

Current challenges in waterfowl healthcare and biosecurity in Europe

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Source: Tranzit-Ker Zrt.





Content

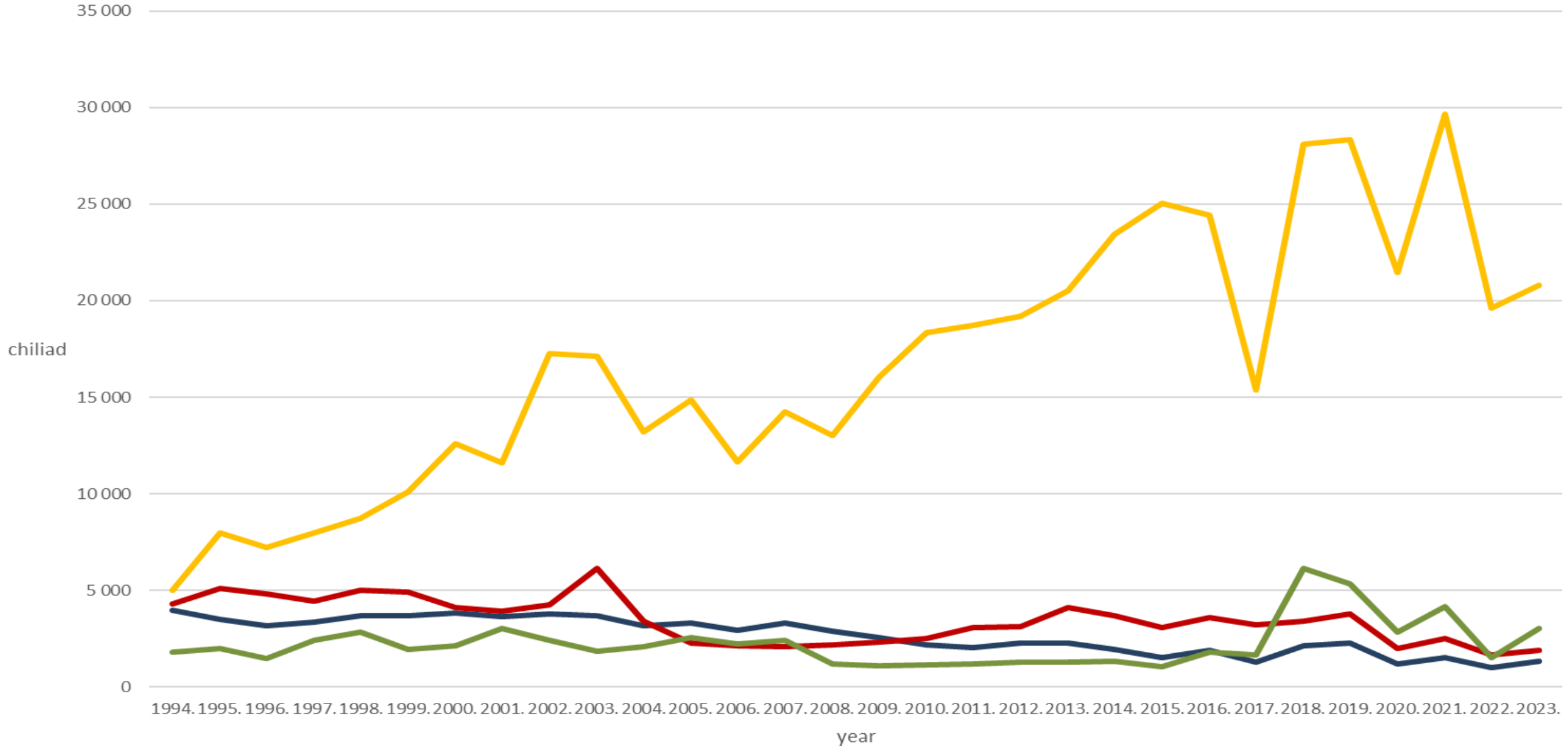
- ▶ Waterfowl production in Europe
- ▶ HPAI situation in Hungary
- ▶ Major biosecurity issues in waterfowl production
- ▶ Major diseases in large scale geese production
- ▶ Major diseases in large scale pekin duck production
- ▶ Vaccination programmes in waterfowl
- ▶ Salmonella monitoring in waterfowl production

Activity of hatcheries (million eggs and chicks, EU, 2021)

Species	Breed	Type of chicks	Eggs placed in incubation	Day-chicks produced
Chicken	Laying	Selection	47.09	15.64
		Utility	801.05	291.70
		Cockerels from sexing	:	43.01
	Meat	Selection	169.63	57.66
		Utility	7 144.74	5 679.15
	Mixed		51.11	75.26
Duck	Meat	Utility	278.70	163.97
Goose	Meat	Utility	19.19	11.13
Turkey	Meat	Utility	197.58	149.28
Guinea fowl	Meat	Utility	45.57	34.23

Source: Eurostat (online data code: (apro_ec_poula))

Waterfowl production in Hungary 1994-2023



— fattened goose — meat type goose — mulard duck — pekin duck

source: BTT

Pekin Duck feeding trial	1. shed	2. shed	3. shed	4. shed	5. shed	6. shed	7. shed	Sum-Total
Slaughterd animal	6 922	6 927	7 920	8 065	10 408	8 975	8 980	58 197
Total weight	21 539	20 537	22 740	27 628	35 962	26 948	26 926	182 280
Days	38	34-38	33	38	38	34	34	Approx.: 36
Total feed	48 146	37 088	33 496	59 050	76 243	46 252	44 085	344 360
FCR	2,24	1,81	1,47	2,14	2,12	1,72	1,64	1,89
Average weight (kg/piece)	3,11	2,96	2,87	3,43	3,46	3,00	3,00	3,13

Source: Tranzit-Ker Zrt.

