The EMPRES Transboundary Animal Disease Bulletin

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India Applies to the OIE for 2 Zones to be Recognised 'Rinderpest Disease Free'

Global Rinderpest Eradication Program (GREP)

In 1995, the Government of India notified the Office International des Epizooties (OIE) of the sub-division of India into 4 zones with respect to rinderpest eradication and, with effect from May, 1994, 3 of these zones, Zones A, B and D were declared 'provisionally free from rinderpest'. The States of Maharashtra and Goa were incorporated into zone B in 1995.

Zones A and D have now remained free of rinderpest and there has been no rinderpest vaccination in these zones for the past 3 years. The Government of India has now submitted to the OIE the surveillance and other evidence for these 2 zones to be considered 'rinderpest disease free'.

Since 1987, there has been only one recorded rinderpest outbreak within zone A– in 1988 in Nagaland– which was attributed to the movement of infected livestock from central India and was contained and eliminated.

There is no evidence to suggest that rinderpest has ever established an endemic presence in any Zone D territory–no outbreak has been recorded in the last decade.

Rinderpest Eradication in Kenya and Tanzania Harmonised

For the purposes of effective eradication of rinderpest as part of the Pan African Rinderpest Campaign (PARC), the veterinary services of Kenya and Tanzania, together with PARC and FAO advisers, jointly reviewed their strategies at a meeting held in Arusha in September and recommended the following;

- Zonation;

⇒ Zone A–Tanzania south of the Dar-Tabora-Mwanza railway–Considered free of rinderpest–Carry out sero-surveillance to verify and declare provisionally free of rinderpest disease as soon as possible.

⇒ Zone B–Area south of Mombasa-Nairobi-Kisumu railway line in Kenya and north of railway line in Tanzania–Vaccinate to achieve >85% herd immunity–Declare provisionally free of rinderpest disease as soon as 2 years have elapsed since last outbreak.

⇒ Zone C–Area north of Mombasa-Nairobi-Kisumu railway line–Vaccinate to achieve >85% herd immunity followed by intensive active disease surveillance and implement quarantine measures–Declare provisionally free of rinderpest disease as soon as 2 years have elapsed since last outbreak.

- Improved lines of communication,
- Implementation of uniform communication support strategies,
- Ensure continuation of funding of campaigns,
- Strengthen co-operation with wildlife authorities to confirm absence of disease, and
- Ensure collaboration between national laboratories for

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improved testing.

Niger and Mali Declare Country 'Provisionally Free' from Rinderpest

Niger has declared to the OIE that it is 'provisionally free from rinderpest' with effect from 1 November 1997. The last outbreak of rinderpest occurred in 1985. In order to demonstrate freedom from the disease and guard against its possible reintroduction, the following measures have been taken:

- Cessation of vaccination against rinderpest throughout the national territory, except in the department of Diffa, bordering Chad, where the sanitary cordon is being assessed,
- Vaccination of sheep and goats against PPR with a vaccine prepared from a homologous strain, and

Setting up of an epidemiological surveillance network for rinderpest and other major epizootic diseases.

Other African Countries in the PARC to have declared 'provisional freedom from rinderpest' are:
•Côte d'Ivoire: 10 January 1997 •Egypt: 26 July 1996
•Ghana: 28 February 1997 •Guinea: 19 July 1996
•Mali: 19 December 1997 •Niger: 7 November 1997
•Senegal: 10 January 1997 •Togo: 19 July 1996

A History Of The Eradication Of Rinderpest In China

Immediately after establishment of the People's Republic of China in 1948 the new government established a campaign to eradicate rinderpest.

Areas affected

The most seriously affected areas were in the Northeast (adjacent to Korea), Inner Mongolia, Quing Hai, Xinjiang, west Sichuan and north Tibet. At this time, losses of cattle, buffaloes and yak exceeded one million head per year. The losses were most serious because of the dramatic loss of draught power on which virtually all people depended for crop production. In Tibet, near Nepal, the impact was especially devastating as the people were almost totally dependent on livestock (especially yaks) for food (meat and milk) as well as clothing, housing and transport.

Susceptible species

The many different breeds of cattle, buffaloes and yaks in China differed in their susceptibility to the effects of rinderpest. Mongolian cattle were most resistant with 50% to 70% mortality, Yellow cattle and buffaloes (swamp) experienced 80% or more while Korean cattle and yaks suffered virtually 100 % mortality. Rinderpest was not seen in sheep and goats and no 'mild' strains were encountered.

Vaccine production

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A priority of the eradication campaign was to develop a live attenuated vaccine at the Harbin Veterinary Institute. At first an Indian goat attenuated vaccine was used but this produced excessive reactions. An embryonated egg vaccine was imported from USA; this gave only weak adverse reactions but produced poor protection and was difficult to store.

Nakamura's rabbit attenuated vaccine, adapted to goats, was a safe, effective vaccine. However, it gave very severe reactions with nervous signs in yaks, on which about 20 per cent of the country are dependent.

By passage in goats up to 200 times, the vaccine could be used in most cattle except for the Korean cattle and yaks. Further passage in sheep produced an effective vaccine, safe to use in all species and breeds, even yaks and Korean cattle. Lymph nodes and spleen are used in its preparation. In yaks the duration of vaccine immunity was tested to exceed 5 years. This vaccine was used for the final eradication thrust.

