



Fusiform Rust Trial-2022

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Fusiform Rust

- Caused by the fungal pathogen *Cronartium quercuum* f. sp. *Fusiforme*
- Problem in loblolly and slash pine production
- The use of fungicides is the most effective control strategy
- The Nursery Cooperative spearheaded the registration of Bayleton® and Proline® for control of the disease
- Ongoing program to identify new chemistries



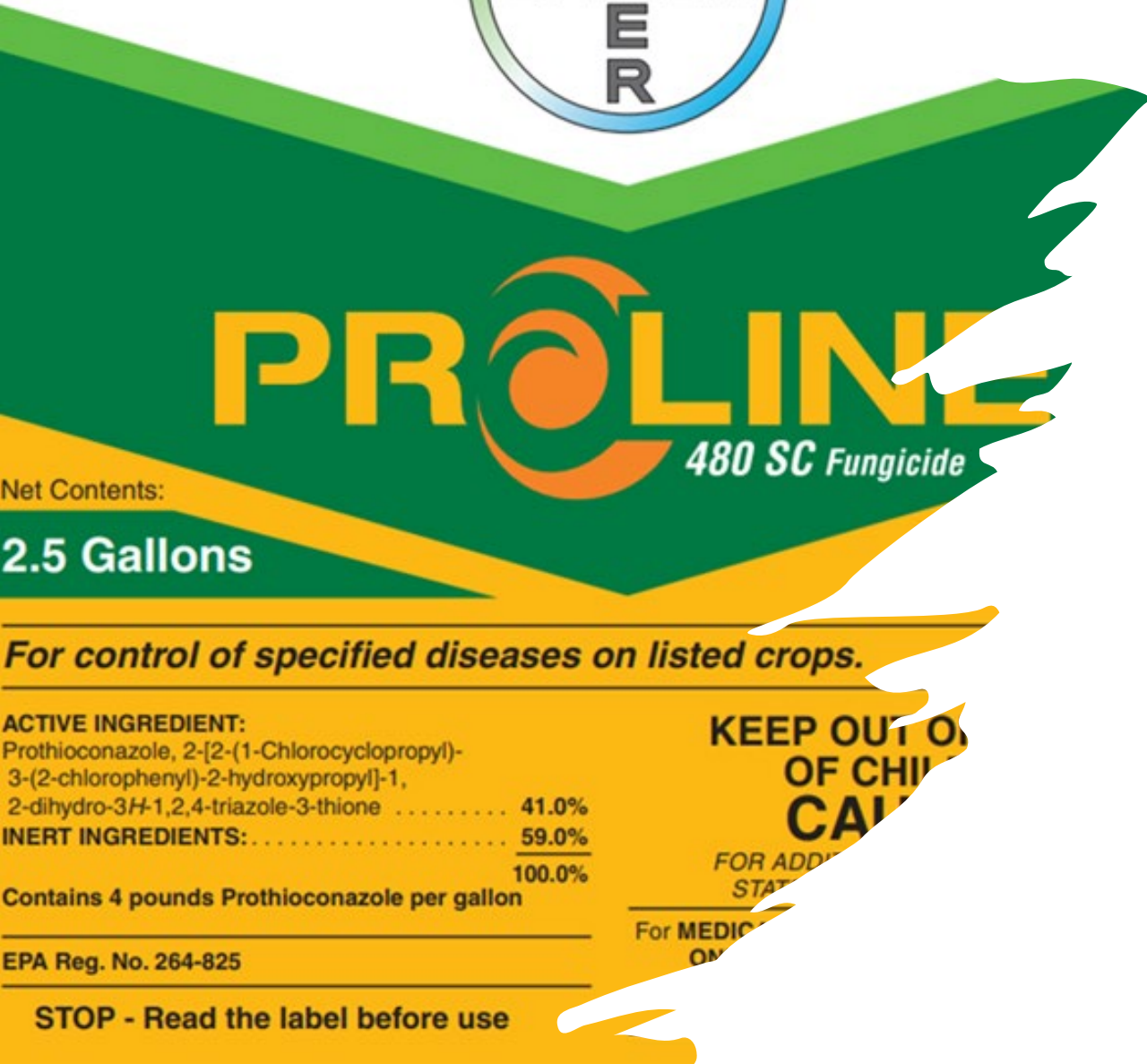
Why test new chemistries?

- EPA regulations require the reregistration of pesticides after a certain time has passed.
 - Companies may discontinue pesticides
 - Pesticides may become unavailable or hard to source
 - Pathogens may become resistant to chemistries that are used continuously
 - Proline is the only fungicide currently registered for the control of fusiform rust
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Proline

- Used as a seed treatment (10 fl oz./50 lb of seed)
- Used for foliar applications on seedlings (5 fl oz./acre at 14–21-day intervals)
- Labelled for the control of fusiform rust, pitch canker, Rhizoctonia and foliar blight in conifer and hardwood nursery production



Net Contents:

2.5 Gallons

For control of specified diseases on listed crops.

