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# Worldwide Report

EPIDEMIOLOGY

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WORLDWIDE REPORT  
EPIDEMIOLOGY

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EFFORTS TO CONTROL CHOLERA EPIDEMIC DESCRIBED

Canberra THE WORLD in English 9 Dec 83 p 6

[Article by Michael Hamlyn: "Easing the Scourge of Cholera"]

[Text] BANGLADESH is in the middle of its annual cholera epidemic, and the month that stretched from the visit of the Queen and the Duke of Edinburgh to this week's Islamic foreign ministers' conference finds the epidemic at its peak.

Mrs Moiful Begum, 17, began to feel ill at eight one morning last weekend. By 10 o'clock she had lost so much fluid that she became dehydrated and collapsed. It is the dehydration associated with cholera that kills.

By 11 o'clock her family had brought her to the cholera hospital in Dhaka. She was given oral rehydration solution to drink, and, because her fluid loss was so high, an intravenous drip.

By 2 o'clock she had received seven litres of solution intravenously and had drunk a litre herself.

Her eyes are still darkringed and sunken from the dehydration, but she is recovering. She has taken a third of her own body weight in fluid since her arrival. She is not going to die.

"No one needs die of cholera," said Dr William Greenhough, the soft-spoken New England director of the International Centre for Diarrhoeal Disease Research (ICDDR), which operates the hospital.

Dr Greenhough and his institution have developed the techniques that saved the life of Mrs Begum and hundreds of thousands like her. The ICDDR proved by its early studies that the cholera vaccine was virtually useless--indeed, it did more harm than good.

He developed the formula for the oral rehydration solution, a combination of salt, sugar, sodium bicarbonate and potassium chloride which, when mixed with water and drunk in sufficient quantities, can replace the fluids lost by the intestinal secretions of the disease.

Cholera is a water-borne disease and at this time of year Bangladesh leads an amphibian existence. The great flat muddy river deltas, swollen by a good monsoon, bring a rich silt to nourish the rice paddy crops.

They also bring the effluvia of millions of homes perched on the banks of the Ganges, the Brahmaputra, and their tributaries.

In the countryside near Comilla, the ICDDR has an outstation, a hospital and a research station studying and helping 180 villages.

Here, perched on mounds of earth rising a metre or two from the alluvium, are the baris, clusters of homes based on a kinship group, built of palm thatch, wood and occasionally corrugated iron.

In each is a bari mother, a senior woman who is the source and supply of the formula for the rehydration salts, and who keeps track of those who fall ill.

She is supervised by a health worker, also a married woman, but this time educated to at least the age of 12.

Because of the success of the oral rehydration therapy, other forms of treatment are more readily accepted in the baris, and the health workers are able to conduct widespread immunisation programs against tetanus and diphtheria, and, best of all, to gain acceptance for birthcontrol systems.

In the villages covered by the ICDDR centre at Matlab Bazar, infant mortality has dropped from 146 per thousand to 100 per thousand in four years. The overall death rate has dropped from 16 per thousand to 11 per thousand.

At the same time the birth rate has dropped by 30 per cent and the doubling time for the population has lengthened from 27 years to 52 years.

The ICDDR has been able to reduce both the deathrate and the rate of population increase, both vital in a country where nearly 100 million people crowd into 55,000 square miles.

Dr Greenhough hopes his institution will do for health what the International Agricultural Research Centre did for food.

New projects for the international centre include the testing of a drug which stops the intestinal secretions caused by the cholera and an oral cholera vaccine, which will encourage antibodies to grow in the intestinal tract, and not merely in the blood.

CSO: 5400/4704

## BRIEFS

BARISAL CHOLERA DEATHS--BARISAL, Dec 1--Cholera has broken out in the district in an epidemic form. About 16 upazilas and thanas have been affected by it. During the last 13 days 87 persons died of cholera and 737 others were attacked in the district. The worst affected areas are--Sharupkathi, Jhalokathi, Nalcity, Katwali, Gouranadi, Bakerganj, Hizla, Muladi, Wajirpur, Mahendiganj and Vandaria. During the last 24 hours ending on Nov. 27, 14 persons died and 107 others were attacked. The stock of Cholera vaccines at district store is almost exhausted. Dhaka was cabled for at least 10 lac CC vaccines. Three foreign exeperts from Cholera Research Institute of Dhaka reached here and went to the Hizla affected area to ascertain the causes of spreading Cholera here in epidemic form. People feel here, speedier supply of medicine and earlier antidote have become expedient to contain the disease. [Text] [Dhaka THE NEW NATION in English 2 Dec 83 p 2]

CHITTAGONG DIARRHEA DEATHS--CHITTAGONG, Nov 23--At least 31 persons mostly minors died of diarrhoeal disease in the slum areas of Motijharna under Double Mooring police station during last one week. However Municipal sources confirmed detahs of only four persons. The sources said that drinking of impure water by the inhabitants of the locality was the main cause of the disease. [Text] [Dhaka THE BANGLADESH TIMES in English 23 Nov 83 p 8]

CHOLERA AT LOUHAJANG--SHAMMULBARI (Louhajang) Nov 26--Cholera has broken out in an epidemic form in different villages of Gorla Union Nurpur West, Burdia Apor and Palgaon under Louhajang upazila. Two reportedly died of cholera in Nurpur and one at Apor on November 22, reports ENA. [Text] [Dhaka THE BANGLADESH TIMES in English 27 Nov 83 p 2]

BRAHMANBARIA CHOLERA DEATHS--BRAHMANBARIA, Nov 26--The death toll of diarrhoea and cholera has increased to 45 including 20 more deaths in 32 villages of Brahmanbaria thana. It is gathered that diseases have broken out throughout the thana in an epidemic form. The affected villages are Pairtala South, Dathkhola, Aminpur, Gokarnaghat, Sherpur, Maidhapara, Paikpara, Rajghar, Medda and Ulchippeda. [Text] [Dhaka THE NEW NATION in English 27 Nov 83 p 8]

MANIKGANJ DIARRHEA DEATHS--MANIKGANJ Nov 19--Strong diarrhoea claimed 130 lives in two upazila of Manikganj during last 15 days. According to Upazila administration sources more than 800 people have been attacked by strong

diarrhoea in the affected areas during the period. The affected upazilas are Daulatpur and Ghor. Badly affected upazila is Daulatpur where 102 people have died of strong diarrhoea during last 15 days. Local health administration is working in the affected area round the clock but poor supply of anti-epidemic drugs is standing on the way for required treatment. [Text] [Dhaka THE BANGLADESH TIMES in English 20 Nov 83 p 2]

CSO: 5400/7062

## NATIONWIDE SURVEY ON PARASITISM UNDER WAY

Havana GRANMA in Spanish 4 Oct 83 p 3

[Article by Jose A. de la Osa]

[Excerpt] Execution of a National Survey on Intestinal Parasitism began yesterday in some provinces and will last until 31 December. Epidemiologists, aided by support personnel, will visit some 3,000 housing units taken at random throughout the country.

To carry out this important task, a health professional will go to the housing units and fill out a sheet with information provided by each member of the household. They are asked if they have suffered some health problem in the past 3 months--diarrhea, abdominal pain, nausea, vomiting--if they drink boiled water and the source of this essential liquid, if they go barefooted, if they eat raw vegetables, etc.

After the questionnaire is filled out, the epidemiologist will give each of the inhabitants of the housing unit a plastic bottle that will be used for fecal samples which will be collected later and sent to the Provincial Hygiene and Epidemiology Centers except in the provinces of Havana and Havana City where they will be analyzed at the Pedro Kouri Tropical Medicine Institute.

Before the visit, the heads of the households selected for this survey will receive a letter citing the importance of this health task directed by MINSAP [Ministry of Public Health] and asking for maximum cooperation.

The objective of this research is to make a parasitological examination of the feces of a representative sample of all the population to establish the precise prevalence of different types of parasites in the different age groups in the 14 provinces of the country.

The first survey of this type was carried out in 1973. Once the results are obtained now, the favorable environmental and socioeconomic changes that have continued in the field of parasitology in the last decade in our country can be measured.

It is estimated that some 11,500 people will be surveyed which represents 0.11 percent of the total population of Cuba.

A pilot study was done in Isle of Youth last August.

Let us remember that the degrading reality of the capitalist Cuba of yesterday as to parasitic diseases has been left far behind. At that time, 90 percent of the children in the rural area were devoured by parasites that entered them from the ground through the toenails of their bare feet, as Fidel denounced in "La historia me absolvera" [History Will Absolve Me].

Parasitism here is no longer as intense, massive or serious as then. There is work to determine the real magnitude in order to take measures to prevent, decrease and eliminate these diseases.

The most common parasites in Cuba include the so-called Trichocephalic, Giardia and the American Necator which cause diarrhea, depression, abdominal pain, nausea, vomiting, lack of appetite and loss of weight. There are more or fewer symptoms depending on the intensity of the disease.

7717  
CSO: 5400/2023

INDIA

BRIEFS

VIRAL FEVER DEATHS--A total of 283 viral fever deaths have been reported since January this year in seven states. The largest number of deaths 187-- had occurred in Andhra Pradesh followed by Karnataka where 78 persons died. Thirty-four people died in Bihar. Other states affected by viral fever were Goa, Daman and Diu, Manipur, Tamil Nadu and Uttar Pradesh. [Text] [Bombay THE TIMES OF INDIA in English 19 Nov 83 p 6]

JAUNDICE OUTBREAK--(PTI)--Ninety-one cases of jaundice have been reported from Baroda--due to contaminated water supply through pipelines, according to municipal in Baroda, on Friday. The civic authorities have taken several preventive measures including testing the entrie water supply, checking the sanitation system and vaccinating pregnant women and infants, Dr. Vinay Kothari, a medical officer of the corporation, said. [Text] [Bombay THE TIMES OF INDIA in English 27 Nov 83 p 7] 9459

CSO: 5400/7056

MOSQUITO CONTROL PROGRAM FOR AEADES AEGYPTI EXPANDING

Kingston THE DAILY GLEANER in English 30 Nov 83 p 2

[Text]

The mosquito control programme of the Ministry of Health is to be expanded to eradicate the Aedes Aegypti mosquito which contributes to fevers.

