CENTER FOR
POLLINATOR RESEARCH

2nd International Conference on
Pollinator Biology, Health, and Policy

What I have learned…

- **Diversity is good!**
  - Clear correlation between pollinator abundance/ diversity and crop yield
  - Different pollinator species/functional groups can synergize and buffer against losses
  - Pollinator diversity is correlated to landscape diversity
  - Landscape diversity may buffer effects of pesticides (drift, nutrition)

What I have learned…

- **We need an Integrated Pest Pollinator Management (IPPM) approach**
  - Get info to growers who would benefit
  - Find policy approaches to encourage adoption
  - Avoid tragedy of the commons (need all growers to cooperate)
- **Involve the ecologists!**
  - Ecologists deal with messy, variable data
  - Apply approaches to large data sets associated with disease, environmental contaminants, etc
  - Example: Bee Informed Partnership

What I have learned…

- **My PhD research is finally useful!**
  - Our approach to risk analysis for pharmaceutical chemistry and pollinator conservation are exact opposites
    - If a drug candidate fails a Tier 1 test (toxic to cell culture), it is not further tested in humans, even though humans have livers to detox and the drug may not be so harmful. If a pesticides fails (toxic to individual bees), it is automatically evaluated on colonies.
  - Clear disconnect between lab assays and regulation
  - Attempt to bridge via field experiments, but this is costly/wasteful and variability will likely obscure impacts
  - Need to achieve consensus on tested substances, exposure rates/doses, accepted lab assays and accepted field assays

What I have learned…

- 1000 active ingredients x 20 formulations x 100 mixtures x 2 life stages x 4000 species =
  - Job security (kidding)
  - Highlights the need to develop biologically rational generalizations to reduce complexity

What I have learned…

- Better apply our basic knowledge to pollinator health and conservation
  - Know a great deal about genomics, physiology, neurobiology, behavior, cognition
  - Can we harness this to understand (at mechanistic level) impact of four 'p's – pathogens, parasites, pesticides, poor nutrition
  - Can we develop better assays?

Goals for 2016…

- Keep conversations going
- Develop new collaborations
- Get all A's on Dave Mendes' report card!

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