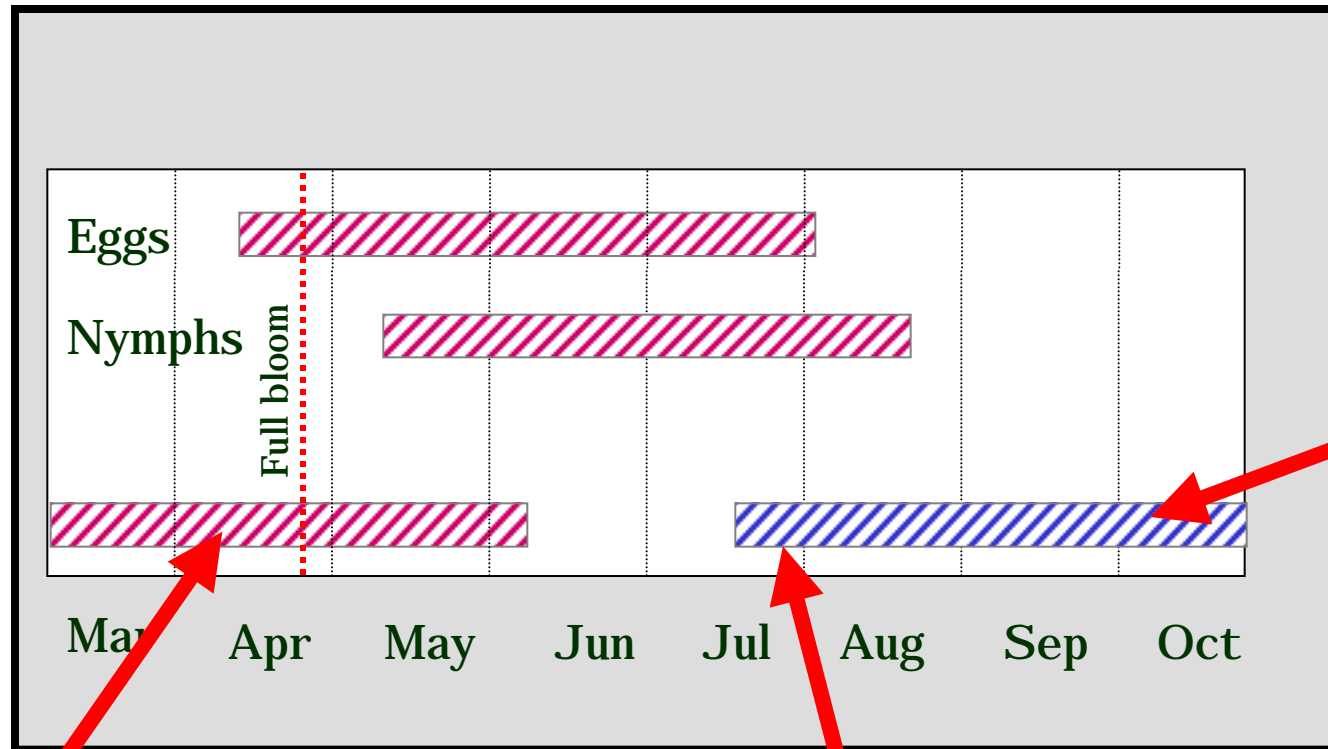


Management of Native Vegetation for Control of Stink bug

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The vast majority of SB life cycle is spent *outside* orchards!



Spend winter in protected areas in/around orchard

Adults mating/laying eggs in border vegetation

Begin immigration into orchards (as adults only!)

