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SUSPECTED RINDERPEST IN SOMALIA

Although rinderpest has not been confirmed to be present in Somalia for many years, epidemiological information suggests that a mild strain of rinderpest virus has been probably circulating in Somali pastoralists herds in the south of the country. Since the Somali government collapsed in 1990, access to livestock population for disease surveillance has become extremely difficult, especially in the southern part of the country known as Transjuba. However, a proportion of the livestock was accessible until recently through PARC’s EU-funded Non-Governmental Organization (NGO) implemented programme (see page 11).

Foot-and-mouth disease reported in China

The Director-General of the Bureau of Animal Production and Health in Beijing has communicated that there have been outbreaks in Fujian, Hainan and Tibet.

Laboratory investigations showed that the disease was caused by FMD virus type 0 (see page 13).

Nipah virus in Malaysia

During March 1999, health officials in Malaysia and Singapore, in collaboration with Australian researchers and CDC, investigated reports of febrile encephalitic and respiratory illnesses among workers who had exposure to pigs. Initially, Japanese encephalitis was diagnosed but it soon became apparent that a previously unrecognized paramyxovirus (formerly known as Hendra-like virus), now called Nipah virus, was implicated by laboratory testing in many of these cases. Febrile encephalitis continues to be reported in Malaysia but has decreased coincident with mass culling of pigs in outbreak areas (see page 12).
Despite tremendous progress towards global rinderpest eradication in recent years, failure to wipe out the few remaining pockets of the deadly cattle disease, also known as cattle plague, could result in its widespread resurgence, the UN Food and Agriculture Organization (FAO) warned today.

FAO called on donors to provide “immediate support” for rinderpest eradication programmes to prevent the disease from making a comeback in countries where rinderpest was recently eliminated.

If global eradication is successful, it will be the first animal disease to be eradicated from the world. This would be one of the greatest achievements ever in veterinary science, according to FAO.

Animal health officials suspect that cattle plague persists in only three isolated areas of the world: southern Sudan, southern Somalia and parts of Pakistan. However, they say there are three other areas where the disease has occurred within the last five years and where there is no conclusive evidence that it has been eliminated. These are the far eastern Russian Federation, the southern Arabian Peninsula, and the Kurdish area along the border between Turkey and Iraq.

Experts estimate that it could cost as little as $3 million to eradicate rinderpest from each of the remaining pockets through focused control action, including intensive vaccination.

Rinderpest, a highly contagious disease of ruminants caused by paramyxovirus (genus Morbillivirus), is characterized by fever, focal erosive lesions in the mouth and throughout the alimentary tract, by severe diarrhoea and a high fatality rate.

For centuries, it has caused pandemics that killed millions of cattle, buffalo, yaks and their wild relatives in many parts of the world. In the 1970s and 1980s, there were devastating epidemics in South Asia, the Middle East and Africa. In 1994, rinderpest spread into northern Pakistan killing more than 50,000 cattle and buffalo before being brought under control.

Rinderpest not only kills cattle, but it also has a devastating impact on rural incomes, livestock production and ultimately on food security. Losses include wild animals, which can be of great importance to many rural economies. In addition
to these losses, affected countries are often excluded from world markets by animal health import restrictions.

The cost of controlling rinderpest has been high for both developing countries and the donor community. The European Commission alone has invested around $200 million to support rinderpest control programmes in Asia and Africa in the last 10 years. According to experts, the cost of eradication for most countries would be far less than the cost of continued vaccination programmes. When any individual country eradicates rinderpest from its own territory, it is in a position to replace mass-vaccination with emergency preparedness and early warning systems applicable to all epidemic diseases.

“As the world is nearly rinderpest free, urgent global action is needed to ensure that the disease can be eliminated in the remaining infected areas. Failure to act now will mean running the risk that outbreaks of the disease will result in a much higher price tag in the future”.

An expert consultation recently held at FAO under the aegis of FAO’s Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases (EMPRES) noted that transboundary animal diseases have become of increasing economic and food security importance in developing and developed countries. Experts point to examples such as the devastating epidemics of rinderpest in Asia, the Middle East and Africa in the 1980s, classical swine fever epidemics in the Netherlands and Germany in 1996-97, and African swine fever in West Africa and Madagascar in 1995-99.

The expert consultation endorsed a plan for FAO to assist member countries in developing their own national early warning systems for rinderpest and other transboundary animal diseases. FAO’s technical assistance includes training and computer software for disease surveillance at national, regional and global levels.
Declarations of Provisional Freedom from rinderpest to OIE (International Office of Epizootics)

THE OIE PATHWAY

RINDERPEST IN KENYA

The Delegate declares a zone of the country “provisionally free” from rinderpest
(Text of a communication received on 16 March 1999 from Dr R.S. Kimanzi, Director of Veterinary Services, Ministry of Agriculture, Livestock Development and Marketing, Nairobi)

Kenya has experienced two outbreaks of rinderpest in wildlife; the first in Tsavo National Park in 1995 (see Disease Information, 8 [3], 10, dated 20 January 1995) and the other in 1996 in Nairobi National Park (see Disease Information, 9 [45], 173, dated 29 November 1996). The country received financial assistance from the European Union and FAO to control the disease and carry out disease surveillance through an emergency programme.

The planned programme included two rounds of mass vaccination in 29 selected districts at risk from rinderpest, followed by seromonitoring after each round of vaccination and mid-term external assessment by consultants recruited by OAU-IBAR.

During the first round of vaccination, 3.5 million head of cattle were vaccinated and an average herd antibody prevalence of 5.8% was attained. In the second round, 3.7 million head of cattle were vaccinated and attained an average herd antibody prevalence of 65.38%.

After the rinderpest outbreaks in wildlife, disease surveillance was conducted in 11 districts at risk and national parks in the country. Surveillance of stock routes and market inspections were also carried out. However, the disease has not been diagnosed.

After the mass vaccination, the country was divided into three zones according to rinderpest epidemiology. Zone II is adjacent to Somalia while Zone III is adjacent to southern Sudan (see map).

