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FOOT-AND-MOUTH DISEASE ALERTS IN ASIA, SOUTH AMERICA AND AFRICA

The evolution of a pandemic strain of foot-and-mouth disease (FMD) virus serotype O, which has been named Pan-Asia, has recently been described. It was first identified in northern India in 1990 and spread westwards into Saudi Arabia in 1994 and then throughout the Near East and into Europe (Turkish Thrace, Bulgaria and Greece) in 1996. FMD has also been reported recently from Brazil, Argentina and South Africa (see page 7).



PHOTO: FAO/19651/G BIZZARRI

In many developing countries the impact of FMD extends beyond animal production to crop production and transportation

EMERGENCE OF RIFT VALLEY FEVER IN VIRGIN AREAS - SAUDI ARABIA AND YEMEN HIT BY THE DISEASE

For the first time, Rift Valley fever has been confirmed outside Africa, in Saudi Arabia, where it has already caused 16 human deaths and massive abortion rates in small ruminants. The disease was also reported from Yemen, at the border with Saudi Arabia, where people have died of haemorrhagic syndrome and high abortion rates were observed in the cattle and sheep populations. Investigations are under way to determine the origin of the disease and to establish a control strategy (see page 2).

EMPRES EXPERT CONSULTATION ON GREP

The Expert Consultation set out milestones for the Global Rinderpest Eradication Programme (GREP) in the drive towards a World Without Rinderpest (see page 00).

Editor's note: Please note that the numbering of EMPRES Bulletin has changed. The month of the issue will be replaced by a number from 1 to 4, indicating the quarter of the year.

RINDERPEST

EMPRES expert and technical consultations on GREP, May 2000

Two landmark meetings were held in Rome at the end of May 2000 in the context of the Global Rinderpest Eradication Programme (GREP) coordination. Both addressed the issue of Verification of Rinderpest Freedom. The Technical Consultation brought together specialists from a range of disciplines and senior animal health administrators from the key geographical regions for rinderpest. There were also representatives from major bilateral and multilateral donor groups, relevant international agencies and the International Office of Epizootics (OIE), allowing a holistic approach to be taken. After reviewing the latest information on the global rinderpest status, giving cause for optimism that the affected areas will continue to decrease even within the last remaining reservoirs, the meeting considered the requirements for disease surveillance and reviewed options for demonstrating freedom from rinderpest. The smaller Expert Consultation then proceeded to elaborate further on the process to be adopted. The full proceedings of the meetings will be made available in the near future.

The meetings recognized the need to regionalize GREP verification procedures in order to accelerate progress and provided a basic plan to be elaborated into a GREP Pathway. Validity of the existing OIE Pathway was endorsed and it will continue to be encouraged and supported for national use. The GREP Pathway replicates the overall approach of the OIE Pathway at the global level, with adaptation to the different circumstances.

The most important elements of this new approach are:

- All use of rinderpest for routine immunization programmes should cease by the



end of 2002 in preparation for a declaration of global provisional freedom from the disease by 2003.

- During the critical period from 2003 to 2005 there should be an intensive public information campaign to increase awareness of the Global Rinderpest Eradication Programme.
- In the remaining areas at risk of rinderpest persistence, coordinated, regional surveillance will complement existing national efforts. At the global level, two well-designed "global" surveys are proposed within the critical path to global freedom to verify the declarations of provisional freedom and freedom from disease. These surveys will be restricted to areas known to have had rinderpest after 1980 and will provide serological evidence and community opinion of freedom. The GREP Pathway to freedom from infection will require two rounds of serological surveys: one in 2004-2005 to ensure freedom from disease and another in 2007 to ensure freedom from infection.

The Expert Consultation set out milestones for GREP in the drive towards a World Without Rinderpest

- 2002 Cessation of routine rinderpest vaccination programmes
- 2003 Declaration of global provisional freedom from rinderpest
- 2006 Declaration of global freedom from rinderpest disease
- 2008 Declaration of global freedom from rinderpest infection
- 2010 Declaration of global rinderpest eradication

A global review group composed of two members from OIE, two from FAO, one from the World Health Organization (WHO) and one from the International Atomic Energy Agency (IAEA) will be formed to certify the process of the Global Rinderpest Pathway to freedom from infection. This programme review group should be established by 2003.

The Expert Consultation recommended the establishment of a GREP Technical Steering Group to support the GREP secretariat in providing more immediate scientific advice to target countries and regions on issues such as surveillance and verification. Important matters that will need to be addressed include the withdrawal of stocks of rinderpest viruses from all but a small number of reference centres and the cessation of rinderpest vaccine production while maintaining a vaccine reserve for emergency use.

Workshop on surveillance and epidemiology

Workshop on the Surveillance and Epidemiology of Rinderpest and Improved Control of Other Major Diseases of Livestock, held in Yemen
Yemen is one of the most important countries forming the focus of intensified action for the Global Rinderpest Eradication Programme (GREP) because of the conjectured persistence in that country of one of the last reservoirs of Asian rinderpest. In response to a request from the Government of Yemen, FAO has recently started implementation of a Technical Cooperation Programme project (TCP/YEM/8923) which is of fundamental importance to GREP and Yemen. The project was drawn up in collaboration with the Joint FAO/IAEA Division to ensure complementarity of its activities with an IAEA project which is phased to start early in 2001. The two projects are synergistic, with the IAEA component extending support for strengthening laboratory diagnosis and surveillance



testing for major infectious diseases, especially rinderpest. The project is also coordinated with the FAO/IFAD Regional Animal Disease Surveillance and Control Network (RADISCON) project implemented through EMPRES.

The Workshop on the Surveillance and Epidemiology of Rinderpest and Improved Control of Other Major Diseases of Livestock was held in Sana'a, Yemen from 26 to 29 June 2000. Participants included the Director-General of Animal Resources, Department of Animal Health staff, Governorate Veterinary Services staff and the Chairman of the Yemen Veterinary Association, who was an articulate contributor to discussions.

Workshop participants stressed that livestock production and trade is of major significance to the livelihoods of the Yemeni people, especially the rural poor, and to the national economy. This understanding led to considered statements that:

- infectious diseases cause significant livestock losses and human illness, often devastating to families in rural communities;
- uncontrolled epidemics seriously affect livestock production and trade;
- progressive control of the major infectious diseases of livestock is a core, public good responsibility of the official Yemeni veterinary service that merits a high priority in national planning;
- there exist serious deficits in the structure and functioning of veterinary services to meet their key responsibilities;
- assured eradication of rinderpest is a national and international priority;
- effective early warning and early reaction systems are essential for the effective detection and control of disease epidemics;
- current developments present an opportunity to create a functional structure which involves all stakeholders in disease surveillance and progressive control of the major diseases.