Stink bug native hosts near orchards promote invasion



Bitterbrush

Preferred
SB hosts

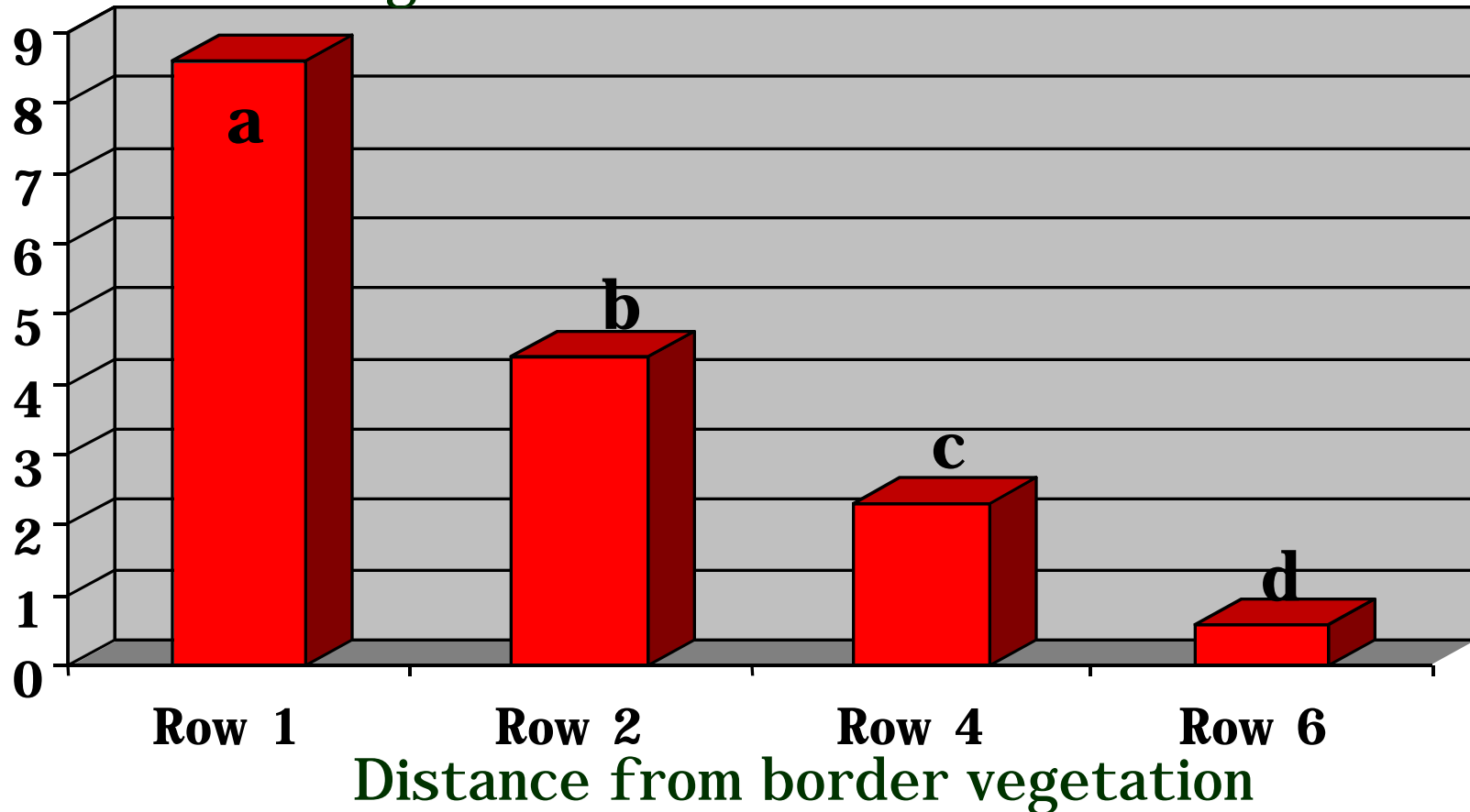


Mullein

Stink bug damage - Row effect

(results pooled from 8 Orondo/Manson orchards)

