Garlic and mite mitigation

LITERATURE SUMMARY: Potential value of garlic flavors against mite infestations in poultry

Feeding of garlic to cattle as a natural means of ectoparasite repellency has increase in popularity recently in response to new data showing that oral garlic supplementation can reduce fly cover and defensive behaviors in pastured cattle[1]. This attention has led to the uncovering of past data in other species showing similar results, including trials in poultry. The value of garlic is limited currently to data on surface application of garlic extracts to laying hens as a means to repel the northern foul mite or the red mite.

Poultry

Northern fowl mite infestation was reduced in laying hens receiving topical application of garlic 3x per week for 4 or 8 weeks[2] (figure 1). The red mite has been called out in the EU as costing the laying hen upwards of € 130 million annually due to control measures and lost productivity. Productivity losses stem from the stress related to losing up to 3% of its blood volume every night due to parasitism by mites[3].

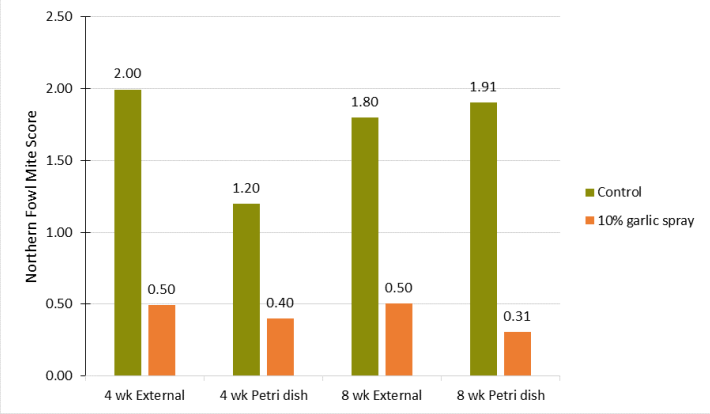

Figure 1. Effect of 3 weekly treatments of a control or 10% garlic spray on external and petri plate scoring (0 to 4) of northern fowl mite infestation. Adjacent means are significantly different (P < 0.05). Adapted from Birrenkott et al., 2000.

More recently, an Iranian group reported between 75 and 96% efficacy for a topical garlic extract spray on control of red mites in laying hens[4] (figure 2). Their first application showed efficacy of over 85%, which dropped to 75% one week post application as the garlic aroma began to fade. A second application brought the observed efficacy back up, and the study ended with efficacy over 95%. They reported that the efficacy waned along with the strength of the garlic odor, suggesting that the effect is linked to diallyl sulfide and related derivatives, which are known to be responsible for the characteristic aroma of garlic.

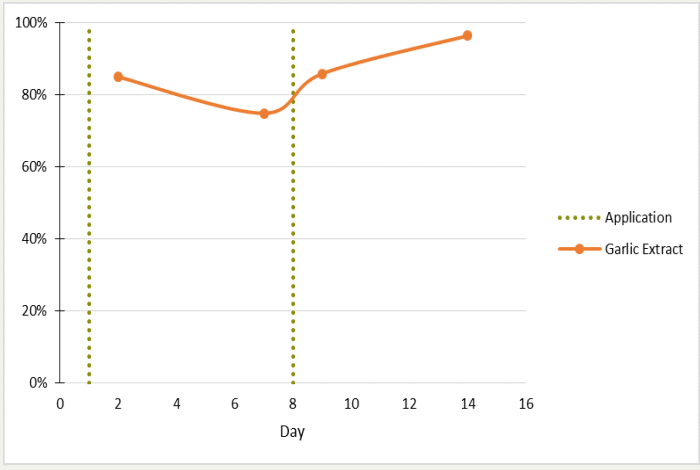

Figure 2. Efficacy of garlic extract spray applied to Iranian laying hens as compared with pre-application levels of red mite infestation. Adapted from Faghihzadeh Gorji et al., 2014.

Summary

In conclusion, published trials suggest some potential for topical application in laying hens, and that is linked to the dominant aroma compounds in garlic (diallyl sulfide and diallyl disulfide). If you would like to explore the potential of Feedbuds® garlic flavors in your poultry feeding program please contact your local QualiTech representative.

References
1. Durunna, O. and H. Lardner (2020). Sustainable Agriculture Research 10(1).
2. Birrenkott, G. P., et al. (2000). Poult Sci 79(11):1575.
3. van Emous R. (2005);44:26.
4. Faghihzadeh Gorji, S., et al. (2014). Parasitol Res 113(3):1209.