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Introduction

The main objectives of veterinary services in South Africa are to control and prevent notifiable and zoonotic animal diseases in order to promote human and animal health.

Veterinary services are divided into national and provincial structures in South Africa. The National Directorate of Animal Health is responsible for imports, control of animals and animal products, border control, international liaison, as well as to set, monitor and audit norms and standards of veterinary services in the country. The Provincial Veterinary Services are more concerned with aspects relating to the delivery of veterinary services. As in the previous year under review, financial constraints and staff shortages hampered activities in most provinces.

Tuberculosis and brucellosis testing in cattle herds of emerging and communal farming areas was facilitated and stimulated by comprehensive funding from the National Directorate Animal Health.

No disease epidemics were reported during the year under review and there were no outbreaks of foot-and-mouth disease and African swine fever. The surveillance and control of African horsesickness and Johne’s disease proceeded smoothly. These diseases were declared controlled diseases in the Government Gazette of 6 February 1997.

The incidence of reported rabies cases increased, possibly as a result of extensive awareness campaigns throughout the country.

Bovine tuberculosis continued to spread among buffalo populations in the Kruger National Park and Hluhluwe/Umfolozi Game Reserves in KwaZulu-Natal. This disease has now been diagnosed in other wildlife species, such as kudu, lion, cheetah, baboon and other game.

Two outbreaks of corridor disease occurred during the year. Both cases were associated with buffalo that escaped.

Sheep-scab remains one of the most serious problems in the sheep-farming areas of South Africa, with outbreaks occurring countrywide. Outbreaks of Newcastle disease were reported in most provinces.

A mesogenic Newcastle disease virus was isolated from two penguins at the Stellenbosch Regional Laboratory.

Tick-borne diseases such as heartwater, babesiosis and anaplasmosis once again occurred widely. Ephemeral fever, helminthiasis, various toxicities as well as infectious coryza and Gumboro disease in poultry were some of the other diseases which affected much of the livestock and poultry during the year under review.

Controlled and notifiable diseases in South Africa

Controlled diseases


* Do not occur in South Africa.
Controlled diseases which have been eradicated

The year of eradication is shown in brackets.

Rinderpest (1904), hog cholera (1918), contagious bovine pleuropneumonia (1924), glanders (1930), East Coast fever (‘1954), equine infectious anaemia (1955) and scrapie (1972).

Controlled diseases which have not been eradicated yet

These are controlled diseases according to the Animal Diseases Act, 1984 (Act No. 35 of 1984) which are not yet eradicated from South Africa and which are being controlled actively.

Foot-and-mouth disease (last outbreak in domestic animals 1983), African swine fever, Newcastle disease, rabies, bovine brucellosis (*Brucella abortus*), bovine tuberculosis (*Mycobacterium bovis*), psittacosis and ornithosis, corridor disease, sheep—scab, anthrax, dourine, nagana (trypanosomiasis) (*Trypanosoma congolense*) and *Salmonella enteritidis*.

Notifiable diseases

Lumpy-skin disease, Rift Valley fever, blue-tongue and swine erysipelas.

Diseases not occurring in South Africa, but regarded as controlled diseases

These diseases are regarded as controlled animal diseases according to the Animal Diseases Act, 1984 (Act No.35 of 1984).

Contagious equine metritis, Aujeszky’s disease and swine vesicular disease.

Note the following:

- Any disease which does not occur in South Africa is regarded as a controlled disease
- All OIE List-A diseases are controlled except bluetongue, Rift Valley fever and lumpy-skin disease; which are notifiable diseases in South Africa
- Not all controlled diseases in South Africa are necessarily OIE List-A diseases, for example rabies and tuberculosis
- All controlled diseases are notifiable
- Not all notifiable diseases are controlled diseases.

Controlled diseases

Foot-and-mouth disease

No outbreaks of foot-and-mouth disease (FMD) occurred during the year under review.

The FMD regulations were reviewed and the compulsory vaccination zone (enzyotic zone) was reduced in size. This was done according to the latest distribution of buffalo and susceptible game and livestock populations, straying patterns of buffalo, the existence of natural barriers, the patterns of land use in the region as well as the status of international boundaries and internal veterinary fences.
Control of the disease in the declared controlled area:

- Inspection of all livestock at short intervals (7 to 28 days)
- Strict movement control of susceptible animals and their products (domestic and game) into, from or within the controlled area
- Vaccination of cattle twice a year, and small stock annually in an area of approximately 10 to 15 km wide along the borders of the Kruger National Park.

Most of the problems concerning the control of FMD were because of damaged fences. Fences were damaged by falling trees, elephants (*Loxondonta africana*), hippopotami (*Hippopotamus amphibius*) and people. In some areas, cattle got into the control corridor, causing a threat of foot-and-mouth disease, as infected buffalo (*Syncerus caffer*) were also present in this area. No cases of FMD were seen, however, most probably because of the fact that all the cattle were vaccinated. The upgrading and electrification of the Kruger National Park fence is well underway and should be completed during 1999.

