

WORLD HEALTH
ORGANIZATION

ORGANISATION MONDIALE
DE LA SANTÉ

REGIONAL OFFICE FOR THE
EASTERN MEDITERRANEAN

BUREAU RÉGIONAL DE LA
MÉDITERRANÉE ORIENTALE

WHO/FAO SEMINAR ON FOOD HYGIENE, ZOOSES CONTROL
AND VETERINARY PUBLIC HEALTH PRACTICE

EM/SEM.VPH/18
1 October 1964

Lahore, 29 October - 6 November 1964
Teheran, 7 - 11 November 1964

ENGLISH ONLY

FOOD HYGIENE, ZOOSES CONTROL
AND VETERINARY PUBLIC HEALTH PRACTICE
IN THE
EASTERN MEDITERRANEAN REGION

Results of an Enquiry

by

WHO Secretariat

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
ANALYSIS OF REPLIES	1
I ZONOSSES OF IMPORTANCE	2
II THE ADMINISTRATIVE SET-UP OF THE VETERINARY PUBLIC HEALTH SERVICE	4
III MEASURES UNDERTAKEN FOR CONTROL OR ERADICATION OF ZONOSSES	6
IV PLANS FOR ZONOSSES CONTROL	7
V MEAT HYGIENE PRACTICE	8
1. Sale of meat and meat products for human consumption is not permissible unless inspected by official veterinary authorities	8
2. Authorities responsible for legislation concerning meat hygiene and meat inspection	8
3. Food animals embraced in the term "Food animals" in meat inspection legislation	9
4. Food animals slaughtered per year	9
5. Legislation in force for slaughterhouses and all premises where meat or meat products are stored, processed and/or sold	9
6. Handling and transportation of meat	9
7. Medical examination of food-handling staff	9
8. Meat inspection and supervision of premises	9
9. Meat inspection staff	10
10. Ante-mortem inspection	10
11. Stunning before slaughter	10
12. Post-mortem inspection	10
13. Categories of diseases entailing (a) total condemnation of carcasses and (b) partial condemnation of carcasses	10
14. Judgement of meat for human consumption	10
15. Bacteriological examination	11

	<u>Page</u>
VI LEGISLATION AND PRACTICES IN FOOD HYGIENE CONCERNING FISH	11
VII MILK HYGIENE PRACTICES	11
1. Milk and milk products consumed	11
2. The responsible authorities for milk hygiene legislation, enforcement of legislation and milk hygiene practices	11
3. Milk handlers and medical examination; frequency of medical examination	12
4. Pasteurization of milk and its percentage. Methods of pasteurization, any other form of heat treatment	12
5. Hygienic control procedures (bacteriological and others) at (a) collecting stations (b) pasteurizing plants (c) retail shops	13
VIII THE MAJOR VETERINARY PUBLIC HEALTH PROBLEMS IN INDIVIDUAL COUNTRIES	15

ANNEXES

ANNEX I - MEAT HYGIENE PRACTICE

ANNEX II - QUESTIONNAIRE ON FOOD HYGIENE, ZOOSES CONTROL AND VETERINARY PUBLIC HEALTH PRACTICE IN THE COUNTRIES OF THE EASTERN MEDITERRANEAN REGION

INTRODUCTION

In order to collect information on food hygiene, zoonoses control and veterinary public health practice in the countries of the Region, the Regional Office for the Eastern Mediterranean sent a detailed questionnaire by circular letter dated 28 February 1964 to the thirteen countries of the Region attending the Seminar on Food Hygiene, Zoonoses Control and Veterinary Public Health Practice which will be held in Lahore, West Pakistan, from 29 October to 6 November, followed by a field visit to Teheran, Iran, from 7 - 11 November 1964.

Replies to the questionnaire were received from the following countries:

Ethiopia
Iran
Iraq
Jordan
Lebanon
Pakistan
Saudi Arabia
Somalia
Sudan
Syrian Arab Republic
Tunisia
United Arab Republic

Sets of veterinary public health laws, rules and regulations promulgated in the countries, have also been received from the majority of the countries. The documents now at our disposal are of great benefit and will certainly help in processing information regarding the general status of veterinary public health.

ANALYSIS OF REPLIES

In order to obtain an outline of the situation of veterinary public health in the Region, the questionnaire^{*} has been made to cover the following.

* The questionnaire is reproduced as Annex II

1. Zoonotic diseases of importance. measures of control or eradication undertaken or planned.
2. Meat Hygiene Practice. sale of meat, legislation concerning meat hygiene, kinds of "food animals", slaughterhouses and premises for storage, processing and sale of meat, handling and transportation of meat, medical examination of food-handling staff, meat inspection and meat inspection staff, ante- and post-mortem inspection, condemnation of carcasses etc.
3. Legislation and practices concerning fish
4. Milk Hygiene Practices: milk and milk products, milk hygiene legislation, milk handlers, pasteurization of milk etc.
5. The Major Veterinary Public Health Problems in the Country

The following is the analysis of the replies according to the headings of the annexed questionnaire.

I ZOOSES OF IMPORTANCE

The following countries report on the important zoonoses prevalent in their countries.

Ethiopia reports that the zoonoses of importance are bovine tuberculosis, however not widely spread; rabies and arthropod-borne encephalitis are present. Brucellosis, anthrax and leptospirosis are present but distribution and incidence are not yet known. Hydatidosis and cysticercosis are widely spread.