The last element was the focus of a considerable amount of heated discussion because Yemen's agricultural services are currently involved in intensive discussions with the World Bank concerning the nature of a structural adjustment programme. The workshop participants framed several recommendations, among the most important of which were:

- The reorganization and strengthening of the Department of Animal Health should ensure that it can fulfil its required role of leading and coordinating progressive control of the major livestock diseases, which is a central and ongoing function needing continuous and assured funding. The public good functions must include provisions for disease surveillance, emergency preparedness and disease management. It is necessary to ensure a direct line of communication for disease information and direction between the Directorate of the Department of Animal Health, its regional units and other components of veterinary services responsible for service delivery to the livestock owners.
- Legislation needs to be enacted to facilitate the progressive control of major livestock diseases of national economic and/or public health importance. The Minister of Agriculture and Irrigation should issue a ministerial decree to replace Decree 69/89 defining the responsibilities of the Department of Animal Health and other organizations involved in the provision of animal health services.
- The Department of Animal Health should mount a national awareness campaign for livestock owners and animal health workers concerning national issues in the control of the major livestock diseases.
- The Directorate of Animal Resources should initiate contact with neighbouring countries and trading partners to devise measures to minimize the risk of transboundary movement of epidemic diseases.



- The Department of Animal Health should convene regular, ideally quarterly, meetings of stakeholders in animal health to guide and coordinate planning and implementation of public good animal health matters.
- The Department of Animal Health should establish a comprehensive disease surveillance system and contingency planning for disease emergencies, focusing initially on rinderpest as a model.
- The meeting confirmed the Directorate of Animal Resources' commitment to eradicating rinderpest in accordance with the recommended international guidelines of the Global Rinderpest Eradication Programme. This requires the cessation of rinderpest vaccination in order to prove freedom. To start this process, rinderpest vaccination from now on should be limited to vaccination (with permanent marking) of imported cattle in quarantine stations, as a temporary expedient. This use of rinderpest vaccine should also cease as soon as there is sufficient confidence in rinderpest surveillance and emergency preparedness, within the year 2001, and before then all rinderpest vaccines should be withdrawn from the field. A contingency stock of rinderpest vaccine should be maintained by the Department of Animal Health for use in an emergency.



OIE 63rd General Session

Rinderpest-free countries

During the 63rd General Session of OIE held in May 2000, the International Committee adopted Resolution XIII establishing a list of rinderpest-free countries.

The baseline requirements in order to be declared free from infection were the following:

1. Countries are free from rinderpest infection, as defined in Appendix 4.5.1.1 of the International Animal Health Code.
2. There has been no vaccination against rinderpest for at least ten years and throughout that period there has been no evidence of disease or virus infection.
3. An adequate permanent disease reporting system was maintained throughout that period.

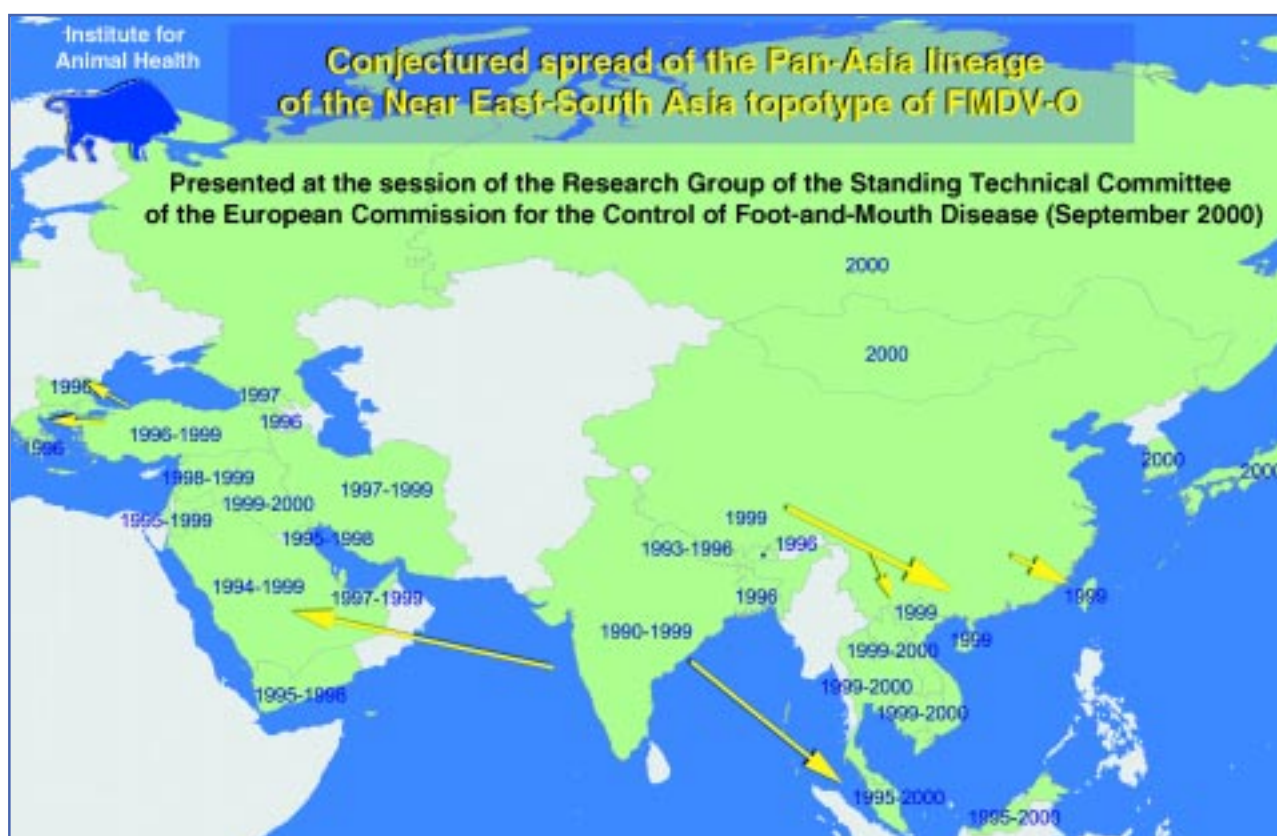
FOOT-AND-MOUTH DISEASE

Foot-and-mouth disease alerts in Asia, Africa and South America

A pandemic strain of foot-and-mouth disease virus serotype O (FMDV-O), named Pan-Asia, has recently been identified