Control of this economically important disease was aided by the judicial implementation of the Animal Diseases Act (Act No. 35 of 1984) and improved liaison and cooperation with the National Directorate Animal
Health and Provincial stakeholders. A project was launched in Mpumalanga, in cooperation with the Onderstepoort Institute for Exotic Diseases (OIED), with the following objectives:

- Evaluation of vaccine efficacy in cattle herds vaccinated every six months
- Evaluation of seroprevalence in formerly vaccinated goat herds
- Monitoring of unvaccinated sentinel cattle herds close to foci of infection.

The results of this project are not available yet.

Applied research by the Skukuza Veterinary Laboratory and the Skukuza State Veterinary Office in the Kruger National Park (KNP)

Under the guidance of this office, the South African National Parks commenced a disease-free buffalo calf-breeding project. Pregnant cows were captured in the tuberculosis-free far northern area of the Park and brought into confinement. They were tested for tuberculosis and brucellosis, and probings for FMD virus isolation were collected from them. They were kept under tick-free conditions. Seventeen calves were harvested from these cows. The calves were found to initially show maternally derived antibodies against FMD, which persisted for longer than expected in some individuals, but ELISA titres decreased to negative levels by the time they were 10 months old. Es could also not be isolated from two of probings collected from these calves. The definitive results of the virus neutralisation serological test are now awaited. These calves also tested negative for brucellosis and tuberculosis on consecutive tests. Results for *Theileria* organisms are still not available. The calves will soon be moved to Kimberley where they will go through their last period of quarantine to qualify as disease-free buffalo.

Altogether 124 buffalo (*Syncerus caffer*) oesophago/pharyngeal probings were obtained for the Onderstepoort Institute for Exotic Diseases during buffalo capture and culling operations in the KNP complex. This is part of an ongoing project monitoring the FMD-SAT virus strains currently cycling in the KNP complex and the search for possible vaccine candidates. Research has also been directed to the role of impala (*Aepyceros melampus melampus*) in the epidemiology of foot-and-mouth disease. This is primarily a serological survey of three distinct impala populations, namely in the Crocodile Bridge, Orpen Gate and Shingwedzi area. Forty impala from each of these areas are immobilised at random at three-monthly intervals. Serum samples are collected and animals are examined for any clinical signs of FMD. The following preliminary conclusions can be made:

- Three years after the FMD outbreak in the Crocodile Bridge region, the number of animals with litres is declining
- There is a small number of SAT-2 seropositive impala
- No seropositive impala could be found in the Shingwedzi area.

**Tuberculosis** (*Mycobacterium bovis*)

A total number of 5,904 cattle herds, comprising 489,215 head of cattle were tested during the year under review. There are a total of 25 tuberculosis-infected cattle herds in the country.

Testing for tuberculosis was boosted and stimulated significantly by comprehensive funding from the National Directorate Animal Health. A general tuberculosis surveillance programme aimed particularly at emerging and communal farmers was launched. Testing was at times hampered by staff shortages, inadequate transport and other constraints. A statistically significant survey was conducted on dipping tanks and crushpens in some communal areas. Two areas of concern were identified. In the northern region of KwaZulu-Natal, 21 out of 5,917 communal cattle tested positive, with a further eight animals testing suspicious. Buffalo and cattle coming into close contact because of broken fences in a nearby game reserve, two years previously, could account for this tuberculosis outbreak. The other
focus of infection was in the Peddie area of the Eastern Cape Province where 20 cattle slaughtered on a farm were positive for tuberculosis. The affected farm and all neighboring farms were tested. On the affected farm more than 60% of the cattle tested positive. This has been identified as a serious tuberculosis problem area and is being attended to as a matter of urgency.

Tuberculosis in wildlife, especially in buffalo, presents a possible source for reinfection of cattle, particularly in the area surrounding the Kruger National Park and in the Hluhluwe Game Reserve area of KwaZulu-Natal. This threat necessitates constant surveillance in adjacent cattle areas. Game farming is emerging as a major economic factor in South Africa, and some game farmers are reluctant to have their animals tested on a voluntary basis because of the consequences should they be found to have tuberculosis on their farms. Some farmers are, however, cooperative and postmortems are often conducted on shot buffalo in an effort to identify infected farms. In the Hluhluwe area of KwaZulu-Natal, 277 buffalo were on intradermal testing. Buffalo in the Northern Cape Province were also tested for tuberculosis, using both the intradermal and the gamma-interferon tests. Ten out of 100 buffalo tested positive with both the gamma-interferon test and on postmortem examination. Interpretation of these tests is complicated by the fact that 40% of the animals react strongly to avian tuberculin.

