

Tsetse control and development of related areas in Senegal

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Introduction.

The Niayes region in Senegal is a residu of guinean forest and because of this, it has a quite different ecological feature in a sahelian zone. This area used to be infested by *Glossina palpalis gambiensis* and local transmittion of a number of species of Trypanosomes has regularly been reported.

It is generally accepted that development of agriculture is drastically impeded in large areas of fertile land in Africa by these infections thus contributing in a large part for the non food secure status of sub saharan Africa. In Senegal very fertile peri urban lands were likely to be lost if nothing was quickly done to solve this problem. Fortunately, because of its awareness of the importance of urban agriculture in feeding people, the Government of Senegal initiated with the kind help of United Nations' FAO Tsetse control operations in the region.

Tsetse control campaigns in the Niayes region (Senegal).

The first control campaign was launched in the early seventies and consisted only in ground spraying of insecticide (Dieldrin). The spraying lasted for three years fi-om March to Mai each year (Touré, 1971; 1974, 1980). At that time, the lack of appropriate information on particular biotopes that existed such as mango trees farms and live euphorbia fences conducted to the non treatment of these new types of habitats. As a result, tsetse flies were still present in the Niayes until 1980 when a new campaign was again launched using this time, in addition to the ground spraying, insecticide impregnated biconical traps and screens (5% Deltametrine).

The combination of these two methods in addition to the drought that subsequently occurred resulted in the virtual eradication of *Glossina palpalis gambiensis* from this area (Diaité et Vassiliades 1984). Subsequently, despite several attempts to trap tsetse no evidence of the presence of glossina flies was clearly established until 1992 when a male of *Glossina palpalis gambiensis* was caught in the same area where a case of human trypanosomiasis was reported; there was however no further consolidation of this interesting data.

The "Parc zoologique et forestier de Hann", which is an isolated entity, is itself still infested and very recent surveys (September 1997) have confirmed the presence of *Glossina palpalis gambiensis* (Diaite et Diouf, 1997). Problems encountered by a horse show jumping club situated in the vicinity of the parc were found to have been caused by *T. vivax*.

Investments and agricultural production in the area

Investment

Following the cleaning of the six hundred hectares infested out of 36.500 hectares of the region, significant investments were made in the agropastoral sector by either projects such Soca or the "ferme de Niacourab" or by individuals holding good savings and willing to go back to farm work , Respectively these macro and micro entrepreneurship created, in addition, jobs for unemployed young people in that rural area.

Production

Varieties of vegetables are being produced including Oignons, potatoes, cabbages fresh tomatoes, string beans, and so on, specially during the cool season (from December to april). But according to the "Bureau pour le Developpement de la Production Agricole BDPA" the production of vegetables needs to be intensified and may be multiplied by three to meet the local demand.

Fruits are also being produced such as mangos and oranges. This production is shared between the local and foreign markets specially in Europe thus enabling trees farms owners to earn cash for further investments

In the animal agriculture subsector, big efforts have been made to import high performing european dairy or meat breeds (Montbeliard, Jersayais, Hollstein Charolais) . Some of these attempts are very successful as, in one farm, a daily production of 1.500 liters of milk has been recently reported. This milk is entirely used locally for consumption fresh or after transformation by the industry. An important increase in the production is still needed to meet the demand.

Current Problems of the area.

Unfortunately the situation of trypanosomiasis and flies (either tsetse or other biting flies) is not quite clear and urgently needs to be up dated. Importantly, cases of trypanosomiasis are regularly reported in local animals herds around these more modern type of farms. So far diagnosis using parasitology methods such as stained blood smears and the buffy coat technique has indicated that the cases derived from infections by *T. vivax*. However the epidemiology of *T. vivax* needs to be better understood because, if it is documented that strict mechanical transmission results in the inability of tsetse flies to cyclically transmit such strains, it is not known whether it also may result in the adaptation to new hosts such as rodents in which case the epidemiology may be different. Recent works have also reported that in laboratory conditions, *T. brucei* could be mechanically transmitted to animal hosts even more efficiently than *T. vivax* (Mihok et al. 1995) by different species of stomoxes. If confirmed in the field, this observation may represent a new dimension in the epidemiology of animal as well as human trypanosomiasis as it is reported that stomoxes can occasionally feed on humans.

What is currently needed.

The situation in the Niayes appeals for the old data to be urgently up dated meaning that investigations should be undertaken to:

- * establish whether or not tsetse flies are present
- * have a precise idea of non tsetse biting flies present and their seasonal variation in population density
- * precisely establish which species of trypanosomes are present using three methods of diagnosis namely stained blood smears buffy coat technique and the Elisa for the detection of antibodies and eventually antigens.

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