As there were no freeze-drying facilities, nor any cold chain, the vaccine was made in the field and used immediately. Transportation relied on horses, camels and yaks. In the remote areas of Tibet, sheep were inoculated with the vaccine strain and transported alive on yaks to the vaccination sites where they were killed and, working in tents, the vaccine was prepared for use.

These rabbit/goat and rabbit/goat/sheep vaccines are still prepared for emergency use at Harbin but they are now lyophilised. The rabbit/goat/sheep vaccine was used prophylactically for the last time in Xinjiang Province in 1994/95.

Vaccination activity

In 1952/53 more than 30,000 cattle died in Qing Hai Province–in Yushu county in the south close to Tibet. In 1953/54, 170,000 doses of the goat vaccine were used there in cattle and then the sheep vaccine was used in yaks. In 1954 to 1956, 1 million doses were given per year. At the same time the north-east of the country was being vaccinated to eradicate the disease there. Xinjiang was cleared in 1951 and the last 2 foci to yield to the eradication project were in north Tibet/south Qing Hai and the north-east of China on the Korean border. The last outbreak of rinderpest occurred in 1955 in north Tibet.

Initially the livestock owners in Tibet were resistant to accepting vaccination preferring a traditional process in which spleen from affected animals was smeared on goat skins and the dried tissue scraped off and given orally to livestock. Its use resulted in many cases of rinderpest. After 2 years of using the sheep attenuated

vaccine, and observing its protective effect, the farmers readily appreciated its use.

Since 1956 there has been no research program for rinderpest although the vaccine production capability has been, and will be, sustained. The knowledge that rinderpest was present in northern Pakistan in 1994 caused concern in China and prophylactic vaccination was carried out in the border area of Xinjiang in 1994 and 1995. The warning of rinderpest in northern Pakistan was given by the farmers in the contiguous area of Tibet who retreated away from the border fleeing from the risk of the disease. Since 1996 there has been no vaccination in China.

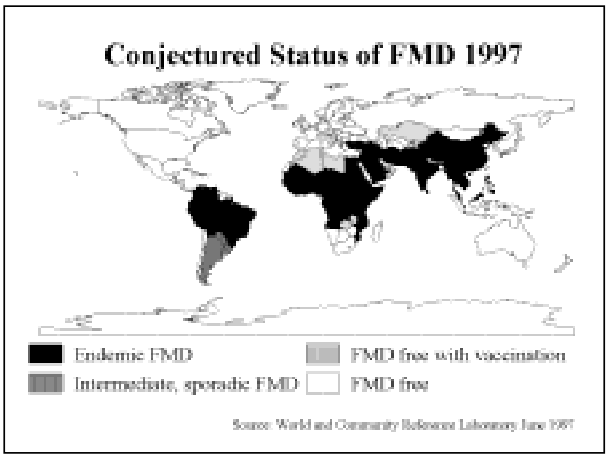
China attributes its freedom from rinderpest since 1955 to having a very effective Veterinary Prevention Service and to the geographical protection afforded by the high mountains of the Himalayas. Education of farmers was also considered essential.

(Article prepared by Dr. Peter Roeder following discussions with Prof. Shen Rong Xie, a member of China's Engineering Academy and former Director, Harbin Veterinary Institute).

FMD–Global situation in 1997

Europe

The European Union (EU) has been free of FMD during 1997. However, regular vaccination has been reintroduced into Turkish Thrace, on the border of Greece and Bulgaria. Both Greece and Bulgaria have been declared free of FMD following the outbreaks of FMD serotype O in 1996. There have been no further outbreaks in 1997 of serotype A reported from the Former Yugoslav Republic of Macedonia (FYROM), Former Republic of Yugoslavia (FYR) and Albania. An extensive serological survey in FYR showed no evidence of persistence of FMD virus, and results are awaited of a similar survey in FYROM. The collection of serum samples from Albania was prevented by the unstable political situation. There have been extensive outbreaks of FMD serotype O in Georgia during 1997, and effective control has been difficult to implement. The virus was genetically very similar to the strain that caused outbreaks in Armenia in 1996.



Middle East

Samples were received by the World Reference Laboratory (WRL) from Turkey, Iran, Israel, Jordan, United Arab Emirates, Kuwait, Bahrain and Saudi Arabia. Only serotypes A and O were recovered, although it is assumed that serotype Asia 1 is still present in the region. Antigenically the serotype O isolates were similar to those recovered in previous years. However, the serotype A isolates from Iran were genetically and antigenically distinct from any other isolates in the WRL database.