In the Kruger National Park (KNP), there are several tuberculosis-infected buffalo herds, especially south of the Crocodile River, and also on some private game farms adjacent to the KNP. Tuberculosis has also been confirmed in kudu (*Tragelaphus strepsiceros*), lion (*Panthera leo*), cheetah (*Acinonyx jubatus*), baboon (*Papio ursinus*) and other game in these areas.

**Applied research by the Skukuza Veterinary Laboratory and the Skukuza State Veterinary Office in the Kruger National Park**

The comparative cervical intradermal test for tuberculosis was modified to be used on
tested with 19 positive and 9 suspicious cases
lions, as no test existed to diagnose bovine Losis in this species. The test so far (21 amrnals) shows a high sensitivity and specificity. These lions were tested and later euthanised. They were then examined histologically and lymph nodes were cultured. The test also indicated that 32 out of 33 free-ranging lions in the south of the KNP which were tested and later released, showed positive reactions for tuberculosis. Eleven lions from the tuberculosis-free northern area of the Park (control animals) showed no reaction to the tuberculin test. The important route of infection in this species is through the ingestion of infected buffalo carcasses. With the advent of this modified test in lion, the moratorium on the movement of lions in the Mpumalanga Province may be lifted. There is currently an ongoing applied research project on the epidemiology of tuberculosis in free-ranging lions in the KNP.

A study to determine the survival of *Mycobacterium bovis* outside the animal host was completed in the KNP during the year under review. It was found that in winter the organism survived for six weeks in lung tissue and for four weeks in faeces under various conditions (sunlight, shade, moisture and dryness). In summer, the organism survived for five days in lung tissue and faeces under these same conditions.

During May 1997, four out of 20 buffalo bulls (in the south of the KNP) tested positive for tuberculosis with the gamma interferon test. All 20 animals, however, tested negative with the comparative intradermal test. The four buffalo were killed and complete necropsies were performed on them. They were all negative for tuberculosis. It is possible that an atypical *Mycobacterium* sp. may have been the cause of these false positive reactions.

**Bovine brucellosis *obortus***

A total number of 10 008 herds of cattle were tested for brucellosis during the year under review, with 5 264 animals in 987 herds testing positive.

The same problems that were found with tuberculosis control were experienced with brucellosis control, namely a serious shortage of personnel, especially state veterinarians and veterinary technologists in some of the diagnostic laboratories, as well as inadequate transport and other, mainly financial, constraints.

Compulsory and free strain-i 9 vaccination of heifer calves in communal areas was done. As a result of this and because of the results of surveys conducted on communal herds, it is suspected that the prevalence of brucellosis in communal herds is fairly low. There is resistance among communal livestock owners in some areas to vaccinate, particularly as it is targeted specifically at their heifer groups. This fact, combined with the low level of awareness of the seriousness of brucellosis, the difficulty of identifying individual animals, and the inefficient isolation of positive reactors, posed a great challenge in the effective control of brucellosis in these areas.

It has been noticed that commercial cattle farmers do not vaccinate their cattle as readily as envisaged. In the Free’ State Province, for example, less than 40 % of cattle farmers vaccinate with strain-19 vaccination. This could have serious repercussions, because it increases the spread of the disease and serious outbreaks are a constant threat.

This disease remains one of the most important economic and zoonotic diseases in South Africa and sustained action and intervention is required to control it. At present, the National Brucellosis Committee is in the process of compiling a new policy manual for the control of brucellosis in the country. This should be completed in the near future.

**Caprine brucellosis (*Brucelio mellitensis*)**

No outbreaks of this disease were reported during the year under review. The eradication campaign is continuing successfully and the disease is almost eradicated in South Africa.

A total number of 1129 goats were surveyed and only a small area in KwaZulu-Natal remains infected (Ingewavuma and Ubombo where there is a prevalence of 2.8 %). There is an ongoing control and eradication campaign in this area. One seropositive goat was identified in the Ladysmith area of KwaZulu-Natal Province. It was slaughtered and the reaction was proved to be caused by Rev-i vaccine (used for the control of *Brucella ovis*).

The south-eastern part of Swaziland is infected with *Brucella mellitensis* and constant vigilance and selected monitoring of the Swaziland-South African border was therefore continued.
Rabies

Altogether 573 animal rabies cases (246 dogs) was reported during the year under review. This is an increase compared to the number reported in 1996/97 (460 cases, of which 240 were dogs).

Extensive rabies awareness campaigns were conducted throughout the country. These campaigns, and good surveillance work by field officers, may have led to a greater recovery of cases in certain areas, especially in Mpumalanga Province and on the southern KwaZulu-Natal border with the Eastern Cape Province. These factors may have contributed to the apparent increased prevalence of the disease.

