

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. 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. This trial was designed to compare field peas versus barley versus a combination of the two in receiving diets for beef calves.

Materials and Methods

In mid October of 2001 and 2002, newly weaned calves (n=144 in 2001 and n=150 in 2002) from 34 different ranches in North Dakota and Montana were delivered to the Carrington Research Center. Calves had been gathered on Friday or Saturday morning and experienced a day of pen evaluations at the Dakota Feeder Calf Show in Turtle Lake, ND prior to arrival. Three pens of calves with 48-50 head per pen were randomly assigned to 60 percent concentrate receiving diets with the grain source from 100 percent barley, 50 percent barley and 50 percent field peas, or 100 percent field peas. The 42-day trial was divided into two 21-day weigh periods. Each calf was administered a metaphylactic injection of Micotil® (Elanco Animal Health) at the initial weighing. Calves had previously been vaccinated and boosted for IBR, BVD, PI3 and 7 Way with somnus.

Totally mixed diets (Table 1) were fed once daily to appetite during the 42-day trial. Diets were fed in fenceline bunks with approximately two feet of bunk space per head. Feed intake was recorded daily and daily weight gain and feed efficiency were calculated for each of the two weigh periods and overall.

Morbidity (number of sick animals) and mortality (number of deaths) were monitored and recorded. Calves were pulled and evaluated when exhibiting symptoms of off feed, runny nose, droopiness, 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®. Subsequent treatment for continued symptoms was Batril® and Predef®.

Results

Calves performed very well in this study considering the co-mingling, shipping, and time delay stresses encountered before arrival at the feedyard. Feed intake increased, as expected, from the first 21-day period to the second 21-day period in this trial for each treatment group. Treatment effects were significant ($P < 0.05$) with increased intake in diets with peas. Daily gains reflect similar performance for the control and 50 percent pea diet but the 100 percent pea ration allowed for improved gains overall. Gain per unit feed calculations reflect similar values in each period for all treatments.

No calves died during either year of this study. Similar numbers of calves were pulled from each treatment group. Eight calves were pulled in year one and six in year two. For a total of five, four, and five calves pulled from respective treatment groups. Only one calf was a repeat pull.

Discussion

The palatability of peas apparently supports enhanced intake at both levels fed. Calf gains are not totally consistent with intake as only the 100 percent pea diet produced significant improvement in gains. The improved energy density, lower fiber, and possibly higher protein levels may have contributed to improved gains. While protein requirements were met in the control diets, other observations have been made where higher crude protein levels resulted in improved gains. Gains for the combination grain diet

are identical to the control in this data set. Peas in this study were dry rolled. Additional research is scheduled to explore effects of processing feed with treatments of grinding, rolling or feeding peas whole.

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

	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	0.25	1.71	0.25	1.63	0.25	1.55
YeaSacc 1026®*	0.12	0.84	0.12	0.80	0.12	0.76
Deccox®*	0.10	0.70	0.10	0.67	0.10	0.63
Mineral	0.19	1.34	0.19	1.28	0.19	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 (decoquinate) from Alphafarm Pty. Ltd. fed to prevent outbreaks of coccidia in stressed cattle.