

***Integration of Safari® and Distance®
IGR into a Management Program for
Cycad Aulacaspis Scale***

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Cycad Aulacaspis Scale



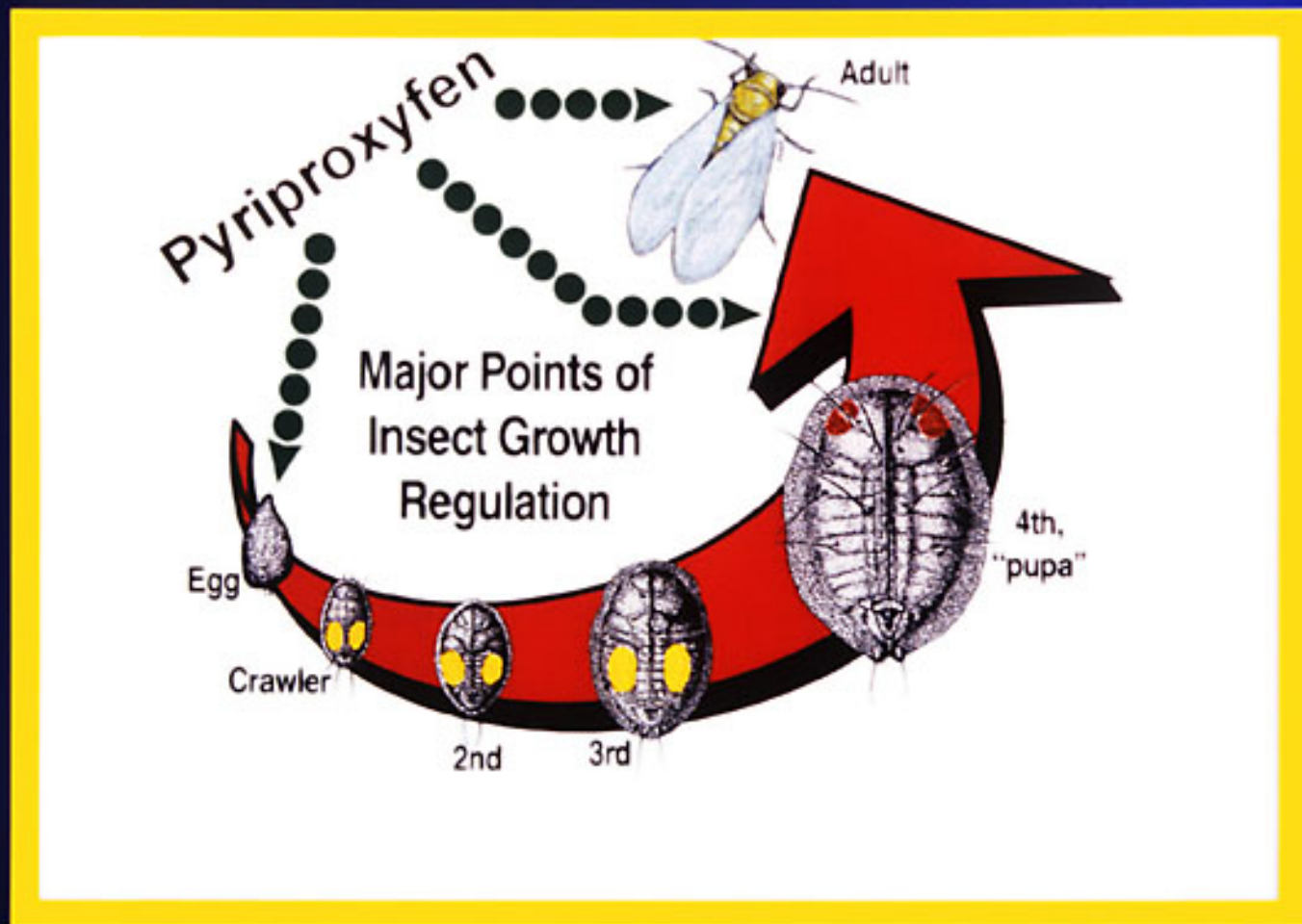
Scale insects get on the roots and around the seeds