The viverrid strain of the virus is especially prevalent in the Free State and Mpumalanga Provinces. This variant, as well as the canid strain spread by blackbacked jackals and bat-eared foxes, is almost impossible to control by vaccination. The development of an oral bait vaccine, which would target these animals, is a desirable but very remote possibility at this stage. The six cases recorded in wild dogs \(\textit{Lycaon pictus}\) were all from a private game reserve in the northwestern area of South Africa. Several other wild dogs from the same pack also died after having shown typical rabies-like clinical signs.

The vaccination of domestic animals on Mpumalanga’s eastern border with Swaziland was increased considerably with the objective of creating a buffer zone. The upsurge of rabies in the Eastern Cape Province can probably be ascribed to a decrease in vaccination cover and a high replacement rate of dogs in many areas. Of interest were the two diagnoses of Mokola virus in Pinetown district of KwaZulu-Natal during May, 1997. Brain matter from two cats, which had exhibited extremely aggressive behaviour and which had both tested weakly positive using the routine conjugate at Allerton PVL, was submitted to the Onderstepoort Veterinary Institute (OVI) for typing. Both brains yielded Mokola virus, a rabies-related virus, which is known to cause rabies-like symptoms in cats and other mammals. These identifications of the virus were the first to be recorded in KwaZulu-Natal since 1970.

During the year under review the KwaZulu-Natal Rabies Action Group, comprising members from many different professions and departments, formulated and distributed a rabies treatment protocol for humans. This document was adapted and adopted for the entire country by the Department of National Health, with assistance from the Directorate Animal Health, the OVI and the National Institute for Virology. The publication has subsequently been made available worldwide on the Internet.
<table>
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<td>334</td>
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*Aonderstepoort Veterinary Laboratory (Gauteng Province) **Allerton Veterinary Laboratory (KwaZulu-Natal) ***Umtata Veterinary Laboratory (Eastern Cape Province)

**African horse sickness**

African horse sickness (AHS) was declared a controlled animal disease in South Africa in the Government Gazette of 6 February 1997. This made vaccination of all horses compulsory, except in the free and surveillance zones of the Western Cape Province, where horses may only be vaccinated against the disease with written permission of the Directorate of Veterinary Services of the Western Cape Province.

Shortages of personnel have caused some problems, especially as the vaccination of all equids against AHS is difficult, if not impossible, to enforce.

There are at present three export quarantine stations in the AHS-free zone (see map). Problems that were encountered in establishing and administering the agreed protocol of control included:

- A lack of communication with all horse-sporting associations about the protocol requirements.
- A lack of communication between provincial state veterinarians and private practising veterinarians.
- Lack of communication with the National Directorate.
<table>
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<td>Passports issued by State Vet Boland</td>
<td>46</td>
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*African horsesickness controlled areas (Western Cape)*

Conflicting communication and interpretations of the protocol

Shortage and/or unavailability of horse passports

Lack of a proper computerised database Personnel and financial limitations.

A stipendiary steward of the Jockey Club of South Africa was seconded to the Boland State Veterinary Office in the Western Cape in June 1997 to assist with the implementation of the EU protocol.

The EU decided in June 1997 that all brood mares leaving the AHS surveillance zone to stallions in the protection and infected zones, had to be properly vaccinated before returning to the surveillance zone. This led to debate about the safety of vaccinating pregnant mares with a live AHS vaccine. Recommendations included that valuable mares should not be vaccinated while pregnant; a pregnant mare should not be vaccinated if it is her first AHS vaccination, and, it should be reasonably safe to vaccinate a mare after the first three months of pregnancy provided that she has been vaccinated against AHS before.

It is now also necessary to obtain an import permit before importing a horse from Namibia to the Western Cape Province.

In spite of initial problems experienced with the implementation of the regulations on AI-IS, the private sector cooperated well in the free and surveillance zones, as evidenced by some of the statistics of AHS control.

*African swine Fever*

There have been no reported outbreaks of this disease outside of the African swine fever controlled area for several decades.

There were three reported outbreaks of the disease in the controlled area of the Northern Province. These were easily controlled with slaughtering of in-contact and affected animals and the quarantine of the properties. Several roadblocks were held in this Province to control the illegal movement of warthog carcasses.

Of interest was a survey conducted in the southern part of the Northern Province, where officials were involved in a three-day tampan survey on 10 farms adjacent to the controlled area. Tampans were found on four of the farms. This discovery of tampans outside the African swine fever controlled area is of great importance, and the rezoning of the controlled area may as a result become essential.
Anthrax

The only outbreaks of anthrax reported were in areas that are established foci of anthrax, i.e. in the Richtersveld National Park and the Ghaap Plato areas of the Northern Cape. Boergoats and game are mostly involved. Lime-rich soil and a decline in vaccinations of small stock in this area could be reasons for this high-risk situation.