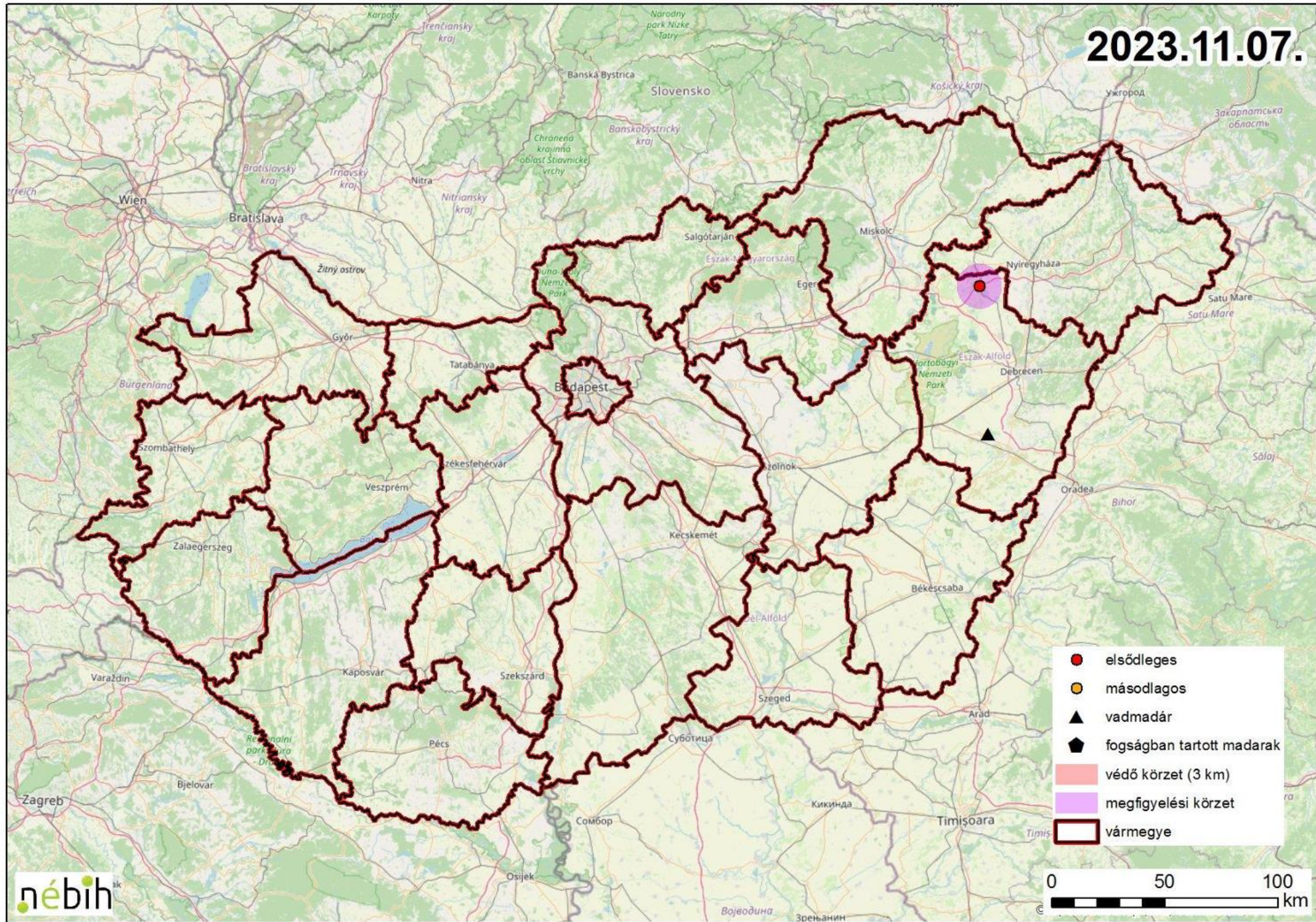


Source: Hortobágyi Nemzeti Park Igazgatósága.



Copyright: Csaba Barkóczy

2023.11.07.

