Treatment of egg apex abnormalities (EAA) caused by *Mycoplasma synoviae* with Denagard® and Tylan™ in the field

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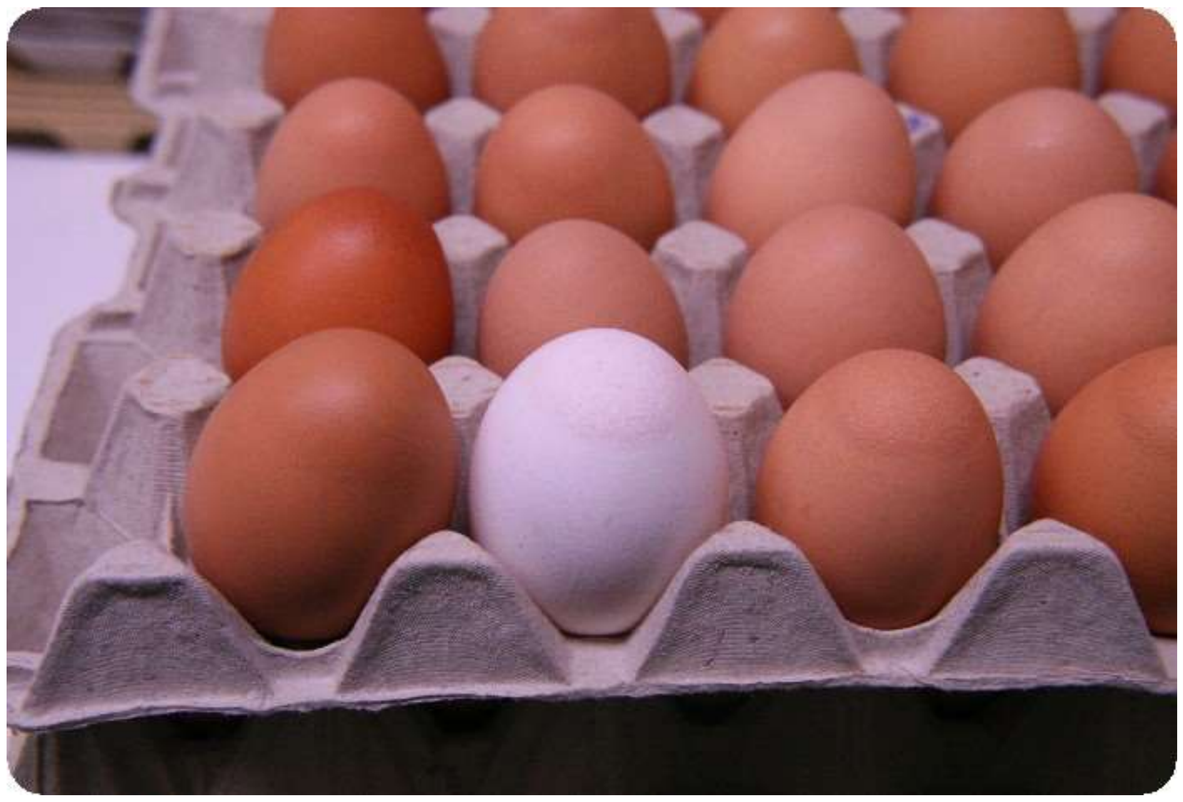
INTRODUCTION

Mycoplasma synoviae (MS) is a common pathogen of layers and breeders and the infection is responsible for different clinical signs according to the strain involved. In recent years, egg apex abnormalities (EAA) have been associated with certain strains of MS (1) which colonise the chicken's reproductive tract and causes a typical deformation of the egg shell. This malformation is associated with an increase in brittleness and cracking of the shell and thus results in an increase in the number of eggs that are downgraded or discarded, causing financial losses. This condition has been reported in many countries in Europe, including Italy (2, 3) and according to the pathogenicity of the strain involved and concurrent virus infections, the percentage of eggs bearing the defect may vary substantially (1, 4). It is the purpose of this paper to compare the efficacy of tylosin (Tylan™ – Elanco) and tiamulin (Denagard 45% WSG®- Elanco) for the treatment and control of EAA.