Iran reports that bovine tuberculosis is prevalent only around Teheran. Rabies is widely spread, and arthropod-borne encephalitis is unknown. Brucellosis due to B. abortus is present around Teheran and B. melitensis around Isfahan and Meshed. Anthrax was prevalent before mass vaccination of sheep and goats, but the disease is still a problem. Hydatidosis is common in the northern parts of Iran, taeniasis is common, leptospirosis is rare.

Iraq reports that hydatidosis, rabies, brucellosis, bovine tuberculosis and taeniasis are the important zoonoses. Hydatidosis and rabies are the most serious problems. Hydatidosis comprises 30% of all operations of chest surgery performed in government hospitals in Baghdad. The death rate from human rabies is not high, however, thousands of people are vaccinated annually. In 1963, 4,810 were vaccinated with 4 deaths.

Jordan reports that no studies have been carried out to determine the zoonotic diseases and their prevalence in the country, however hydatidosis appears to be a problem. A few cases of bovine tuberculosis are being reported. Rabies, although present in animals, rarely involves man.

Lebanon reports that bovine tuberculosis, rabies, brucellosis, anthrax, leptospirosis, hydatidosis and taeniasis are the important zoonoses.

Pakistan reports that the important zoonoses are bovine tuberculosis and rabies. Less frequent and rather uncommon are leptospirosis and hydatidosis. Anthrax is common in East Pakistan.

Saudi Arabia reports that brucellosis, bovine tuberculosis, anthrax and hydatidosis are the prevalent zoonoses.

Somalia reports that rabies, anthrax, hydatidosis and cysticercosis are common. Bovine tuberculosis is less common.

Sudan reports that the zoonoses of importance are.

1) Bacterial diseases

- a) Bovine tuberculosis is prevalent in specific provinces where human life is very closely connected with animal life.
- b) Brucellosis with incidence confined to dairy herds.
- c) Anthrax is endemic in specific areas in certain provinces.
- d) Tetanus is of sporadic incidence.

2) Viral diseases

- a) Rabies is present in almost all provinces and is being kept alive by the wide animal population in the country.
- b) Foot and mouth disease is of fair incidence and does not constitute a major zoonotic problem.

3) Parasitic diseases

- a) Taeniasis - infestation of cattle by Cysticercus bovis is fairly common. The pork tapeworm, taenia solium, is extremely rare. Pigs are seldom reared in the Sudan and therefore human infestation is extremely rare.

- b) Echinococcosis is fairly common in the Southern provinces of the country where dog-man relationship is very close.

Syrian Arab Republic reports that anthrax, glanders, rabies, bovine tuberculosis and brucellosis are common.

Tunisia reports that the zoonoses of importance are the following in decreasing order of frequency: rabies, hydatidosis, brucellosis, bovine tuberculosis, anthrax, leishmaniasis, leptospirosis.

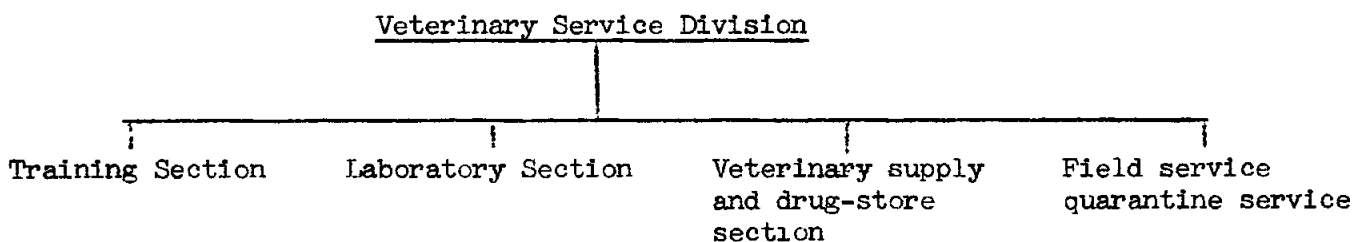
United Arab Republic reports that the zoonoses of importance are bovine tuberculosis, rabies, brucellosis, hydatidosis and cysticercosis.

II THE ADMINISTRATIVE SET-UP OF THE VETERINARY PUBLIC HEALTH SERVICE

A brief description of the administrative set-up of the veterinary public health, and the bodies responsible for the overall coordination of veterinary public health activities in the various governmental departments of the country has been given as follows:

In Ethiopia

The Veterinary Service Division is under the Animal Production and Health Department, Ministry of Agriculture, headed by a Director-General, with the following organization:



In Iran

The Veterinary Service is under the Ministry of Agriculture. The Director-General of the Service is the coordinator for overall veterinary public health activities in the country.

In Iraq

The Department of Veterinary Services under the Ministry of Agriculture, includes a section for slaughterhouse administration. There is also a branch of the Near-East Animal Health Institute undertaking mainly zoonoses research and survey.

In Jordan

The Veterinary Department of the Ministry of Agriculture is in charge of veterinary problems of the country.

In Lebanon

The Ministry of Agriculture is responsible for the veterinary public health service including inspection of slaughterhouses.

