

GRASS FED BEEF FOR JAPAN

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Japan is an important market for Victorian grass fed beef but continuity of supply of a consistently high quality product is a barrier to expansion of this market. The following experiment investigated the development of cost effective pasture based supplementary feeding systems to enable producers to meet Japanese consumer requirements during winter and early spring. Eighty Hereford steers (504 ± 6 kg LW) were allocated to one of five treatments: (1) control group - pasture only at 1 steer/ha; (2) pasture + 15 g/kg LW/day of cracked triticale (12.9MJ ME/kg DM; 10.4%CP) + 3 g/kg LW/day pasture hay (6.8 MJ ME/kg DM; 13.2% CP), fed weekly; (3) pasture + 7.5 g/kg LW/day cracked triticale + 7.5g/kg LW/day poor quality silage (8.4 MJ ME/kg DM; 9.9% CP), fed weekly; (4) pasture + *ad lib.* poor quality silage (8.4 MJ ME/kg DM, 9.9% CP); and (5) pasture + *ad lib.* good quality silage (10.2 MJ ME/kg DM; 22.6% CP). Each treatment was replicated four times in a randomised block design. After 144 days of feeding the supplemented steers were slaughtered. Liveweight was recorded prior to slaughter and carcasses were weighed (HSCW) and assessed for fat depth at the P8 site, eye muscle area and marble score using the AUS-MEAT chiller assessment system. Data were analysed using the general linear model procedure of SAS (1988). Carcass data are presented for supplemented treatments only in Table 2 because of the failure of the pasture only group to meet market specifications.

Table 1. Mean liveweight (kg), average daily gain (kg/d) and supplement intake (kg DM/d) (\pm s.e.m.) of steers grazed on pasture with or without supplementation

| | Pasture only | Triticale + hay | Triticale + poor quality silage | Ad-lib poor quality silage | Ad-lib good quality silage |
|---------------------------|------------------------------|-------------------------------|---------------------------------|------------------------------|------------------------------|
| Initial liveweight | 505 \pm 6 | 502 \pm 6 | 503 \pm 5 | 504 \pm 7 | 507 ^a \pm 7 |
| Final liveweight | 585 ^c \pm 8 | 619 ^b \pm 7 | 626 ^c \pm 5 | 604 ^{bc} \pm 8 | 649 ^a \pm 8 |
| Average daily gain | 0.49 ^d \pm 0.06 | 0.82 ^b \pm 0.03 | 0.85 ^b \pm 0.03 | 0.69 ^c \pm 0.03 | 0.98 ^a \pm 0.04 |
| Average supplement intake | nil | 6.4 kg triticale + 1.7 kg hay | 4.6 kg triticale + 8 kg hay | 4.9 kg DM | 7.3 kg DM |

Different superscripts within columns indicate significant differences ($P < 0.05$).

Table 2. Mean carcass data and value (\pm s.e.m.) of steers grazed on pasture with supplementation

| | Triticale + hay | Triticale + poor quality silage | Ad-lib poor quality silage | Ad-lib good quality silage |
|--------------------|-------------------------------|---------------------------------|-------------------------------|------------------------------|
| HSCW, kg | 340 ^a \pm 4 | 341 ^a \pm 3 | 319 ^b \pm 5 | 350 ^a \pm 6 |
| DP% | 57 ^a \pm 0.4 | 57 ^a \pm 0.4 | 56 ^b \pm 0.4 | 57 ^a \pm 0.3 |
| P8 Fat, mm | 16.8 \pm 1 | 19.4 \pm 2 | 18.6 \pm 2 | 19.0 \pm 1.3 |
| EMA, cm | 76 \pm 1 | 80 \pm 2 | 77 \pm 2 | 80 \pm 2 |
| Meat colour | 1B | 1B | 1B | 1B |
| Fat colour | 0-2 | 0-2 | 0-2 | 0-2 |
| Marble score | 0.87 ^{ab} \pm 0.15 | 0.56 ^b \pm 0.15 | 0.87 ^{ab} \pm 0.18 | 1.18 ^a \pm 0.13 |
| Price (\$/kg HSCW) | 1.65 \pm 0.03 | 1.62 \pm 0.03 | 1.63 \pm 0.04 | 1.63 \pm 0.02 |
| Value (\$/head) | 562 ^a \pm 8 | 553 ^a \pm 12 | 519 ^b \pm 10 | 569 ^a \pm 9 |

^aDifferent superscripts within columns indicate significant differences ($P < 0.05$).

All carcasses in the supplemented treatments complied with Japanese market specifications. Economic analysis of the data using prices current at the time of trial (triticale \$220/t; poor quality silage \$55/t; pasture hay \$90/t; good quality silage \$68/t) showed that gross margins per head were negative and that the break even prices were between \$2.30 and \$2.60 per kg HSCW. Supplementary feeding systems are effective in finishing cattle on pasture but are only feasible under certain economic situations.

SAS INSTITUTE INC. (1988) SAS/STAT User's guide. Release 6.03 Ed. (SAS Inst. Inc.:Cary).