6.22	14.33	6.56	14.43	7.03	14.69

* Fed only for 28 days. Yea Sacc 1026® is a yeast supplement from Alltech, Inc, Nicholasville, KY, developed for feedlot cattle to stabilize and enhance ruminal digestion. Deccox® is a coccidiostat (decoquinat) from Alphafarm Pty. Ltd. fed to prevent outbreaks of coccidia in stressed cattle.

Table 2. Performance of calves fed receiving diets for 42 days with barley and/or peas as the concentrate source.

Item	100% Barley	50% Barley 50% Peas	100% Peas
Number of head	48	48	48
Initial wt, lb	579.0	576.2	566.3
Dry matter intake, lb	14.22	14.90	15.90
Average daily gain, lb	3.33	3.25	3.32
Gain per feed	.234	.218	.209
Avg daily gain Oct 13-April 11	3.38	3.48	3.37