

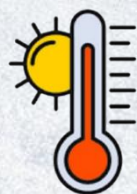
What happens to worms in the winter?

Depending on climate, worms undergo a period of hypobiosis or arrested development when environmental conditions are not conducive to their development and survival. In other words, it is too cold for them. When conditions improve, the larvae resume their life cycles, develop into adults, and begin to suck blood and lay eggs again. The worms that develop from hypobiotic larvae are an important source of pasture contamination in the spring and early summer.



❄️ Winter Activity ❄️

- In the winter, few eggs hatch due to the cold weather. Worm eggs need specific conditions to hatch into infective larvae; average daily temperatures of at least 56 to 60°F, along with sufficient moisture.
- In the winter, most larvae on pasture will go dormant due to the cold dry conditions. This significantly reduces their numbers and ability for infection in the spring.
- In the winter, under the protection of the pasture (even snow), some larvae will survive. A milder winter means more will survive. As the climate continues to warm, more larvae can be expected to overwinter in temperate climates.
- In the winter (and early fall), most of the larvae (L3) ingested will arrest rather than develop into adults. The L4s will dig into the walls of the abomasum and hibernate for the winter. They do not suck blood or reproduce. They are harmless – until they wake up!
- Despite being winter, larvae that developed during the previous (warmer) 6 months still have the potential to infect sheep/goats and cause disease, especially if pastures are still heavily contaminated.



Hypobiosis is less pronounced in warmer climates, if it occurs at all, since it is usually warm enough for larvae to develop year-round. Only a prolonged lack of moisture, e.g., drought or pronounced dry season, usually results in hypobiosis. Overall, hypobiosis is less important in tropical and sub-tropical climates, as climatic conditions are generally more favorable for worms.



Hypobiosis and the "periparturient egg rise" are inter-connected. The periparturient egg rise is a temporary relaxation of immunity that occurs around the time of birthing (-2 to +8 weeks). It increases fecal egg counts in periparturient females and is another trigger for hypobiotic larvae to resume their life cycles. The convergence of these two phenomena makes parasite control especially challenging for flocks/herds that lamb/kid in the spring.

Hypobiosis is not 100% understood and seems to vary with geographic region. It was initially thought that hypobiosis was initiated by the host. Others suggest it is triggered by external stimuli such as temperature and photoperiod. Hypobiosis may be an evolutionary adaption that doesn't require cues. Regardless, hypobiosis is an important survival mechanism that allows parasites (especially *Haemonchus contortus*) to persist from one season the next.

While targeting hypobiotic worms with dewormers that have efficacy against them (e.g., benzimidazoles and macrocyclic lactones) seems like it would be a way to eradicate all the worms on a farm, it is not. This is because dewormers lack 100% efficacy (especially nowadays) and many worm larvae are able to survive the winter.

By Susan Schoenian, Sheep & Goat Specialist Emeritus, University of Maryland Extension. ©2025. For more information, go to www.wormx.info.