A general reason for failing to reach vaccination targets is bad weather, staff shortages and resistance from some communities to vaccination.

In commercial areas, farmers must supply anthrax vaccine themselves, while in communal areas vaccine is supplied and administered free of charge. In many areas, Blanthrax vaccine was used. This is a combination vaccine of anthrax and black quarter and, in communal areas, the vaccination process also provides the opportunity to disseminate information and present demonstrations on health care of livestock.

Corridor disease
(Theileriosis)

An outbreak of Theileriosis occurred in the Lower Umfolozi district of KwaZulu-Natal Province. This is the first recorded outbreak in the area for many years. The infection was traced to a number of buffalo that broke out of the Umfolozi Game Reserve onto a farm and were resident there for many months before being reported.

The dipping strategy on this farm was not effective and led to an outbreak of Theileriosis, which eventually resulted in 79 head of cattle dying over a two-month period. Four buffalo were culled, but because of the dense vegetation of the area, one remaining buffalo has not been located yet. Efforts are continuing to trace and destroy this animal. Cattle are being kept away from the area, and the dipping has improved. Provincial officials are also constantly monitoring the farm.

There was one outbreak of Theileriosis in Mpumalanga Province after contact with infected buffalo, resulting in 12 cattle deaths.

The project to breed corridor disease-free buffalo in the Northern Cape Province is well under way. None of the vectors of Theileriosis have been found here. The buffalo have adapted well to the new grazing conditions and the calves that have been born to them are in high demand.

Johne’s disease
(Porotuberculosis)

Johne’s disease was declared a controlled animal disease in February 1997.

The first case of this disease in sheep in South Africa was diagnosed at the Nooitgedacht Agricultural Research Station in Mpumalanga Province in 1992. In the Annual Report of 1996/1997, it was reported that 47 farms were diagnosed positive in the Western Cape Province, while two farms in both the Eastern Cape and Free State Province tested positive for Johne’s disease.

The survey that was begun in January 1996 was continued and, in most provinces, concluded by April 1997. The results of this survey show that, in the Mpumalanga Province, the disease has not spread from the Nooitgedacht farm to other farms in the Province. No other positive farms were diagnosed in the Free State. In the Eastern Cape Province, three additional farms in the Northern Region tested positive. These positive animals could all be traced back to the original infected properties. The infected properties were quarantined and the infected animals slaughtered.

In the Western Cape, the survey was extended to include communal farms, breeds other than merinos, and flocks consisting of less than 300 sheep. There are a total of 51 infected properties in the Western Cape, of which the main concentration occurs in the districts of Ceres, Caledon and Mossel Bay. Unfortunately, as a result of a severe cut in allocated budget, as well as a growing resistance by farmers to the monitoring of previously negative flocks, the Western Cape orate was forced to scale down
on the testing of negative flocks.

It seems, however, from this countrywide survey, that the control measures instituted were timeous and sufficient enough to prevent the further spread of this disease.

Sheep-scab

Sheep-scab still remains one of the greatest problems in sheep farming areas of South Africa, with widespread outbreaks occurring throughout the country. Despite extension work done by veterinary personnel, many participants in the small—stock industry put their own flocks at risk by the trading and or movement of untreated stock and resistance from farmers to treat their stock.

In the Eastern Cape and Northern Province many more cases of sheep-scab were found, especially in communal areas. Factors which are contributing to this escalation are logistics, inconsistent inspection methods, shortages of acaricides, long distances to dipping tanks and failure of stock owners to present their sheep for treatment. Routine treatment is still through dipping, with the exception of some areas which have tried injectables because of water shortages, especially in the winter months.

In the Free State Province sheep-scab is also a big problem and in the Fauresmith area it almost reached epidemic proportions. The cause is often ineffective treatment, which often leads to reoccurrence three to six months later.

In the Northern Cape Province, sheep-scab was the dominant disease in the winter. Confirmation of disease, contact inspection, treatment and follow-up visits made enormous demands on understaffed personnel. Routine inspections are often neglected and dormant infestations are a real danger. On a positive note, however, successful prosecutions have greatly improved the reporting of skin conditions by farmers in this province. The absence of sheep-scab in the communal areas of the Northern Cape is a compliment to officials who organise annual dipping of all stock.

In July 1997, sheep-scab was diagnosed at sale pens in the Standerton area of the Mpumalanga Province. The disease spread to sheep and goats at the sale because of negligence in handling by the staff. The animals had to be treated and the sheep section of the sale pens was placed under quarantine for three weeks, during which period sheep were sold from temporary pens erected nearby.

This disease is still far from being controlled effectively in South Africa and community involvement in financing remedies for sheep-scab control is imperative, as is cooperation and education of stock owners.