The campaign is islandwide and within the next two weeks information on the matter will be published regularly.

This mosquito, a household one, is becoming a problem and that is the reason for the renewed efforts to eliminate it. It is understood that at least half the houses in Jamaica are breeding the mosquito which can lead to other illnesses. The Ministry is encouraging householders, especially at this traditional time of cleaning up for Christmas, to make sure that their premises are clean in order to get rid of the vector.

The mosquito is said to be still a problem even though most of Jamaica is not experiencing any rainfall now. It is one that is always present and breeds in vases and containers. Fewer fever cases are said to be reported when there is a reduction in the mosquito presence. The public is being asked to be on the alert and to carry out the necessary measures to reduce the risk of illness, especially fevers.

Cleaning up is the most effective means of getting rid of the Aedes Aegypti and therefore householders are being asked to empty the vases and scrub them regularly, empty refrigerator troughs, empty saucers underneath potted plants and to keep plants in damp soil or sand instead of water. They are also being asked to clear eaves and gutters, get rid of old tyres, tins and coconut shells and dispose of tins by punching holes in them so that they cannot collect water, or bury them.

CSO: 5400/7517

## BRIEFS

GASTROENTERITIS DEATHS--The deaths of three children from gastroenteritis in St. Mary at the end of October and early November is not seen to be a critical situation reaching epidemic proportions. A report from the Gleaner's correspondent in the area said that three children had died from the disease, and many other persons affected had sought medical attention at private practitioners and the Port Maria Hospital. The Gleaner was told that the incidence of gastroenteritis at this time was not unusual as the number of cases tended to increase at the end of October towards November. Reports reaching the Ministry of Health showed that there was no indication of a bigger problem, and the Medical Officer of Health for the parish stated that it was not a critical situation. It was pointed out that the deaths had occurred in different places and over a period of time. The number of cases of the disease reported was no more than was expected, the Gleaner was told. Investigations were being carried out to see if sanitation and water were related to the problem. The correspondent said that many persons were linking the problem to the water shortage and the poor quality of the water being used by citizens. The water was said to be turbid and contaminated. Tests done by the water quality inspector at different locations revealed a lack of residual chlorine while bacteriological ones were positive. The shortage of treated water has forced citizens to use water from questionable sources which it is said has aggravated the problem.  
[Text] [Kingston THE DAILY GLEANER in English 26 Nov 83 p 16]

CSO: 5400/7516

## TEAM DOES EXTENSIVE STUDY OF BLINDNESS

Blantyre DAILY TIMES in English 2 Dec 83 pp 1, 3

[Article by Robert Chilenga]

[Text] **A TWO-MONTH intensive study on the causes of blindness in Malawi has ended with 7,000 individuals tested in 55 villages in the Lower Shire.**

The research, which was sponsored by the Malawi Government, the International Eye Foundation (IEF), in the United States, the World Health Organisation, the Royal Commonwealth Society for the Blind in the United Kingdom, and Helen Keller International (USA), was headed by a team of eye specialists which included Dr. Larry Schwarb, Dr. Tessa Tizazu both from the IEF, Dr. Gordon Johnson of Canada and 22 medical students from Lilongwe Medical School.

Among the students were ten from Lesotho, Swaziland, Botswana and Zambia, who are expected

to utilise the experience and training gained in Malawi back in their home countries.

According to Dr. Schwarb, who is based at Queen Elizabeth Central Hospital in Blantyre, the results of the study would take several months before they were presented to the Malawi Government.

The findings were being analysed at the John Hopkins University International Centre for Preventive Epidemiologic Ophthalmology in the USA, he explained.

Dr. Schwarb said that during the research they examined adults and analysed the nutritional status of children under six years of age.

He said that several factors were considered which included details of age, previous treatment and further treatment.

Where the problem could be treated on the spot

it was done immediately, explained Dr. Schwarb, adding that cases which needed operating on were referred to the Queen Elizabeth Central Hospital. Those who lacked spectacles were provided with some.

The team moved from house to house to conduct interviews while others undertook medical examinations.

The first such intensive research in Africa was done in Kenya in 1976. Similar researches have also been conducted in Asia.

The research in Malawi was aimed at establishing causes of blindness which were approaching uncontrollable levels, according to medical sources.

Some of the commonest eye diseases in Malawi are trachoma, a contagious infection, cataracts which damage the lens of the eye and tumours.

MALAWI

BRIEFS

DANISH ANTITETANUS AID--A PROGRAMME to vaccinate expectant mothers against tetanus is being mounted throughout the country by the Ministry of Health. The programme follows a nation-wide survey earlier this year which showed that deaths from tetanus among babies in the first 28 days after birth has become a serious problem. Nearly 3,800 deaths a year are estimated to take place from neo-natal tetanus. The survey also showed that nine out of 10 neo-natal tetanus victims die from the disease. The original survey was conducted with assistance from the Danish aid organisation Danida, the World Health Organisation and the UK Save the Children Fund. [Janet Mbekeani] [Excerpts] [Blantyre DAILY TIMES in English 22 Nov 83 p 1]

CSO: 5400/49

## BRIEFS

CONJUNCTIVITIS OUTBREAK IN TERENGGANU--Kuala Terengganu, Sat.--The Terengganu Medical and Health Services Department has advised the public on the outbreak of conjunctivitis in the State. Deputy Medical Director Dr Haji Wan Mahmood Osman said more than 500 people were reported to have contracted the disease last month and the number was increasing. He said the disease could spread very quickly if the people were not careful. He urged the public not to get in contact with people suffering from the disease. Those who contract the disease were advised to seek treatment immediately and to avoid going to public places.--Bernama [Text] [Kuala Lumpur NEW STRAITS TIMES in English 27 Nov 83 p 7]

DENGUE FEVER CASES--Two more cases of suspected dengue fever have been reported in Sarawak, bringing the total to 461. Two of the victims are suspected to suffer from dengue hemorrhagic fever, while the other from dengue fever. The number of confirmed cases remained at 139 with 6 deaths. [Text] [BK081622 Kuala Lumpur Domestic Service in English 1130 GMT 7 Dec 83 BK]

TYPHOID CASES IN SABAH--There has been an increase of typhoid cases in the State of Sabah in the past 2 weeks. The State Medical Department in Kota Kinabalu said the increase is most significant in the district of (Tauran), where 13 cases were reported since the beginning of this month. Six cases were reported in the state capital, while one each was reported in the districts of Semporna, Tambuan, and Kota Marudu. [Excerpt] [Kuala Lumpur Domestic Service in English 1130 GMT 25 Dec 83 BK]

CSO: 5400/4376

DROUGHT CAUSES SPREAD OF SCABIES AMONG POPULATION

Maputo NOTICIAS in Portuguese 14 Nov 83 p 2

[Text] The drought that has been spreading throughout various regions of our country and which, particularly in the city of Maputo, has imposed restrictions on the water supply, the primary necessity for personal cleanliness and hygiene, is the chief cause for the spread of scabies now arriving in various parts of this city. This outbreak, which has been especially prevalent in the last 6 months, is of a highly contagious disease, and several persons, including children and elderly, are currently feeling its effects.

Information obtained from staff members of several health centers and child-care centers in the city confirm the high number of persons suffering from scabies, with the number of cases increasing daily. In the child care centers a few children and workers who are carriers of the disease have found themselves unable to carry on their activities for fear of contaminating other persons not yet afflicted.

A high number of persons come to the Machava Health center daily for treatment, we were informed.

Children and even entire families are covered with boils. It is not unusual for children to be brought in to the health stations with their scalps also infected.

For adults, we were told by attendants at the Machava center, the situation gets even more complex, not only because the treatment is different from that normally offered at the center but also because contamination can be spread through direct contact or the use of clothing of infected persons.

Many Children Affected

Health center personnel report that scabies has spread extensively to children and babies.

Most of those brought into the health centers show advanced symptoms of the disease, some having boils all over their bodies and on their heads.

At the Xipamanine child care center we were informed that many children infected by this disease have been removed for fear of contaminating the others. Only after an adequate treatment and a favorable medical report are they allowed to return to the center.

The same thing happened to an employee of the center, who has been subjected to the same conditions as the children taken out of the center and who will be allowed to return only after proper treatment.

#### Neighborhoods Showing the Highest Number of Scabies Cases

Information obtained from various residents of the city indicate that the neighborhoods of Maxaquene, Matola, Infulene, Chamanculo, Xipamanine, and FPLM, among others, are the ones with the highest number of reported scabies cases at the moment. Commenting on that fact, an official of one of the health centers said that one of the factors to take into account, beyond the lack of hygiene or strict observance of hygienic standards, is the constant movement of people from one neighborhood to another or even from district to district. Likewise, many houses are unable to assure the most elementary rules of cleanliness and hygiene.