In Pakistan

There is a Stock Assistant for each one or two Union Councils, each Union Council comprising four or five villages. The Stock Assistant is responsible for the implementation of all vaccination programmes. Against every four or five Stock Assistants there is a qualified veterinarian in charge of a sector. In each district there is an assistant-director who coordinates the whole veterinary activities of the district. A regional director coordinates the activities of the region comprising nearly twelve districts. The work of the Regional Director is coordinated at provincial level by an Adviser on Animal Husbandry in the Department of Agriculture.

In Saudi Arabia

The Veterinary Public Health Service is administratively a division of the Ministry of Agriculture. The director of veterinary public health is responsible for the organization of veterinary services and the coordination of veterinary activities in the various Government departments. The Minister of Agriculture is the overall head.

In Somalia

There is no definite organization handling veterinary public health, however, the work is carried out by the Curative and Preventive Service of the Veterinary Department headed by a qualified veterinarian.

In Sudan

The veterinary public health service is wholly in the hands of the Ministry of Animal Resources which is solely and entirely responsible for operating and coordinating veterinary public health activities in the whole country. Matters of zoonotic diseases are dealt with in cooperation with the Ministry of Health.

In the Syrian Arab Republic

A Directorate of Animal Health is attached to the Ministry of Agriculture, the Director being the supervisor and coordinator of work for animal diseases control.

Administratively the country is divided into eleven Mohafazat, which in turn are divided into several Mantikahs. Each Mohafazah has one or two veterinary doctors. There are 100 veterinary assistants working at the Mantikahs, each Mantikah having one or two veterinary assistants.

In Tunisia

A Veterinary Service in the Ministry of Agriculture covers all the national veterinary activities and supervises the "National Institute of Veterinary Research of Tunis".

In the United Arab Republic

There is a Veterinary Public Health section in the Ministry of Agriculture, the Director of which coordinates veterinary public health activities.

III MEASURES UNDERTAKEN FOR CONTROL OR ERADICATION OF ZOOZOSES

Rabies is controlled in ten out of eleven countries by:

- a) destroying stray dogs,
- b) vaccination of registered dogs.

The above measures are undertaken on scales which vary with the countries. Sudan extends destruction to cats, hyenas and jackals, as well as destruction of all animals in contact with bitten confirmed cases. Moreover, areas are declared infected for six months and movement is restricted within these areas. Saudi Arabia and Lebanon have not specified their anti-rabies measures.

Anthrax is controlled by:

- a) mass vaccination of animals,
- b) burning of carcasses when diseases break out.

These measures are practised in Ethiopia, Iran, Jordan, Somalia, Sudan, Tunisia and the Syrian Arab Republic. In the Sudan, mass vaccination is a routine practice throughout the country. In Iran nearly 14,000,000 animals were vaccinated in 1963 with very satisfactory results, causing a considerable decrease in human cases.

No reference to anti-anthrax measures was made by the remaining

Bovine Tuberculosis is controlled by vaccination in Ethiopia, Iran, Pakistan, Sudan and Tunisia. No reference to anti-tuberculosis measures was made by the remaining countries.

Brucellosis is controlled by specific anti-brucellosis measures in Sudan and Iran where vaccination with strain 19 is carried out in cattle with satisfactory results. In Iran, a new vaccine, Rev 1, is used on an experimental basis on sheep and cattle.

In Sudan no reference to control or eradication measures regarding other listed zoonoses was made. However, tetanus is controlled by treatment of early cases and destruction of advanced cases. Tetanic antitoxin prior to surgical operations and at wound inflictions is administered with satisfactory results.

For the control of foot and mouth disease, quarantine and restriction of movement till the abatement of outbreaks is enforced. In Tunisia, an individual blood test control is carried out on all bovines, and imported bovines are specially controlled.

IV PLANS FOR ZOONOSES CONTROL

Ethiopia reports that in accordance with the Second National Five Year Plan, a new Central Veterinary Laboratory, in addition to the old one, has been established to increase the production of vaccines and to improve the diagnosis of diseases. With the expansion of the laboratory service, it is believed that a systematic and accurate survey of the incidence and distribution of zoonoses will be possible. Four provincial branch laboratories are already in operation and more will be established in the near future. A veterinary assistants' training school has also been established to meet the shortage of trained personnel. Quarantine stations are established at various places to inspect and if necessary to vaccinate animals before exporting or slaughtering.

Iraq reports that a branch of the Near-East Animal Health Institute is in operation, working on research and survey, to formulate eradication plans for application against tuberculosis, brucellosis, hydatidosis etc.

Jordan reports that no definite measures are being taken, but the subject is receiving attention at present.

Lebanon reports that a plan for vaccination against anthrax has been made.

Pakistan reports that there are no plans for implementation in the near future.

Saudi Arabia reports that steps are being taken to improve the existing control measures.

Somalia reports that no definite plans are yet made due to non-availability of qualified personnel in the country.

Sudan reports that plans are made jointly with the Ministry of Health to activate control measures and a joint Zoonotic Committee composed of medical officers and veterinarians was formed.

The Syrian Arab Republic reports that surveys will be carried out to detect the incidence of bovine tuberculosis and hydatidosis.

Tunisia reports that in 1965 tuberculin testing will be undertaken for all milk cows with the object of removing all infected animals.

The United Arab Republic reports that plans are being made to control and eradicate bovine tuberculosis in livestock.