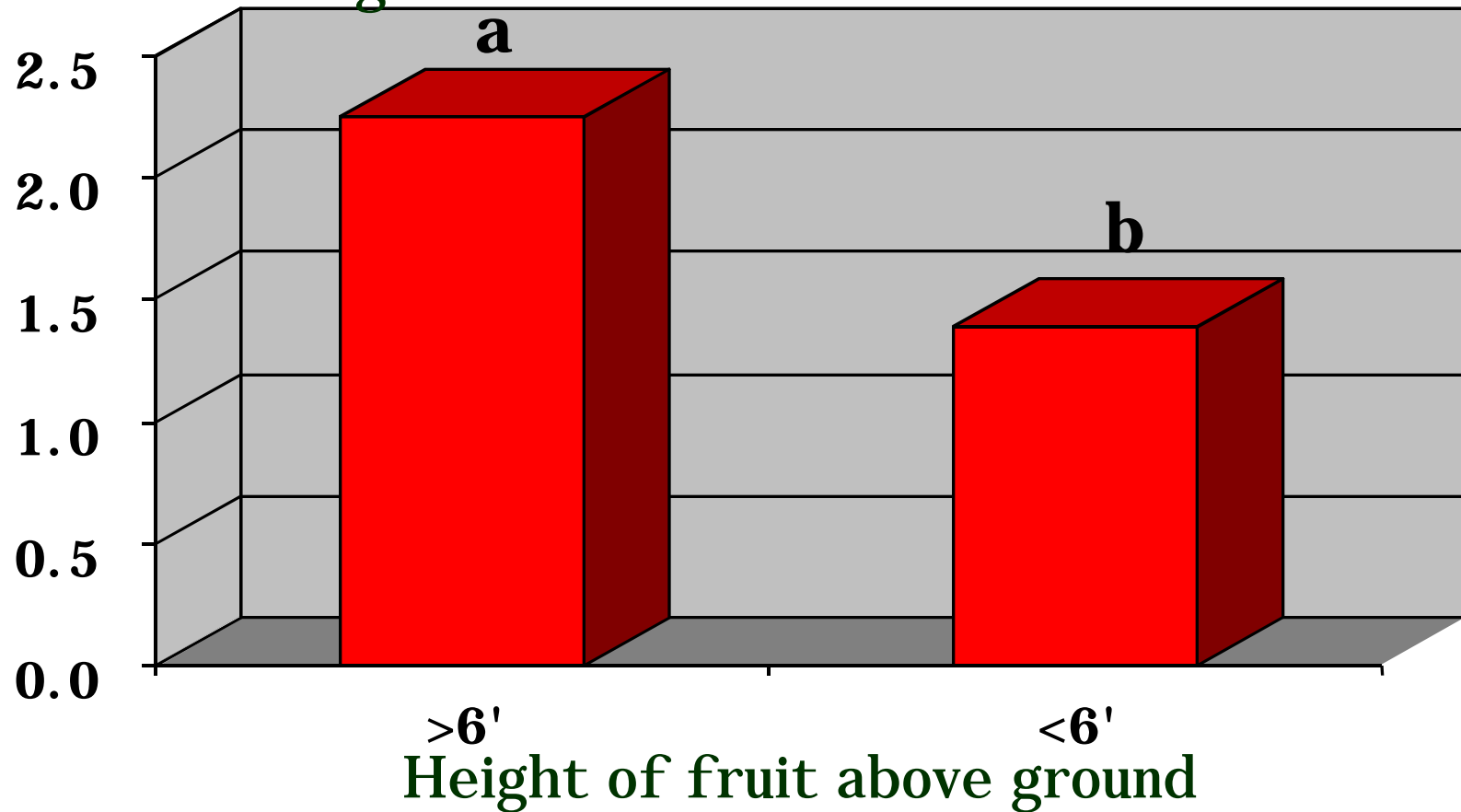
% fruit damage



Stink bug damage - Height effect

(results pooled from 8 Orondo/Manson orchards)

