Pest management: Resistant varieties
Pest Management: Natural Enemies
Pest Management: Farmscaping
Pest management: Inorganics

- Copper
  - toxicity problems with heavy, prolonged use
- Sulfur
  - 59% of agricultural fungicide use, by weight
  - high ecological impact (Cornell)
- Lime
- Bordeaux mixture (copper sulfate + lime)
Pest Management: Botanicals

- Chemicals derived from plants
  - Rotenone
    - rat poison, very toxic to fish, linked to Parkinson’s
    - allowed under NOP; temporary ban in Europe
  - Pyrethrum
    - neurotoxin, quick knock-down
    - chemistry inspired synthetic pyrethroids
  - Neem
    - inhibits moulting
Pest Management: Microbials

- Bacteria
  - e.g. *Bacillus thuringiensis*
- Fungi
  - e.g. *Coniothyrium mimitans*
- Nematodes
  - e.g. *Steinernema*
Pest Management: Oils & Soaps

• Oils
  – Petroleum / vegetable based
  – kill through suffocation
  – most widely used insecticide, by weight

• Soaps
  – kill through desiccation (penetrate protective waxy covering)
  – mainly kill soft-bodied insect

• No resistance observed to these modes of action
Easy to grow organically in KY

Difficult to grow organically in KY