#### Some steps for Avoiding the Disease

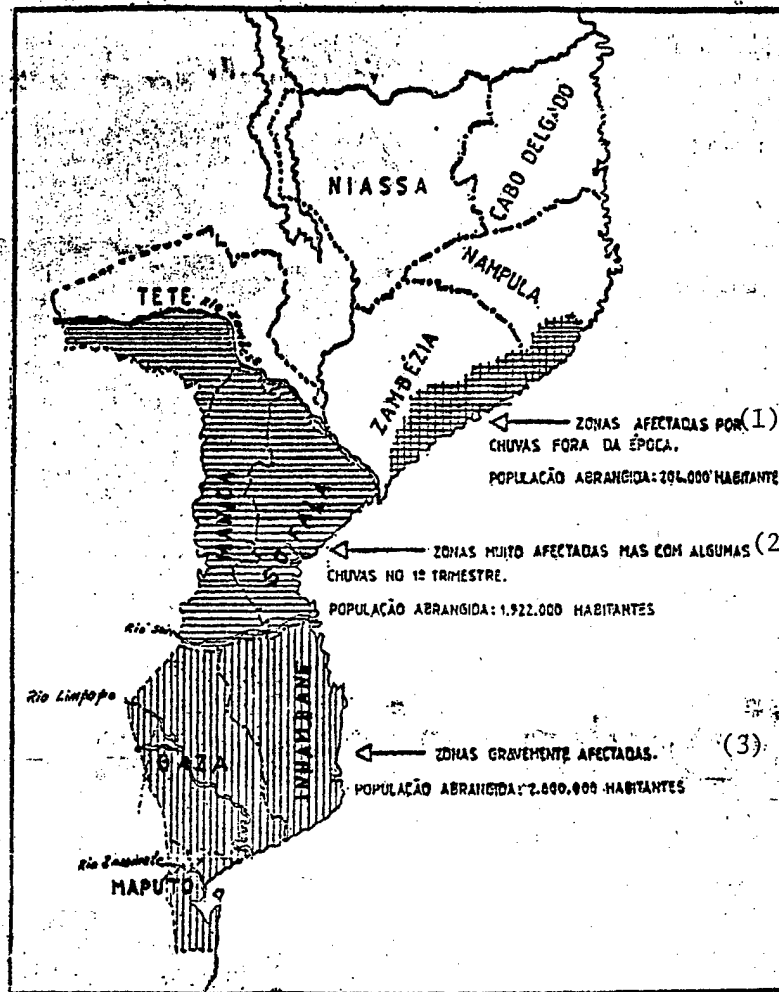
Our informants emphasized over and over that the fundamental rule to follow to fight this disease is to keep the body clean!

At the slightest suspicion of contamination, go to a health center.

Avoid contact with persons infected with scabies.

Do not use the clothing of anyone who is infected. A person who has the disease should disinfect his own clothing right after the first treatment to eliminate the germ that causes the disease.

Prepare foods carefully and try to eat a varied diet, since that is the only way the infected person can build up his vitamin reserves.



(4) Estas as zonas afectadas pela seca e onde os seus efeitos estão a colocar em difíceis condições de vida milhares de pessoas

Key:

1. Zones affected by unseasonal rains. Population, 204,000 inhabitants
2. Zones heavily affected, but with some rains in the first quarter. Population, 1,922,000 inhabitants.
3. Zones seriously affected. Population, 2,600,000 inhabitants
4. These are the zones affected by the drought and where its effects are inflicting hardships on the lives of thousands of persons.

12430

CSO: 5400/40

## GONDOLA VACCINATION GOALS SURPASSED ; PRENATAL CARE INCREASED

Beira DIARIO DE MOCAMBIQUE in Portuguese 8 Nov 83 p 4

[Text] [report from Gondola by Jordao Domingoas] The vaccination goals set by the Health Ministry for the District of Chimoio in Gondola have been met and surpassed, it has been announced by Pedro Jorge, health director for this district. In fact, opposed to the 6,306 persons who were to be vaccinated against tetanus, tuberculosis, poliomyelitis, and measles, 13,173 were actually inoculated in the first half of this year, which is considered a record figure.

During the same period, the goal of 1,458 prenatal consultations were exceeded when 3,466 were performed, while pediatric consultations reached a figure of 1,925, against a forecast of 1,404. The number of childbirths, however, reached only 849, which fell short of the goal of 900.

Therefore, to guarantee an increasing number of childbirths in the coming months, pregnant mothers in the district are being made aware of the availability of prenatal consultations and encouraged to give birth in hospitals. The participation of mothers in these actions is considered immensely satisfactory.

Pedro Jorge further stated that in the area of preventive medicine a former garage has been taken over which will be equipped and put to use as an installation of the health service, to reduce the effect of the housing shortage felt in that part of Manica Province.

#### Outbreak Suspected

Our source then went on to say that a possible outbreak of measles is suspected in the locality of Macate in Chissassa. Because of this, vaccination teams have been sent to that location, where they have already arrived and expect to extend their activities into the surrounding areas. The lack of transportation for the teams, however, has made their work somewhat more difficult.

12430

CSO: 5400/40

MEASLES, TETANUS CASES DECREASE AFTER VACCINATION PROGRAM

Maputo NOTICIAS in Portuguese 11 Nov 83 p 2

[Text] The number of cases of measles in the City of Maputo has decreased significantly in the last few years as a result of the wider vaccination program. In 1982 the program covered 79 percent of the population group subject to immunization, and in the first half of this year, the program has reached 82 percent, according to Dr Williamo Domingaz Lorenzo of the Maputo Medical Examination and Treatment Center, who spoke at the fourth health emphasis days put on in Namaacha.

Dr Lorenzo further stated that, despite every effort, the number of measles cases is very high, largely attributable to the migration of rural people to the cities.

He pointed out that the rural vaccination programs are fewer than in the city. The mortality from measles, particularly among children, still reaches much higher figures in the rural areas.

He reminded that children should be taken to health centers for vaccination against measles between 9 months and 1 year of age.

Other works on measles were presented at the Namaacha program by Drs M. Glisser and Carol Marshall.

Tetanus Attacks Fewer Children

Meanwhile, tetanus among neonates, who constitute the majority of cases, has declined recently to only a small percentage of the total number of cases, declared Dr Williamo Domingaz in a paper presented on the incidence of tetanus in Maputo.

This small percentage of tetanus cases among neonates is attributable to antitetanus vaccination of pregnant women during prenatal consultations.

At the present time, the majority of tetanus cases noted in Maputo are among adults. Dr Lorenzo proposed at the meeting that vaccination be extended to broader sections of the population.

Tetanus is caused by bacteria that enter the skin through injuries (tetanus bacillus "Clostridium Tetanicus").

12430

CSO: 5400/40

NIGER

BRIEFS

SPINAL MENINGITIS OUTBREAK--The Niger Ministry of Health has announced the outbreak of cerebro-spinal meningitis at Gunna in the Kagara local government area. The health officer in charge of the area, Malam Iro Ibrahim, announced that two persons had died so far as a result of the disease. He said that hundreds of people were now undergoing treatment against the disease. Malam Ibrahim added that doctors had been despatched to the affected area. The officer also said that an outbreak of chicken-pox had been reported at Tungan-Bako local government area, but that nobody had died of the disease. [Text]  
[London WEST AFRICA in English 28 Nov 83 p 2774]

CSO: 5400/45

## UNICEF SURVEY GIVES INFANT MORTALITY STATISTICS

Islamabad THE MUSLIM in English 7 Dec 83 p 6

[Text] KARACHI, Dec. 6: Even today, one Pakistani child in five will die before reaching the age of five. In fact, there has been little significant decline in death rates for 20 years, and almost 2,000 under-fives die every day in Pakistan--four every three minutes, according to a UNICEF feature.

The six main communicable diseases measles, polio-whooping cough, T.B., diphtheria and tetanus--kill a quarter of a million children yearly. All these tragedies are preventable by immunisation.

Diarrhoea kills over a third of a million Pakistani children every year--up to 1,000 every day. Most of these deaths are preventable without drugs or doctors: elaj-e-julab will treat most cases and prevent fatal dehydration.

Why? A fatal combination of malnutrition and diseases among children and their mothers, most of it easily preventable. Tetanus and measles are the chief infant-killers, which immunisation can prevent. Mostly it is diarrhoea that kills children between 1 to 5, yet simple remedies are available.

Pakistan is not short of food, yet 60-70 per cent of its children are malnourished. Between 1 and 1.5 million children have third degree malnutrition. In the rural areas, in Baluchistan for example, the position is even worse, in the country as a whole, the poorest tenth of the population gets a declining fraction of all income.

But causes of malnutrition and death are probably more closely related. The majority of Pakistani mothers are illiterate.

Pakistani children are born disadvantaged. Nearly all mothers are anaemic, and three out of four eat no extra food during pregnancy. As a result, more than a quarter of babies weigh less than 2-1/2 kilos at birth. At least 25,000 mothers die in childbirth every year.

What is being done? The next Five-Year has ambitious targets to halve the death rate for infants, to eliminate the worst malnutrition in children, to reduce communicable diseases to a negligible level. These plans aim to build on the foundation laid in the accelerated health programme, which concentrates on immunisation, diarrhoeal disease control, and village medwife training.

But since the social targets of the last plan were only half met, the intended expansion will be hard to achieve.

The answers are to detect malnutrition, to immunise every child, to make elaj-e-julab commonplace in every home, to stop the decline in breast-feeding (and the casual retailing of children's milk food), and above all, to educate every mother how to safe-guard her children's lives.

Immunisation and diarrhoeal control (through oral rehydration salts) alone could save 700,000 Pakistan children dying every year.

The government cannot do it alone. Every parent must be involved. This means mobilising everybody businessmen, traders, religious leaders, women's groups and trade unions.

A massive commitment is needed. We have the technology. We have the resources. All that we need is the will power.--PPI

CSO: 5400/4703

EPIDEMIOLOGICAL DATA ON ECHINOCOCCOSIS

Beijing ZHONGHUA LIUXINGBINGXUE ZAZHI in Chinese No 4, Aug 1983 pp 251-254

[Article by Jiang Cipeng (5592 2945 7719), Lanzhou Medical College: "An Epidemiological Survey of Enchinococcosis in Our Country"]

[Text] After the earliest discovery of one case of human echinococcosis in Qingdao in 1905, there were successive reports of cases in places like Lanzhou and Beijing. By the time of liberation, there was only a total of 40 reported cases in the whole country. But after 1948, the number of reported cases increased daily and by 1978, it had already exceeded 3,000; the total number of reported cases in the 30 years after liberation has increased by about 80 times that of the 40 years before liberation [1,2]. Therefore, the severity of echinococcus infestation in our country cannot be underestimated and adequate attention must be paid to the situation.

