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Animal Science Research Centre - Beef Unit Trial Results – 2009 (a)

Evaluation of Traffordgold, Bread and Sugar Beet Feed mix on the performance of intensively fed bulls

Introduction:

Traffordgold is a moist co-product from the processing of wheat to produce alcohol, starch and wheat gluten for the food and drink industry from Cargill's Manchester distillery. The analysis of Traffordgold is as follows: 50% dry matter, 20% crude protein/kg DM, 13.4 MJ/kg DM and 17.5% starch (in the DM). Since feed accounts for 75-80% of the variable costs of beef production, the use of alternative feeds that have a low cost per unit of energy and protein are worthy of investigation. The objective of this experiment was to compare the effect of feeding a Traffordgold/bread/sugar beet feed mix against a high cereal ration on the performance of intensively finished bulls. The rationale for mixing bread and beet pulp with Traffordgold was to reduce the crude protein to a level more suited to finishing bulls and maintain the high energy content of the mix.

Stock:

34 Jan-Feb 2008 born dairy-bred bulls weighing 330kg. There were 22 Holstein, 8 Angus x Holstein and 4 Limousin x Holstein bulls. Slaughtered Mar-May 2009.

Treatments:

Barley

Ad libitum 14.3% CP concentrates (68.75% rolled barley, 10% sugar beet feed, 7.5% soya-bean meal, 7.5% rapeseed meal, 5% molasses, 1.25% intensive beef minerals). The ration was analysed to contain 86.5% DM, 12.9ME MJ/kg DM, 166g CP/kg DM and 39.8% starch (34.4% as fed).

Traffordgold Mix

Ad libitum ensiled mix of 58% Traffordgold, 29% processed bread, 13% sugar beet feed. From 330 to 450kg live weight 100g/head/day of intensive beef minerals were top-dressed daily into the ration. From 450kg to slaughter 125g/head/day minerals were fed. The ration was analysed to contain 59.8% DM, 159g CP/kg DM, 13.2ME MJ/kg DM, and 32.1% starch in the DM.

Results:

Table 1: Animal performance (kg/bull)

	Barley	Traffordgold Mix	s.e.d	Sig
Start wt (kg)	326	339	16.7	NS
Slaughter wt (kg)	550	572	12.7	*
Days to slaughter	191	184	10.5	NS
DLWG (kg)	1.19	1.28	0.074	NS
Age at slaughter (mo)	13.78	13.72	0.371	NS

Table 2: Carcase characteristics

	Barley	Traffordgold Mix	s.e.d	Sig
Carcase wt (kg)	280	291	8.2	NS
Kill out (%)	50.9	50.9	0.62	NS
Carcase DG (kg)	0.68	0.72	0.047	NS
Conformation ¹	2.57	2.64	0.218	NS
Fat class ²	3.07	3.07	0.208	NS
Liver score ²	2.14	1.29	0.448	*

¹ EUROP carcase classification: Conformation: P+=1 and E=7, Fat class: 1=1 and 5H=7.

² Liver assessment: 1= Healthy liver and 5 = Severe abscesses

Table 3: Feed intakes and feed conversion ratio (FCR)

Feed intakes (kg)	Barley	Traffordgold
Traffordgold mix (kg DM in brackets)		2,625 (1,481)
Minerals		23
Barley mix (kg DM in brackets)	1,704 (1,435)	
FCR (kg DM/kg gain)	6.40	6.42

Table 4: Financial performance

	Barley	Traffordgold Mix
Sale price (£/kg dwt) - April 2009	2.68	2.69
Carcase value (April 2009)	752	785
Feed costs/bull	212	203
Margin over Feed ¹	540	582
Feed cost/kg gain (p)	95	86
Gross margin/bull (£)	139	165

¹ Feed costs (October 2008): Traffordgold Mix @ £75/t (Traffordgold @ £60/t, Bread @ £80/t, Sugar Beet Feed @ £131/t). Barley Mix @ £124/t (rolled barley @ £95/t, sugar beet feed @ £131/t, soya @ £289/t, rapeseed meal @ £136/t, molasses @ £116/t, mins @ £256/t. Includes £5/t for mill & mixing).

Results & Conclusions:

- Overall the bulls recorded performance that achieved recognised targets for cereal beef production with slaughter weights of 550-572kg at 13.7 months old
- Feeding Traffordgold mix resulted in heavier ($P<0.05$) slaughter weights
- Bulls fed the Traffordgold mix recorded lower ($P<0.05$) liver damage scores. Liver abscesses are associated with mild acidosis from feeding high starch based diets. A reduced incidence of acidosis together with improved liver function and increased energy intake could explain the improved performance with the Traffordgold mix fed bulls.
- There were no significant differences in FCR. The FCR's appear to be relatively poor at 6.4. It must be noted that the trial did not include the period of growth from 110kg to 330kg. During this rearing phase bulls at Harper Adams typically record a DLWG of 1.55kg with an FCR of 3.8.
- The Traffordgold mix fed bulls recorded an increased gross margin of £26 per head with reduced feed costs per kg gain worth 9p/kg based on the costs prevailing at the time of the study.

Reference

Marsh, S.P., Manley, C.W. and Wynn, R. 2011. Evaluation of moist co-products for finishing dairy-bred bulls. *Advances in Animal Biosciences*. Paper 153