Far East

FMD, predominantly due to serotypes O, A and Asia 1, remains endemic in India, Bangladesh, Myanmar, Thailand, Laos and Cambodia and possibly in parts of China. Serotype O was isolated from samples sent from Pakistan, Afghanistan, Sri Lanka and Vietnam, and both serotype O and Asia 1 from samples from Nepal. Serotype O was also reported in Kyrgyzstan and Turkmenistan. Serotypes O, A and Asia 1 were isolated from Peninsular Malaysia where efforts continue to eradicate disease and re-establish freedom from FMD. Outbreaks in pigs in the Philippines were due to serotype O. In March 1997, FMD was diagnosed in Taiwan Province of China for the first time since 1929. The disease was due to serotype O, genetically very similar to that seen previously in Hong Kong and the Philippines. It was speculated that the virus had been imported from the Peoples Republic of China, probably in illegally imported meat products. The virus quickly spread across the island, and over 4 million pigs were slaughtered during the subsequent control programme. All susceptible livestock were vaccinated, although both in Taiwan Province of China and under experimental conditions, the strain of virus causing the outbreak did not cause clinical disease in cattle. Over 6000 farms were affected. No further outbreaks have been reported since June.

South America

In the last 8 years there has been a significant improvement in the effectiveness of the FMD control programmes in Argentina, Paraguay, Uruguay and the southern states of Brazil. The last outbreak of FMD in

Uruguay was in 1990, and the country was given the then unique status of "free from disease with vaccination" (OIE, 1992). Uruguay stopped prophylactic vaccination in 1994, and declared itself FMD free in June 1995. There have also been no reported outbreaks of FMD in Paraguay since October 1994, and the two southern states of Brazil, Rio Grande Do Sul, bordering Uruguay, and Santa Catarina have been reported free since January 1994 and December 1993 respectively. Two further states in Brazil, Mato Grosso do Sul and Parana have been FMD free since January 1995 and June 1995 respectively. The support of the farming communities, driven by the prospects of improved markets for their products has been a major factor in this success. In 1997 outbreaks of virus of type O and A were reported in Bolivia, Colombia, Ecuador and Brazil but the number of outbreaks is decreasing by comparison with previous years and the situation of FMD in South America continues to improve.

Africa

Serological surveillance in Morocco indicates that the country is now free of FMD. The situation in Algeria, Tunisia and Libya is less clear, and serotype O outbreaks continue to occur in Egypt. FMD must be considered endemic in most of the remaining countries of Africa, except in Zimbabwe, Namibia, Botswana and Republic of South Africa. Samples have been submitted to the WRL from Côte d'Ivoire, Mali, Mauritania, Rwanda, Senegal and Libya, but this does not reflect the true distribution of FMD in Africa. Serotype A was isolated from samples from Mali, Mauritania and Senegal, suggesting an extensive outbreak in that region, and serotype SAT2 was isolated from the samples from Rwanda. An outbreak of serotype SAT2 occurred in unvaccinated cattle in Zimbabwe in a communal area adjacent to a ranch on which there were buffalo. A double fence separated the ranch from the cattle. Nucleotide sequencing of the outbreak strain, and isolates recovered by probang from the buffalo, showed them to be very closely related. It has been proposed that impala may have carried infection between the buffalo and cattle.

(Article contributed by Dr R P Kitching,, FAO/OIE WRL for FMD, Institute for Animal Health, Pirbright)

FMD Not in Swazi Cattle

Two buffaloes, which recently showed serological evidence of infection with SAT 1 were not newly-introduced to the Mkhaya Game Reserve. One was introduced in 1977/78, the other in 1992. They had been running in a herd with 31 other buffalo, all of which were sero-negative, originating in 1976 from the FMD-free herd in Addo National Park. They were segregated from unvaccinated, local cattle by electrified camps, which now, will be up-graded to a permanent, double fenced cordon.

The Mkhaya Game Reserve, together with a 10 km wide area around it was placed in quarantine and the 2 positive reactor buffaloes destroyed. All cattle in the quarantine area have been examined physically with no evidence of FMD. Sera were collected from 454 cattle in susceptible herds at the reserve.

One animal reacted positively to FMD SAT 1, 2 and 3. However, it was a vaccinate introduced from the Lebombo plateau, and therefore not a reaction to infection. The animal was destroyed. The results show no evidence of FMD virus transmission to the cattle population.

Clinical and serological surveillance will continue to ensure that there is no infection in cattle or wildlife in Swaziland.

(*Information from Dr R. S. Thwala, Director, Veterinary Services, Swaziland*)

FMD and Buffalo

It is quite possible for discrete populations of wild Cape buffalo to be free from FMD; not all are endemically infected. For example the buffalo herds of the Addo National Park in the Eastern Cape (South Africa) have been shown repeatedly to be free from FMD (and, incidentally, corridor disease).

Where buffaloes are infected it is not invariable that all three serotypes of SAT are present simultaneously in the population. Swaziland has been free from FMD for many years–the last outbreak (SAT2) was in the 1960's–perhaps, related to the virtual absence of buffaloes. There are probably no, or very few, buffaloes in Mozambique adjacent to Swaziland.

In the Hluhlwe/Umfolozi complex and eastern shores of St. Lucia in KwaZulu/Natal (South Africa) the buffalo herds are free from FMD. In the Kruger National Park, of course, all three SAT types are prevalent in buffalo–but these days it would not be easy for a buffalo to get from the Kruger to Swaziland.

Having carrier buffaloes on a property is obviously a potentially dangerous situation. However, all the evidence available suggests that these seropositive, and presumably carrier, buffaloes did not transmit the FMD infection to their cohorts or other species. This is not unusual as transmission from carrier buffaloes to other buffaloes or cattle occurs rarely and unpredictably.