In our country, two types of human echinococcosis have been confirmed. The single-type or cystic echinococcosis (CE), caused by the larvae of echinococcus granulosis (Batsch, 1786; E.g.), attacks mainly the liver and then the lungs. It is generally called echinococcus cyst. The other is the cluster-type or alveolar echinococcosis (AE), caused by the larvae of E. multilocularis (Leuchart 1863; E.m.) and originating almost entirely in the liver. It is also called hydatid disease. This article discusses mainly the epidemiological state of CE and AE and provides data for future epidemiological studies.

Geographical Distribution

I. Single-type echinococcosis: It is mainly distributed in the provinces (areas) of Xinjiang, Ainghai, Ningxia and Gansu in the northwest, Inner Mongolia in the north and Tibet, Sichuan and Yunnan in the southwest. There are also reported cases in provinces like Shaanxi, Hebei, Shandong and Liaoning. According to an analysis of 378 cases of chest CE in Xinjiang [3], almost no area in the 17 localities, zhou and townships is free from infestation and northern Xinjiang has 5.5 times more cases than southern Xinjiang. The situation in Hejing County in southern Xinjiang and in Urumqi and Shihezi in northern Xinjiang is even more serious. In the Hami area of Xinjiang, especially in Balikun County, echinococcus infestation is extremely common [4], while the Kashi area also belongs in the epidemic area [5].

According to reports from Qinghai [1], incidences of CE is highest in purely pastoral areas, reaching 35.0 percent. The percentage of semi-agricultural and semi-pastoral areas is 24.1 percent, for agricultural areas 18.3 percent, for cities and towns 15.3 percent and for migrants from other provinces 7.3 percent. According to a survey of 19 counties and municipalities in Ningxia, the disease is widespread in 18 areas and is especially serious in Yanchi County [6]. Based on this author's knowledge, the epidemic area in Gansu extends to the three areas in the Hexi corridor as well as to such localities and zhou as southern Gansu, Dingxi, Qingyang and suburban Lanzhou; it is especially serious in Tianzhu, Xiahe, Jingtai, Yongdeng and Huan counties. Tibet is one of the largest pastoral areas in our country and varying degrees of the epidemic occur in various areas: it is relatively serious in Rikaze [7], while not as serious in the Linzhi area [8]. In Sichuan, the disease is found in the national minority areas and it is especially serious in Ganzi Zang nationality autonomous zhou [9]. In Yunnan, the disease has been seen in Yudiqing Zang national autonomous zhou, Lijiang Naxi national autonomous zhou and Dali Bai national autonomous zhou [10]. It is widespread in all the pastoral areas in Inner Mongolia and is especially serious in Ximeng [6]. Because of the mobility or the changes of the dwelling places of the population, cases of CE can also be seen in non-epidemic areas, although all the infestation does not take place in those areas. In 1980, Hunan reported a case of enlarged liver CE (the amount of echinococcus fluid was as high as 2,000 ml). The sick child was born in Xinjiang, returned to Hunan at the age of 8 and was operated on at the age of 10. The infestation undoubtedly took place in Xinjiang [11].

II. Cluster-type echinococcosis: It is distributed mainly in the five provinces of Xinjiang, Qinghai, Ningxia, Gansu and Sichuan [12]. In Xinjiang, it is mostly found in such cold areas as Tacheng, Aertai and Yili in northern Xinjiang [13, 14]. In Ningxia, it is found in the Guyuan area [15], and based on the cases treated by this author in the last 2 years, it is especially serious in Haiyuan County in that area. According to the report of 11 cases from Qinghai [16], except for 1 unknown case, 6 out of the remaining 10 are natives of Qinghai, while the other 4 cases, although natives of other provinces, have also worked in Qinghai for 7 to 15 years; also, according to the analysis of 28 cases [1], the area of distribution extends to 17 counties and municipalities. In Sichuan, it is mainly seen in the national minority areas in the west [9]. The 16 cases found in Gansu are distributed in 6 counties and are especially numerous in the Gaohanshan area of Zhang County.

#### Condition of Human Infestation

##### I. Incidence of disease:

1. Xinjiang: Based only on incomplete estimates of 6 hospitals in 1953-1979, the number of cases of CE and AE admitted and treated within the 26 years had exceeded 3,000 [Table 1], demonstrating that the infestation in Xinjiang may be the most serious in the country.

2. Qinghai: The surgery department of the provincial hospital admitted and treated 300 cases of echinococcosis in 1959-1978 [22]. The surgery department of Yushuzhou Hospital surgically treated 180 cases of liver CE in 1970-1978, and they constituted 1/5 to 1/6 of the total number of in-patients in the surgery department at that time [23]. In 1959-1979, the surgery department of Qinghai Medical College admitted and treated 51 cases of liver AE and their ratio to the cases of liver CE in the same period was 1:6. It is noteworthy that among the 45 cases of AE involving abdominal surgery, 3 cases have been confirmed to have coexisted with CE [24].

3. Ningxia: According to reports from Yanchi County Hospital [6], CE constitutes 8 percent of the total number of surgical patients. The comprehensive AE data on 60 cases of liver AE [15] includes some of the cases in the Guyuan area.

4. Gansu: Up to 1979, the Lanzhou Army Hospital has admitted and treated 112 cases of liver CE [25]. Totaling up the incidences of disease for 426 cases of CE in the provincial hospital, it constitutes 1.13 percent of the total patients staying in the hospital at that time [6]. In 1970-1980, this author has collected a total of 16 cases of liver AE confirmed by surgery and pathological examination [17]. Another case of AE in the eye socket may be a first in our country [26].

Table 1. Data on Cases of CE and AE in Xinjiang

Type of Echinococcosis	Unit [Documentation]	Year	No. of Cases
CE	Xinjiang Medical College [3,6]	1957-75	1,053
	Xinjiang Medical College [18]	1957-77	1,766 <sup>(1)</sup>
	Autonomous Region Hospital	1953-78	
	Shihezi Medical College [19]	1960-78	400
	Yili Autonomous Zhou Hospital [20]	1964-79	702
	Kashi Area First Hospital [5]	1974-80	50
	Hami Area Red Star Hospital [4]	1974-80	128 <sup>(2)</sup>
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AE	Xinjiang Medical College [14,21]	1958-78	31

Note: (1) Total of 2 units.  
 (2) 113 surgical procedures.

5. Shaanxi: In recent years, only two reported cases of CE have been seen and both have been confirmed through surgery and clinical examination [27,28].

6. Tibet: According to the report from the Autonomous Region Hospital [29,30], the number of cases of the disease has markedly increased in recent years. For example, only 42 cases of liver CE were admitted and treated in 1959-1962, and they accounted for 3.6 percent of the total number of patients

who underwent abdominal surgery at that time. In that same period, autopsies of 27 dead persons with no previous symptoms of echinococcosis while they were alive revealed 4 cases (14.8 percent) of liver CE. By 1979, the number of liver CE patients increased to 109 cases, 17 of which were related to the lung (7.3 percent).

7. Sichuan: In 1954-1974, Sichuan Medical College admitted and treated 48 cases of liver echinococcosis, 7 of which have been confirmed as AE [9]; the comprehensive data on 60 cases of liver AE also include some of the cases of that hospital [15].

8. Yunnan: The surgery department of Yunnan Medical College reported in 1978 that more than 10 cases of echinococcosis have been admitted and treated in the last 10 years [10].

9. Inner Mongolia: According to the report of the surgery department of Inner Mongolia Medical College [31], 437 cases of liver CE have been treated surgically in 1958-1980.

10. Others: Shandong [32]: There are reports of CE in provinces like Shandong [32], Dongbei and Hebei and some of them may have originated in those areas. Other groups of cases mention patients from Shanxi and Fujian, but it is still difficult to determine if the infestation took place in their native areas.

II. Rate of infestation: In only a few areas of our country have surveys of population samples been carried out; the infestation standard is mainly based on a skin test for an allergy to echinococcus, coupled with ultrasound and X-ray examinations and followed by further examination or through surgical and pathological examinations to accomplish the goal of accurate diagnosis. It can be seen from Table 2 that there are relatively great differences between the 5 survey groups in the rate of infestation: the lowest is 1 percent, the highest is 25.1 percent and the diagnostic rate of 1 group is 4.5 percent.

Table 2. Survey of Infestation Rate of CE of 5 Groups in 3 Provinces (Area) in Our Country

<u>Provinces [Documentation]</u>	<u>Area</u>	<u>Year</u>	<u>People Surveyed</u>	<u>Rate of Infestation %</u>
Xinjiang [33]	Balikun County	1979	1,060	12.3
Gansu [8,34]	Tianzhu County			1
	Xiahe County		375	5.6
Tibet [8,34]	Chayu County	1978	953	26.1*
	Linzhi area	1979	220	4.5

Note: \*The accuracy rate is 4.5 percent

### III. Distribution of Population

1. Sex: As for the sex distribution of liver or lung CE, there are more males according to reports from Xinjiang [3,35]; but Gansu [6], Qinghai [23] and Tibet [29,33] all report that there are more females. This is especially the case with the Tibetans, who have a ratio of 1:2 between male and female. This may be due to the overexertion of females in herding or milking which lead to frequent contact with sheep and dogs. Further, in the survey carried out in Xinjiang and Tibet [33,34] of the infestation rate of two groups, there is no marked difference between male and female. In general, there are more males with liver AE and in the comprehensive data of 90 cases in this country [12], the ratio of male to female is 1.5:1. But in the analysis of 51 cases in another group in Qinghai [24], the ratio of male to female is the same.

