



University of  
Massachusetts  
Amherst

## Cranberry Resistance Management 2012

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# Resistance Management Delegate and Intrepid

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Dow AgroSciences



# Susceptible vs. Resistance

- Susceptible –
  - Easily affected or influenced
- Reduced Susceptibility
  - Less Easily affected or influenced
    - Higher rates for effective kill
- Resistant
  - Not affected or influenced
    - Rate increase has no effect on rate of kill

# 4 Keys to Success

- Rates
- Coverage
- Rotation
- Timing



# Use Labeled Rates



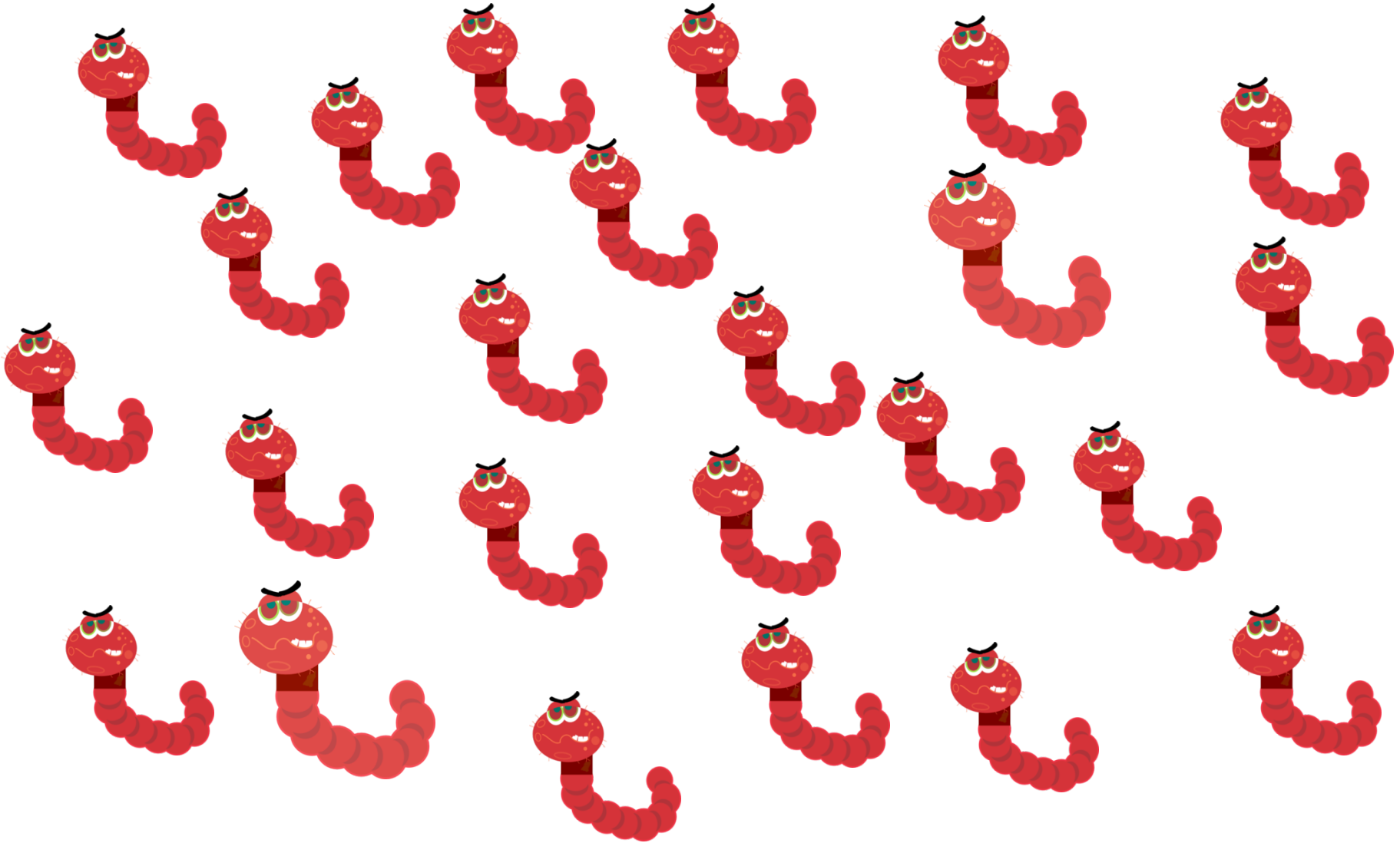
# READ THE LABEL!!!

