

# BEEF CATTLE BREEDS FOR PAPUA NEW GUINEA

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## INTRODUCTION

In Papua New Guinea there are many different environments where cattle could be raised. Altitudes range from sea level to high mountain pastures at over 2000 m. Rainfall varies from 1250 mm per year in the Markham Valley to 4000 mm at Lae and in the Southern Highlands. Some areas are cleared rainforest, some have been kunai grasslands for centuries, other areas have fully improved fertilized pastures. Some soils are deficient in phosphorus, many are deficient in salt. The variation in the ability of managers is just as great as the variations in climate and feed: some managers are skilful and have all the money they need to develop their cattle farms, others are not as skilful or do not have enough time and money to devote to cattle raising.

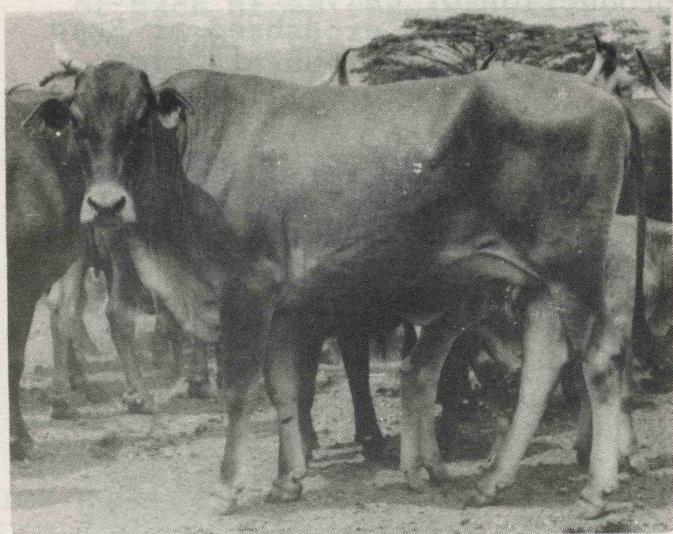
A number of questions need to be answered about breeds of cattle in these different situations. For example: Can highland cattle be raised in the lowlands and lowland cattle be raised in the highlands? Are the breeds which are needed available in P.N.G., Australia or anywhere else, or does the P.N.G. cattle industry have to develop its own breeds?

After a number of experiments done at D.P.I. cattle stations

around P.N.G., it looks as if there is no one breed which is ideal for the whole of P.N.G. and that the best cattle are produced by selection programs carried out where the cattle will be used most often.

## TRIAL 1

Two breed types, D.P.I. bred Brahman crossbreds and Javanese Zebu (from the north coast, Madang Province) were compared at Erap, on good cattle country, and at Urimo in the Sepik Plains, under tough conditions. The results (Table 1) show



A Brahman crossbred

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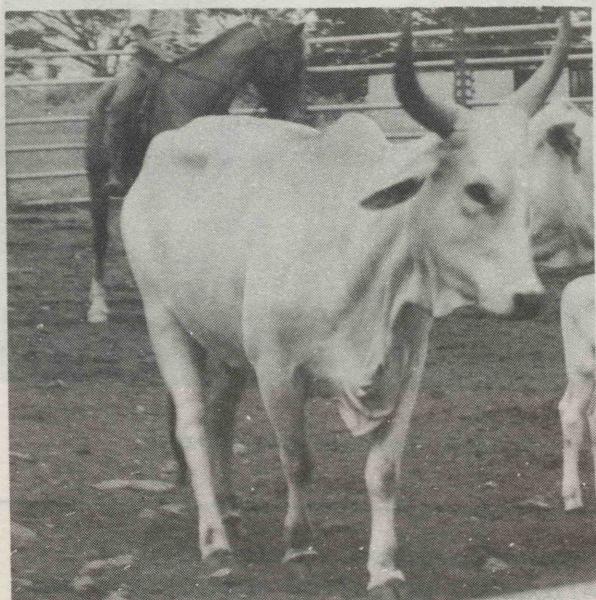
TABLE 1. TIME BETWEEN CALVINGS FOR BRAHMAN CROSSEBREDS AND JAVANESE ZEBU AT ERAP AND URIMO

	At Erap	At Urimo
Brahman crossbreds	14 months	22 months
Javanese Zebu	12 months	13 months

TABLE 2. GROWTH RATES OF BRAHMAN CROSSEBRED AND JAVANESE ZEBU CALVES BEFORE WEANING AND PRODUCTION OF WEANERS PER COW (KG/YEAR)

	At Erap		At Urimo	
	Growth rate (kg/day)	Production/ cow (kg/year)	Growth rate (kg/day)	Production/ cow (kg/year)
Brahman cross- breds	0.72	162	0.35	61
Javanese Zebu	0.50	122	0.52	122

clearly that Javanese Zebu will breed a little faster at Erap but a lot faster than Brahman crossbreds at Urimo. Table 2 shows that Brahman crossbred calves grew faster at Erap and slower at Urimo. The total production of calves is greatest by Brahman crossbred at Erap and by Javanese Zebu at Urimo.