The evolution of a pandemic strain of foot-and-mouth disease virus serotype O, which has been named Pan-Asia, has recently been described. It was first identified in northern India in 1990 and spread westwards into Saudi Arabia during 1994 and, subsequently, throughout the Near East and into Europe (Turkish Thrace, Bulgaria and Greece) in 1996. In 1993 it was found in Nepal and later in Bangladesh (1996) and Bhutan (1998). In 1999, it was reported from mainland China (Tibet, Fujian and Hainan) and then detected in Taiwan Province of China. In late 1999 and in 2000 it reached most of Southeast Asia. Most recently it has been introduced into the Republic of Korea, Japan, the Primorsky Territory of the Russian Federation and Mongolia (areas free from FMD since 1934, 1908, 1964 and 1973, respectively). The virus has been isolated from a wide variety of host species (cattle, water buffaloes, pigs, sheep, goats, camels, deer and antelope).

The viruses causing these outbreaks of FMD all belong to a single genetic lineage and the nucleotide sequences of their VP1 genes differ by no more than 5 percent despite having been isolated over an 11-year period. In East Asia the strain coexisted with other strains of serotype O, particularly the pig-adapted strain which is still causing outbreaks in Viet Nam, in China, Hong Kong Special Administrative Region and in the Philippines. It is not clear why this pandemic strain of serotype O has been so successful; clinically it has caused very high mortality rates in lambs in Iraq, but has also been associated with subclinical infection in cattle in Taiwan Province of China and Japan. The rapid spread of a pandemic strain such as this clearly demonstrates the ability of newly emerging FMD viruses to infiltrate a wide geographic area and to cause epidemics in countries which have been free from the disease for many years.



FMD SAT2 outbreak in Saudi Arabia

In April 2000, SAT2 virus was isolated from a large dairy farm in Saudi Arabia, on which more than 30 percent of the cattle were severely affected with mortality in calves. It has spread to other dairy farms. SAT2 serotype is not one of the serotypes included in the routine vaccination in Saudi Arabia, and all the dairy cattle were totally susceptible. Genetic analysis of the Saudi isolate has shown it to be related, but not closely, to a strain previously isolated in 1998 in Eritrea. The source of the outbreak in Saudi Arabia remains undetermined at present.

FMD Asia 1 outbreak in Turkey

Type Asia 1 is another FMD virus which has extended its range considerably in the last year. It was detected in northeastern Iran in September 1999 and spread rapidly to the centre of the country. In November it was detected in eastern Anatolia and then in central Turkey. By June 2000 it had also spread to Georgia (where FMD type O was already present).

FMD type C: has it disappeared?

During the last three years, the OIE/FAO World Reference Laboratory has received no samples containing FMD serotype C virus. However, this cannot be taken to indicate that serotype C virus has disappeared from the world. All members of OIE and FAO have been requested to submit samples from suspect or confirmed cases of FMD to the World Reference Laboratory for FMD in order to contribute to the maintenance of the global surveillance system.

(Contributed by: the World Reference Laboratory for FMD, Pirbright and the Session of the Research Group of the Standing Technical Committee of the European Commission for the Control of Foot-and-Mouth Disease (EUFMD), held in Borovets, Bulgaria, 5-8 September 2000.)

FMD in South Africa

In South Africa, FMD disease broke out on a pig farm near Pietermaritzburg, in KwaZulu-Natal Province. This is the first FMD infection in KwaZulu-Natal since 1956. It is suspected that the virus was carried in pig feed obtained illegally from a foreign ship visiting Durban. The outbreak has killed 70 pigs, and about 600 pigs have been slaughtered to avoid a major outbreak. This represents the first known occurrence of serotype O FMD in southern African countries (south of the Zambezi River).

FMD in South America

FMD alerts in Argentina

Argentina was declared free from foot-and-mouth disease without vaccination in August 2000 by the International Committee of OIE.

On 2 August 2000, in the context of the epidemiological surveillance activities and procedures carried out in the border zones, ten bovines illegally imported from a neighbouring country were discovered in a jointly owned establishment located in a border transit zone in the district of Clorinda, Formosa Province. Since the relevant health documentation was missing, the ten bovines were slaughtered and destroyed after blood samples were taken for serological screening for FMD. Four out of ten samples were found positive for antibody against non-structural FMD virus proteins, indicating viral activity, although none of the animals had shown clinical signs of vesicular disease. While adequate control measures were adopted to avoid the spread of the disease, epidemiological and laboratory investigations were carried out.

A virus was isolated from a Probang sample from one of the illegally imported animals.

Nucleotide sequencing showed it to be related to the A24 serotype which is considered by the Argentine authorities to be exotic to Argentina. Among all the illegally imported animals, only one was positive by the Probang test. Serotype A24 was identified by the laboratory. As no field strain compatible with A24 has ever been isolated or diagnosed in Argentina, it is suspected that the virus isolated was of exotic origin.

So far, no other animal from any of the country's provinces has given any positive serological test results. In regard to the mass serological survey being carried out throughout the entire country in order to verify the sanitary situation, 3 569 samples have been taken from 3 452 bovines, 61 pigs, 42 sheep and 14 goats. All the test results were negative.

In the farms situated in the surveillance zones, continuous clinical inspection of cattle is being carried out as well as intensive serological surveillance.

Owing to the negative results of repeated inspections and tests carried out in the farms, the area of the surveillance zones in the provinces of Entre Rios and Corrientes was reduced in compliance with Resolution No. 1249. Furthermore, movements of animals susceptible to FMD disease are due to be gradually resumed, as from 18 September 2000.

Note: The full report can be obtained from the OIE Web site:
www.oie.int/info/A_info.htm

FMD outbreaks in Brazil

While Brazil was progressing towards FMD-free status in the state of Rio Grande do Sul, where the vaccination was stopped in May 2000 (see Box below), an outbreak occurred in August 2000. The disease was first reported in Joia municipality (State of Rio Grande do Sul) on 23 August 2000.



Ten outbreaks affecting dairy cattle were reported to the OIE. The Laboratory of Animal Welfare, Ministry of Agriculture and Supply, Recife, Pernambuco identified the causative virus as serotype O.