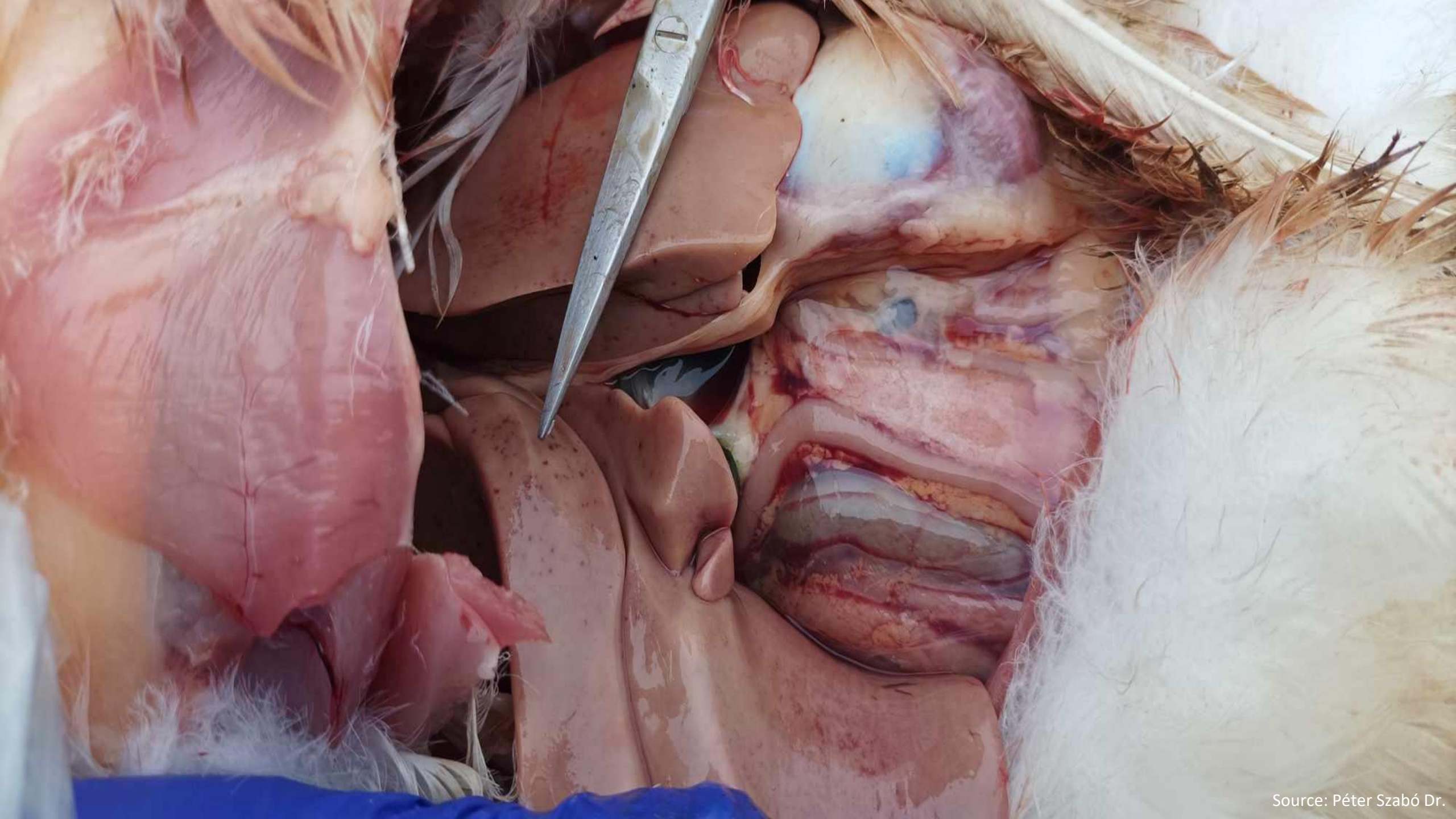


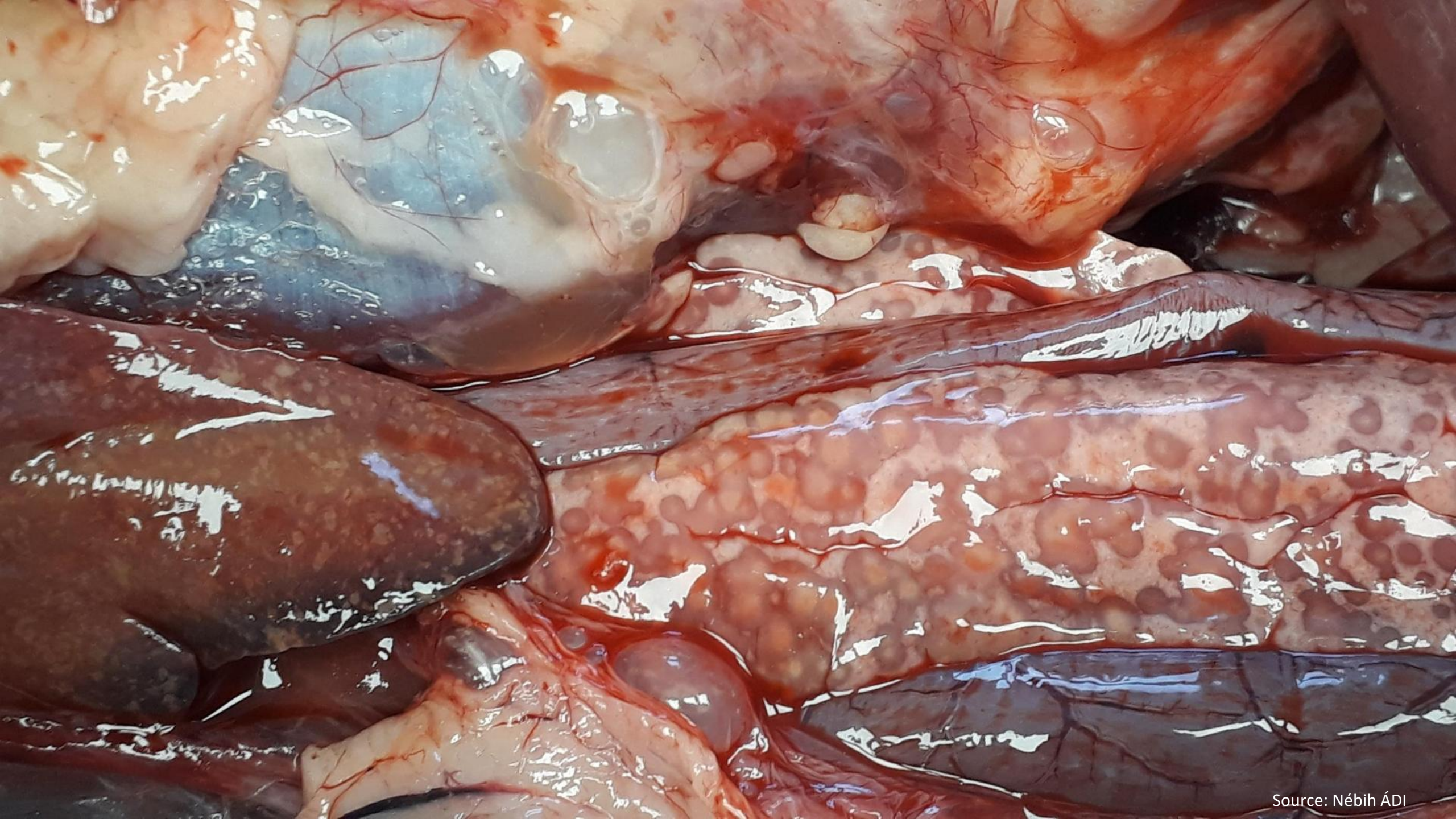
HPAI in Hungary winter 2023/2024

- ▶ Massive drop in feed consumption
- ▶ Drastic drop in egg production
- ▶ Lower water intake
- ▶ Higher mortality
- ▶ Silence in the barn
- ▶ Necropsy, petechial hemorrhages on visceral organs
- ▶ Necrosis in the pancreas