Non-controlled animal diseases

Notifiable diseases

Lumpy-skin disease occurred sporadically with outbreaks throughout the country. One of the reasons could be a shortage of vaccine as well as the fact that farmers do not vaccinate their cattle. A few isolated outbreaks of bluetongue were reported, mainly on unvaccinated animals.

Other diseases

Viral diseases

A survey of enzootic bovine leukosis was launched during the year under review, and it appears from initial results that there is a relatively high seropositive population that does not show clinical symptoms. This survey is ongoing, however, and, as yet, there are no final figures available.
Other viral diseases that were reported were ephemeral fever (three-day stiffness), bovine malignant catarrhal fever (mainly alcelaphine herpes virus 1), orf (contagious ecthyma), a few cases of bovine viral diarrhoea, as well as parvovirus and distemper in dogs.

Bacterial diseases

A few cases of leptospirosis in cattle and pigs and some isolated outbreaks of botulism in cattle and sheep were reported. Some cases of salmonellosis occurred in calves in the Western and Eastern Provinces. A few cases of pasteurellosis were reported, as well as some isolated cases of *Brucella ovis* in rams. There was the occasional outbreak of *Escherichia coli* septicaemia in various animal species. Vaccination against pulpy kidney (*Clostridium perfringens*) in sheep is being done throughout the country. There were, however, a few outbreaks of the disease. *Staphylococcus aureus* is a very important cause of mastitis in dairy cattle in South Africa, and was diagnosed throughout the country.

Protozoal and rickettsial diseases

Widespread babesiosis, anaplasmosis and heartwater were reported (i.e. abundant tick-borne diseases).

Fungal diseases

These are mainly caused by *Trichophyton* spp. which cause ringworm.

Poisonings and toxicities

In the Swellendam district of the Western Cape Province, 15 six-month old lambs grazing on oats, developed symptoms of secondary photosensitivity. No icterus or coronitis was present. Postmortem examination on two deaths revealed general petechiae, severe pneumonia, oedema and hepatitis with fatty degeneration. Numerous atypical tribulus plants (*Tribulus terrestris*) with typical tribulus thorns were found in the camp, which had been grazed down extensively. The remaining 13 lambs were removed from the camp, kept in the shade for a few days, fed hay and recovered completely with the help of liver stimulation therapy.

Some other toxicities reported from different areas include lupinosis, krimpsiekte, enzootic icterus, *Lantana camara* and geeldikkop toxicity, cardiac glucoside toxicosis, organophosphate and carbamate toxicity as well as salt poisoning.

Poultry diseases

Controlled diseases

Newcastle disease

Outbreaks of Newcastle disease were reported in all the provinces, except Gauteng. In many provinces, for example Mpumalanga, Northern Province, Eastern Cape and North West, state veterinarians and animal health technicians carried out vaccinations. Extension work was also done, especially in the Northern Cape and North West Provinces, to convey the importance of continued vaccination Fr’ small-scale farmers.

Outbreaks of Newcastle disease in the Eastern Cape resulted in the quarantine of one ostrich export feedlot. Outbreaks of the disease also occurred in young ostriches in the Oudtshoorn and George districts. In both cases, the origin of the virus and the epidemiology of the disease remain unclear. Although the farm in the Oudtshoorn district is situated in a high-density ostrich farming area, no birds on the same farm or neighbouring farms were affected. The farm in the George district is geographically isolated in the foothills of the Outeniqua mountains, and again no in-contact birds were affected. In both outbreaks, no poultry showed any signs of disease, despite a dubious immune status and the high pathogenicity of the virus (mean death time <48 hours). An outbreak of Newcastle disease in the Northern Province caused the death of 14 out of 48 feedlot ostriches.
A mesogenic Newcastle disease virus was isolated from pooled samples of two penguins which were submitted for postmortem examination to the Stellenbosch Regional Veterinary Laboratory. No further outbreaks of disease in penguins were reported.

**Salmonella enteritidis**

Cases in which *Salmonella* enteritidis caused mortalities in chicks, were reported from the Eastern as well as the Western Cape Province. The chicks that died in the Western Cape Province had originated from a breeder in Gauteng. One case of the disease also occurred for the first time in a commercial laying flock in KwaZulu-Natal. Rodents are considered to be the source of this infection. Serological tests showed a high prevalence of disease in one age group, and these chickens were culled. Other flocks were vaccinated to reduce infection levels and the potential shedding of the organism. No *Salmonella* enteritidis was detected in any of the Allerton Provincial Veterinary Laboratory (PVL) monitoring scheme for broiler flocks, although the Directorate Veterinary Public Health was involved in the slaughter of positive flocks with a prevalence of 7 to 10% at two poultry abattoirs.

These outbreaks have, once again, highlighted the importance of keeping parent stock free from *Salmonella* enteritidis through regular monitoring programmes.

