



IR-4 Food-Use Product Updates Industry Technology Session

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Overview of Presentation

- Currently under IR-4 evaluation:
 - MBI-015
 - MBI-121
 - MBI-203 SC2
 - MBI-306





MBI-015

- AI: Inactivated *Burkholderia rinojensis* strain A396 cells
- New mode of action
- Product Type: post-emergence weed control
- Target weeds: annual broadleaves, including Amaranthaceae, Asteraceae, Brassicaceae
- Status: Undergoing development of formulations and art of use





MBI-015: Spectrum

Family	Common Name	≥ 90% Control in Lab	≥ 90% Control in Field*
Amaranthaceae	Palmer amaranth		
	Redroot pigweed		
	Waterhemp		
	Lambsquarters		?
	Kochia		?
Asteraceae	English daisy		?
	Prickly lettuce		?
Brassicaceae	Clasping pepperweed		
	Wild radish		?
	Wild mustard		?
Malvaceae	Velvetleaf		?
	High mallow		?
Fabaceae	Black medic		?
Onagraceae	Fireweed		?
Plantaginaceae	Buckhorn plantain		?





IR-4 Needs for 2023 and beyond

- Additional field testing of MBI-015 on wide range of annual broadleaves
- Crop safety data
- Application rates*: 1 qt/A and 2 qts/A

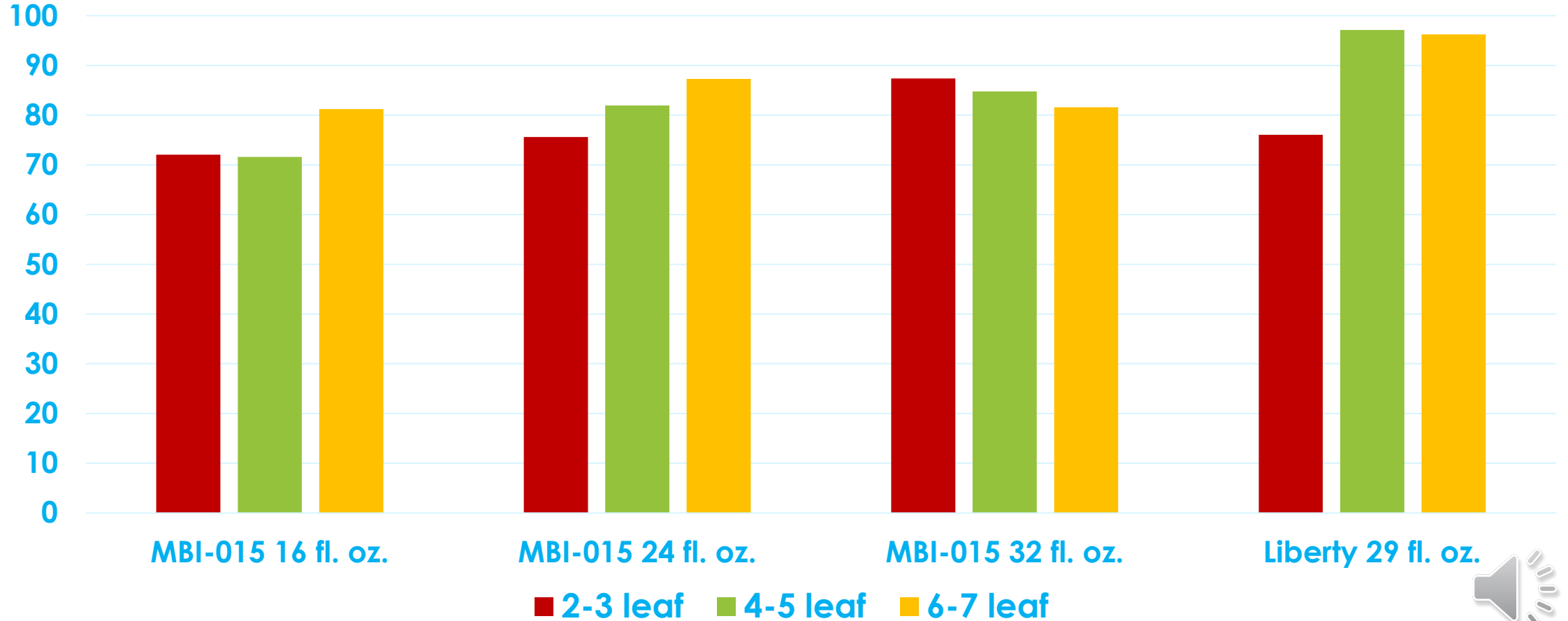
*subject to change depending on final concentration of AI