Control measures are being implemented to prevent the spread of the disease and epidemiological investigations are under way to identify the origin of the outbreak.

Note: The full report can be obtained from the OIE Web site:

www.oie.int/info/A_info.htm

PROGRAMME FOR THE ERADICATION OF FMD IN BRAZIL

A national programme for the eradication of FMD is being carried out in Brazil with the main goal of eradicating the disease by the year 2005. This programme is part of a major plan of eradicating the disease from the South American continent by 2009.

Among the strategies employed by this programme is the gradual establishment of FMD-free zones. These free zones are based on the regionalization of production systems and trade of animals. The programme follows all the principles and rules established in the Zoosanitary International Code of the OIE.

In Brazil, at present, there are two FMD-free zones where vaccination is practised that have been recognized by the OIE. The zone representing the states of Rio Grande do Sul and Santa Catarina received recognition in May 1998 (orange zone on the map).



This zone has an area of 375 992 km², a bovine population of around 14.5 million in 550 000 farms, and a porcine population of approximately 9 million head. In order to maintain its health status regarding FMD, the Brazilian Government suspended the vaccination of bovines as of May 2000. The other free zone where vaccination is practised received OIE recognition in May 2000 (green zone). This zone extends over 1 669 777 km² with 62.1 million bovines in 620 000 farms, and 7.7 million pigs in 300 000 farms. There is a buffer zone around this free zone with an area of 1 004 992 km² (yellow zone). Between the buffer and the free zone 101 permanent checkpoints and 69 mobile teams are strategically distributed. There are also 57 permanent checkpoints and 34 mobile teams working between the buffer and the risk zone.

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FMD outbreaks in Uruguay

Uruguay has been free of FMD, without vaccination, since 1990. On 25 October 2000, the veterinary authorities declared to the OIE a suspicion of FMD in the 12th Administrative Division, in Chiflero district, Department of Artigas, involving beef cattle and pigs. The outbreak was later confirmed by the Pan American Foot and Mouth Disease Center in Belem (Brazil) and FMD type O was incriminated as the causative agent.

The full report can be obtained from the OIE Web site: www.oie.int/info/A_info.htm

RIFT VALLEY FEVER

Rift Valley fever outbreak confirmed in Saudi Arabia and suspected in Yemen

For the first time, Rift Valley fever (RVF) has been confirmed outside Africa, in Saudi Arabia, where it has already caused 16 human deaths and massive abortion rates in small ruminants. The Ministry of Health took the necessary measures to control the disease, including the spread of insecticide to kill mosquitoes and larvae.

More than 50 people are reported to have died in Yemen during September from a suspected outbreak of RVF. The governorates of Al-Hudaydah and Sadah on the western coast of Yemen have reported high abortion rates and numerous deaths of young calves and sheep. The affected areas are close to Jizan Province, Saudi Arabia.

As of September 2000, the conditions of introduction of the disease to Saudi Arabia remain unclear and epidemiological investigations are under way.

Detailed information on this worrying event will be available on the EMPRES Web site in the coming weeks (www.fao.org/EMPRES).

CONTAGIOUS BOVINE PLEUROPNEUMONIA

Contagious bovine pleuropneumonia in Namibia

Where are we after two years of vaccination?

Contagious bovine pleuropneumonia (CBPP lung sickness) caused by *Mycoplasma mycoides* subspecies *mycoides* is one of the most economically important diseases occurring in Namibia.

The disease is considered endemic in the northern central and Kavango regions and sporadic in the Kunene region. The commercial farming areas south of the veterinary cordon fence (VCF) and the Caprivi region are free from infection. CBPP has remained a notifiable disease in Namibia since 1887. Vaccination and movement restrictions are the main methods employed to limit the effects of the disease and its spread to free areas. The report is aimed at highlighting the disease trend since vaccination with T1₄₄ vaccine was begun in mid-1997. The analysis is based on data received through the official veterinary reporting system.

Current control strategy

On the advice of international experts, countrywide vaccination of cattle with T1₄₄ vaccine was implemented. The strategy was to have two vaccinations within the first years followed by single annual campaigns for a period of at least five years during which 100 percent of all cattle at risk would be vaccinated. The aim of this strategy is to reduce the disease prevalence to such a level that continued transmission of the infection becomes unlikely. In the absence of a continued influx of unvaccinated animals from across the border, vaccination could then be stopped and intensive surveillance implemented for

remaining pockets of infection which would be sought and eliminated. This phase of CBPP control was restarted with a vaccination campaign in June 1997, followed by a second campaign in 1998 and a third in 1999.

The high-risk areas are considered to be Ondangwa (northern central), Rundu and Opuwo. The movement of animals from southern Angola is believed to play an important part in maintaining infection in these areas. Where such movements are detected, the animals are vaccinated. No CBPP has been diagnosed in eastern Caprivi since it was eradicated in 1938 but cattle in the Katima Mulilo state veterinary district are vaccinated to protect them from possible infection with CBPP from Western Province, Zambia.

Results of campaigns

The table below shows the number of cattle vaccinated and as a percentage of the population at risk covered during the campaigns in different regions since 1997.



**Number of cattle vaccinated in each region 1997-1999
(percentage of vaccinated at-risk cattle in brackets)**

REGION	1997	1998	1999
Katima (Caprivi)	13 986 (87%)	15 126 (94%)	20 343 (96%)
Rundu	99 679 (87%)	93 051 (82%)	107 731 (95%)
Ondangwa	389 472 (82%)	543 550 (114%)	626 062 (115%)
Opuwo	136 387 (80%)	165 216 (98%)	133 953 (75%)

Overall, the vaccination coverage since 1997 has been very good. In some cases, more cattle than the resident population were vaccinated. It is believed that some Angolan animals are moved across the border into Namibia to take advantage of the preventive vaccination. This suggests that stock owners in that country have confidence in the protection offered by vaccination.

