SEROPREVALENCE OF SALMONELLA SPP. IN PIGS FATTENING FROM WESTERN ROMANIA

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Salmonella genus represents the most common foodborne pathogens frequently isolated from food-producing animals that is responsible for infections in humans and different animal species. Some *Salmonella* serovars are restricted to one specific host commonly referred to as "host-restricted", whereas others have broad host spectrum known as "host-adapted" serovars. For example *S.typhy* is adapted to humans, *S.choleraesuis* to pigs, while *S.typhimurium* and *S.dublin* are two of the serovars known as "host-adapted" serovars infecting any vertebrate.

As previously mentioned, *S.choleraesuis* is a serotype adapted to swine, which causes the appearance of the systemic disease, with an increased percentage of mortality and low morbidity in young swine, but not in adults. Experimentally it has been shown that *S.typhimurium* infections cause the appearance of enteric syndromes, while *S.dublin* does not trigger any symptoms. Infection with other serovars are responsable by the appearance of the asymptomatic carriers, whose epidemiological role in the transmission of infection on the farm is well known. Moreover, such animals can develop serious enteritis when they are subjected to stress, as is for example, transport stress.

The impact of salmonella on public heatlh, for which swine are asymptomatic carriers, can not be ignorated. The consumption of pork meat is responsible for a significant number of outbreaks of salmonellosis in human individuals. From the total number of foodborne illness caused by salmonella, between 14%-22% are caused by the consumption of pork preparations.

Under these conditions, due to the zoonotic impact, it have been implemented control programs, applied both at farm level and in slaughterhouses, programs that vary from one country to another. Currently, at the farm level, control programs consist of bacteriological or serological examinations, or a combination of the two diagnostic methods.

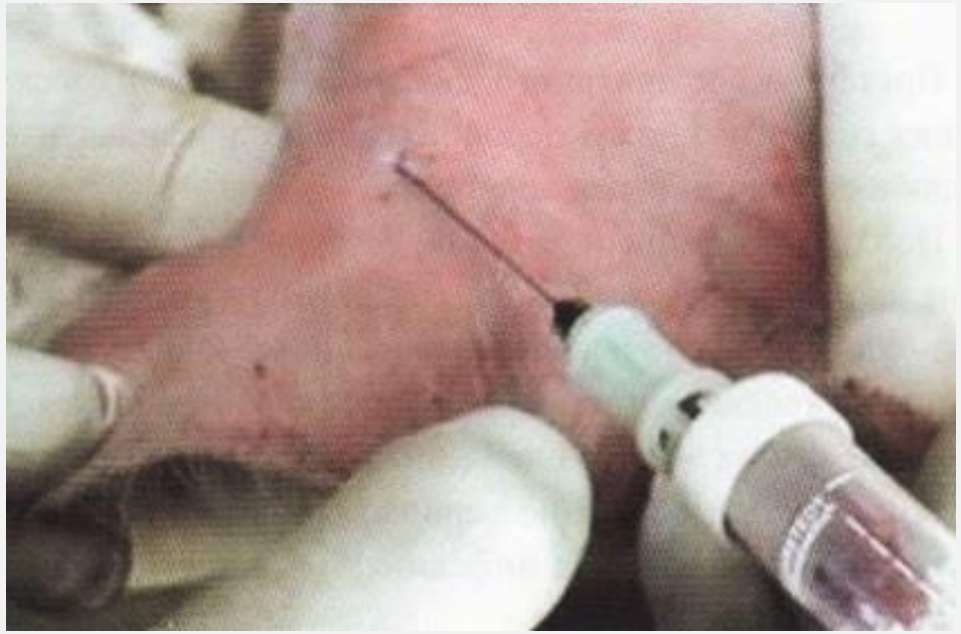
THE PURPOSE OF THE PAPER

- All over the world, due to the intensive growth of pigs, salmonella infections are being given special attention on the one hand due to the economic losses on farms, and on the other hand due to the epidemiological risk of healthy carriers that can transmit disease to humans.
- The purpose of this paper was to perform a serological screening on farms in western Romania, to confirm or deny the presence of infection in the studied area, and to highlight the epidemiological dynamics of postinfectious antibodies by age.

MATHERIALS AND METHODS

- To determinate the antibodies against *Salmonella*, **277 serum samples from pigs aged between 45 and 180 days were studied, from 8 pig farms**, located in 3 counties of the western Romania: Arad (2 farms), Timiș (5 farms) and Caraș-Severin (1 farm).
- The sanitary-veterinary records of these farms shows that there have been frequent clinical cases of diarrhea, associated with enteritis lesions.

Blood samples were collected by venipuncture method (auricular or jugular vein puncture). For expression of the serum it was used tube collections without anticoagulant.