MBI-015 Herbicide Efficacy over Multiple Locations

Average Percent Control of Palmer amaranth





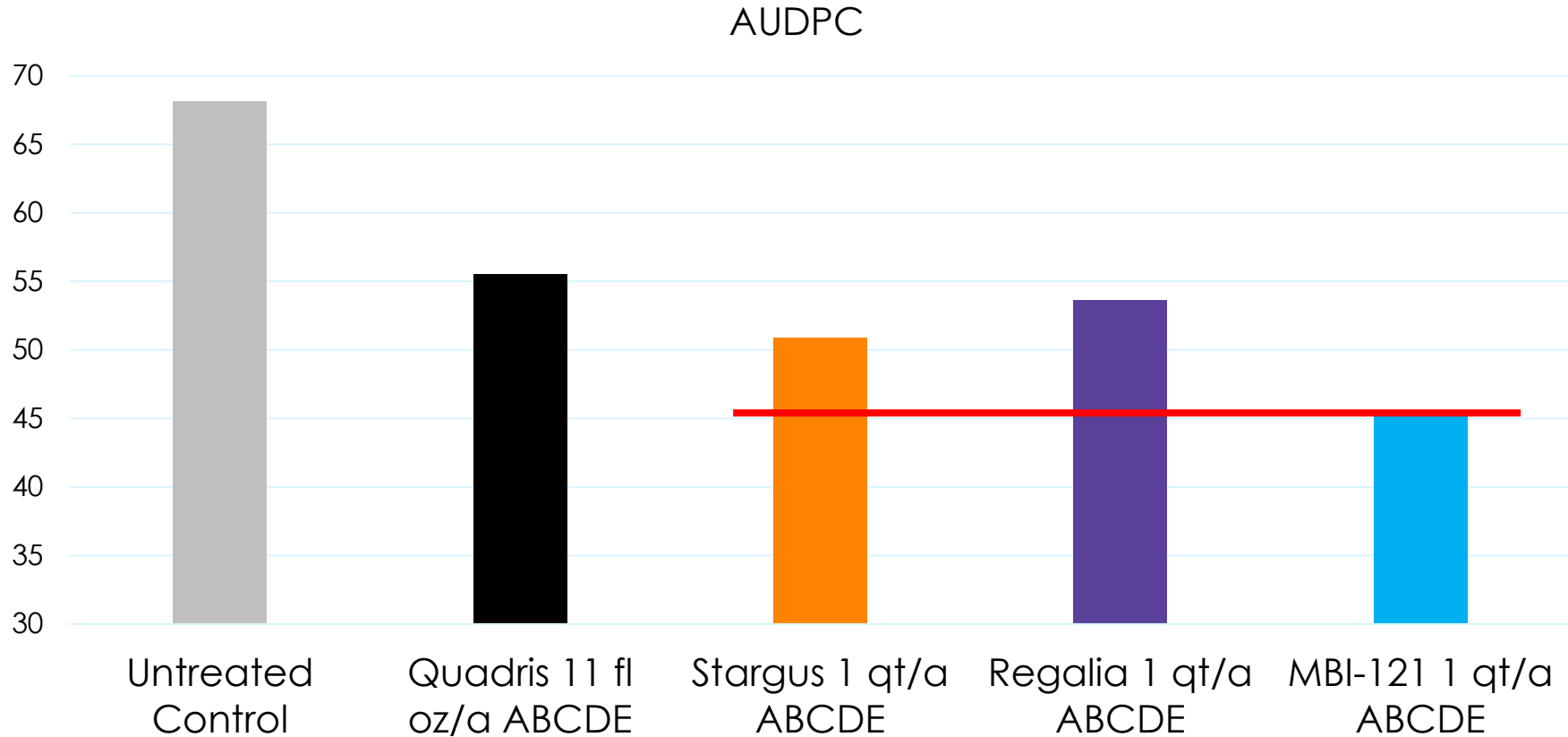
MBI-121: Two bioinsecticides in one

- MBI-121: 3.3% *Reynoutria sachalinensis* extract plus *Bacillus amyloliquefaciens* strain F727
- Regalia[®] biofungicide: 5% *Reynoutria sachalinensis* extract
- Stargus[®] biofungicide: 96.4% live spores of *Bacillus amyloliquefaciens* strain F727 cells and spent fermentation media





Stargus, Regalia and MBI-121 against Powdery Mildew on Butternut Squash



- Five applications (6-8 days apart)
- Glades Crop Care, 2019 - Florida





MBI-203 SC2 Bioinsecticide

- New species of *Chromobacterium (subtsugae)* isolated from forest soil from Maryland by Dr. Phyllis Martin, USDA-ARS
- *C. subtsugae* strain PRAA4-1T
 - Product is dead bacteria plus associated compounds produced in the cells and spent fermentation media
 - Liquid formulation: MBI-203 SC2
 - WDG formulation: Grandevo[®]