Distance IGR

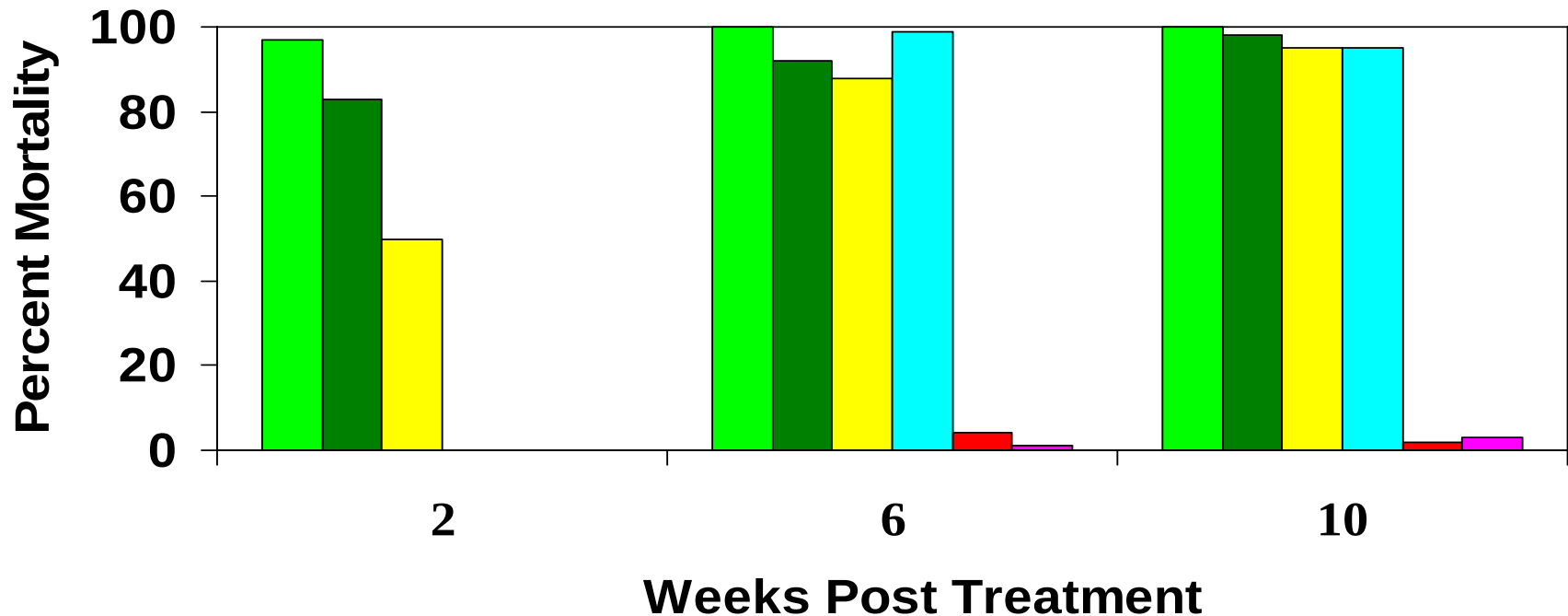
- Insect growth regulator
- Spray or drench
- Life Stages affected
 - ✓ Eggs (ovicidal)
 - ✓ Nymphs
 - ✓ Adults sterilized
- Translaminar
- Biorational/ reduced risk



Sites of IGR Activity



Mortality of Female Asian Cycad Scale



■ Dimethoate (Spray)

■ Organocide (Spray)

■ Merit (Spray)

■ Dimethoate (Drench)

