European Food Safety Authority

ZOONOSES MONITORING

Former Yugoslav Republic of Macedonia, the

TRENDS AND SOURCES OF ZOONOSES AND ZOONOTIC AGENTS IN FOODSTUFFS, ANIMALS AND FEEDINGSTUFFS

including information on foodborne outbreaks, antimicrobial resistance in zoonotic and indicator bacteria and some pathogenic microbiological agents

IN 2016

PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/ EC*. The information has also been forwarded to the European Food Safety Authority (EFSA).

The report contains information on trends and sources of zoonoses and zoonotic agents in Former Yugoslav Republic of Macedonia, the during the year 2016.

The information covers the occurrence of these diseases and agents in animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and indicator bacteria as well as information on epidemiological investigations of foodborne outbreaks. Complementary data on susceptible animal populations in the country is also given. The information given covers both zoonoses that are important for the public health in the whole European Union as well as zoonoses, which are relevant on the basis of the national epidemiological situation.
The report describes the monitoring systems in place and the prevention and control strategies applied in the country. For some zoonoses this monitoring is based on legal requirements laid down by the European Union legislation, while for the other zoonoses national approaches are applied.

The report presents the results of the examinations carried out in the reporting year. A national evaluation of the epidemiological situation, with special reference to trends and sources of zoonotic infections, is given. Whenever possible, the relevance of findings in foodstuffs and animals to zoonoses cases in humans is evaluated.
The information covered by this report is used in the annual European Union Summary Reports on zoonoses and antimicrobial resistance that are published each year by EFSA.

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* Directive 2003/ 99/ EC of the European Parliament and of the Council of 12 December 2003 on the monitoring of zoonoses and zoonotic agents, amending Decision 90/ 424/ EEC and repealing Council Directive 92/ 117/ EEC, OJ L 325, 17.11.2003, p. 31

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1 ANIMAL POPULATIONS

The relevance of the findings on zoonoses and zoonotic agents has to be related to the size and nature of the animal population in the country

1.1 Populations

1.1.1 Information on susceptible animal population

Sources of information

Veterinary database of Information system of Food and Veterinary Agency. Number of presented animals populations for cattle are also number of identificate animals.

Dates the figures relate to and the content of the figures

All the figures are from 31.12.2016, except numbers of pigs which number is from annual census on 1st of February 2016

Definitions used for different types of animals, herds, flocks and holdings as well as the types covered by the information

Holding: any establishment, construction or, in the case of an open-air farm, any place in which animals are held, kept or handled.

National evaluation of the numbers of susceptible population and trends in these figures

The total number of bovine animals remains unchanged. The total number of animals of sheep and goats is increasing.

Geographical distribution and size distribution of the herds, flocks and holdings

The Former Yugoslav Republic of Macedonia is geographically divided into 8 regions.

2 DISEASE STATUS

2.1 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.1.1 Mycobacterium in animals

2.1.1.1 Mycobacterium tuberculosis complex (MTC) in animal - Cattle (bovine animals) - animal sample

Status as officially free of bovine tuberculosis during the reporting year

The entire country free

Republic of Macedonia is not officially free of bovine tuberculosis according to Directive 64/432/EEC.

Free regions

All regions are not officially free of bovine tuberculosis according to Directive 64/432/EEC

Monitoring system

Sampling strategy

The control of tuberculosis is based on Council Directive 64/432/EEC, which is implemented and adapted in National legislation in Program for control and eradication of Bovine Tuberculosis is in place since 2007. All bovine animals older than 6 weeks were tested once a year in the whole country. Animals with suspected tuberculin skin test, are retested after 42 days with comparative tuberculin test.

Frequency of the sampling

Frequency of testing depends on: - the results of tuberculin testing Testing of cattle is done annually according to the national control programme

Methods of sampling (description of sampling techniques)

Tuberculin skin testing: single (bovine tuberculin) or comparative (bovine/avian tuberculin). Private Veterinary organization is responsible for single itradermal tuberculin test. Faculty of veterinary medicine Skopje-responsible for comparative intradermal test (re-tuberculinisation) with avian and bovine tuberculin after at least 6 weeks.

