

# New Reduced Risk Codling Moth Sprays



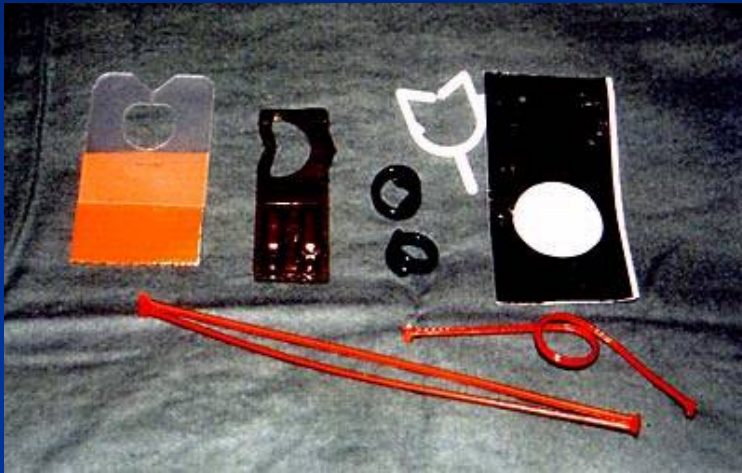
Janet Caprile

Farm Advisor

UC Cooperative Extension



# Codling Moth Control Tool box



**Pheromones**



**Biological Control**



**Sprays**

# Reduced Risk Codling Moth Sprays for Apples 2005 – 2007

- Several new Reduced Risk Insecticides
  - Environmental safety
  - Less toxic to people
  - Narrower spectrum
  - Softer on beneficials
- Need efficacy data for registration in CA
  - Requires crop destruct
    - Need small plot – separate from other apples
    - Need funds to buy the crop



# Reduced Risk Codling Moth Sprays for Apples



2005-2007

- Janet Caprile
  - Farm Advisor, Contra Costa County
- Bob Van Steenwyk
  - Entomology Specialist, UC Berkeley
- Richard Chavez
  - Grower/cooperator
- Chemical Company support
  - Arysta, Bayer, Cerexagri, Chemtura, Dow, Dupont, Gowan, Petro-Canada, Syngenta,

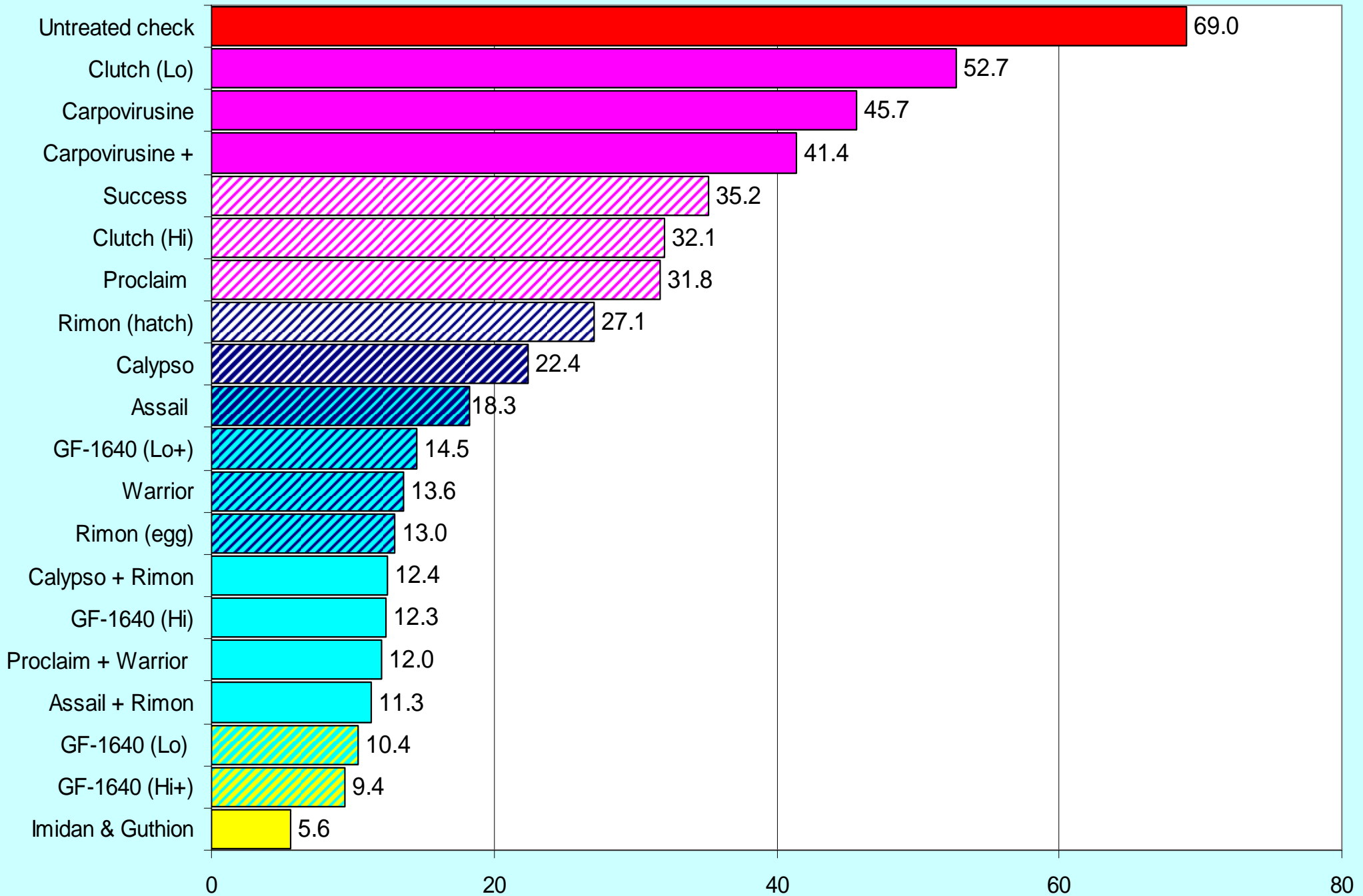
# Reduced Risk Codling Moth Sprays for Apples



