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Summary only

LIVEWEIGHT AND CARCASS RESPONSES OF GRAZING STEERS TO SUPPLEMENTS IN SUMMER

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Eighteen-month-old steers were offered supplementary feed from January to April in each of four years while grazing pasture at pressures ranging from moderate to high. Feeds used were, in 1971 and 1973—maize silage; in 1972—ground maize grain; in 1974—either pasture silage (wilted, direct-cut, or direct-cut treated with formic acid) or whole maize plants (unchopped).

Overall, levels of substitution (depression of pasture intake by supplements expressed as a percentage of supplement intake) were high (up to 100%) so that liveweight responses to supplement were small (usually less than 0.15 kg of extra liveweight/kg of supplement dry matter). Substitution was lower where animals were rotationally grazed and was inversely proportional to grazing pressure. In the former case, substitution ranged from 5 to 50%. The tendency for supplement to inhibit pasture consumption was partly offset by the stimulus to pasture consumption provided by higher levels of pasture available to supplemented animals at second and subsequent grazings.

In each year and among both supplemented and unsupplemented animals, carcass gain (Y kg/day) was a high proportion of liveweight gain (X_1 kg/day) and at liveweight gains between 0 and 0.9 kg/day could be predicted by the equation:

$$Y = 0.681X_1 + 0.06 \text{ (RSD} = 0.05 \text{ kg/day)}$$

Although high levels of intake were confounded with high proportions of supplement in the diet, carcass gain (Y kg/day) showed close, linear relationships to total dry matter intake (X_2 kg/day) described by the equations for 1972, 1973 and 1974 respectively,

$$Y = 0.095X_2 - 0.33 \text{ (RSD} = 0.06, \text{ range of } X_2, 5.5 \text{ to } 10.8)$$

$$Y = 0.073X_2 - 0.13 \text{ (RSD} = 0.08, \text{ range of } X_2, 5.5 \text{ to } 7.3)$$

$$\text{and } Y = 0.136X_2 - 0.85 \text{ (RSD} = 0.05, \text{ range of } X_2, 4.8 \text{ to } 9.3)$$

Under *ad libitum* supplementation in 1974, green maize and wilted pasture silage produced higher levels of carcass gain than did either of the direct-cut pasture silages. However, there were no differences between feeds at restricted levels of supplementation.