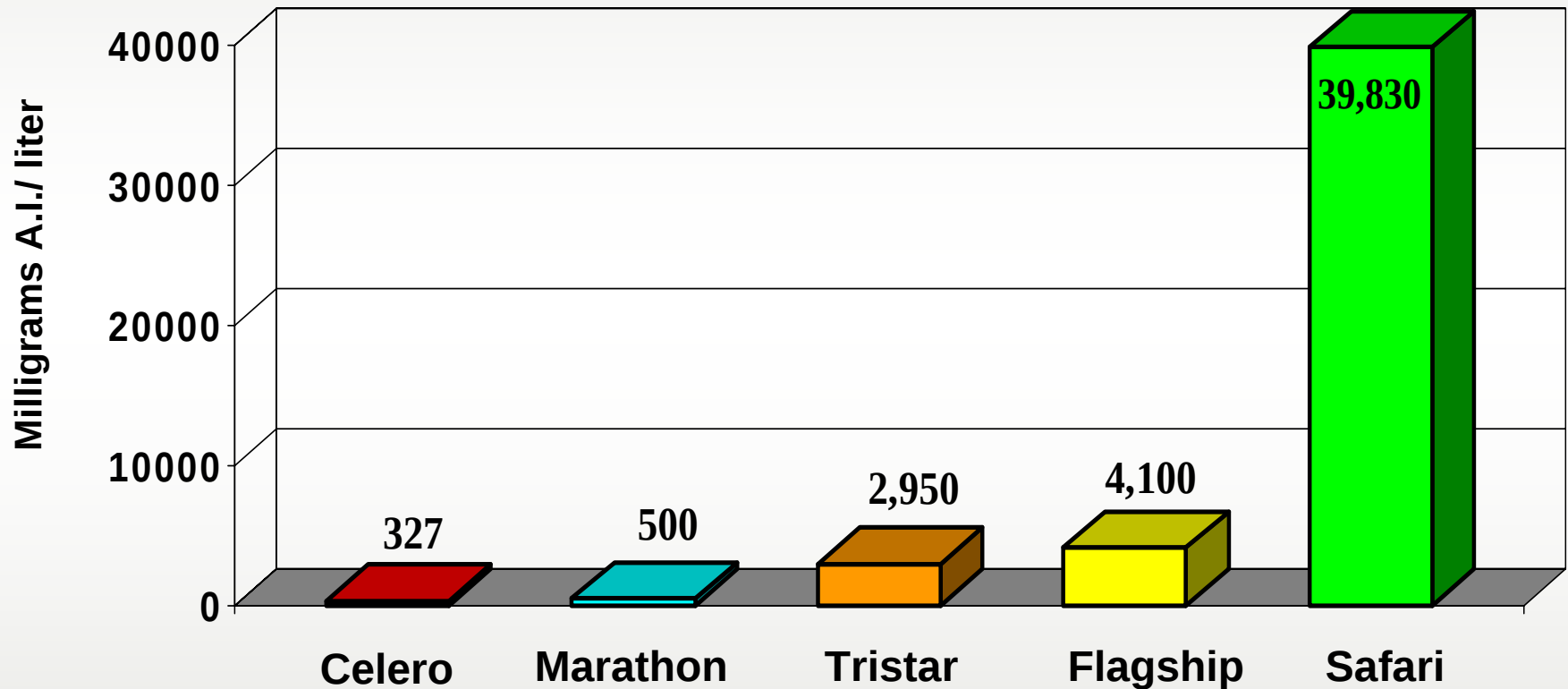
■ Distance (Spray)

■ Merit (Drench)