(*Article contributed by Dr G Thomson, Director, Onderstepoort Institute for Exotic Diseases, and FAO Co-operating Centre*)

FMD in Yunnan Province of China

In the last 40 years there have been approximately 240 outbreaks of FMD in Yunnan Province, of which some 220 were traced to introduction from bordering countries. In 1996 two counties (Menlian and Lancha) suffered outbreaks and, in 1997, three counties (Lingian, Luxi and Longchun). All of these outbreaks were traced

to the movement of cattle from Myanmar.

In recent years outbreaks have been caused by types O and Asia 1; the 1997 outbreaks were caused by types A and Asia 1. None of the viruses have been characterised further. At least for many years, FMD has not been detected in pigs in Yunnan Province. Outbreaks have been eliminated by slaughter (with full compensation), movement controls and aerosol vaccination in surrounding populations. By this means, the disease has been contained west of the Lancha River and FMD has not been detected in the rest of the province. There have been no outbreaks caused by movement from Vietnam or Laos for many years.

Cattle and buffaloes in a 20 km strip along the border with Myanmar, Laos and Vietnam are vaccinated twice per year with O and Asia 1 aerosol vaccines. These are given with an interval of at least 1 week and often up to 1 month or more, depending on logistical constraints.

(Article prepared by Dr. Peter Roeder following discussions with the Chinese authorities)

FMD Control in the Philippines

The first report of FMD in the Philippines was in 1902; the first epidemic in 1908. Since that time, there have been regular, cyclic epidemics every 8 to 10 years with periods of apparent disease absence during the intervening periods.

The current epidemic started in September 1994 in pigs to the East of Manila. During the following 4 months it spread rapidly throughout the main island of Luzon with confirmed cases seen in 22 of the 29 provinces. During 1995, there were 1,553 reported outbreaks with 98,604 individual cases. A state of calamity was declared and the government committed emergency funding to purchase vaccines. Immediate action was taken by EMPRES and a short-term TCP was provided. During 1996, the situation stabilised. A National Plan for the Control and Eradication of FMD was approved and a National FMD Task Force created to facilitate uniform application in the 78 provinces of the country. With the recent devolution of responsibility to Local Government Units, the latter have the front-line responsibility for implementing all disease control activities. The current FAO managed project commenced in December, with financial support from AusAID.

Endemic FMD is now confined to the main island of Luzon. Throughout the outbreak, all 23 provinces in Mindanao have remained FMD-free as have 15 of the 16 provinces in the Visayas. The exception was Leyte, which experienced a single incursion in August, 1996 that was rapidly stamped out with no evidence of subsequent cases. Five of the island provinces off Luzon and 5 mainland provinces have also remained FMD-free. Five further provinces have been disease free for all of 1997 with limited strategic vaccination, while 14 provinces have experienced isolated, sporadic cases of FMD. Ten provinces still have endemic infection.

This FAO project is assisting the Philippines National Plan by concentrating its efforts on the 6 provinces of Southern Luzon, known as the Bicol peninsula. This area is being established as a disease-free buffer zone between the endemically infected Central Luzon and the southern disease-free provinces. It is a unique microcosm of the country consisting of a disease-free island, a disease-free mainland province, 2 provinces which have experienced isolated, sporadic incursions and 2 with endemic infection.

The project applies the EMPRES principles and evaluates their impact for application to the rest of the country. Staff training courses have been run for field staff including field veterinarians, livestock technicians, and port and border crossing guards. Active check-points have been established to prevent spread via regular traffic between Bicol and Masbate and Catanduanes.

Contingency plans are being developed to prepare for possible future incursions. Slaughter and disposal has been applied to the isolated occurrences in Camarines Norte and Catanduanes. Strategic targeted vaccination has been applied around high risk enterprises (abattoirs, sale-yards, the main road) in Sorsogon. Intensive vaccination activity has been directed within and around known infected areas of Albay and Camarines Sur.

An extensive community awareness program has been implemented to inform all sections of the community about the aims, plans and significance of the program.

(Article contributed by Dr. Ray Webb, Project CTA and Dr. Carolyn Benigno, National Project Co-ordinator)

PANAFTOSA Takes on Wider Role

The Pan-American Foot and Mouth Disease Centre (PANAFTOSA) - part of the Pan-American Health Organisation (PAHO) - opened new premises in Rio de Janeiro, Brazil, in November.

Following its successes in the fight against FMD and other vesicular diseases, PANAFTOSA will extend its responsibilities to included other animal diseases present in the Americas such as classical swine fever, brucellosis, Newcastle disease, rabies and tuberculosis. It will assist development of technical co-operation for regional programmes and the training of technical staff.

Surveillance for FMD in Argentina

FMD is the most important animal disease in South America causing severe production losses and trade restrictions. In July, 1997, the Government of Argentina and FAO commenced the project '*Development of an FMD virus molecular epidemiological surveillance system'*.

Argentina has an effective National FMD Eradication Program and in May, 1997, the OIE recognised Argentina as 'FMD free with vaccination'. It should be noted

that both Chile and Uruguay are recognised as 'FMD free without vaccination'. However, when vaccination is stopped there will be a risk of introduction of the disease. If this occurs, the surveillance system will provide early warning allowing a rapid response. The project will also support regional training in molecular biotechnology together with the National Institute of Animal and Plant Technology and the National Animal Health Service.

