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ASSISTANCE IN THE PRODUCTION OF
VETERINARY DRUGS IN
SADCC COUNTRIES

DP/RAF/86/012

SWAZILAND

Technical report: The supply of veterinary drugs and vaccines in Swaziland *

Prepared for the Government of the Kingdom of Swaziland
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

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245

TABLE OF CONTENTS

<u>Chapters</u>	<u>Page</u>
INTRODUCTION	2
1. Livestock Population and Production Trends	2
2. National Disease Control Strategies	2
3. Organization of Veterinary Services	3
4. Veterinary Drug and Vaccine Market (1985/86) and Estimated Future Requirements (1990-2000)	3
5. Pre-Requisites for Increased Drug and Vaccine Usage	4
6. Considerations for Local Manufacture	4
7. Recommendation	5
 <u>Annexes</u>	
1. Veterinary Drugs and Vaccines Used (1986) and Estimated Optimal Requirements (1990-2000)	10
2. Introduction	11

INTRODUCTION

Swaziland is situated towards the South Eastern tip of Africa surrounded by South Africa to the North, West, South and part of the East and Mozambique to the remainder of the East.

Its land area is approximately 17,364sq.km., divided into Highveld, Midveld and Lowveld.

The human population is estimated at about 585,000 in 1983 projected to increase at 3.5%p.a. reaching about 1 million by the year 2000.

1. LIVESTOCK POPULATION AND PRODUCTION TRENDS

Agriculture, including livestock is divided into two sectors, the Swazi National Land (SNL) and the Title Deed Land (TDL). These comprise SNL - 60% which is traditional and TDL the remaining 40%, arising from the land conceded to Europeans.

Cattle have a traditional place in Swazi society being a symbol of wealth, a bank and used to pay bride price and inheritance.

The cattle population is estimated at about 630,000, 85% of it in SNL, the remaining 15% on TDL. The ratio was even higher in 1975 (95:5) but a conscious policy of destocking SNL and encouraging production has resulted in the present situation.

The present trend is for numbers to decline at 7% (see Table 1). There are about 300,000 goats, 35,000 sheep and 14,000 pigs the population of which are all roughly static. Poultry are not developed industrially, some 700,000 birds being recorded in 1984.

1.1 Constraints on Livestock Production

The over-riding constraint in the livestock sector is overgrazing (on TDL) and soil erosion and the solutions tempered by traditional attitudes.

The majority of cattle are a mixture of the indigenous Nguni breed.

2. NATIONAL DISEASE CONTROL STRATEGIES

2.1 Tick-borne diseases. The incidence varies according to altitude, being much commoner on the low-veld. Anobiyomma species cause much damage themselves, and anaplasmosis, babesiosis and heartwater are endemic, being carried by the ticks.

East Coast Fever was eradicated in 1968, but the dipping tanks and spray races built to control it are still in existence (670 combined total) and form the framework for the present animal disease control policies.

Control policy is weekly dipping under government veterinary department supervision using amitraz total replacement.

Average immersions p.a. are 42 per head.

Anaplasma, babesia and heartwater together are estimated to cause 50% of all cattle deaths.

Anaplasmosis occurs principally in the late summer or autumn the other two in the summer.

2.2 Foot and Mouth Disease. FMD occurred last in 1969 but the danger of introduction from Mozambique is a constant preoccupation. A cordon fence (in need of repair) and a sanitary cordon based on twice animal vaccination (on all animals in the cordon, the second, calves and animals missed in the the main campaign) has prevented the disease from entering since. This is coupled with other rigid control measures.

2.3 Endoparasites. Internal parasites are not recorded as causing serious problems.

2.4 Miscellaneous bacterial diseases. These undoubtedly occur but are not regarded of major importance.

2.5 Infectious Diseases. There is a campaign to vaccinate all dogs against rabies, with a target of 70% of dogs being vaccinated.

Anthrax is not reported. Female calves on dairy farms are vaccinated against brucella, blackquarter vaccine is used in areas of known incidence of the disease. Newcastle disease is endemic and combatted by the use of imported vaccine (see Table 2).

3. ORGANISATION OF VETERINARY SERVICES

Both Animal Production and Animal Health come under the Director of Veterinary Services (Table 4).

The animal health division has four regional veterinary centres each having 3-4 sub-centres. Each region has an establishment of two veterinary officers.

There are also additional specialist veterinarians.

The field organisation of veterinary staff is based on dipping tank areas. One veterinary assistant is in charge of a small cluster of dipping tanks (2-4). These form the focus of all veterinary activities.

4. VETERINARY DRUG AND VACCINE MARKET (1985/86) AND ESTIMATED FUTURE REQUIREMENTS (1990-2000)

4.1 At present there is no registration of veterinary drugs but the important ones are specified by the Veterinary Department.