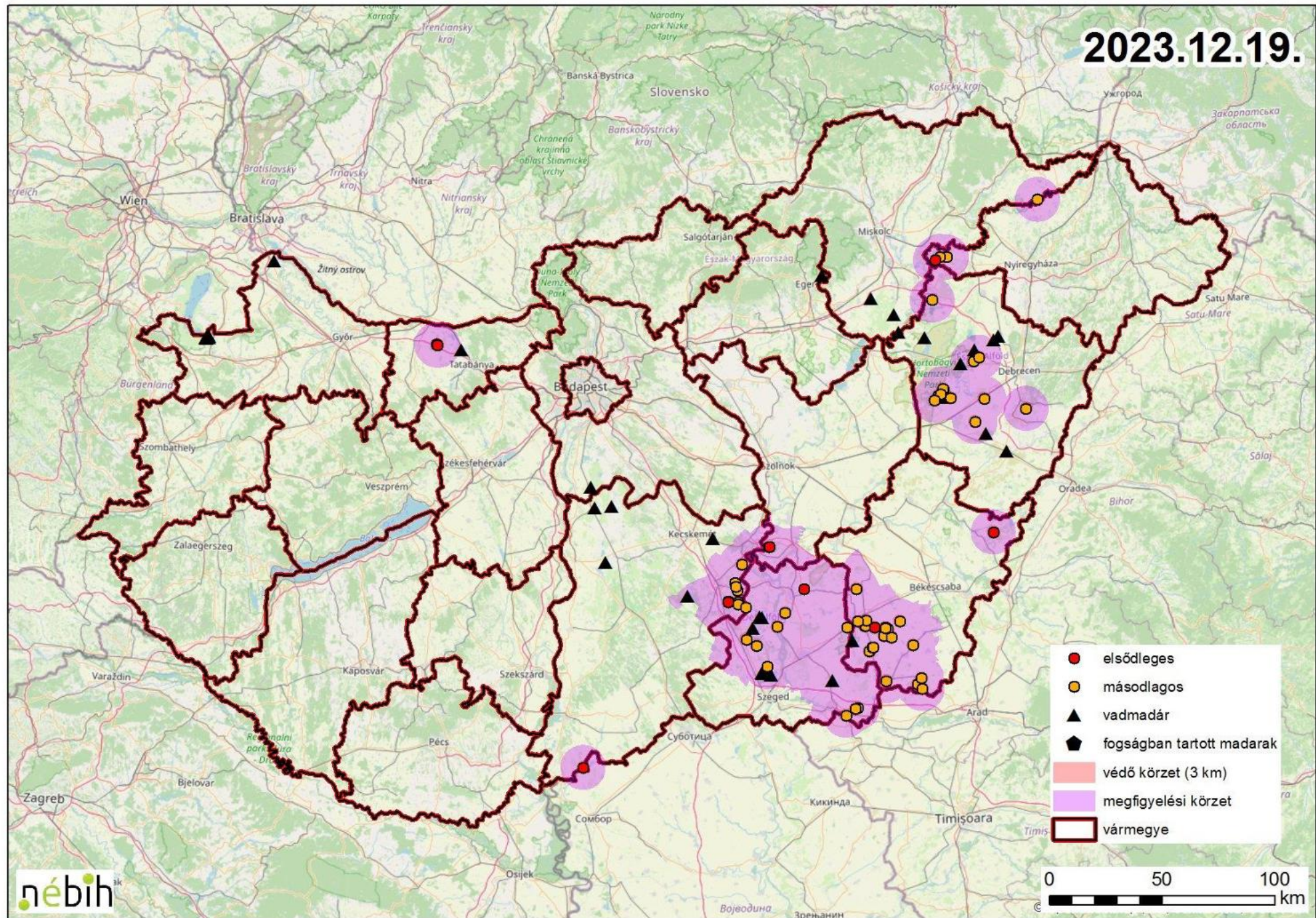




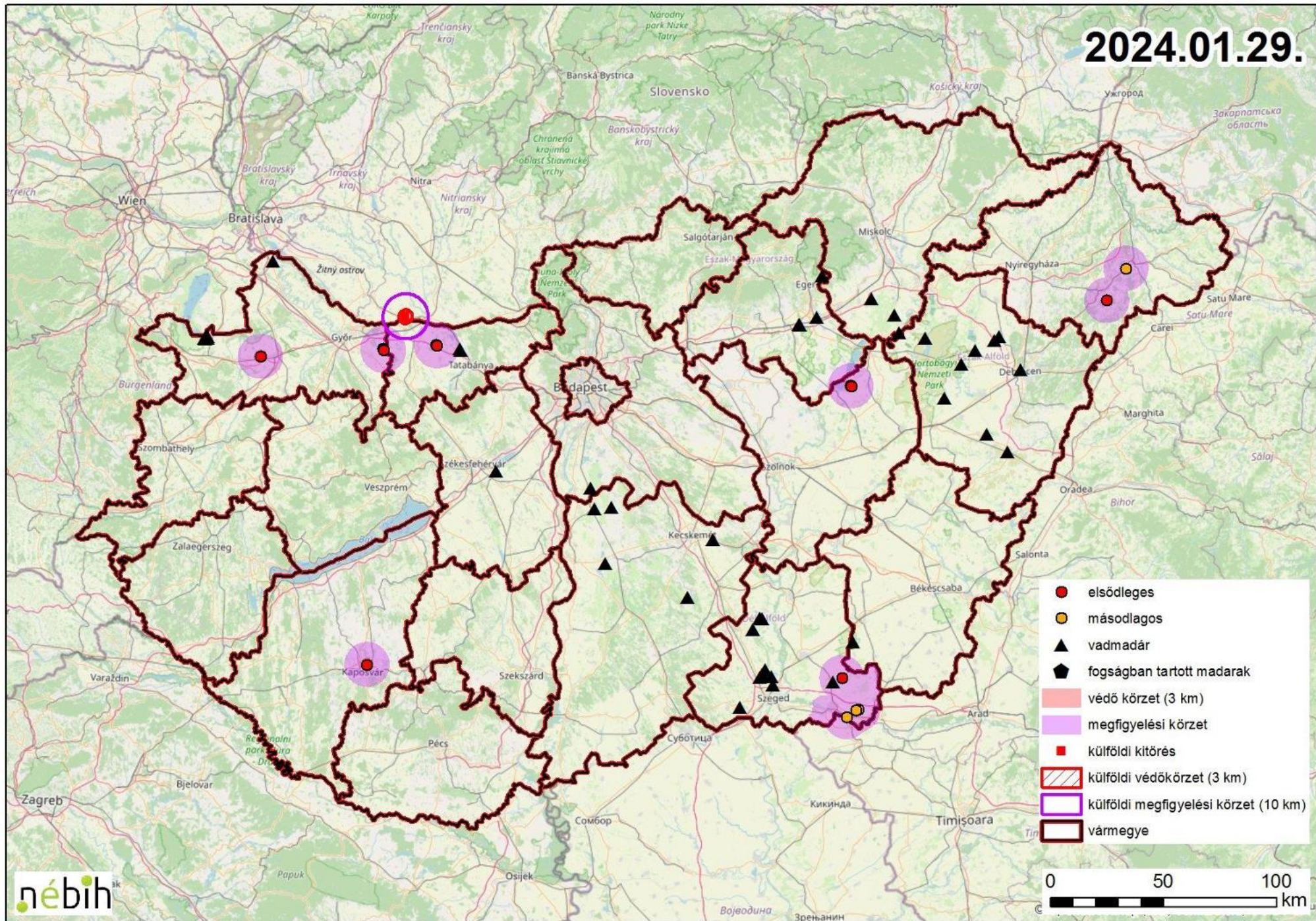




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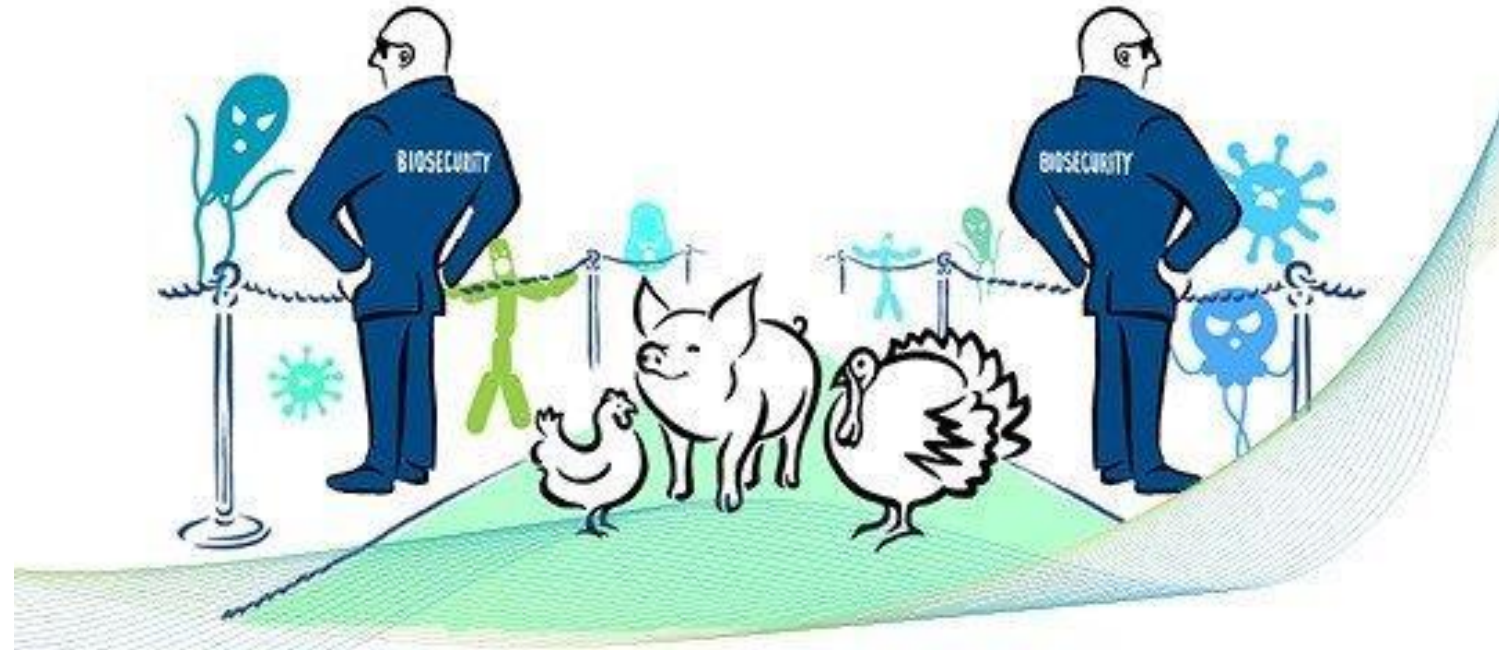


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Major biosecurity issues

- ▶ What is biosecurity?
- ▶ Compare to broiler chicken there are differences
- ▶ Rearing technology
- ▶ Litter material
- ▶ Uses and management of litter
- ▶ Personal hygiene