V MEAT HYGIENE PRACTICE*

1. Sale of meat and meat products for human consumption is not permissible unless inspected by official veterinary authorities.

is the procedure adopted in ten out of twelve countries but only in large cities and in municipalities. In rural areas, meat products are consumed without sanitary inspection due to shortage of veterinarians and unavailability of slaughterhouses in villages.

2. Authorities responsible for legislation concerning meat hygiene and meat inspection. in four countries, the Ministry of Agriculture and the Ministry of Health together share the responsibility for legislation, meat inspection and meat hygiene. In two countries, these Ministries are responsible together with the Ministry of Municipalities; in one country, the Ministry of Agriculture alone is responsible; in other countries, the Ministry of Interior and the Ministry of Municipality, while in two countries local bodies are responsible and in one country it is the Ministry of Animal Resources and the Ministry of Health.

* See also Annex I

3. Food animals embraced in the term "Food animals" in meat inspection legislation: are cattle, sheep and goats in all twelve countries; camels in eleven; pigs in six; poultry in five countries and horses and donkeys in one country.
4. Food animals slaughtered per year: the animals slaughtered in the highest numbers per year in each individual country, excluding poultry, are sheep, goats, cattle, camels and pigs respectively.
5. Legislation in force for slaughterhouses and all premises where meat or meat products are stored, processed and/or sold it appears that there is such legislation in the majority of countries in terms of general regulations for slaughterhouses and sale of meat or some instructions regulating the butcher shops, but not in the sense of complete legislation covering premises for storage and processing etc. However, in a few countries, regulations of such nature do not exist.
6. Handling and transportation of meat: there are some general regulations governing the maintenance of cleanliness in the handling and transportation of meat, especially in large towns in seven countries; in others such regulations do not exist.
7. Medical examination of food-handling staff: in the majority of countries there are some regulations in force for pre-employment and during employment, at intervals, with regard to communicable diseases and particularly serological examination for syphilis, chest X-ray for tuberculosis, and stool examination for parasites. In three countries the answer was negative.
8. Meat inspection and supervision of premises: the authorities responsible at national and local levels for meat inspection, in the majority of countries, are the veterinary departments under the Ministry of Agriculture, and supervision of premises is done by municipal authorities.

In Jordan the Veterinary Department is the sole responsible authority; in Sudan meat inspection is the concern of the Ministry of Animal Resources, and the conditions under which meat is sold is the concern of local health authorities.

9. Meat inspection staff: are directly employed by municipalities in eight countries in consultation with veterinary departments; in others, the appointment of meat inspection staff is undertaken by Ministries of Agriculture, Departments of Veterinary Services and by the Ministry of Animal Resources, being the direct authorities.

10. Ante-mortem inspection: though obligatory in eight countries, it is not actually practised, or only carried out in large municipalities and in big slaughterhouses. It is not obligatory in the other four countries.

11. Stunning before slaughter: Islam prohibits any mechanical stunning prior to slaughtering. In Ethiopia it is rarely practised; in Iran electrical stunning is used in Teheran slaughterhouses and it is planned for use in other slaughterhouses in future.

12. Post-mortem inspection is obligatory in nine countries, though performed only where veterinary services exist, and not obligatory in three countries.

13. Categories of diseases entailing (a) total condemnation of carcasses and (b) partial condemnation of carcasses: no specific replies have been received from five countries regarding total and partial condemnation of carcasses. The other seven countries consider the following diseases as indications for total condemnation of carcasses, viz, severe emaciation, jaundice, septicaemic diseases, generalized tuberculosis; and the following for partial condemnation, viz, bruises, parasitic infections, and localized hydatidosis. The detailed categories of the diseases are seen under individual countries in Annex I.

14. Judgement of meat for human consumption: no uniform terminology is used for meat as being fit or unfit for human consumption in all countries. The following terms were used by individual countries: "total condemnation, conditionally passed and free disposal" in one country; in another, "fit for human consumption and unfit for human consumption"; in a third country, "free from disease or decay, slaughtered according to Islamic way"; in a fourth "hygienic and unhygienic". No particular code is being used in this respect in five out of the twelve countries.

15. Bacteriological examination is not required by law in all countries.

VI LEGISLATION AND PRACTICES IN FOOD HYGIENE CONCERNING FISH

In six countries such legislation and practices are non-existent; in the other six countries there are certain orders or special regulations or laws governing fish hygiene.

Ethiopia reports that articles in the Maritime Order provide that the installation of fish processing plants is subject to licensing and control by Fisheries Service and by Government Health Agencies; it is also covered by the general food hygiene legislation of the Ministry of Health. Jordan reports that the special regulations regarding fish deal with places where fish is sold, licensing and sanitary requirements for such places, transportation and inspection of fish. Saudi Arabia reports that there exists legislation concerning transportation, storage and sale of fish in the country. Sudan reports that local orders of certain councils regulate the sale and inspection of fish. The Syrian Arab Republic reports that fish sale is regulated by law and accordingly fish must always be reserved in ice and shops licensed and inspected.

