



**Committee for Food Security under the Government of the
Republic of Tajikistan**

AVIAN INFLUENZA AND CONTROL EFFORTS

**DUSHANBE
2021**

General information

Over the past 10 years, using the benefits established by the Government of the Republic of Tajikistan, as of 1 January 2020, there are 205 agricultural enterprises in the country, of which 194 (including 113 in the Sogdian region, 16 in Khatlon, 64 in the districts and cities of the republican subordination and 1 in Gorno-Badakhshan Autonomous Region) are functioning. In 2020, they produced 807 302 249 eggs and 24 588 tons of high-quality poultry meat.

A lot of meat, poultry, eggs and poultry products are imported, which increases the risk of introduction and spread of dangerous infectious diseases. There are currently no reported cases of AI or ND.

The measures are aimed at preventing poultry diseases. It is necessary to carry out vaccination fullH in order to prevent the spread of infectious diseases.

Birds' disease control measures are carried out in accordance with the Plan of Preventive Measures.

General information

In recent years, the pathological material has been received slightly for the diagnosis of TB and AI.

Last year, in the north of the country, cases of mortality and forced slaughter of poultry were registered in poultry enterprises, and a working group was created with the involvement of scientists from industry institutes and an epidemiological investigation was carried out among the poultry stock. Many studies were carried out, the causative agent of AI and ND was not identified.

Currently, on behalf of the leadership of the Committee, certain work is being carried out sero diagnosis to determine the antibodies titres to ND, and for the circulation of the virus. Regular research of the antibodies titres to ND in poultry enterprises, private households helps to control the epizootic situation in the country.

Specialists of the Committee carry out control over particularly dangerous diseases among the existing poultry stock.

Recommendations are given to farms on the timely adoption of measures to eliminate all kinds of outbreaks of infections.

Monitoring of zoonotic diseases and food safety is being carried out.

Committee for Food Security

National Center for Food Security Diagnosis

Executive Board (2)