CBPP: then and now

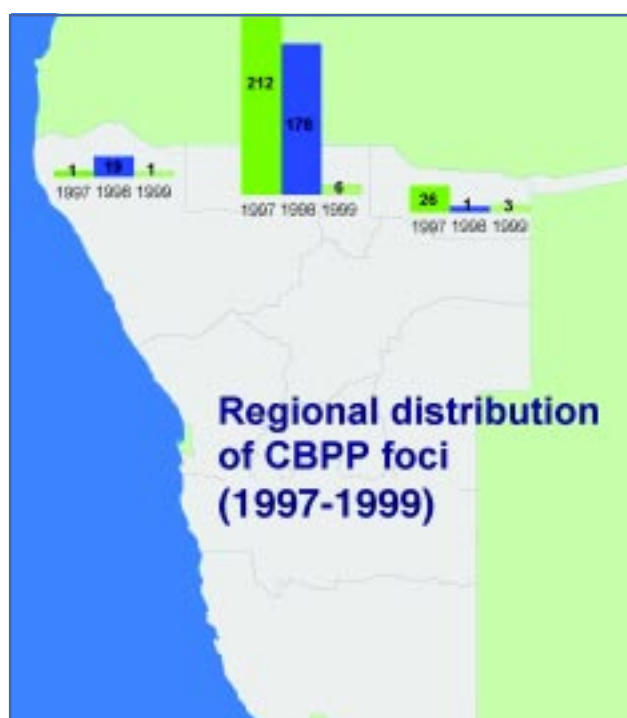
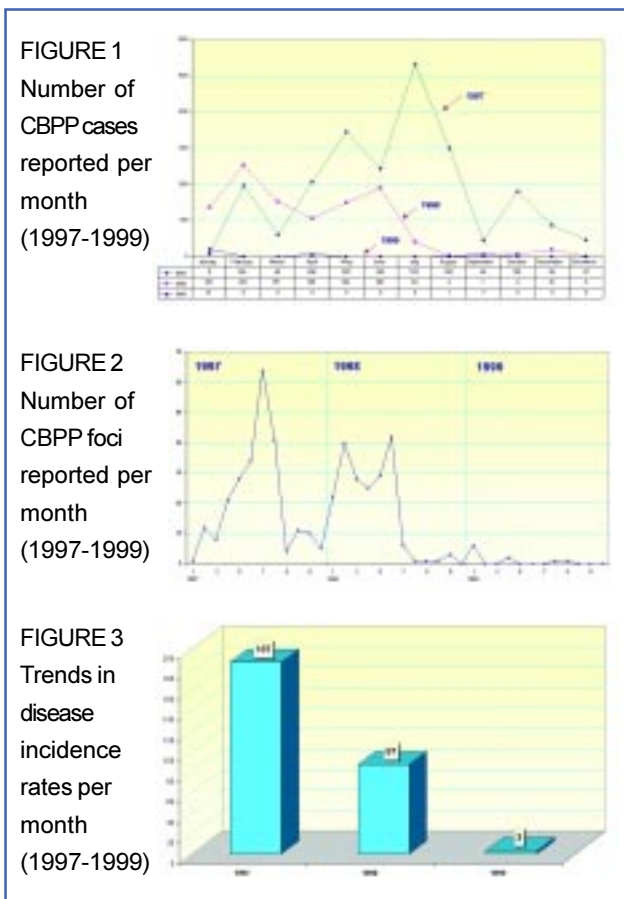
a) Monthly incidence

The data suggest a progressive and significant reduction in disease incidence since 1997. The monthly CBPP incidents (cases) reported since the current campaign started are shown in Figure 1. It can be noted that the cases reported have dropped from an average of 269 to 16 per month (Figure 2). There has been a corresponding decrease in outbreaks and deaths (Figure 3). If vaccination is continued for a few more years and the downward trend continues, the stage will be set for the eradication phase. Unfortunately, this is unlikely to be achieved in the foreseeable future unless movements from Angola can be controlled. This leaves only the option of implementing the same strategy in Angola

and other affected countries with the aim of eradicating the disease on a regional basis.

b) Morbidity and geographical distribution

The number of CBPP foci reported from the different regions are shown in the map below:



Discussion

A word of caution

Although the current disease trend is very encouraging, it must be viewed with caution because the disease data are based on passive surveillance. Active surveillance is required to make a better assessment of the disease status. This requires accurate identification of individual herds, sources of infection, traceability of origins of infections and all contact herds. Cases detected at the abattoir must also be traceable. The recent introduction of individual brands in infected areas will help in this regard.

Abattoir data

Valuable data can be obtained from examining lungs at slaughter. In the case of high-risk regions, animals go through quarantine before slaughter, thus eliminating visibly infected animals. Farmers also tend to withhold these animals for fear of losses following outright condemnation. For local use, most animals are slaughtered at “bush” abattoirs where there is no veterinary supervision. Potentially useful and additional CBPP prevalence data from these informal slaughter places are thus missed.

Let's keep up the good fight

The lack of fences and the pastoral semi-nomadic farming system in the northern communal areas make control of movement (an essential element in eventual eradication) difficult. It is imperative that stock owners are informed of the downward trend of CBPP, that they continue bringing all their animals for vaccination and that they are encouraged to report all clinical and post-mortem cases so that all the data are captured. Treatment of animals with antibiotics masks CBPP and must be discouraged. Cross-border animal movements will remain the major obstacle to achieving the goal of eradication and must be discouraged until the health status of animals in southern Angola is at par with that in Namibia through regionally coordinated efforts.

(Contributed by: Dr Cleopas Bamhare and Ms Bertchen Kohrs, Epidemiology Unit, Directorate of Veterinary Services, Windhoek, Namibia.)

AFRICAN SWINE FEVER

Epidemiological surveillance with TADinfo in Ghana

Using TADinfo in epidemiological surveillance of African swine fever outbreaks in Ghana

Livestock production is an important feature of the country's agriculture, contributing considerably towards meeting food needs and generating cash income. The livestock subsector contributes only 9 percent of the total agricultural GDP. The level of domestic production is only 23 percent of the national demand of 195 000 tonnes. The per caput consumption of 5 g/head/day is among the lowest in sub-Saharan Africa and is far below the recommendations of both FAO and the World Health Organization (WHO). The government decided to use both pigs and poultry on account of their high prolificacy in its accelerated plan of solving the meat deficit in the short term. Apart from the high cost of feeding pigs, the pig industry is now plagued with a devastating viral disease, African swine fever (ASF).

The disease was first reported in West Africa in Senegal in 1978 and retrospective studies carried out indicated that ASF was present in Casamance and Guinea Bissau. Other outbreaks were reported in Cameroon in the mid- and late 1980s.

Although not reflected in OIE bulletins, ASF was confirmed for the first time in Cape Verde in 1980. In 1996, Côte d'Ivoire was stricken by an ASF epidemic, while in 1997 Benin, Togo and Nigeria joined the ranks of the affected countries. Pig losses have been very heavy, resulting in some countries losing one third or more of their pig population.

