NAMIBIA FOOT AND MOUTH DISEASE CONTINGENCY PLAN

Preamble

February 2003

Foot-and-mouth Disease

Foot-and-mouth disease is the most highly contagious known disease of livestock. It is caused by a virus and is spread by:

- Direct contact between infected animals
- Aerosols generated by infected animals
- Ingestion of contaminated meat products
- Indirect contact via any material originating from, or having had contact with, infected animals.

There are seven serotypes of FMD virus: O, A, C, SAT 1, SAT 2, SAT 3 and Asia 1.

The disease affects all cloven-hoofed animals including domestic ruminants, camels and pigs.

The basic lesion caused by the virus is a vesicle, or blister, which may be found on the tongue or elsewhere in the mouth, at the muco-cutaneous junctions of the feet and on teats. The virus may also cause a fatal degeneration of the heart muscle in young animals with sudden death. The saliva of sick animals is regarded as highly infective. Virus may be excreted for several days before lesions appear.

Clinical Signs

Affected animals will have fever and an accelerated heart rate; salivation (due to lesions in the mouth) may be intense. Dairy cattle will show a sudden decrease in milk production. Appetite will be lowered, and when animals do try to chew the chewing attempts will be abnormally noisy. Lameness may also be observed; pigs may walk "on their knees" due to the intense pain in their feet.

Clinical signs in sheep may be mild and manifest only as lameness; goats usually show lesions around the mouth, while in pigs, vesicles on the snout are usually very obvious.

On closer inspection, lesions may vary in size, age and severity. Animals may suffer from a pronounced halitosis and lesions on the tongue or gums may vary from small blisters or erosions to large, fluid-filled vesicles that slough off, leaving raw and painful areas. Lesions may be so pronounced that the entire tongue may be devoid of its normal mucosal covering and eating will be impossible; or they may be small and insignificant. The most confusing may be lesions that are old and busy healing; these may have the appearance of traumatic wounds.

Vesicles may appear between the digits or around the coronet of hooves, which "burst" and leave bleeding ulcerations in their place. Hooves may be so badly affected that the wall of the hoof separates and sloughs off.

Vesicles may also appear on the teats and udder which may lead to a secondary mastitis. Abortion is seen in all species.

Initial signs of FMD as may be observed by a farmer would be salivation, inappetance, lameness and a loss in milk production. These signs may appear in any combination, and should be closely investigated.

Current FMD Status

Namibia has an OIE-recognised Foot and Mouth Disease (FMD) free zone where vaccination is not practised which allows it to export animals and animal products to other countries with the minimum sanitary restrictions. The FMD zoning is central to the prevention and control of FMD in the event of an outbreak.

The country is a major exporter of livestock and livestock products which would be adversely affected by an outbreak of foot and mouth disease.

Recovery of free status

Basically the following strategy options are available if the country is to regain its status within a reasonable period –

a) **stamping out** ; b) **vaccination** c) **a combination of the two**.
Of these, only the second is a viable option, unless restricted to limited number of animals. Animals at both the infected farms and the buffer zones around them will be vaccinated.

The implications of the alternative strategies regarding regaining the disease free status are as follows:

a) Stamping out

i) 3 months after the last case where ***stamping out*** and ***serological surveillance*** are applied
or

ii) 3 months after the slaughter of the last vaccinated animal where ***stamping out***, ***emergency vaccination*** and ***serological surveillance*** are applied.

b) **Vaccination**

i) 6 months after the last case or last vaccination (according to the event that occurs latest) where a **stamping out policy, emergency vaccination** not followed by slaughtering of all vaccinated animals and **serological surveillance** are applied, provided that a serological survey based on the detection of antibodies to non-structural proteins of FMDV demonstrates the absence of infection in the remaining vaccinated population

Stamping out is only practical where the outbreak is very small or when only pigs are involved and the full extent of possible spread is known. This is very unlikely in a real situation which leaves strategies involving vaccination as the only alternative.

To regain the FMD free zone status soonest, it is advised to slaughter all cattle in the infected zone as soon as possible, while the results of the sero-surveillance will dictate the future of animals in the buffer zone. **Furthermore**, a statistically significant sample based on the susceptible population in the rest of the game compartment, would need to be tested for the absence of FMDV infection before a free status can be applied for.