VII MILK HYGIENE PRACTICES

1. Milk and milk products consumed. fluid milk, cows', sheep's, buffaloes', goats' and camels'; milk products such as fermented milk (yoghourt, leban), fermented concentrated milk (lebenah), white cheese, cream, butter, boiled cream and ice-cream are consumed in all countries. Dried milk is imported. Ghee is the common milk product in Somalia.
2. The responsible authorities for milk hygiene legislation, enforcement of legislation and milk hygiene practices: in Iraq, Lebanon, Jordan, East Pakistan, Sudan and the United Arab Republic, the Ministry of Health is the responsible authority for milk hygiene legislation and enforcement of legislation; in Ethiopia and the Syrian Arab Republic the Ministry of Health and Ministry of Agriculture; in Iran the Ministry of Agriculture, Ministry of Health and municipalities; in Saudi Arabia the Ministry of Health and the municipalities; in West Pakistan and Tunisia the municipality; in Somalia none exists.

3. Milk handlers and medical examination; frequency of medical examination: Ethiopia, Lebanon, Saudi Arabia and Sudan report that chest X-ray, serological tests for syphilis and stool examination are made when first licensed, and annually when renewing licences; in Sudan, examination for skin diseases is also made. Iran reports that monthly examination for some communicable diseases is made. In Tunisia, tests are made each semester. Iraq, Jordan, Pakistan, Somalia and the Syrian Arab Republic report that no examinations are made. The United Arab Republic reports that a yearly medical examination, tests for enterica, cocci, diphtheria and tuberculosis are made.
4. Pasteurization of milk and its percentage. Methods of pasteurization, any other form of heat treatment Ethiopia reports that the percentage is not known. The methods of pasteurization are:
- a) batch holder pasteurization,
 - b) high-temperature short-time pasteurization.
- Other forms of heat treatment or sterilization and boiling are most widely used by local consumers. Iraq reports that 20% of milk consumed in Baghdad is sterilized, fresh milk is usually consumed after boiling. Iran reports that in Teheran about 55% of milk consumption is pasteurized by H.T.S.H. methods of pasteurization, and L.T.L.T. (batch system) pasteurization or by boiling. Jordan reports that pasteurization is not yet practised, boiling of milk is the only method carried out. Lebanon reports that no correct data are available for the percentage of pasteurized milk; the methods of pasteurization are the standard methods i.e. 161^oF. for 30 minutes and then short-time high temperature. Sudan reports that the percentage is negligible; the method used is heating to 145 - 150^oF. for 30 minutes, otherwise milk is generally boiled before consumption. The Syrian Arab Republic reports that a small quantity is pasteurized in Damascus; no pasteurization is done in other parts of the country; the method of pasteurization is by the Flash System, 70^oC. for 17 seconds. In Tunisia 2% of milk is pasteurized. The United Arab Republic reports that in Cairo and Alexandria nearly 1/5 of the milk is pasteurized; the method is the high temperature, short-time method, 85^oC. for 15 seconds; consumers boil the milk. In East Pakistan milk is pasteurized by some local firms near big cities. West Pakistan, Saudi Arabia and Somalia report that no pasteurization methods are used.

5. Hygienic control procedures (bacteriological and others)
practised at (a) collecting stations (b) pasteurizing plants
(c) retail shops Ethiopia reports that hygienic control
procedures practised at.

- a) Collecting stations are : 1) alcohol test
2) temperature
3) ten-minutes Resazurin
4) lactometer test
5) fat content
6) solid non-fat
7) lactic acid
- b) Pasteurized chemical tests: 1) methylene blue
2) phosphatase
3) lactometer test
4) fat content
5) solid non-fat
6) lactic acid
7) high temperature keeping quality
- Bacteriological tests 1) Coli test
2) plate colony count
3) thermoduric count
4) butter and moisture content
- c) Retail shops 1) bacteriological test
2) physical test
3) rarely chemical test

Iraq reports that at collecting stations the methylene blue test
(reduction test) is done and no tests at pasteurizing plants or at
retail shops are done.

Iran reports that at:

- a) Collecting stations some dairies in Teheran are under
veterinary control for tuberculosis
and brucellosis

- b) Pasteurizing plant : A. raw milk
- 1) fat determination
 - 2) specific gravity
 - 3) ring test
 - 4) M.B. test (reduction test)
 - 5) acidity
- B. pasteurized milk
- 1) plate count
 - 2) coli count
 - 3) fat determination
 - 4) phosphatase test
- c) Retail shop : no measure has been taken

Sudan reports that in only a few dairies are tuberculin and brucilin tests carried out periodically. At pasteurizing plants the phosphatase test is carried out and samples from milk vendors are periodically tested for specific gravity and examined bacteriologically.

The Syrian Arab Republic reports that at pasteurizing plants the hygienic control consists of.

- bacteriological tests
- bacteria count
- phosphatase test

Tunisia reports that research on amount of fat, on density and on acidity, and Whiteside's test are carried out at collecting stations. Only one pasteurizing plant exists and it carries out, in addition, various bacteriological tests. Retail shops are checked for good sanitary care and samples taken for examination.

The United Arab Republic reports that acidity, density, lactometer test, fat test, sediment test, agar plate, methylene blue and resazurin reduction test, and phosphatase tests are the tests carried out for hygienic control.

Jordan, Lebanon, West Pakistan, Saudi Arabia and Somalia have no organized practice in this field. In East Pakistan precautions are taken to prevent **contamination** in the process of pasteurization and in retail shops.