2. Age: In general, liver and lung CE are more commonly found in youths and young adults [1,3,6,25,29,34]. The survey of CE infestation rate of 220 persons in Balikun County, Xinjiang [33], also shows that it occurs more often among youths and young adults, with the highest rate of a positive echinococcus skin test in the 20- and 40-year-old age groups, which constitute 17.9 and 22.7 percent, respectively. In the survey of the CE infestation rate of 953 Tibetans in Chayu County, Tibet [34], the rates of the positive echinococcus skin test for teenagers (under 15 years old) and adults (over 15 years old) are 30.1 percent and 20 percent, respectively, showing that the infestation rate of the former is markedly higher than the adult group. According to the report of several groups [1,12,15,24], the age distribution of liver CE is also mainly in the 20- to 40-year-old age group.

3. Nationalities: National minorities account for 55 percent of the 602 cases of echinococcosis reported by the Autonomous Region Hospital, Xinjiang [35]. The nationality distribution of 379 cases of chest CE is, in order, Han, 48 percent; Kazak, 21.3 percent; Uighur, 14.5 percent; Mongol, 8.4 percent; and Hui, 5.0 percent. If the calculation is based on the population of the nationalities, then the Kazaks and Mongols have the highest ratio while the ratio of the Uighurs is the lowest. The nationality distribution based on the analysis of 200 cases of CE by Qinghai Provincial Hospital [1] is, in order, Zang, 59.5 percent; Han, 26.5 percent; Mongol, 7 percent; Hui, 6 percent; Tu, 0.5 percent; and Salar, 0.5 percent. Among the 180 cases of liver CE in Yushuzhou Hospital [23], the ratio among Zang herdsmen is as high as 93.9 percent. Patients with CE found in Yunnan belong mainly to the Zang, Naxi and Bai nationalities [10]. According to an analysis of 33 cases by Qinghai Hospital, the nationality distribution of AE is, in order, Han, 54.5 percent; Zang, 24.2 percent; Hui, 18.1 percent; and Tu, 3.0 percent.

4. Occupation: Of the 379 cases of chest CE reported by Xinjiang Medical College [3], children account for 26.4 percent, clearly indicating that the cases may be related to frequent contact with dogs. Next are the herdsmen, who account for 22.2 percent, and the peasants, who account for 17.9 percent. But in the analysis of 397 cases of CE by Gansu Provincial Hospital [6], peasants constitute a majority, accounting for 205 cases (51.6 percent). Moreover, in the survey of the infestation rate of 2 different groups in

Xinjiang and Tibet [33,34], the infestation rate of herdsmen in the former group (29.1 percent) is higher than that of the peasants (12.0 percent) and students (9.6 percent). Qinghai Provincial Hospital has compared and analyzed the occupational distribution of 200 cases of CE and 33 cases of AE and discovered that in the former group, there are more herdsmen (51.5 percent) than peasants (12.5 percent), while in the latter group, there are more peasants (48.5 percent) than herdsmen (15.2 percent) [1]. But in the 51 cases of liver AE reported by Qinghai Medical College, there are more herdsmen (18 cases) than peasants (12 cases) [24]. The 15 cases of liver AE found in Gansu are all peasants in mountain areas, the majority of whom are fox hunters and have contact with foxes [12,17].

5. Organ distribution: As shown in Table 3 [following page] although there are differences in the incidence of CE in the organs in the reports from 4 provinces of the country, all of them show that the incidence for liver is the highest (62.0 to 83.7 percent); next is the lung (6.9 to 23.4 percent). An overwhelming majority of AE originates in the liver and then develops in the brain or lung as a result of blood circulation and metastasis.

IV. Mortality Rate: Liver CE, with complications such as infection or rupture, can lead to death. Qinghai and Inner Mongolia report mortality rates of 3.3 percent and 2.5 percent, respectively [23,31]. Gansu reports a surgical mortality rate of 4.1 percent [6]. The prognosis for liver AE is even worse, partly because the pathological changes involve the negative characteristics of infiltration and spreading and metastasis to faraway locations and partly because of the difficulty of early diagnosis and the low rate of surgical removal. Of 90 comprehensive cases, only in 18 cases (20.0 percent) can the surgical removal of liver be carried out [12]. In another group of 51 cases, only in 6 cases (11.7 percent) has the focus of infestation been completely or largely removed, and the early-stage mortality rate is 6.7 percent [24]. Patients at the advanced stage mostly die of such causes as failure of liver functions, obstructive jaundice and biliary cirrhosis or the metastasis to the brain and lung.

#### State of Infestation of Livestock [1,2,6,13,29]

In our country, the geographical distribution of livestock infested by CE and dogs infested by adult worms of E.g. extends to the provinces in the northwest and southwest, Huabei and Dongbei. Because of the great difference in figures for rates of infestation reported from various places, we have listed comprehensively in Table 4 the ranges in percentages from the lowest to the highest values according to provinces (municipalities). In our country, lamb has the highest infestation rate among livestock; next are the cows (including yak and ox), followed by goats and pigs. Camels infested with CE are also discovered in Ningxia. CE infestation has also been confirmed in the bodies of pigs, cows, sheep and horses in Shanghai and of pigs in Beijing and Jiangxi. It must be pointed out that the extent of livestock infestation is directly or closely related to the infestation rate of humans and we can estimate the degree of severity of human infestation from the level of the livestock infestation rate.



Table 4. CE Infestation Rate (%) of Livestock and E.g. Adult Infestation Rate of Dogs (%) in the Country

Province Municipality Area	<u>Lamb</u>	<u>Yak</u>	<u>Ox</u>	<u>Cow</u>	<u>Pig</u>	<u>Dog</u>
Xinjiang	50 to 80					4.3 to 20
Qinghai	11.5 to 70.8	100				
Ningxia	7.5 to 94.4		80.9			
Gansu	1.1 to 85.2*	33.3 to 96.0	50.9			2.2 to 19.2
Shaanxi	5.3 to 76.2					
Tibet	19.0 to 42.1	66.4				
Sichuan						1.7 to 2.5
Yunnan	56.0			50.0	12.0 to 20.0	9.5
Beijing						1.0 to 9.5
Dongbei				7.8	0.09	6.6

\*Close to 100 for individual counties; the CE infestation rate for goats in that province is 14.3 to 32.9.

Echinococcosis is fairly widespread in our country, extending all over the vast areas in the north and the provinces in the southwest, and is a regional parasitic disease affecting many nationalities. CE is found mostly among herdsmen, while AE is found mostly among peasants. The patients' ages are distributed almost entirely in the youth and young adult groups, causing a certain loss in manpower.

The disease affects both human and animals and not only harms the health of peasants and herdsmen but also impedes the development of animal husbandry. The infestation of livestock is also relatively serious and many provinces and cities in our country have already carried out studies; but surveys of the human infestation rate have only been carried out in a few areas and it is impossible at present to estimate the total number of echinococcosis patients in the whole country. Therefore, we must pay attention to the epidemiological survey of echinococcosis and the study of prevention. We recommend that the units concerned establish organizations to nurture and give active support to scientific and research personnel willing to pursue this profession and to provide the conditions for research. At the same time, we propose that the provinces and areas where echinococcus is widespread should have the opportunity to discuss the question of coordinated efforts, to strive for certain accomplishments within a short period of time and to strive to prepare well for the participation in the next--the 13th--international scholarly conference on echinococcosis.

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12380

CSO: 5400/4163

PERU

HAVANA ON BUBONIC PLAGUE IN LAMBAYEQUE

PA051529 Havana International Service in Quechua 2200 GMT 1 Dec 83

[Text] A commission that visited Chiclayo, Lambayeque Department, has reported that the bubonic plague has claimed five victims, and that many other people are in advanced stages of the disease, which surfaced in an agrarian cooperative in Udima, Lambayeque Department.

The commission has requested immediate help, because the region has been infested for some time with a great number of hungry rats, which have eaten some of the crops, chickens, ducks, and other small animals. The increased number of these rodents is believed to be responsible for the outbreak of this contagious disease. It has also been learned that in Lambayeque a great number of people have been afflicted with high fever and vomiting, while others have even lost consciousness. The area affected by the plague has a population of 15,000.

CSO: 5400/2025

CABINET APPROVES NEW MEASURES TO CURB MALARIA

Honiara SOLOMON STAR in English Nov 83 p 16

[Text]

The Ministry of Health and Medical Services is to use new incentives as from January next year in a drive to combat malaria in the country.

Cabinet had approved the new measures spelt out in a paper presented by the Minister for Health and Medical Services, Mr George Suri.

Mr Suri said the new move has been initiated because the present Malaria Eradication Programme, introduced in the early seventies has not been quite successful.

He said the present level has shown that in a population of about 270,000, some 350 people out of every one thousand are attacked by malaria.

The new control measures are aimed at reducing the number of malaria cases to a level of 20 in every one thousand people.

Mr Suri told Cabinet that once this target has been achieved within the next four to six years, then malaria could no longer pose as a public health problem.

The new malaria combat move expected to start in January next year will involve integrated approach with general health services throughout the country.

Both Government and private sector organisations will be asked to help in one way or another by educating the public about the causes of malaria such as allowing ponds and containers for mosquitoes to breed and the importance of allowing houses and huts to be sprayed.

Stiffer measures will be used in monitoring and assessing progress in eradication controls in all areas of the country, by health workers.

## AIDS, PRE-AIDS CASES MONITORED IN ANDALUCIA

Madrid EL PAIS in Spanish 1 Dec 83 p 22

[Article by Alfredo Relano]

[Text] Sevilla. Three deaths so far this year, a patient in serious condition and seven or eight other cases thought to be in the incubation period of acquired immuno-deficiency syndrome (AIDS) have placed the Medical Center Virgen del Rocio of Sevilla at the forefront of the battle against that disease in Spain.

The center is working under difficult conditions, without any special budgetary resources and with very little contact with the National Commission created to monitor that disease.

Rafael Castro, chief of the center's Hematology Department, acknowledged yesterday that they have a new case, a hemophilic patient with AIDS, in that medical center where 77 hemophilic patients from all over western Andalusia are receiving treatment. Since the outbreak of the syndrome, hemophilic people have been kept under especially close and careful observation.