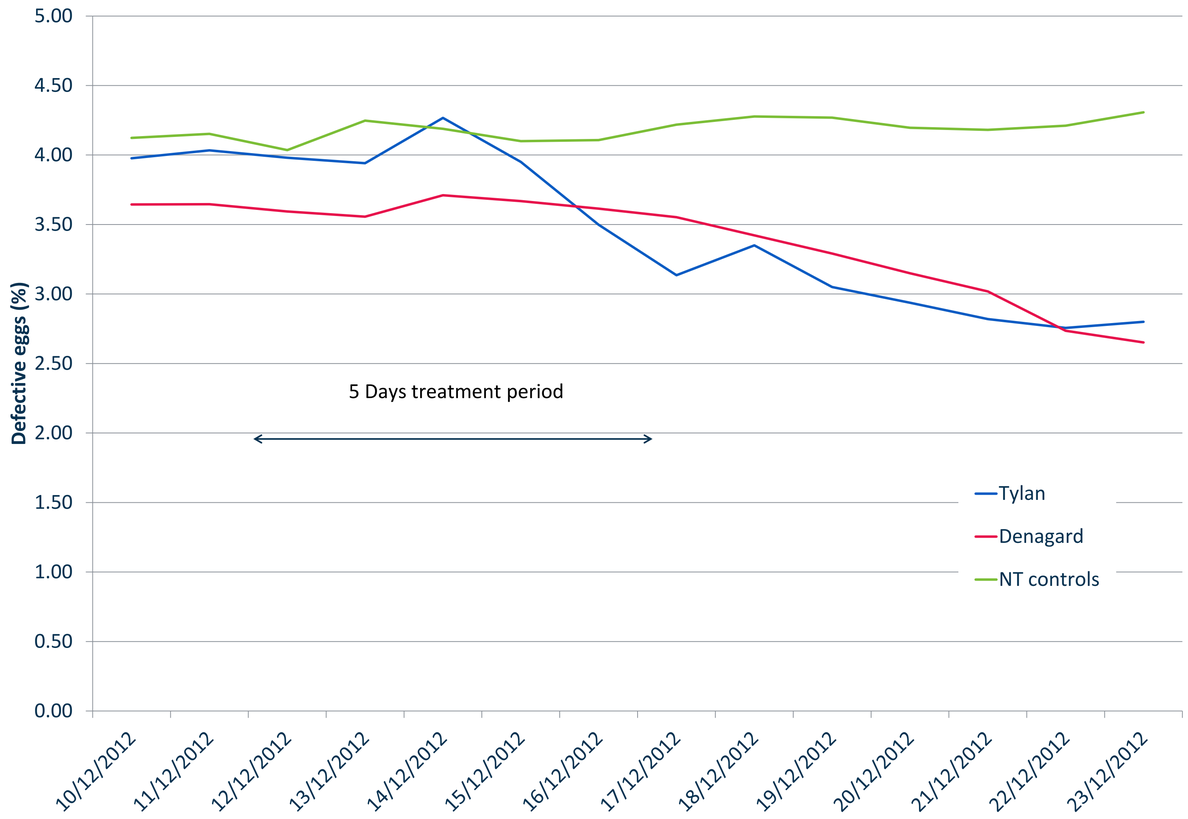
MATERIALS AND METHODS

The trial was carried out on a commercial layer farm located in Emilia Romagna (Italy) which was infected by *M. synoviae*. It started in December 2012 and lasted until March 2013. The infection was recurrent on the farm and confirmed by the local diagnostic service by ELISA test. The purpose of the trial was to evaluate and compare the efficacy of tylosin and tiamulin for the treatment of EAA in comparison with a flock of non-treated controls. Three flocks of Isa Brown layers kept in barns, with a similar age of 60 weeks, were used in the trial. The number of birds in each flock was different but they were reared at the same density (9 birds / m^2). Egg production was normal, as well as the egg weight in all of the three groups. Nevertheless, the percentage of discarded eggs was higher than the breed standard resulting in 3.6 – 4.2% of eggs bearing EAA. Barn 1, with 3,740 hens, was the untreated control; Barn 2, with 15,144 hens, was given treatment with Denagard 45% WSG at 250ppm tiamulin hydrogen fumarate. Barn 3, with 6,543 hens, was given treatment with Tylan at 500ppm tylosin tartrate. The two treatments were provided via medicated water for 5 days, starting on the same day. The total number of eggs laid and the number/percentage of eggs affected by EAA were recorded on a daily basis for 14 days, starting two days before the beginning of the treatment. After the first 14 days, data were recorded on a weekly basis for the following 13 weeks.

