S07(T)-PP-08

Evaluation and application of an elISA pregnancy test in cows milk

Andreja Babić, Nataša Pintić Pukec, Željko Hrg Matušin, Nina Krnjak, Danijela Stručić
Center for Quality Control of Livestock Products, Croatian Agency for Agriculture and Food, Križevci, Croatia

The milk pregnancy test is an enzyme-linked immunoassay for the detection of pregnancy-associated glycoproteins (PAGs) in milk samples from cattle. Test confirms pregnancy status from 28 days post breeding and 60 days post calving. The test is not long lasting respectively for less then 3.5 hours it can be tested up to 184 samples. The test is negative if the PAGs are < 0.100 and positive if the values are ≥ 0.250. For values ≥0.100 and <0.250 the test is positive only in cows where the sample is taken 45 days minimal or more after the insemination otherwise they are in re-check zone. This test enables producers to identify open animals to ensure re-breeding in a timely manner to maximize milk production and profitability. In this study we aimed to evaluate and show the application of commercially available ELISA pregnancy test in milk of lactating cows. For this purpose preserved DHI samples collected for regular DHI control were tested. Samples were delivered to the laboratory mostly from northwest and east Croatia preserved and cooled at 4 to 8°C. During period from October 2017 till January 2019 total of 6528 samples were tested of which 72% were positive and 1% were in re-check zone. On the other way evaluation of milk pregnancy test was based on method validation parameters. For this purpose performance of ELISA milk pregnancy test was conducted at different PAGs levels. Obtained results showed good repeatability (RSD=max to 7.36%) and intermediate precision (RSD=0.15% to 34.07%). The test was sufficiently sensitive, specific (σ=0,003) with excellent recovery. The detection limit and quantification limit were 0.001 and 0.079 respectively and estimated uncertainty was 13.19%. Using test with DHI samples it could be concluded that the test is very convenient and useful tool for achieving reproductive management programs on the farms and should be integrated as routine monitoring of pregnancy.

Keywords: milk, cow, pregnancy, ELISA, PAGs