Traditionally, the government has purchased drugs and vaccines associated with national disease control strategies (Ectoparasiticides, FMD and rabies vaccines).

A reduction in budget has meant that ectoparasiticides can no longer be purchased by the government so the cost is passed on to the cattle owners. However, the government retain control over the use of drugs.

The government is establishing a dipping fund to overcome the problem of consumer-resistance to payment for acaricide.

The purchase of other drugs and vaccines are made mainly through the private sector usually, but not always, on veterinary advice.

Approximate Market Breakdown

	US \$ 000's *
Acaricides**	1,600
Biologicals	
FMD (35,000 doses)	
Rabies (50,000 doses)	
Brucella (10,000 doses)	200
Blackquarter (70,000 doses)	
Others (NDV) < botulism)	
Anthelmintics (mainly benzamidazoles)	50
Antibacterials	150
Growth promoters, coccidiostats food additives	<u>300</u>
<u>TOTAL US \$</u>	<u>2,300,000</u>

*Based on the use of amitraz total replenishment dip, 42 immersions per animal per year.

Assume US\$1 - Emalangene 2.5.

** See Table 3 for historical breakdown.

The budget for 1987 is similar and the projection to 2000 is US \$2.7millions, assuming static animal population growth and no inflation.

4.2 Current use and estimated optimal requirements for drugs and vaccines

These remain similar to present-day requirements (Annex 1) as the government is trying to discourage overgrazing and wishes to prevent population growth of ruminants. Pigs and chickens are unlikely to grow in number because of the need to import feedstuffs.

5 PRE-REQUISITES FOR INCREASED DRUG AND VACCINE USAGE

The necessary infrastructure exists, although in need of strengthening. In the absence of epidemic diseases and those causing high mortality, animal health is a much less serious constraint to the livestock industry than other factors e.g. soil erosion and traditional attitudes.

6. CONSIDERATIONS FOR LOCAL MANUFACTURE

6.1 Pharmaceuticals

In view of the small size of the country and animal populations there is no obvious case for local manufacture of either veterinary pharmaceuticals or biologicals. Also, the government believes that specialised technical resources would be better used elsewhere.

6.2 Biologicals

No production of biologicals exists in the country, the majority of them are imported from the Department of South Africa. No quality control is performed on them.

There is a central veterinary laboratory in Manzini, under the control of local veterinarians, employing 3 senior technicians (trained in the UK and at neighbouring countries) with good skill and knowledge and 5 workers.

Sub-sections serology, haematology, bacteriology, parasitology, biochemistry, etc. are furnished with essential equipment in reasonable condition, all the tests are carried out well and all the reports are kept in order. Considerable numbers of tests were performed to a good standard.

There is a meat-canning factory integrated into the abattoir, and a modern milk producing and processing plant able to train personnel. Good auxiliary support can be obtained from the central veterinary laboratory as well. In all these production units good maintenance of buildings, equipment, hygiene and discipline were observed.

Chief senior veterinarians however, expressed the strong opinion - reflecting national needs to increase export of meat - that strengthening veterinary services with the aid of present personnel and improve livestock facilities would be preferred. A co-ordinating role in personnel training and the establishment of a plant of biologicals was accepted as Swaziland is selected by SADCC to carry out this function.

Discussion

Visits were made to a dairy, the Swazi Meat Corporation, a regional veterinary laboratory and diagnostic laboratory, a dairy farm and a wildlife sanctuary. All of these confirmed the impression of good animal health awareness and excellent discipline.

Details of some visits are attached (Annex 2).

7. RECOMMENDATION

Consideration should be given to the role Swaziland could play in its regional manpower co-ordinating function within SADCC, in relation to veterinary infrastructure and extension services and in this context should be considered as a training base in basic bacterial vaccine production.

Table 1

SWAZILAND
RURAL DEVELOPMENT AREAS PROGRAMME PHASE III

LIVESTOCK DEVELOPMENT

The National Livestock Census for 1950, 1960 and 1970 to 1984
(to the nearest '000)

<u>Year</u>	<u>Cattle</u>	<u>Goats</u>	<u>Sheep</u>	<u>Poultry</u>	<u>Pigs</u>	<u>Equines*</u>
1950	421	113	25	253	14	18
1960	521	204	35	306	12	18
1970	568	259	40	359	11	17
1971	572	262	43	399	11	18
1972	589	252	37	379	14	18
1973	602	265	38	443	16	19
1974	607	249	33	498	17	17
1975	622	261	35	485	18	17
1976	634	237	31	522	19	16
1977	634	258	31	514	20	15
1978	644	257	38	583	16	16
1979	661	282	30	590	20	16
1980	658	304	32	567	15	16
1981	656	309	33	721	16	15
1982	636	320	40	906	16	17
1983	642	334	39	683	16	17
1984	614	298	35	704	14	15