MBI-203 SC2 Bioinsecticide

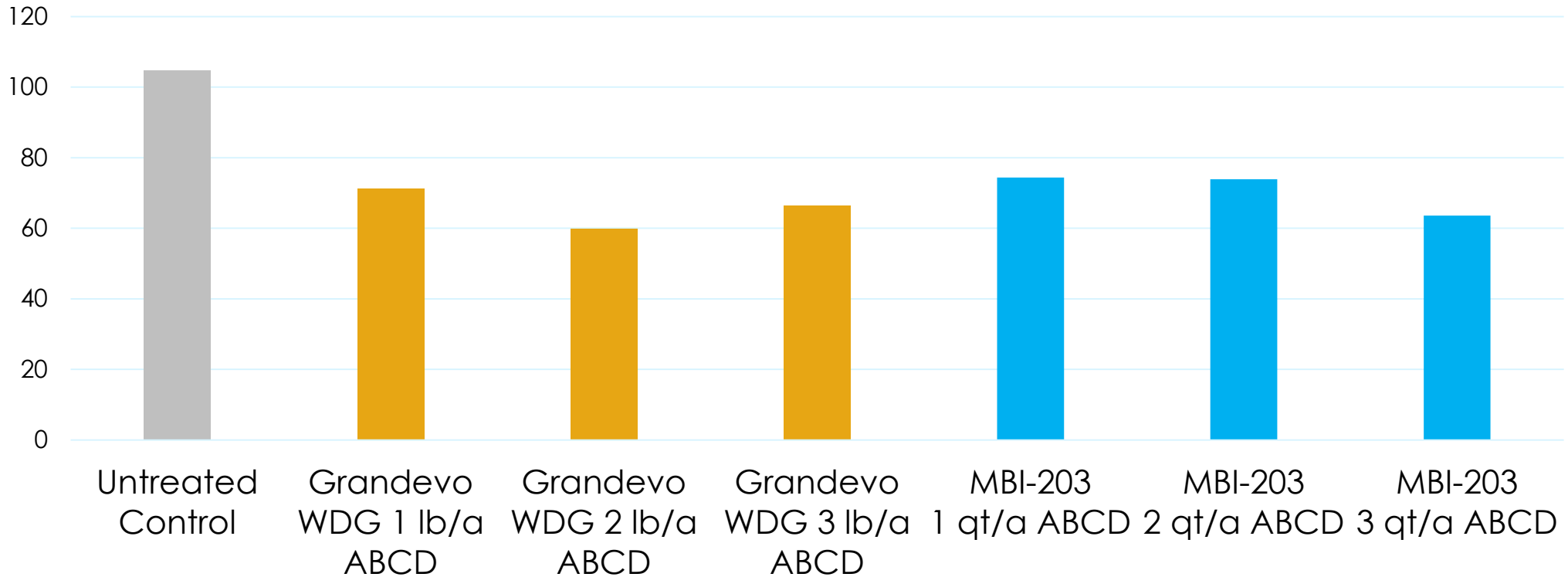
- Grandevo[®] is registered in the U.S. and in Mexico, but not yet commercially available as a liquid formulation
- Trials show MBI-203 SC2 (1-3 qt/A) at least as efficacious as Grandevo (1-3 lb/A)
- Residues are exempt from tolerances
- 4 hour REI, 0 days to harvest
- Easy on pollinators and beneficials
- NOP compliant, OMRI-listed





Grandevo[®] and MBI-203 SC2 against SWD on Blackberry

SWD Larvae per 10 Fruit - 14 DAT A, 7 DAT B



- Four applications (7 days apart)
- ADG, 2019 - Washington





Overview of MBI-306

- A new insecticide/miticide/nematicide TGA
- Based on inactivated *Burkholderia rinojensis* strain A396 cells and spent fermentation media
- Foliar, seed, & soil applications evaluated 2019-present
- Broad label and pests submitted on a master label
- Maximum label rate anticipated to be 20 fl. oz./acre (1.5 liters/ha)





Overview of MBI-306 (cont'd)

- Anticipate a MRL exemption, 4hr REI, 0-PHI, NOP compliance
- 2019-2022 Trials successful on several key pests
- 2023 trial results are arriving, expected in Fall
- Registration package submitted to EPA Sept. 2021
- EPA PRIA date is ? 2023





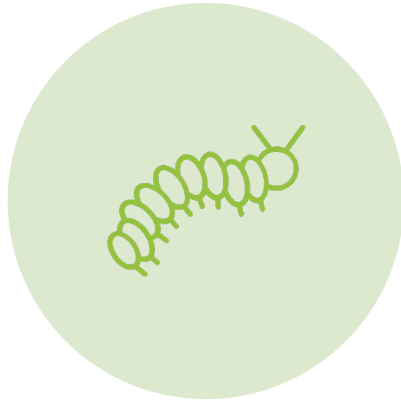
Status of MBI-306 evaluation

- Currently investigating fungicidal activity against: powdery mildew, downy mildew, *Botrytis cinerea*, *Pythium*, *Phytophthora*
- Requests for 2023:
 - Continue fungicide studies (foliar and drench)
 - Evaluate additional pests





Thank You: Comments, Feedback, Questions



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