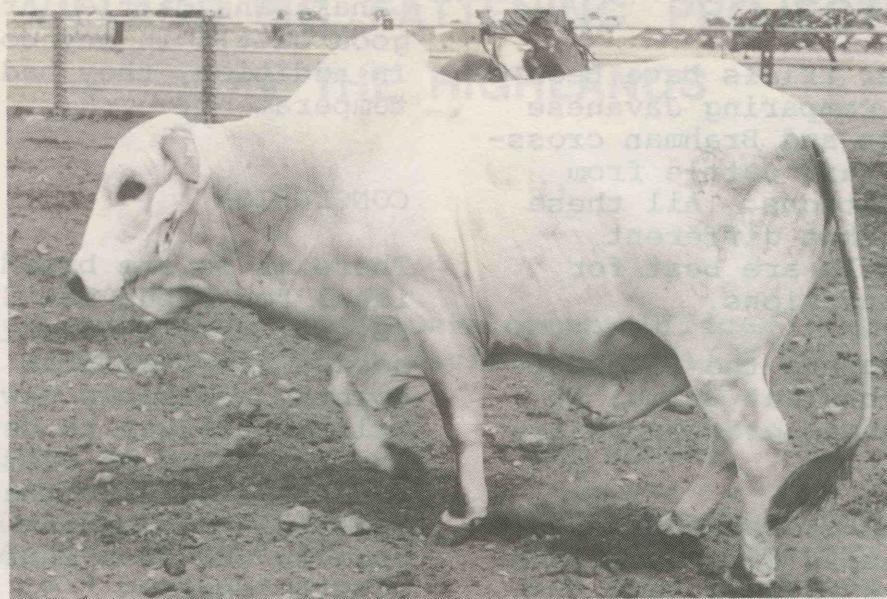
Javanese Zebu

#### TRIAL 2

Cattle from four D.P.I. stations were kept at eight different sites throughout the Papua New Guinea mainland: in the lowlands on native and improved pastures at Erap, at Singaua on the Lae coast, Urimo on the Sepik Plains, and Lanakalana on the Kemp Welsh River; in the highlands at Arona, E.H.P., Baiyer River, W.H.P. and near Ialibu, S.H.P. The cattle were from Baiyer River, Erap, Urimo and Lanakalana.

We found that, in the highlands, Baiyer River and Erap cattle were equal in growth rate. In the lowlands, the Baiyer River cattle took six months to adapt to the environment, while in this time, Erap cattle grew 25 kg/head more. In the next six months, the two groups were equal.

So cattle can be moved from lowlands to highlands with no problems but highlands cattle need some time to adjust to a hotter climate.



A purebred Brahman

Cattle bred at Urimo were the toughest and performed best of all at Baiyer River and at Ialibu where salt deficiency was a major problem. However, at Erap on the best pastures they did not grow nearly as fast as Baiyer River or Erap cattle. At all the sites where they were tried, Lanakalana cattle grew slowest.

These results show that cattle bred and selected on good pastures with adequate salt, at Erap and Baiyer River, for about 20 years, are good cattle in those conditions. When salt deficiency occurred, the tougher Urimo cattle were best but these could not use the best pastures efficiently. The breeding program at Lanakalana was completely disrupted by the

movement of the herd from Moitaka. The cattle were not selected carefully and were the worst cattle in any conditions.

### TRIAL 3

Two breed types, Brahman cross-bred and purebred Brahman, were compared at Erap when grazing good improved pasture. Half of each group received salt. The result of this trial indicates that Brahmans grow at almost the same rate as crossbreds when conditions are tougher. But when conditions are improved (by supplying salt) Brahmans cannot take advantage of the better conditions and the crossbreds do much better.

TABLE 3. GROWTH OF BRAHMAN AND BRAHMAN CROSSBRED CATTLE AT ERAP, WITH AND WITHOUT SALT SUPPLEMENTS

	Growth rate (kg/day)	
	No salt	Salt
Brahman	0.57	0.66
Brahman crossbreds	0.61	0.78

## DISCUSSION

Several other trials have been carried out comparing Javanese Zebu, Brahman and Brahman cross-bred cattle, and cattle from different stations. All these trials show that different types of cattle are best for different conditions.

Javanese Zebu are the toughest and perform best at Urimo; at Erap the Brahman crossbreds are better.

Urimo Brahman crossbreds selected for a couple of generations at Urimo, are tougher than other crossbreds under poor conditions but are not as good in good conditions.

Erap and Baiyer River Brahman crossbreds are the same, the best on good pastures, but Baiyer River cattle take some time to adapt to the lowlands.

Purebred Brahmans are tougher than crossbreds (though not as tough as Javanese Zebu) but do not grow as fast.

Cattle which have not been bred carefully such as the

Lanakalana cattle, are not good cattle in any conditions. In addition, they had the worst temperament.

## CONCLUSION

There is no one breed of cattle ideal for Papua New Guinea. Several of the breed types needed are available in the country and Papua New Guinea is well on the way to developing its own types of cattle. These results also show that the new types of cattle must be developed in the area where they will be used.

## FURTHER READING

Holmes, J.H.G., Schottler, J.H. and Leche, T.F. (1976). The performance of South East Asian cattle, sheep and buffalo in P.N.G. *Agriculture in the Tropics*. 10th Waigani Seminar, University of P.N.G. p. 361.

Lemerle, C. and Holmes, J.H.G. (1981). Sodium deficiency in cattle in the Markham Valley, Lowlands. *Papua New Guinea Agricultural Journal* (in press).

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