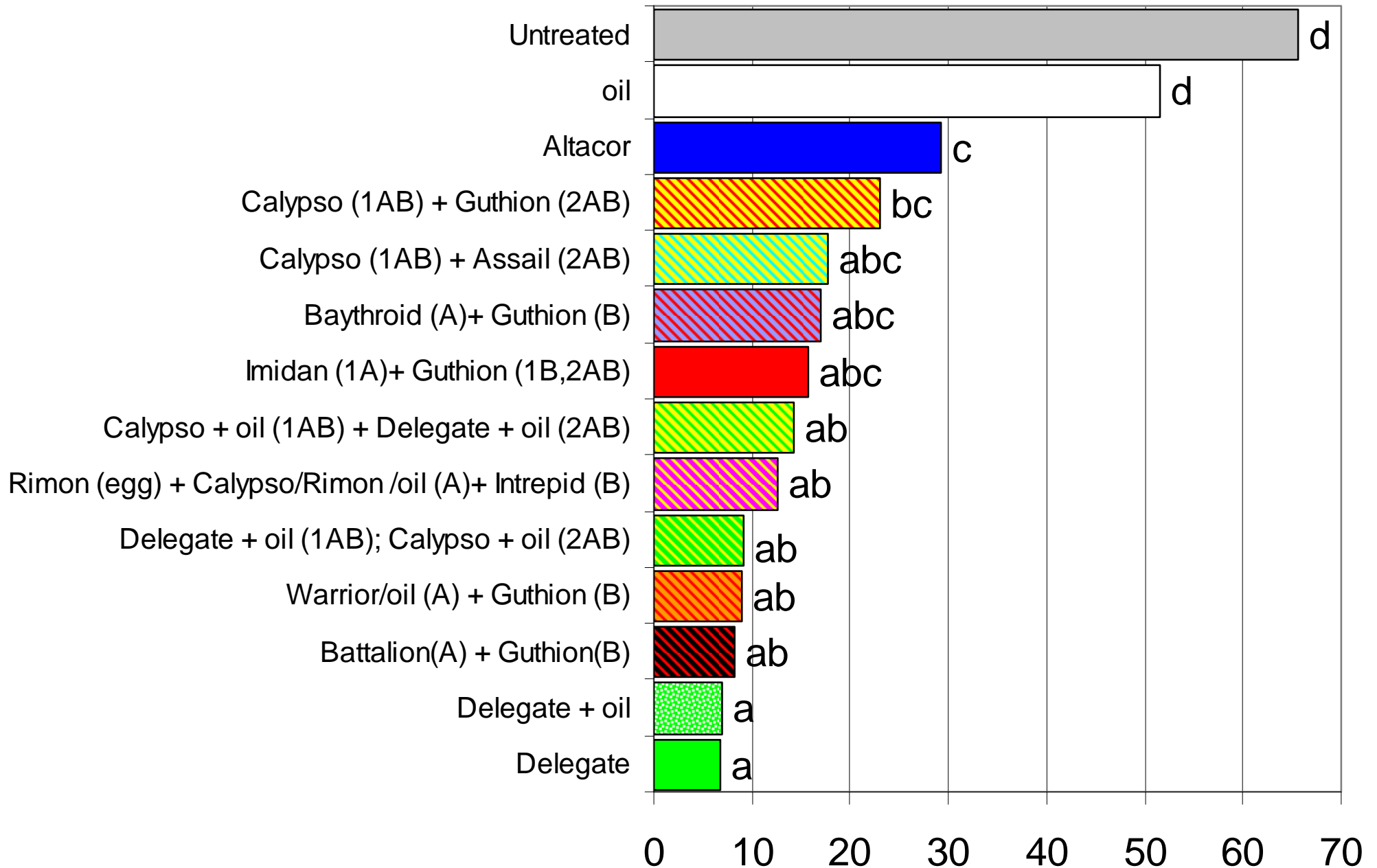
2005-2007

- Hand gun applications
- Small plots: 10-15 trees
- Sprayed at:
  - A: 200-250 DD
  - B: 600-650 DD
- Lots of untreated trees
  - very high population pressure
  - Only measures larvacidal activity
- Good relative comparison
  - With unsprayed and other materials
  - Higher damage than in orchard

# 2005 Codling Moth Damage - Harvest

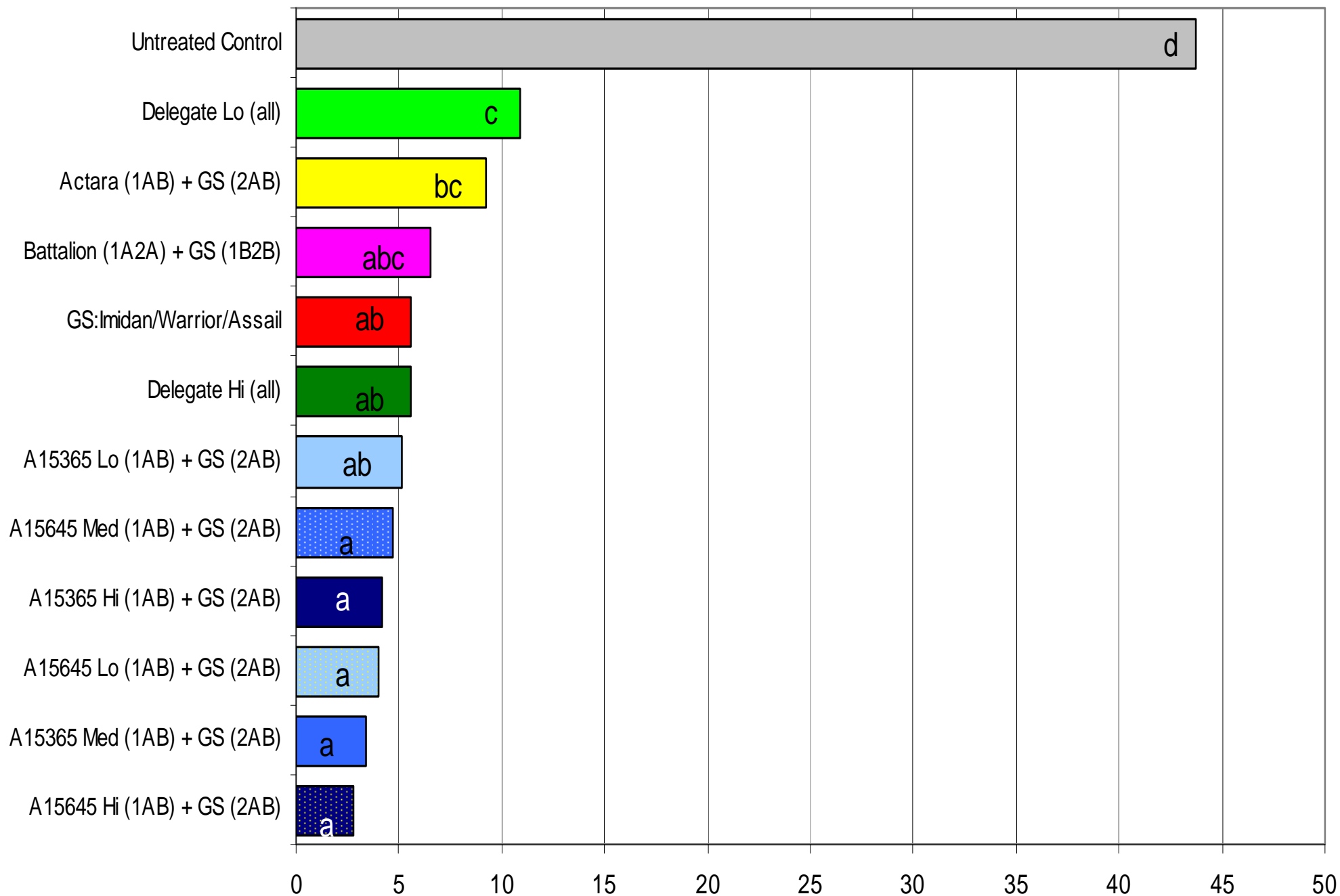


# 2006 Codling Moth Damage



# 2007 - % Codling Moth Damage

Hand gun application





# Reduced Risk Codling Moth Sprays



## Delgate (GF-1640)

- Chemical Class: Spynosyn
- Registration:
  - Federal – 2007; CA - 2008?
- Similar control to Imidan (~80%)
- Category III: Caution
- REI: short
- PHI: 7 days
- Apply at 250 DD + 14 days
- Contact kill - **eggs** & larva
- Also other worms, thrips & LR
- Use a high label rate for CM

