LETTER TO THE EDITOR

THYROID ACTIVITY IN SECOND GENERATION CROSSES OF HARIANA CATTLE WITH EXOTIC BREEDS

Sir,

(Received on July 25, 1984)

Thyroid activity has been reported to vary in different breeds of the same animal species (2,4,6,7). It has been reported to be lower in *Bcs indicus* in comparison to *Bos taurus*. The information on thyroid activity in second generation crosses of Hariana cattle having 75% exotic (*Bos taurus*) blood is meagre. Thyroid activity was studied in four different second generation crosses.

Twentyone, noncycling, cross-bred heifers 6 each of X_1 (1/2 Holstein Friesian, 1/4 Brown Swiss, 1/4 Hariana), X_2 (1/2 Holstein Friesian, 1/4 Jersey, 1/4 Hariana) and X_3 (1/2 Brown Swiss, 1/4 Holstein Friessian, 1/4 Hariana) and 3 of X_5 (1/2 Jersey, 1/4 Holstein Friesian, 1/4 Hariana) were used as experimetal animals, The animals were kept under standard feeding and management conditions.

The jugular vein blood samples were collected at 10.00 hr before feeding. Triiodothyronine (T_3) level in serum was determined by the modified *in vitro* technique of T_3 ¹²⁵I uptake by using Amberlite IRA 400 ion exchange resin (3). The ¹²⁵I Triiodothyronine was obtained from the Bhabha Atomic Research Centre, Trombay.

The percentage uptake of T_3 ¹²⁵I by resin was not significantly different (P>0.05) between the genetic groups. It was maximum in X_5 and minimum in X_3 (Table I). The

| Genetic group | Mean | S.E. |
|--|------|------|
| X1 (1/2 Ho!stein Friesian, 1/4 Brown Swiss, 1/4 Hariana) | 20.7 | 4.35 |
| X ₂ (1/2 Holstein Friesian, 1/4 Jersey, 1/4 Hariana) | 22.2 | 2.29 |
| X ₃ (1/2 Brown Swiss, 1/4 Holstein Friesian, 1/4 Hariana) | 19.8 | 2.69 |
| X ₅ (1/2 Jersey, 1/4 Holstein Friesin, 1/4 Hariana) | 23.1 | 4.29 |

TABLE I. Mean values (± S.E.) of % uptake by resin of T₃ 125I in second generation crosses of Hariana breed having 3/4 exotic blood. values obtained in present study are comparable to those reported for F_1 crosses of Hariana breed having 1/2 exotic blood of different breeds (6), but considerably lower than the values reported for exotic breeds (7).

The results indicate that thyroid activity in crosses of Hariana cattle with exotic breeds is perhaps not proportionately related to the percentage of exotic blood in these animals. The possible reason for considerably lower values may be acclimatisation of these animals to tropical climate.

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REFERENCES

- 1. Chaiyabutr, N., P. Loyperjra, A. Pichaicharnarong and D. Durdevic. Resintriiodothyronine ¹²⁵I uptake in different breeds and cross breeds of cattle in a tropical climate. *Acta. Veterinaria*, **27**: 191, 1977.
- Cowley, J., J. Gutierez, A. Warnick, J. Hentges and J. Feaster, Comparison of thyroid hormone levels in Hereford and Brahman cattle. J. Anim. Sci., 32: 981. 1971.
- Homolsky, M.W., M. Stein and A. S. Freedberg. In vitro technique of T₃ ¹²⁵I uptake by ion exchage resin J. Clin Endocr., 17: 33, 1957.
- 4. Howes, J. J. Feaster and J. Hentges. Comparison of the thyroid release of **I**¹¹ by Hereford and Brahman cattle maintained under identical environmental conditions. J. Anim. Sci., **21**: 210, 1962.
- 5. Kelley, S. and F. Oehme. Circulating thyroid levels in dogs, horses and cattle. Vet. Med. Small Anim. Clinician., 69: 1531, 1974.

6. Lewis, R. and N. Ralston. Protein-bound iodine levels in dairy cattle plasma. J. Dairy Sci., 36: 33, 1953.

7. Lodge, J., R. Lewis and E. Reineke. Estimating the thyroid activity of dairy heifers. J. Dairy Sci., 40: 209, 1957.

8. Singh, Khub., V.K. Goel and N.K. Bhattacharyya, Effect of heat stress on thyroid activity in Zebu-temperate F1 crosses. J. Nuclear Agri. Biol., 10: 144, 1981.