Risk analysis for Foot and Mouth Disease

Namibia is a net exporter of livestock and livestock products. An outbreak of FMD in the FMD-free zone will result in the immediate suspension of all exports and its effects on the economy will depend on how quickly the situation returns to normal.

The country is zoned for FMD control and the current FMD status depends on the maintenance of the integrity of the zoning system as well as other factors aimed at reducing the disease risk in the free zone. These include vaccination in the buffer zone, movement control as well as strict import controls.

If the integrity of the zones is compromised through illegal movement of livestock or products from high risk areas; disruption of the current barriers or from illegal import of infected animals or products, FMD may break out in the free zone.

The risk will remain fairly low if the surveillance system remains intact, movement controls are observed as well as import control strictly enforced.

Threat from within the country

The last outbreak of FMD in the country was in August 2000 and occurred in the infected zone at Kasika in the Caprivi. There has been no outbreak of FMD in the buffer zone (Northern communal areas excluding the Caprivi) since 1992 (Kavango) and no outbreak of the disease in any region south of the veterinary cordon fence (VCF) since 1965.

However, the disease is known to occur in the wild buffalo populations in the infected zone. The disease is thus likely to break out in the infected zone with spread to the buffer zone, the surveillance zone and finally the free zone. Where no criminal elements are involved, the disease outbreaks in the infected and buffer zones are expected to be fairly limited due to the prophylactic vaccination which is practised. The smuggling of animal or products from the infected zone poses the greatest risk to an outbreak south of the veterinary cordon fence.

The speed of detection of an outbreak in the free zone will depend on the effectiveness of the surveillance system and knowledge of the disease by farmers and other role players. Once in the free zone, the main route of spread will be through movement of cloven-hoofed animals including game.

Threat of FMD from regions adjacent to the free zone

The FMD-free zone in the country is separated from South Africa and Botswana which border it by physical barriers (fences). Both countries also have zoning for FMD and therefore perceived to pose very little risk to Namibia. The portion bordering Botswana's vaccination zone to the east, is separated by double game and stock-proof fences whilst the area bordering the OIE-recognised free zone is separated by a game and stock-proof fence.

The portions of the FMD free zone bordering South Africa is a foot and mouth disease free zone which was not affected by the outbreaks in 2000.

The threat from these two countries is from illegal movement or import of infected animals or products.

- *The threat of FMD from wildlife in the free and buffer zones*

The wildlife in both the buffer and free zones are believed to be free from FMD virus. No wildlife other than rhino have been translocated from north of the VCF to south of the VCF since 1996 when sable antelope were brought from Mahangu to Etosha. All the sable antelope tested negative for FMD and they were quarantined for 6 weeks under veterinary supervision.

In a disease surveillance exercise done in 1995 to move the veterinary cordon fence further north to the 20th parallel, fifty four free-roaming buffalo in Tsumkwe area were tested for FMD with negative results. The animals are now confined in a fenced area in the Tsumkwe area. The animals were again tested in 2002 with negative results.

The Ministry of Environment and Tourism, Department of Natural Resource management keeps records of all game captured and translocated. All activities are done under veterinary supervision and the animals are certified clinically free of disease before movement. The wildlife in the buffer is thus believed to pose no significant risk for an FMD outbreak.

A number of game farms exist in the free zone but none of them have free-roaming African buffalo, the natural carrier of FMD virus.

The presence of game in the free zone will be a very significant factor in the event of an FMD outbreak. This will make any consideration of a stamping out policy unattractive.

Current Policies and Strategies for preventing the introduction of FMD

- Annual vaccination of cattle against FMD in the infected and buffer zones

- Import Control

Livestock and livestock products are imported into the country through specified entry points. Imports are controlled centrally through a permit system. The import permits specify the conditions under which the animals or animal product may be imported. The conditions are based on OIE guidelines and designed to minimise accidental introduction of diseases particularly FMD through imports.

- The feeding of domestic animals with swill from foreign vessels is prohibited.

The disposal of garbage from ships is handled by Port Health which falls under the Ministry of Health and Social Services. At the main port at Walvis Bay, left over food and other waste from the vessels are incinerated.

- *Airports:*

Private contractors are responsible for handling waste from planes, buses and trains in Windhoek. Waste from the main airport is taken to a dump within the airport complex where it is burnt. Elsewhere the waste products are taken to a general dump where it is covered with soil.

Movement permit controls

Veterinary officials and the police are authorised to ask for a movement permit from anyone moving cloven hoofed animals from one place to another. Animals are not allowed to move to and from auction premises unless they have a valid movement permit. Animal Health Inspectors officiate at all auctions to enforce this requirement.