The project aims at strengthening the capacity for FMD early warning as part of national emergency preparedness (i.e. National EMPRES). The expected results from the joint effort are:

- FMD situation defined and effective surveillance and monitoring procedures established and maintained,
- Establishment of a computerised disease information system for risk assessment and early reaction,
- Comparison of PCR analysis results with those obtained in other regions,
- Continuing collaboration of veterinary professionals and the rural population in reporting suspected FMD,
- Increased international co-operation of FMD surveillance/control with the rest of the continent, and
- Increased contribution of livestock to food security, cash income, and investment and savings.

(Contributed by Dr Moises Vargas-Terán, AHO, FAO-RLC)

SADC Declares War on CBPP

At a recent SADC workshop held in Gaborone, Botswana, to discuss a strategy for combating CBPP in southern Africa, SADC Executive Secretary, Kaire Mbuende, announced that SADC had 'declared war on contagious bovine pleuropneumonia'.

Participants were made aware of the following points concerning Contagious Bovine Pleuropneumonia (CBPP);

- Serological methods for detection are unreliable, and cannot be used for detecting individual infected animals. Animals in the incubation phase and chronic carriers (both of which may excrete the causative organism) are often missed by the CFT, and the c-ELISA (still being validated) appears to miss a proportion of incubating animals.
- Abattoir surveillance is the only reliable means of determining the prevalence of CBPP in an infected population.
- Provided that the entire infected population can be reached (and this may include reaching across international borders), regular mass vaccination of the population with T1-44 vaccine will eradicate the disease, usually within 3-5 years. The only other reliable option for eradication is mass slaughter. So-called "test-and-slaughter" strategies are disastrous and invariably lead to spread of the infection. There was a strong conviction among the assembled experts that CBPP in Africa can be eradicated by means of vaccination alone - provided that there is blanket cover for a number of years.
- Although there is no direct correlation between serum antibody levels and actual immunity induced in the animal, antibody response can be taken as an indicator of vaccine efficacy. It was noted that the standard dose of 10^7 organisms/dose induced a poor immune response, but that maximum antibody levels reached were higher with a dose of 10^8. A project to evaluate the performance of CBPP vaccines may thus need modification to incorporate a dose-response component; it may well lead to the minimum standard dose being revised by the OIE to a level of 10^8.

It was decided to create a *'cordon sanitaire'* in SADC, north of which the main activities would be intensive surveillance and vaccination, and south of which intensive surveillance only would be carried out. Surveillance would be visual (observance of clinical symptoms) and at abattoirs (including informal slaughtering). Laboratory confirmation would be used where possible. Every possible effort will be made to ensure that no cattle move across the cordon.

Vaccination will be only with a PANVAC-approved T1-44 vaccine, and in the first year, two vaccinations will be carried out, followed by single annual vaccinations.

(This article is a follow-up to 'The SADC regional strategy for CBPP control and eradication' presented in Bulletin #3)

The current status of CBPP within the SADC Countries

Angola: endemic south of 14th parallel.

Tanzania: northern and central regions of the country were infected in the mid-90's, and the disease is now endemic in these areas and still spreading**.**

Zambia: new infection in the south-west, northern parts under threat from Tanzania.

Namibia: endemic north of the Veterinary Cordon Fence, except for the Caprivi, which is under threat from Zambia.

Malawi: under threat from Tanzania.

Mozambique: under threat from Tanzania.

Namibia's cordon fence a SADC safety mechanism

The SADC '*cordon sanitaire'* will run along the Namibian Veterinary Cordon Fence, northward along the Namibia-Botswana border, the Kwando River, and then east along the Namibia-Zambia border. It will go around the infected focus in Zambia, and then north again along the Zambia-Angola border. A similar cordon will come into effect along the southern border of Tanzania.

Angola has a key role in CBPP control

The pool of infection in northern Namibia and southern Angola will be handled as a unit, with close co-operation between Namibia and Angola in combating CBPP. The Angolan authorities still have to do much to get their plans in motion, but there has already been a vaccination campaign this year, and two more are scheduled for next year. The success of all efforts will depend on the extent to which the infected population in Angola can be vaccinated. Animals entering Namibia from Angola will, as far as possible, be vaccinated, and the same will apply for movements in the reverse direction.

(This information was provided by Dr Roger Paskin, Namibian National Veterinary Service)

Lumpy Skin Disease Epidemic Threatening SADC Countries

Following the epidemic in the early nineties, Lumpy Skin Disease (LSD) put itself on the back burner, but it kept on simmering. Many livestock owners–often supported by governments–vaccinated during the epidemic.

Reports of the disease so far in 1997 can be summarised as follows:

Country	# foci	Country	# foci
Angola	2	South Africa	112
Malawi	1	Swaziland	1
Namibia	14	Zimbabwe	50

The percentage of susceptible livestock in all national herds is increasing and, at the same time, a large reservoir of virus is developing. Once this reaches a critical mass, a major recrudescence of lumpy skin disease in the SADC region can be expected.

The widely predicted 1998 drought may also lead to widespread livestock movements and thus further facilitate disease spread.

