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**ERADICATION OF GALLISEPTICUM AND SYNOVIAE MYCOPLASMA  
IN TWO FRENCH BREEDING FARMS  
FOR GALLUS GALLUS STOCK  
MEANT TO PRODUCE "LABEL" CHICKENS**

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## INTRODUCTION

The fact that we are practitioner and adviser in poultry farming didn't put us in a position to try new techniques or products.

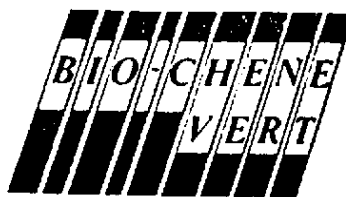
However we have closely studied all the circumstances, defined the development of the eradication process and explained the rules and motivated the staff of two breeding farms thanks to the collaboration of the Management. In both cases, our methods were the same, and hence, we are only going to describe the eradication conducted in the first farm.

The two recent experiences of eradication with regard to the Gallisepticum Mycoplasma have been a success thanks to well tried techniques and treatments.

### 1 - Description of the breeding farm :

Originally, this station was created by two organizations of "Label" Poultry producers who had decided together, to develop different strains of male birds.

AUTOPSIES - PARASITOLOGIE  
BACTÉRIOLOGIE - ANTIBIOGRAMMES - HISTOLOGIE  
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During the first years they were only preoccupied with genetic selection without concern for major sanitary conditions. But at the end of this period, it was confirmed that an effort had to be made to improve the sanitary status, and in particular it was realised that contamination by Gallisepticum Mycoplasma was unacceptable.

Improvement of the sanitary conditions became absolutely necessary to continue the genetic selection work.

## **2 - Sanitary state of the station in july 1985 :**

From a certain point of view the serological diagnosis by Rapid Plate Agglutination of the contamination of the livestock was the only way to succeed. All (or nearly all) the stocks of all ages were contaminated.

For the first time, moreover, the random checks by Rapid Plate Agglutination carried out in the hatcheries and on the chickens, together with disease outbreak confirmed the vertical transmission.

## **3 - Description of the eradication scheme :**

### **3-1 - Study of the previous sanitary and medical procedures :**

A general review was conducted on the inadequacies in the structures and the running of the review farm.

Also it became clear that the method consisting in injecting 40 mg (or so) of Tylan into the eggs meant to be selected, had not produced eradication.

Practically all the young flocks started a sero-conversion towards Gallisepticum Mycoplasma at about ten or twelve weeks age, that's two to four weeks after the first individual test.

### **3-2 - Principles :**

Some basic principles allowed us to evaluate the project in its different aspects and to choose the methods.

- Principle of the **medical duality** of the infected bird : that is the presence of the disease in the individual (or in a group of individuals) together with the fact that the bird is a contaminant for the others (or the group contaminating the other groups of the same size or a larger size), for example, a building contaminating a group of buildings).

This second view point has appeared essential to us in the conception of the project.

- Principle of the **complementary methods** :

We had presumed that no technique was sufficient in itself to obtain eradication and that in consequence, it was more interesting to associate them to combine the effects.

- Principle of the **simultaneity** in the setting of the methods :

It appears essential that all the methods are set up together in order to lower the risk of contamination between the older infected birds and the young decontaminated stock.

Last, but not least, the general organization of the station in two areas : an area called "clean" and an area called "dirty". This leads to a complete reorganization of the work, the arrangement of the buildings and the erection of a building for the decontamination of staff and equipment.