**Bacteriological
department**

Serology Department

Virology Department

Department of
Nutriculture Medium
and Experimental
Animals

Food Safety Department

Department of Chemical
Toxicology and Mycology

Department of
Radiobiology

Department of registration,
certification, and control of
markets

Department of
Pathomorphology

Department of
Parasitology

Department of Phytosanitary
and Plant Quarantine

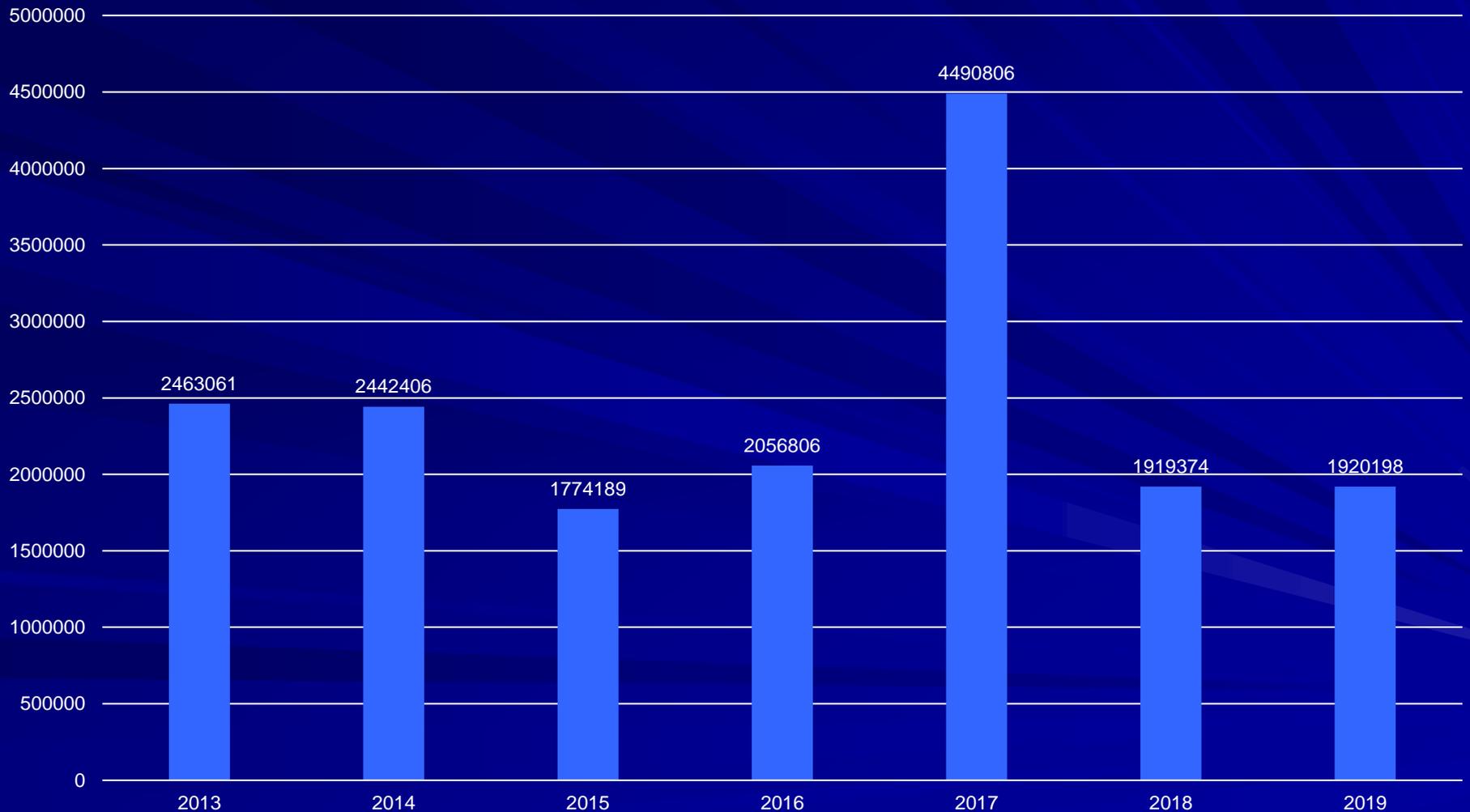
Seed Quality Control
Department

Department of veterinary
drugs

Poultry stock in Tajikistan



Information about preventive measures (vaccination)



Laboratory activities

Isolation of the virus from the brain and bone marrow at the incursion of the disease in the viral stage (3-5 days after the incursion of the disease) in chicken embryos and cell culture.

Bioassay from a pathological material taken from a diseased poultry stock.

Virus titration in chicken embryos.

Serological identification of the virus Haemagglutination test, HI test, ELISA, CFT, PCR and other methods

Existing problems

- 1. Lack of equipment in regional centers;**
- 2. Advanced trainings of the specialists to the level of international standards;**
- 3. Lack of diagnostic kits, reagents;**
- 4. Budget and insufficient funding;**
5. Providing kits;
6. Training of laboratory specialists;

AI



Diseases of all types of domestic and wild birds occurring in the form of an epizootic and causing great social and economic damage. Some subspecies can infect mammals and humans, which can cause death.

**Virus types
and owners**

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graph TD; A[Virus types and owners] --- B1[ ]; B1 --- C1[A]; B1 --- C2[B]; B1 --- C3[C];
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A

All kinds of birds,
mammals, including
people

B

People

C

People,
swine

International Nomenclature of Avian Influenza A Virus

No	Name	Information
1	Gender	Virus A
2	Source of infection (isolation)	Bird species
3	Location of outbreaks	States, region, locality
4	Individual source number	Set by the author
5	Source identification year	Two latest figures
6	Formula of names	Serotypes HA and NA

HPAI outbreaks around the world (1994 - 2018)