- *Movement of small stock to the south of the VCF*

Sheep and goats in the buffer zone are not vaccinated against FMD. These may be permitted to move south of the veterinary cordon fence after undergoing quarantine for 21 days at approved quarantine stations during which they are checked for clinical signs of disease. The animals are only allowed to move under cover of a movement permit. Most of the requests for such movements are for animals going to slaughter; otherwise the animals are restricted for a further 3 weeks at the destination.

- *Other Restrictions*

Regulations specify the products and the conditions under which specified products are allowed to move from north of the VCF to the south. This is strictly enforced at veterinary check-points at gates leading out of the buffer zone. Movement permits are issued for products permitted to move south.

Raw meat except from that from approved abattoirs and under cover of a veterinary permit is not allowed south of the VCF. Hides and skins are allowed after treatment. These are transported in sealed trucks to approved quarantine tanneries and are off-loaded under veterinary supervision.

- *Surveillance at abattoirs*

Export abattoirs are under direct supervision of government-paid veterinary officials. In addition to meat inspection and other public health issues, the official veterinarian is also responsible for certification for export. All movements of animals to abattoirs are controlled through a permit system used in conjunction with a unique owner-specific branding system to trace the origin and owner of animals brought for slaughter.

On arrival at an export abattoir, the cattle are inspected for clinical signs of illness by veterinary staff. All animals also undergo an ante-mortem inspection during which they are specifically checked for signs or lesions suggestive of FMD. At post mortem, the feet and tongues are inspected for FMD lesions.

Records are kept to enable trace-back when necessary.

The following action plan will be implemented once FMD is suspected or confirmed:

Foot and Mouth Control Strategy: Outbreak in Free Zone

Suspected outbreak:

(i) AHI or farmer reports to SV. SV investigates and reports to Head Quarters if infection can not be ruled out beyond any doubt.
- Remember importance of disinfection at all times

(ii) HQ proceeds with sampling equipment to suspected focus.

- Sampling equipment available at Windhoek (Also kept at Katima Mulilo, Rundu and Ondangwa)

Equipment Required for sampling

A. (a) 4 Disposable syringes + needles – sterile packing.
(b) 4 Bottles Phosphate buffer – note expiry date.
(c) 1 tissue forceps
(d) 1 Pair of scissors
(e) 2 Pr P.M. gloves
(f) 2 kg washing soda (carbonate of soda)

Note: Dissolve 500 gram washing soda in 10 litres of water for disinfection after samples have been taken.

B. Overalls, gumboots, buckets, cooler with ice, stirrup pump (sprinkaanpomp)

Method

(i) If vesicles exist – withdraw fluid with syringe and deposit in buffer – keep cool and protect against direct sunlight.
(ii) Take vesicle epithelium tissue – deposit in buffer.
(iii) Take samples from two or more animals – minimum 4 samples.
(iv) Samples in sealed container – soldering.
(v) Keep cool at all times.

(vi) Proper disinfection of all utensils / equipment, clothes, boots, hands etc and wheels of vehicle depending on where parked – before departure
NB. Sampling bottles to be disinfected on outside.

Packaging and dispatch of specimens

(i) See BVI instructions and recommendations attached.
(ii) Specimens sent to either BVI or OP: (Laboratories must be notified in advance)

- Botswana Vaccine Institute
  Private Bag 0031
  Gaborone
  Botswana
  Tel. + 267 – 312711

- Onderstepoort Veterinary Institute
  Private Bag X05
  Onderstepoort 0110
  Tel. + 27-12-5299111

- Order Vaccine once Virus Type is known.

Reporting

(i) Minister via Permanent Secretary etc.
(ii) All SV Offices – Information and instructions eg. movements to and from infection, movement restrictions; auctions etc – until detection of limits of infection.
(iii) SADC – countries – Addresses at epidemiology section.
(iv) OIE – First notice of suspicion – then confirmation -
Fortnightly reporting afterwards

Example: See OIE format

- Outbreak or case – Disease – Affected species – Number of affected animals (per species)
- Clinical diagnosis – Laboratory diagnosis – Identified type (s) of virus
- Geographical localisation: farm, village, district, province, etc., or geographical co-ordinates (longitude – latitude)
- Seriousness – Measures applied (sanitary and/or veterinary)
  Signature (code telegraphic address)

(v) RSA/Botswana telephonically – protect their borders.
(vi) Farmers Unions, Meat Board, Meatco
(vii) EU Brussels / Swiss / Norway
(viii) News Release:- Ministry of Agriculture
Inter alia - all movements of cloven-hoofed animals / products suspended
Permits already issued cancelled
(ix) Airports / Customs – No potentially infectious material to be transported.