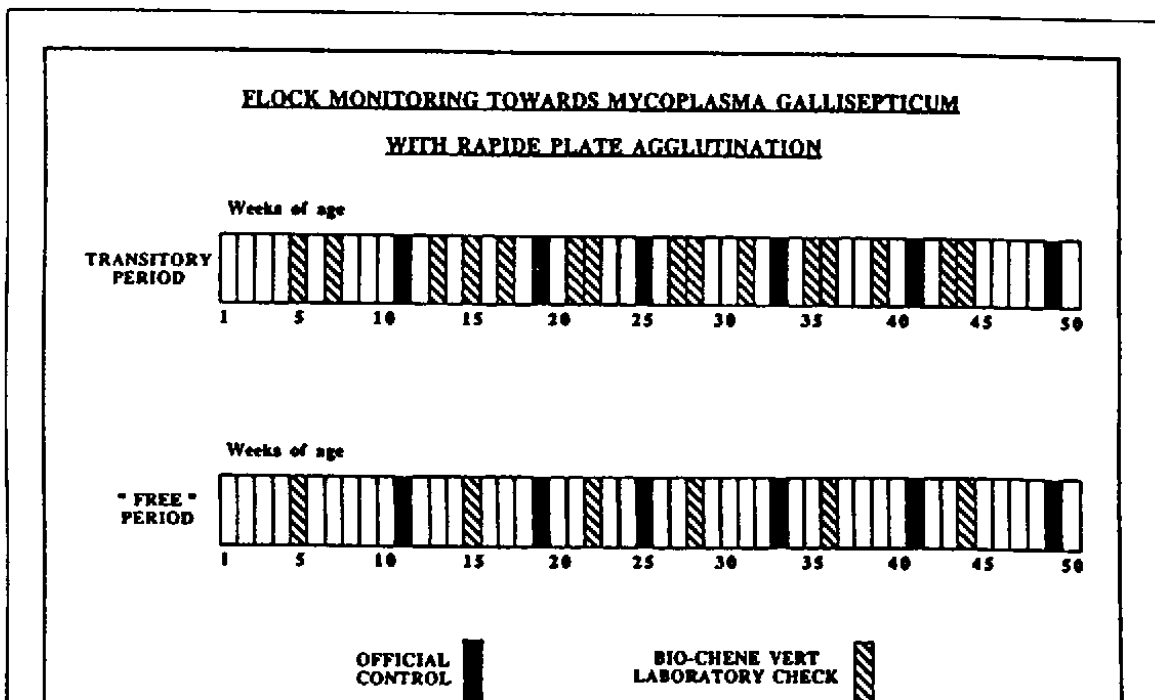
**4 - Eradication process :**

It was based on a threefold prophylaxis : sanitary, hygienique and medical.  
We are only going to develop the first and last point.

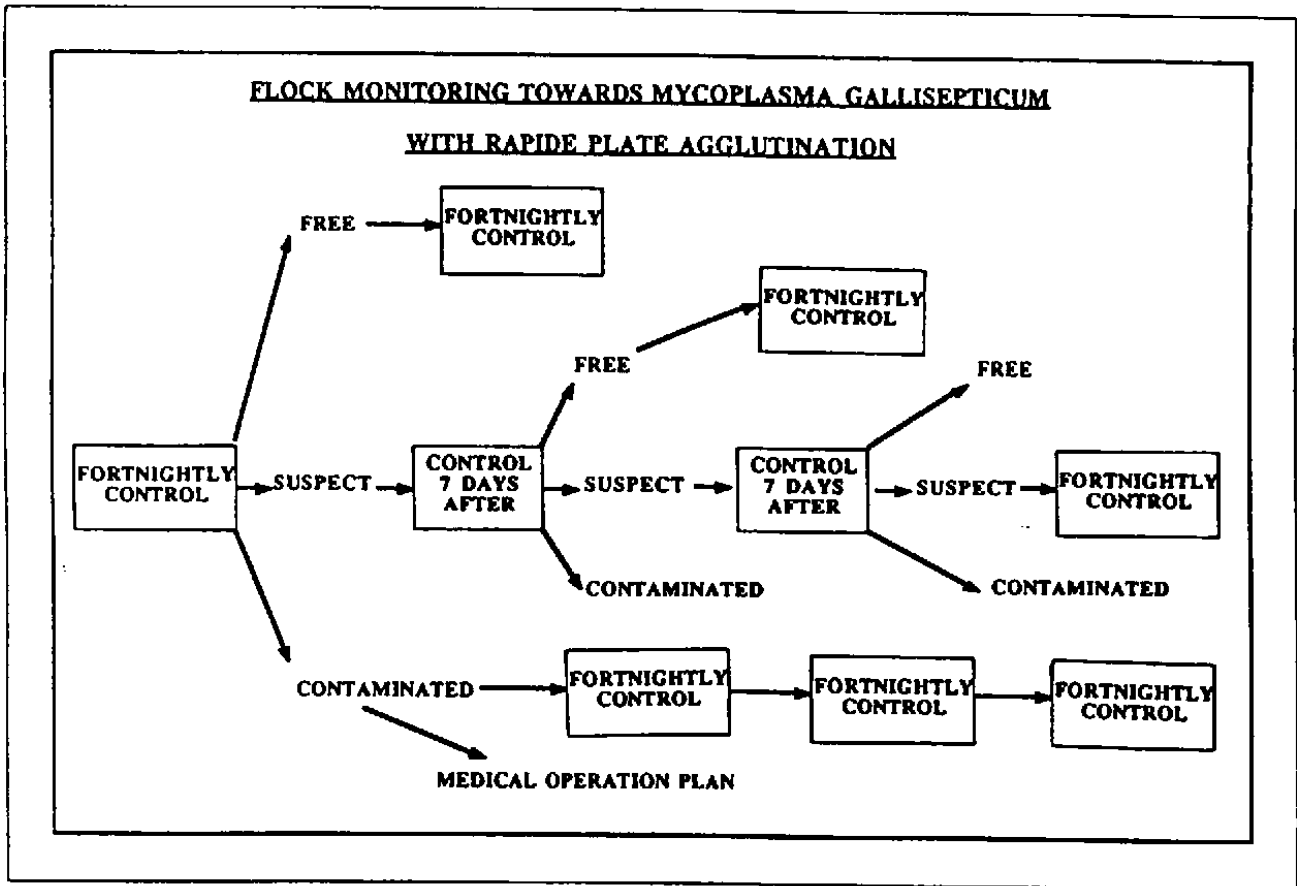
4-1 - Sanitary prophylaxis :