A system has been put in place for epidemiological surveillance in Zones II and III coupled with vaccination in Zone III to control spread of any rinderpest outbreak from the two zones to Zone I.

In Zone I, rinderpest was last diagnosed in December 1996 in Nairobi National Park. The disease was effectively controlled through emergency ring vaccination of all herds in the southern districts, imposition of quarantine and observance of strict livestock movement control. Systematic epidemiological surveillance has been conducted in the area for the past two years, and rinderpest has not been diagnosed.
Rinderpest has not been diagnosed for more than ten years in any of the other areas of Zone I. The areas of Zone I neighbouring Zones II and III are inhabited by communities who traditionally do not mix in their grazing patterns. Through epidemiological surveillance, any clinical incursion of rinderpest into Zone II or III will be noted in good time and control measures taken accordingly. Epidemiological surveillance in the southern districts will be done in conjunction with the Tanzanian veterinary authorities, who have declared their country “provisionally free” from rinderpest (see Disease Information, 11 [38], 130, dated 25 September 1998).

On the basis of the facts discussed above, the area designated as Zone I is hereby declared to be “provisionally free” from rinderpest as from January 1999.

**RINDERPEST IN ETHIOPIA**

The Delegate declares a zone of the country «provisionally free» from the disease

*(Text of an e-mail received on 23 April 1999 from Dr Wondwosen Asfaw, Team Leader, Veterinary Services Team, Addis Abeba)*

Ethiopia declares itself «provisionally free» on a zonal basis, because of the possible threat of reintroduction of rinderpest from neighbouring countries, without which Ethiopia would have declared «provisional freedom» on a country-wide basis.

In view of this declaration Ethiopia has been divided into three zones:

- **Zone A** – «provisionally free from rinderpest»,
- **Zone B (B1 and B2)** – «surveillance zone»,
- **Zone C** – «sanitary cordon or vaccination zone».

Therefore, in accordance with the OIE document entitled Recommended Standards for Epidemiological Surveillance for Rinderpest:

1. Each proposed zone has well-defined boundaries
2. No rinderpest outbreaks have been detected in any of the zones for at least two years. The last two outbreaks of rinderpest observed in Ethiopia were:
   - in September 1995 in Temjejayaze, Bench Zone of the SNNP (Southern Nations Nationalities and Peoples) Regional State;
   - in November 1995 in Mehoni, Southern Zone of Tigray Regional State.
All rinderpest vaccination has been stopped in Zones A and B, with effect from 1 May 1999. In fact most vaccination was stopped in most parts of the country a long time ago.

Both the existing clinical surveillance and disease reporting systems for rinderpest are adequate to detect clinical disease if present. All clinical evidence suggestive of rinderpest within the zone is investigated by field/clinical and laboratory methods. Laboratory tests in place include agar-gel immunodiffusion test, IC-ELISA (immunocapture – enzyme-linked immunosorbent assay) and PCR (polymerase chain reaction).

If rinderpest had been present it would easily have been discovered by epidemiological surveillance conducted in these areas.

In the past years, Ethiopia has conducted active disease surveillance in over 250 out of the 565 districts to ensure that rinderpest has effectively been eradicated from these districts.

Sero-surveillance conducted over the past three years (on average 12,000 sera per year) indicates that rinderpest has indeed been eradicated from Ethiopia.

Effective methods are in force to prevent the reintroduction of the disease into Zone A from other parts of the country and from other countries. In the southeastern part of the country, a surveillance and emergency preparedness system has been put in place to detect rinderpest at an early stage and to eliminate it immediately were it to be introduced.

In view of the foregoing, the Government of Ethiopia declares that Zone A is «provisionally free from rinderpest», with effect from 1 May 1999.

**RINDERPEST IN UGANDA**

The Delegate declares a part of the country «provisionally free» from this disease

(Text of a fax received on 7 May 1999 from the Director of Animal Resources, Ministry of Agriculture, Animal Resources and Fisheries, Entebbe)

Rinderpest reached Uganda in the early 1890s. From the mid 1940s to the mid 1960s, rinderpest was confined to Karamoja. From 1967 to 1979, the disease was under control due to an effective vaccination campaign and livestock movement control. After the 1979 war, rinderpest broke out in Karamoja and spread to Luwero in 1985, Jinja in 1987 and Arua in 1989. The disease was contained by an emergency vaccination campaign implemented from 1988 to 1989 and the PARC (Pan African Rinderpest Campaign) Programme, whose first phase of two years was implemented from 1990 to 1992 and whose second phase of four years began in 1997. From 1997 to December 1998, a total of 2,920,262 head of cattle (64% of the national herd) were vaccinated in the nation-wide vaccination campaign.

Today, rinderpest is under control as the last outbreak was in Moroto district in June 1994. However, the disease continues to be a threat at the northern frontier.

Uganda has decided to join the OIE «pathway» under a two-zone arrangement

**Zone A**

Zone A involves high-risk districts: Arua, Moyo, Adjumani, Gulu, Kitgum, Kotido and Moroto. In these districts vaccination will continue until 2005, when provisional freedom will be declared. Active disease surveillance has been set up with the creation of holding grounds at Oraba in Arua district and Agoro in Kitgum district, where cattle from a neighbouring country are brought to the market and are vaccinated before they proceed to their slaughter destinations. Staff have been provided with transport for disease monitoring and reporting to the central authority. The staff in this zone have been trained in rinderpest surveillance and reporting.
× Zone B

Zone B includes the rest of the country, which has now stopped vaccination. The zone is divided into two sub-zones, B1 and B2.

Sub-zone B1

This sub-zone comprises the districts north and east of the river Nile but also those south of Zone A. These are Apach, Lira, Soroti, Katakiwi, Kumi, Kapchorwa, Mbale, Pallisa, Tororo, Busia, Iganga, Kamuli and Jinja districts. The last outbreak was in Jaya in 1987. Animals from Zone A seasonally migrate to some areas in Zone B1. Trade cattle from Zone A supply the main source of slaughter stock in sub-zone B2.

This sub-zone will be under intensive surveillance for one year before being declared provisionally free. The staff have been trained in the rinderpest surveillance and reporting system.