Source: Data processing Unit, MOAC, July 1985

* Principally donkeys

Table 2

**SWAZILAND
RURAL DEVELOPMENT AREAS PROGRAMME PHASE III
LIVESTOCK DEVELOPMENT**

Vaccinations of livestock carried out by the Department of
Veterinary Services for the years 1978 - 1984 (nearest '000)

<u>Disease</u>	<u>Animal</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Rabies	Dog	28	34	24	25	38	32	50
Foot and Mouth	Cattle	45	68	60	35	29	35	29
	Sheep, goats	11	16	18	8	8	10	9
Brucellosis	Cattle	30	30	18	16	22	12	8
Blackquarter	Cattle	54	59	58	66	83	50	68
Newcastle	Poultry	-	-	-	-	-	-	3
Botulism	Cattle	-	-	-	-	-	-	1
Enterotoxaemia	Sheep	-	-	-	-	-	-	3
Lumpy Skin	Cattle	-	-	-	-	-	-	3

Source: Department annual reports MOAC

Table 3

SWAZILAND
RURAL DEVELOPMENT AREAS PROGRAMME PHASE III
LIVESTOCK DEVELOPMENT

The percentage use of acaricides by trade name and
chemical classification in the 693 dipping tanks in active use.

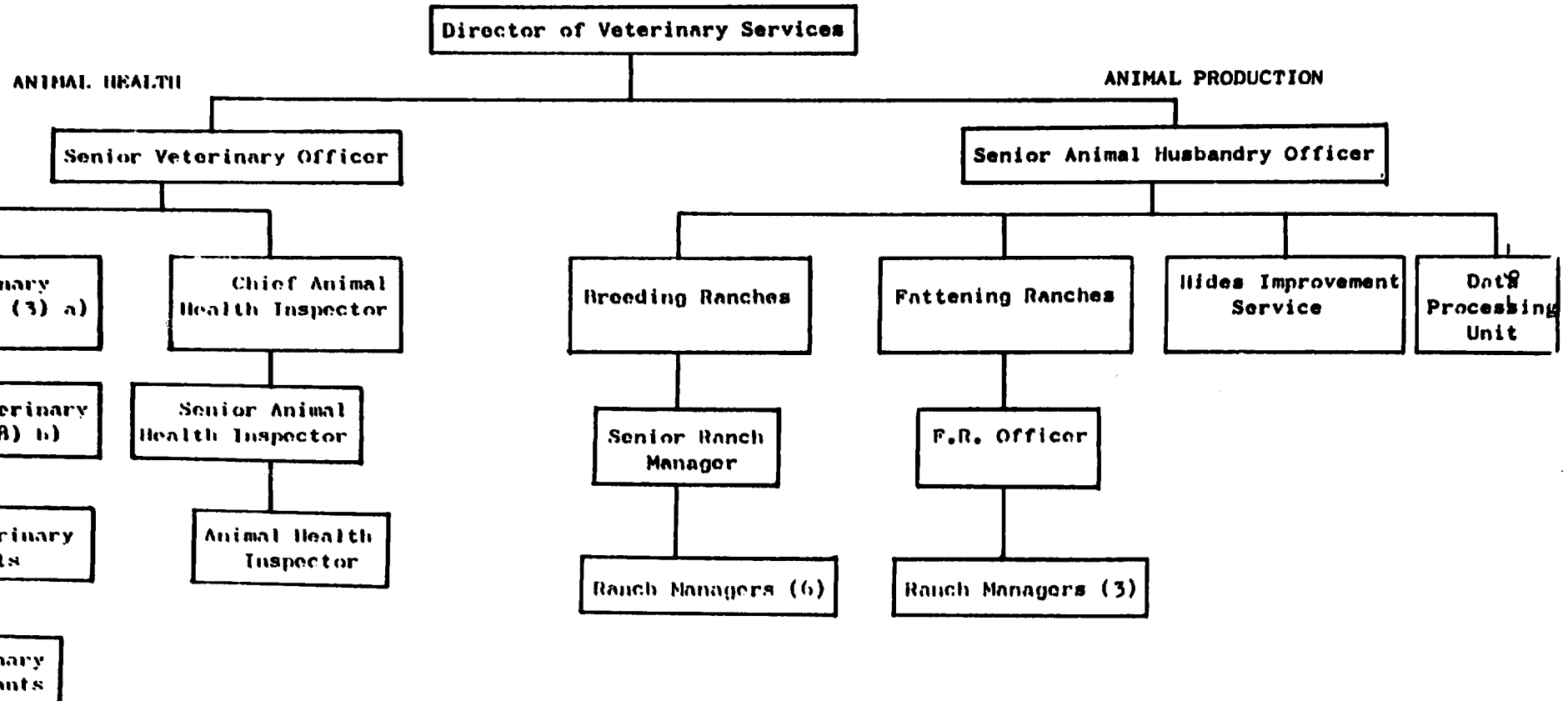
<u>Trade Name of acaricide</u>	<u>Chemical classification</u>	<u>Number of dipping tanks</u>	<u>Percentage</u>
Disnis	OP* and OC*	252	36.4
Triatix	amidine	264	38
Arsenite	arsenical	45	6.5
Bacdip	OP	51	7.4
Sumitik	pyrethroid	16	2.3
Ektoban	pyrethroid and amidine	14	2
Bayticol	pyrethroid	6	0.9
Supamix	OP and OC	5	0.7
Libriekto	pyrethroid	3	0.4
Supona	OP	3	0.4
Bovitik	OP	2	0.3
Decatix	pyrethroid	2	0.3
Delnav	OP	1	0.1
Unknown		<u>29</u>	<u>4.2</u>
		<u>TOTAL 693</u>	<u>100.0 per cent</u>

