



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



**Sudan country report in the annual
meeting of the Eastern Africa
Regional Laboratory Network
(EARLN) in Entebbe 2013.**

Presented by: Dr. Inas Ibrahim



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



Sudan is one of the largest countries of animal populations in the Middle East, estimated at 104.911 million , with cattle 29.840 million, sheep 39.483 million, goat 30.837 million and camel 4.751 million.

40% of the Sudanese population depends entirely on livestock for their livelihood.



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



There is an increasing demand on Sudanese livestock and meat for export. The sector contributed approximately by 20-30% of the Sudan GDP and 53% to 56% of the agricultural GDP and provides over 20% of the country foreign exchange.

Wildlife in Sudan

| State | Species | Remark |
|------------|--|---|
| Northern | Dorcas gazelleالكبش الوحشي Ammotragus lervia غزال العادة | - |
| River Nile | | Hassania National Park (New) |
| Red Sea | Dorcas gazelle غزال العادة ، أم دقدق Sylvicapra grimmia الكبش الوحشي ، Ammotragus lervia غزال العادة ، معز الجبل Capraibex nubiana أبو نطا Oreotragus oreotragus | Tokar Game Reserve |
| Kassala | Kobus spp الكتمبور ، النلت Kobus defassa ، أبو Taurotragus derbianus ، غزال الاريل Tragelaphus scriptus ، الحلوف Phacocoerus aethiopicus | Zoo (some antelopes) |
| Khartoum | Dorcas gazelle غزال العادة | Zoo (some antelopes) +Captive antelopes |
| White Nile | Dorcas gazelle غزال العادة | Zoo (some antelopes+ one elephant |

| State | Species | Remark |
|-------------|---|--------------------------------|
| Gedarif | Phacocoerus aethiopicus ، البشمات Redunca redunca ، وغزال العادة Dorcas gazelle | Dindir National park |
| Blue Nile | Phacocoerus aethiopicus و الحلوف Taurotragus derbianus النلت الأكبر | |
| Sinnar | Syncerus caffer ، الجاموس Kobus defassa ، الكتمبور Hippotragus equinus ، أبو عرف Kobus spp. التيتل Taurotragus ، النلت الاكبر Ourcbia ourebi ، المور Tragelaphus scriptus ، أبو نباح Kobus caffer ، البشمات Redunca redunca ، الحلوف Phacocoerus aethiopicus ، الأفيال Loxodonta africana | |
| N/Kordofan | Gazelle sommeringi و غزال الأريل Beisa oryx ، بقر الوحش (أبو حراب) Dorcas gazelle غزال العادة Ammotragus lervia كبش مي | Errahad National park (New) |
| N/ Darfur | | Wadi Hawar National park (New) |
| S/ Kordofan | ، أبو نباح Kobus spp. ، التيتل Hippotragus equinus ، أبو عرف Taurotragus derbianus النلت الأكبر ، Tragelaphus scriptus ، والأفيال Loxodonta africana ، البشمات Redunca redunca ، Sylvicapra grimmia أم دقنق والزراف Giraffa camelopardalis | National park (New) |
| S/ Darfur | ، الجاموس Syncerus caffer ، الأفيال Loxodonta africana ، الزراف Giraffa camelopardalis ، أم دقنق Redunca redunca ، البشمات Phacocoerus aethiopicus ، الحلوف Taurotragus derbianus و النلت الأكبر Hippotragus equinus ، أبو عرف Ourcbia ourebi المور | Radom National park |







TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



Socio-economic impact study of FMD in the country :

**The conclusion of the study is as
follow:**

**Loss/head of cross breed diary cow in
KHT :129.81USD.**

**Loss/head of Baggara beef bull in
S.Darfour:68.7 USD.**

**Average animal loss 2012-
013 :1.200.888 USD.**



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



Country status:

FMD in Sudan is endemic and the outbreaks occur annually specially in winter.

Four serotypes were reported in Sudan O, A, SAT1 and SAT2 (Abu Elzein 1983).



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan

The FMD unite was rehabilitates recently in the year 2006 with mandate of FMD diagnosis and research.

All outbreaks were diagnosed by using virus isolation and Ag ELISA and confirm it by VNT.

For sero diagnosis and surveillance we used 3ABC ELISA and SNT.

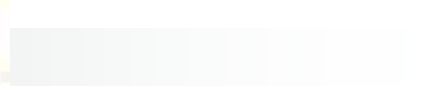


TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



The circulating serotypes by using Ag detection ELISA are O, SAT2 for must outbreak since 2006 and up to 2011.