Case definition

A 'bovine' is defined as infected with bovine tuberculosis if the animal is positive by skin testing or if Mycobacterium bovis is isolated by culture or confirmed by laboratory analysis (PCR). A 'holding' is defined as infected if Mycobacterium bovis was isolated from an animal of the holding. Bovine tuberculosis is considered to be confirmed if:a) Laboratory examination has confirmed agent from M. tuberculosis complex in tissue material from bovine animalb) Post mortem examination shows typical pathological changes, and agent from M. tuberculosis complex is confirmed by the laboratory examinationc) Post mortem veterinary control at slaughter line found typical pathological changes, and agent from M. tuberculosis complex is confirmed by the laboratory examination.Mycobacterium tuberculosis complex : Mycobacterium tuberculosis, Mycobacterium bovis, Mycobacterium caprae and Mycobacterium africanum.

Diagnostic/analytical methods used

- Intradermal testing-(skin test) and comparative skin test with bovine and avian tuberculin

Vaccination policy

Vaccination is prohibited

Control program/mechanisms

The control program/strategies in place

National surveillance program by the Competent Authority on mandatory legal base.

Measures in case of the positive findings or single cases

In case of positive result, veterinary inspector should order measures as follows:1) The herd is placed under official surveillance. 2) Isolation of all positive animals within the herd. 3) Prohibition of any movement into or out of the herd, unless authorised by the CA, for the purpose of slaughter without delay4.) Isolation, untill the further testing or sending to slaughter. 5) Milk from the infected cows may only be fed to animals on the same farm, after suitable heat treatment. 6) Milk from cows from the infected herd (without prejudice to national provisions concerning foodstuffs) can not be delivered to a dairy, except to undergo suitable heat treatment7) Carcases, half-carcases, quarters, pieces and offal from infected cattle intended for use as feed for animals are treated in such a way to avoid contamination. 8) All positive animals must be slaughtered as soon as possible, but not later than 30 days after the owner was officially notified about the disease and his obligation. 9) After the slaughter of all positive animals and prior to restocking, general cleaning and disinfection of all herd and equipment should be performed, under official supervision and in accordance with the instructions of the veterinary inspector.

Notification system in place

According Law of veterinary health and Book of rules for compulsory notification animal diseases

Results of the investigation

In 2016, 45

National evaluation of the recent situation, the trends and sources of infection

Number of infected herds

2.2 BRUCELLOSIS

2.2.1 Brucella in animals

2.2.1.1 B. abortus in animal - Cattle (bovine animals) - animal sample

Status as officially free of bovine brucellosis during the reporting year

The entire country free

Republic of Macedonia is not officially free from bovine brucellosis

Free regions

All regions are not officially free of bovine brucellosis according to Directive 64/432/EEC.

Additional information

No additional information

Monitoring system

Sampling strategy

Regular annual diagnostic tests for Bovine Brucellosis were performed on all cattle older than six months while retest of all positive herds continuously performed during the year.

Frequency of the sampling

Testing of cattle is done annually according to the national control programme for control and eradication of boivine brucellosis

Type of specimen taken

Blood sampling and for isolation of Brucella abortus uterine discharges, aborted foetuses, udder secretions or selected tissues, such as lymph nodes.

Methods of sampling (description of sampling techniques)

Blood sampling

Case definition

An animal is defined as infected if Brucella spp. has been isolated by culture and identified .A herd is defined as infected if one of its animals is positive by bacteriological examination for Brucellosis.

Diagnostic/analytical methods used

- Veterinary Institute in Facultu of Veterinary Medicine in Skopje is official and national reference laboratory for the diagnosis of bovine brucellosis. The results of laboratory tests entered into the laboratory information system (LABIS). The data are available for the Food and Veterinary Agency. Official blood tests for bovine brucellosis are: a) Rose Bengal Test (RBT) as the screening method b) Complement Fixation Tet (CFT) as confirmation method c) Competitive ELISA (cELISA) for confirmation purposes d) Indirect ELISA (iELISA) for confirmation purposes

Vaccination policy

Vaccination is prohibited .