SADC veterinary authorities are advised to take steps to prevent a possible resurgence of LSD in the next two years. Contrary to popular belief, immunity derived from this vaccine is not life-long, and annual re-vaccination is advised.

Extracted from SADC Animal Diseases Bulletin-Nov. 97

Classical Swine Fever in Caribbean

Classical Swine Fever (CSF) has been present in Cuba since 1986 and in Haiti since August, 1996. It is now present throughout the whole of Haiti and between March and June, 1997, it crossed the border into Dominican Republic causing high mortality of pigs throughout the country.

Both Haiti and Dominican Republic have established National Task Forces to control the disease. Since early 1997, an EMPRES project has assisted Haiti to control CSF through provision of vaccine, diagnostic equipment and expertise. Financial and/or technical assistance has been provided by France, the EU, USDA-APHIS, IDB, WHO and FAO. The vaccination campaign in Haiti has reduced the number of acute outbreaks, but mild and chronic forms persist. Intensive surveillance and diagnosis by a strengthened veterinary field and laboratory service is now needed.

In the Dominican Republic the strategy for CSF control has included reducing the risk of CSF introduction from Haiti, strengthening surveillance and reducing the risk of disease spread through slaughtering of pigs in outbreaks and restricting the movement of pigs and pig meat through well-controlled road blocks. Future strategies may include ring vaccination around the outbreaks or a mass vaccination of the entire pig population. The assisting agencies are IICA, USDA-APHIS and the EU.

African Swine Fever in West Africa

African Swine Fever (ASF) was successfully eradicated, with FAO-EMPRES support, from Côte d'Ivoire between July and October, 1996. However, it has recently been reported in Benin (August, 1997)–resulting in the death or slaughter of 65,000 pigs–in Nigeria (November, 1997)–which with 7 million pigs has the largest pig population in the sub-Region–and in Togo (November, 1997).

A new FAO-EMPRES project for Benin will assist in the control of the epidemic while the situation in Nigeria, Togo and Ghana has been assessed by OIE/FAO consultants. A regional project has the dual objectives of preventing the spread of ASF in the Sub-region by establishing an early warning and rapid reaction capability and of sensitising the other countries in the sub-Region to the ASF problem.

FAO/IAEA Joint Division Support for EMPRES

Projects

- Surveillance of rinderpest in Africa

Activities in West African countries which have stopped vaccination against rinderpest will now focus on clinical and serological surveillance to ensure that rinderpest, if present, is detected and eradicated.

This Co-ordinated Research Program will be operated in conjunction with the EC-funded FAO/OAU/IBAR PARC Epidemiology Project which assists PARC countries with surveillance and diagnosis of rinderpest and advises the PARC Co-ordination Unit. The first Research Co-ordination Meeting (RCM) will be in Bamako, Mali from 23 to 28 February, 1998.

- Improved diagnosis of FMD in S-E Asia

This program has 10 Research Contracts and 3 Research Agreements and no further awards can be considered. The final RCM will take place in Malaysia in late 1998 or early 1999.

- Application of molecular techniques to animal disease diagnosis in developing countries

A further Research Contract from Cameroon has been added to the pre-existing 6. Following the first RCM in April 1997, Vienna, equipment and reagents have been procured. The next RCM will take place in early 1999 at a venue yet to be decided.

- Monitoring CBPP control programs in Africa

Funding for the CRP 'Monitoring of CBPP Control Programs in Africa using ELISA' has been approved and the first RCM is planned for Bingerville, Abidjan, in Côte d'Ivoire, from 2 to 6 February, 1998.

- Effectiveness of vaccination strategies against Newcastle disease and gumboro disease for small-scale poultry production in Africa

12 Research Contracts have been awarded. Regular budget funds for this new CRP may be available in 1998 but are assured in 1999. Additional support is being sought to extend the project beyond Africa.

Computer programs

- **Serum Information Data (SID)-version 3**

The main function of SID is to evaluate the results of sero-monitoring and surveillance of rinderpest. There is also a module in SID for the management and cataloguing of the serum bank.

- **ELISA Data Interchange (EDI)**

The most recent revision of EDI (ver. 2.2) is now available. The additions and changes incorporated into EDI 2.2 include:

1. 2 options for the type of plate reader used
2. Assay modules for the competitive brucellosis ELISA and the rinderpest immuno-capture ELISA
3. Recompilation of the code to enable satisfactory use of EDI 2.2 with MS-DOS 6.22
4. Changes to the plate 'RECALCULATION' function and storage of more complete internal quality control data from each assay plate run.

Geographical information systems

A GIS training module, developed for ArcView ver 3.0, demonstrates applications of GIS mapping which allows easy access and analysis of map referenced animal disease data.

Disease data mapping was demonstrated at the workshop 'Application of ELISA in South Africa' held 9 October, 1997. Participants practised data entry, analysis, integrating and presenting results of analysis of serological and haematological data. During the next 6 months, the GIS Unit will be conducting training and developing applications for Joint FAO/IAEA Division programs. During 1998 it is hoped to link this GIS activity to the main database of the EMPRES Global Early Warning System at FAO HQ Rome.

Managing Disease Investigations with 'DI-Tracker'

The Livestock Disease Investigation Tracker (DI-Tracker), a computerised record-keeping system developed by Mark Schoenbaum, Visiting Scientist with EMPRES, is available from FAO to trial. It can be used to record passive and active surveillance activities and track investigations of disease outbreaks.

