Scientific Note

Control of Bovicola equi (Phthiraptera: Trichodectidae) with Dimilin and permethrin

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Received 2 January 2009; Accepted 20 February 2009

Lice are wingless ectoparasitic insects that can irritate and injure their hosts and transmit pathogens. Horses and ponies can be infested with a chewing louse, Bovicola equi (Denny) (Phthiraptera: Trichodectidae), that irritates the animals, creates skin lesions, causes hair loss, and generally reduces animal fitness (Mencke et al., 2005, Larsen et al. 2005). In addition to irritating their hosts, some lice of livestock have been associated with rickettsial pathogens (Reeves et al. 2006).

Chemical control of lice has been accomplished with a wide range of systemic and topical insecticides including pyrethroids, organochlorines, organophosphates, carbamates, macrocyclic lactones, insect growth regulators, and botanical derivatives (Losson 1990). Many pesticides used for louse control are no longer available. Benzoylphenylureas such as diflubenzuron (Dimilin) and triflumuron are chitin synthesis inhibitors. Triflumuron was recently reported to control B. equi in Australia when applied as a pour-on (Lowden et al. 2007) and Dimilin has been shown to be effective in controlling Bovicola bovis L. on cattle (Campbell et al. 2001). We report on the insecticidal activity of Clean-Up™ (KMG Chemicals, Houston, TX), a pour-on insecticide containing 5% Dimilin mixed with 5% permethrin in an oil-based solution, for the control of B. equi on naturally-infested Shetland ponies. Clean-Up is specifically labeled for louse control in the U.S.A.

Five Shetland ponies were housed at the University of Wyoming animal facility. These ponies were naturally infested with B. equi. Louse infestations were measured on each animal by counting all lice in a known area. Ponies were haltered, numbered, and 182 cm² of hair were sheared with an electric clippers from the flank, midline, and hindquarters. The hair was clipped down to the skin and all hair and clippings were collected in individual plastic bags. The sheared areas were visually checked for lice and if lice were found they were placed in the plastic bags. Ponies were randomly sorted into control and treatment groups; by random chance the two most infested ponies were split between the treatment and control groups. Each group was isolated in pens with no physical contact with other horses. Treatment animals received 3 ml/45 kg of Clean-Up™ as a pour-on along the back-midline. Animals were observed 24 h post-application to check for irritation and then weekly for six weeks. After six weeks the ponies were haltered and lice were enumerated as previously described. Animals were sheared on the opposite side. Louse infestations were compared with a Chi-square test.

The average louse infestation for the pre-treatment ponies was eight lice/182 cm² with a range of one louse/182 cm² to 19 lice/182 cm². Post-treatment louse numbers increased on control animals to an average of 36 lice/182 cm². There were no lice found on treated animals after six weeks. The change and difference in louse infestations was significant (P<0.05). Based on our data, a mixture of 5% Dimilin with 5% permethrin in an oil-based solution will control B. equi.

Acknowledgments

We thank L. DeBrey, A. Kneeland, and W. Yarnell for their help with animal handling, louse counts, and pesticide applications. Jack Lloyd provided the Clean-Up used to treat the animals. The use of trade names in this document does not constitute an official endorsement or approval of the use of such commercial hardware or software. Do not cite this document for advertisement.

REFERENCES CITED


