

GENERAL INTRODUCTION

Pangola grass (Digitaria decumbens) was first introduced into Trinidad in 1953. Since then it has made remarkable progress and by 1957 the Department of Agriculture was advising that Pangola grass was suitable as a grazing grass under Trinidad conditions.

The grass has a creeping, decumbent habit, produces long runners in a few months providing good ground cover, thus checking erosion and, in addition, its aggressiveness checks undesirable species.. One disadvantage is that it seeds poorly if at all but is easily propagated by sets. The grass is capable of growing over a wide range of ecological conditions. Hosaka and Geodell (1954) have reported that it does well from sea-level to an altitude of 5,000 feet.in Hawaii and, according to Barrie-Smith (1958), it thrives in areas with annual rainfall ranging from 30 inches to 100 inches. Hosaka and Geodell(1954) report that it responds well to fertilisers and gives up to fifty tons of green forage per acre on a fertile soil. Bair and Kidder (1945) give a production figure of 27 tons of green forage per acre with heavy manuring. The great discrepancy between these two figures must be due to the widely different conditions under which these results were obtained. Hosaka and Geodell did their work in Hawaii whereas Bair and Kidder worked in Florida. The work of Hosaka and Geodell also shows that the grass is palatable even at maturity when dry matter content is 20%. Hosaka (1956) states that crude protein varies from 5 - 12% depending on stage of growth and season and, when properly established, the grass can be grazed down to 3 - 4 inches. It recovers quickly and in good growing conditions it is ready for re-grazing in twenty days.

Bair and Kidder (1954) noted that when planted with Bahia and other grasses, it was ready for grazing a month before the others at four weeks. Glassocks et al. (1946) conducted a grazing test in Florida which showed that Pangola grass compares favourably with Coastal Bermuda grass and Pensacola Bahiagrass. The carcass quality of the animals grazing Pangola grass was considered to be superior to that of the animals grazing Coastal Bermuda grass and Pensacola Bahiagrass. Pangola is also reputed to have given a milk yield of 600 gallons per acre in Jamaica (Bull. Jamaica Dept. of Agric. 1953).

Pangola grass then has definite possibilities but there is still a great deal of fundamental research work to be done to further the potentiality of this grass. With this in mind it was decided to employ the Chromic oxide technique to estimate the Dry Matter intake of cattle grazing the grass. This would be repeated for both the wet and dry seasons. The Chromic Oxide technique involves the use of the Digestibility Coefficient. Hitherto this has been obtained at I.C.T.A. using sheep and it has been assumed that the results obtained would also apply to cattle. The replicability of the coefficients of digestibility of these two species never seems to have been checked thoroughly. Jordan et al. (1900) reporting on the relative efficiencies of digestibility of cattle and sheep state that there appeared to be little difference when the better qualities of roughages were compared but cattle were more efficient for coarse fodders. Cipolloni et al. (1951) stress the desirability of obtaining digestibility data with the species for which they are to be used. Winther and Larsen (1957) working in Denmark ran a trial with three cows and three wethers feeding the same hay. The average digestibility coefficients for crude protein, ether extract, N-free extract, fibre, organic matter and true protein were:

Cows - 53, 49, 66, 72, 67, 47

and Wethers - 57, 47, 63, 65, 63, 50.

The differences are small but might be greater for other feeds. Also the number of animals used was too small to be of any great significance.

It was decided, therefore, as a subsidiary to the primary objects of this study to carry out a trial to compare the Digestibility of sheep and cattle. If the results obtained were reasonably close, i.e. within the bounds of normal experimental error, digestibility figures for sheep would be applicable to cattle and vice versa. This immediately presents numerous advantages in the shape of cost, saving of labour, and increased accuracy of results.

Morrison (1956) gives the requirement of T.D.N. of young growing dairy heifers of liveweight 600 - 800 lbs. as 7.4 - 10.3 lbs. It should be possible by use of the intake figures combined with analysis of the Pangola grass grazed to estimate the intake of T.D.N. compared with the requirement as stated.

It was hoped at the outset that those studies would give some further fundamental information on Pangola grass and also some light might be thrown, by comparison of the Intake figures, on the subject of increased health of cattle in the dry as compared with the wet season in the tropics.