

## The effects of preparation Polyferon on the productive performance and meat quality in broilers

Abstract ID: 121

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The trial was performed in the Institute's vivarium to evaluate the effects of immunomodulator Polyferon (Materia Medica, Russia) on the productive performance and meat yields and quality in Ross-308 broilers. The birds (35 per treatment) were reared in cage batteries R-15 (Russia) from 1 to 37 days of age. In control treatment 1 drinking water for broilers contained no additives; in experimental treatment 2 the water was supplemented with Polyferon (to achieve daily doses 0.005 g/bird from 1 to 22 days of age and 0.010 g/bird from 22 to 37 days). Live bodyweight in treatment 2 was significantly higher compared to control (by 6.7%,  $P < 0.05$ ). Mortality level in this treatment was 0% while in control 2.9%. The yield of eviscerated carcass in treatment 2 was 73.8%, higher by 1.5% compared to control; percentage of high-quality carcasses higher by 5.1%. There were no differences between the treatments in relative weights of liver, heart, gizzard, lungs, and kidneys; all the organs were well developed, no symptoms of pathological changes were found. The yield of edible carcass cuts was higher in Polyferon-treated broilers (82.5 vs. 81.2% in control), mainly due to higher muscle yield (63.7%, higher by 1.2% compared to control). Bone yield in treatment 2 was lower by 0.54%; yield of inedible carcass parts in treatment 2 was also lower compared to control. There were no differences between the treatments in chemical composition of breast and thigh meat. It was concluded that immunomodulator Polyferon in drinking water for broilers (0.005 g/bird from 1 to 22 days of age and 0.010 g/bird from 22 to 37 days) decreases mortality, improves live bodyweight and meat yields.

**Keywords:** Broilers, Feed conversion ratio, Live bodyweight, Meat yield, Mortality

## Development of cryopreservation protocols of Copper turkey's semen

Abstract ID: 259

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Successful cryopreservation of Copper turkey's semen has importance in gene conservation and breed protection. Since the number of our indigenous turkey breeds, along with the other endemic poultry species, has declined drastically, they are included in *in vivo* and *in vitro* gene conservation projects. Since the existed differences in their tolerance for cryopreservation, different species require species – or even breed-specific freezing protocols. The aim of our research was to develop a freezing protocol that allows us the efficient storage of Copper turkey's semen. We tested different freezing protocols which efficiency was tested by *in vitro* methods. We used Lake's diluent and dimethyl-acetamide as cryoprotectant in a final concentration of 6%. Freezing/Thawing protocols: 1. Programmed, dynamic freezing in straw, from +5°C to -35°C, with the rates of -7°C/minute, then to -140°C with the rate of -20°C/minute. Thawing of the 0,25 ml straw was done at 5°C and 60°C (1/A, 1/B) 2. Static freezing in 0,25 ml straw, holding it at 1 cm above the surface of liquid nitrogen for 10 minutes, thawing was done at 5°C and 60°C. (2/A, 2/B) 3. Pellet method: 25 µl of diluted semen was directly dropped into liquid nitrogen, thawing was done at 65°C by a special thawing instrument (3). We got the highest rate of live, intact sperm (22,8%) and survival (29,2%) in the case of static freezing, followed by thawing at 5°C (2/A), although the rate of live, but morphologically abnormal cells was the highest (19,6%) in this case too. Among the morphological abnormalities midpiece disorders dominated both in fresh and thawed samples. After thawing, the rate of morphologically abnormal cells decreased in almost all cases, which suggests that abnormal cells are less tolerant against the process of freezing/thawing. The rate of acrosome-degenerations was higher as well after freezing, which were the most prominent in the case of pellet-method (from 0,08% to 2,6%). To determine the true fertilizing ability of thawed spermatozoa, we are planning artificial insemination tests, so after obtaining those results we can start the efficient storage of Copper turkey's semen in gene bank environment.

**Keywords:** Cryopreservation, Gene conservation, Sperm, Turkey