DI-Tracker is not intended to replace existing record-keeping systems, but to demonstrate an accounting of investigations. Countries could consider and compare the components of DI-Tracker with current systems. It identifies some of the essential data for demonstrating progress in control of a disease to other countries, co-ordinating regional organisations or the OIE.

DI-Tracker is menu-driven, flexible and runs on DOS or Windows. Data codes can be modified for different countries and diseases and pop-up calendars and menus facilitate data entry. Further development may include an Access version.

Training courses & Workshops

1. Epidemiology, diagnosis and control of potentially epizootic diseases in sub-Saharan Africa

Onderstepoort Institute for Exotic Diseases and the Department of Veterinary Tropical Diseases of the Faculty of Veterinary Science of the University of Pretoria conducted this course from 29 September to 3 October, 1997.

Epidemic diseases such as FMD, African horse sickness, CBPP, Rift Valley fever, lumpy skin disease, African swine fever, anthrax, theilerioses and Newcastle disease–just to mention a few–are widely prevalent in sub-Saharan Africa, although they only periodically cause widespread epizootics and have severe socio-economic effects on communities. Others, such as rabies pose a direct threat to human health.

Because of their irregular occurrence and a lack of biologically secure facilities in most countries in Africa in which the diseases and causal agents can be safely studied, few veterinarians are sufficiently knowledgeable about the diagnosis and control of these diseases to avert disasters early in the course of an epizootic. An example of this situation was the loss to Zimbabwe in 1989-91 of over $Z 200 million following an outbreak of FMD because diseased cattle were allowed to be dispersed from a cattle sale.

This biannual course is conducted in English. Some of the above mentioned diseases are produced in high security facilities. However, the use of animals for teaching will largely be replaced as soon as practically possible by good audio-visual teaching material.

(Enquires to Dept. of Veterinary Tropical Diseases, University of Pretoria, Private Bag X04, Onderstepoort 0110, Tel: +27-(012)-529-8185 Fax: +27-(012)-529-8312 e-mail: shirley@op1.up.ac.za)

2. National animal disease surveillance

Two workshops were conducted by EMPRES for the Tanzanian & Kenyan Veterinary Services in Nov. 1997.

The objective of the workshops was for veterinarians from the Veterinary Inspection Centres/ Laboratories to understand animal disease surveillance systems and the key role they have in developing an effective national surveillance system. This key role involves training and encouraging field officers in the reporting of 'suspect' cases of priority diseases for follow-up investigation and in the management and improvement in effectiveness of the system in the districts for which they have responsibility.

Day 1–addressed the purposes and types of surveillance and sources of disease information through VIC/VIL-based discussion groups. Summaries of the discussions were presented by spokespersons from each group providing working examples using rinderpest and CBPP surveillance and addressing how future activity might be conducted more effectively. Theory of disease parameters and survey and sampling design were covered and videos of rinderpest diagnosis and the EMPRES program were shown.

Day 2–participants discussed priority diseases, suspect cases, design and use of input forms for data recording, effective communications and the reporting and follow-up investigation of suspect cases. The workshop then considered ways of managing disease investigations with emphasis on how to assess and improve the performance of the surveillance system. Videos of CBPP and FMD diagnosis and control were shown.

3. CSF control and strategies for emergency preparedness

A regional workshop held in Port-au-Prince from 2 to 4 December, 1997 was organised by the Ministry of Agriculture, Natural Resources and Rural Development of the Republic of Haiti and the FAO. It was attended by representatives of veterinary services of Bahamas, Barbados, Cuba, Haiti, Jamaica, Dominican Republic, Santa Lucia, Saint Kitts et Nevis, Saint Vincent et Grenadines and Trinidad & Tobago, Guadeloupe, Martinique, Germany, Canada, USA, France and Mexico.

Six international organisations; Interamerican Development Bank (IDB), Interamerican Institute of Agricultural Co-operation (IICA), Office International des Epizooties (OIE), World Health Organisation (WHO) and FAO-EMPRES were represented along with The French Co-operating Mission, CIRAD-EMVT,CNEVA,ENSV and Caisse Française de Development (France), the EU Delegation to Haiti and the Reference Laboratory on CSF in the EU–the Virology Institute, Hannover, Germany- and in the Americas–USDA-APHIS.

The Workshop facilitated discussion on CSF control strategies to be applied by Haiti and Dominican Republic, and initiated working contacts with Cuba. The recommendations included;

- harmonisation of strategies on CSF control in Haiti and Dominican Republic,
- establishing regional co-operation,
- developing projects for the 3 affected countries, and

emergency preparedness for the remaining countries of the Region.