Type A virus was isolated from the samples of the year 2011 (for the first time) using the information of the world reference laboratory (WRL) at Pirbright.





TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



In 2013 sporadic outbreaks occur in Khartoum state and north of Sudan, the result by using Ag Elisa are type O and SAT2.

Sero surveillance of FMD:

Sero surveillance was carried out in 2012, about (4008) samples were collected which were tested, the result revealed the presence of (O,A,SAT1&SAT2).



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan

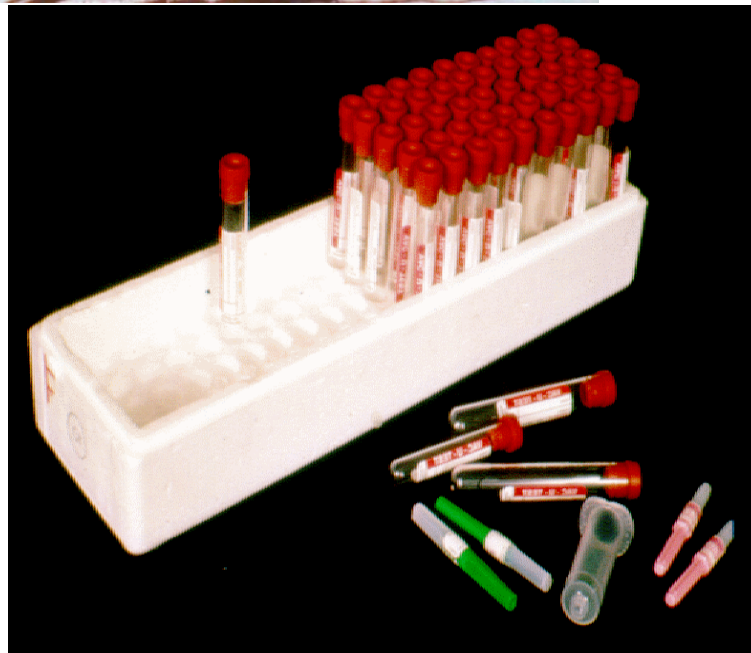
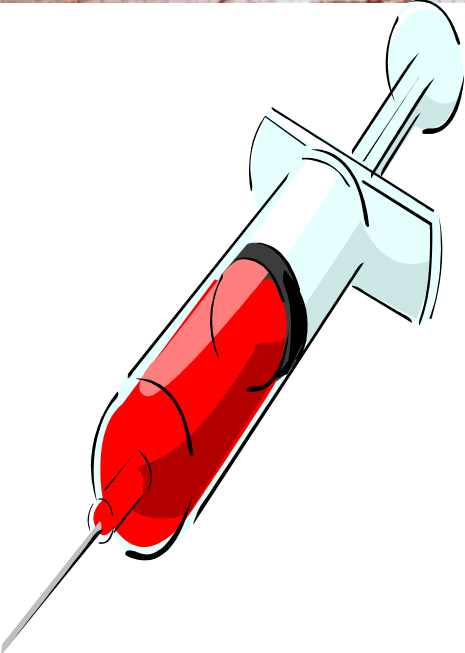


Control policy:

The main control policy measure were:

- 1. Quarantine.**
- 2. Restrict animal movement.**
- 3. Supportive treatment and use of disinfectant and tradition medication.**

Vaccination is not included in control policy.





TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



on going research on FMD lab:

- 1. Trails for production of foot and mouth disease vaccine in the Sudan. Which aims to produce the vaccine from local sudanese isolates, by Dr. Inas Ibrahim.**
- 2. Epidemiological studies and sero surveillance in a cattle, sheep and goat in north Sudan, by Dr.Hytham Mohammed.**



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



Vaccine development in FMD lab

A vaccine material for type “ O” was developed in FMD unite since 2008 by Dr. Raouf, different degree of progress was done from isolation and identification, adaptation of the virus in cell culture, inactivation of the irus, safety testing and immunogenicity of antigen.