Spintor/ Delegate

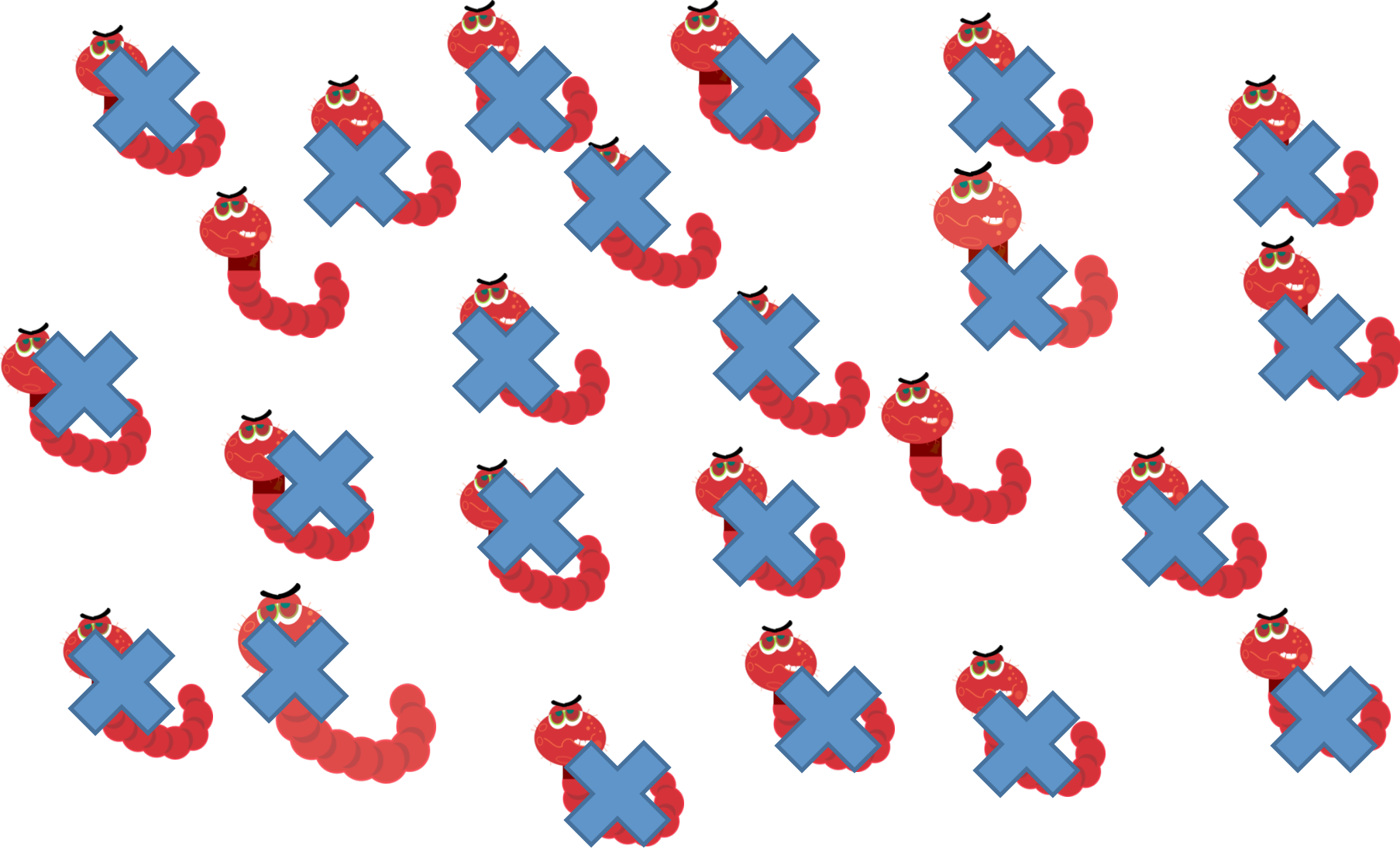
- See resistant management section
- Rotate Class 5 Chemistry after 2 application
- No more than 3 applications per season for thrips
- 3-6 oz rate depending on size of pest and infestation
- 19.5 oz allowed per season



