

A B S T R A C T

The review of literature includes a discussion of the in vivo apparent digestibility technique used in this investigation. The dry matter yields, voluntary food intakes and apparent digestibilities of dry matter, organic matter and crude protein of maize (Zea mays, L) and pangola grass (Digitaria decumbens Stent) cited in the literature were also reviewed.

An investigation was carried out into the yield, voluntary food intake and apparent digestibilities of dry matter, organic matter and crude protein of foraged maize at six stages of growth, (8, 9, 10, 11, 12 and 13 weeks after planting) and compared with the same digestibilities obtained from pangola grass after four weeks of regrowth in conjunction with a growth analysis on a dry matter basis of the foraged maize at each of the six stages of growth in an attempt to ascertain the best time of cutting so as to maximise all of the above properties and compare it with the properties of pangola grass of a uniform age.

It was shown that on an annual 4 crop per year, dry matter production basis, X304 maize outyielded pangola grass by more than 200%. Growth analysis clearly demonstrated that X304 maize reached its peak of dry matter production at twelve weeks of age. The voluntary food intakes of pangola grass expressed on a metabolic liveweight basis were significantly higher ($P = 0.05$) than that of foraged maize with the exception of the maize harvested twelve weeks after planting. The in vivo apparent

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digestibilities of dry matter and organic matter of pangola grass were significantly higher ($P = 0.05$) than those of forage maize. However, the investigations were characterised by a steady increase in digestibility to the twelfth week of growth followed by a rapid fall in the thirteenth week of growth coinciding with rapid drying out of the plant. The investigations into crude protein apparent digestibilities were inconclusive but appeared to support the assumption that the optimum period for cutting the maize is at twelve weeks.

It was concluded that the optimum time of cutting of foraged X304 maize occurred at twelve weeks after planting. It was suggested that the yield of dry matter produced tended to out-weigh the lower intakes and apparent digestibilities of maize when considered on an annual animal production per hectare basis.

It was suggested that future work is required to find and evaluate better varieties of maize capable of producing higher levels of crude protein and dry matter.