Control program/mechanisms

The control program/strategies in place

Regular annual diagnostic tests for Bovine Brucellosis were performed on all cattle older than six months . Retesting of all positive herds is implemented during the year. In case of any suspicion case in the herd, as well as in case of any positive blood test result, holding is immediately restricted by the decision of veterinary inspector .

Measures in case of the positive findings or single cases

Measures in case of suspcision or officially confirmed bovine brucellosis are presribed by the dicision on measures for control and eradication of bovine brucellosis In case of positive result, veterinary inspector should order measures as follows:1) The herd is placed under official surveillance. 2) Isolation of all positive animals within the herd. 3) Prohibition of any movement into or out of the herd, unless authorised by the CA, for the purpose of slaughter without delay4.) Isolation, untill the further testing or sending to slaughter. 5) Milk from the infected cows may only be fed to animals on the same farm, after suitable heat treatment. 6) Milk from cows from the infected herd (without prejudice to national provisions concerning foodstuffs) can not be delivered to a dairy, except to undergo suitable heat treatment7) Carcases, half-carcases, quarters, pieces and offal from infected cattle intended for use as feed for animals are treated in such a way to avoid contamination. 8) All positive animals must be slaughtered as soon as possible, but not later than 30 days after the owner was officially notified about the disease and his obligation. 9) After the slaughter of all positive animals and prior to restocking, general cleaning and disinfection of all herd and equipment should be performed, under official supervision and in accordance with the instructions of the veterinary inspector

Notification system in place

National legislation: in accordance of Book of rules for compulsory notification of disease and list of notifiable diseases

National evaluation of the recent situation, the trends and sources of infection

Number of infected herds

2.2.1.2 B. melitensis in animal - Sheep and goats - animal sample

Status as officially free of ovine brucellosis during the reporting year

The entire country free

Republic of Macedonia is not recognised as country officialy free from sheep and goat brucelosis acording to Directive 91/68/EEC.

Free regions

Republic of Maedonia has no regions officially free from sheep and goat brucelosis according to Directive 91/68/EEC

Monitoring system

Sampling strategy

In the last several years, the Food and Veterinary Agency implements programmes for control of the disease. The application of the new strategy resulted with division of the territory of the country into certain number of individual regions i.e. epidemiological units where depending of the widespread of the disease in the country, the prevalence, different measures for control of Brucellosis in sheep and goats apply. 1. Testing and slaughtering of the ovine and caprine animals older than 6 months and 2. Combination of vaccination against brucellosis in ovine and caprine/testing and slaughtering

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood sampling

Case definition

A sheep is defined as infected with brucellosis if positive in too tests: iElisa, Rose Bengal test and Complement Fixation test and isolation of Brucella melitensis by culture after test slaughter.

Diagnostic/analytical methods used

Complement Fixation Test CFTRose Bengal Test RBTIndirect ELISACulture for isolation

Vaccination policy

After 2008 mass vaccination is started and the country is divided in to three regions. In following years, vaccination of replacements animals and test and slaughter of adult animals have been implemented. Serological surveillance was conducted of the vaccinated animals for assessment of the immunity to vaccinated sheep and goats against Brucellosis.

Notification system in place

According Law of veterinary health and Book of rules for compulsory notification animal diseases

National evaluation of the recent situation, the trends and sources of infection

Reduce the further spreading of the brucellosis in sheep and goats Decrease the absolute number of positive animals Decrease the number of positive humans

ANIMAL POPULATION TABLES

Table Susceptible animal population

		Population		
Animal species	**Category of animals**	**holding**	**animal**	**slaughter animal (heads)**
Cattle (bovine animals)	Cattle (bovine animals)	26,340	213,390	9,678
Pigs	Pigs - breeding animals - unspecified - boars		619	
	Pigs - breeding animals - unspecified - piglets		48,894	
	Pigs - breeding animals - unspecified - sows		14,856	
	Pigs - fattening pigs			167,099
	Pigs - fattening pigs - unspecified		45,117	
Sheep and goats	Sheep and goats	8,544	815,357	282,535

DISEASE STATUS TABLES

Table Bovine brucellosis in countries and regions that do not receive Community co-financing for eradication programme

Region	Number of herds with status officially free	Number of infected herds	Total number of animals	Number of herds tested under surveillance	Number of animals tested under surveillance	Total number of herds
Macedonia The Former Yugoslav Republic Of	0	82	213,390	22,934	166,178	26,340

