

Animal Diseases and Veterinary Services in Eritrea: The Past, Present and Future Challenges

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Abstract

Animal diseases are not only one of the main constraints to animal production, but also have wide, public health implications. Modern veterinary services were introduced in Eritrea with the advent of Italian colonialism in the late 1880s to cater for the horses and mules used for military transport. Eritrea had one of the oldest veterinary laboratories in Africa that was established in 1903. During Italian colonialism, the Veterinary Institute was considerably expanded where more than 10 different vaccines were produced, animal intensification introduced, limited control measures implemented and more than 50 scientific papers published. This infrastructure was dismantled during the Ethiopian occupation, though veterinary services were continued in the liberated areas. There has been a lot of efforts to revive the sector after independence. The paper reviews the status of animal diseases and the role of veterinary services in the struggle for the prevention, control and eradication of diseases in the last 100 years. The paper also discusses the future challenges in terms of consequences of free international trade in animals, animal products and animal feed emphasizing the need to formulate a comprehensive, integrated, and dynamic control program that is responsive to the diversity of the existing production systems and that makes use of the local knowledge base.

Introduction

Livestock is an important component of the agricultural system in Eritrea. There are three main husbandry systems: intensive system mainly dairy concentrated in Asmara and some of the highland towns; the crop-livestock system of production in the highlands where livestock mainly cattle are fewer in number, predominantly male and sedentary kept within villages; and the pastoral system where livestock, mainly cattle are kept in large mobile herds and are predominantly female (Omer, Skjerve et al. 2000). The two major constraints to animal production in the country are animal diseases and shortage of feed. The risk of a major outbreak of disease is the greatest constraint to livestock development in Eritrea where a comprehensive range of serious diseases are endemic including: rinderpest, foot-and-mouth disease, anthrax, blackleg, haemorrhagic septicaemia, trypanosomiasis (mechanically transmitted), contagious bovine pleuropneumonia, sheep pox, pasteurellosis, peste des petis ruminants, newcastle disease, brucellosis and tuberculosis (FAO 1994). Annual vaccinations are carried out against the major diseases. Eritrea has been declared 'provisionally free of rinderpest' as of 1999 (www.fao.org).

The main objectives of Eritrean Agriculture are to ensure food security, which means there will be there will be a need of more animal intensification where this will be coupled with the existing traditional system with all its problems. According to the FAO estimates 13,00 tons of beef, 1,000 ton sheep and goat meat, and 3,000 tons of poultry meat are produced annually. In addition, about 20 eggs and 15 lts of milk per capita per

year. All this represents a total of about 8 gm animal protein per capita/year which belongs to the lowest of national averages worldwide.

The above-described production of beef, sheep and goat meat roughly corresponds to an average daily liveweight gain of 100-150 gm per animal for cattle and 20-30gm for sheep and goats (CAAS 1996). These figures are well below the potential of the animals.

Internationally during the last two decades there has emerged new infectious diseases, 2/3 of which originated from animal sources posing new human challenges. These new infectious diseases include, legionnaire's disease, toxic shock syndrome, lyme disease, HIV, Nipah virus, E.Coli O157:H7, flesh eating bacteria and many others. Explosive epidemics of unidentified and emerging diseases have led to mass slaughter of poultry and farm animals. Transport of live animals, animal products and animal feed have led to the wide spread of these diseases. We can not live in isolation from these developments and we have to be prepared for the worst.

Italian period

(Call 1970) has described the situation during the Italian colonialism period. Proper veterinary services were introduced during this period, where the first Italian veterinarians arrived in Eritrea in 1885 to cater for horses and mules which were the main component of the military transport system. The service was gradually extended to civilians with the establishment of clinics and meat inspection services. As the Italians were interested to study the viability of the colony, they studied various animal diseases

in the country. It is reported that the devastating disease, rinderpest was introduced into Africa by the Italians through Eritrea in 1887 (Pearce 2000). In 10 years time the disease had reached South Africa causing a devastating effect on cattle and through the loss of cattle to the pastoralists. Italian period publications relating to rinderpest (cattle plague) include (Cilli 1937; Sforza 1938).