The samples were marked according to their origin, as is followed:

- ***The samples from Arad farms were marked with the A1 and A2,***
- ***The samples from Timiș farms were marked with T1, T2, T3, T4, T5,***
- ***The samples from Caraș-Severin farm were marked with C1.***

Within each farm, the samples were grouped according to the age category of the pigs, in three categories:

- ***the group of 45-90 days pigs ,***
- ***the group of 91-140 days pigs***
- ***the group of 141-180 days pigs.***

- The collected serum samples were processed by ELISA technique, using the Idexx Swine Salmonella Ab Test kit, capable of detecting antibodies from serum, plasma or meat juice.

The samples were read with the TECAN Sunrise reader (Magellan-Austria) (measurement and reading of the absorption values at 650 nm), and the Xcheck Software v.3.3 program was used to interpret the results. (IDEXX Laboratories Switzerland).

Interpretation of results

The cut-off values applied consisted of:

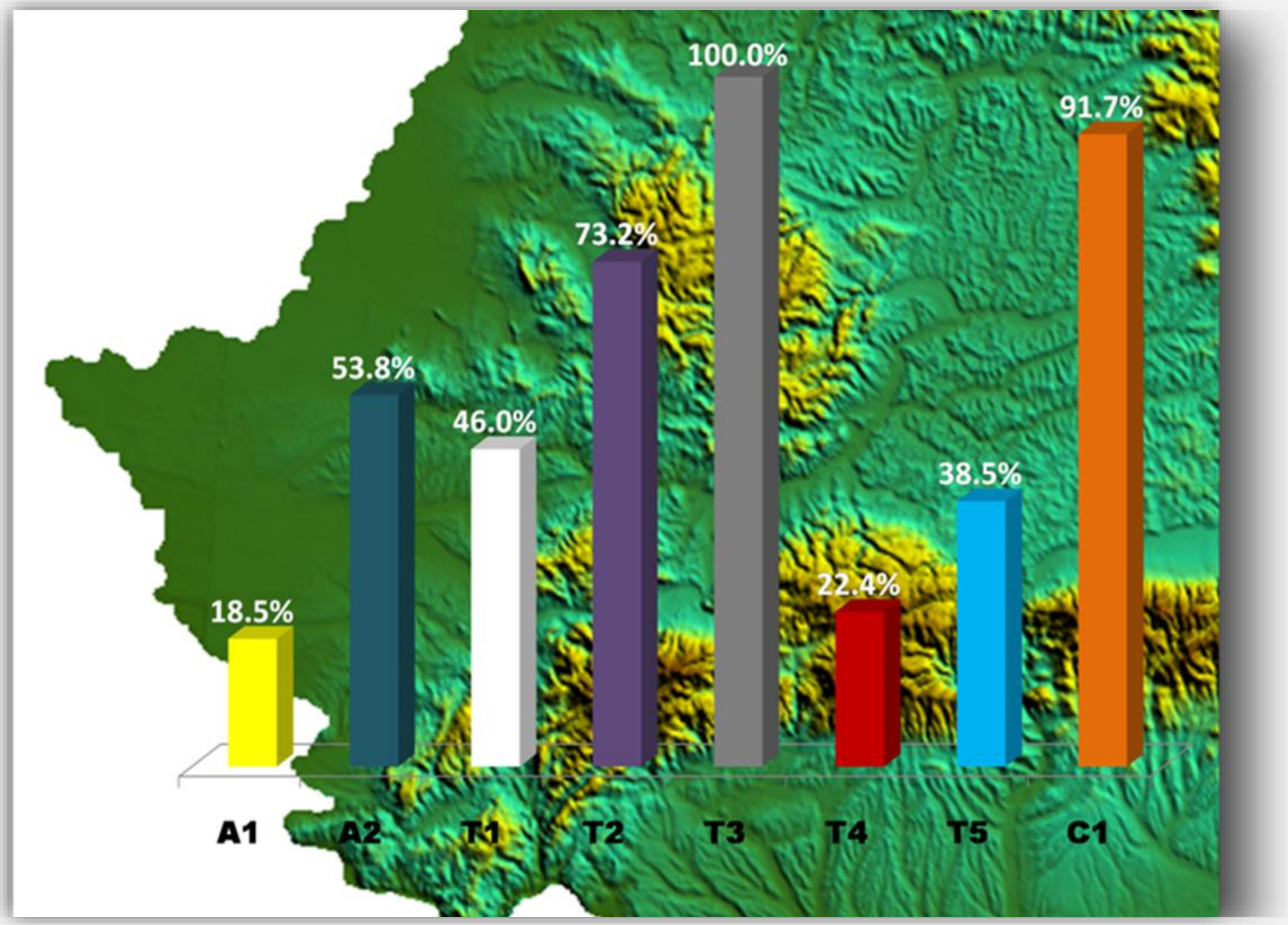
- Samples with OD values less than 15% are considered negative.
- Samples with OD values equal or greater than 15% are considered positive.