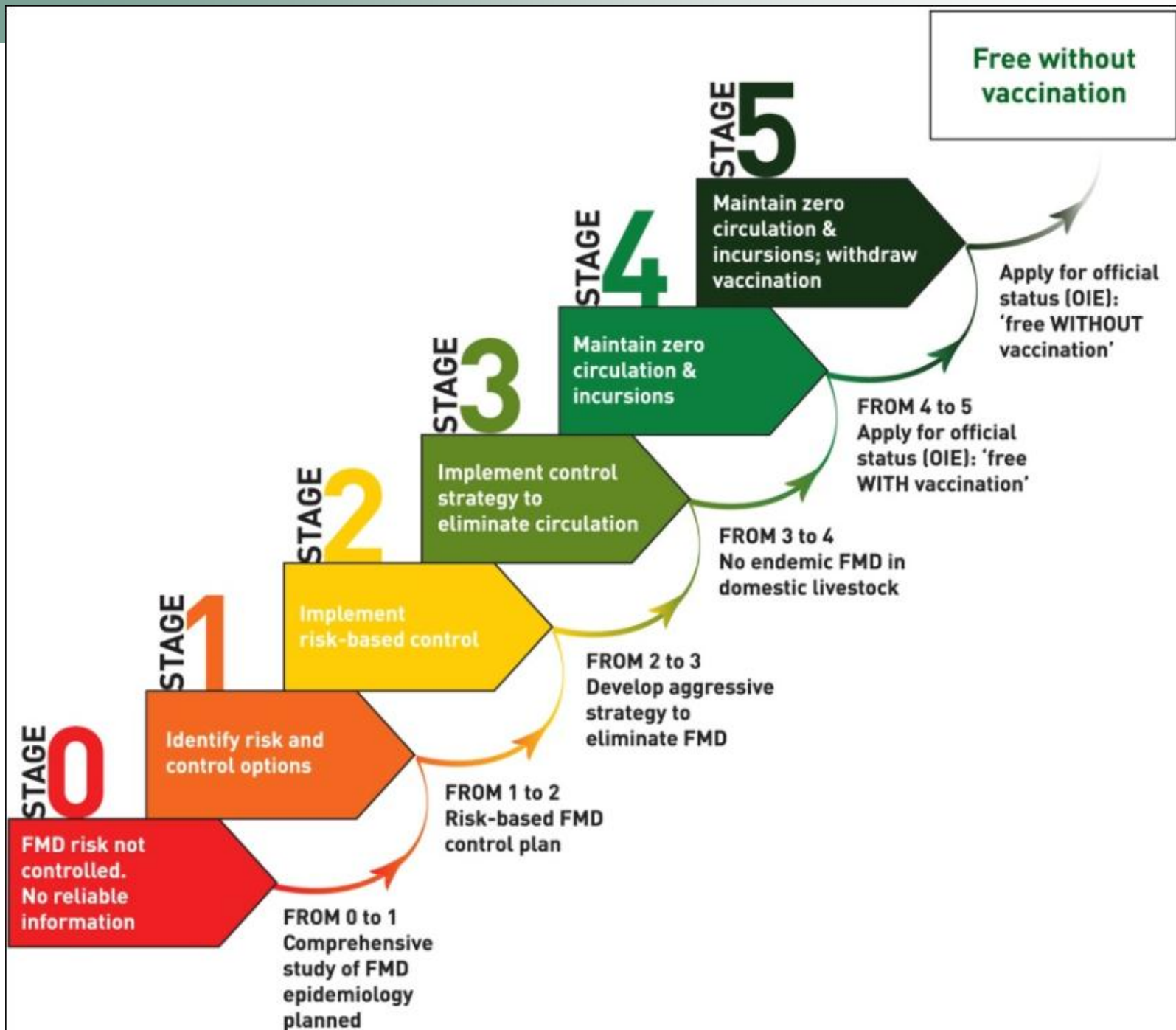
SAT2 vaccine material was also developed and waiting for testing in experimental animals.



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



Sudan stage of PCP





TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan..



In September 2012 TCP project funded by FAO was established in Sudan.

The programme is a toll developed by FAO and OIE and extended to assist FMD endemic countries to progressively reduce the impact of FMD.



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



The project developed plans of surveillances, up to 7.329 samples were collected from different Sudan stats , 5 epidemiological workshop were carried out and one diagnostic work shop.

138 veterinarian and technicians and researchers had been trained in these workshops.



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan

Supply of materials such two safety cabinets class2 and fermenter for vaccine production.

The stage of field operation was done and the laboratory work start before 3 months.

Sudan now in the last of stage one and closely will go to stage2 of FMD PCP.



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



What we wish from the network:

- 1. Supply us with diagnostic material which is very important for our lab.**
- 2. Training of FMD staff and give them opportunity in references laboratory.**



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



**3. Share information especially
if any of the nearby country to
Sudan have an outbreak.**



TCP/SUD/3401-Surveillance and diagnosis of FMD in Sudan



**I wish that, the next
meeting will be in
Khartoum**

THANK YOU