% fruit damage



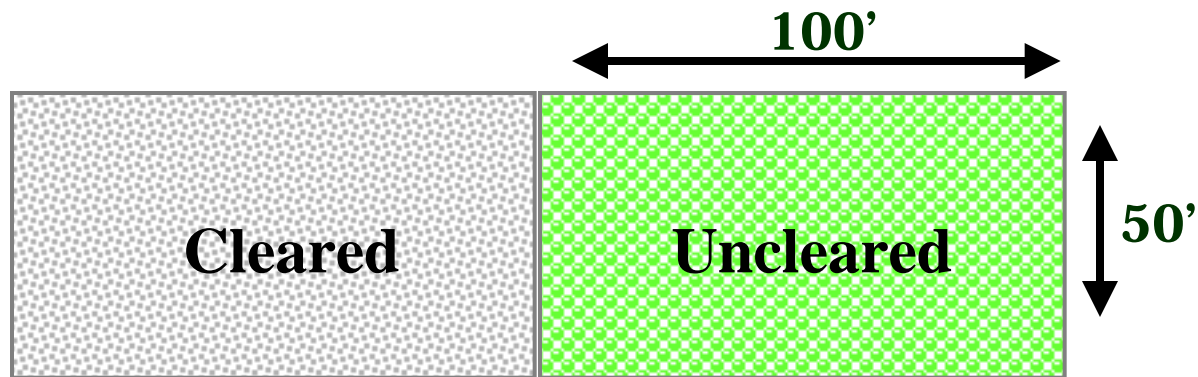
Stink bug phenology - **Must** include native vegetation!

- ◆ damage consistently highest along borders with abundant native vegetation
- ◆ eggs placed on apple exhibit 100% mortality before adult stage is reached
- ◆ within-tree fruit damage increases higher in the canopy, where winged adult SB can attack fruit more readily than wingless nymphs

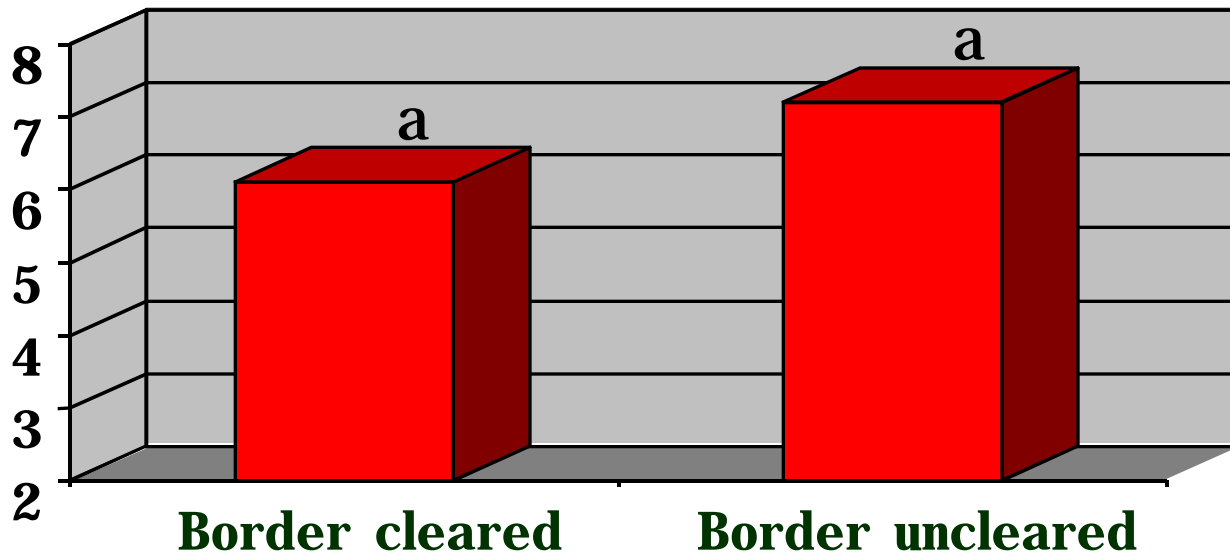
Targeting Border Vegetation: Management options

- ◆ **Border clearing:** mechanical removal of all vegetation early in season to reduce SB habitat near orchards
- ◆ **Border baiting:** use of synthetic pheromone to retain stink bug populations on native hosts longer
- ◆ **Border spraying:** use of insecticides to reduce pheromone-aggregated SB populations in borders prior to invasion

