

PASTURE AGRONOMY RESEARCH IN NORTHERN THAILAND HIGHLANDS

T.A. GIBSON* and A.C. ANDREWS**

In the highlands of northern Thailand shifting cultivation has replaced the climax evergreen forest with savanna grasslands dominated by Imperata cylindrica. The grasslands occupying 2,500 km², are associated with opium-growing tribal-people and have been used mainly for grazing by tribal cattle at about 15 ha/beast producing 50 to 70 kg liveweight gain/beast/year (Falvey 1977). Cattle husbandry practices are poor and little income is derived from sales. Pasture research commenced in 1972 to develop a viable tribal beef cattle industry.

Species adaptation experiments showed that Desmodium intortum cv. greenleaf was the most successful legume; with moderate fertilization and infrequent defoliation greenleaf produced 8,000 kg dry matter in the first year. Other successful legumes in order of importance were Stylosanthes guyanensis cvs. cook, endeavour and Schofield, Macrotyloma axillare, Desmodium uncinatum cv. silverleaf, Trifolium semipilosum, Trifolium repens and Lotononis bainesii. Greenleaf is favoured for areas above 1,000 m by virtue of its ease of establishment, excellent production and persistence, palatability and competitiveness against weeds. Stylosanthes p. do better at lower elevations; at 800 m cook stylo has equalled greenleaf in production over two years. Trifolium spp. may be useful for elevations above 1,400 m; but their production is one-third of greenleaf and the presence of sown grasses is essential to provide bulk and to restrict weed invasion. Setaria anceps cvs. nandi, kazungula and narok, and Panicum maximum cv. hamil were the most successful grasses producing 10,000 kg dry matter in the first year with 225 kg applied nitrogen per ha. Other successful grasses in order of importance were Brachiaria decumbens, Paspalum plicatulum, Panicum maximum cvs. green panic and guinea and Paspalum dilatatum.

Fertilizer experiments led to the provisional fertilizer recommendation for the establishment of greenleaf based pasture of 40 kg P/ha as triple super phosphate (or 80-120 kg P/ha as rock phosphate) and 20 kg S/ha. Both rock phosphate and gypsum, mined in Thailand, have proved to be successful fertilizers. Establishment experiments have shown the importance of fertilizers in enhancing legume competitiveness; successful pastures have been established by oversowing greenleaf seed onto either defoliated I, cylindrica or overgrazed weedy savanna with infrequent post-sowing defoliation to control weeds. Small scale grazing trials have shown that greenleaf pastures can carry 2 native cattle/ha with liveweight gains of 150 kg/ha/yr equivalent to a thirty-fold increase in production per unit area over the current native range situation. Larger grazing trials are underway to verify these results. Improved pastures are now being extended to tribal people, and a tropical pasture seed enterprise is being initiated.

FALVEY, L. (1977). Ruminants in the Highlands of Northern Thailand - An Agro-sociological Survey. H.A.P. Chiang Mai (in press).

* UNPDAC, P.O. Box 156, Chiang Mai, Thailand.

** Thai-Australian Highland Agronomy Project, Chiang Mai, Thailand