Source:<https://animaltech.tech.blog/>







Source: www.gruppocarli.com

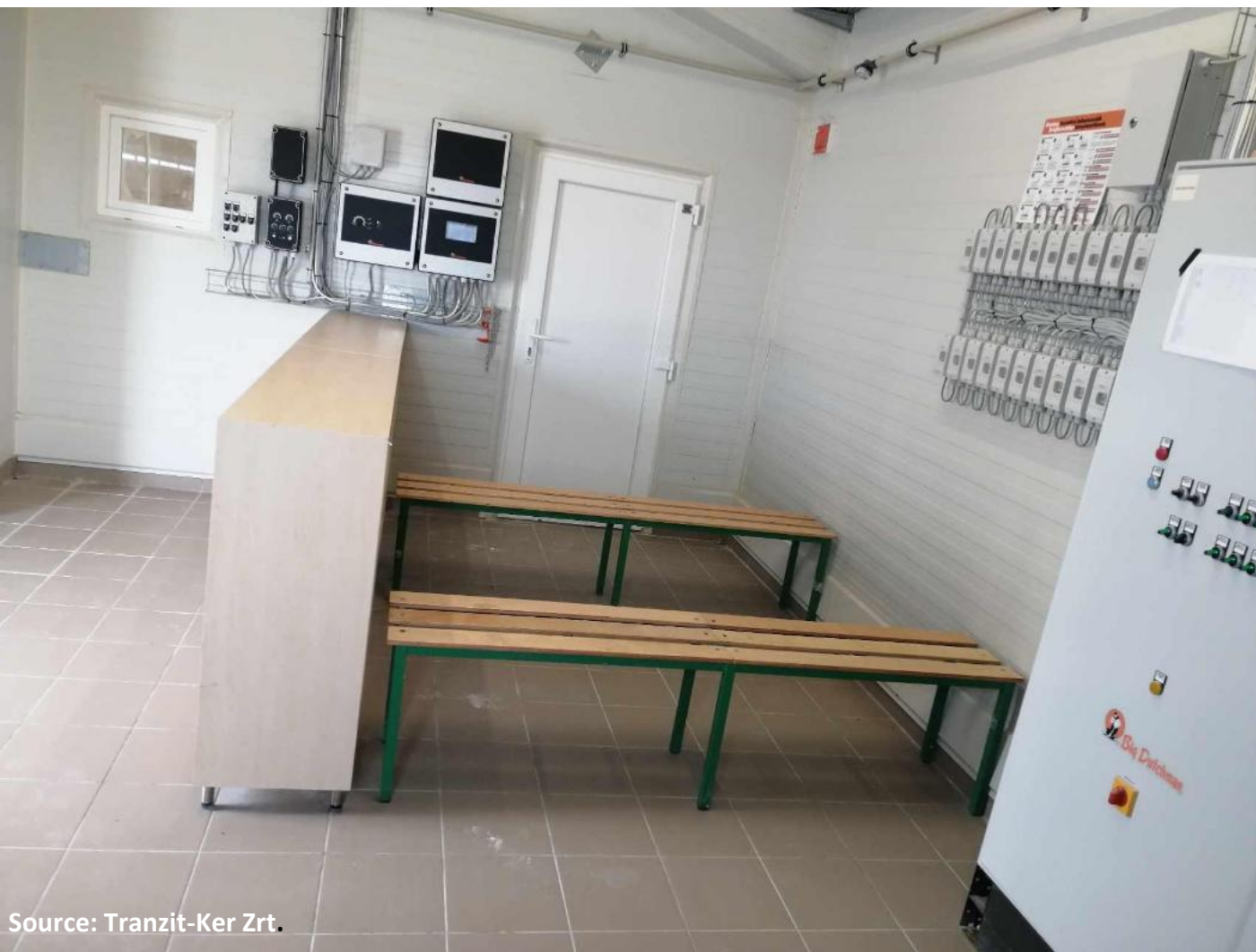
Source: Tranzit-Ker Zrt.











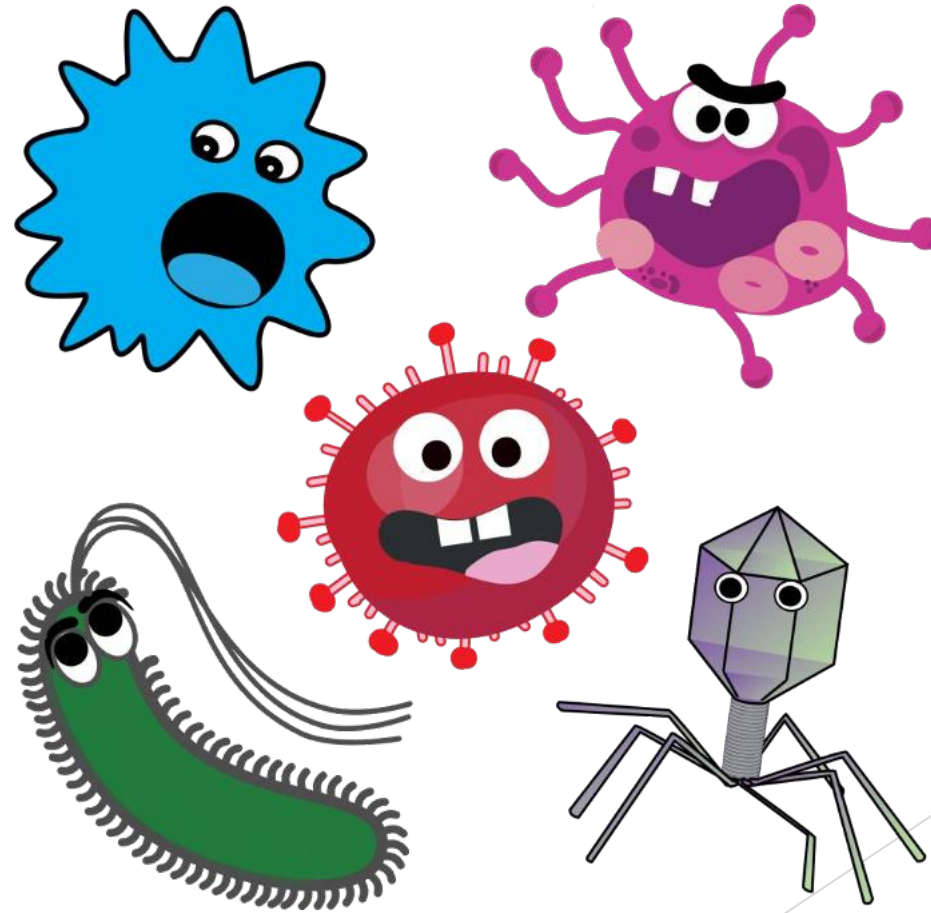
Source: Tranzit-Ker Zrt.



Source: Tranzit-Ker Zrt.

