* ~~Changing climate 🡪 increased temps~~
  + ~~Increased temps 🡪 increased seasonal temps~~
  + ~~Increased seasonal temps 🡪 increased growing seasons~~
  + ~~Increased growing seasons 🡪 increased insect generations~~
  + ~~Increased insect generations~~ ***~~can lead to~~*** ~~pest pressure~~
  + ~~Increased pest pressure 🡪 increased damage~~
  + ~~Increased damage 🡪 increased management~~
  + ~~Increasing management~~ ***~~requires an understanding how insects will respond~~***
* ~~Responding to climate 🡪 winners and losers~~
  + ~~Losers 🡪 less genetic variability and extinction~~
  + ~~Winners 🡪 through~~ *~~redistribution and adaptation~~*
    - ~~Redistribution 🡪 range expansion or shifting~~
      * ~~Range expansion 🡪 pest insects in novel habitats~~
      * ~~Pest insects in novel habitats 🡪 effects food security~~
    - ~~Adaptation 🡪 mechanisms: colonization, fitness~~
      * ~~Colonization vs extinction~~
      * ~~Changes in fitness 🡪 Mean of fitness vs variance of fitness~~
  + Evolution 🡪 starts with plasticity in phenos
  + Phenotypic Plasticity 🡪 shifts in dormancy; ***could be a way insects mitigate the effects of a changing climate***
* Plasticity in Dormancy 🡪 response to environment
  + Response to environ 🡪 preparing for reduced resources
  + Diapause is Preparative 🡪 genetically determined diapause
  + Genetically determined diapause 🡪 behavior and physiological events
    - Behavior and physiology changes 🡪 survival of diapause
      * diapause 🡪 protection from environment
        + Initiation, length, reduced development and metabolism
      * diapause 🡪 accumulated resources
        + Fats 🡪 reservoir of energy and water
        + Proteins 🡪 reservoir of energy, amino acids, enzymes, chaperone proteins
  + Response to environment 🡪 shifts in dormancy
  + shifts in dormancy 🡪 changes in seasonal light/temp relationship
  + Seasonal Light/temp relationship 🡪 changes in environment when diapause is initiated
  + ECB are a great model for this type of study
* European corn borer
  + Pest
  + Genetic Facultative diapause
  + Clinal distribution of facultative diapause