# Reduced Risk Codling Moth Sprays



## Altacor (Rynaxypyr)

- Chemical Class: Unique
- Registration:
  - Federal – 2007; CA - 2008?
- Similar control to Imidan (~80%)
- Category III: Caution
- REI: short
- PHI: TBD
- Apply at 250 DD + 14 days
- Contact kill - **eggs & larva**
- Also other worms & LR

# Reduced Risk Codling Moth Sprays



## Assail

- Chem. Class: Chloronicotinyls
- CA Reg. 2003
- Similar control to Imidan (~75%)
- Category IV: Caution
- REI: 12 hours
- PHI: 7 days
- Apply at 250 DD + 14 days
- Limit to 1 generation/season
- Contact kill - **eggs** & larva
- Also LH, GAA ; not LR
- Watch for mites



# Reduced Risk Codling Moth Sprays



## Calypso

- Chem Class: Chloronicotinyls
- CA Reg. 2005
- Similar to Assail (~70% control)
- Category II: Warning
- REI: 12 hours
- PHI: 30 days
- Apply at 250 DD + 14 days
- Limit to 1 generation/season
- Contact kill - **eggs** & larva
- Also for **RAA**, GAA, (LH); not WAA, LR



# Reduced Risk Codling Moth Sprays



## Intrepid

- Class: Insect Growth Regulator
  - Prevents molting
- CA Reg: 2003
- For lower pressure CM sites (~65% CM control)
- Category III: Caution
- REI: 4 hours; PHI: 14 days
- Toxic to eggs & larva (must eat)
- Apply at 100-200 DD
- 4 appl. max/season
- needs excellent coverage
- Also: LR

# Reduced Risk Codling Moth Sprays



## Rimon .83EC

- Class: Insect Growth Regulator
  - Prevents hatch like Dimlin but better
- CA Reg: Late 2006
- Category: Warning
- Similar control to Imidan (~75%)
- REI: 12 hours
- PHI: 14 days
- Toxic to eggs laid after
  - Apply at 50-75 DD; 1000 DD
- Reapply in 14-17 days
  - May need 2-3 application/gen)
  - Max of 4 applications/season
- Bee & runoff caution
- Also gets: TLM, LR, LH

# Reduced Risk Codling Moth Sprays



## Warrior

- Class: Pyrethroid
- CA Reg: 2002
- Category: Warning
- Similar control to Imidan (~75%)
- REI: 24 hours
- PHI: 21 days
- Good Contact
- Reapply in 10-14 days
- Broad spectrum: LR, LM, LH, SJS, RAA, GAA, AM, PB
  - Watch for mites!
- Water quality concerns

# Reduced Risk Codling Moth Sprays

Insecticide	Class	Effectiveness
Altacor	anthranilamide	4
Delegate	spinosyn	4
Assail	neonicotinyl	3
Calypso	neonicotinyl	3
Rimon	insect growth regulator 1	3
Warrior	pyrethroid	3
Intrepid	insect growth regulator 2	2+
Entrust/Success	spinosyn	2
Granulosis	virus	1+
Horticultural Oil	oil	1





# Reduced Risk Codling Moth Sprays



## Organic Insecticides

### Entrust (organic)

- Fermented from a fungus
- For low CM pressure sites
- 1% oil increases efficacy
- Reapplication: 10-14 days
- Not a contact – must eat
- Category IV: Caution
- REI: 4 hours; PHI: 7 day
- 4 application limit/year
- Also for LR, LM, thrips

# Reduced Risk Codling Moth Sprays

Sprays



## Organic Insecticides

### Granulosis virus

- CydX, Carposvirosine, Virosoft
- CA Reg: 2006
- For lower pressure CM sites
- Short residual – use lower rate, reapply frequently (7-10 days)
- Alternate w/ Entrust
- Use to supplement MD
- Reduces the next generation

# Reduced Risk Codling Moth Sprays

Sprays



## Organic Insecticides

### Summer Oil

- Suffocates eggs, no residual
- 0.25%-1%
- CM suppression  
(~20-40% CM control)
- Apply every 150-200 DD
- Impacts on fruit finish, vigor?, sunburn? w/season long use
- Phytotoxic with sulfur
- Also for mite, LH suppression