SP2480

SP2480 Overview

- Plant extract
  - Biochemical classification
- Plant response
  - Plant defense activation (ISR + SAR)
  - Phytoalexin production
- Direct pathogen activity
  - Inhibition of fungal development
    - Prevents mycelia
    - Limits conidia growth
    - Encapsulates fungi, cutting off nutrient supply
- Known activity – powdery mildew

SP2480 Additional Data Needed

- Further quantification of disease spectrum
  - *Botrytis*
  - Downy mildew
  - Anthracnose
  - Leaf spots and blights
- Crop safety

SP2480 on Powdery Mildew - Cucumber

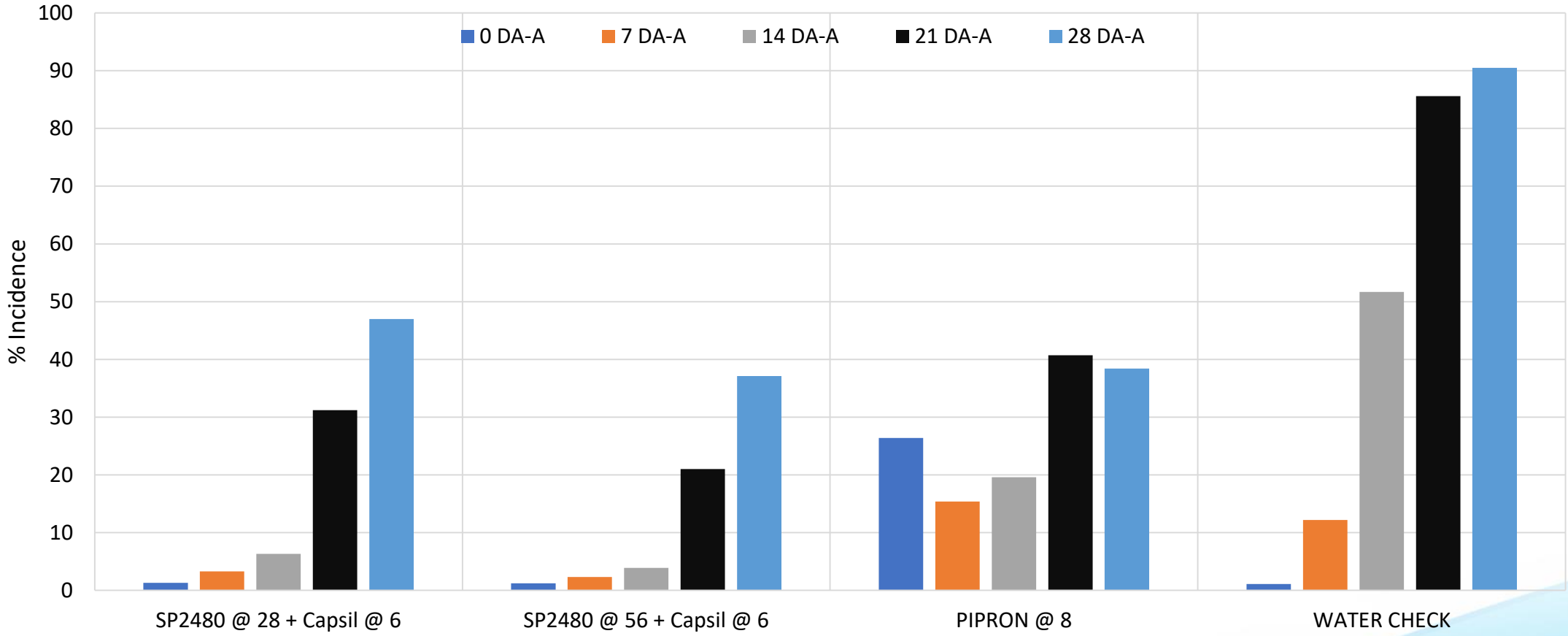
Before Application

PMC Index: ++++ (> 80%)

3 Days after Application

PMC Index: 0 or + (< 20%)

SP2480 on Powdery Mildew - Rose



3 applications, 10 days apart

SP2480 on Powdery Mildew - Rose

Before

After

SP8010 – Biofilm Inhibitor

SP8010 Overview

- Shown to inhibit development of copper resistant bacteria
  - Enhanced activity when mixed with copper
- 2 primary activities
  - Biofilm inhibitor/disruptor
  - Response neutralizer
- Not -cidal – must be used in combination with a bactericide