Country/region	Year	Subspecies	Slaughtered birds	Economic damage
Mexico	1994	H2N1	Not provided	
Pakistan	1995	H7N3	3,2 M	9 bn rupee
China	1997	H5N1	1,4 M	
Australia	1999, 2000	H7N4	1,6 M	
Italy	2002	H7N1	14 M	200 M euro
Chile	2003	H7N3	540 M	
The Netherlands	2003	H7N7	30 M	750 M euro
Belgium	2003	H7N7	2,4 M	
Germany	2003	H7N7	84 M	
South-East Asia	2003, 2004	H5N1	100 M	
Russia	2005, 2006	H5N1	2 M	

AI in Tajikistan

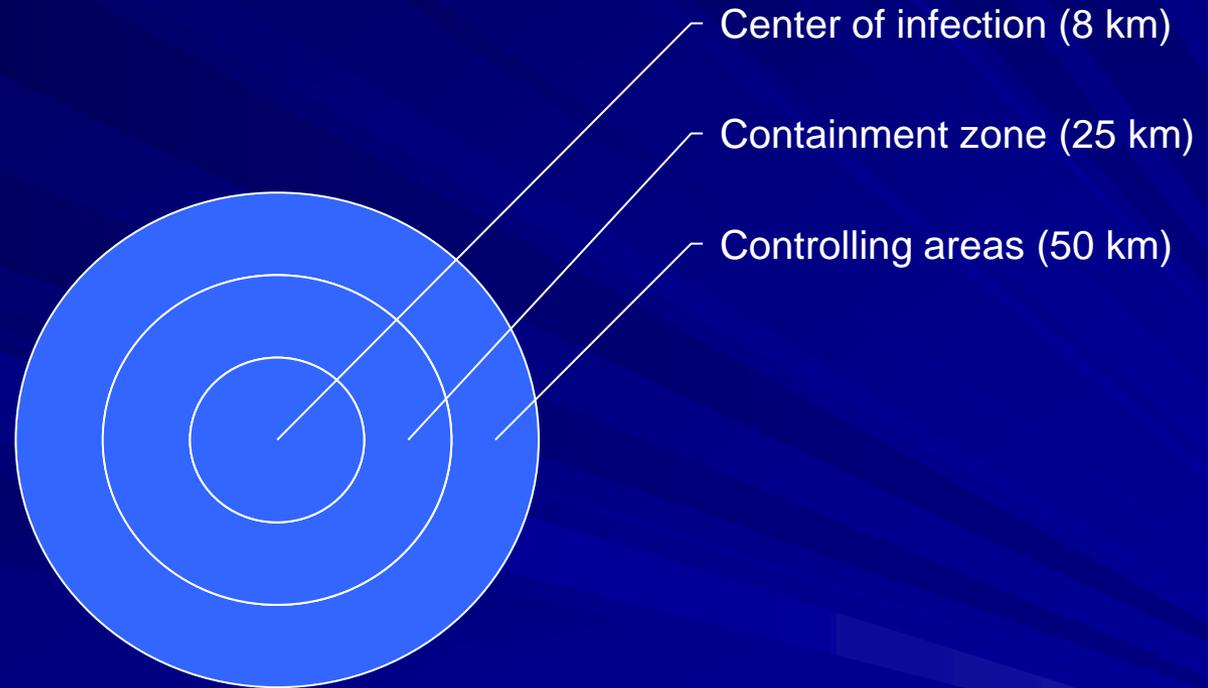
Diagnosed:

■ H6 –1972

■ H7 –1977 – 1978

■ H4 –1978 – 1979, 1983 – 1984

Introduction of AI



Sources and routes of transmission

Outbreaks - sick or recovered bird

Transmission route:

- Feed
- Airborne
- Transfer through eggs (in industrial enterprises)
- Meat, eggs, feathers, wings, water, droppings and seeded equipment and supplies
- Transport and support staff