Sub-zone B2

All districts south of the river Nile constitute Zone B2. There is a clear geographical demarkation by the river Nile. These districts are: Mukono, Luwero, Kampala, Masindi, Hoima, Kiboga, Mubende, Kibale, Kabarole, Bundibugyo, Kasese, Rukungiri, Kabale, Kisoro, Ntungamo, Bushenyi, Rakai, Mbarara, Masaka, Sembabule, Mpigi, and Kalangala. The last rinderpest outbreak in this zone was 14 years ago, i.e. in 1985, in Luwero district.

This sub-zone has been declared provisionally free with effect from 1 April 1999. Passive clinical surveillance will continue through the existing veterinary extension service, including private practitioners.
RINDERPEST IN ERITREA
The Delegate declares the country “provisionally free” from this disease
(Extracts from a fax received on 14 June 1999 from Dr Ghebrehiwet Teame, Director of the Veterinary Services Division, Ministry of Agriculture, Asmara)

Rinderpest was introduced into Eritrea in the 1880s. Recurrent outbreaks of the disease were witnessed in the lowlands of the country until the late 1980s. In the highlands, however, there have been no outbreaks of the disease for the last 20 years.

The last major outbreak of the disease was in Badda area, in the eastern lowlands, in January 1992.

A minor outbreak involving three animals was recorded at the border with Ethiopia in January 1995.

No clinical or epidemiological evidence of rinderpest has been observed since January 1995 (i.e. for four successive years). In addition, coordinated mass vaccination was applied annually to all cattle from 1991 (1989 in some parts of the country) to 1997 (i.e. for at least seven successive years) using Panvac certified tissue culture rinderpest vaccine manufactured in Ethiopia. This was verified in the following manner:

1. Passive disease surveillance through continuous presentation of animals to regional and subregional veterinarians.
2. Seromonitoring to verify the existence of immune barriers to rinderpest among vaccinated animals of different age groups country-wide using competitive ELISA locally and abroad. The seromonitoring results in 1997 and 1998 were satisfactory.
3. No rinderpest outbreaks have been detected anywhere in the country for at least four and a half years.
4. Vaccination against rinderpest was halted in January 1998 throughout the country, and in some parts of the country (northern and north-central) vaccination ceased as early as 1996.
5. All rinderpest vaccine has been withdrawn from all six regions of the country and is being held at the central store of the Veterinary Services Division in Asmara.

The clinical surveillance and disease reporting system in place throughout the country is capable of detecting clinical disease if present. All clinical evidence suggestive of rinderpest in any of the regions is investigated by field/clinical and laboratory methods. Laboratory tests in place include the agar-gel immunodiffusion test, and competitive and immuno-capture ELISA.

A disease surveillance network has been established throughout the country with special emphasis on the southern and south-western parts of the country (Debub and Gash-Barka regions), where pastoral migrations are common to and from neighbouring countries. An emergency preparedness system is also in place to deal promptly and effectively with any re-emergence of the disease.

In view of the facts stated above, the Government of Eritrea declares the whole country “provisionally free from rinderpest”, with effect from 15 June 1999.

RINDERPEST IN MAURITANIA
The Delegate declares the country “provisionally free” from this disease
(Translation of an e-mail received on 15 May 1999 from Dr Mokhtar Fall, Deputy Director, Development of Agricultural and Pastoral Ressources, Ministry of Rural Development and Environment, Nouakchott)

Rinderpest has been absent from Mauritania since 1987, no outbreaks having been reported since that date.
This situation has been achieved through the implementation of annual campaigns which, during the period from 1996 to 1998, received considerable support from the PARC project.

On the strength of this result, the decision to halt vaccination against the disease was taken in May 1998. A surveillance system has also been set up through the Mauritanian animal disease epidemiological surveillance network (REMEMA), created by Order No. 143/MDRE of 19 April 1999.

Mauritania thus declares itself provisionally free from rinderpest and is committed to implementing the OIE “pathway” for the status of rinderpest free country.

**RINDERPEST IN BENIN**

The Delegate declares the country “provisionally free” from this disease
*(Translation of an extract from a fax received on 1 June 1999 from Dr Latifou Sidi, Director of Animal Production, Ministry of Rural Development, Cotonou)*

Rinderpest disease control strategy in Benin has in particular been based on achieving a high level of vaccination, from 1981 to the beginning of 1999, during the annual generalised campaigns carried out within the framework of the Pan African Rinderpest Campaign (PARC). PARC has also enabled serological surveys to be carried out and, more generally, the modernisation of the Veterinary Services, which will continue with the implementation of a Pan African Programme for the Control of Epizootics (PACE). No cases of rinderpest have been recorded in Benin since 1987 and the personnel have been trained in the control of diseases responsible for emergency situations.

Active epidemiological surveillance for rinderpest is being maintained in domestic animals and wildlife and will be strengthened within the framework of the PACE ad hoc network.

The risk of rinderpest occurring in Benin is low, due to:
- The epidemiological status of the country;
- The epidemiological status of neighbouring countries and the sub-regions of western Africa and central Africa;
- The existence of a specific sanitary cordon in central Africa;
- The availability of a reserve stock of vaccine and a rinderpest emergency control fund at the continental level.

In accordance with the recommendation to halt vaccination against rinderpest, formulated in view of the foregoing by the 1998 Review meeting and the 1999 Programming meeting for the livestock subsector, and taking into account the technical requirements of the OIE in terms of the procedure for declaring a country “provisionally free” of animal diseases, Benin is hereby declared “provisionally free” from rinderpest, with effect from 1 June 1999.

**RINDERPEST IN CAMEROON**

The Delegate declares the country “provisionally free” from this disease
*(Translation of a fax received on 9 June 1999 from Dr Hamadou Saidou, Director of Veterinary Services, Ministry of Animal Production, Fisheries and Animal Industries, Yaounde)*

Since 1986, no cases of rinderpest have been recorded in Cameroon. Systematic vaccination campaigns for cattle, undertaken since 1983, coupled with serological and epidemiological surveillance, have nevertheless been maintained in order to protect the national herd. Given the special geographical location of Cameroon the aim was also to protect West Africa from any incursion of the disease from East Africa, which up to now has been considered to harbour endemic outbreaks.
Today, the situation has markedly improved in the countries of East Africa and the Chad - Central African Republic sanitary cordon is effectively fulfilling its role.