SP8010 Additional Data Needed

- Efficacy against difficult to control/resistant bacterial diseases
  - Spots
  - Blights
- Crop safety

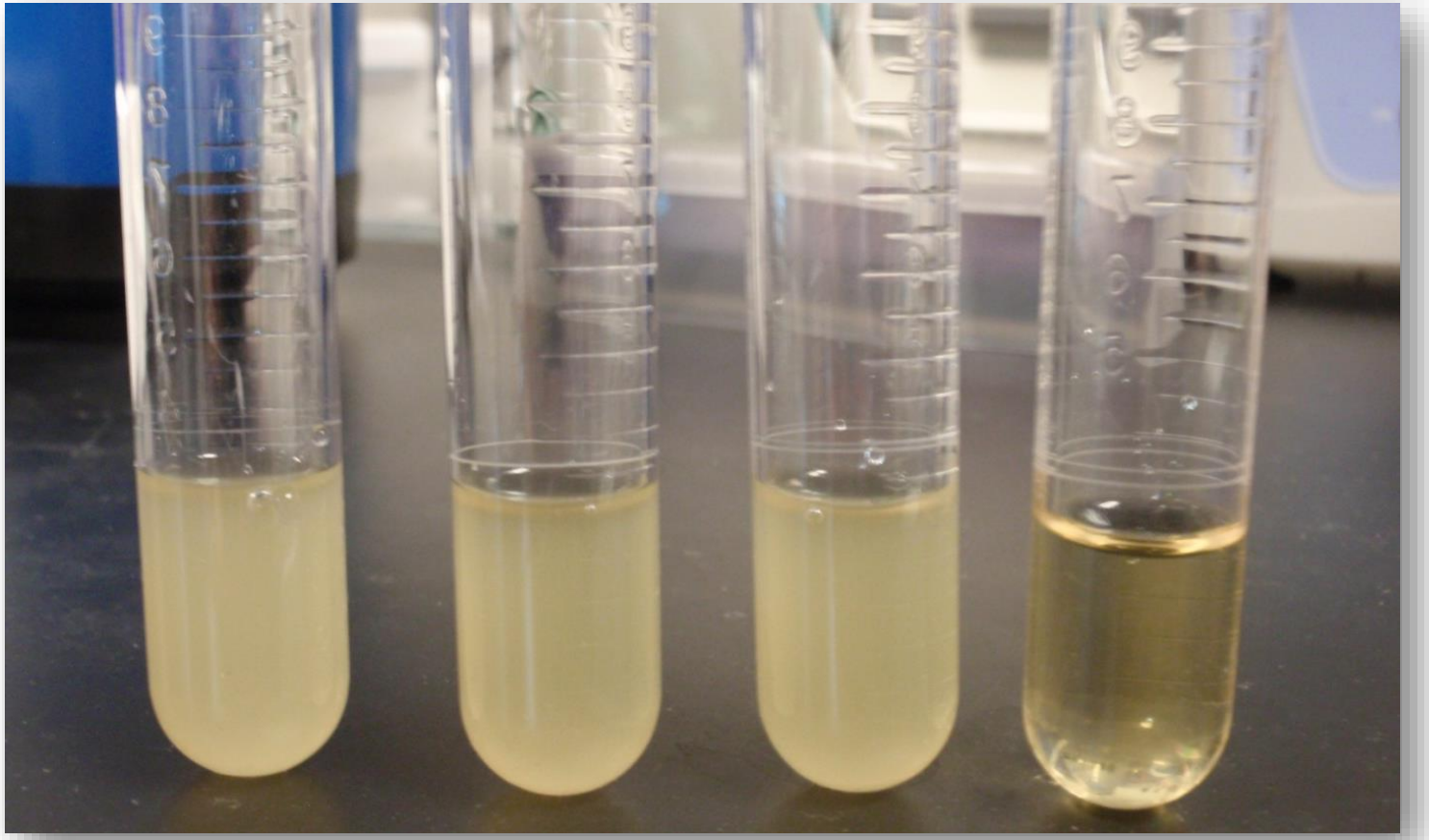
SP8010 - Biofilm Inhibitor/Disruptor

- Prevents biofilms from forming
  - Easy to manage single bacteria cells vs colonies
  - Limits potential for infection
- Breaks apart existing clusters/colonies of bacteria
  - Allows biocides to contact and work on bacteria