Apart from this latest case where the diagnosis is definite, the hospital has seven or eight other cases of pre-AIDS, which is the term used by doctors to describe the patient's condition before the disease appears and frequently the warning symptom is polyadenopathy (multiple inflammation of the lymphatic glands).

Two of the patients now showing these symptoms are heroin addicts and one of them is homosexual while the others are hemophilic. The University Hospital has another case who is being treated in collaboration with the medical teams of the Virgen del Rocio Hospital.

### Monitoring Commission

Antonio Nunez, director of the Immunology Department at the Medical Center of Sevilla, told this newspaper yesterday that he resented the fact that health officials, at a national and regional level, have failed to allocate any funds or devote any additional effort to fight the disease. "A commission was set up in Madrid and we hardly have any contact with it. From time to time they send us questionnaires which we fill and send back to them, and that is all. I think that there is an insane indifference toward this outbreak."

8796

CSO: 5400/2509

LUSHOTO DISTRICT PLAGUE OUTBREAK AFFECTS SIX VILLAGES

Dar es Salaam DAILY NEWS in English 19 Dec 83 p 1

[Excerpt]

THE plague outbreak in Lushoto District which has claimed 19 lives so far, has affected six villages, it was reported yesterday.

A medical official who came from one of the affected villages at the weekend told the *Daily News* over the telephone from Lushoto that the affected villages were Manolo, Hambalawei, Madada, Manka, Gimai and Mmbaru. The villages are in Shume Ward, Mlalo Division.

The official who said he was at Manolo Village for the whole of last week when the outbreak was more intense said there were only seven cases in the village by last Saturday. Out of these six were old cases.

He said the seventh person was taken ill on Saturday. But it was not clear whether he had contacted the disease from one of his family members. His wife had died and one of his child had been admitted for treatment against the disease.

The official did not give details regarding the remaining villages. Efforts to contact the District Medical Officer for comment were not successful because he was on a visit to the affected villages.

It was reported at the weekend that health experts in Tanga Region were working round the clock to fight the disease. A meeting of the National Committee on

Communicable Diseases held at the Ministry of Health in Dar es Salaam on Friday said 115 people had been attacked by the disease in the district.

TANZANIA

BRIEFS

PLAGUE 'ABATING STEADILY'--The plague, which claimed 19 lives in Lushoto District last week, has been abating steadily, according to officials at the district hospital yesterday. They said about half of the admitted patients were released during the week while others were showing marked improvement. The quarantine imposed on the affected area, however, has not been lifted. Officials from the Ministry of Health in Dar es Salaam, led by the Director of Preventive Services, Dr A. Mgeni, have been visiting the affected area in Mlalo Ward since mid-week, accompanied by district medical officials. [Text] [Dar es Salaam DAILY NEWS in English 25 Dec 83 p 1]

PLAGUE IN TANZANIA--A fast-spreading plague epidemic which struck several villages in northeastern Tanzania has killed 290 [figure as heard] people. Some 80 victims were said to be under medical observation at different health centers in the area. The area commissioner for Lushoto, Mr Kiliwata, said the victims died before reaching health centers. None of those admitted to the centers had died. The plague, which broke out in Lushoto district early this month, has forced the Health Ministry to quarantine the hardest-hit ward. Mr Kiliwata said this was the fourth outbreak of an epidemic which begun in 1980. Health officials have appealed to local residents to maintain high standards of hygiene, warning that a filthy environment is conducive to the spreading of the disease. [Text] [EA010628 Kampala Domestic Service in English 1000 GMT 31 Dec 83]

CSO: 5400/55

ZAMBIA

DISTRICT GOVERNOR REPORTS ON INCIDENCE OF VARIOUS DISEASES

Lusaka TIMES OF ZAMBIA in English 12 Dec 83 p 2

[Text] THE high incidence of bilharzia in Mazabuka district is causing concern to the Party and its Government leadership in the area.

District governor Mr Shadreck Mwiimba says in his report to the recently ended provincial council held in Livingstone that in some parts of his area, the incidence was as high as 70 per cent.

His main worry is lack of molluscides to destroy the snails in which bilharzia germs live and this has turned the disease into an endemic one.

"In the absence of molluscides only health education is being applied in the affected areas. We have a problem as the disease has become endemic and in some parts over 70 per cent of the population are suffering from it," he says.

He further says that an outbreak of meningitis was reported at Chuula suburb of Nakambala sugar estates where six cases were confirmed.

A total of 1,057 cane cutters were immunised against the disease as a preventive measure.

One case of typhoid was reported in Mapangazya area at Ngangula school while sporadic outbreak of measles were also brought to health authorities at Chivuna, Kafue Gorge, Nega Nega and Nakambala Estate townships.

He said in his report that 24 tuberculosis and 14 leprosy defaulters were traced and brought to health centres for continued treatment while 50 TB and six leprosy contacts were sent for medical examinations.

CSO: 5400/46

## BRIEFS

TSETSE THREAT TO HUMANS, ANIMALS--Animal faces extinction unless the rapidly increasing tsetse flies are wiped out in Zambia, chairman of the Rural Development Sub-Committee of the Central Committee, Mr Reuben Kamanga said in Lusaka yesterday. The tsetse fly was posing a serious threat to human life as well. Mr Kamanga said the Party and its Government was in a quandary since it did not have enough funds to contain the threat. "We need to use the rural air services to spray against the tsetse flies, but there are no funds to get spares for the planes and chemicals. The whole country will soon be covered by tsetse flies and I am worried about this situation." The alternative was to vaccinate the animals. "But this will only give the animals resistance against tsetse fly bite and leave the fly to continue multiplying. This poses danger to human beings who might be bitten by tsetse flies and suffer from sleeping sickness." He urged the Party and its Government to help the Bamoral Research Institute near Chilanga. The institute carries out research into how to control cattle diseases and manufacture vaccines. While commercial farmers vaccinated their cattle peasant farmers could not afford to do so. [Excerpt] [Lusaka TIMES OF ZAMBIA in English 27 Dec 83 p 1]

'UNKNOWN DISEASES' KILL 50--FIFTY people have died from unknown diseases which hit Sesheke over the past four months, MP for the area Mr Lawrence Sinyani said in Parliament yesterday. He said all the deaths occurred at Ngweze and requested the Ministry of Health to rush personnel there to contain the situation. Contributing to the motion of thanks on President Kaunda's opening speech, Mr Sinyani said the deaths happened between August and November 26. On October 9 when he and other people visited the area he was told that 28 people had died at Ngweze. When he went back on November 26 after Parliament adjourned he was told a further 22 people had died. "The situation is serious and the minister of Health must urgently send a team to the area to find out what is killing the people. I am prepared to accompany them." The long-term solution lay in the establishment of health centres at Ngweze and other places in the district. [Excerpt] [Lusaka TIMES OF ZAMBIA in English 9 Dec 83 p 1]

CSO: 5400/46

RYEGRASS POISONING STRIKES WESTERN STOCK

Perth THE WEST AUSTRALIAN in English 12 Dec 83 p 45

[Excerpts] SHEEP and cattle deaths by poisoning from ryegrass have hit new areas of the State in the past few weeks.

There are now 23 shires affected.

Over the past 15 years 28,000 sheep and 400 cattle on nearly 400 properties have been killed by ryegrass.

Some valuable stud sheep are among the losses.

Shires as far north as Dalwallinu are now affected.

No longer is there any hope that the problem might be confined to southern producing areas. The potential for spread throughout the State and nationally with many more deaths remains high.

Ryegrass toxicity, as it is called, creates heartache.

Affected sheep, their legs stiffened, struggle to get up from the ground. Finally, they may succeed to stagger away awkwardly, only to collapse and die.

The disease has taken thousands of hectares out of livestock production.

Many farms may be harbouring the disease without even realising it. Ironically, healthy ryegrass is a valuable stock feed.

Mr Hyde believes there is an urgent need for research and extension programmes to be stepped up to increase farmer awareness.

"Governments and producers have to be prepared to put more money into greater efforts," he said.

"It could see a lot more country going out of sheep."

Ryegrass toxicity has been described as an unusual combination of nematode (a worm) and bacterial infection which, when present on annual mature ryegrass, produces a potent toxin.

BANGLADESH

BRIEFS

FOOT-AND-MOUTH OUTBREAK--TANGAIL, Nov. 19--Foot and mouth disease of cattle has broken out in the district. The affected areas are Gopalpur and Ghatail Upazilas. The farmers of the area are faced with problems to cultivate rabi crops because of the infection of their cattles with the disease. Sporadic cases of the disease has also been reported from other upazilas of the districts, reports BSS. Besides, a number of cattle died due to an unknown disease in Ghatail Upazila. District livestock department has taken up a programme to vaccinate cattles in the district. [Text] [Dhaka THE BANGLADESH TIMES in English 20 Nov 83 p 2]

CSO: 5400/7059

## BRIEFS

ANIMALS VACCINATED IN SIDAMO REGION--AWASA (ENA)--A total of over three million animals, including cattle, were treated and vaccinated against various diseases in Sidamo region in 1982-83 upto last September. The regional veterinary service utilized 370 vaccination stations, two clinics and deployed 20 assistant veterinarians and 57 other people for its cattle treatment and vaccination activities in the region last year, according to comrade Dr. Tsega Alemayehu, leader of livestock and fisheries development team in Sidamo. There are an estimated 2.9 million cattle, 750,000 sheep, 750,000 goats over 368,000 horses and close to 150,000 camels in Sidamo region. There is a lot of fish resources in Awassa and Abaya lakes and many of the rivers in Sidamo have a modest amount of fish resources. These waters have potential of producing 1,000 tons of fish annually but at present only 20 tons of fish is being netted in Sidamo region due to the backwardness of the means used for fishing. [Text] [Addis Ababa THE ETHIOPIAN HERALD in English 18 Nov 83 p 3]

CSO: 5400/45

TUBERCULOSIS IN CATTLE THREATENS HERDS

Beira DIARIO DE MOCAMBIQUE in Portuguese 8 Nov 83 p 4

[Excerpt] An estimated 5,000 head of cattle of the Macuse Farm Enterprise have died since 1982 from an outbreak of tuberculosis that has been devastating that region for more than 4 years.