Wild birds' migration

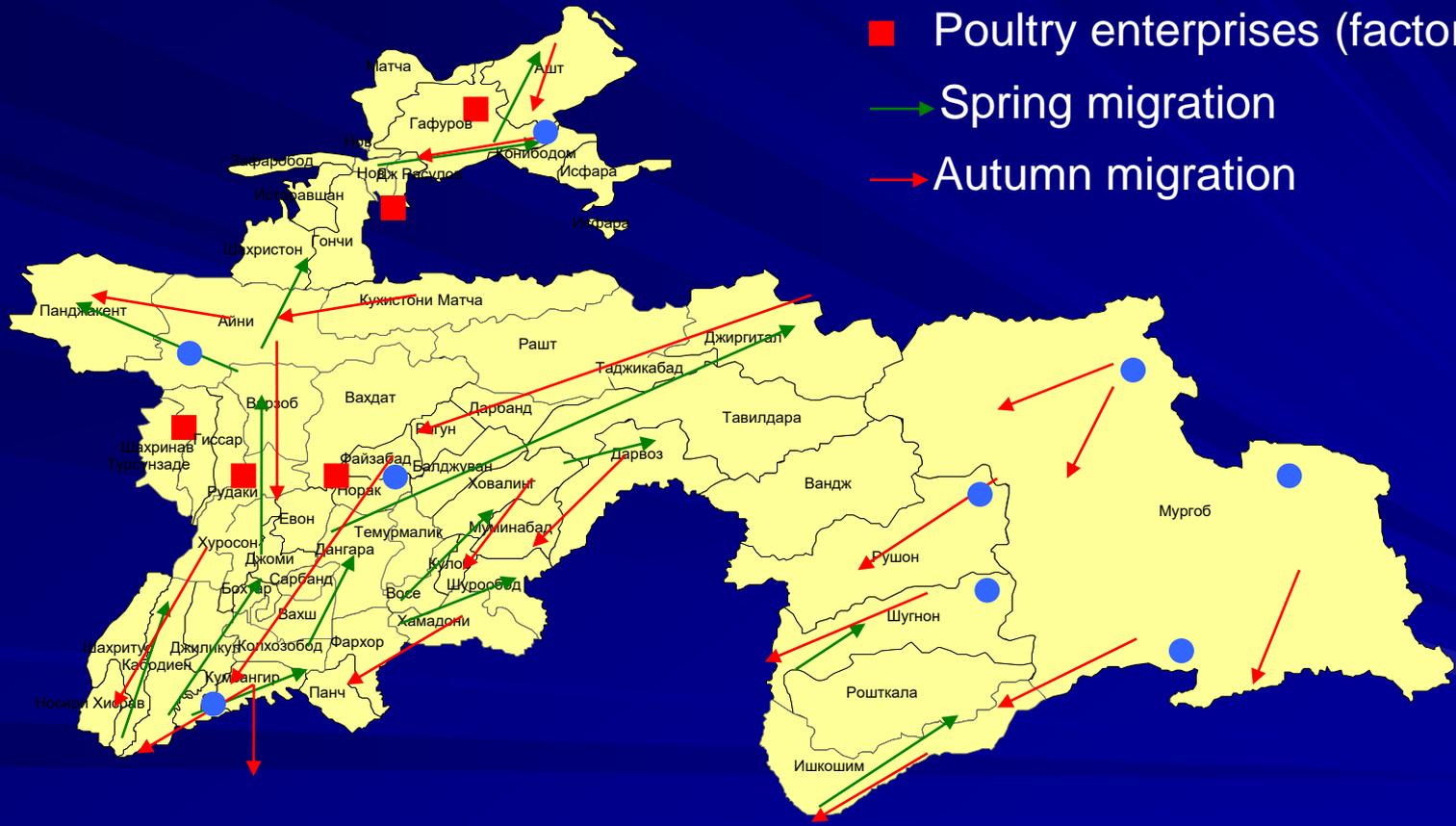


There are 14 main routes of wild birds' migration

- Central Asia
- East Asia
- Far East
- Western Europe
- Inside Europe
- Eastern Europe
- Eurasia -Australia
- Pacific Rim
- Inside the American continent
- Asia – Australia
- Africa

