

Country Report: Mauritius

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MAURITIUS, an island of volcanic origin, is approximately 1850 square kilometres and situated about 890 km off the east coast of Madagascar. It enjoys a semi-tropical climate with summer (November to April) and winter (May to October) as the two climatic seasons. The average rainfall ranges between 200–500 cm, with the centre of the island being the wettest and the southwestern part the driest.

It is basically an agricultural country with sugar cane being the main produce. The textile and tourist industries have developed so much during the past decade that the economy is now re-oriented to make sugar, textile and tourism as the three important pillars of the Mauritian economy.

The human population is estimated to be 1.1 million, which also includes some 40 000 people living in Rodrigues, a dependency island of Mauritius situated 560 km to the northeast of Mauritius. Due to recent development throughout the island, it is now difficult to distinguish the rural areas from the urban areas as basic facilities are accessible everywhere. However, if the towns and city limits are to be demarcated physically, it can safely be assumed that the rural areas represent about 80% of the island.

Due to lack of space and limited natural resources, activities related to animal breeding and production are limited and we rely mainly on importation from Europe, Australia, New Zealand, Africa and India.

The poultry industry is one sector that is fully developed, and Mauritius is self-sufficient in poultry; in fact, day-old chicks are even exported to neighbouring countries like Madagascar and the Comoros Islands. Poultry meat is by far the most popular and accepted meat by the population and the per capita consumption is 19.0 kilograms per year.

The government operates a Poultry Production Centre that operates as a facilitator for breeders and

farmers. The Poultry Breeding Centre sells day-old chicks (broilers and layers) to small and intermediate breeders. The yearly sales amount to some 600 000 day-old chicks and represents about 30% of layers. The small poultry breeders are also grouped under cooperatives and benefit from other government incentives.

The private operators have fully integrated modern farms with automated systems for the rearing of broilers and there are four such farms on the island. They are responsible for the production of 21 000 t of processed chicken per year.

The small breeders can be further regrouped into various categories depending upon the number of poultry they raise. Generally, it varies from 50–500. A few intermediate size poultry units are also operational and they produce about 1000–5000 chickens at any one time.

Some 20 years ago, when the industry was in its embryonic stage, people in the rural areas mostly used to raise local poultry at the backyard level. Nowadays, due to industrialisation, this activity has nearly vanished and local backyard poultry is more or less non-existent in Mauritius. However, backyard poultry is still a major occupation on Rodrigues Island, which has an estimated village chicken population of about 400 000 at any one time. In Mauritius, local poultry has been gradually replaced with commercial broilers and layers and the backyard has been modified into small holdings for chicken rearing.

Because of regular imports of parent stock and sometimes grandparent stock by poultry operators, poultry diseases have been introduced into the island. Two diseases of economic importance are Newcastle disease (ND) and infectious bursal disease.

Newcastle Disease

ND has been present for a long time and it has a characteristic seasonal incidence. The virus was first isolated in 1985 at the Animal Health Laboratory and it was subsequently typed by Dr Alexander of the

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International Reference Laboratory for Avian Ortho- and Paramyxoviruses, Weybridge. The field strain is a velogenic type which can cause mortality in susceptible chickens ranging from 15–80%. The clinical signs being those of inappetance, droopy wings and neck, cyanosis of the comb, whitish to greenish diarrhoea, followed by death. The nervous, respiratory and viscerotropic types have been diagnosed on the island.

Over the years, ND has cost the country a lot in terms of mortality and lack of production. In 1986, these losses were estimated to be MUR 10 million per year.

Newcastle disease control

Control was always effective when hygienic practices coupled with a sound vaccination program were applied. In spite of vaccination, the disease used to crop up at seasonal intervals and mortalities due to ND were reported and confirmed. Surveys revealed that the vaccines were not utilised by the majority of the breeders.

Radio and TV programs used to be presented by the Veterinary and Extension Services of the Ministry of Agriculture with the objective of reaching the maximum number of farmers. These educational programs used to be prepared on a quarterly basis in the early 1980s and now similar programs are broadcast by the Extension Services. This publicity about vaccination and sanitation of the poultry operations was an important tool in the control of the disease on a national scale. The impact was great, since many breeders started vaccinating their poultry on a regular basis. Currently, it is

estimated that about 95% of the small holders vaccinate their stock.

Vaccine production

ND vaccines are produced at the Animal Health Laboratory of the Ministry of Agriculture. The first production was performed in the early 1950s. It was basically the passage of commercially available vaccines in embryonated eggs.

At that time, the requirements per year did not exceed 100 000 to 200 000 doses. Vaccines produced this way were tested by a challenge test before being put on sale to the public.

Vaccine production took on a new dimension during 1984 when a new concept of production was applied. Vaccines produced were the Hitchner B1, La Sota and Fowl Pox. The Hitchner vaccines were utilised in the young chicks and La Sota in older chickens. The vaccines were produced, titrated, mixed in PBS and dispensed in sealed plastic bags, which were immediately frozen. The vaccines were sold in doses of 30 and 45 in a frozen state.