*Salmonella* enteritidis was also reported for the first time in ostriches in the Eastern Cape Province.

**Psittacosis**

Premises in Durbanville in the Western Cape Province, were quarantined after mortalities occurred in canaries because of psittacosis. The remaining canaries were treated with doxycycline (in drinking water) for 45 days and the quarantine was lifted after no further deaths occurred. The outbreak originated from a parrot that was kept in the same cage as the canaries.

A severe respiratory condition occurred in two children of a family in the Eastern Cape, who had a breeding flock of Gloucester and Norwich canaries. The children had close contact with the birds. Although serum and organ samples were negative on culture and histopathology, and tests on the children were inconclusive, they responded to oxytetracycline therapy. The Virology Section of the OVI cultured *Chlamydia* organisms from the canary samples.

Two outbreaks of psittacosis were also reported in the Pretoria district.

Psittacosis remains a serious zoonosis, and probably occurs more widely spread than reported.

**Non-controlled poultry diseases**

**Viral diseases**

Infectious bursal disease (Gumboro) occurred throughout the country, although most cases involved a subclinical infection with bursal damage, but no clinical signs or increases in mortality. Poor immunity after immunisation and secondary bacterial infections are experienced. Marek’s disease, fowl pox and sporadic cases of avian leucosis also occurred. One unusual outbreak of infectious laryngotracheitis occurred in KwaZulu-Natal in commercial layers with increased mortality and decreased egg production.

**Bacterial diseases**

Infectious coryza was once again the most important bacterial disease in layers, especially from early winter through to spring.

Infections with *Escherichia coli* occurred in broilers, secondary to viral infections or management problems, such as inadequate ventilation, inadequate temperature control, etc. Other secondary bacterial infections included *Pseudomonas aeruginosa* as well as *Ornithobacterium rhinotracheale* infections.
Other

A problem with an apparent vitamin E deficiency was experienced in broilers and broiler breeder chicks in KwaZulu-Natal at the beginning of the year. Although the clinical signs as well as the histopathological lesions were indicative of vitamin E deficiency, and the chicks responded to vitamin E supplementation in the drinking water, no obvious feed vitamin deficiencies or antioxidant problems were found.

Another problem with a vitamin E deficiency occurred in broilers in the Mpumulanga Province as well as in broilers in the Northern Province.

Ostrich diseases

Disease problems in ostriches, other than Newcastle disease, were mostly the result of secondary bacterial infections, caused by poor hygiene and sudden changes in temperature. Pneumonia, airsacculitis and yolk-sac infections were found. Moraxella spp. was Campylobacter jejuni was isolated from the intestinal tract of chicks which were dying of enteritis.

Other problems included impaction, with a secondary enteritis present in many cases, as well as a fungal problem caused by excessive treatment with antibiotics.
## Import and export

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### Animal products

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**Administration**

The year under review was characterised by severe budgetary constraints in all Provincial Directorates/Divisions of Veterinary Services. Although the originally approved budgets were in most cases sufficient for the necessary and planned functions, several cost-curtailment measures were implemented by the Provincial Administrations during the year. These actions seriously and adversely affected and compromised Veterinary Services’ operations.

Severe technical staff shortages (state veterinarian, animal health technician, veterinary technologist and meat inspector) and vacancies are experienced because of:

• Moratoriums on the advertising and filling of posts

• The inability to attract qualified veterinarians to apply for state veterinarian posts because of poor remuneration structures

• The loss of highly-qualified and experienced technical staff in the field and laboratories, because of deficient financial recognition for specialist qualification and expertise.

The resultant vacancy rate for laboratory state veterinarian posts at the end of the period under review was in excess of 65% and that for field state veterinarian posts in excess of 50%. This tendency is applicable to all the technical occupational groups mentioned.

Other problems experienced on provincial level were:

• Severe lack of subsidised or Government vehicles for technical staff to enable them to perform their functions outside the office

• Nonpayment of rentals for office space, as well as municipal, telephone and pharmaceutical accounts, which is the responsibility of other Departments

• Lack of maintenance of diptank and handling facilities, as well as water supply to many diptanks in communal and developing areas, by the responsible Department/Division

• Severe lack, and in some instances incompetence, of administrative support structures
Lack of proper communication between National and Provincial Departments, as well as between ports of entry and points of destination for imported animals/animal products

• The Western Cape Province was faced with the proposed formation of a Statutory Board, which created considerable uncertainty as to the ability of such a body to perform the necessary regulatory functions.

In spite of these constraints and through dedicated and loyal staff, working many hours of voluntary, uncompensated overtime, most Directorates/Divisions of Veterinary Services managed to meet the demands of the client and to maintain standards of services rendered. Most of the goals and objectives for the year were reached, while no serious animal disease outbreaks occurred during the year under review.

