**Abstract**

**The effect of diapause on digestive efficiency across different strains of European corn borer**

In the United States

[Background] The European corn borer exists in two strains: univoltine (UZ) and bivoltine (BE). To determine the digestive efficiency of this species, larvae were reared and separated into two incubators. These larvae were subjected to one of two conditions: long daylight hours (16 hours) or short daylight hours (12 hours) while receiving a constant amount of plant material diet. At the end of the experiment, the lipid accumulation of both strains in both diapause conditions were used to compare the digestive efficiency of each strain. We found that the BE strain in short daylight hours had a higher rate of digestive efficiency. This is likely due to the fact that this strain must utilize the same amount of nutrients as the UZ strain in a shorter span of time before entering the next stage of its life history. These results can be used to create better, more efficient pest management systems for farmers who are economically impacted by these larvae.