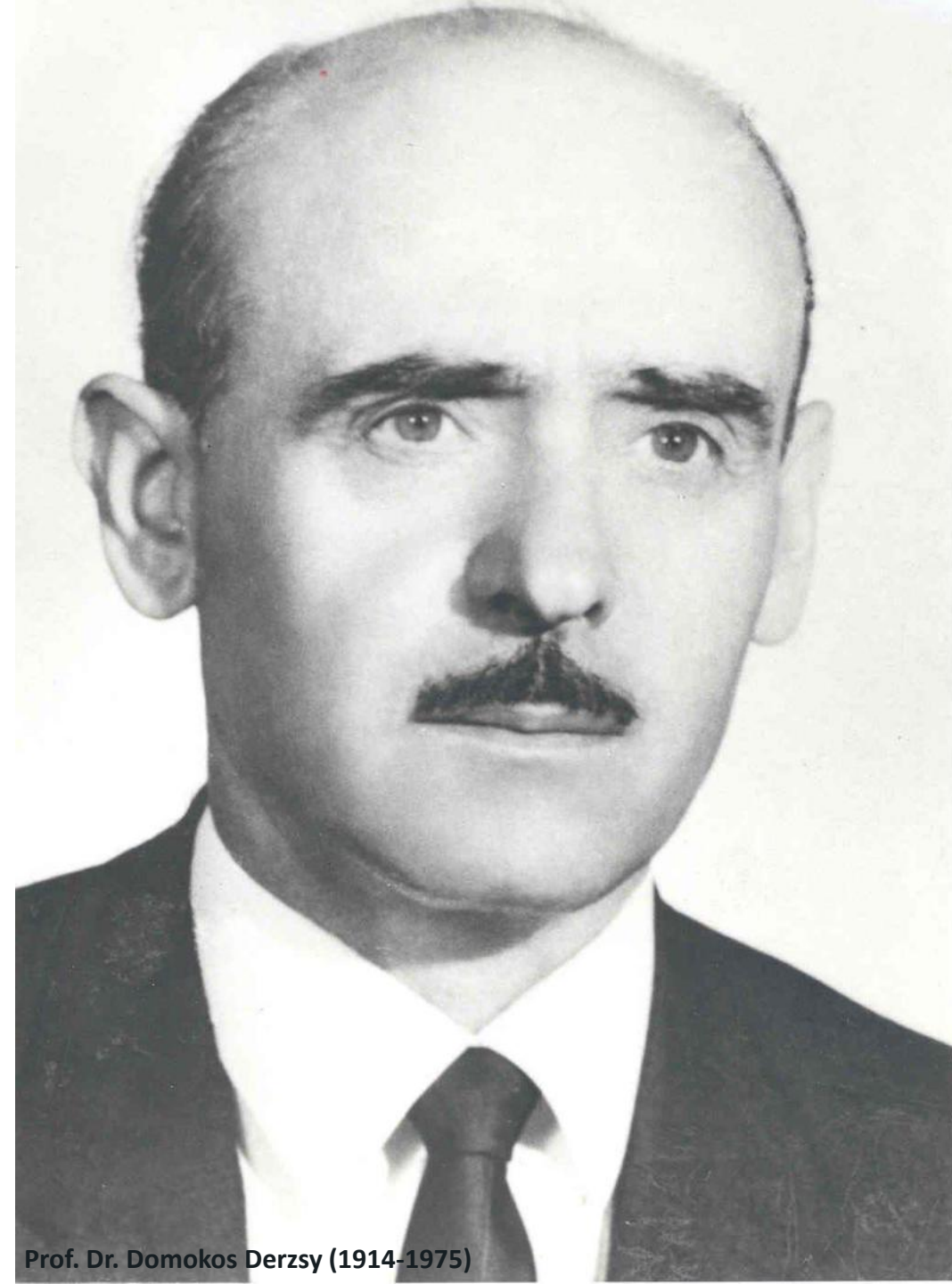
Major diseases in large scale waterfowl production

- ▶ Derzsy's disease
- ▶ Polyoma virus (HNEG)
- ▶ Circo virus
- ▶ Mycoplasmosis
- ▶ Aspergillosis
- ▶ Fowl cholera



Derzsy's disease

- ▶ The alpha and omega of large-scale goose farming
- ▶ Anseriform Dependoparvovirus 1.
- ▶ Small sized non-enveloped DNA virus
- ▶ Highly resistant in the environment
- ▶ In Hungary it was found and investigated by Prof. Domokos Derzsy's team in 1967.
- ▶ 1974 The World Poultry Association agreed to name the disease in geese as Derzsy's disease



Prof. Dr. Domokos Derzsy (1914-1975)

Derzsy's disease

- ▶ Vertical and Horizontal transmission
- ▶ Incubation period: 3-5 days in susceptible day olds
- ▶ Clinical signs: Depending on the age and the immune status of the goslings.
- ▶ The disease may be present in acute, subacute or chronic forms.
- ▶ Deaths mainly occur between the third and sixth weeks of age.
- ▶ Infection in the hatchery: 100% mortality



Gosling infected with goose parvovirus (GPV) showing weakness, prostration and loss of natal down. Source: Diseases of Poultry 14th edition

Derzsy's disease, Gross lesions

- ▶ Enlarged and congested liver
- ▶ Ascites with large volumes of strawcolored fluid in the abdominal cavity
- ▶ Pale and dilated heart
- ▶ Prolonged enteritic form of the disease is more and more common recently
- ▶ In Hungary it is mandatory to vaccinate the breeder flocks against the virus.

Enlarged and congested liver with fibrinous exudate on the surface, ascites, pale myocardium, and dilatation of heart (natural case). Source: Diseases of Poultry 14th, Dr. Vilmos Palya et al.





Gosling that survived the acute phase of the disease showing growth retardation and loss of feathers on the back and neck (natural case)
Source: Diseases of Poultry 14th, Dr. Vilmos Palya et al.



Enteric form of Derzsy's disease. Haemorrhagic necrotic enteritis with pseudomembrane formation in the small intestine.

Source: Diseases of Poultry 14th, Dr. Vilmos Palya et al.

Polyoma virus (Haemorrhagic nephritis enteritis of Geese, HNEG)

- ▶ Goose haemorrhagic polyomavirus (GHPV)
- ▶ Highly resistant to heat, drying and lipid solvent
- ▶ The disease has only been described in geese
- ▶ Ducks may be asymptomatic carriers
- ▶ Incubation time 6 to 15 days
- ▶ May remain subclinical for several weeks
- ▶ Clinical signs triggered by risk factors
- ▶ Clinical signs often develop in only a few hours before death



Gosling affected by hemorrhagic nephritis enteritis of geese (HNEG), showing edema and swelling of kidneys.

Source: Diseases of Poultry 14th edition

Polyomavirus (Haemorrhagic nephritis enteritis of Geese, HNGE)

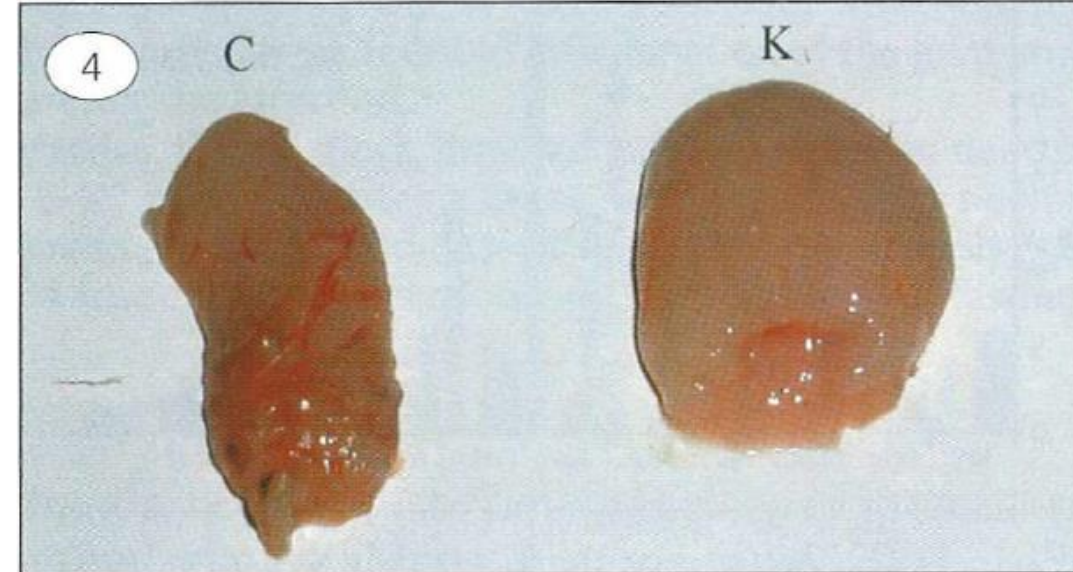
- ▶ Lameness, diarrhea, prostration
- ▶ Visceral gout, edema, swollen kidneys
- ▶ Diagnosis based on clinical signs and necropsy
- ▶ Histopathology: severe lymphocytic depletion of the Bursa Fabricii
- ▶ Immunosuppression caused by bursal lesions
- ▶ Secondary bacterial infections
- ▶ Only solution is the prevention
- ▶ Disease prevention is based on biosecurity
- ▶ Vaccine is available in Hungary