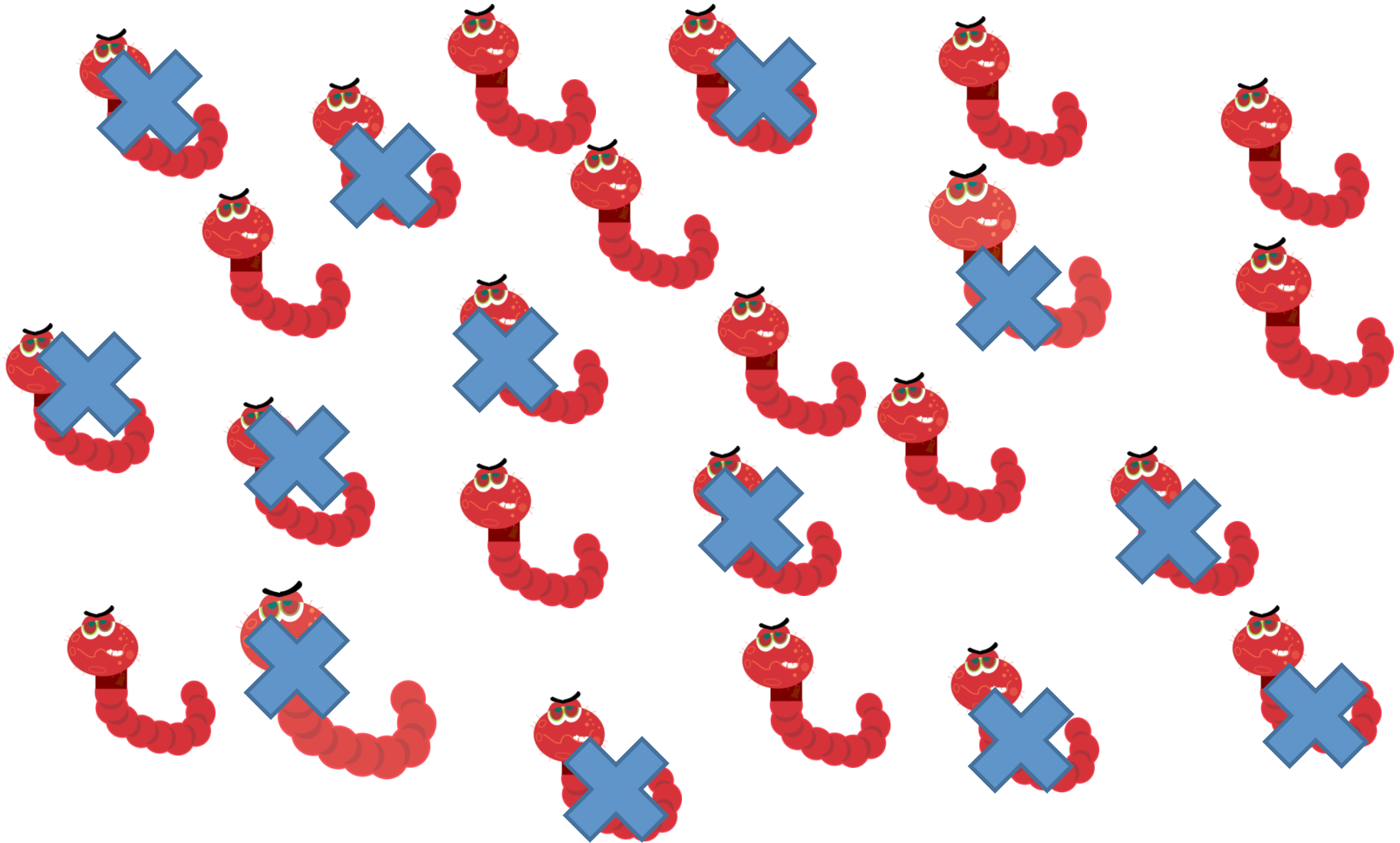
# Festering Worm Population