RESULTS AND DISCUSSIONS

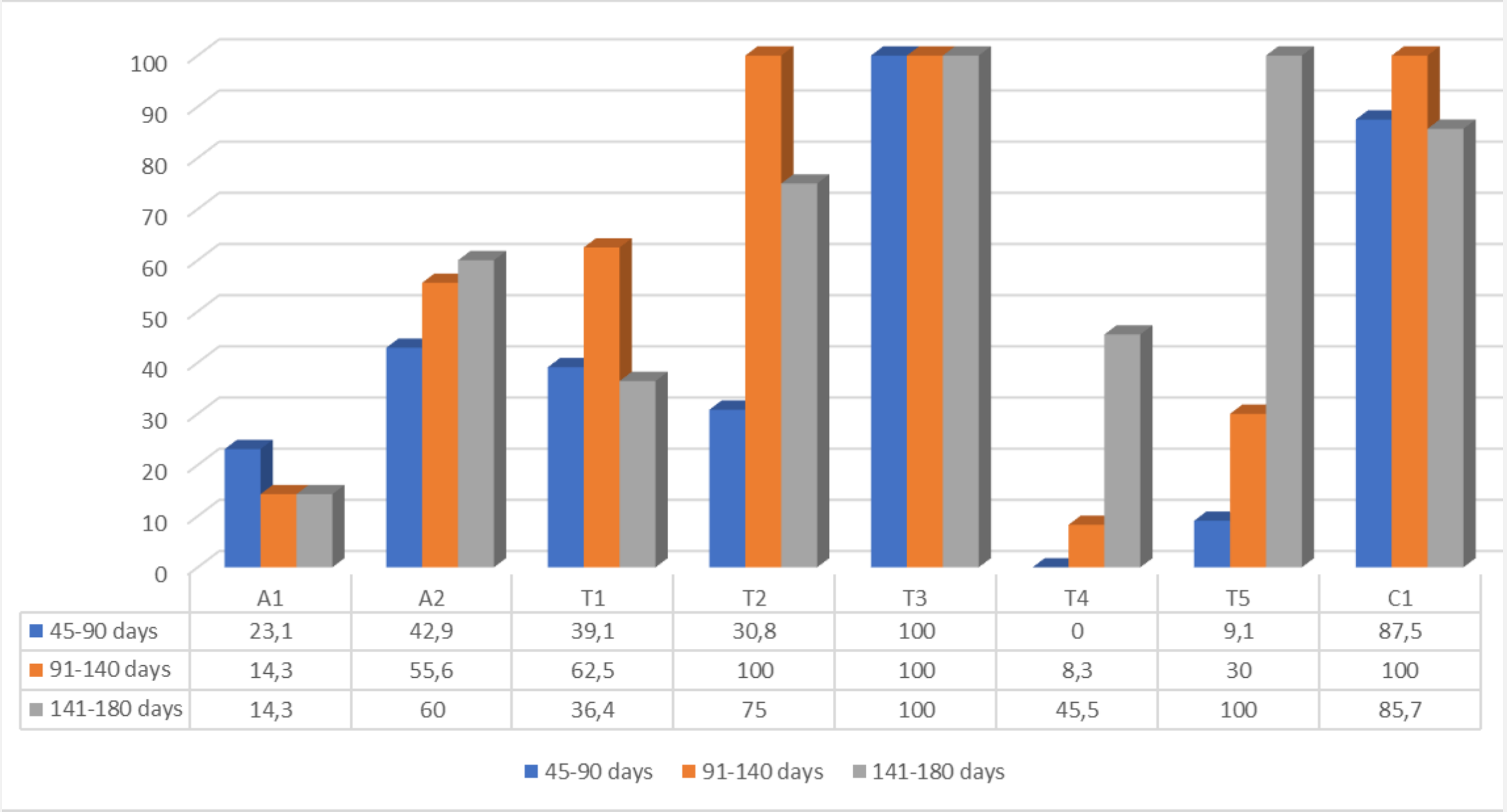
- The present research allowed the identification of *Salmonella spp.* infection in all studied farms, belonging to the Timiș, Arad and Caraș-Severin counties. Seroprevalence had different values, for each farm (ranged from 18.5 to 100%), as it seen in the following table.