In view of the foregoing and all the recommendations of the Interafrican Bureau for Animal Resources (OAU-IBAR), the whole of the territory of Cameroon is hereby declared “provisionally free” from rinderpest.

**UPDATE ON OIE DECLARATIONS**

Since 1990, 24 countries have declared provisional freedom from rinderpest, among which 9 have declared this year. The declaration process is evolving well.
However, despite the excellent work that has been carried out in the field, it has not been possible conclusively to demonstrate rinderpest virus infection associated with the syndrome which has been investigated, since no virus isolation was made. Although further investigations are needed to confirm definitely the presence of rinderpest in this part of Africa, Terra nova activities have been temporarily suspended because of security reasons.

Although rinderpest has not been confirmed to be present in Somalia for many years, epidemiological information suggests that a mild strain of rinderpest virus has probably been circulating in Somali pastoralists herds in the south of the country. Since the Somali government collapsed in 1990, access to livestock population for disease surveillance has become extremely difficult, especially in the southern part of the country known as Transjuba. However, a proportion of the livestock was accessible until recently through PARC’s EU-funded Non-Governmental Organization (NGO) implemented programme. Earlier this year, EMPRES received reports of rinderpest in cattle in southern Somalia as well as a high mortality rate in wild pigs which are numerous. The pig disease could well have been rinderpest as warthogs are known to be highly susceptible to the disease.

**Terra Nuova activities in Somalia**

In 1999, the PARC Southern Somalia programme implemented by Terra Nuova (an Italian NGO) has been investigating a mild rinderpest-like syndrome in Lower Juba.

The objective of their study was, among other things, to search actively for the virus, assess the prevalence of the disease and collect historical information on past outbreaks.

The first results obtained from outbreak investigations provided evidence of clinical symptoms related to rinderpest in Lower Juba in 1998-1999, most of the time not associated with mortality. Rinderpest antibodies were also found in cattle populations following a serosurveillance study carried out in Lower Juba. Through outbreaks reports, it appears clear that livestock owners are able to recognise the two main forms of rinderpest, i.e severe and mild.

However, despite the excellent work that has been carried out in the field, it has not been possible conclusively to demonstrate rinderpest virus infection associated with the syndrome which has been investigated, since no virus isolation was made. Although further investigations are needed to confirm definitely the presence of rinderpest in this part of Africa, Terra nova activities have been temporarily suspended because of security reasons.
During March 1999, health officials in Malaysia and Singapore, in collaboration with Australian researchers and CDC, investigated reports of febrile encephalitic and respiratory illnesses among workers who had exposure to pigs. A previously unrecognized paramyxovirus (formerly known as Hendra-like virus), now called Nipah virus, was implicated by laboratory testing in many of these cases. Febrile encephalitis continues to be reported in Malaysia but has decreased coincident with mass culling of pigs in outbreak areas. No new cases of febrile illness associated with Nipah virus infection have been identified in Singapore since March 19, 1999, when abattoirs were closed. This report summarizes interim findings from ongoing epidemiologic and laboratory investigations in Malaysia and Singapore.

Malaysia

As of April 27, 1999, 257 cases of febrile encephalitis were reported to the Malaysian Ministry of Health (MOH), including 100 deaths. Laboratory results from 65 patients who died suggested recent Nipah virus infection. Since April 4, new encephalitis cases have been reported in the states of Negeri Sembilan and Selangor. However, the number of new cases reported decreased from a peak of 46 during March 13-19 to four during April 10-16.

The apparent source of infection among most human cases continues to be exposure to pigs. Of 65 serologically confirmed cases of Nipah virus-associated encephalitis in Negeri Sembilan, 56 (86%) case-patients reported touching or handling pigs before onset of illness. Of the 56 case-patients, 36 (64%) reported contact with pigs that appeared to be ill.

Human-to-human transmission of Nipah virus has not been documented. In a survey of nurses and physicians who cared for encephalitis patients during the outbreak and pathologists who conducted postmortem examinations of case-patients, none developed an encephalitic illness or had acute serologic evidence confirming recent Nipah virus infection. To further define risk factors for human transmission, other groups being surveyed include case-patients and their families, pig workers, abattoir workers from 10 Malaysian states, soldiers involved in pig culling, and veterinary workers with potential exposure to Nipah virus-infected animals.

Outbreak control in Malaysia has focused on culling pigs in the states of Perak, Negeri Sembilan, and Selangor; approximately 890,000 pigs have been killed. Other measures include a ban on transporting pigs within the country, education about contact with pigs, use of personal protective equipment among persons exposed to pigs, and a national surveillance and control system to detect and cull additional infected herds.

Field and laboratory studies have been initiated to investigate the potential for Nipah virus infection among animal species other than commercially raised pigs. Lung, kidney, spleen, and heart tissues from one necropsied dog demonstrated positive immunohistochemical staining using hyperimmune Hendra antibodies. Virus was isolated from kidney and liver tissues from this dog. Nucleotide sequencing of product from reverse transcriptase polymerase chain reaction amplification of RNA extracted from these tissues confirmed Nipah virus infection.

Singapore

No new cases of febrile illness associated with Nipah virus have been documented in Singapore after pig importation from Malaysia ceased and abattoirs
were closed on March 19. During March 13-19, 11 abattoir workers developed febrile encephalitic or respiratory illnesses associated with acute Nipah virus infection. Epidemiologic investigations are under way to determine risk factors for Nipah-associated illness among abattoir workers in Singapore, and laboratory studies among abattoir, laboratory, and health-care workers are continuing to determine whether Nipah virus exposure may have led to mild or asymptomatic illness.