Because the farm is currently contending with the lack of barbed wire to isolate the contaminated cattle and of other means for the elimination of this epidemic, it has been slaughtering six cattle weekly over and above what is already going on under the third phase of veterinary treatment of the cattle.

In 1982 there were a reported 16,000 head of cattle, and today, because of the losses from tuberculosis, there are only 11,385 oxen, bulls, heifers, bullocks, and cows.

The third phase of treatment of this epidemic, already under way in Macuse, consists of setting up an adequate control over the present situation of the cattle affected by the tuberculosis, after the application of various veterinary measures. But there are still persistent problems because of the lack of barbed wire, not only on the farm itself but also on the market nationally, to isolate the diseased cattle. What happens is that, in spite of the isolation efforts, which are handicapped by the reasons already stated, the diseased cattle mingle with those not yet affected, which makes it impossible to control the epidemic, which is already spreading, we were told, given the limited means available to the farm.

We were further informed in Macuse that the number of cattle that have died since last year may grow even larger if some of the most important factors for the elimination of the plague are not achieved.

12430  
CSO: 5400/40

MASS VACCINATION PROGRAM TO COUNTER THREAT OF RABIES

Maputo NOTICIAS in Portuguese 11 Nov 83 p 2

[Text] The antirabies vaccination campaign, directed primarily at pet dogs and cats, is almost completed, NOTICIAS has learned from a source in the Maputo Provincial Office of Agriculture. The source added that the program is now going to be repeated in various neighborhoods where it might be warranted, [such as] Albasini, Maxaquene "A", Chamanculo "D", Magoanine, and Malanga.

In the last few days, the brigades of the Provincial Office of Agriculture, which is responsible for the dog and cat vaccination program, have been working in the neighborhoods of Infulene "A", Infulene Valley, and Infulene "T3".

More than 2,000 Dogs Already Vaccinated

According to our source, more than 2,660 dogs and 1,203 cats have been vaccinated up to now. These figures do not include Catembe Zone.

In comparison with previous years, this figure is somewhat lower, which has prompted the Provincial Office of Agriculture to decide to establish a program of repeat vaccinations in areas where the earlier vaccinations did not take satisfactorily.

Our informant indicated that organizational questions detected at the last minute adversely affected compliance with the vaccination programs.

Campaign Can Eliminate Rabies

According to specialists in the matter, the campaign for vaccinating dogs and cats came at the right time, because some areas of the national capital were being "invaded" by rabid dogs and cats.

This situation was due basically to the fact that their owners had never bothered to take their pets to the antirabies vaccination stations.

Another factor which might frustrate the program, despite all the effort that the Office of Agriculture is putting into it, is the existence of large numbers of abandoned dogs roaming the city uncontrolled, as well as the proliferation of vagrant dogs.

To put a halt to this situation, a health specialist reported that it has become necessary to launch a campaign of compulsory mass vaccination of dogs.

Another step that might also help combat rabies or eliminate its carriers, besides vaccinations, would be the slaughtering of all dogs not vaccinated, as well as prohibiting pet dogs from wandering loose through the city.

12430

CSO: 5400/40

NATION PRODUCING SOME VACCINES FOR DOMESTIC ANIMALS

Lusaka TIMES OF ZAMBIA in English 9 Dec 83 p 5.

[Excerpt]

**ZAMBIA** has started manufacturing some of her own vaccines for domestic animals, Chairman of the Rural Development Sub-Committee of the Central Committee Mr Reuben Kamanga and his Vice-Chairman Paramount Chief Chitimukulu learnt yesterday.

The two members of the Central Committee were visiting Bamoral Research Institute near Chilanga when they were told of the tremendous progress made towards making Zambia self-sufficient in vaccines.

The director of the institute Dr George Chizyuka said it was not only in the Eastern Province where cattle were dying of east coast fever, but in the Northern and Southern provinces as well.

The institute's first task was to provide proper and prompt diagnosis and carry out researches on what vaccines to use on cattle and other domesticated animals.

In the past three years the institute had produced three types of cattle vaccines for a population of eight million cattle.

The institute was now working towards increasing Zambian-produced vaccines to eight.

CSO: 5400/46

## BRIEFS

CATTLE TRYPANOSOMIASIS, STARVATION DEATHS--HUNDREDS of cattle have died of sleeping sickness and starvation in Petauke and Katete districts, Eastern Province veterinary officer Dr Mohamed Razeed said yesterday. The animals had died from the disease but his office has no drugs to administer to the animals. Reports reaching Chipata say about 200 cattle die every week in the two districts and ward officials in Vulamukoko said 572 cattle had died there in the past three weeks. Dr Razeed said many animals were dying of starvation as there was little grass for them. He said the worst affected areas were Chikalawa, Chimpundu, Kalindawalo, Mwanjabantu, Menyani, Mumbi, Chipembe and Nyamphande in Petauke and Vulamukoko in Katete. There was little his office could do about the situation since it was experiencing a critical shortage of drugs. His office had been without drugs for almost a year now and was experiencing a shortage of syringes. He advised farmers to get their own drugs where possible and his officers would prescribe and administer them to the animals. He noted that some of the affected areas in Petauke had been sprayed from the air under a World Bank programme and expected the situation to improve. [Text] [Lusaka TIMES OF ZAMBIA in English 12 Dec 83 p 4]

'SERIOUS' CORRIDOR DISEASE OUTBREAK IMMINENT--A serious outbreak of corridor disease in Southern Province is imminent because of lack of dip chemicals, permanent secretary Mr Pensulo Phiri warned in Livingstone yesterday. Even where chemicals were available, cattle farmers could not afford them because they had suddenly become expensive. "I'm afraid unless the Government works out something now, tick borne diseases are going to wipe out the cattle population in this province, particularly that dreadful corridor disease." [Excerpt] [Lusaka TIMES OF ZAMBIA in English 28 Dec 83 p 1]

CSO: 5400/57

MDR ANTI-INFESTATION BRIGADES

Bissau NO PINTCHA in Portuguese 28 Sep 83 p 5

[Text] Plagues of insects attacked crops, especially rice and corn, throughout the country. Hardest hit was the Tombali region, where the larvae of Diopsis and Maliarpha (2 kinds of insects) caused enormous losses in the rice nurseries. Meanwhile, the Ministry of Rural Development organized brigades of farmers in all regions to combat the plagues.

This information came from the monthly bulletin of the Agricultural Campaign (Campanha Agricola) 1983/84 covering August of this year.

In many cases farmers were forced to replant in an effort to avoid a total crop loss, which means a delay in the harvest. The interruptions of the rain favor the development of the insects, as well as the outbreak of disease, especially piriculariose in the arid areas.

Meanwhile, in agricultural zone II (Bafata and Gabu), the harvest of coarse corn proceeded on a large scale, while sorghum, black corn and desert rice entered the flowering stage. On the other hand, low rainfall and the interruption of the rains affected the growth of the crops, which are showing signs of deficiency.

In zone I (Biombo, Cacheu and Olo), the harvest of coarse corn was begun during the second half of last month. At the end of August the farmers started the transplant of the rice to the salted fields, after having placed the crops in nurseries. The sorghum, black corn and desert rice are in the flowering stages.

Farmers in zone III (Tombali and Quinara regions) started the transfer of the rice to the salted fields and at the end of August, those who had started the seeding of the desert rice began the first harvest.

12402

CSO: 5400/38

## STONE FRUIT BLAST UNDER SCRUTINY

Christchurch THE PRESS in English 18 Nov 83 p 12

[Text]

A worrying bacterial blast of stone-fruit trees in Central Otago is under intense scrutiny by M.A.F. and D.S.I.R. officers and they are hopeful that a remedy can be found in short order.

A horticultural advisory officer with the M.A.F. in Alexandra, Mr Jeremy Elvidge, reported recently that up to 14,000 peach and nectarine trees in his area are dead or dying and that the cause was at that time unknown.

This week Mr Elvidge's colleague, Miss Lynley Buchanan, reported that the problem appears to be of root or nutritional origin, leading to a bacterial blast attack incidence much higher than normal.

She expected that a much clearer idea of the factors which cause the problem should emerge by the end of the current fruiting season and she predicted that a remedy should be straightforward.

Mr Elvidge had said that one possible cause was excess fertiliser applications in the past, leading to soil

acidification which could in turn change the soil chemistry making some substance toxic.

Most of the trees showing the blast damage are in the one to five year age group and are trees which have been planted in the recent stone fruit "explosion" in Central Otago. Stone fruit tree numbers have nearly doubled from 250,000 to 450,000.

However, Miss Buchanan said that tree stock deficiencies were not implicated in the blast problem.

Other possible causes included a very difficult, late growing season last year, autumn rain, frosts, bacteria and even summer pruning.

"The deaths seem to be related somehow to wet spring conditions which make the soils very moist and weaken the trees," said Mr Elvidge.

A team from the D.S.I.R. in Auckland, headed by Dr John Young, a bacteriologist, has made extensive investigations in the area and has returned to Auckland.

A trial has been estab-

lished at the D.S.I.R. orchard at Clyde to look at two of the potential causes — soil pH and its influence on tree growth and soil fertiliser problems.

The first physical symptom of the problem is wilting of the leaves and fruit.

In some cases there is premature browning of the flowers.

In most cases these symptoms show brown staining of the wood tissue which can affect small branches, limbs or the whole tree.

"This brown staining is often associated with bacterial blast (*pseudomonas syringae*)," Mr Elvidge said.