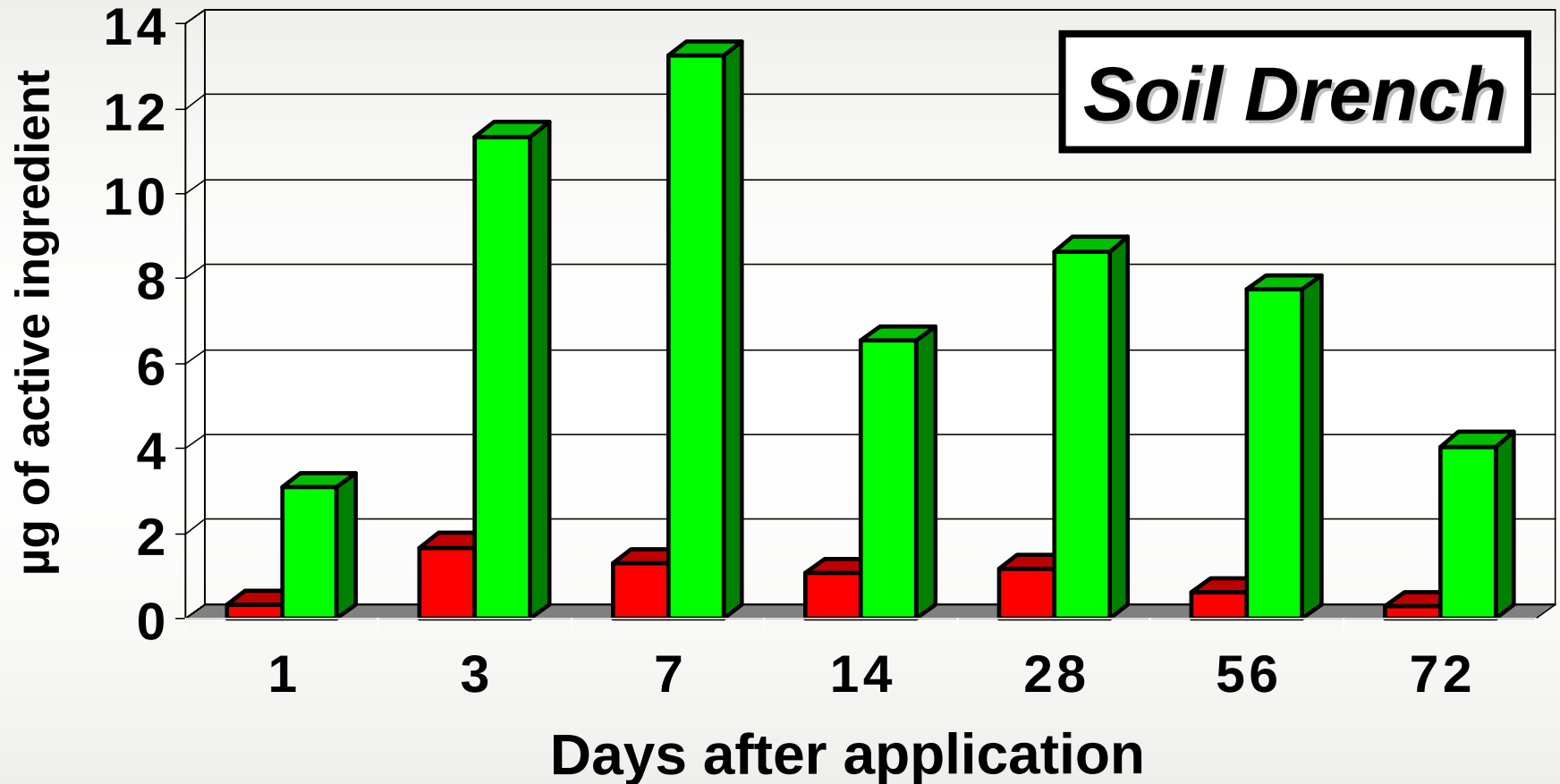
Safari 20SG

- Dinotefuran
- Neonicotinoid
- Spray, drench, chemigation
- Nursery and landscape
- Label revision pending
 - Landscape use language
 - New pests

Water Solubility (Active Ingredient)