RESULTS AND DISCUSSIONS

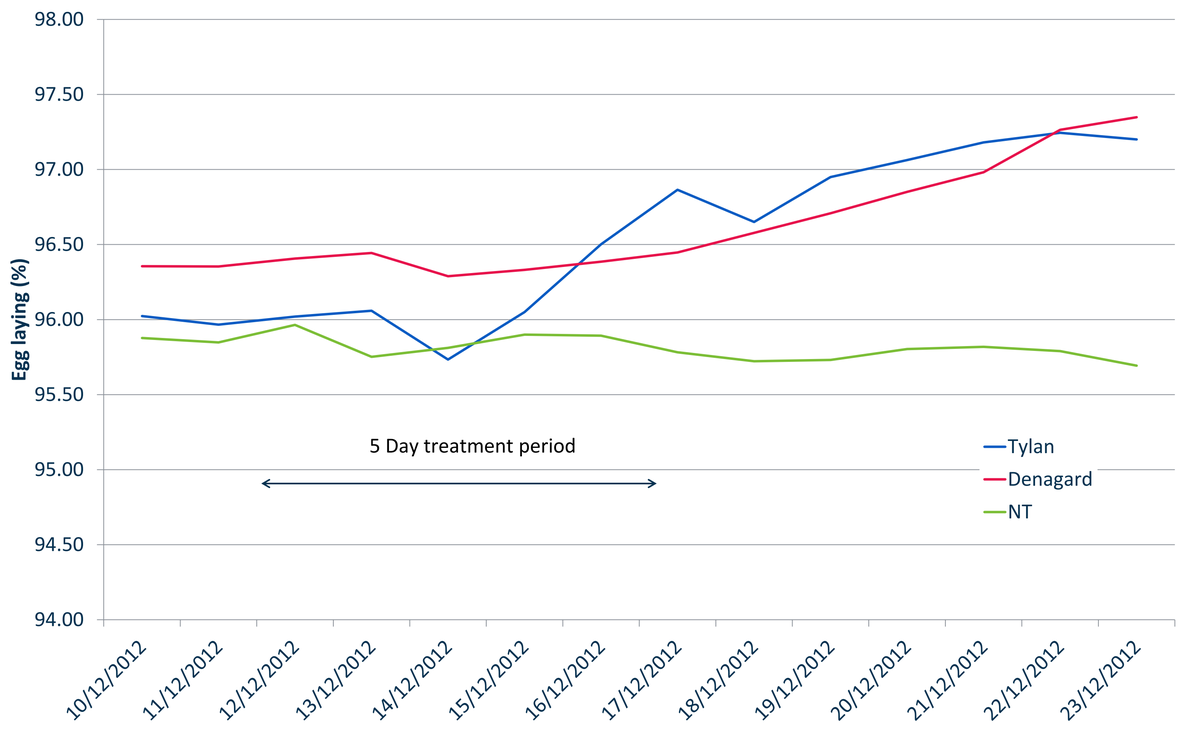
During the first 14 days Group 1 (untreated control) EAA affected eggs remained approximately the same, starting at 4.14% affected and was 4.31% (+0.17%) at the end. The tiamulin treated flock (Group 2) started at 3.65% and finished at 2.65% (-1.0%) and the tylosin treated flock (Group 3) started at 4.01% and improved to 2.80% (-1.21%) (see Figure 1).

Figure 1: Treatment of EAA in layers with tiamulin (Denagard) and tylosin (Tylan) in comparison with non-treated (NT) controls



The percentage of eggs laid also increased in the tylosin and tiamulin treated groups (see Figure 2).

Figure 2: Egg laying percentage after treatment with tiamulin (Denagard) and tylosin (Tylan) in comparison with non-treated (NT) controls



In the subsequent 13 week follow up period, the incidence of EAAs in Group 1 increased to 4.87% but Group 2 (tiamulin) remained low than the non-treated controls at 2.75% (-2.12%) and Group 3 (tylosin) remained at 2.79% (-2.08%).

Both tiamulin and tylosin appeared to be very effective in treating EAA in laying hens and controlling the MS infection over a more prolonged period, over 13 weeks.

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Poster Presentation, WVPA Conference, September 2017

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