Editorial Note: The absence of new Nipah virus cases in Singapore in the month since abattoirs were closed and the decrease in new encephalitis cases in Malaysia following the institution of measures to limit human contact with pigs suggest that pigs are the primary source of Nipah virus among infected humans in this outbreak. Investigations continue to define risk factors for infection and disease in humans to determine the modes of Nipah virus transmission between animals and from animals to humans and to identify the primary reservoir of this virus.

FOOT-AND-MOUTH DISEASE

FOOT-AND-MOUTH DISEASE REPORTS FROM CHINA

FAO has received an official report of foot-and-mouth disease (FMD) outbreaks in three provinces in China. The Director-General of the Bureau of Animal Production and Health in Beijing has communicated that there have been outbreaks in Fujian, Hainan and Tibet.

In Rikeze, Tibet, five outbreaks among cattle and pigs have led to the destruction of 60 cattle and nearly 1,200 pigs. In Ningde City, Fujian Province, two outbreaks involving 12 cases have led to 70 pigs being destroyed. In Baisha County, Hainan Province, eight sick cattle have been destroyed.

Laboratory diagnoses have shown the disease to be caused by FMD virus type O. The authorities are destroying infected and susceptible animals and emergency vaccination is under way. There is also a ban on movement of animals to other districts. The report follows one last year recording outbreaks of FMD virus type 0 in two bordering counties in Yunnan province in July.

Taiwan Province of China also reported to the OIE outbreaks of FMD, type O in cattle in June 1999 and July 1999. According to the result of the DNA sequence analysis, the strain, of bovine origin, is different from O Taiwan (pig adapted strain).
In respect to the Global Rinderpest Eradication Programme (GREP), the Expert consultation made the following recommendations:

For the remaining six identified areas of rinderpest endemcity and/or uncertainty in:

Asia

1. The European Union be requested to resolve urgently the issue of support for Pakistan in implementing a national rinderpest eradication programme.
2. The European Union be advised that failure to do so risks jeopardising the significant gains made from earlier investments globally and that rinderpest eradication is a prerequisite for all sustainable livestock development.
3. The European Union be advised that the existing proposal for a Pakistan national rinderpest control (Strengthening of Veterinary Services) project requires revision in the light of changed circumstances and the experience that has accrued since its formulation, to accent an eradication effort focussed on awareness building, epidemiological definition and disease elimination through focussed strategic immunisation rather than mass vaccination.
4. The European Union be requested to fund immediately, as an interim measure, through alternative funding agreements, a highly focussed programme of rinderpest elimination in Pakistan and Afghanistan.
5. If no progress is made in this respect by the end of 1999, FAO should launch an appeal to the international community for funding to resolve the emergency situation.
6. Regional co-ordination within South Asia requires the support of a regional epidemiologist with support funding for travel, meetings and workshops, initially for a period of three years to stimulate awareness in all countries and to guide the co-ordinated progression of countries towards verified freedom. A project should be developed based at the FAO Regional office for Asia and the Pacific, linking into existing projects and regional organisations.
7. FAO should redouble its efforts to gain funding to extend the livestock development project it has been implementing in Afghanistan and that potential donors should view this as a priority for support.

Near East

Yemen

1. There be an immediate assessment of the present situation on the ground linked to an analysis of the risk of re-importation.
2. There be a strong publicity campaign involving all sectors of the livestock keeping community followed by a targeted vaccination campaign of 2-4 weeks duration using thermostable rinderpest vaccine in a defined infected area.
3. That the success of the campaign be assessed by seromonitoring and that repeat vaccination be undertaken if necessary.
4. Funds be raised for the sole support of these objectives.

Saudi Arabia

1. GREP continues to provide support by maintaining contact with the veterinary authorities through the provision of disease intelligence, resource materials and participation in all regional training opportunities.
2. RADISON uses its potential to raise awareness of the issues relating to rinderpest and stimulates the actions required.

The ‘Kurdish Triangle’ (eastern Turkey, northern Iraq and western Iran)

1. The GREP Secretariat needs to source and analyse surveillance data from this area and must therefore foster activities to obtain it.
2. That the GREP Secretariat uses this success to maximise its success in other areas, especially in neighbouring countries hesitant to join the OIE Pathway
3. That the GREP Secretariat convenes a workshop to promote this objective in Syria before the end of 1999.

Africa

1. All preparatory steps are taken to avoid any delay between the end of PARC and the start of PACE.
2. OAU/IBAR ensures that emergency funds are available and that Member States have sufficient financial, managerial, material and human resources to cope with any outbreaks of rinderpest that may occur in disease-free areas.
3. All efforts are made to develop and use alternative methods of accessing the cattle populations in the remaining infected foci in order to accomplish disease surveillance and vaccination.
4. OAU/IBAR continues to encourage and facilitate all countries on the OIE pathway to reach Freedom from Infection as soon as possible, and to ensure that they follow harmonised surveillance procedures to do this.
5. That every effort be made to fully determine the epidemiology of lineage-2 virus and the significance of mild disease. In this regard it is imperative to reassess the efficiency of laboratory diagnosis and the criteria for serological tests.
6. That OAU/IBAR ensures that infection does not spread from the known foci to unvaccinated disease-free areas, in particular an effective cordon-sanitaire must be maintained to prevent transmission of virus from East to West Africa.
7. That the risk of the spread of infection from the two main foci should be assessed and suitable control measures instituted to reduce this risk.

For the GREP Framework for actions

The final GREP Framework for Actions, 1999 to 2003, as detailed in Section 5 of the report (‘Adopted Texts’), should be adopted by FAO.

For the GREP secretariat

The GREP Secretariat should coordinate the following actions:

1. Conduct risk assessments for the movement of rinderpest out of the conjectured areas of rinderpest persistence to define a risk reduction strategy for cost-effective containment of each of them.
2. Creation of a coordination forum to enhance rinderpest elimination and protection in South Asia.
3. In those areas of the world freed from rinderpest, encourage countries to ensure that they are protected from rinderpest by strengthened surveillance and emergency preparedness.
4. Encourage research on vaccine innovations which support discrimination between vaccine use and field virus infections.

5. Devise a GREP mechanism for the verification of rinderpest disease-free status of ecologically defined zones and countries as a prelude to global eradication to be implemented in conjunction with the OIE Pathway.