Secondary visceral gout following infection by polyomavirus. Source: Manual of Poultry Diseases

Circovirus

- ▶ Circo viruses are small non enveloped DNA viruses.
- ▶ Highly stable in the environment.
- ▶ Feathering problems, low weight gain.
- ▶ Absence of pathognomonic clinical signs.
- ▶ Histopathological changes in the bursa of Fabricius
- ▶ Immunsupression causes secondary bacterial infections
- ▶ Vaccine is not available
- ▶ Strict biosecurity rules are the solution



Atrophied bursa Fabricii from a 6 week old goose, infected by circovirus.
C: infected, K: control.
Source: MÁL, Dr. Vilmos Palya et al.

Mycoplasmosis

- ▶ *Mycoplasma anatis*, *M. anseris*, *M. cloacale* and *M. anserisalpingtonis*
- ▶ Small ones without cell wall, fragile ones
- ▶ Decreased Fertility, decreased egg production
- ▶ Phallus necrosis, oophoritis, salpingitis
- ▶ Stress Factors promote their damage
- ▶ Antibiotics are not a good solution
- ▶ Disease prevention is based on biosecurity
- ▶ Autovaccines trials are ongoing in Hungary



photo taken by DR. ÁKOS THUMA



Source: Tranzit-Ker Zrt.

Aspergillosis

- ▶ Aspergillosis is the most prevalent mycosis of birds
- ▶ *Aspergillus fumigatus* is the most common etiologic agent
- ▶ Affects primarily the lower respiratory tract
- ▶ Aspergillosis can be acute or chronic
- ▶ These organism are ubiquitous, soil saprophytes
- ▶ Dyspnea, polypnea, open-mouth breathing (gasping)
- ▶ Prevention is the most important thing
- ▶ We use a product contains iodine to treat the disease
- ▶ Antibiotics are contraindicated!



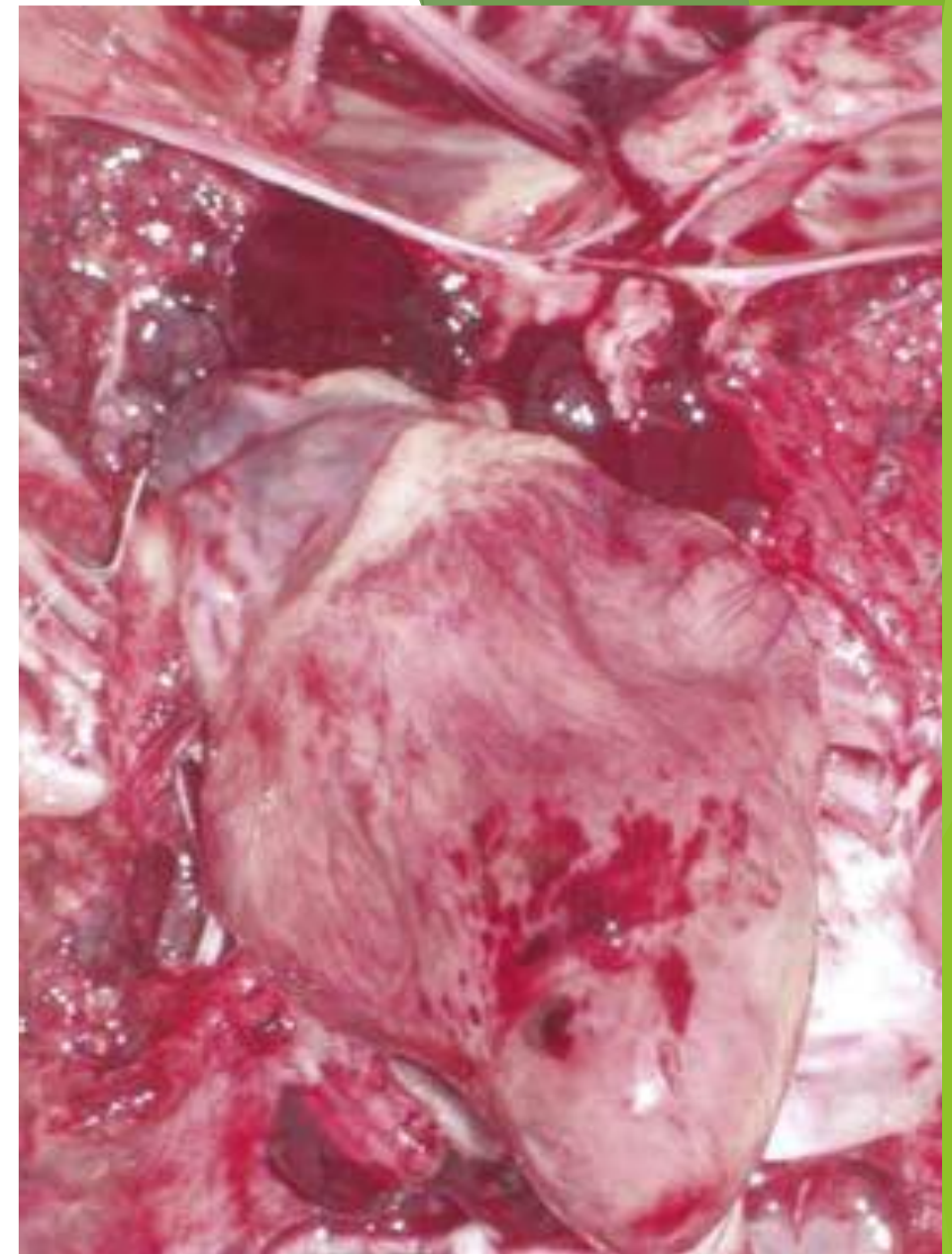
Aspergillosis in 1 week old goose
Source: Márton József Kiss Dr.



Source: Tranzit-Ker Zrt.