Farms	Number of examined samples	Number of positive samples	% positive samples
A1	27	5	18,5
A2	26	14	53,8
T1	50	23	46,0
T2	41	30	73,2
T3	21	21	100,0
T4	49	11	22,4
T5	39	15	38,5
C1	24	22	91,7

Seroprevalence of *Salmonella* spp. infections, for each studied farm

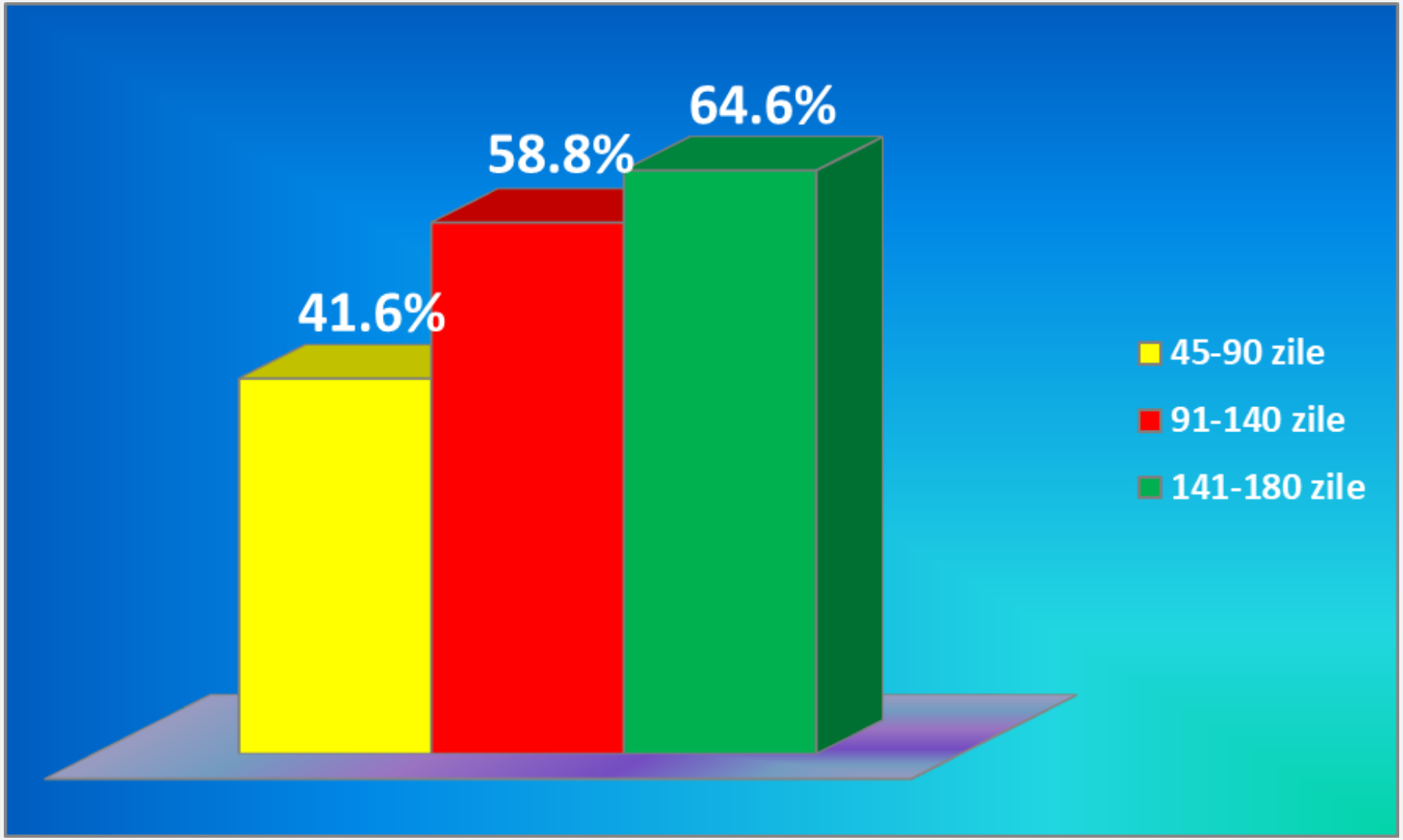


Seropositivity percentage of Salmonella spp. infection. in pigs, on farms and age categories



	A1	A2	T1	T2	T3	T4	T5	C1
45-90 days	23,1	42,9	39,1	30,8	100	0	9,1	87,5
91-140 days	14,3	55,6	62,5	100	100	8,3	30	100
141-180 days	14,3	60	36,4	75	100	45,5	100	85,7

The average of seropositivity percentage for *Salmonella spp.* in pigs, by age categories



CONCLUSIONS

- Using the enzyme-linked immunosorbent assay, it was identified the presence of *Salmonella* infection in all eight pig farms where enteropathies have been reported immediately after weaning.
- The seroprevalence values of *Salmonella* infection varied from farm to farm (18.5%- 100%).
- The dynamics of seroprevalence regarding Salmonella infection was ascending from one age category to another, with values of 41.6% at the age of 45-90 days, of 58.8% at the 91-140 days age category and increased to 66.5% at the age category of 141-180 days.

Thank you for your attention!