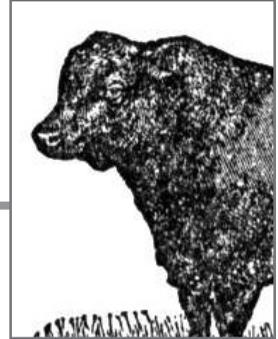


Southern Bull and Replacement Heifer Test Parasite Study

Are parasites becoming resistant to dewormers?



Abstract

Internal parasites can have a damaging impact on the health and efficiency of beef cattle. Though helpful, popular current parasite control methods such as “pour-ons” may become less effective because parasites develop resistance to the particular treatment. This study has shown that changing treatments, and thereby “changing chemistries,” was helpful in reducing parasites. The rectal fecal sample egg count reduction test was shown to be valuable in testing whether a certain treatment used by a beef cattle producer is effective in reducing parasites.

Introduction

The damaging impact of internal parasites on beef cattle productivity and beef performance is well documented. Internal parasites reduce feed intake and efficiency, decrease weight gain, and reduce the animal’s ability to ward off disease because of impaired immune function.

The overuse of cattle pour-on treatment may contribute to the possibility of a growing problem with parasite resistance, selecting for higher populations of anthelmintic-resistant parasites even among treated animals. In addition to concerns related to drug resistance, pour-on cattle wormers have disadvantages compared with other formulations.¹ They can be inconsistently absorbed into the bloodstream and can take four days to reach therapeutic levels. This leads to reduced levels of active ingredient being delivered to the parasitic infection in the stomach and intestinal tract.

Background

The Southern Bull and Replacement Heifer Performance Test program conducted each year at Point Pleasant, West Virginia, implements a rigorous

vaccination program before

animals arrive at the test station. In addition, all test cattle are historically dewormed with a pour-on endectocide dewormer at processing. Even with this strict protocol, participating animals still develop more health problems than expected.

It was suspected that poor health response might be linked to high levels of internal parasites. In 2006, fecal samples were taken from approximately half of the participating bulls. The samples were found to have high egg counts in many cases, even though the animals had been treated multiple times with cattle wormers and received a pour-on treatment on delivery to the test station.

2007 Study

In 2007, a research project showed that the 90 head of heifers sampled had an average of 47.18 eggs per gram before treatment and an average of 25.7 eggs per gram after treatment with Ivomec pour-on. That represented a 45.5% efficacy. The 85 head of bulls sampled had an average of 41.86 eggs per gram before treatment and an average of 2.18 eggs

¹ Comparison of pharmacokinetic profiles of doramectin and ivermectin pour-on formulation in cattle, V. Gayrard, et al, 1998.

Table: 2007 Parasite Control Study

# animals treated	Eggs per gram before treatment	Highest eggs per gram / Lowest eggs per gram	Treatment given	Eggs per gram 14 days after treatment	Efficacy %	# with decreased egg count	# with increased egg count
90 heifers	47.18	512/0	Ivomec pour-on	25.7	45.5%	75	15
85 heifers	41.86	478/0	Safe-Guard oral drench	2.18	95%	81	4

per gram after treatment with Safe-Guard oral drench. This represented a 95% efficacy.

Rectal fecal samples were collected from the 90 heifers and the 85 bulls at the beginning of the study. The 90 head of heifers were treated with Ivomec pour-on and the 85 head of bulls were treated with Safe-Guard oral drench. Fourteen days after treatments, fecal samples were again collected from the 90 head of heifers and the 85 head of bulls. Data comparisons were made between pre-treatment and post-treatment parasite eggs per gram numbers.

2008 Study

In 2008, it was found that animals treated with Safe-Guard oral drench in combination with Ivomec pour-on had egg counts drop a group average of 99.98%. Those treated with

Safe-Guard oral drench alone had egg counts decrease 96.50% as a group average. By comparison, those treated with Ivomec injectable alone had an average of 63.28% fewer eggs. Those treated with Ivomec pour-on alone had 42.84% fewer eggs as the group average. The control group had egg counts decrease 41.56% as a group average.

In the 2008 study, fecal samples were taken on the 130 head of heifers upon arrival at the test station. This pre-trial fecal count was done to make sure the data would be as clean as possible and to assign individual animals to a specific treatment group, with each group having a total egg count as equal as possible.

The treatments used were control, Safe-Guard, Ivomec pour-on, Ivomec injectable, and a combination of Safe-Guard with Ivomec pour-on.

Each treatment group consisted of 26 head of heifers, which were weighed on treatment day to ensure proper application rates based on label recommendations.

On the day of treatment, a fecal sample was collected from each heifer to serve as the pre-treatment base data. Fourteen days after treatment, a fecal sample was pulled from each heifer to provide post-treatment data, which was used to make various comparisons.

Conclusion

“These results would indicate that the increased use of pour-on endectides may be selecting for parasite populations that are more resistant or less responsive to the drug. At the same time, the drug use has increased because the drugs have become cheaper,”

Table: 2008 Parasite Control Study

# animals treated	Average/hd eggs per 3 grams on day of treatment	Treatment given	Average/hd eggs per 3 grams 14 days after treatment	# head with decreased egg count	# head with increased egg count
26	128.4	Safe-Guard	4.5	26	0
26	155.4	Combination	0.04	26	0
26	120.7	Ivomec Injectable	44.3	22	4
26	129.2	Ivomec Pour-on	73.8	22	4
26	138.5	Control	81	14	12

said Dr. Louis C. Gasbarre, research leader of the Bovine Functional Genomics Laboratory of the Agricultural Research Service (USDA).

There's not much doubt that SafeGuard does a good job of reducing egg count. In fact, the research shows that Safe Guard does a tremendous job.

It is important for veterinarians and cattle producers to determine whether the dewormers they rely on are working. A Fecal Egg Count Reduction Test (FECRT) is a valuable tool to test for anthelmintic resistance. It's quick and effective. Pull samples from 20 random animals, no matter the herd size. Test before deworming and then test again 14 days later. If average egg worm counts for the group decline by 90 percent or more, your dewormer is working and your cattle are performing.

Cattle producers probably need to be worried about resistance. They need to be rotating chemistries. They need to do more checking, and they need to do more parasite control. Just because you pour something on them doesn't mean they're in good shape.

Sources

Todd Belcher – WVU Extension Service Agent – Wood County

Dr. Louis C. Gasbarre, Bovine Functional Genomics Laboratory Research Leader of the Agricultural Research Service (USDA)

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(why pour-ons are not effective and the economical implications that they have for a producer)

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