**Introductions:**

Dan, John, Myself

There tends to be a lot of attention paid to the end point of speciation. The result of millions of years of evolution is boiled down to the result. But how does a separate species form. Whats more is how does it happen when a population isn’t separated in space? When does it begin? What does adaptation look like in real time? This question is one my project is trying to answer using metabolism and energy storage.

* Targeting the top of the adaptative peak,
* How is fitness structured
* What are the parameters?
  + Effects of ecology (predator prey competetors biota abiota).

**Import of the system:**

The system I am working on is ECB in the context of climate change. ECB is an important pest on corn it contributes to almost 1B in corn losses in the US each year. The interesting about ECB is that it is a facultative diapauser/hibernate. When the days are long they bypass diapause. But when the days are short it protects itself by going into diapause. This is the fun part, the energy ECB larvae take into diapausing to be enough to survive diapause (which lasts months) and enough to last throughout their adult life because once they go into diapause they stop eating!

**The state of Now:**

Currently, I am still in the planning phases of my project, but I plan to begin by looking at how certain stored energy factors change over time in larvae that diapause and those that do not. This information will inform the next phase of my project where I plan to track those energy storage factors under altered biotic, like diet, and abiotic conditions, like increased CO2, to see how these alterations affect or disrupt diapause. The goal is to take those disrupting factors possibly apply them to managing ECB in corn. What we find may also provide clues about how other important pests diapause (CEW) and this could help manage them as well.