When these outbreaks were reported, Ghana took stringent measures to prevent the entry of the disease into the country.

With a growing pig population of approximately 355 000 (1996 livestock census), Ghana was unfortunately stricken with African swine fever in September 1999, in spite of four years of strenuous effort by the Ministry of Food and Agriculture to prevent the disease.

As of September 2000 the disease has been reported in the following districts:

- Accra Metropolitan Assembly, Tema Metropolitan Assembly, Dangme East (Ada) district in Greater Accra region
- Awutu Efutu Senya district in Central region
- Ho and South Tongu (Sogakope) in Volta region

Epidemiological surveillance

An active disease surveillance programme instituted with the help of the Epidemiology Unit included techniques such as a participatory epidemiology and questionnaire survey. The field staff also embarked on clinical surveillance.

The initial participatory epidemiology was effected with the assistance of FAO consultant, Dr Glyn Davies, while the questionnaire survey was initiated by Dr Mary-Lou Pernith.

From the participatory epidemiology, it was deduced that the disease outbreak occurred in September 1999 and the first detected focus was at a cluster of pig farms at Awoshie, a suburb of Accra. The spread from Awoshie to Bawjiase, a town in the contiguous district in Central region, was through movement of pigs assumed to be healthy from the outbreak areas to a "safe" area. The map below shows the various outbreak foci in the country.



There was also a possibility of association of ethnicity to the spread of the disease in some areas. Most of the pig farmers and women who trade in pork in the outbreak areas Awoshie, Tema and Ashiaman are of Ada origin. Movement of apparently healthy pigs to their relatives at home could be an explanation for the spread of the disease to Dangme East (Ada) district. At Ocanseykope, two women traders in vegetables (tomatoes) were said to have smuggled infected pork from Awoshie and Ashiaman (previous outbreak areas) to sell at Togbloku and Ocanseykope in Dangme East (Ada) district.

In a survey questionnaire, 5 000 copies of an epidemiological inquiry for ASF have been answered by pig farmers throughout the country using veterinary field staff as interviewers. Data input is not yet complete but a preliminary analysis of 2 500 completed questionnaires identifies the following variables as risk factors:

Type of rearing system

Three rearing systems have been identified: permanent housing; not always confined; never confined. The permanent confinement of pigs has a limiting effect on the spread of ASF. During the ASF surveillance at Kpone in the Tema Metropolitan Assembly, the importance of permanent confinement of pigs became evident. None of the farms with double walling was affected. All of the pigs reared in the "never confined" and "not always confined" systems were affected.

Attitude towards breed type

Breed types were classified as exotic, crossbred and local. The farmers' perception that the local breed can fend for itself was apparent: during the ASF outbreak, this category of pigs registered the highest mortality.

Feed and feed source

In the epidemiological inquiry, most of the respondents mentioned the following as the types of feed given to their pigs: agricultural by-products, swill, greens and fish remnants.

Swill, in this sense, means leftover food from homes, restaurants, “chopbars”, school dining halls, ships and aircraft. It appears that the introduction of ASF in Ghana was associated with swill dumped from a ship at the Tema main refuse dump. Two farmers near the refuse dump allowed their pigs to scavenge at the dump, resulting in the outbreak on their farms.

Source of replacement stock

Replacement stock is categorized as being acquired through the following sources: own breeding; purchased from livestock markets; from neighbours, friends, family members who own pigs; commercial breeders. It was realized that in Ashiaman a farmer brought in apparently healthy pigs from Kpone before the outbreak started in the area.

Marketing of pig and pork products

After the disease was introduced, the marketing of pigs seems to be the main source of spread of the disease within the country. A probable source of the outbreak was through the importation of pig products from Togo. Our surveillance revealed that during the outbreak of ASF in Togo some supermarkets were importing pork and other pig products through and from Togo.

Disposal of ASF carcasses

The main methods of carcass disposal identified were by burial, disposal on a garbage dump, consumption and, sometimes, sale to the public. Where people dispose of carcasses by throwing them on to a garbage or refuse dump, scavenging pigs can easily become infected by feeding at the refuse place.

Use of animal health services

Most areas where the outbreak occurred were staffed by a trained Agricultural Extension Agent with a crop bias.

Evaluation of present risk of ASF based on the survival of sentinel pigs

A team composed of an epidemiologist and two field officers paid a working visit to pig farms in Akwapim South and North districts to identify farms with a sound management practice and having good weaners in stock which can be purchased for sentinel purposes in order to restock ASF-affected farms.

Laboratory reports on these farms from Onderspoort Veterinary Institute Laboratory in South Africa indicated the absence of ASF exposure.

Possible risk factors after lifting the ban on movement of pigs and pork products

The virus is known to survive in such adverse conditions as extreme cold and moderate temperatures. At 4°C (the normal temperature for food preservation) it can survive for seven years, but would live even longer in a deep-freeze. The implication of this characteristic of the virus is that farmers who must have hidden slaughtered pigs in deep-freezes waiting to sell them when the ban on movement of pig and pork products is lifted are a potential threat.

The illegal importation of pig meat and other pork products through and from Togo into the country poses a threat.

The number of scavenging (free-roaming) pigs to a large extent encouraged the spread of the disease. However, in Ghana, there are by-laws restricting the free-roaming of pigs which are never adhered to. Failure to enforce these by-laws can cause a return of the disease.

(Contributed by: George Nipah, Epidemiology Unit, Veterinary Services Department, Accra, Ghana.)

NEWS

Continental plan for classical swine fever eradication

FAO has been designated by the OIE delegates to the 15th OIE Regional Conference for the Americas as Technical Secretariat of the Continental Plan for Classical Swine Fever Eradication in the Americas.

15TH CONFERENCE OF THE OIE REGIONAL COMMISSION FOR THE AMERICAS CARTAGENA (COLOMBIA), 7-10 MARCH 2000

Recommendation No. 7

Continental Plan for Classical Swine Fever Eradication in the Americas

Considering

The document giving the basis for a continental eradication programme for classical swine fever (CSF), as presented by the Food and Agriculture Organization of the United Nations (FAO), resulting from the specialist meeting on this subject held in Santiago (Chile) in October 1999,

The high social impact that this disease has in vast sectors of animal production on the continent (in smallholdings, family production, etc.) as well as the economic losses occurring in the industrial production sector, which harm national and/or international trade in animals and animal products,

The OIE Regional Commission for the Americas recommends that

1. The document presented by FAO to this 15th Conference of the OIE Regional Commission for the Americas be considered as a preliminary proposal to be improved upon by the suggestions of countries of the region to be received within a delay of 60 days in order to make the necessary adjustments.
2. FAO be confirmed as Technical Secretariat of the Continental Plan with the responsibility of collecting the suggestions from member countries in view of the elaboration of a final document, which will be submitted to the countries no later than 60 days after reception of the suggestions.

