

Evaluation of the Wash-Off Potential of Cydectin[®] Pour-On from Cattle Following Simulated Rainfall

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Two studies were conducted to evaluate the potential consequences of exposure of cattle to rainfall following treatment with Cydectin, a pour-on formulation of the endectocide compound moxidectin. The objective of the first study was to evaluate the potential effect of rainfall on the efficacy of Cydectin Pour-On against gastrointestinal roundworms as determined by fecal egg counts. Forty-eight mixed beef breed (179 to 250 kg) calves were randomly assigned to one of six treatment groups (eight animals/group) based on the pretreatment fecal egg counts. The following five groups were treated with Cydectin Pour-On and exposed to simulated rain for 30 minutes at a rate of 2 inches/hour: no exposure to rain; exposure to rain immediately prior to treatment; exposure 2 hours posttreatment; exposure 6 hours posttreatment; and exposure 24 hours posttreatment. Pour-on vehicle was applied to control calves. Application of Cydectin Pour-On to wet cattle or to cattle exposed to heavy rainfall at 2 to 24 hours post treatment did not impair efficacy. All treatment reductions were significantly different ($P < 0.05$) from the untreated control animals.

The objective of the second study was to quantify the amount of moxidectin, if any, which would wash-off

from treated cattle following a heavy rain event (2 inches/hour). Six mixed beef breed heifers (196 to 236 kg) were randomly assigned to one of three treatment groups (two animals/group). The groups of animals were treated with the recommended dose and exposed to simulated rain at one, two or six hours post treatment. Each animal was individually placed in an apparatus that was lined with stainless steel and allowed for total collection of the water applied to the animals. Rain was applied for 30 minutes at a rate of 2 inches/hour. When the simulated rain was completed and the animal removed, the apparatus was rinsed with methanol to remove any residual moxidectin which may have been bound to the walls. The water and methanol rinses for each animal were assayed for moxidectin content. As a percentage of the dose applied, the amount of moxidectin which washed-off at one, two and six hours posttreatment was 0.6, 0.71 and 1.49%. These values were not statistically different from each other. The mean amount of moxidectin which washed-off all animals regardless of timing of rain was 0.93%. **In conclusion, these trials demonstrated that under conditions of heavy rain approximately 1% of the moxidectin dose washed-off and efficacy was not affected.**