Ironically, the Italians established a government commission to study the effects of rinderpest and according to the recommendation of the commission, an institute was founded in 1903, one of the oldest veterinary laboratories in Africa. The institute which was later called 'Istituto Vaccinogeno Zooprofilattico Eritreo' produced animal and human vaccines such as rinderpest, small pox, rabies, anthrax, african horse sickness, contagious bovine pleuropneumonia. During the 1930s, the institute underwent considerable expansion with the arrival of veterinary and medical specialists and university researchers as a result of which more than 100 scientific publications and reports were published. These covered rinderpest (Cilli 1937; Sforza 1938), infectious anaemia (Cilli 1938; Marcato 1938), rabies (Chiari 1938), brucellosis (Cilli 1943; Cilli and Andolfato 1943; Cilli and Pio 1943; Cilli and Coceani 1944; Cilli and Battelli 1946), pasteurellosis (Sforza 1940), actinobacillosis (Sforza 1941), corynebacterium infections (Battelli and Coceani 1942; Battelli 1943), tuberculosis (Pirani 1929; Sforza 1939; Sforza 1942; Sforza 1944), anaerobic bacteria infections (Cilli 1942), diseases caused by protozoa (Sforza 1939; Cilli 1940; Artioli 1943; Battelli 1943; Battelli 1944; Battelli, Coceani et al. 1944; Battelli 1945; Battelli 1946; Battelli 1947), poison effects (Cilli and Corazzi 1946), physiology (Chiari 1937; Sforza 1937; Battelli 1946), gastro-

enterotoxaemia (Cilli 1942), actinobacillosis (Sforza 1941), and salmonellosis (Sforza 1942).

With the importation of exotic breeds of cattle, dairy-cattle farms were established gradually, and in 1938 trials in artificial insemination were carried out. The veterinary services gradually expanded to include zonal veterinary centers and meat inspection services. In 1939 there were 24 civilian veterinarians, 72 veterinary guards and 28 technicians (Call 1970).

British administration

During the British administration, like what was done in the other sectors, the activities of the veterinary services were sharply declined. The veterinary staff were sharply cut to four veterinarians, two at the institute and two at district veterinary centers. Italian veterinarians continued to manage the limited services that were rendered. During this period, Italian veterinarians carried limited research. Cilli (1943) isolated *Brucella melitensis* from a local cheese in the western lowlands. The first serological evidence of brucella infection in goats, sheep, cattle and equine was reported (Cilli and Andolfato (1943), Cilli and Pio (1943), Cilli and Cocceani (1944), Call and Aldo (1950), Cilli and Batteli (1946)).

The Federation Period

In 1958 the Veterinary Services began a collaboration with the U.S. army personnel at the Kagnew Station in Asmara which made possible the supply of milk and meat of local production which met U.S. standards of hygiene to the Station which helped in a way to upgrade local practices (Call, 1970).

Ethiopian Occupation and Liberation Period

During the Ethiopian occupation limited veterinary services and annual vaccinations were carried out until late in the 1960s. Gradually as the areas under the Eritrean liberation forces expanded in coverage, the services provided by the Ethiopian Government dwindled. With the opening of the Debrezeit Veterinary Laboratory in Ethiopia The Central Veterinary Laboratory in Eritrea was gradually dismantled and most of its activities and equipment moved to Ethiopia.

The Eritrean Liberation Front (ELF) established a department for veterinary services in 1971 to carry out vaccinations against major diseases, provide treatments and to establish laboratory diagnostic facilities (ELF 1980). Veterinary facilities were established in the Eritrean Popular Liberation Front (EPLF) in 1975 with similar coverage. As of 1981, the EPLF Veterinary Services were the sole services in the field. Though the major activity has been to vaccinate against major diseases by using vaccines from the Sudan, clinical centers, laboratory diagnostic facilities, training of appropriate staff and para-vets expanded. Poultry units were established and some vaccine trials were attempted for

short periods. The coverage was affected from time to time due to the war situation.

These services formed the core of the department after liberation.

Table 1 summarizes vaccines produced in 1953, 1963 and in 1969.

Table 1: Vaccines produced in 1953, 1963 and 1969

Type of vaccine	1953	1963	1969
Rinderpest (in doses)	20,000	450,000	100,000
Goat virus vaccine			
Rinderpest (in doses)	8,000	4,500	9,000
Lapinized vaccine			
Anthrax (in cc)	10,015	4,800	-----
Blackleg (in cc)	47,151	104,000	49,000
CBPP (in doses)	100,000	30,000	1,000
Fowl septicaemia (in cc)	5,960	40,000	9,000
Fowl pox (in cc)	400	16,000	1,000
Rabies preventive (in cc)	86,970	42,900	38,420
Rabies curative (in cc)	51,120	25,960	26,560
African Horse Sickness (in doses)	550	2,500	3,000
Small pox (for human) (in doses)	234,000	221,750	300,000
Rabies (for human) (in vials)	9,620	12,230	21,540

Since 1991

There has been a lot of efforts to revive the livestock sector in general after liberation.

