

Early Bird Parasite Solutions

Dr. Erin Masur and Dr. Alexia Tsakiris have developed Early Bird, a two-phase herbal dewormer tailored to combat barber pole worm (*Haemonchus contortus*) in small ruminants and camelids. The two veterinarians are tackling drug resistance in gastrointestinal nematodes by thinking outside the box. Their goal is to achieve cleaner pastures for overall sustainability on the farm.

Early Bird is the first herbal anthelmintic to be produced with the herd's natural physiology in mind.

The complicated gastrointestinal tracts of ruminants and pseudoruminants are adapted to convert rough forage materials into usable nutrients. This is why liquid medications have an inherent degree of inefficacy in these species. The plants and herbs used in Early Bird are whole - meaning some are nuts, some are roots, some are leaves, and so on. The plant materials are gently milled to create a balanced roughage with maximal bioavailability.

Early Bird Phase 1 and Phase 2 are designed to handle all the different aspects of parasite infestations, including weight loss, anemia, diarrhea, and poor reproductive performance - creating a more multidimensional resolution than just killing worms.

An Early Bird treatment consists of two phases - the anthelmintic phase, and the gut support phase, each a different proprietary formula. The Phase 1 formula combines the herbs with the most potent deworming capabilities in order to exponentiate their

antiparasitic properties. These plants include *Omphalia* (bamboo root fungus), *Sophora* (deciduous shrub root), *Torreya* (Chinese evergreen nut), *Zingiber* (ginger root), and *Quisqualis indica* (Chinese Honeysuckle). The Phase 1 formula also includes herbs that are antidiarrheal and anti-inflammatory such as *Prunus mume* (Japanese Apricot), *Atractylodes* (perennial shrub root), and *Raphanus* (radish). This is to ensure that in an acute outbreak, diarrhea is controlled as quickly as possible, thereby reducing transmission of eggs across the living environment. The last addition to the Phase 1 formula is *Codonopsis* (perennial

bellflower root), which stimulates red blood cell regeneration for *Haemonchus* patients suffering from anemia. The Phase 2 formula is designed to be as restorative and soothing to the gastrointestinal tract as possible, in order to achieve rapid recovery. *Avena* (oat straw) restores the

balance of gut flora while *Curcubita* (pumpkin) and *Astragalus* (Mongolian milkvetch) address oxidative damage. *Althaea* (marshmallow), *Centella* (Indian pennywort), and *Calendula* (marigold) protect the mucosal lining, while *Medicago* (alfalfa leaf), *Urtica* (nettle leaf), *Withania* (winter cherry) and *Silybum* (milk thistle) encourage sustained red blood cell regeneration. *Urtica* (nettle leaf) also stimulates the appetite to keep these animals eating, and *Foeniculum* (fennel seed) supports lactation in females under reproductive stress. It remains important to Dr. Masur and Dr. Tsakiris that each herb utilized in these formulas has been selected first and foremost from a scientific



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background. Each ingredient was chosen only after analyzing peer-reviewed literature, and each dose calculated using precedents determined by formal studies. For anyone interested in this information, please use the contact form on earlybirdworm.com for access to the complete bibliography.

The developers are two veterinarians relying on current research, clinical results, and previous literature to dictate their choices.

Although the developers have been dispensing Early Bird since April of 2020, they decided to put it to the test with a formal research study in August 2020. The test population was a herd of 36 alpacas which were generally healthy, but carried low numbers of *Haemonchus*, as well as *Eimeria* coccidia and whipworm. Many of the females in the study were experiencing reproductive demands - some pregnant, some lactating, and some pregnant while lactating. At the onset, almost half the herd had fecal tests positive for *Haemonchus*. After one two-week treatment of Early Bird, only 15% were positive. After a second treatment, only 10% were positive. After a third and final treatment, only 3% of the herd were left carrying any parasites at all. Furthermore, the average FAMACHA score herd-wide decreased from a 3 (borderline) to a 2.3 (acceptable) over the course of three treatments. Body condition score increased from 3.0 to 3.3, which is a significant advantage considering producers expect their breeding females to lose 10-15% of body weight during late gestation and peak lactation. This product's ability to support body weight during times of reproductive stress, while preventing a parasite bloom without the use of conventional dewormers, makes it a valuable asset to herd economics. A second study is currently running (Sept 1 - Oct 1, 2021) and the test population is 70 sheep who are severely affected with very high eggs per gram of *Haemonchus*, *Eimeria*,

and other species of parasites. Meanwhile, our customers have taken it upon themselves to run their own experiments. One customer, raising dairy goats in Georgia, has submitted fecal tests before and after using Early Bird. She reports that her highest shedding animals tested at 1200 epg of *Haemonchus* prior to using Early Bird. After one treatment, the highest shedders tested at a range of 200-450 epg of *Haemonchus*.

Compared to the traditional anthelmintics (dewormers) available in the United States, Early Bird is an economical choice.

One two-week treatment of Early Bird for 10 animals costs \$28, and one two-week treatment for 25 animals costs \$68. The current costs of commercially available dewormers are as follows: Prohibit (\$23, treats eighty head one time), Cydectin (\$97, treats eighty head one time), Valbazen (\$49, treats one hundred head one time), or Panacur (\$132, treats one hundred head one time). However, a single dose of a single drug will never achieve a negative fecal. *Haemonchus* has already developed well-documented resistance against each of these drugs, with incidence anywhere between 25 and 100% depending on the region in question. Arguably, if a producer were to use a combination drench (this is the current recommendation by the American Consortium for Small Ruminant Parasite Control) of Prohibit, Cydectin, and Panacur to treat a herd of 25 twice, the cost would be \$168 (if you didn't have to buy the whole bottle of each dewormer. If you did, then that number would be \$252). None of the aforementioned dewormers will support body condition during gestation and lactation. None of them will treat the diarrhea, malabsorption, and anemia associated with *Haemonchus*. None of them will prevent transmission of fecal eggs to other herd members. None of them are all-natural, and

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most of them are not safe for use during pregnancy, or safe to use in juveniles.

Compared to traditional dewormers, the herbal, all-natural treatment is a safe option.

In the 2020 study, gestating adults, lactating adults, nursing cria and weanlings were consuming the product and there were no adverse effects. However, during dose range testing, when administering double the labelled dose, mild to moderate constipation occurred in two adult alpacas. Therefore, it's recommended to ensure that each individual is getting the recommended dose, rather than one dominant individual consuming more than their intended allotment.

There are multiple ways in which to use Early Bird - it's not your typical dewormer.

Because each treatment is a two-week period, this product should be treated differently than the traditional deworming agent. It is recommended to use it no more frequently than once a month, because more frequent usage will result in constipation such as that observed in dosing trials. Early Bird is designed to treat an active parasite infestation, it is not recommended to use in herds with all negative fecal samples. This product can be used for herds with low eggs per gram in order to prevent the current parasite population from climbing over time. It can be used for herds with moderate eggs per gram, when using traditional dewormers is questionable and may not be worth the risk of drug resistance, or where pregnant animals are present. It can also be used for herds with high eggs per gram in conjunction with traditional dewormers in order to gain faster control over the infestation, and to prevent high-shedding animals from transmitting to low-shedding animals. The developers are available for questions for any producer who may require further guidance on best uses at 848-224-5046.



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