FERTILIZATION FAILURE IN HEIFERS INFECTED BY UREAPLASMA DIVERSUM
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Ureaplasma diversum is an opportunistic pathogen in cattle, but colonization of the respiratory tract by this ureaplasma, and its carriage in the reproductive tract may lead to the serious diseases. It also may be the cause of abortion and stillbirth in cattle.

The aim of this study was to estimate the fertilization effectiveness of in heifers into relation with U. diversum carriage in the vulval vestibule. All 20 heifers in the study group were from the same dairy farm from Leningradskaya oblast. The samples were collected from the vulval vestibule by cotton swab. At the sample collection vulvar mucous appearance was estimated. The U. diversum carriage was detected by real-time PCR assay with diagnostic system “Ureaplasma diversum Amp” (St. Petersburg Institut Pasteur, Russia).

In the group of 20 heifers, 13 had symptoms or granular vulvovaginitis, including yellowish-gray pustules on the mucous. No other reproductive disease symptoms were detected in any heifer. The carriage of U. diversum was detected in 14 animals. The granular vulvovaginitis is commonly associated with U. diversum carriage in heifers and cows, but the symptoms of this disease are nonspecific and frequently may be associated with other diseases, for example with bovine rhinotracheitis, that is very widespread in cattle. No association was detected between granular vulvovaginitis symptoms and U. diversum carriage in study population.

The effectiveness of fertilization was estimated in all heifers. The average number of inseminations leads to fertilization in heifers without carriage was 1.2, but in infected heifers it was 1.9, and the difference between two groups was statistically significant (t = 0.36; p < 0.002). The fertilization failure was more frequent in heifers with U. diversum carriage. Twelve heifers from this group were fertilised at first insemination, two heifers in the same group were fertilized at second insemination and one heifer was inseminated six times before fertilization. Into the group without U. diversum carriage all but one of heifers were fertilized in the first insemination an one heifer in second insemination.

The loss in fertilization effectiveness leads to the economic burden in dairy farms due to costs of repeated inseminations and animal management. The appropriate diagnosis of U. diversum carriage in heifest may improve dairy farm productivity.

ANTIMICROBIAL RESISTANCE MECHANISMS IN BACTERIA STRAINS ISOLATED FROM FARM ANIMALS
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The aim of the work was to study the quinoline and β-lactamase resistance mechanisms in Salmonella and opportunistic bacteria strains isolated from farm animals.

We determined the quinolones and β-lactamases resistance in 152 Salmonella and 144 strains of opportunistic bacteria (E. coli, Klebsiella spp.). For 6 Salmonella strains (3 S. Enteritidis and 3 S. Infantis), resistant to fluorquinolones the mutations in the QRDR region of gyrA gene were detected by amplification and sequencing of this DNA region (Kosyrev et al., 2012). The extended-spectrum β-lactamases (molecular classes A and C) were determined by PCR with specific primers (Dallen et al., 2010). 132 strains of Salmonella were resistant to quinolones (27.4%), 41 of them (8.5%) had high level resistance to ciprofloxacine (MIC 6–32.0 mg/l). Sequencing of the gyrA of some resistant Salmonella isolates have been identified three types of single point mutations. In two S. Enteritidis the mutation was noted in 83 position (Serine replacement by Phenylalanine), in one strain — in 87 position (Asparagine replacement by Glycine). Three S. Infantis strains had the replacement of Asparagine by Tyrosine in 87 position.