In respect to surveillance for effective prevention and progressive control of transboundary diseases, the Expert Consultation made the following recommendations:

That the TADINFO system be further developed and made available to countries. That the model framework for strengthening national and regional capabilities, (Section 5 ‘Adopted Texts’) be adopted and utilised by FAO in assisting countries and regions to develop effective early warning systems for transboundary animal diseases.

For fostering the development of early warning capabilities at the national level, FAO should

- Set standards (or norms) and develop procedures and performance indicators for disease surveillance, reporting, animal health information systems and epidemiological analysis, with an emphasis on regional perspectives on information gathering and disease control.
- Undertake training programmes in disease information systems.
- Provide development materials for information systems (manuals, audio-visu-als, publications, multi-media programmes, etc).
- Ensure that disease surveillance and monitoring components be incorporated in projects where appropriate.

For fostering the development of regional networks, FAO should

- continue the development of TADINFO at the regional level
- Prepare discussion lists – bulletins (Info exchange networks)
- Provide advice to member states on creation of new networks
- Seek appropriate regional bodies to co-ordinate new regional initiatives.

At the global level, the EMPRES Group, should undertake the following activities and programmes at FAO Headquarters, in addition to those already recommended above:

- Develop specific epidemiological capabilities in the areas specific to EMPRES priority diseases. It would be appropriate to concentrate on specific diseases as "role models" in the initial development of this capacity.
- Availability of, and use of, intelligence on diseases and disease-promoting factors must be strengthened. There should be a concentration on one or two regions to develop generic early warning systems for handling disease emergen-cies. The PAAT tsetse model is an example of this – there is collaboration between various groups in model and software development. FAO should co-ordinate the players and publish the outputs. It is important to realise that there are financial & staff implications to this.
- The Inter-American Institute for Cooperation on Agriculture (IICA) and PANAFTOSA must be encouraged to developed models in their areas. They are seen as very advanced and well able to undertake such work.
- FAO should identify funding sources in order to develop these models.
These projects (which are normative) must be clearly defined, and will involve the development of analytical tools and procedures related to EMPRES early warning.

- Generating a global disease database, disease mapping, and epidemiological analysis, should be undertaken by FAO. Information required would include data on both disease occurrence and the populations at risk. Obviously, this would be limited to EMPRES priority diseases. TADInfo should be implemented and working well in selected co-operating countries/regions, and data fed to FAO should be sourced from there (to avoid collecting volumes of suspect data). These data should be used to help understanding the dynamics of the priority diseases. Bearing in mind the timespan – it would require minimum five years to get such work up and running.

- Novel methods of data gathering should be explored (e.g. GPS, remote sensing) and also novel methods of analysis (e.g. Spot4 satellite data, especially pasture quantity/quality). The Middle East (with Jordan as focus) could be the “model” area for this. There may be a role here for RADISCON.

- EMPRES should develop effective linkages with (and use the information generated by) other agricultural early warning systems in FAO and elsewhere. It will be necessary to identify data sources and data available, and how it can be processed. It is proposed that any new data collection and analysis procedures should be tested in a model area (e.g. the Middle East as suggested above).

- FAO should develop more effective means of drawing upon available expertise to contribute to effective operational projects by funding injection of specialised expertise, e.g. in analytical activities. This can benefit partners.

- An adequate range of collaborating centres in the field of epidemiology/early warning should be identified by FAO as a matter of urgency, and effective mutually beneficial programmes of co-operation developed on a financially sound basis.

**FAO should undertake to generate a global disease database, disease mapping, and epidemiological analysis.** Information required would include data on both disease occurrence and the populations at risk.

For the development of early warning systems for specific diseases, the following candidate diseases were identified:

- Rift Valley Fever, focus case study on eastern Africa (first priority)
- CBPP, eastern and southern Africa (first priority)
- Rinderpest - PPR in Asia (first priority)

In the generation of a generic epidemiological risk analysis system, the following candidate areas/species were identified:

- West Africa - cattle, pigs (first priority)
- Pakistan - cattle
- Eastern and southern Africa junction - cattle
- China, Bangladesh, Malaysia, Myanmar - cattle/buffalo/pigs
- Andean region - cattle
- Eastern Africa - cattle

In respect to future meetings of the Expert Consultation, the Expert Consultation made the following recommendations:

1. The global rinderpest eradication programme should be covered at each Expert Consultation. Every second year a general or thematic EMPRES issue should also be selected for inclusion on the agenda for the Expert Consultation.

2. The main theme for the next Expert Consultation should be ‘verification procedures for global rinderpest eradication’.
VIRULENT NEWCASTLE DISEASE OUTBREAK IN AUSTRALIA

Early April this year, Australia encountered the second outbreak of Newcastle disease in less than one year. The recent outbreak is located approximately 40 km from the September 1998 outbreak. The restricted area (OIE “infected zone”) encompasses the Mangrove Mountain ridge which is a well defined wedge shaped area, 18 km long and 10 km wide. The total number of confirmed infected farms is nine commercial farms. There is no evidence of virulent Newcastle disease outside the infected and surveillance zones.

Avirulent to low virulence strains of Newcastle disease virus have been present in Australia since the late 1960’s. These strains have caused little to no production problems and no vaccines have been used to control these naturally circulating strains of the virus. Nucleotide sequencing of the F gene, and particularly the HN gene, clearly demonstrated that the outbreak virus strains were closely related to a known Australian strain of low virulence for chickens. This suggested that the outbreak viruses were derived from this Australian strain of Newcastle disease virus rather than from an imported strain. The outbreak strain has an intracerebral pathogenicity index (ICPI) of 1.7 and the intravenous pathogenicity index (IVPI) is 1.1.

Destruction of all the birds on the 32 broiler farms within the proclaimed infected zone was completed by 12 May 1999. In addition more than 2,000 aviary and poultry birds on small non-commercial flocks within the infected zone were destroyed by 28 May 1999. Over 1,900,000 birds have been destroyed to date and decontamination is continuing on commercial and non-commercial farms in the infected zone.