FMD emergency equipment

To be kept at Otjiwarongo and annually checked.

1. Road signs

(a) Animal disease checkpoint ahead. (x2)
(b) Stop Signs
(c) Flash lights

2. Other stocks

(a)	Zinc baths	5
(b)	Buckets	5
(c)	Washing soda	5 x 50 kg
(d)	Gumboots	5 pairs of Sizes 8, 9 & 10 each
(e)	Rubber gloves	20 pairs of Sizes 9 & 10
(f)	Overalls	6 each of Sizes 102 - 122
(g)	Black iron pots	5 of No 2
(h)	Branding irons	40 - KH
(i)	Cattle marking paint	4 x 5 litres
(j)	Stirrup pumps	12
(k)	Tents	4 cottage 3 x 4 M
(l)	Camping tables	4
(m)	Camping chairs	4
(n)	Spades	4
(o)	Axes	4
(p)	Torches	4 (buy batteries)
(q)	Gas – lamps	4 (complete with gas bottles)
(r)	20 litre water cans	5

3. Additional

Water carts	Arrange with HQ
Radios	

CONTROL

1. Instructions to "all" offices

(i) Suspend movement of all cloven hoofed animals – including permits already issued. No permits to be issued until further notice.
(ii) Check for all permits to (and from) "farm" of infection for past month and report to HQ.
(iii) Emphasise maintenance of game fences and implement closing / control of thoroughfares.
(iv) Implement Permit control for products.

2. Additional instructions to office where infection occurred

(i) Check all permit movement to infected farm for past month and report to HQ
(ii) Provide summary of all permits from the said farm for the period:- Estimated period of the infection + one month – and inform HQ.
(iii) Enquire about all movement of products from the infected focus e.g. meat, cream, hides etc.

3. Instructions to all SV offices from where animals moved to the infected focus during the past month

(i) 100% Mouth – inspection on first farm of origin. If negative the suspension of movements lasts until one month since date of movement.

(ii) 100% Mouth – inspection on all farms from which animals have moved to the first farm of origin (in (i) above) as well as all farms to which animals have moved from this farm – for the past month ("All farms" include direct movements or indirect – ie via another farm).

(iii) Weekly hoof-inspections continue (with suspension of movements) on all such farms until one month has expired since the estimated time of initial outbreak.

(iv) If infection is detected the whole process is repeated with a new estimated date of first infection.

4. Instructions to state vet offices – to which animals have moved from the infected focus ± one-month since the estimated time of first infection. (Note permits valid for 30 days)

(i) 100% mouthing on all farms of destination – i.e. 2nd and 3rd farms of destination as well – if such movements have taken place during the said month.

(ii) Hoof inspections every 3rd day continue on all these farms for the said month.

5. Actions at focus(ci) of infection (Actual farm(s) where infection is detected or where direct contact was likely as well as those to which animals have moved and are still potentially incubating disease)

(i) All exit-roads leaving this farm(s) will be locked and strictly controlled. Vehicles and people leaving will be properly disinfected. No infectious articles (AG86/1982) will be allowed to leave.

(ii) Evacuate cloven hoofed animals from camps on the perimeter of this area.

(iii) The infected focus will be cordoned off on the perimeter of the infected farms. Each 2 km – 4 man tent (Torches, rifle, water) – e.g. 130 km – 65 tents and 260 men. All game crossing in either direction shot. (Defence Force?)

(iv) "Firing" may be considered if infection is limited. (artificially infecting animals)

6. Buffer Area

(i) Create preliminary buffer area around the infected area with a radius of approximately 80-km.

(ii) All exits on this perimeter will be controlled – same requirements as for 5(i) (Recruit staff?)

(iii) No movements of cloven hoofed animals / products allowed inside or out of this area initially Movements to abattoirs inside the buffer area later considered – Local consumption and slaughter within 24 hours:

Requirements for such movements:-

* Good inspections throughout
* 80% cattle and 100% small stock inspection immediately prior to movement
* 100% mouthing of animals to be moved.
* Sealed Mechanical transport only
* Slaughter within 24 hours
* Route description where necessary

Note: Movement preferably on inspection dates.