VIII THE MAJOR VETERINARY PUBLIC HEALTH PROBLEMS IN INDIVIDUAL COUNTRIES

Ethiopia reports that the major veterinary public health problems are as follows

- 1) Incomplete legislation related to veterinary public health.
- 2) Lack of accurate information on incidence and distribution of zoonoses.
- 3) Shortage of trained personnel including veterinarians.
- 4) Lack of adequate provision for the quarantine of animals.
- 5) Difficulties in communications.
- 6) Cultural problems.

Iraq reports that the severe shortage in veterinarians is the problem of priority.

Iran reports that the problems are.

- 1) Although by law the veterinary authorities are directly responsible for the inspection of all animal by-products whether for sale on market or for import and export purposes, the Veterinary Department has no practical control on the imported foodstuffs.
- 2) The sanitary situation in some slaughterhouses is not satisfactory by the standards of the veterinary health requirements.
- 3) Owing to the lack of a proper border quarantine control system, there is a constant danger of introduction of zoonosis through the constant traffic of animals and birds from various foreign countries.

In Pakistan bovine tuberculosis is a major problem and in East Pakistan in addition rabies.

Somalia reports that the lack of legislation to control inspection of meat is a great drawback. The country suffers from non-availability of qualified personnel.

Sudan reports that insufficient transport facilities in relation to the vastness of the country is a problem. Another problem is the insufficiency of qualified staff and qualified meat inspectors, which renders wide-scale disease survey difficult.

The Syrian Arab Republic reports that shortage of veterinary officers, shortage of transportation and the inadequacy of the administrative set-up are the main problems.

Tunisia reports as main problems the shortage of veterinarians, absence of training of veterinary nurses and lack of coordination between the Health Department and the Veterinary Service to fight zoonoses.

The United Arab Republic reports that shortage of veterinary public health officers and lack of coordination of the various veterinary public health activities, and lack of statistical data on the transmission of various zoonotic diseases, are the main problems.

Jordan, Lebanon and Saudi Arabia did not specify their veterinary public health problems.

From the above replies received from eight countries, it is concluded that the major problems in connection with veterinary public health reside in the following.

- 1) Shortage of trained personnel and qualified veterinarians.
- 2) Incomplete legislation related to veterinary public health.
- 3) Lack of accurate information on incidence and distribution of zoonoses i.e. lack of statistical data.
- 4) Insufficient transport facilities.

Pakistan	Saudi Arabia	Somalia	Sudan	Syrian Arab Republic	Tunisia	United Arab Republic
No permissible in villages	No	Yes	No, but in villages there is no control	No	No	No exists in villages
Local bodies	Min. of Health & Agriculture	No legis- lation, no authority responsible. In Mogadishu The Vet. Dept.	Min. of Animal Resources & Min. of Health	Min. of Agriculture, Min. of Health, Min. of Muni- cipalities	The Muni- cipality in consultation with Vet. Service	Min. of Agricul- ture & Min. of Public Health
Cattle Sheep Goats Camels Poultry	Cattle Sheep Goats Camels	Cattle Sheep Goats Camels	Cattle Sheep Goats Camels	Cattle Sheep Goats Camels Poultry Pigs	Cattle Sheep Goats Camels Poultry Pigs Horses Donkeys	Cattle Sheep Goats Camels Pigs
1,000,000 for whole animals excl. poultry in W. Pakistan. 500,000 in E. Pakistan.	52,000 27,000 ²⁾ 1,500,000 ²⁾ *	data not available	216,000 10,000 514,000 48,000	36,000 9,500 898,000 87,000 100	55,000 4,000 210,000 12,000 2,000 12,000	700,000 53,000 529,000 21,000 6,000
Yes in W. Pakistan. In cities only in E. Pakistan	No Certain regulations exist	No	For slaughter- houses and sale of meat only	Yes general regulations	Yes	Yes
No	Some regulations exist	No	Yes in big towns only	Yes general regulations	Yes	Yes

Questionnaire	Ethiopia	Iran	Iraq	Jordan	Lebanon
1. Sale of meat and meat products for human consumption, if permissible before official meat inspection	No	No permissible in villages only	No	No permissible in villages only	No by law, practically yes
2. Authority responsible for legislation concerning meat hygiene and meat inspection	Min. of Agriculture & Min. of Health	Min. of Interior & Municipalities	Dept. of Vet. Service for meat inspection & Min. of Health for meat hygiene	The Vet. Dept. of the Min. of Agriculture	Min. of Agriculture, Min. of Health, Municipalities
3. Kinds of Food Animals	Cattle Sheep Goats Camels Poultry Pigs	Sheep Goats Cattle Camels Poultry Pigs	Sheep Goats Cattle Camels Poultry	Sheep Goats Cattle Camels Pigs	Cattle Sheep Goats
4. Approximate numbers of food animals slaughtered per year					
	Cattle Camels Sheep Goats Pigs Poultry Horses & donkeys	500,000 3,000 ²⁾ 8,000,000 ²⁾ 10,000 25,000,000	245,000 11,000 1,925,000 503,000	21,000 5,000 280,000 192,000 340	Correct data not available
5. Is legislation in force for slaughterhouses, premises for storage, processing and sale of meat and meat products	A general provision exists ¹⁾	No special legislation at present	No, except for some official instructions regulating butcher shops	Yes	No for slaughterhouses, storage & processing. Yes for selling establishments
6. Are regulations in force governing the maintenance of cleanliness in the handling and transportation of meat	A general provision exists	Some regulations exist	No	Yes	No