As an added precaution, restocking in the infected zone and surveillance zone will be deferred until all broiler farms within the surveillance zone have been destocked and approved disinfection has been completed.

Intensive surveillance is being maintained in both the infected zone and the surrounding surveillance zone. Virulent Newcastle disease has been regionalised according to OIE principles. Therefore, no restrictions have been placed on the movement of poultry or poultry products within Australia, except from the infected and surveillance zones.

(Source of information: OIE web-page up to 12 Jul. 99)

NEWS

3. The tentative dates for the next Expert Consultation to be 29-31 May 2000 (i.e. immediately after the OIE General Session), but this will depend on whether the new GREP Secretariat is in place by then.

PUBLICATIONS


The manual developed by FAO/EMPRES is now available in English. French and Arabic versions will be available soon.

_Peste des petits ruminants (PPR)_ - also known as goat plague - is posing an increasing threat to food security in Africa and Asia wherever small ruminants form an important component of agricultural food production. Accurate diagnosis is essential for its control, but not always straightforward because of PPR’s similarity to other diseases.

“Recognizing Peste des petits ruminants - A Field Manual” aims at making all concerned with the health of small ruminants «think PPR» and recognize it rapidly when it occurs. It provides a condensed overview of the disease, describes clinical signs, the most important differential diagnoses and guides the user on how to go
further if a PPR case is suspected. The text has been kept at a basic level for use by non-veterinarians and veterinarians alike. The manual is part of a series prepared by FAO’s Emergency System for Transboundary Animal and Plant Pests and Diseases (EMPRES) Livestock Unit, as an aid to emergency preparedness for the major transboundary diseases of livestock.

This 30 pages, full-colour manual can be obtained through local FAO publications sales agents (for a list of agents, see Web Site: http://www.fao.org/CATALOG/interact/fsal-e.htm), or by contacting FAO-EMPRES.

**CONTRIBUTIONS FROM FAO REFERENCE LABORATORIES AND COLLABORATING CENTRES**

**FAO/OIE World Reference Laboratory for FMD, Pirbright, UK**

**FMD report for April to June 1999**

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NVD: No virus detected
SVDV: Swine vesicular disease virus

**TRAINING COURSE - Institute of Animal Health - Pirbright, UK.**

Principles and applications of ELISA for disease diagnosis (13 September - 10 October 1999)

A detailed insight into the development, validation and standardization of diagnostic assays to allow critical evaluation of commercially produced kits and greater ability to trouble-shoot when and if problems arise. It will also give a full understanding of the relative merits of various assay systems and assist in the development of appropriate immunoassays for both research and commercial applications. The course will cover basic immunology, ELISA principles, purification and enzyme-labelling of immunoglobulins, test development and validation, standardization and internal/external quality control.
NATIONAL ANIMAL DISEASE SURVEILLANCE SYSTEMS

A RADISCON workshop for the Establishment of the National Animal Disease Surveillance System in Saudi Arabia, Oman and the United Arab Emirates (UAE) was organised in collaboration with the Department of Animal Resources in Riyadh, from 2 to 6 May 1999. In addition to the RADISCON National Liaison Officer (NLO) of Saudi Arabia, nine participants from the hosting country, four from Oman and two from the United Arab Emirates attended the workshop. This is the first time that the United Arab Emirates take part to a RADISCON activity, since the start of the project’s implementation in June 1996. It is hoped that this will be followed by the nomination of an NLO for the UAE.

WORKSHOP ON DATABASE MANAGEMENT

RADISCON workshop (WS) for the adoption and standardization of a common minimal national system to gather, treat and exchange epidemiological data was organized in Rabat, Morocco, from 26 to 30 April 1999, with the collaboration of the “Département de Microbiologie, Immunologie et Maladies Contagieuses” of the “Institut Agronomique et Vétérinaire Hassan II”, Rabat, Morocco, and the participation of CIRAD-EMVT, Montpellier, France, as well as a Veterinary Epidemiologist from Zimbabwe. The workshop was dedicated to the present or future operators of the national animal disease information databases of RADISCON participating countries. During the WS, participants were familiarised with the use of modern epidemiological techniques and tools to improve data collection, processing and analysis (using the new FAO/EMPRES developed software TADInfo) and discussed how to determine the minimal information that each country should share with the rest of the participating countries and with RADISCON Coordinating Unit (RCU) as to prepare the debates on the same subject due to be covered by their respective CVOs at a later stage. Twenty-seven participants, from 22 RADISCON countries, attended the workshop. These were from Algeria, Chad, Djibouti, Egypt, Eritrea, Ethiopia, Iran, Iraq, Jordan, Lebanon, Libya, Mali, Mauritania, Morocco (the alternate NLO and the three peripheral epidemiology
units coordinators), Niger, Oman, Somalia (two participants), Saudi Arabia, Sudan, Tunisia, Turkey (two participants) and Yemen.

The programme of the workshop was as follow:

- Descriptive epidemiological indicators
- Disease surveillance and surveys
- Introduction to the database concept
- Methodological aspects of data collection for animal disease surveillance,
- Problems encountered in database management (data quality and data verification).
- Experience sharing in data handling between participating countries
- Presentation and discussion of RADISCON Reporting System and Forms
- Presentation and use of TADInfo software
- Round table discussion to propose recommendations for the CVOs’ meeting on minimal level of consented transparency between countries.

Hereafter are concrete proposals made by the participants to define the nature and mechanisms to share data/information among RADISCON countries:

- The importance of systematic report to RADISCON co-ordinating Unit and other countries of all information on disease of regional interest;
- The transparency and honesty in information exchange;
- The standardization of disease surveillance and reporting in RADISCON countries;
- The use of standard or similar data bases for analysing and treating data in order to simplify information sharing;
- The improvement of collaboration between neighbouring countries on diagnosing transboundary diseases;
- The need of support by CVOs of recommendations to implement information sharing at the Paris CVO Meeting (14 May 1999);
- The necessity to use a data base fed from an agreed information by each RADISCON country taking into account the animal health status within each country;
- The strengthening of RADISCON Network within and between countries, notably by financing e-mail connection.