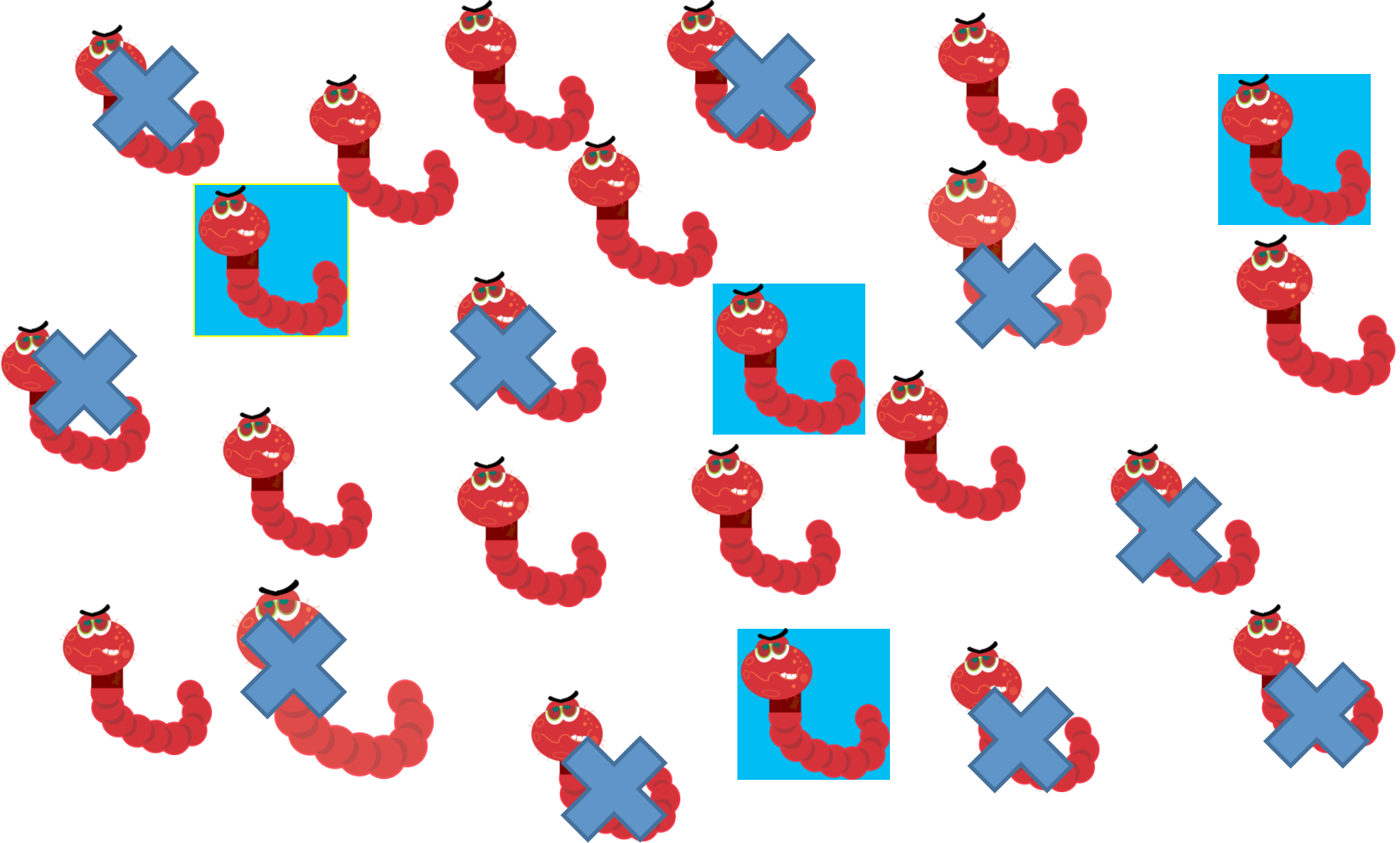
# Proper Rates Controls Population