The main flight paths of migratory birds and possible outbreak sites and the appearance of AI

- Water reservoir
- Poultry enterprises (factories, farms)
- Spring migration
- Autumn migration



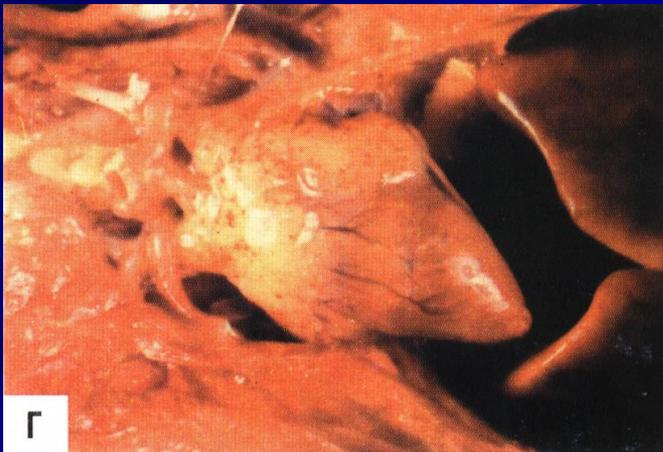
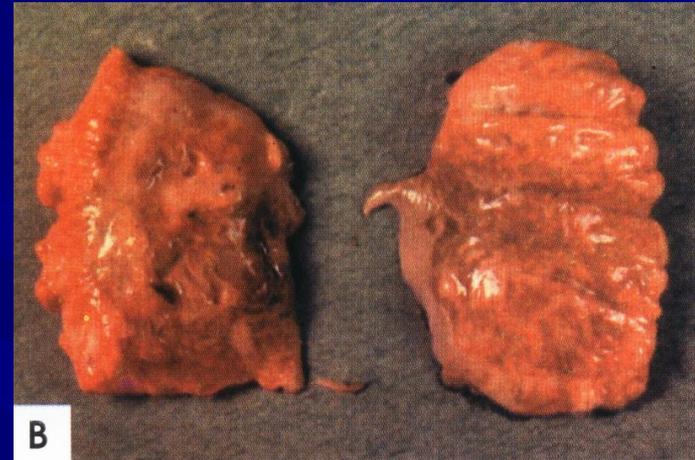
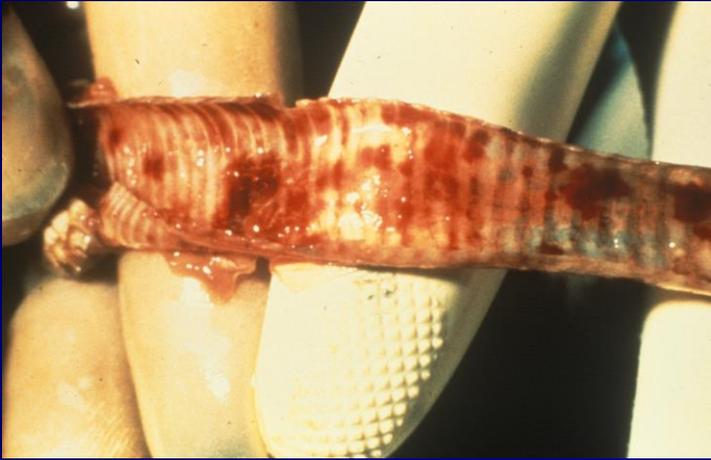
Specific signs and differential diagnosis of AI