FAO/OIE/OAU- IBAR/IAEA Consultation on CBPP in Africa

A meeting of the Contagious Bovine Pleuropneumonia Consultative Group will be held at FAO headquarters in Rome from 24 to 26 October 2000. The meeting will review the progress made in CBPP control in Africa and will establish recommendations for future strategies in countries where the disease is endemic.

RVF video available in French

The EMPRES Rift Valley fever video is now available in French. It was translated and produced in the framework of a regional Technical Cooperation Programme project (TCP/RAF/8931) which is setting up a Rift Valley fever early warning system in Mali, Mauritania and Senegal.

A booklet on the disease and a poster have also been produced and will be distributed to the countries participating in the project.

CONTRIBUTIONS FROM FAO REFERENCE LABORATORIES AND COLLABORATING CENTRES

FAO/OIE World Reference Laboratory for FMD, Pirbright, UK FMD report for April to June 2000

COUNTRY	SPECIES	TYPE
Iran	Bovine	O, A
Iraq	Bovine	O
Japan	Bovine	O
Malawi	Unknown	SAT1
Saudi Arabia	Bovine	SAT2
Sri Lanka	Unknown	O
Turkey	Bovine	O, A, Asia 1
United Arab Emirates	Bovine	O
Zimbabwe	Unknown	SAT3

FAO/OIE World Reference Laboratory for Rinderpest, Pirbright, UK Rinderpest and PPR report for April to June 2000

COUNTRY	SPECIES	TYPE OF SAMPLE	DISEASE	DIAGNOSIS TECHNIQUE	RESULT
Africa*	Wildlife	Sera	Rinderpest/PPR	C-ELISA	RP 18/326 +ve PPR 13/326 +ve
South Africa	Sable antelope	Sera	Rinderpest/PPR	C-ELISA	0/35
Iraq	Ovine	Eye swabs	PPR	PCR	+ve
Zimbabwe	Bovine	Endothelial cells	Rinderpest/PPR	PCR	-ve
Pakistan	Bovine	Eye swabs, tonsil and lymph nodes	Rinderpest	PCR	-ve

*Country names not communicated.

NEWS@RADISCON



Bluetongue in Algeria

A strong suspicion of bluetongue (BT) was reported on 16 July 2000 in four farms located in the wilaya of El-Tarf, in the communes of Bouhadjar, Zitouna, Bougous and El-Tarf bordering Tunisia. The disease was clinically diagnosed after the start of active disease search by the veterinary services of the wilayat along the border strip with Tunisia. Another outbreak was reported a day later in the wilaya of Skikda, in the commune of Baccouch Lakhdar in four neighbouring farms.

The World Reference Laboratory (Pirbright) has confirmed the diagnosis and serotype 2 was incriminated, as in Tunisia.

A crisis cell was established at the central and local levels to monitor the evolution of the situation. An early warning appeal was launched using mass media and



explaining the preventive measures to be taken to stop the expansion of the disease.

As of August 2000, outbreaks have been declared in the wilayat of El-Tarf, Skikda, Annaba, Souk-Ahras, Guelma and Tebessa, in the extreme eastern part of the country.

Spatial distribution

The first outbreaks reported in El-Tarf were located in the commune of Bouhadjar about 300 m from the border with Tunisia. Disease search along the border strip has detected other outbreaks in the same wilaya, as well as in the wilaya of Souk-Ahras at Ouled Moumen, Haddada and Sidi Fredj and in the wilaya of Tebessa in the communes of Ouenza and Lahouidjbet (bordering Tunisia).

According to the information collected in the field, the affected flocks were sharing the same grazing areas with Tunisian flocks. It is interesting to note that a week before the date of the first reported outbreaks, a strong wind was blowing from Tunisia for several days. This may have been responsible for transporting infected vectors. Other cases were reported later in the wilayat of Guelma and Annaba.

It is important to note that the hygrometry and the temperatures prevailing during this season favour arthropod vector development.

Temporal distribution

Two weeks after the declaration of the first two bluetongue outbreaks of El-Tarf and Skikda, additional outbreaks were reported in four neighbouring wilayat. At the time of writing this report, the situation is stable and the pathology has not reached other wilayat. The average morbidity rate is less than 10 percent and the mortality rate does not exceed 1.6 percent, and is constantly decreasing. An isolated outbreak, unrelated to the other outbreaks, was declared in Tebessa, bordering Tunisia, which strengthens the hypothesis of an introduction of the disease from Tunisia.

The disease affected adult animals only and no mortality was observed in young animals. There has been no apparent impact on pregnant ewes. The majority of affected animals recovered two weeks after the start of the disease and no muscular emaciation or other effects were seen after recovery. The latest outbreak observed was on 5 August 2000 in the wilaya of Tebessa in the commune of Lahouidjbet.

As of 13 August 2000, a total of 24 outbreaks were declared.

Prophylaxis

As soon as the first outbreaks of bluetongue were declared, mass media were used to sensitize breeders and farmers about the disease and to inform them of the preventive measures to be taken to protect their livestock. Local organizations and phytosanitary services made available the necessary means for disinsectization. As soon as a first case is observed, the whole flock is systematically isolated.

An anti-vectors control plan was set up and directed to the border. The logistics consist of 100 four-wheel-drive vehicles equipped with spray appliances as well as 73 technicians. The disinsectization plan will continue until the autumn; further continuation will depend on the evolution of the weather conditions.

It is worth noting that this operation may fail in the absence of information from Tunisia and owing to the sparse knowledge concerning the evolution of the disease since its first declaration in January 2000.

A serosurveillance scheme for bovines will be launched shortly to find out whether the disease has any impact on this species.

Regional meeting on sheep pox eradication in Mediterranean Maghreb countries

(This report was submitted by the Algerian Veterinary Services to RADISCON Coordinating Unit.)

