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TICKS AND TICK-BORNE DISEASES IN SENEGAL :
PRESENT SITUATION

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There is now a particular interest in ticks and tick borne diseases of livestock in Africa. Until recently, their impact as a pathological constraint was not well investigated in some parts of the continent. The climatic changes in the past ten years have modified several epidemiological parameters. Consequently some species of ticks became more important in some areas and decreased in others regions. At the same time, diseases transmitted, previously silent, suddenly spread in herds (GUEYE & al., 1984).

The research carried out, for few years on cattle ticks in Senegal, have precised their distribution and populations dynamic as well as the areas infected by vector borne protozoon diseases (GUEYE & al, 1986, 1987, 1989a, 1989b).

I. MAIN ECOLOGICAL ZONES

There are six main ecological zones in Senegal. They are defined by the annual rainfall' level and the characteristic type of vegetation (map1, table 1).

The presence of tse tse fly and animal trypanosomiasis is a serious constraint for the development of several domestic ruminants and cattle industry in general.

The sahel is the aerea of zebu Cobra, of Touabir and Peulh sheep breeds and of Sahel goat.

The trypanotolerant animals (Ndama cattle, Djallonke breeds of sheep and goat) live in Soudanian and North-Guinean zones.

In the Niayes zone the Diakore is predominant ; it is a cross breed from zebu and Ndama.

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Table I - Ecological zones in Senegal

Zone	Rainfall (mm)	Vegetation
Coastal Niayes	400 - 600	Mix of grass savanna, oil palm and depression with clay soils
Sahel zone	300 - 500	Grass savanna
Soudano-Sahelian	500 - 800	Grass savanna - some trees
Northern Sudan	800 - 1000	Tree - Savanna
Southern Sudan	1000 - 1200	Savanna woodland
Northern Guinea	1200 - 1500	Wood land

II. DISTRIBUTION OF CATTLE TICKS

The following species of ticks belonging to the genus *Amblyomma*, *Boophilus*, *Hyalomma* and *Rhipicephalus* have been identified on cattle, sheep and goat :

- Genus *Amblyomma* : *A. variegatum* (Fabricius 1794)
- Genus *Boophilus* : *B. decoloratus* (Koch 1844)
B. geigy Aeschlimann et Morel 1965
B. annulatus (Say 1821)
- Genus *Hyalomma* : *H. truncatum* (Koch 1844)
H. marginatum rufipes Koch 1844
H. impeltatum (Schultz et Schlottke)
H. impressum (Koch 1844)
H. nitidum (Schulze, 1919)
- Genus *Rhipicephalus*
Rh. evertsi evertsi (Neumann 1897)
Rh. sulcatus (Neumann 1908)
Rh. senegalensis (Koch 1844)
Rh. muhsamae Morel et Vassiliades 1965
Rh. guilhoni Morel et Vassiliades 1962
Rh. lunulatus Neumann 1907

The geographical distribution of these ticks as well as the level of their populations have changed significantly during the last ten years (GUEYE & al, 1987, 1989c). This evolution of the distribution of the different species are shown on maps 2, 3 and 4 which have data on the period before the 1972 - 1986 draught and on the recent years.

The changes in the distribution of the different species have had a considerable epidemiological impact on disease prevalence.

Diseases transmitted

The main animal diseases transmitted by ticks in Senegal are the following : bovine anaplasmosis, cowdriosis, bovine erlichiosis, bovine babesiosis by *Babesia bigemina*.

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Table II - Tick-borne Rickettsial diseases of cattle

Disease (cause)	Vector (s)	Geographical Distribution	Epidemiology
Anaplasmosis (<u>A. marginale</u>)	<u>Amblyomma</u> <u>Varieaatum</u>	All ecological zones	Epidemic in Sahel Enz-stable in other zones
Heart water dis, (<u>C. ruminantum</u>)	"	Coasted Niayes Sudano-Sahel Northern-Guinea Sudan zones	Variable - Depending on zone and on the use of the cattle
Ehrlichiosis (<u>E.bovis</u>)		Coasted Niayes Sudano-Sahel Northern-Guinea Sudan zones	Epidemic in Niayes Stable in other zones

Table III - Tick-borne Protozoal diseases of cattle

Disease (cause)	Vector (s)	Geographical Distribution	Epidemiology
Babesiosis (<u>B. bigemina</u>)	<u>Boophilus sp</u>	Niayes Sudan zone Northern Guinea	Enzootically stable in all zones
Theileriosis (<u>T. mutans</u>)	<u>Amblyomma</u> <u>Variegatum</u>	niayes Sudan Sahel Sudan and Northern Guinea zone	Enzootically stable in all zones
Non pathogenic (<u>T. velifera</u>)	<u>Amblyomma</u> <u>Variegatum</u>	N iayes Sudan and Northern Guinea zone	Enzootically stable in all zones

The infections by *Theileria mutans* a n d *Theileria velifera* are mild or non pathogenic.

These different diseases may have various enzootic characteristics according to the ecological zone, the animal species, and the season. Further investigation is required in order to collect more data on their epidemiology. Tables 2 and 3 give informations on the evolution of these diseases.

CONCLUSION

Ticks distribution may be subject to considerable changes due to ecological factors. Consequently animal health may be seriously affected because cattle may loose the immunity previously induced by repeated infections. This one moves from a stable enzootic state to an unstable enzootic state which is often difficult to control. However, further indepth investigations are required to identify the parameters influencing these enzootic diseases.

S U M M A R Y

The authors present a record of ticks species which infest the livestock. The distribution of these ticks before the draught of 1972 - 1986 and thereafter mentioned as well.

All tick borne diseases of cattle in this country are reported too, and their enzootic characteristic in the different ecological areas described.

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