

Short Note

## THE RESISTANCE TO DERMATOPHILOSIS OF DINKA CATTLE BREED, DINKA CROSSBRED AND BORAN, FRIESIAN, JERSEY, SAHIWAL CROSSBREDS

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### Résumé

RÉSISTANCE À LA DERMATOPHILOSE DU BÉTAIL DINKA DES CROISEMENTS DINKA ET DES CROISEMENTS (BORAN, FRISON, JERSEY, SAHIWAL). — A la suite de l'apparition d'un foyer de streptotrichose dans le sud du Soudan, la résistance à la maladie a été étudiée au départ d'animaux de race Dinka, de divers croisements Dinka (50%, 25%) et d'animaux importés, obtenus à partir de croisements Boran, Frison, Jersey et Sahiwal. Les résultats indiquent que le bétail Dinka est totalement résistant à la maladie, que cette résistance est de l'ordre de 66 % pour les animaux, 50 % Dinka et de 37 % pour les animaux 25 % Dinka. Les animaux importés sont très sensibles à cette affection, 7 % étant indemnes de streptotrichose.

Dermatophilosis is widespread in tropical and subtropical countries and have been identified in temperate countries. As described by Marchot and Leroy (1986) an outbreak of the disease has been observed on MAFAO Farm (FAO/UNDP/RMA), an experimental crossbreeding station of the Equatoria Province of Sudan. This outbreak was observed in March 1984 where Dinka and Dinka crossbreds were differently affected.

The purpose of this study is to examine the susceptibility to the disease of Dinka and Dinka crossbred animals and to examine if differences observed are related to the importance of Dinka blood.

### Materials and Methods

On a total of 181 animals corresponding to 59 Dinka, 38 50 % Dinka × exotic breeds (Sahiwal, Friesian, Jersey × Dinka), 11 25 % Dinka (Sahiwal, Friesian × (Friesian × Dinka) or (Sahiwal × Dinka) and 73 imported (all crossbreds) Friesian × Boran (20), Sahiwal × (Friesian × Boran) (27), Friesian × (Friesian × Boran) (19), Jersey × (Friesian × Boran) (7), 88 were affected and presented the typical lesions of dermatophilosis.

The 181 animals were divided in four classes: —, non infected; +, slightly infected, ++, moderately infected; ++++, highly infected.

For the purpose of statistical analysis, and due to small numbers in some classes, the data were grouped in two classes (affected, non affected). The exact probability was computed (Fisher test).

### Results

The frequency distribution in the four classes of resistance/susceptibility and in the different genetic groups is given in table 1. A summary of the resistance is given in figure 1.

*Resistance of Dinka cattle:* Dinka purebred animals show a resistance to dermatophilosis since none of them was affected by the disease.

*Resistance of Dinka crossbred animals:* on 38 50 % Dinka crossbreds, 25 were resistant (66 %) but not significantly more resistant ( $P > 0.05$ ) than the 11 2 % Dinka crossbred animals (resistance: 36 %).

These two groups of cattle were separately significantly less resistant than the Dinka purebred ( $P < 0.001$  and significantly more resistant than the imported animals (50 % Dinka  $P < 0.001$ ) 25 % Dinka ( $P < 0.01$ ).

Within each group of crossbred animals (50 % Dinka and 25 % Dinka) described in table 1 no significant difference was observed; within the

50 % Dinka group there is a tendency for the Friesian × Dinka, to be less resistant than the Sahiwal and the Jersey.

**Discussion**

The susceptibility or resistance to dermatophilosis has been studied by several authors. Abu-Sahmra (1980) in a discussion article has indicated that, as it was also found in this outbreak, the animals are generally free of the disease before one year of age ; on the other hand, other authors have found that the disease could also affect young animals. The heredity of the susceptibility suggested by Kelley *et al* (1964) and by Amakiri (1976) cited by Abu-Sahmra (1980), Bida and Dennis (1976) is a characteristic of a breed more than a characteristic of individuals.

The white Fulani, zebu and exotic breeds were found highly susceptible and the N'Dama and Muturu breeds were found resistant (Coleman 1967).

The Dinka cattle breed is a nilotic type descend from the cross between hamitic humpless longhorn cattle and humped zebu cattle. Dinka crossbred animals are more resistant than what it is expected in 50 % and 25 % crossbred animals.

The results indicate that the Dinka cattle breed is more resistant to dermatophilosis than exotic breeds ; due to the limitations of the data, the genetic determinism of this resistance could not be studied with accuracy. This resistance is a characteristic of the breed and is of the same order as the type described by Coleman (1967) in the N'Dama cattle breed.

RESISTANCE TO DERMATOPHILOSIS

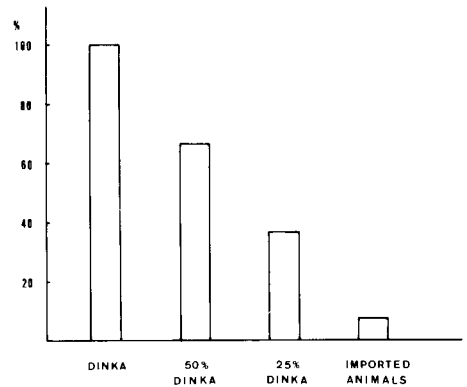


Fig 1. — Resistance to dermatophilosis in Dinka, Dinka crossbred and imported animals.

Table 1. — Dermatophilosis in cattle aged more than one year.

	n	Degree of infection:				infected animals (%)
		-	+	++	+++ (a)	
<i>Breed</i>						
Dinka	59	59	0	0	0	0
<i>50 % Dinka</i>						
F × D (b)	12	7	2	2	1	41
S × D	20	14	4	0	2	30
J × D	6	4	2	0	0	33
Total	38	25	8	2	3	34
<i>25 % Dinka</i>						
S × FD	8	3	1	0	4	62
J × FD	1	0	1	0	0	100
S × SD	1	1	0	0	0	0
J × SD	1	0	0	1	0	100
Total	11	4	2	1	4	63
<i>Imported</i>						
F × B	20	2	1	3	14	90
S × FB	27	2	7	6	12	92
F × FB	19	0	4	3	12	100
J × FB	7	1	1	0	5	85
Total	73	5	13	12	43	93

(a) : -, non infected ; +, slightly infected ; ++, moderately infected ; +++, highly infected.  
 (b) : D : Dinka ; S : Sahiwal ; F : Friesian ; B : Boran ; J : Jersey.

**Abstract**

After an outbreak of dermatophilosis in Southern Sudan, the disease resistance has been studied from animals belonging to the Dinka cattle breed, 50 % Dinka, 25 % Dinka and imported crossbred animals obtained from Boran, Friesian, Jersey and Sahiwal. The results indicate that Dinka cattle is resistant to the disease ; this resistance is 66 % for 50 % Dinka, 25 % for 25 % Dinka and only 7 % for imported crossbreds.

**References**

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