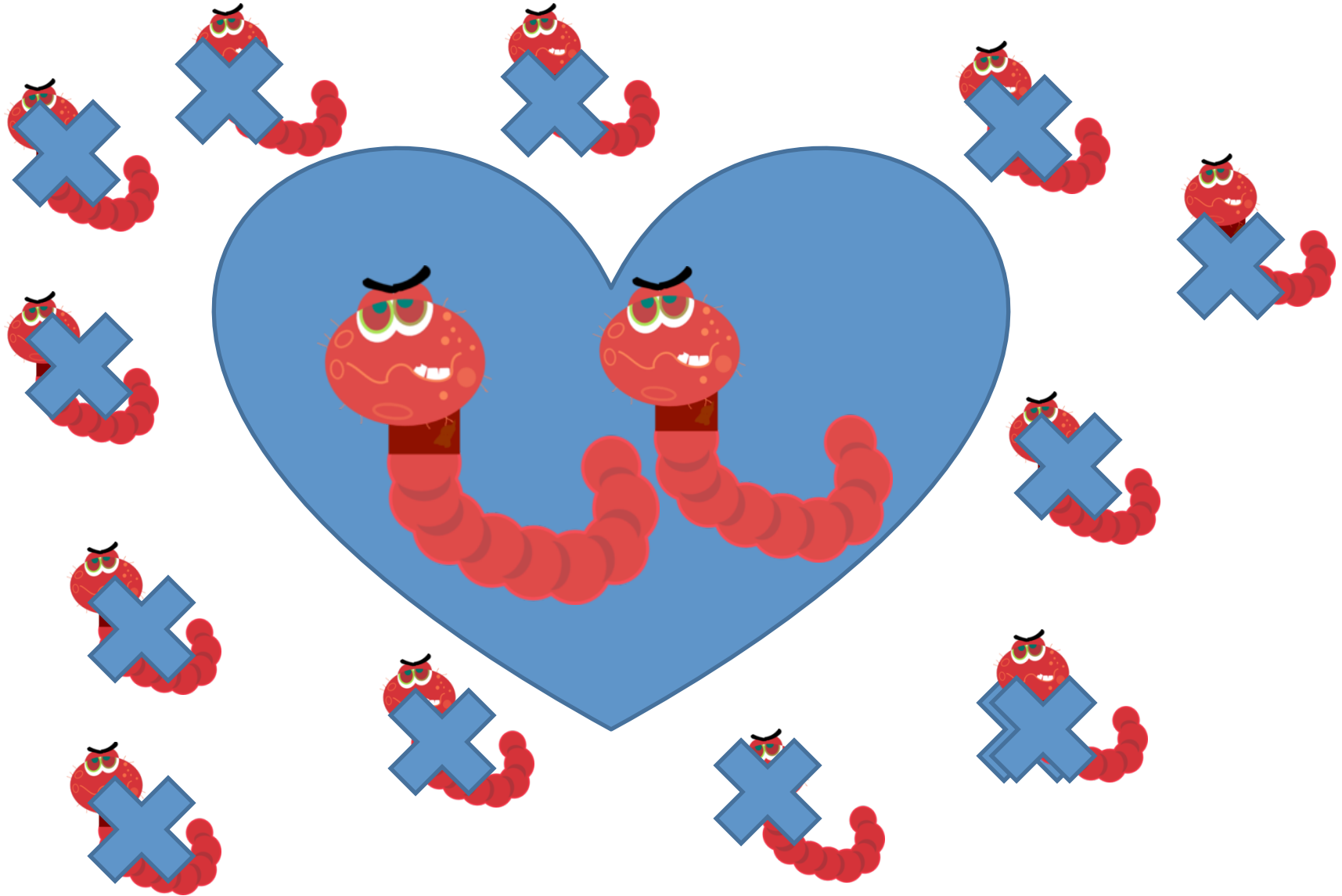
# Reduced Rates Controls Partial Population



