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Haemoglobin Types and Their Association with Some Economic Traits in Jersey Cattle

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Since the discovery of genetic polymorphism in haemoglobin types (Bangham 1957), attempts have been made to study association between haemoglobin types and milk yield characters and economic characters in many exotic and indigenous cattle breeds. This type of study has not been reported for comparative study of two exotic herds of different origin in India. Therefore it was planned to study haemoglobin types and their association with some traits i.e. age at first calving, lactation period, dry period, service period and calving interval, in two Jersey herds of different origin i.e. Australia and Denmark. 1. Indian Dairy Corporation Project, Jersey Farm, Anand, (Australian Jersey) under the control of Gujarat Agricultural University, 2. Sabarmati Ashram Gaushala Project, Bidaj Farm, Bidaj, (Danish Jersey) managed by National Dairy Development Board, Anand, in Gujarat State.

Blood samples were collected from 199 Jersey animals of Anand farm and 85 Jersey animals of Bidaj farm. The samples were analysed by Agar Gel Electrophoresis technique to identify their haemoglobin types. Three different haemoglobin types Hb-AA, Hb-AB and Hb-BB were found in these animals.

The average age at first calving, lactation period, dry period, service period and calving interval from the pooled records of first, second and third lactations of Jersey animals of Anand farm and Bidaj farm, with respect to their haemoglobin types are presented in Table 1. 'F' tests were carried out to study the effect of haemoglobin types on the variation observed in these characters in different lactations.

The results of statistical analysis were found to be non significant in most of the cases. These indicate the absence of any significant effect of haemoglobin types in these characters. Similar type of results have also been reported by Lyagin (1971) in exotic cattle, Singh and Khanna (1971) in crossbreds and Balkrishna and Nair (1966) in indigenous cattle. As all economic characters show much variability and are influenced by many environmental factors inclusive of managemental practises, significant effect of haemoglobin types may not always be revealed in this simple type of statistical analysis. Study on large population with refined type of statistical analysis technique, will throw some more light on this aspect.

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TABLE 1

The average age at first calving, lactation period, dry period, service period and calving interval in Jersey animals with respect to their haemoglobin types (days).

Farms	*Haemoglobin types*	*Age at first calving*	*Lactation period*	*Dry period*	*Service period*	*Calving interval*
ANAND	Hb–AA	768·20 ±33·33	318·50 ±8·34	66·22 ±1·45	115·11 ±9·49	390·66 ±10·69
	Hb–AB	720·70 ±28·55	327·90 ±5·06	70·34 ±2·07	113·56 ±5·28	396·76 ±6·03
	Hb–BB	714·80 ±11·94	314·30 ±6·70	77·43 ±4·96	113·29 ±8·34	386·29 ±7·06
BIDAJ	Hb–AA	726·60 ±11·99	317·69 ±9·12	59·95 ±3·15	93·52 ±9·00	370·43 ±8·55
	Hb–AB	801·10 ±32·83	314·53 ±6·15	60·31 ±3·00	100·30 ±7·03	373·14 ±5·95
	Hb–BB	842·50 ± 0	352·00 —	59·00 —	137·00 —	411·00 —
OVERALL	Hb–AA	745·50 ±16·50	318·12 ±6·03	63·74 ±1·56	106·12 ±6·78	381·40 ±7·24
	Hb–AB	744·00 ±21·02	324·24 ±4·07	67·78 ±1·77	109·96 ±4·32	390·40 ±4·82
	Hb–BB	727·60 ±15·40	315·16 ±6·61	77·36 ±4·86	313·84 ±8·13	387·02 ±6·92

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