Training

Ongoing informal and formal technical and managerial training was coordinated in each province and through the National Directorates for officials and officers. Videos, Info Paks, posters and flyers were produced for training and extension purposes to the client. Several addresses, publications and papers by technical staff were delivered and published in the local media and on farmers’ days, as well as at national and international symposia and congresses.

Another progressive development, was the need to train animal health technicians in the basic principles of meat inspection, to le assistance to the everdecreasing contingency of meat inspectors at abattoirs the remote parts of the country.

Several animal health assistants and veterinary laboratory assistants completed their theoretical and experiential training, and acquired the appropriate National Diploma in Animal Health and Veterinary Laboratory Technology

Extension

An average of 110 formal extension sessions, involving in excess of 50 organisations per province was maintained during the year under review. This was achieved through exhibitions, farmers’ days, school visits, meetings with farmers/agricultural unions (including the Women’s Agricultural Union) and one-to-one contacts with farmers during routine visits, by means of the extension materials mentioned earlier, as well as developmental theatre productions. These efforts were particularly focused on the communal and informal settlements.

A highly promising programme of extension, aimed at the informal slaughtering sector, was launched through cooperation with the Red Meat Abattoir Association. This was done, despite a severe workload on account of several factors, including personnel shortages, extra survey programmes which were launched, and the implementation of the new African horsesickness-control measures in provinces (particularly the free zone in the Western Cape Province).

Liaison

Liaison was achieved with national and international Departments and Directorates through active participation in committees, symposia and congresses, by several officials of Veterinary Services, for example:

• The Regional Tsetse and Trypanosome Control programme (RTTCP)

• International Atomic Energy Agency (IAEA)

• Several projects of the Food and Agriculture Organisation (FAO)

• International Scientific Committees
Thirteen officials visited a total of 21 international destinations (apart from frequent visits to our neighbouring countries), during 1997. The purpose of these visits was to establish and strengthen international trade in animals and animal products.

Several international delegations were also received in South Africa concerning trade, and particularly, export promotion, for example from Namibia, Botswana, Zimbabwe, Egypt, the Peoples Republic of China, Germany, Australia, New Zealand, the USA, as well as delegates from the FAO.

**Services rendered**

**In developing areas**

Many of the activities of Veterinary Services had a positive influence in the reconstruction and developing spheres, as Directorates/Divisions targeted communal and informal settlements. Activities included herd surveillance (for diseases and internal parasites) and other surveys (for example poisonous plants), vaccination and dipping campaigns, clinical services, ram testing for breeding soundness, training on stock diseases and parasites, several extension efforts (as discussed), etc. In one of the provinces, a special mobile laboratory performed on-the-spot surveys in remote developing communities, which secured valuable data and led to immediate control and removal of diseased animals.

A limiting factor in the delivery of clinical services was the cost of medicines and reluctance to pay for services rendered to the client. Other limiting factors included lack of infrastructure (including handling facilities), management deficiencies,
manpower and financial shortages and little support from the communities for efforts by the Directorates/Divisions.

**Branding**
Developing farmers were assisted in obtaining their own brands and in the branding process. This was done in cooperation with the stock-theft unit of the SAPS.

**Official cattle dipping**
Dipping in the communal areas is free of charge, as the opportunity is used to do herd inspections for controlled animal diseases. In one province only, more than 22 million head of cattle were dipped, at a cost of R10 million. A decline in the turnout of farmers at the dipping tanks was, however, experienced. Factors contributing to this tendency were the following:

- Dipping is not compulsory
- Intermittent supply of dipping fluids because of budget constraints
- Poor weather
- Poor condition of diptank facilities Water supply to some diptanks is poor during the dry months or totally non-existing in certain cases
- Civil unrest in certain areas, as people avoided public congregations.

**Clinical services**
Mainly done in communities with no private veterinarians servicing the area, but was not done on a large scale. Four mobile clinics were available in one province for this purpose, but could not be utilised satisfactorily, because of the lack of state veterinarians to perform the clinical services and because of us problems concerning infrastructure.

**Auctions**
Hundreds of events were reported and attended.

**Research**
Some laboratories experienced a dramatic increase in workload, while others experienced a decline. Severe financial and staff shortages resulted in compromised rendering of services in some of the laboratories. Most of the laboratories, however, managed to maintain the standard of service through many hours of voluntary, uncompensated overtime by dedicated staff. Many surveys, studies and monitoring programmes were, however, conducted in various provinces, for example:

- Tuberculosis and brucellosis
- Bovine leucosis
- Mastitis
- Johne’s disease in sheep
- Footrot in sheep
- African horsesickness
- African swine fever
- Internal parasites
- Anthelmintic resistance
- Hatchery hygiene
- Aquaculture study in cooperation with international organisations
- Veterinary needs appraisal