1) 1. Livestock and Meat Board Proclamation
2. Public Health Proclamation

2) Including goats

* Nearly half a million heads are slaughtered in Muna within three days as religious sacrifices

Questionnaire	Ethiopia	Iran	Iraq	Jordan	Lebanon
7. Is there medical examination of food handling staff both before and/or during employment	Yes (see detail)	Some regulations in force during employment with regard to communicable diseases	No	Yes medical exam. obligatory for all food handlers	Stool exam. serological tests for syphilis, chest X-ray
8. Authorities responsible at national and local levels for meat inspection and supervision of premises where meat and meat products are stored, processed and/or sold	National level a) Livestock and Meat Board b) Min. of Health. Local level a) Municipal Health Depts. b) local representatives of Min. of Health	Vets. are responsible for meat inspection. Supervision of premises done by municipal authorities	Meat inspection the responsibility of Dept. of Vet. Service in every admin. national level. Supervision of premises done by municipalities and supervision is by Min. of Health	Vet. Dept. responsible authority	Min. of Agriculture, Min. of Public Health, Municipalities
9. Meat inspection staff. Who directly employs meat inspection staff	Min. of Agriculture and for Municipalities ¹⁾	Municipalities	Dept. of Veterinary Services	Municipal authorities with approval of Vet. Dept.	Municipalities
10. Is ante-mortem inspection obligatory	No, but it is practised wherever there is a qualified meat inspector	Yes, but not generally practised	No	No, but it is carried out in large municipalities. ²⁾	Yes, but not actually practised

1) In towns where there are health centres and no municipal health department, the sanitary inspector who is under the Ministry of Health is responsible for meat inspection.

2) Where slaughterhouses have adequate facilities

Pakistan	Saudi Arabia	Somalia	Sudan	Syrian Arab Republic	Tunisia	United Arab Republic
No	Yes for pre-employment and during employment	No	Before and when necessary	Yes general regulations	Yes, pre-employment & annually	Yes
Local bodies	At national level Min. of Agriculture. At local level vets. & sanitary inspectors of the municipalities	Vet. Dept. responsible at national level for meat inspection	Meat inspection by Min. of Animal Resources. Conditions under which meat is sold is concern of local health authorities	Municipalities in coordination with the Directorate of Animal Health	The Municipality	Vets. physicians, sanitary engineers & sanitarians
Local bodies	Min. of Agriculture & municipal authorities	Municipality in Mogadishu. In towns, the local council	Min. of Animal Resources	Municipalities	The Municipality	
Yes	Yes	No	Yes	Yes	Yes	Yes only in big slaughterhouses

Pakistan	Saudi Arabia	Somalia	Sudan	Syrian Arab Republic	Tunisia	United Arab Republic
No prohibited	No prohibited	No prohibited	No	No prohibited	No prohibited	No prohibited
Yes	Yes	No	Yes	Yes	Yes	Yes
According to bylaws in West Pakistan. In East Pakistan carcasses condemned if animals suffered from contagious diseases	Fever, anthrax rabies, TB, brucellosis, taeniasis 3/4 or more	Information not available	a) Total condemnation: generalized TB, feverish flesh, generalized jaundice, gangrenous or septic pneumonia and septic enteritis in sheep, emaciation, bacteraemia, generalized bovine Farcy, generalized caseous lymphadenitis, measly beef, pyometra. b) Partial condemnation: localized TB, localized bovine Farcy, contagious bovine pleuropneumonia lesion ³⁾ .	According to international regulations	a) Animals with septicaemia, TB or cysticercosis, denatured cachectic, bleeding, fevered, putrefied or cadaveric meat. b) Animals with trauma, local TB or certain parasites	a) Anthrax, septicaemia, swine erysipelas, salmonellosis, tetanus, pyemia, fever, TB, jaundice. b) Hydatidosis, cysticercosis, local TB, tumours, endocarditis

Questionnaire	Ethiopia	Iran	Iraq	Jordan	Lebanon
11. Is stunning before slaughter compulsory. Description of method used	No rarely practised	No prohibited by religion but electrical stunning is used at present in Teheran	No prohibited	No prohibited	No prohibited
12. Is post-mortem inspection obligatory	No	Yes	Yes, but performed only when veterinary services exist	No	Yes
13. Categories of diseases or conditions entailing (a) total condemnation of carcasses (b) partial condemnation of carcasses	Determined by vet. or vet. inspector	Total condemnation: generalized TB, acute miliary & acute exudative, anthrax, blackleg, progressive caseous lymphadenitis with emaciation, generalized cysticercosis, pathological emaciation, cachexia, pathological jaundice, other contagious diseases. ¹⁾ Partial condemnation: bruising, emaciation, chronic TB, tumours	a) Severe emaciation, jaundice, septicæmic diseases generalized TB, cysticercus bovis b) Bruises, parasitic infestations	No set up rules, but procedures adopted in England & USA are used	a) Plague, anthrax, blackleg, rabies, pleuropneumonia, TB, salmonellosis, Rouget du porc, foot and mouth disease ²⁾ . b) Putrefied, gelatinous, edacious, bleeding, overstrained, septicæmic, feverish, underfed amyotrophic

1) Leptospirosis, sarcesporidiosis, leukaemia, hyperaemia, acute febrile diseases.