SP8010 - Response Neutralizer

- Enters the bacteria cell
- Interferes with the two component system within the cell
- Neutralizes the natural defense responses of the bacteria
  - Temperature
  - UV
  - Chemical threat

SP8010 Re-Sensitizes Resistant Bacteria



Resistant Bacteria (Control)	Resistant Bacteria + Bactericide	Resistant Bacteria + SP8010	Resistant Bacteria + Bactericide + SP8010

SP8010 Enhances Standard Treatments

Copper Alone

Copper + SP8010

SP3014

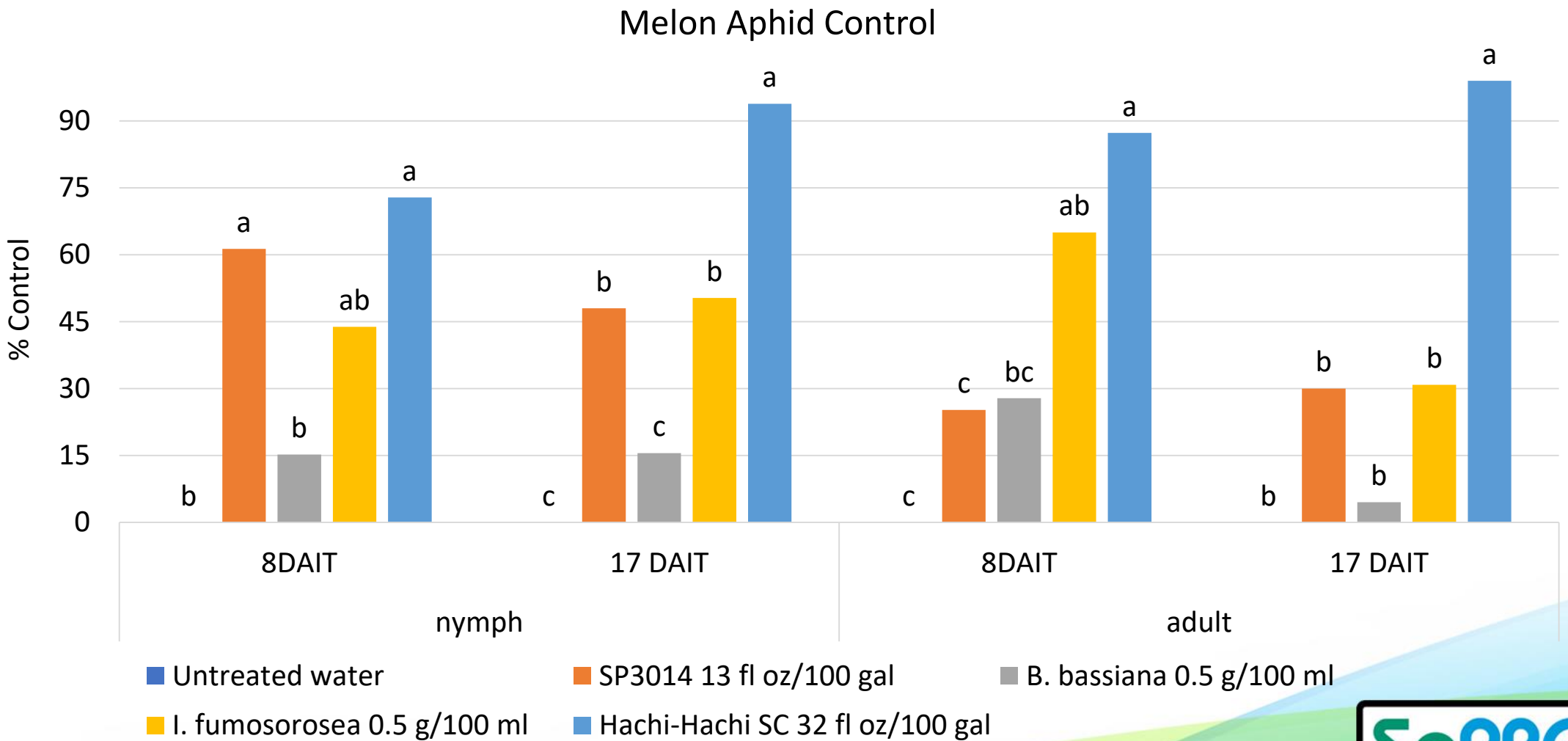
SP3014 Overview

- Natural derivative of a plant seed extract
- MoA
  - Stomach poison and anti-feedant
    - Increases acetyl cholinesterase activity
    - Increases phenol oxidase activity
    - Decreases carbohydrate hydrolysis
  - Breath inhibition and motion imbalance
- Known activity
  - Mites and aphids
- BCA compatible