We have associated the serological and bacteriological tests made by our Laboratory and those made by the Regional Administrative Laboratory.

The process of serological test has been carried out by the Rapid Plate Agglutination method with two commercial antigens(Intervet and Salsbury), at different periods and according to the under-mentioned protocole.



The testing protocole, in the case of suspicion of contamination, is indicated as explained on the following draft.



Finally, bacteriological researches were carried out on the infected parent stocks to appreciate the possible contamination and also on the chicks from the dipped eggs to check the absence of vertical transmission.

#### 4-2 - Preventive medical prophylaxis :

We have chosen Tylan as the basic treatment for the prophylaxis.

The major aim was to lower or even try to reduce completely the potentialities of contamination by air, particularly during the transition period.

This priority concerned first, the parental groups from which the replacement generation was to be produced.

These groups which were given Tylan, 0,5 g per liter of water during for the first 5 days, were then given the same dose of Tylan every monday.

Prevention of Mycoplasma during the breeding period was made for three days after each vaccination, that is during five periods of three days each, at the same dose rates.

The chronology was the following :

2-3-4 days, 32-33-34 days, 51-52-53 days, 72-73-74 days, 121-122-123 days.

#### 4-3 - Prophylactic treatment :

We have used the egg dipping technique with equipment from MS TECHNOLOGIES LTD in England. First, this method consists in washing, disinfecting the eggs thanks to a chlorin solution and then a diluated quaternary ammonium solution.

Then, the eggs are dipped in a water solution titrated with 4000 ppm Tylosine activity. Another antibiotic is added to prevent bacterial contamination. The 1st phase which lasts 4 mn is a pressure reduction period.

The second phase which lasts approximately 1 mn allows the pression to return to normal.

