

MELANISM AND ITS INHERITANCE IN BALI CATTLE

Mélanisme et son hérédité chez les bovins de Bali

Melanismo y su herencia en el ganado vacuno de Bali

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INTRODUCTION

The exported bulls from Bali have to be castrated and the coat colour must change from black to yellowish brown.

MEIER (1962) mentioned about melanism in Bali cattle breed at Nusa Penida island (24 %) and 8 % at the Southern peninsula. Melanism are to be found on the whole island of Bali.

LIEFTING observed in wild Banteng which produced calves with black coat colour. KOK (1921) described the black Madura breed, especially at the small island Gili Hijang.

DARMADJA (1970) mentioned cases of black coat colour inheritance in Bali cattle. The purpose of this study was to determine the mode of inheritance of this trait.

MATERIALS AND METHOD

Breed

The normal coat colour of Bali cattle calf is yellowish brown with white «mirror» at the buttock and under the carpal and tarsal joints. It has a black ale stripe on the back beginning from the shoulder till the base of the tail. The under jaw is unpigmented, and the inner upper brim hair of the ears are white coloured.

The female calves remained yellowish brown when they become mature, but

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SUMMARY

The collection of data is from farmers on the island of Bali and the small island Nusa Penida. From 36 crossings between heterozygous melanic Bali cattle and normal cattle gives 118 offspring, of which 57 are melanic and 61 normal, with the ratio close to 1:1. Ten crossings are recorded, between both heterozygous parents which results 27 black calves and 11 normal ones, with a ratio close to 3:1. The conclusion is that melanism in Bali cattle breed is inherited as a single autosomal dominant gene.

RESUME

Les renseignements ont été obtenus des exploitations du bétail dans l'île de Bali et de la petite île Nusa Penida. A partir de 36 croisements effectués entre bétail Bali hétérozygote pour la mélanisme et normal, on a obtenu 118 descendants, 57 mélaniques and 61 normaux (relation 1:1). On a observé aussi 10 croisements entre parents hétérozygotes: on a résulté 27 veaux noirs et 11 normaux (relation 3:1). On suggère que le mélanisme chez le bétail de Bali dépend d'un gène simple autosomique dominant.

RESUMEN

Los datos se han obtenido de las explotaciones vacunas de la isla de Bali y de la pequeña isla de Nusa Penida. De 36 cruces efectuados entre ganado Bali heterozigote para el melanismo y normal, se han obtenido 118 descendientes, 57 melánicos y 61 normales (relación 1:1). Se han observado asimismo 10 cruces entre padres heterozigotes, resultando 27 terneros negros y 11 normales (relación 3:1). Se sugiere que el melanismo en la raza de Bali depende de un gene simple autosómico dominante.

REFERENCES

- AALFS, H. B. (1932): *De runderveeteelt op het eiland Bali* (Dissertatie) Drukkerij H. J. Smiths Utrecht.
- ATMADILAGA, D. (1959): *Cattle breeding in Indonesia with special reference to heat tolerance*. Med. Vet. Dissertation, Bogor.
- BONNER, D. M. (1961): *Heredity*. Prentice Hall Inc. Englewood Cliff NJ.
- DARMADJA, D. (1966): *Kerapan sapi di Madura*. Bull. F. K. H. P. Univ. Udayana NO: 006.
- DARMADJA, D. (1970): Cases of black coat colour in Bali cattle breed and its inheritance. *Madj. Ilm. Univ. Udayana*, th: I, 4, 1972, pp. 25-26.
- FISCHER, H. (1958): Der Banteng. *Dtsch. Tierarztl. Wschr.*, 65, 101.
- FISCHER, H. (1959): Cattle breeds of Indonesia. *The Ceylon Vet. Journal*, 6, 2.

- KOK, J. (1921): Het rund en de runderveeteelt op Madura (Diss. Utrecht).
- LUSH, J. L. (1945): *Animal breeding plans*. The Iowa State University Press.
- MEIJER, W. Ch. P. (1962): *Das Balirind*. A. Ziemsen Verlag, Wittenberg Lutherstadt.
- NICHOLS, J. F. (1957): *Livestock and Improvement*. IV. ed. The Iowa State College Press, Ames, Iowa.
- SNEDECOR, G. W. *et al.* (1956): *Statistical Methods*. The Iowa State University Press.
- TUUK, H. van der (1897, 1899, 1912): *Kawi - Balineesch - Nederladsch*. Woordenboek, Batavia.