Source: records - Veterinary Investigation Laboratory, Manzini.

* OP = organo-phosphorus OC = organo-chloride

TABLE 4

RURAL DEVELOPMENT AREAS PROGRAMME
DEPARTMENT OF VETERINARY SERVICES - ORGANIZATION CHART



a) Meat Hygiene
Laboratory
Veterinary School

b) Mhohho (2), Manzini (2), Shiselweni (2), Luthomba (2)

ANNEX 1

VETERINARY DRUGS AND VACCINES USED (1986) AND ESTIMATED OPTIMAL REQUIREMENTS (1990-2000)

DRUG/BIOLOGICAL	1986		YEAR 1990		2000	
	UNITS	VALUE US\$000's	UNITS	VALUE US\$000's	UNITS	VALUE US\$000's
<u>Ectoparasiticides</u>		1600		1700		1800
<u>Anthelmintics</u>		50		60		80
<u>Antibiotics</u>		150		180		200
<u>Antiprotozoons</u>		5		5		10
<u>Feed Additives</u>		295		200		320
SUB-TOTAL		2100		2245		2410
<u>Biologicals</u>						
FMD	140,000	40	140,000	50	140,000	60
Rinderpest						
Rabies	50,000	50	70,000	70	100,000	100
Poultry vaccines						
Other viral vacc. (Rift Valley Fever African Horse Sickness etc)		20		20		20
Blackquarter	70,000	14	70,000	14	70,000	14
Anthrax						
Brucella	10,000	2			10,000	2
Pastuerella						
Botulism						
Others		24		24		24
SUB-TOTAL		150		180		210
TOTAL		2250		2425		2630

ANNEX 2

Introduction.

There are no manufacturing facilities in the country for either Pharmaceuticals or Biologicals and there are no immediate plans to provide either. All human pharmaceuticals, veterinary pharmaceuticals and biological products are imported. In the absence of the above types of production opportunity was taken to see:

- a. The Swaziland Dairy Board facilities
- b. The Swaziland Meat Board facilities
- c. A spray race at the Swaziland Dairy Farm

Swaziland Dairy Board Facilities

Although four years old this company is functional, in very good condition and conforms to hygiene and safety standards. Milk is processed after being collected in bulk by small tankers from farms both state run and privately controlled. 30,000 litres per day are processed, skimmed milk powder and butterfat being added to achieve a satisfactory homogenised, pasteurised final product.

In an adjoining building animal feed supplement is produced to supply local farms and communities. The plant should be expanded to cope with demand as extra hours have to be worked on a regular basis.

Swaziland Meat Board Facilities

This plant for processing beef mainly for export is twenty one years old but is in very good condition. Hygiene and safety standards are high. The premises and conditions are inspected annually by the EEC representatives. 120 cattle daily are processed into chilled sides and cuts mainly for export but a small percentage is for the Swazi market. The tinned meat side of the operation is declining due to high costs and a low profit margin. The plant operates for ten months of the year. The remaining two months are used for staff holidays, refurbishment of buildings and scheduled maintenance of plant. The operation and conditions in the plant are a credit to the management.

Swaziland Dairy Farm

Started from scratch in the last six years the farm has some 300 cattle and is used for production of milk and calves. A spray race attached to the farm is of modern design and operates on the principal of an all over spray as cattle pass through. Cattle are passed through the spray race on an average of 40 times per year. The race is well maintained and is functional.