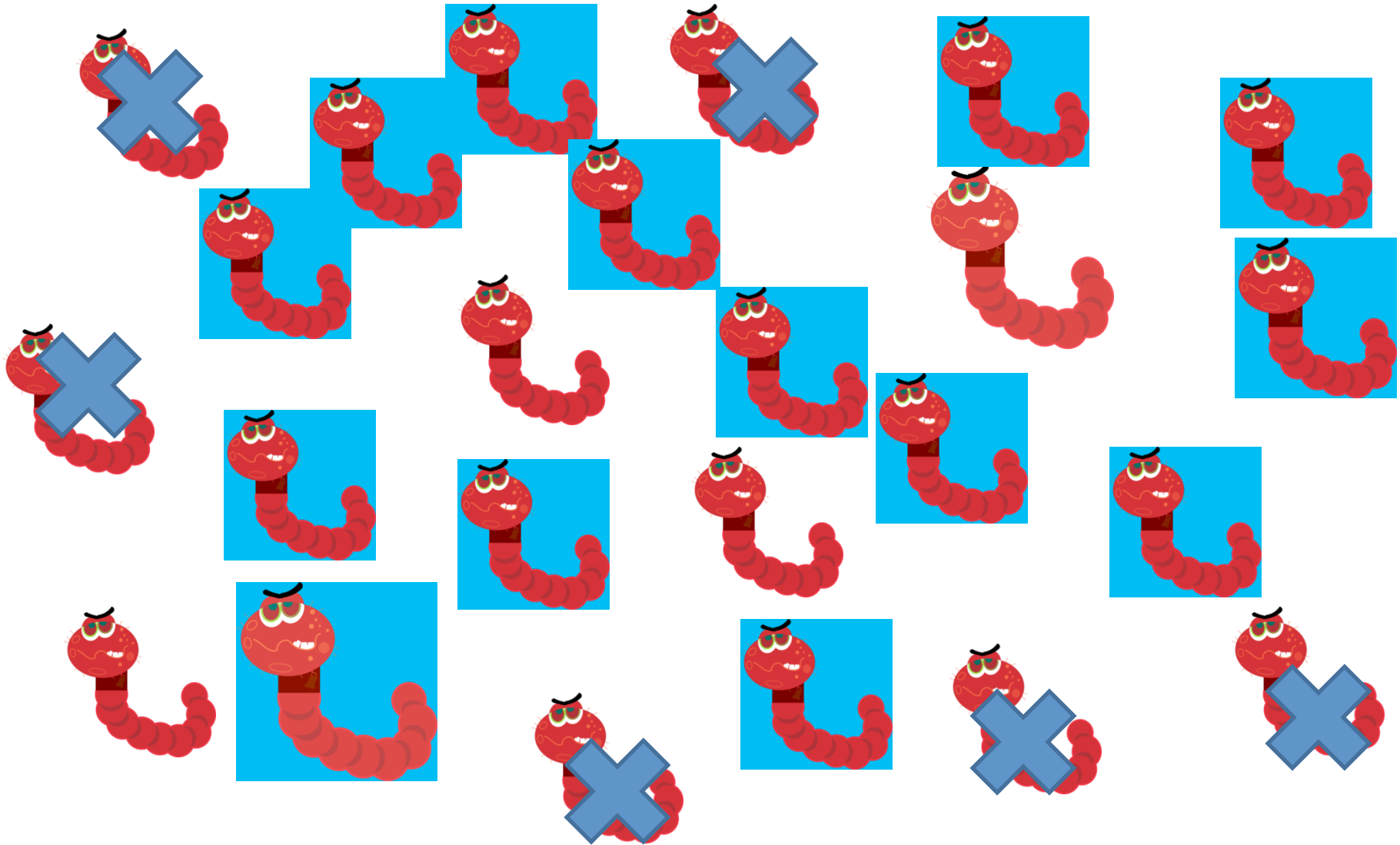
# Reduced Rates Selects for Resistance



# The Birds & Bee's Prevail!



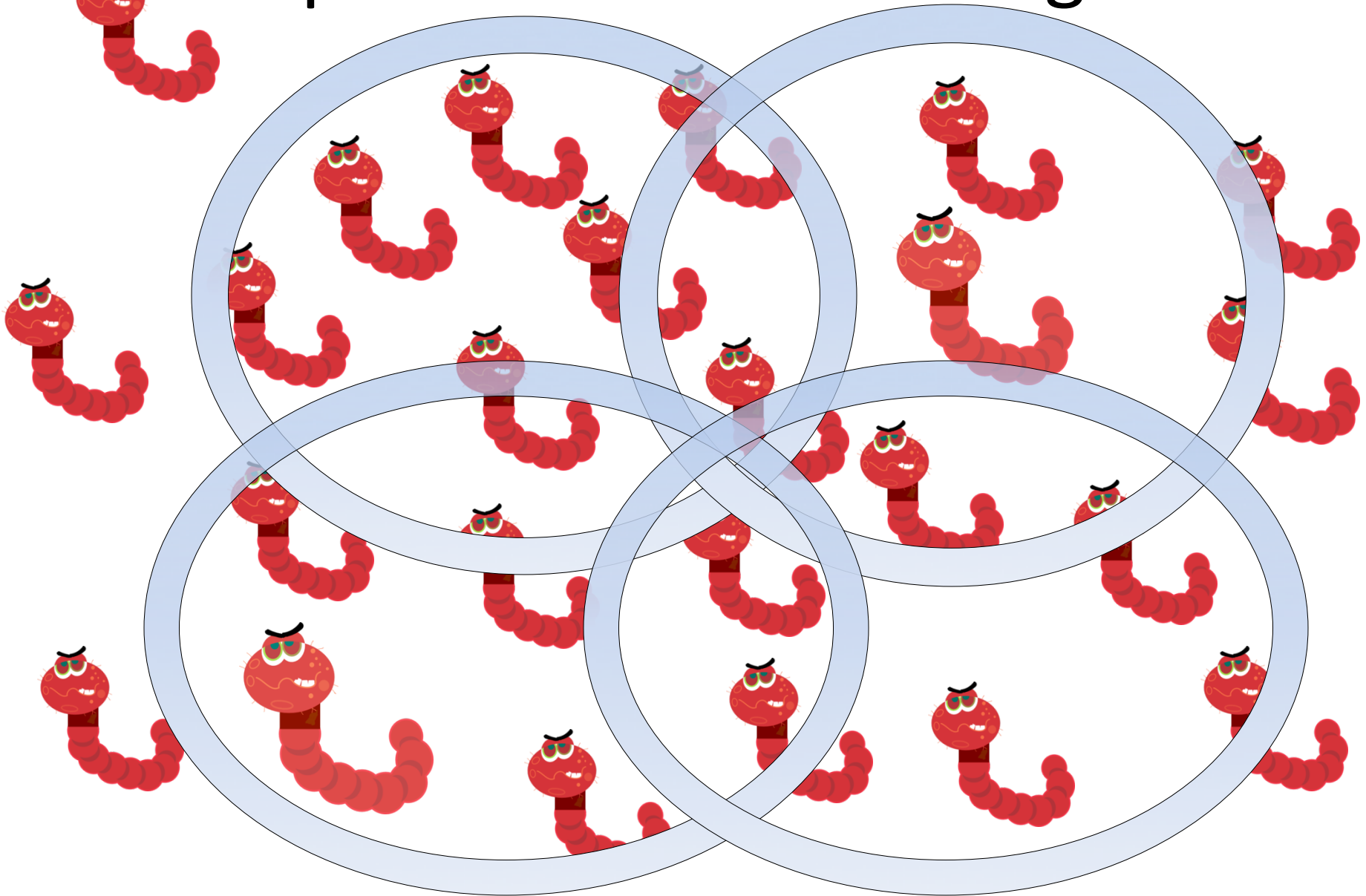
# Full Blown Resistance





Proper Coverage

# Sprinkler Head Coverage?





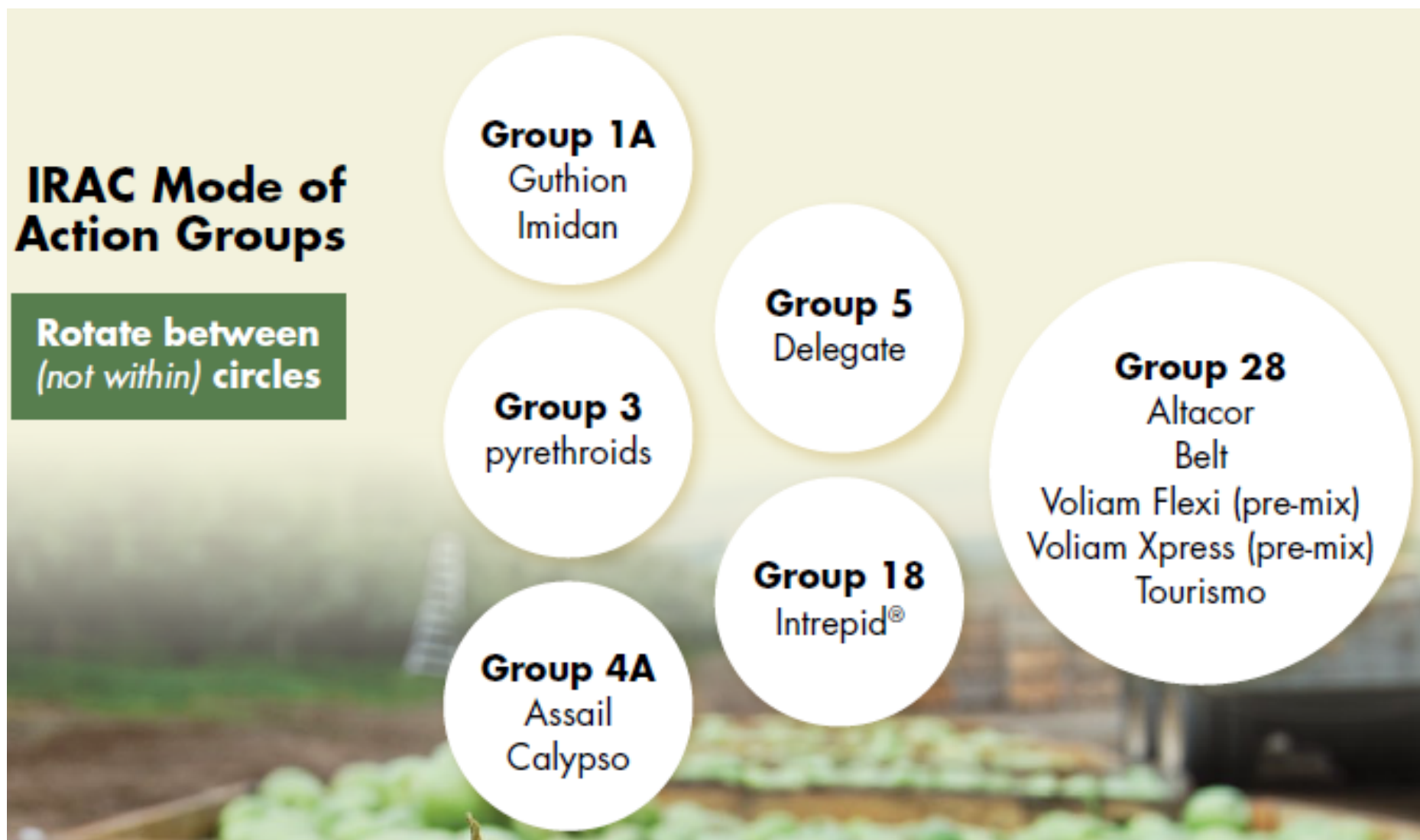
# Rotation

# Rotate Chemistry

- IRAC
  - Insect
  - Resistance
  - Action
  - Committee
- IRAC Online.org



# Delegate and Intrepid are the *Perfect* Rotational Tools

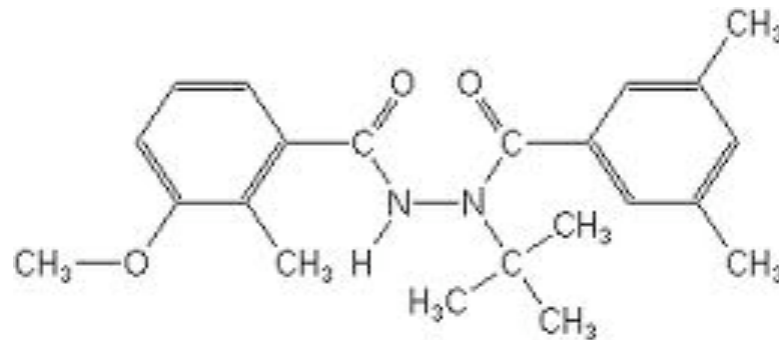