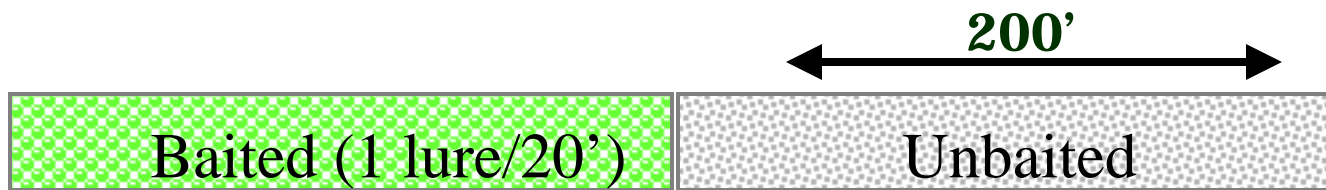
Border clearing - Results



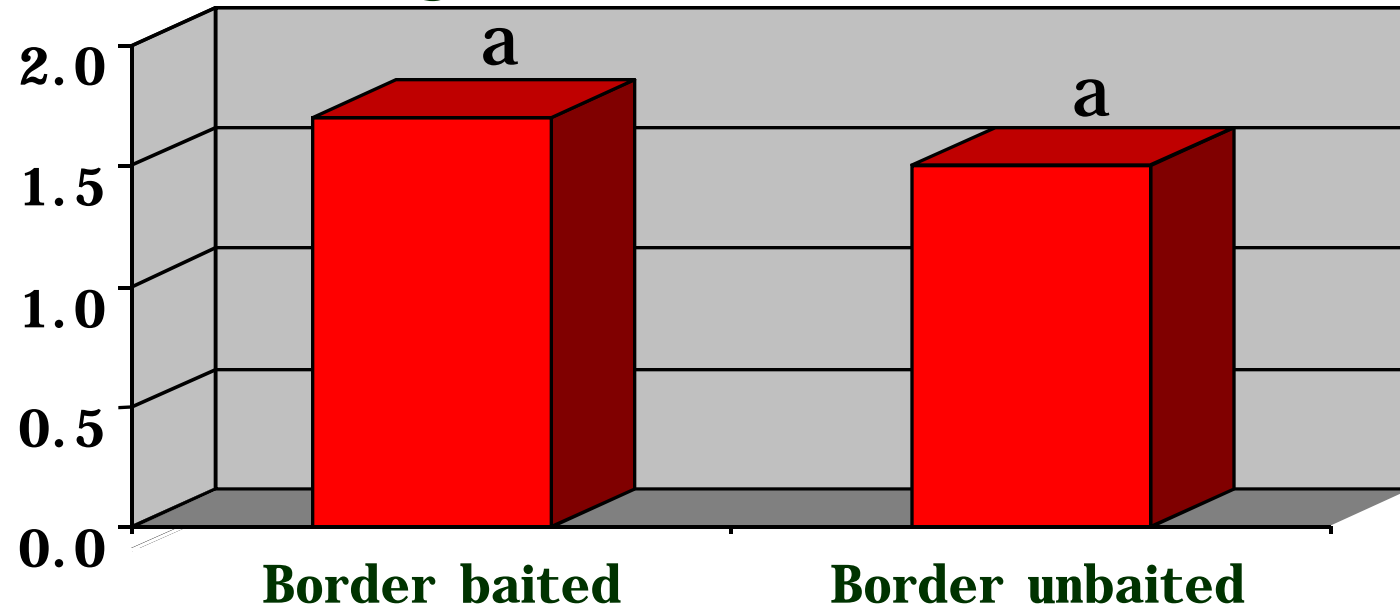
% fruit damage



Border baiting - Results



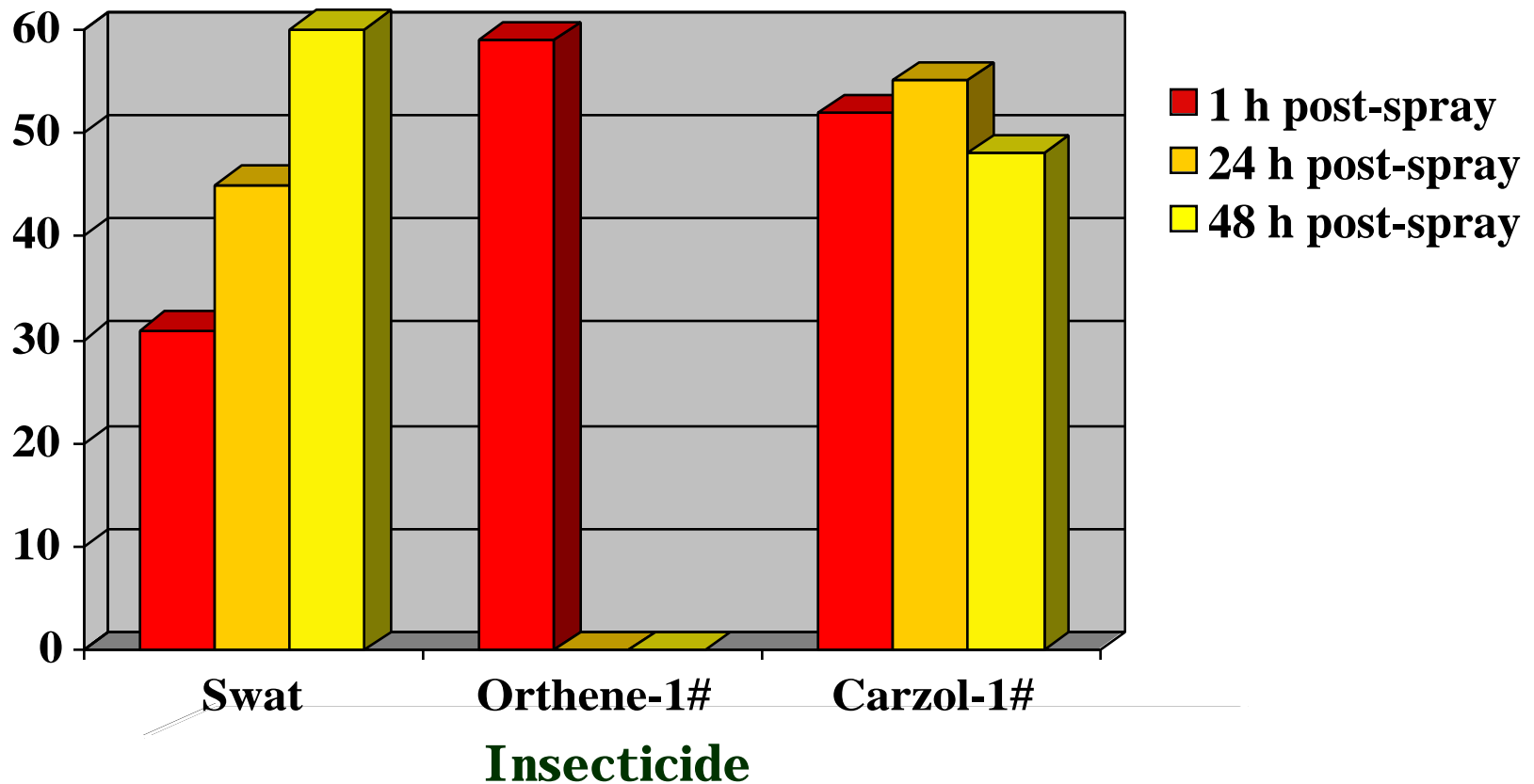
% fruit damage



Border spraying I - Results

Airblast spray of all border vegetation at 400 gpa

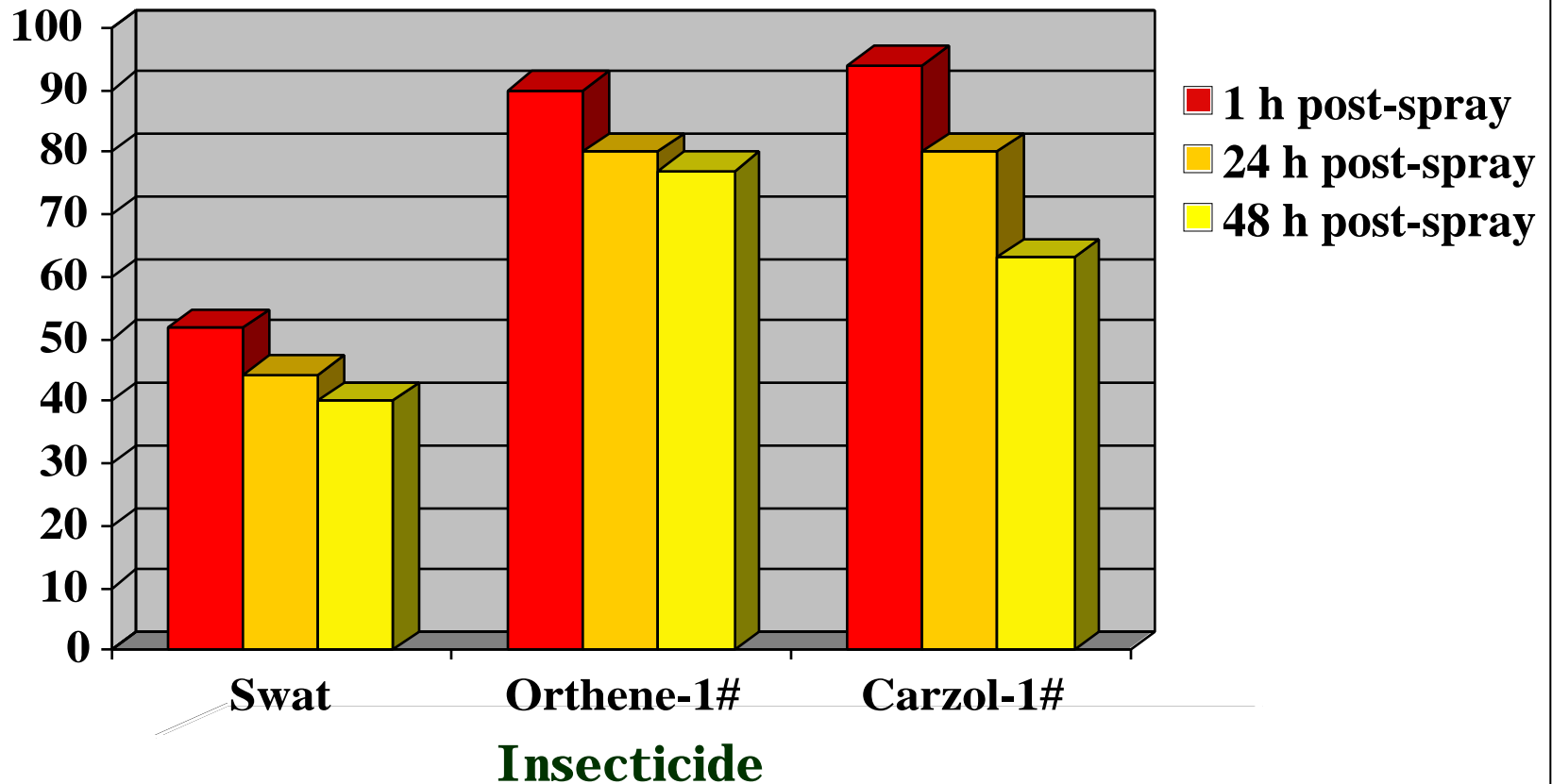
Total bugs (% reduction)



Border spraying II - Results

Handgun spray of baited host plants only at 200 gpa

Total bugs (% reduction)



Review and Future goals

- ◆ Border clearing and border baiting did not significantly reduce stink bug injury at harvest
- ◆ Insecticide treatments with handgun application to baited host plants only showed enhanced levels of control over broadcast application of same insecticides using an airblast sprayer
- ◆ Evaluate the potential of an ‘attract-and-kill’ strategy by:
 - Concentrating stink bugs to cultivated plants where insecticides can be applied
 - Concentrating stink bugs to native plants and assessing biological control