Vaccinations have covered the whole country, veterinary clinics have covered the whole country, training programs for veterinary technicians and veterinary assistants intensified.

A number of veterinarians have been trained a broad to the M.Sc. level. More, essential drugs have been imported. Laboratory facilities at the Central Veterinary Laboratory have improved to include enzyme-linked immunosorbent assay (ELISA), new essential equipment has been procured though virology facilities are still lacking. Presence of

some diseases such Contagious Caprine Pleuropneumonia, Peste de petit ruminants, Lumpy skin disease, new variants of Foot-and-mouth disease.

Due to continuous vaccination and sero-monotoring the country has been declared 'provisionally free of rinderpest' as of 1999. As of last year, vaccinations against Foot-and-mouth disease have been introduced in the intensive dairy-cattle farms.

A number of research activities have been carried out on a number of diseases such as brucellosis (Omer, Skjerve et al. 2000; Omer, Skjerve et al. 2000; Omer, Skjerve et al. 2001), bovine tuberculosis (Omer, Skjerve et al. 2001), contagious caprine pleuropneumonia (Tekleghiorghis 1997), mange (Ghebrehiwet 1995) and Peste de Petit Ruminants. Table 2 summarizes activities during the liberation period.

Future Challenges

In the view of the traditional husbandry systems which is characterized by mobility of livestock across borders; there is a need a comprehensive and dynamic control measures that is responsive to the three husbandry systems existing in the country and that makes use of the vast traditional livestock knowledge particularly among the pastoral populations.

The control measures also need to take into account that world wide free trade in livestock, their products and in animal feed requires that we be vigilant to any trans-

boundary disease that could have devastating implications not only among animal populations but also among the human population.

Table II. Activities of the Veterinary Services 1992 - 2000

Description	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Vaccination										
Rinderpest	362869	384290	565713	668288	845685	511648	31800	0	0	337029
Anthrax	8207	43033	83795	90552	71266	65976	22937	24012	19350	42912
Blackleg	19507	6720	41927	12009	17333	16400	10950	27715	24352	176913
Pasteurellosis	14317	97677	242780	215805	144646	88444	53784	62833	112529	103281
Sheep pox	47617	71199	73246	45360	15439	15644	9685	54449	11923	344562
FMD								6963	22099	29062
AHS	30		4121	1515	2054	2388	3005	20	0	13133
PPR		331883	580964	438745	111688	274244	151281	149524	247415	228574
CCPP						6929	7840	31577	100859	147202
Rabies	409	109	1468	1714	5271	17077	3109	4717	8012	41886
Newcastle	40900	47209	191644	87422	130357	105724	97390	135660	629516	146582
Infectious Coryza							2720	56625	125347	184692
Total	493856	982120	1785658	1561410	1343739	1104474	391781	497470	1301402	946191
Treatment										
G. treatment	94598	360409	703042	335278	355012	236194	346480	485489	965029	388152
Ectoparasites	180534	196770	210352	460487	577980	475531	440155	452836	1049284	404392
Endoparasites	46692	123913	171168	220951	346666	312523	378785	399955	780042	278066
Bloodparasites	126101	37446	40581	40851	126296	53430	44422	28452	50326	547902
Surgery & castration	6485	11646	4530	3910	1481	2369	2169	2013	1946	36549
Total	454410	730184	1129673	1061477	1407435	1080047	1212011	1368745	2846627	112906
Laboratory works										
Fecal sample	1051	0	0	8410	4729	2671	2221	1931	4335	25348
Blood smear	1155	0	0	8410	4729	1277	912	1053	9580	22896
Skin scrapping	0	0	0	3819	944	624	1456	1204	6772	14819
Others	480	0	0	1285	690	15	142	3900	379	6891
Total	2686	0	0	18417	10379	4587	4731	8088	21066	69954
Infrastructure										
Clinics	0	8	11	3	1	20	1	3	0	47
Crushes	0	15	0	3	25	21	3	0	0	67
Training										
CAHW*	0	0	0	0	20	63	47	17	0	147
AHT**	0	90	100	45	0	0	0	0	0	235
Lab Tech***	0	15	0	0	0	0	0	0	0	15

* Community animal health worker

** Animal health technician

*** Laboratory technician

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