4. Surveillance of rinderpest and the OIE Pathway

A sub-Regional workshop held at the Institute Senegalais de Recherches Agricoles in Dakar on 1-5 December, 1997 was attended by 28 participants from 13 countries in West and Central Africa. The workshop was conducted by FAO-EMPRES, IAEA, and OAU-IBAR/PARC. Recommendations from the workshop were;

- Adhere to the OIE Pathway and cease vaccination against rinderpest,
- Strengthen preparedness for rinderpest outbreaks.
- Hold country workshops in the recognition, diagnosis and surveillance of rinderpest,
- Strengthen capability for diagnostic differentiation of rinderpest,
- Strengthen the Central African Sanitary Cordon,
- Increase the effort to eradicate rinderpest from eastern Africa,
- Establish communication networks between countries of the Region,
- Identify and implement disease surveillance as part of national PARC projects,
- PARC to provide member countries with guidelines for accessing contingency funds and vaccine banks in emergencies, and
- FAO to promote the need for structural adjustment programmes to sustain the Veterinary Services for emergency preparedness for animal diseases.

Coming Events

- CBPP control strategy for West Africa. Workshop in Nouakchott, Mauritania, Feb. 1998.
- RADISCON local workshops to develop national animal disease surveillance systems. Feb. 1998–Mauritania, Saudi Arabia, Jordan, Palestine, Lebanon, Iraq.
- Impact of infectious diseases on trade in the Middle East. Workshop, Cairo, Feb. 1998.
- Emergency preparedness and surveillance of rinderpest for East Africa. FAO/IAEA/PARC Workshop in Entebbe, Uganda, 23-25 March 1988.
- Emergency preparedness and establishment of disease surveillance systems for exotic diseases (rinderpest, PPR, CBPP). FAO/IAEA/PARC subregional workshop for Southern Africa, Harare, Zimbabwe, 20-23 April 1998.

Analysis Of Reports To The OIE

Avian Influenza

Avian influenza outbreaks were reported in November from both Italy and Australia. Typing of the virus in Australia has shown it to be a virus of H7N4 while the Italian virus was a highly pathogenic H5N2 serotype. In both cases it is thought that wild birds were the source of the infection.

The contrasts in the nature of these outbreaks and the challenges to the veterinary services in the respective countries is illustrated by the number of cases and susceptible birds in each outbreak.

In the Italian outbreaks there were 63 cases with 366 susceptible chickens, turkeys ducks, quail, geese, turtledoves, pigeons, pheasants, and Guinea fowl all on rural farms. Control was by stamping out and application of restriction measures including setting up of protection and surveillance zones.

The initial Australian outbreak was on a farm with 128,000 laying hens producing eggs for a hatchery. This farm is located close to a watercourse frequented by wild water birds, which could be the source of infection. A second infected farm discovered within the surveillance zone had 30,000 hens. The source of infection for this farm has not been confirmed, but is presumed to be mechanical transfer from the first case via a truck used to collect and dispose of dead birds.

The 2 farms were quarantined and the watercourse and adjacent agriculture enterprises within 3 km around the farms declared restricted zones. A surveillance zone was imposed for 10 km around the infected zone. All birds on the infected farms and over a million eggs have been destroyed and the facilities disinfected.

Bird to Man Transmission of Avian Influenza

An outbreak of avian influenza (AI) in chickens in Guangdong Province of China in February and March, 1997, killed approx. 1.7 million birds and in April, 4,500 birds on 3 farms in Lau Fau Shan, Hong Kong Province. An AI virus serotype H5N1 has now killed 4 people in Hong Kong and vaccine production is being speeded up to combat the possibility of a human pandemic. It is speculated that viruses from birds, which would then infect pigs before being transmitted to man, were responsible for pandemics of Spanish flu in 1918 (20 million human deaths), Asian flu in 1958 (1 million deaths) and Hong Kong flu in 1968 (700,000 deaths). It appears that in this current case the virus has transmitted directly from birds to man without the usual intermediate step via the pig.

(Source - ProMED-mail; e-mail: promed@usa.healthnet.org)

Contributions from FAO Reference

Laboratories and Collaborating Centres

Rinderpest and PPR Report

(October 97–November 97)

General comment: Although the number of samples received during the past year was very high, very few positive samples were received. This indicates that countries are both actively looking for disease and using the WRL facility and that less cases are being confirmed each year.

Results of samples sent to FAO WRL-Rinderpest, Pirbright, UK

Country	Date	Species	PCR result
Saudi Arabia	10/97	Cattle/sheep	neg. for RP/PPR
Ethiopia	10/97	Camel	under test

FMD Report

(October 97–November 97)

Results of samples sent to FAO/OIE WRL-FMD Pirbright , UK

Country	FMD virus sero-types						
				SAT	Asia	SVD	NVD
	O	A	C	1,2,3	1	*	**
Malaysia bovine		4					
Saudi Arabia bovine	1						2
Philippines porcine	5						
Philippines buffalo							1

* Swine vesicular disease ** no virus detected

(for a summary of the present world situation of FMD in 1997 see the article on page 3 of this Bulletin).

Communication with EMPRES

Electronic Discussion Group

Among recent topics discussed by the EMPRES-Livestock Discussion Group were;

- Rinderpest thermostable vaccine and its use in the field. The delivery of veterinary services, specifically rinderpest vaccination, through community based workers.
- Rinderpest and PPR epidemiology in small ruminants and its significance in rinderpest eradication programmes.
- Foot and mouth disease in buffalo
- CBPP vaccination

The EMPRES-Livestock discussion group provides interaction and improved communication among subscribers involved in transboundary animal diseases and emergency prevention systems. We invite you to join and contribute to the discussion.

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