Fowl Cholera

- ▶ Pasteurella Multocida, Gram-negative bacteria
- ▶ All types of poultry are susceptible
- ▶ In geese, there is an age-dependent effect of the infection
- ▶ Wild birds and wild mammals can be sources of the disease
- ▶ Acute fowl cholera: sudden, unexpected deaths
- ▶ Enlargement of the liver and spleen, petechial hemorrhages
- ▶ Treatment will not eliminate *P. multocida* from a flock
- ▶ Strict biosecurity measures
- ▶ Autovaccines are effective against the disease



Acute fowl cholera. Multiple subepicardial petechial hemorrhages
Source: Manual of Poultry Disease

Vaccination Programme

- ▶ There are not too many commercial vaccines for waterfowls
- ▶ Autogenous vaccines are used widely
- ▶ There is only few registered vaccine for geese
- ▶ „Off label” use
- ▶ Most vaccines are given by injection
- ▶ Different disease compare to chicken
- ▶ Duck one year laying period
- ▶ Goose 4-5 year laying period



Duck parent stocks vaccination programme

day 0.: Salmonella (spray)

Day 8.: Riemerella Streptococcus (inoculation)

Day 15.: Riemerella Streptococcus (inoculation)

Week 7.: Salmonella (via drinking water)

Week 12.: Duck viral hepatitis (inoculation)

Week 14.: Fowl Cholera (inoculation)

Week 15.: Vermifuge (via drinking water) 5 days long

Week 16.: Salmonella (via drinking water)

Week 17.: Fowl Cholera (inoculation)

Week 18.: Riemerella Streptococcus (inoculation)

Week 19.: AmPV (inoculation)

After manure removal

Week 20.: Vermifuge (via drinking water) 5 days long

Week 21.: Salmonella inactivated (inoculation)

Week 22.: Duck viral hepatitis (inoculation)

Geese parent stocks vaccination programme

- ▶ Day 0.: Inactivated Parvo vaccine (inoculation)
- ▶ Day 1.: Live Salmonella (spray)
- ▶ Week 3.: Live attenuated Parvo
- ▶ Week 6.: Live attenuated Parvo
- ▶ Week 7.: Live Salmonella (via drinking water)
- ▶ Week 8.: Pasteurella+Erisypelas
- ▶ Week 10.: Pasteurella+Erisipelas
- ▶ Week 30.-32.: Transportation to the parent stock farm

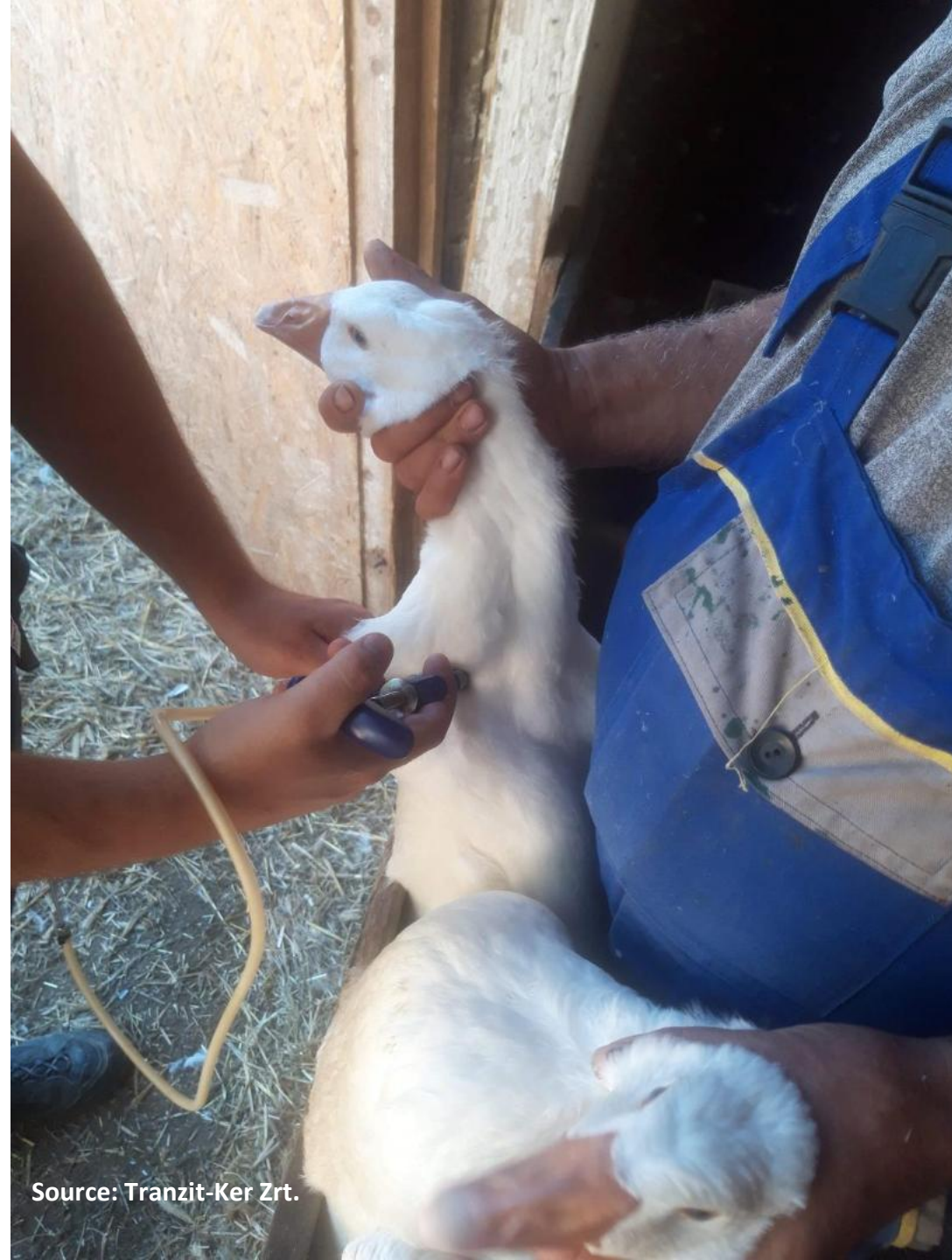
Geese parent stocks vaccination programme

- ▶ Before each production cycle
- ▶ 8 weeks before first eggs: Anthelmintic treatment
- ▶ 6 weeks before first eggs: Inactivated Parvo vaccine (inoculation)
- ▶ 4 weeks before first eggs: Live Salmonella vaccine (via drinking water)
- ▶ 3 weeks before first eggs: Inactivated Parvo vaccine (inoculation)
- ▶ 2 weeks before first eggs: Pasteurella + Erysipelas
- ▶ 1 weeks before first eggs: Live Salmonella vaccine (via drinking water)
- ▶ Week of first eggs: Pasteurella + Erysipelas
- ▶ 12 weeks after first eggs: Inactivated Parvo vaccine (inoculation)





Source: Tranzit-Ker Zrt.



Source: Tranzit-Ker Zrt.

Salmonella monitoring in waterfowl production

- ▶ Till now there is no mandatory eradication program
- ▶ Customers require the exemption in the products
- ▶ So we do the same as is mandatory in chicken and turkey
- ▶ We take samples from the parent stocks on a regular basis
- ▶ We take samples from commercial flocks prior to slaughter
- ▶ The problem is now more manageable thanks to vaccination
- ▶ Strict biosecurity is another crucial point
- ▶ It is more difficult in geese due to the applied rearing method



Conclusion/Take home messages

- ▶ Peking duck may be the new broiler chicken
- ▶ Geese are semidomesticated 😊
- ▶ We have to learn to live together with the AI virus
- ▶ Biosecurity is more important than ever
- ▶ Salmonella a very important topic

TAKE
HOME
HOME

References

- ▶ Manual of poultry Diseases
- ▶ Diseases of poultry 14th edition
- ▶ MSD Veterinary Manual
- ▶ Presentation of Dr. Vilmos Palya



Thank You for your attention!