Table Ovine or Caprine brucellosis in countries and regions that do not receive Community co-financing for eradication programme

Region	Number of herds with status officially free	Number of infected herds	Total number of animals	Number of herds tested under surveillance	Number of animals tested under surveillance	Total number of herds
Macedonia The Former Yugoslav Republic Of	0	129	815,357	6,797	419,119	8,544

DISEASE STATUS TABLES

PREVALENCE TABLES

Table BRUCELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Cattle (bovine animals) - Farm - Former Yugoslav Republic of Macedonia, the - animal sample - blood - Surveillance - Official sampling - Census	animal	166178	433	Brucella abortus	433
	Sheep and goats - Farm - Former Yugoslav Republic of Macedonia, the - animal sample - blood - Surveillance - Official sampling - Census	animal	419119	673	Brucella melitensis	673

Table LYSSAVIRUS in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Foxes - wild - Natural habitat - Not Available - animal sample - Monitoring - Official sampling - Objective sampling	animal	185	0	Lyssavirus	0
	Wolves - wild - Natural habitat - Not Available - animal sample - brain - Monitoring - Official sampling - Objective sampling	animal	67	0	Lyssavirus	0

Table MYCOBACTERIUM in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Cattle (bovine animals) - Farm - Former Yugoslav Republic of Macedonia, the - Not Available - Surveillance - Official sampling - Census	animal	188519	10	Mycobacterium spp., unspecified	10

Table TRICHINELLA in animal

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Wild boars - wild - Natural habitat - Not Available - animal sample - Monitoring - Official sampling - Census	animal	133	0	Trichinella	0

FOODBORNE OUTBREAKS TABLES

Foodborne Outbreaks: summarized data

		Outbreak strenght	Strong				Weak			
Causative agent	Food vehicle		N outbreaks	N human cases	N hospitalized	N deaths	N outbreaks	N human cases	N hospitalized	N deaths
Escherichia coli	Tap water, including well water		1	86	0	0				
Salmonella	Bakery products						2	24	10	0
Unknown	Unknown						2	31	5	0

Strong Foodborne Outbreaks: detailed data

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Escherichia coli	unk	N_A	General	Tap water, including well water	N_A	Descriptive epidemiological evidence$Detection of causative agent in food vehicle or its component - Symptoms and onset of illness pathognomonic to causative agent$Descriptive environmental evidence	Multiple places of exposure in one country	Water source	Former Yugoslav Republic of Macedonia, the	Water treatment failure	N_A	1	86	0	0

Weak Foodborne Outbreaks: detailed data

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Salmonella	unk	N_A	General	Bakery products	Cake	Descriptive epidemiological evidence$Descriptive environmental evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Former Yugoslav Republic of Macedonia, the	Unknown	N_A	2	24	10	0
Unknown	unk	N_A	General	Unknown	Mushroom sauce	Analytical epidemiological evidence$Unknown	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Former Yugoslav Republic of Macedonia, the	Unknown	N_A	1	20	0	0
					N_A	Descriptive epidemiological evidence$Descriptive environmental evidence	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Restaurant or Cafe or Pub or Bar or Hotel or Catering service	Former Yugoslav Republic of Macedonia, the	Unknown	N_A	1	11	5	0

ANTIMICROBIAL RESISTANCE TABLES FOR CAMPYLOBACTER

ANTIMICROBIAL RESISTANCE TABLES FOR SALMONELLA

ANTIMICROBIAL RESISTANCE TABLES FOR INDICATOR ESCHERICHIA COLI

OTHER ANTIMICROBIAL RESISTANCE TABLES

Specific monitoring of ESBL-/AmpC-/carbapenemase-producing bacteria and specific monitoring of carbapenemase-producing bacteria, in the absence of isolate detected

No data returned for this view. This might be because the applied filter excludes all data.

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Latest Transmission set

Table Name	Last submitted dataset transmission date
Animal Population	12-Jul-2017
Disease Status	12-Jul-2017
Food Borne Outbreaks	12-Jul-2017
Prevalence	12-Jul-2017
Text Forms	12-Jul-2017