Regional Follow-up Meeting on RADISCON Sheep Pox Eradication Programme in the Mediterranean Maghreb, Algiers, Algeria, 24-25 July 2000

The main objective of the meeting was to evaluate the results of the sheep pox vaccination campaigns for the year 2000 in Algeria, the Libyan Arab Jamahiriya, Morocco and Tunisia, as stipulated in the agreed working plan. The meeting was attended by veterinary officers responsible for the vaccination campaign in the four countries. The results obtained in implementing the sheep pox eradication programme can be summarized as follows.

In *Algeria*, the vaccination coverage has significantly increased to reach seven million ovine vaccinated head against 4.5 million in 1998. Despite the fact that the vaccination coverage has not yet reached the agreed 70 percent, it is important to point out the major efforts being made to vaccinate the greatest number of animals, taking into consideration the immensity of the territory to be covered. Since the vaccine in use gives protection for a long period, the proportion of immunized animals would be superior to the number of vaccinated animals, as indicated by the limited number of clinical cases observed (1 to 3 percent) by outbreak. The central-eastern part of the country (comprising the wilayat of Biskra, M'Sila, Djelfa, Tebessa and Saida) is identified as the most-affected area and the majority of the 23 observed outbreaks were reported in these zones. Additional efforts will concentrate on this region.

No figures were available on the sheep pox situation and on vaccination results for the *Libyan Arab Jamahiriya* because of the administrative restructuring that has recently taken place in the country.

In *Morocco*, no sheep pox outbreaks have been reported since 1998. The vaccination coverage has reached 90 percent of the four million ovine head in the seven eastern provinces of the country (Oujda, Nador, Taza, Boulemane, Figuig, Errachidia and Ouarzazate). This vaccinated zone serves as a buffer zone. An active surveillance system was put in place throughout the country, consisting of regular visits to animal markets, around water points, flocks, abattoirs, border checkpoints and veterinary clinics. A total of 5 000 800 ovine were examined from June 1999 to May 2000, which represents a monthly prospecting rate of 3 percent of the national total. Three suspected cases were reported and confirmed as being contagious ecthyma. Morocco is willing in the future to involve the private sector in the surveillance of transboundary diseases, through remuneration.

In *Tunisia*, 2000 was the first year that a vaccination campaign has taken place countrywide. Previously, the decision whether to vaccinate against sheep pox or not was made by the Regional Veterinary Services. A Ministerial Note was sent all around the country requesting the different partners to combine their efforts in order to achieve the desired objective of eradicating the disease. Vaccination coverage has increased from the 1999 level of 40 percent to reach 60 percent in 2000.

In conclusion, with the exception of the Libyan Arab Jamahiriya where more commitment should be shown to attain the objective of the sheep pox eradication programme, all the countries are on a good track towards eradicating the disease by 2005.

The meeting urged FAO and IFAD to implement a follow-up phase of the RADISCON project.

Sheep pox situation in Algeria

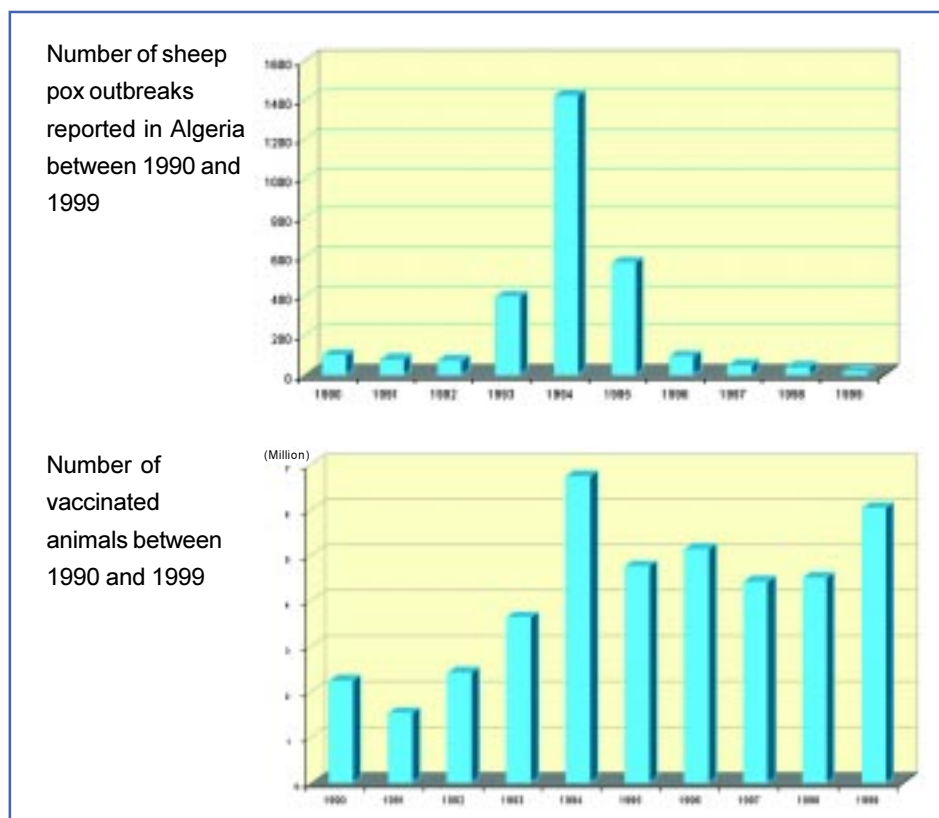
Evolution of sheep pox in Algeria during the last ten years

Sheep pox is the major ovine pathology in Algeria. The high concentration of flocks, with frequent animal contacts in stubble fields, around water points and during transhumance movements, combined with insufficient vaccination coverage, have helped maintain the

disease. Despite the significant decrease in the number of reported outbreaks since 1996, sheep pox continues to be reported in certain regions of the country.

Temporal and spatial distribution of sheep pox

Ovine livestock mass vaccination against sheep pox has been practised in Algeria for several years. The relaxation in sheep pox vaccination between 1990 and 1993 following the foot-and-mouth disease epizootic explains the increase of sheep pox outbreaks in 1993 and 1994.



The increased vaccination coverage that started in 1994, combined with the change of the vaccination period to coincide with the transhumance season (March to July), has resulted in a noticeable decrease in sheep pox outbreaks recorded since 1995.

(This paper was submitted by the Epidemiology Unit of the Algerian National Animal Disease Surveillance System. The outputs were produced using TADinfo-Algeria.)

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