Shortly after this, the quality of vaccines produced was improved by introducing freeze-drying techniques. The vaccines also underwent quality controls and international standards were maintained as far as possible. These were commercialised in vials of 100, 200 and 500 doses and meant to be utilised by the small breeder. During this period, both the frozen vaccine and the freeze-dried vaccines were commercialised. Figure 1 indicates the progress of vaccine sales in Mauritius. There has been an increase in the use of the vaccines in response to the publicity and modification of the vaccination program.

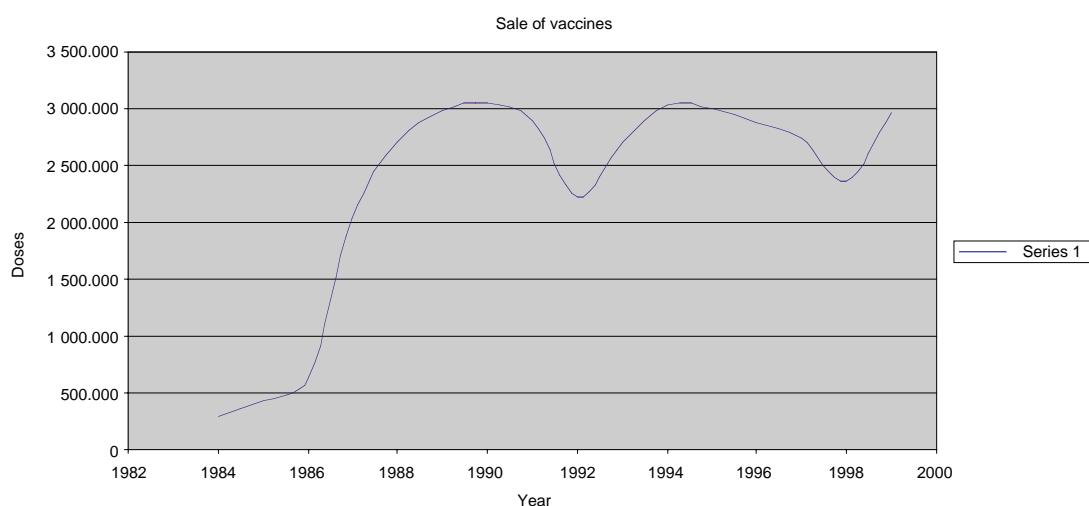


Figure 1. Vaccine sales in Mauritius between 1984 and 1999.

The major development in ND vaccine production came in 1987 when the original Australian V4 strain obtained [NB: not the heat resistant V4 strain selected for enhanced thermostability] as a gift from Wisconsin was first tried as a pilot project among the large producers with conclusive results. The vaccines are now used by the small producers as well. Because of numerous advantages in the V4, the production of the Hitchner and La Sota strain vaccines have now been discontinued. Now, only freeze-dried vaccines are commercialised.

Newcastle Disease Control in Mauritius— A Success Story

For a few years, the incidence of ND has been reduced to isolated pockets that are reported occasionally. On close examination, it is always attributed to non-vaccinated poultry. During 1999, no outbreaks of ND have been officially reported. Mauritius has managed to control this disease effectively because of the following reasons.

Improved vaccine technology

New techniques of vaccine production have undoubtedly helped to reduce the incidence of ND outbreaks by protecting the birds effectively. The vaccines that were prepared and sold in the earlier days were of poor quality and, being in frozen form, the vaccines would often melt during transportation. By the time the farmer was ready to use the vaccine, it would have lost its potency. Freeze-dried vaccine is more stable and the V4 strain vaccine is thermostable. Nevertheless, farmers are requested to use a thermos flask for carrying the vaccines.

Radio and TV programs

Education of farmers is an important way of conveying information on proper vaccination, dilution of vaccines, and use of dechlorinated water. Earlier campaigns have been so successful that almost 95%

of the poultry farmers now regularly vaccinate their stocks. The educational programs have also been used to spread information on other aspects of breeding, such as rearing of poultry under hygienic conditions and control of parasites.

Decentralising sale of vaccines

Poultry vaccines used to be sold at a central point and farmers from all over the island would come a long way to purchase the vaccines. The sales were decentralised by supplying freezers to five sub-offices in order to bring the vaccines nearer to the farmers.

Change in vaccination program

Challenge and serological tests carried out at the laboratory indicated the best program to apply under local conditions, and the initial vaccination schedule was modified. The actual program consists of vaccination of one-day old chicks, a booster at 10 days and a third vaccination at one month. Layers are to be re-vaccinated after 2–3 months to ensure continued protection to the chicken.

Use of V4 vaccine

The use of V4 vaccine has had a major role in controlling and eliminating Newcastle disease. It is the vaccine to be utilised in tropical countries and especially in countries where backyard poultry-keeping is an active operation.

The advantages of using V4 vaccine are:

- a high titre is always obtained during vaccine production;
- there are insignificant embryonic deaths and better harvest of allantoic fluids;
- they are thermostable and hence efficient under tropical conditions;
- autovaccination occurs; and
- it is practical to vaccinate poultry in drinking water or incorporated into feed.