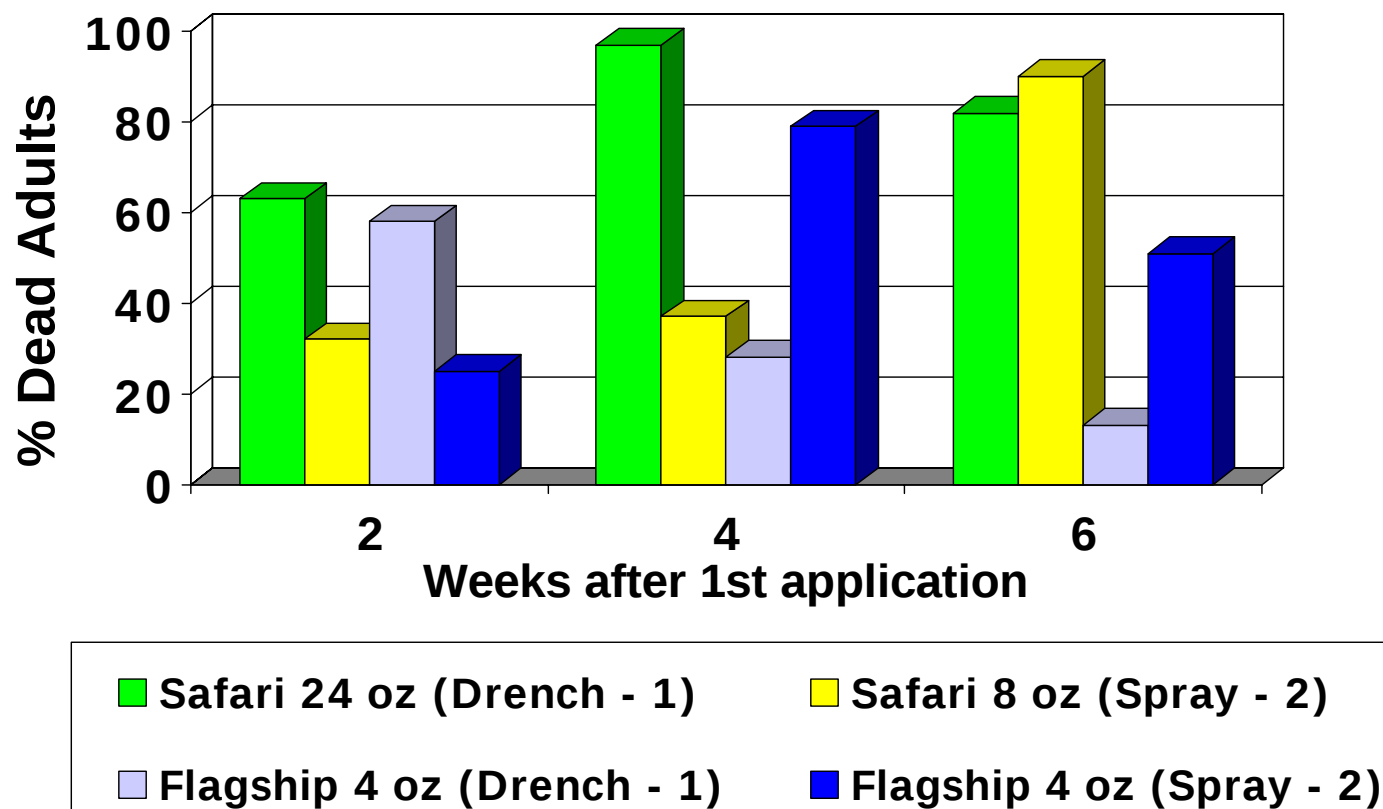
Leaf Concentration in Poinsettia



■ Marathon II (1.7 oz/1,000 pots)

■ Safari (12 oz/100 gal)

Cycad Aulacaspis Scale



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Effect on Beneficiaries

Cycad Aulacaspis Scale

Biological Control



Parasite - wasp



Predator – beetle

Safari 20SG

Impact on Beneficials

Parasite/ Predator	Foliar Spray	Soil Drench
<i>Encarsia formosa</i>	Not tested	😊 -- 😐
<i>Diglyphus isaea</i>	😐 -- 😞	😊 -- 😐
<i>Aphidius colemani</i>	😞	😊
<i>Coccinella septempunctata</i>	😊	Not tested
<i>Phytoseilus persimilis</i>	😊	😊
<i>Amblyseius cucumeris</i>	😊	Not tested
<i>Aphidoletes aphidimyza</i>	😞	😊

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Environmental Impact And Fate



Safari 20SG

How Safe Non-targets?

- Practically nontoxic to fish, birds, aquatic plants, and standard aquatic invertebrates
- Toxic to honeybees and shrimp
- *Favorable ecological risk profile*

Safari 20SG

Environmental Fate?

- Low leaching potential
- *No groundwater advisory*
- Soil half life: 22-68 days
- Not expected to bioaccumulate
- *Favorable environmental fate profile*

Integration

- **Safari**
 - ✓ Drench most effective – “coverage”
 - ✓ Pending label: 3-6 grams/ foot of height
 - ✓ Active growth
- **Distance**
 - ✓ Two foliar sprays – 21 days apart
 - ✓ Patience

Questions?