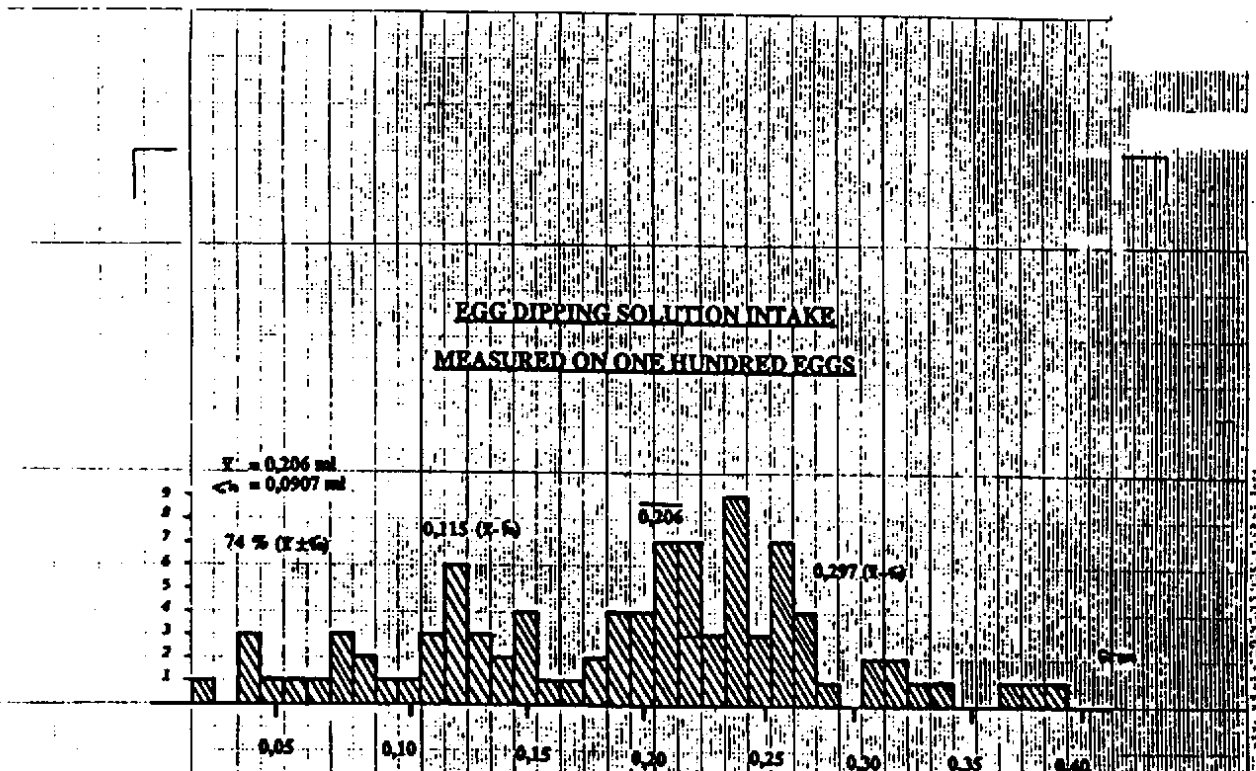
The last ten minutes (third phase) allow the dipping solution to enter the egg. This method being common we shall only make two remarks.

Firstly, the number of operations were limited to one day maximum. This allowed us to use a new dipping solution each day and throw it away at the end of each day.

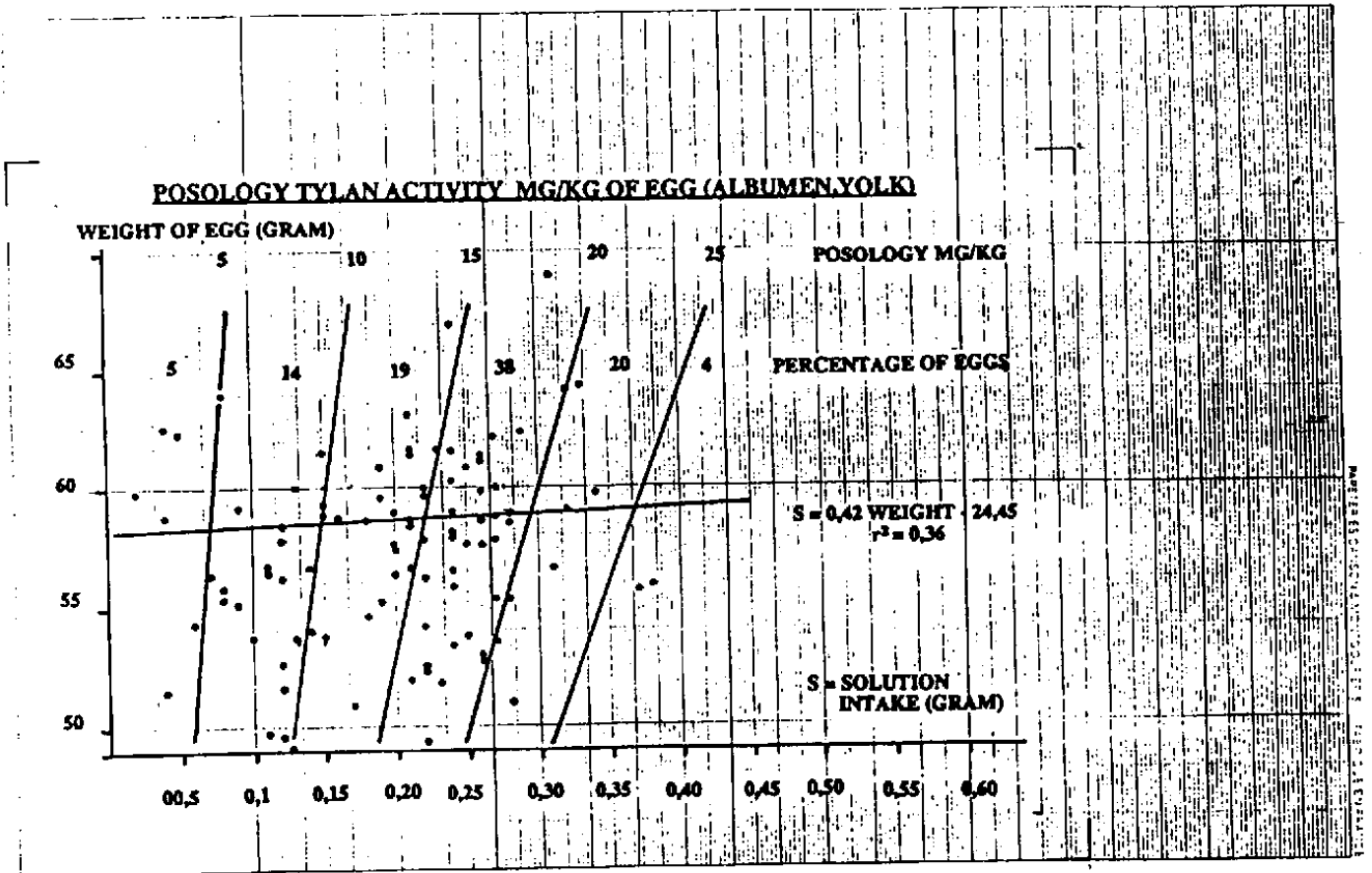
Secondly, in June 1986, we have weighted a sample of 100 eggs before and after dipping, the eggs being immediately dried and wheighted.