Forms of the course of the disease	Clinical signs		Differential diagnosis
	Symptomatic	Pathological - anatomical	
Lightning fast, sharp	Basically, the disease is following without clinical signs, mortality ranges from 70 - 100%. Sometimes the crown is swollen, and the respiratory organs are sore	Significant clinical signs in the esophagus, lung air sacs, bleeding, subcutaneous swelling, muscles of the heart and internal organs	ND, infectious laryngotracheitis, Gumboro disease
Subacute, chronic	Respiratory inflammation, cyanosis of the crown, anxiety, diarrhea, decreased egg production	The above clinical signs, but insignificant, inflammation of the nose and nostrils, intestines and stomachs, kidneys, heart and internal organs and organs of egg production	Avian infectious bronchitis, Gumboro disease, ND, Infectious laryngotracheitis, mycoplasmosis, pasteurellosis, Glasser's disease
Diagnostic	No clinic, decreased egg production	Possible outbreaks of bacterial infection	— «» —

Clinical signs



Pathological - anatomical changes



Specific prophylaxis

Live vaccines:

- From weakened strains Ru and P5 (H7H1)
- Neuraminidase - N-specific against ostrich flu
- Recombinant vaccine
- **Inactivated vaccine:**
- From local strains
- From different strains
- Inactivated aluminum hydroxide vaccines for avian influenza (H1 - H8) (USSR - 1974);
- **Inactivated AI vaccines (H5 and H7) developed by scientists of the Russian Federation**



Chemoprophylaxis and therapy



Complex of veterinary - sanitary and economic measures.

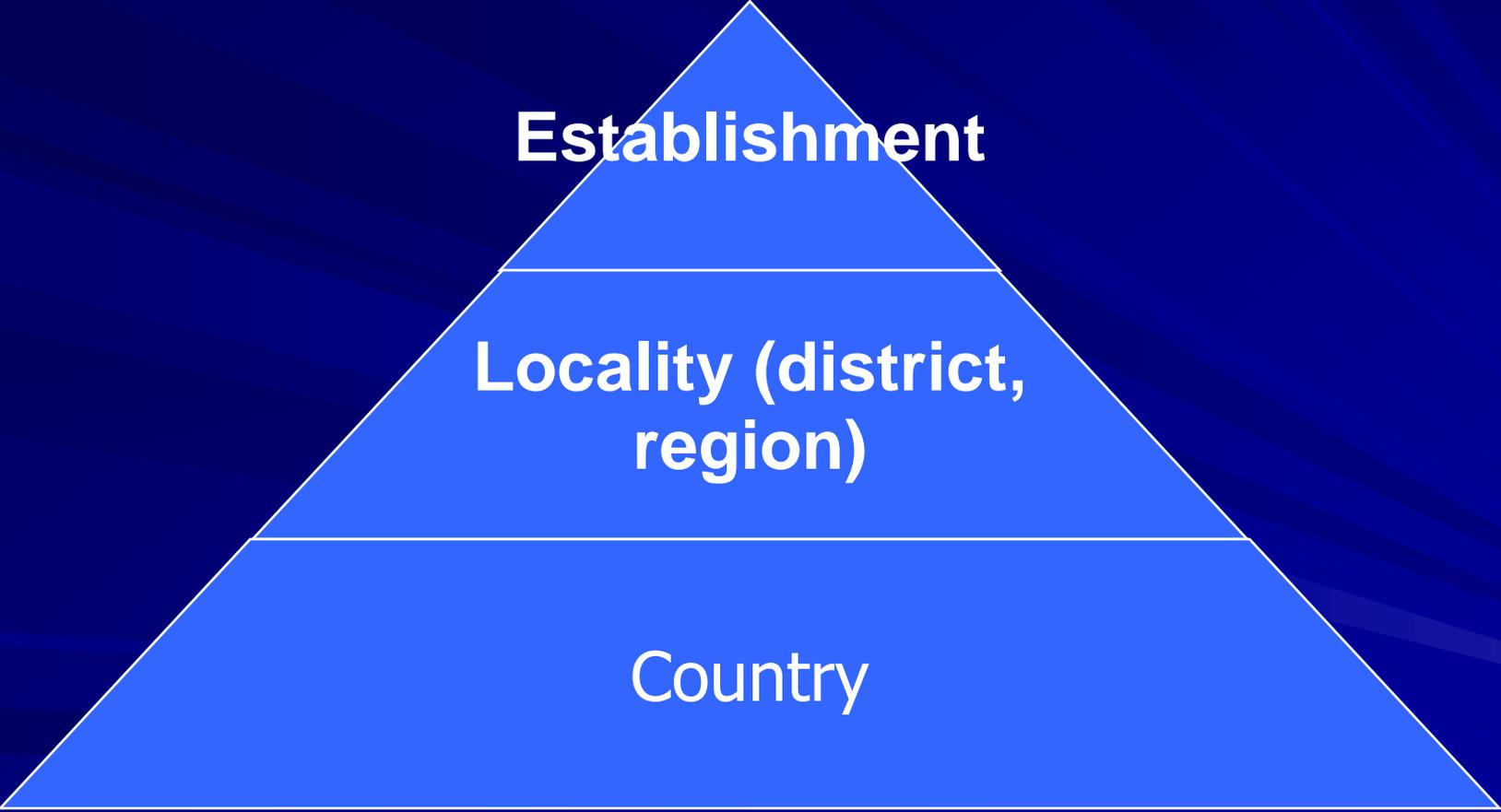
Non-specific prophylaxis:

- Motivating interferon
- Extraneous interferon

Chemicals used to prevent human influenza :

- M2 positive (amantadine and remantadine);
- Neuraminidases (oseltamivir and zanamivir)

AI Control Strategy



Establishment

**Locality (district,
region)**

Country

Mandatory measures in disadvantaged foci and vulnerable places:

- Quarantine
- Eliminating of poultry
- Stop incubation, chick intake and feed entry
- Canned eggs and meat from conditionally healthy poultry
- In the threatened regions, vaccination is carried out only with vaccines from those registered in the foci of infection.
- The quarantine must be lifted 21 days after the destruction of a conditionally healthy bird

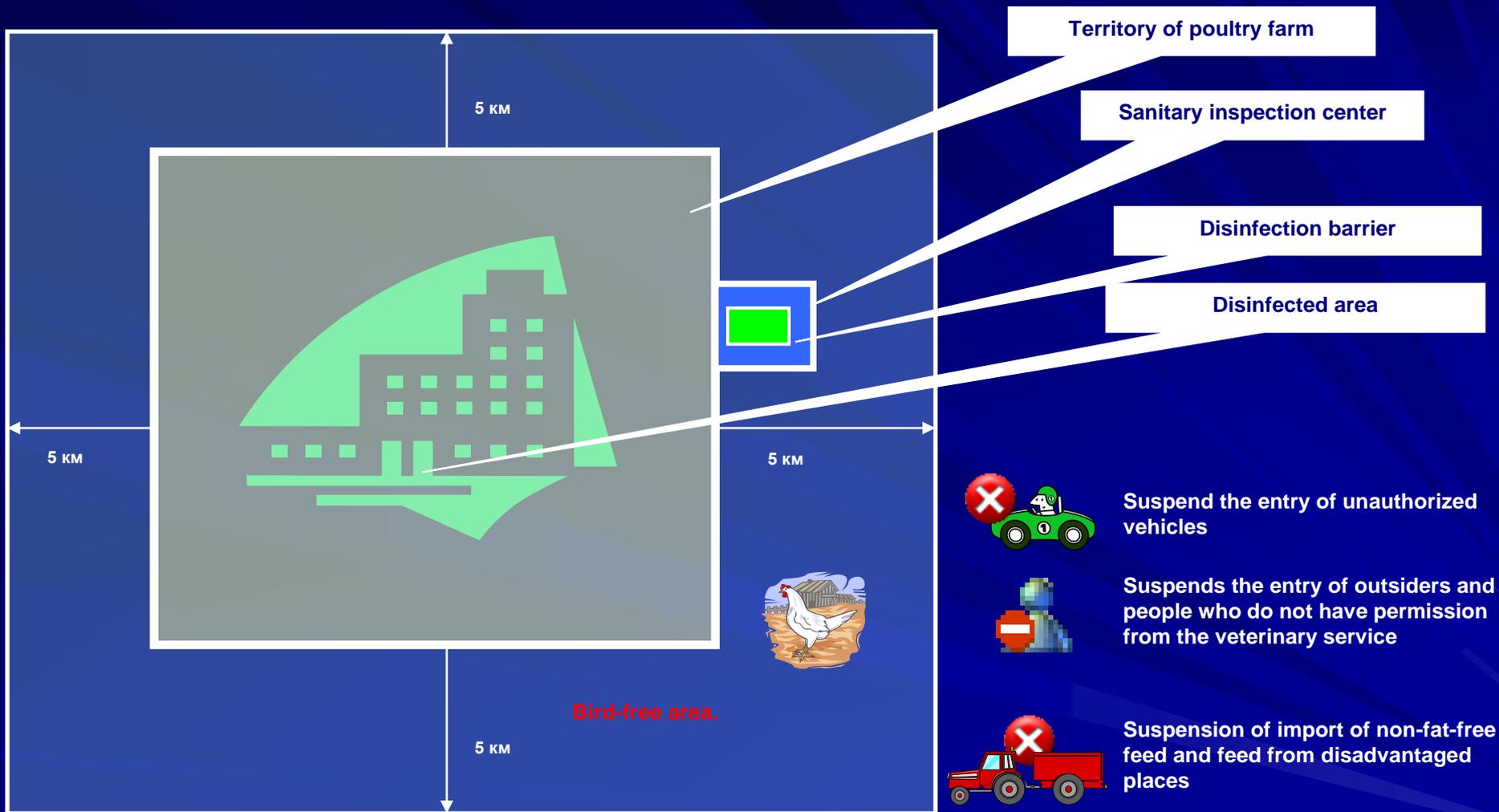


Animal epidemic countermeasures



- Declaration of quarantine in disadvantaged areas and destruction of sick and susceptible stock
- Improvement of the alert system for timely notification of disease outbreaks
- Increasing the provision of compensation to the population in the event of confiscation of poultry
- The use of inactivated vaccines in private households and settlements, bordering with unfavorable natural foci
- Organization of a vaccine stockpile
- Avoiding vaccination of birds in closed-type industrial farms

Measures to protect poultry farms from the introduction of the AIV



 - Avoiding the entry of unauthorized people into the poultry houses

 - Construction of a disinfection barrier for incoming and outgoing vehicles from the territory

 - Use of food that has undergone heat treatment at a temperature of 80 C

 - Organization of sanitary crossing points for responsible persons and staff.

- Providing transport to maintain clean and dirty areas

 - Do not allow the keeping of poultry in the farm of poultry workers

Awareness activities



- Prompt notification of all suspected cases of avian influenza to veterinary and administrative authorities
- Veterinary and Sanitary Rules for the Care and Maintenance of Poultry and Hunting for Wild Birds
- Providing information on the poultry population to the executive authorities
- Limit contact between poultry and humans with wild waterfowl

Social guarantees

- Insurance in case of death, confiscation of poultry and seeding materials
- Voluntary insurance
- Legislation on liability in case of concealment and non-reporting of cases of death of the of birds' stock to veterinary and administrative authorities
- Guidelines for the prevention and control of AI





Thank you for attention aismoil@inbox.ru