"We have also observed that the trees come into growth in spring and then begin to die back.

"It is a lot like a human with the flu. Once your resistance is lowered and you're weakened, you're more susceptible to other things."

Over 20 properties in the area are affected.

"The main effect will be shortfall of revenue for growers," Mr Elvidge said.

BUD ROT COULD CUT KIWIFRUIT HARVEST

Auckland THE NEW ZEALAND HERALD in English 14 Dec 83 p 1

[Text] Wet weather in the Bay of Plenty may cut the kiwifruit harvest from some orchards by as much as 20 to 30 percent this season.

With pollination of the kiwifruit flowers virtually over in most orchards, some problems with bud rot are being reported, particularly in the Te Puke area.

The extent of the damage, the product of heavy rain and damp conditions in recent weeks, is far from clear.

It is likely to be some weeks before an accurate assessment of the fruit set and the likely harvest can be made.

Damage Reported

But Mr W. Anderson-Smith, operations manager for Fruitfed Export, marketing arm of the Fruitgrower's Federation, said yesterday that he had seen some blocks in the Bay of Plenty with much damage.

Some orchardists were expecting a 20 to 30 percent reduction in harvest.

The Kiwifruit Authority has also had growers reporting damage from bud rot around Te Puke, although others in the same area have been pleased with the results of the pollination.

The Tauranga and Katikati areas appear to be more affected by wind damage, while early indications are that orchards in the Opotiki and Whakatane areas have escaped lightly.

Final Estimate

The Kiwifruit Authority expects to have a national picture of likely kiwifruit production this season by about the middle of next month.

Whether the export production is up or down on the 10.4 million trays of kiwifruit exported in the latest season will depend both on yields from established orchards and the extra production that comes through from more recent plantings.

## CUTWORM WIPES OUT MAIZE CROP

Auckland THE NEW ZEALAND HERALD in English 9 Dec 83 p 6

[Text]

**Armies of greasy cutworm caterpillars have been chewing their way through crops in the Auckland province, causing severe damage and reducing export potential.**

Several outbreaks occurred last month but reports this week indicate that the pests are still on the rampage, with a maize crop being wiped out between Hamilton and Te Awamutu, and another crop being virtually destroyed near Morrinsville.

Other pests causing problems have been the New Zealand grasshopper, which builds up to dangerous populations only spasmodically, and the oriental fruit moth, which was discovered in home gardens in Auckland in 1978.

**Widespread**

It is now widespread in the Auckland province and Hawkes Bay.

Greasy cutworm caterpillars, moving in their thousands and feeding by day as well as night, chewed onion stems to ground level in a Pukekohe paddock and tunnelled into the stems causing them to collapse.

A few days later cutworms chewed through part of a Pukekohe paddock of buttercup squash destroying young plants.

Outbreaks have occurred in other onion crops in Pukekohe and Gisborne, while larvae have been found damaging asparagus spears below ground and at ground level at Matamata.

**Night Feeder**

The pest has been active in a paddock of mixed vegetables at Beachlands, near Auckland, and in maize and choumoeller at Waitoki, near Dairy Flat in lower Northland.

Mr Ruud Kleinpaste, an entomologist at the Minis-

try of Agriculture and Fisheries plant health diagnostic station at Mt Albert, this week described the greasy cutworm as a widespread species attacking a range of crops but usually feeding at night.

This year, he said, it had behaved differently, feeding by day as well. Possibly the high population densities induced by favourable weather had caused the pest to feed continuously.

**Bait and Spray**

Mr Kleinpaste, who outlined numerous recent instances of cutworm attack, said control could usually be achieved by baiting when the pest was at a low population density.

A bait to be applied at the rate of 10 kilograms a hectare would consist of 10 kilograms of bran mixed in a cement mixer with 625 grams of carbaryl, 80 per cent wettable powder, and 500 milligrams of vegetable oil.

In an outbreak the pests could be controlled by spraying with deltamethrin.

## PLAN TO ANNIHILATE COTTON PESTS

Karachi DAWN in English 15 Dec 83 p 7

[Text]

SADIQABAD, Dec 14: Director-General, Agriculture Extension and Research, Punjab, Dr Ahmed Saeed Khan has declared that a comprehensive programme is being launched to weed out cotton pests, like Golabi Sundi, so that the ensuing cotton crop may be provided with full protection.

He was addressing the growers on the eve of Agricultural Fair in Chak No 165/NP Tehsil Sadiqabad. He said the particular pest was so dangerous for cotton crop that it was almost impossible to weed it out even with the strongest pesticides. The best way to fight it was to burn the cotton shells of the remaining cotton crop. For this purpose, it has been decided to launch a drive at the level of union councils. Such field assistants, who succeed in persuading the farmers to do so by Jan 31, would be awarded cash prizes.

Similarly the winning Union Council would be awarded in shape

of agricultural equipments.

Giving further details in this context, the D.G. informed that 20 teams have been formed, comprising students of Agriculture Training Institute. For this purpose, the teams would visit villages for the annihilation of the pest. These students would also be awarded prizes.

**Sale of pesticides**

He further declared that the Government has formulated the policy for sale of pesticides in the private sector. The Government was considering the proposal that only the authorised dealers may sell pesticides to farmers. However, the farmers and cultivators should ensure that these pesticides and insecticides are sold to them duly sealed and should refuse the purchase of unsealed tins. He warned that quick action would be taken against those who indulge in fraud in this connection.

CSO: 5400/4703

TANZANIA

BRIEFS

MAIZE PEST CURB--Dar es Salaam, Friday The emergence in Tanzania of maize pests from Latin America and coffee berry disease from Kenya has forced the government to impose strict controls on importation of plant materials and seeds. The Ministry of Agriculture, announcing the new measures here yesterday, said special permits would be required before people are allowed to bring in seeds and plant materials. The measures were apparently influenced by the spread of maize borer in the country after the government imported maize from one of the Latin American countries last year to offset national food deficits.--AFP [Text] [Nairobi DAILY NATION in English 10 Dec 83 p 4]

ARMY WORMS OUTBREAK WARNING--FARMERS in Morogoro and Dodoma regions have been warned against army worms outbreak in a few weeks' time. The Tengeru-based Army Worm Forecasting Service said yesterday that with the coming of rains in eastern and central Tanzania, it was apparent that the army worm season has started. It said that during the first week of December, no army worm outbreaks were reported. But moths caught at Ilonga and Morogoro gave birth to larvae. [Excerpt] [Dar es Salaam DAILY NEWS in English 17 Dec 83 p 3]

CSO: 5400/54

## PURPLE-TOP WILT POTATO DISEASE SPREADING

Harare THE FINANCIAL GAZETTE in English 18 Nov 83 p 11

[Text]

**POTATO farmers and home growers are warned to beware of a new potato disease, purple-top wilt, discovered in Zimbabwe for the first time last year and now spreading to most potato-growing areas.**

This season the disease has been reported at Old Mutare, Mlezu Agricultural Institute near Kwekwe, at Rusape and from a Mount Hampden farm in the Harare area.

Specialists at the Plant Protection Research Institute (PPRI) under the Ministry of Agriculture said this week that the incidence of this disease is alarming, as Zimbabwe is a potato-seed producing and exporting country.

A report on the disease, written by Dr T M Musa and DR S S Mlambo of the PPRI, appeared in *The Farmer* magazine last week. They said there was need for speedy action to try and arrest the spread of the disease and, if possible, to eliminate it completely.

They are asking potato growers to give them any information possible about where purple-top wilt or similar disease has been observed in the past five years in Zimbabwe. They also ask that samples of infected plants bearing the ominous symptom of aerial tubers may be sent to them at the institute at Box 8100, Causeway in Harare, telephone 704531.

A comprehensive study of the development of the disease from its initial stages is urgently needed if the disease syndrome is to be fully elucidated, they said.

Purple-top wilt is caused by a mycoplasma-like organism (MLO) and can be transmitted by vectors

such as psyllids, aphids and plant hoppers or by leafhopper species. In Zimbabwe the groundnut hopper has been observed to be associated with the diseased plants, but other insects may be vectors.

The first symptoms of purple-top wilt occur at the apex of the potato plants. The young leaves fail to enlarge normally and the leaflets roll upwards. Pronounced rolling occurs at the base of the leaflet.

The leaves turn reddish-yellow or purple, roll upward over their mid-ribs and the whole plant then discolours, brown necrotic areas appear and an "abnormal" number of auxiliary shoots tubers.

Affected plants usually wilt in two weeks after aerial tubers appear and the plant dies.

The report said that as this and related diseases are caused by viruses an effective insecticide should be used to eliminate the vector. Weeds acting as reservoir hosts for the vector and the pathogen should be controlled and only healthy potato seed should be planted.

The work being done at the PPRI to safeguard agriculture in Zimbabwe is invaluable. But it is often hampered by visitors or returning residents who bring in "harmless" plants from abroad which have not been declared, fumigated or inspected for health by specialists, as is required by Customs regulations.

Even a tree or plant seed slipped into a handbag and smuggled into Zimbabwe from elsewhere may carry infection — and pose a great hazard for this country.

Mr P Maramba, a pathologist at the PPRI, said that potato purple-top wilt could have been introduced in this manner.

"A lot of people are bringing in plant material which is uncontrolled", he said. "I have seen the effects of purple-top wilt on a farm at Rusape. It wiped out two-thirds of the farmer's crop and it could be very serious unless we can control it. We are investigating the disease now."

Earlier this year the institute also warned citrus growers of a potentially disastrous infection, "orange brown-spot" disease, which was wiping out orange trees in some areas of Zimbabwe.

"Now, following intensive investigations and fungicide trials, we have discovered a method of controlling this disease by field spraying with certain chemicals."

He added that thanks to cooperation from the Mazoe Citrus Estates, two varieties of orange had been found which appeared to have a resistance to the brown-spot infection.

CSO: 5400/43

END