RADISCON CVOs MEETING

On the 14 May 1999, RADISCON has convened in Paris, a CVOs meeting on the adaption of minimal standards for disease information exchange amongst RADISCON countries. The objective of the meeting was to study the findings of the Rabat workshop and discuss the nature and mechanisms of data sharing among RADISCON countries.

CVOs of twelve RADISCON countries, who went to Paris to attend the OIE General Session, took part to this meeting. These were CVOs of Algeria, Bahrain, Chad, Egypt, Eritrea, Iran, Jordan, Kuwait, Oman, Mauritania, Morocco and Saudi Arabia.

The meeting started with a statement by Dr Cheneau (on behalf of FAO) and another presentation by Dr Chillaud (on behalf of OIE). These will be very soon available on the web at RADISCON URL address: http://www.fao.org/WAICENT/FaoInfo/Agricult/AGA/AGAH/ID/Radiscon/

The meeting endorsed the recommendations of the Rabat workshop and debated issues related to openness/transparency as regards sharing information on new or evolving outbreaks of transboundary animal diseases (TAD). The link and distribution of responsibilities between the information collector/analyst (NLO or Head of Epidemiology Unit/Department) and the person authorised to disclose them (usually the CVO) was considered as one of the major constraints to the exchange of information.
The Third RADISCON Steering Committee Meeting took place in Paris on 15 May 1999. In addition to FAO and IFAD representatives, two out of the four sub-regional representatives of the RADISCON sub-regions attended the SC Meeting: Dr. A. Tber, Morocco, representing the Maghreb and the Sahel sub-region and Dr. S. Al-Khalaf, Kuwait, representing the Gulf countries. The Middle East sub-region was represented by Dr A. Motallebi, Iran, acting as an alternate to Dr. M. Amarin. The representative of the Horn of Africa/others sub-region and the AOAD delegate could not attend the meeting.

Despite the efforts made by RCU to encourage countries to submit their reports to their sub-regional representatives, only reports from the Maghreb and the Arab Gulf sub-regions were presented, followed by individual country reports from Iran and other participants who attended the meeting as observers (Jordan, Egypt and Eritrea). Yemen and Israel had already submitted their reports but these were not incorporated in the sub-regional reports as required. Later on, the RCU received country reports from Sudan and Tunisia. Other country reports (12) are still outstanding.

The following issues were singled out as deserving particular attention in the near future:

- the programme is very successful and it is time to consider the transfer of ownership to the beneficiary countries and this could be done by focusing on sub-networks (clusters) containing each a lead country which has already a fairly developed system and empowering sub-regional representatives;
- The need to pursue the programme’s concept with FAO phasing out progressively but keeping its technical backup through the regular programme of work and budget (PWB).

NATIONAL LIAISON OFFICERS (NLOs) AND ALTERNATES

They are the RADISCON senior operators nominated by their national authorities to undertake the job according to the terms of reference laid down hereunder: They are usually the country national lead epidemiologists responsible for operating their respective National Disease Surveillance Systems (NADSS) under the...
With regard to RADISCON they are expected to:

- Be responsible for the proper handling and maintenance of equipment and supplies pertinent to the central and peripheral units of RADISCON;

- Install, update and maintain in good running conditions the software and assure that the equipment and software be used for the national component of the RADISCON network;

- Be entrusted with the establishment of the network as per the work plan of the project proposal and prepare the inventory of items (personnel, material resources, management support, etc.) needed for the network;

- Determine the most pertinent data to be reported to countries within the same sub-region as well as to the RADISCON Coordinating Unit (RCU) in Rome using standardised reporting forms (RADDOR and RADM);

- Submit at monthly intervals information concerning animal disease surveillance to the network (RADM) and following the disease reporting protocol in case of emergency as agreed upon at the Rabat meeting (26 - 30 April 1999);

- Be entrusted to train colleagues and field personnel in animal disease surveillance and particularly in data collection and reporting;

- Determine and recommend the nature of the data to be submitted by the peripheral stations observing timeliness and provide feedback to the field stations;

- Co-ordinate data collection among peripheral stations and compile, tabulate and analyse those data before their dissemination and/or forwarding to partners and the RCU at FAO. Routine surveillance will be carried out for brucellosis, whereas three EMPRES priority diseases, namely rinderpest, peste des petits ruminants and foot-and-mouth disease will be subjected to special reporting conditions.

RADISCON CVOs who haven’t done so are kindly requested: (1) to inform the RCU on any changes in the name of their respective NLOs; (2) to update continuously their coordinates, principally e-mail addresses; and (3) to nominate systematically alternates.

NEWS FROM TUNISIA

As a partner of the RADISCON regional pilot programme on surveillance for control of sheep pox in the Maghreb Countries (Morocco, Algeria, Tunisia and Libya), Tunisia has changed its sheep pox vaccination campaign period from autumn to spring, starting from 1999, so as to harmonize its vaccination period with the rest of its partners. As mentioned previously, the main objective of the programme is to improve sheep pox disease intelligence and ultimately reduce the losses caused by sheep pox infection in Morocco, Algeria, Tunisia and Libya, leading towards its control and eradication.

Also, since March 1999, the Central Epidemiology Unit is electronically connected to Internet and to the computerized RADISCON Network. In addition to that, the two previously identified epidemiology peripheral units of Bizerta in the North and Sfax in the South, are now electronically connected. A National back-bone Network is being established within the Ministry of Agriculture and will allow the electronic connection of all the regional veterinary services with the centre.
Yemen started addressing foot-and-mouth disease (FMD) as a strategic disease and is intended to start vaccinating 10% of its cattle population and 15% of its sheep population. This vaccination programme will take place in areas where animals are kept in an intensive manner, mainly in the Tihama region. It is planned to start the vaccination programme in the year 2000, when funds are allocated. For the ongoing year, no resources are budgeted to start the FMD vaccination and Yemen is looking after other sources of funding to start vaccinating in the last quarter of 1999. FAO is considering the granting of a Technical Cooperation Project (TCP) to tackle both rinderpest and FMD outbreaks in Yemen and strengthen the national RADISCON system.