SP3014 Additional Data Needed

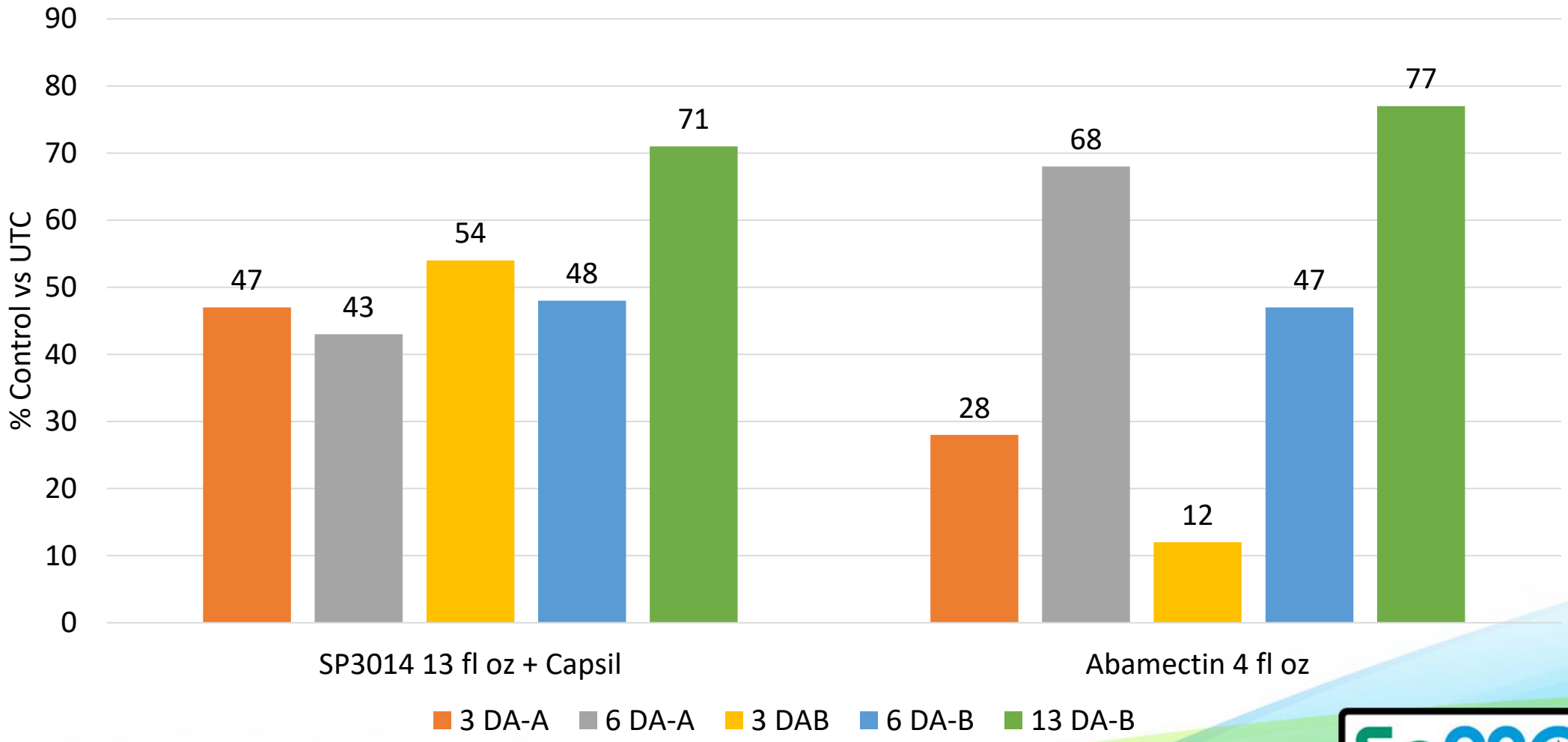
- Further quantification of insect spectrum
  - Thrips
  - Whitefly
  - Lepidoptera
  - Coleoptera
  - Fungus gnats
- Crop safety

SP3014 Efficacy on Aphids



SePRO, 2018

SP3014 Efficacy on Spider Mites



Crop Inspection Service, 2019