# Apples – Key MOAs for Powdery Mildew and Scab

Triazoles (Group 3)	Strobilurin (Group 11)	Anilino- pyrimidines (Group 9)	SDHI (Group 7)	EDBC (Group M3)
Inspire (Difenaconazole) + Inspire Super	Sovran (kresoxim- methyl)	Vangaurd (cyprodinil)	Pristine (Boscalid + pyraclostrobin)	Captan (Group M4)
Indar (fenbuconazole)	Flint (trifloxystrobin)	Scala (pyrimethanil)	Fontellis (Penthiopyrad)	Sulfur
Rally (myclobutanil)	Strobie Pre Mixes -Adament -Pristine	Benzimidazole (Group 1)	Luna Sensation (fluopyram + trifloxystrobin )	Copper
TopGuard (flutriafol)		Topsin-M	Merivon (fluxapyroxad + pyraclostrobin)	

# Dow AgroSciences IRAC

- Group 5 Nicotinic Acetylcholine Receptors
  - Chemical Class
    - Spinetoram
    - Spinosad
    - Entrust
- Group 18 Ecdysone antagonist
  - Diacylhydrazine
    - Confirm
    - Intrepid



# Timing



# Timing

- Time application to egg hatch
- 1-3 instars easiest to kill
- 4-5 instars eat less
- Use Growing Degree Days to plan application
  - 150 egg lay
  - 550 GDD 50% egg hatch
  - 850 80% egg hatch



# Wrap Up

- 1) Read the Label
  - See resistance management section
- 2) Switch up chemistries
- 3) Good Coverage
- 4) Proper Timing