Products which may be allowed:- milk for babies (bottle), factory cheese, butter etc. if factory is not situated inside the buffer zone. Same for pasteurised milk.

Determination of actual infection

(i) Establish programme along the following lines:
Determine number of farms inside the circle (80km) – excluding infected area and calculate roughly 3 farms per AHI per day e.g. 300 farms : 25 AHI: duration 4 days (Recruit "farmers"?)

(ii) Animals are mouthed from the perimeter of the buffer area towards the infected area. The "final" buffer will be established with a radius of ± 50 km around the infected area.

a) 100% mouthing of cattle (Attention to small stock & pigs where relevant)
b) As soon as infection is detected, mouthing is stopped and the exercise is repeated again starting on the perimeter of the buffer zone – so as to detect spread of the disease.

NB Disinfection of people, overalls, vehicles etc each time prior to departing from where infection is detected.

Frequency of inspection in the Buffer area:

Two farms deep around infection – 3 Days interval
Rest of buffer - 7 Days interval
Hoof inspection with mouthing when suspect animals are noticed.

7. Rest of Game Compartment in which outbreak occurred.

Inspection frequency

Fortnightly hoof inspections with mouthing for suspect animals.
[Rest of the country: as is normal for that area (annually)]

Movement Control

Fortnightly inspection frequency – area (Game Compartment)

* All exists from the game compartment will be controlled.
* Movement to RSA – Negotiable
* Movement to quarantine abattoirs (Namibia) allowed
* Movement within this area allowed subject to:
  local abattoirs
  emergency grazing
  water crisis
  emergency sales

These movements must be approved by the DVS Head Office subject to the following:-

(i) good inspections throughout
(ii) 80% cattle and 100% small stock inspection immediately prior to movement
(iii) 100% mouthing of animals to be moved
(iv) Hair – brand for all animals not going to a slaughterhouse.
(v) Mechanical transport – sealed trucks.
(vi) 28 days restriction at destination.
(vii) SV destination telephonically informed
(viii) General – Immediately prior to departure means within 4 days. Permit valid for max of 7 days.

8. Rest of the country (Inspection frequency "normal")

* Movement to RSA – Negotiable
* Movements to Namibian quarantine abattoirs allowed
* Movements to fortnightly inspection frequency – area and within, allowed subject to:

(i) Good inspections throughout
(ii) 100% mouthing of all animals moving
(iii) Hair brand for all animals not going to a slaughterhouse.
(iv) Mechanical transport only – sealed trucks
(v) 28 days restriction at destination with official uplifting. If this does not coincide with inspection it will be at owners cost.
(vi) SV destination telephonically informed.

9. Vaccination and Clinical End Point (Inspections cease in buffer / infected zones during period of vaccination)
Buffer and infected areas will be vaccinated
Vaccination teams do two farms per day
300 Farms within 1 week - 15 Teams
(One team deals separately with infected zone)
Vaccinate from periphery inwards
All cloven-hoofed stock vaccinated including pigs.
Vaccination programmes distributed to all farmers
All vaccinated cattle (others? e.g. sheep) are permanently branded.

Cattle in the infected zone are branded differently from those in the buffer zone. For fear of possible carriers cattle from the infected zone, and initially from the buffer zone (pending the results of sero-surveillance to determine their status), will only be allowed to move to slaughterhouses for immediate slaughter, maturation and deboning.

Follow up vaccination one month after first.
After vaccination and until clinical end point continue with inspections as before.
Clinical end point 1 month after 2nd vaccination with 100% mouthing.
Inspection frequency then changes to fortnightly in the buffer and infected areas and to monthly in the rest of the game compartment.
Control points remain in place until 6 months after 2nd vaccination, but with possible relaxation depending on circumstances.

10. Auctions

* Total embargo on all auctions countrywide until further notice.
* After determination of buffer and infected zones auctions may be allowed in those areas outside the game compartment which is affected – provided that no animals may be moved to or through the buffer or infected zones. Route description where necessary.

11. Shows

Total embargo until further notice.

12. Game

Total embargo on hunting until further notice.

13. Products

Permit control immediately implemented for all products until further notice. Sterilised factory products and products originating from outside Namibia are exempted.

Permit control may be exempted for certain areas following the determination of infection.