2) Brucellosis, tetanus, anaplasmosis, clavelie, trichinosis, hydatidosis, cysticercosis.

3) Localized infection or parasitic infestation. Tongue in healed foot and mouth disease.

Questionnaire	Ethiopia	Iran	Iraq	Jordan	Lebanon
14. Judgement of meat for human consumption, the usual terms applied	Determined by vets. or qualified inspector	1.Total condemnation 2.Conditionally passed 3.Free disposal	No particular code is applied. The criteria are whether meat is harmful or of diminished nutritive value	1.Fit for human consumption 2.Unfit for human consumption	No
15. Bacteriological examination, is it required by law, if required in which cases	No	No	No	No	No

Pakistan	Saudi Arabia	Somalia	Sudan	Syrian Arab Republic	Tunisia	United Arab Republic
<p>W. Pakistan: as given in books on meat inspection</p> <p>E. Pakistan: classified according to texture, age etc.</p>	<p>1. Free from diseases or decay</p> <p>2. Slaughtered according to Islamic way</p>	Information not available	<p>Unconditional passed meat which is only indicated by official seal stamp</p> <p>borne by wholesome carcasses</p> <p>No, but Min. of Animal Resources has all pathological conditions encountered confirmed by examination at its Vet. Research Labs.</p>	Hygienic & unhygienic	<p>Selected veals, sucking calf</p> <p>First quality, second quality, third quality</p>	Fit for human consumption or unfit
No	No	No		No	<p>Yes, in case owner contests classification: overworked or fevered meat, enteritis, metritis or pericarditis</p>	No

SEMINAR ON FOOD HYGIENE, ZOOSES CONTROL
AND VETERINARY PUBLIC HEALTH PRACTICE

EM/SEM.VPH/18
Annex II

Lahore, 29 October - 6 November 1964
Teheran, 7-11 November 1964

QUESTIONNAIRE
ON FOOD HYGIENE, ZOOSES CONTROL AND VETERINARY PUBLIC
HEALTH PRACTICE IN THE COUNTRIES OF THE EASTERN MEDITERRANEAN REGION

In order to have useful background information for discussion during the Seminar, Governments are kindly asked to complete the following questionnaire in duplicate and return it as soon as possible to WHO, EMRO, Alexandria.

Please give short narrative replies to the following:

- I. What are the zoonoses (animal diseases communicable to man) of importance in your country? Give whatever data you can on the prevalence of these zoonoses (bovine tuberculosis, rabies, arthropodborne encephalitis, brucellosis, anthrax, leptospirosis, hydatidosis and other parasitic zoonoses will be discussed during the Seminar, and should receive special attention in answering this question).

II. Please describe the administrative set-up of the Veterinary Public Health Service in your country. Who is responsible for the overall co-ordination of Veterinary Public Health activities in the various government departments?

III. What measures have been undertaken to control or eradicate the zoonoses as listed under item I and indicate the results of such campaigns.

IV. If no measures have been used to control these zoonoses in your country, are any plans being made?

V. Meat hygiene practice in your country

1. Sale of meat and meat products: Is it permissible to sell for human consumption meat and meat products that have not been submitted to official meat inspection?

2. Legislation: Who are the authorities responsible for legislation concerning meat hygiene and meat inspection?

3. Food animals: What kind of animals are comprised in the term "food animals" in your meat inspection legislation?

4. Food animals slaughtered: Give the approximate numbers of food animals slaughtered per year.

5. Slaughterhouses and premises for storage, processing and sale meat: Is legislation in force for such establishments as slaughterhouses, and all premises where meat or meat products are stored, processed, and/or sold?

6. Handling and transportation of meat: Are regulations in force governing the maintenance of cleanliness in the handling and transportation of meat?

7. Medical examination of food handling staff: Do you have regulations prescribing physical examination for communicable diseases of staff employed in the meat industry, both before and/or during employment?

8. Meat inspection and supervision of premises: Who are the authorities responsible at the national and the local levels for meat inspection, and the supervision of premises where meat and meat products are stored, processed, and/or sold?

9. Meat inspection staff: Who directly employs the meat inspection staff?

10. Ante-mortem inspection: Is this compulsory?

11. Stunning before slaughter: Is this compulsory? Give short description of the methods of stunning used in your country.

VI. Legislation and practices in food hygiene in your country concerning fish.

VII. Milk hygiene practices

1. List the commonly consumed milk and milk products (e.g. fluid cow's milk, dried cow's milk, fresh white cheese, etc.).

2. Who are the responsible authorities for milk hygiene legislation? Enforcement of legislation and milk hygiene practices?

3. Do milk handlers have medical examinations? If so, what tests are made and how frequently?
4. What percentage of milk is pasteurized? What are the pasteurization method(s) used? Briefly describe any other form of heat treatment or processing of milk or milk products.
5. What hygienic control (bacteriological and other tests) procedures are practised at (a) collecting stations, (b) pasteurizing plants, (c) retail shops?

VIII. Please list and describe the major veterinary public-health problems in your country.

IX. Please supply three complete sets of veterinary public-health laws, rules and regulations promulgated in your country. If original is not in English, kindly supply translation or summary in English.