This operation occurred before a new period of dipping. The scales used under good conditions was accurate up to the mg, and allowed to carry over of the results at the cg.

The results of the weighting are carried over hereunder.



The following chart represents these results and gives an idea of the different classes of dose rates calculated from the absorbed quantities and brought back to the weight of the egg without shell.



We find again the same element as the one noticed in the first chart, that is the spread of the absorbed quantities. The dose thus estimated is very changeable. Particularly, 19 % of the eggs have received less than 10 mg of activated Tylosine per Kg of eggs without shell. We haven't noticed any correlation between the weight of the egg and the quantity of absorbed solution.

This led us to increase the concentration to 5000 ppm in activated Tylosine, as a measure of safety for the following period of dipping.

#### 4-4 - Bacteriological controls :

At different periods, we have carried out a range of bacteriological tests on infected adult and treated adults from the following organs : trachea, air sacs, palate split, sinus, ovule, oviduct, cloaca.

The cultures have been done in solid and liquid culture medium (FREY N°4).  
All the samples were negative after a month of observations, twice a week.

Controls have been repeated on day old chicks from dipped eggs.  
The cultured organs were : air sacs, egg yolk, trachea, liver and lungs.

All the tests were negative.

When the first generation produced from the dipped eggs started to breed, a process of similar serological and bacteriological control was set up at the multiplication stage in some hatcheries.

All the results confirmed that eradication had been obtained at the first generation.

#### 5 - Sanitary situation of the station in August 1986 :

The last group of old contaminated and treated breeders was killed in August 1986.  
A final serological and bacteriological random check was carried out on a limited sample.  
The bacteriological results were negative, whereas the sero conversion was high.

Hens n°	Positivity level in "Rapid Plate Agglutination"	Research by Culture from air sacs, trachea, Palate split, sinus, oviduct, cloaca
16681	1/15	Negative
16655	1/15	"
16637	1/20	"
16628	1/20	"
16689	1/20	"
16680	1/20	"
16671	1/20	"
3930	1/20	"

## **6 - Second eradication experiment in a breeder farm in 1986-1987 :**

The same process and the same methods were applied for this station.

We must keep in mind that, the livestock were totally infected by Gallisepticum Mycoplasma and Synoviae Mycoplasma. The results were obtained within a similar space of time : eradication of the two mycoplasmas was obtained in one generation.

Nowadays, these two stations have to be considered like free of Gallisepticum and Synoviae Mycoplasma.

They remain under the supervision of both the Administration and our Laboratory.

## **CONCLUSION :**

We believe, these rapid results were the consequence of setting up preventive and therapeutic treatments, based on different uses of Tylan together with sanitary and health actions.

In both cases, the strong motivation of the staff and management to succeed, compensated our efforts to explain a new process and to avoid complex written rules that might have been considered theoretical.

We are very grateful to the Managers of the groupments and stations, the staff and more particularly Mr Claude ANTONY, who gave us his collaboration in both stations and who died in september 1987, leaving us with an experience of thirty years in the service of poultry farming.

**R. ROSSIGNEUX**