ACTIVE INGREDIENT:

Prothioconazole, 2-[2-(1-Chlorocyclopropyl)-
3-(2-chlorophenyl)-2-hydroxypropyl]-1,
2-dihydro-3H-1,2,4-triazole-3-thione 41.0%

INERT INGREDIENTS: 59.0%

100.0%

Contains 4 pounds Prothioconazole per gallon

EPA Reg. No. 264-825

STOP - Read the label before use


**KEEP OUT OF REACH OF CHILDREN
CAUTION**

FOR ADDITIONAL INFORMATION
STATE

For MEDICAL
ON



Greenhouse screening for rust control

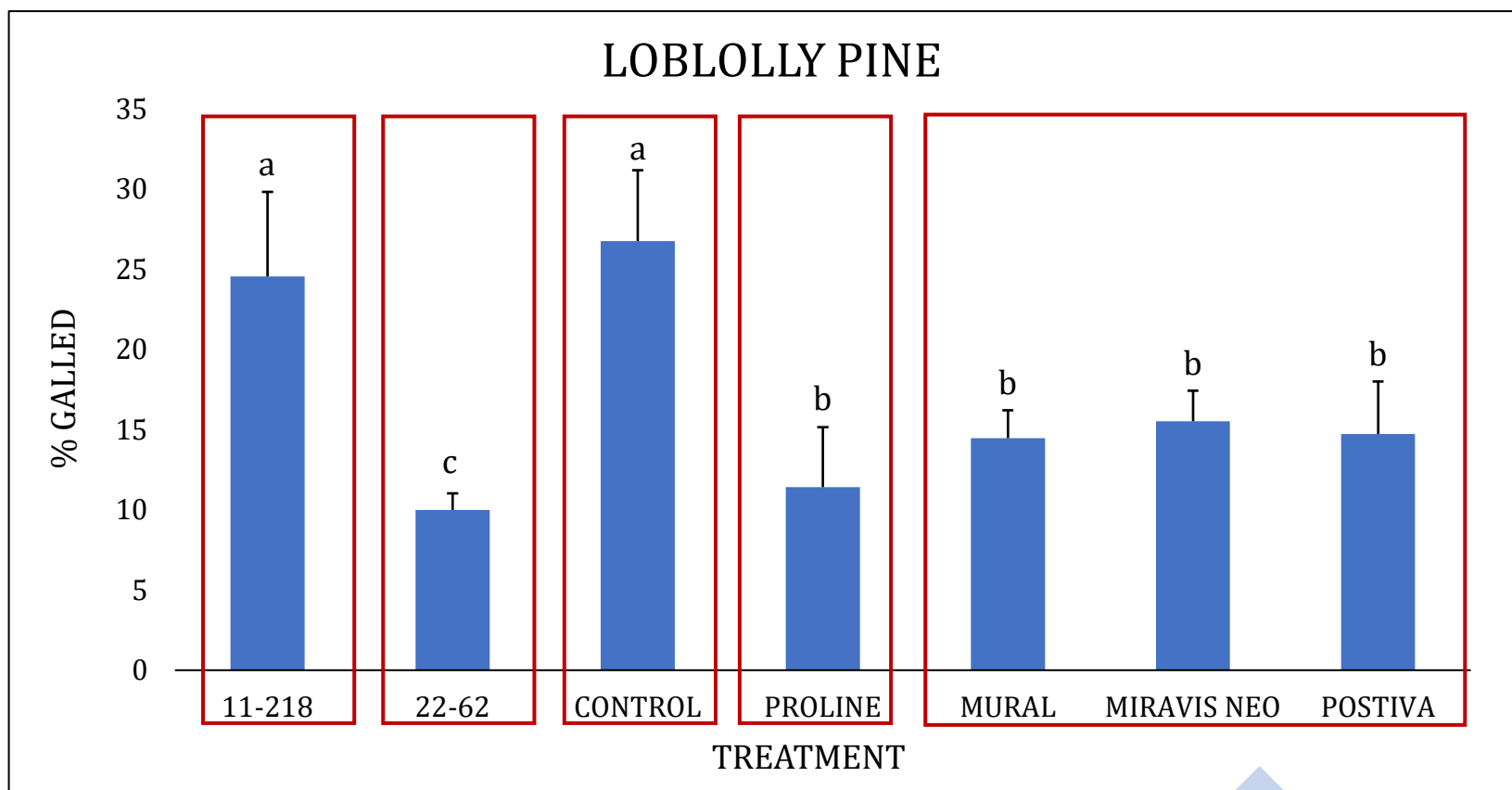
1. Identify fungicides that are labelled for other crops and diseases
 2. Slash and loblolly pine seeds are sown and germinates treated with fungicides to be tested at two weeks post germination.
 3. Seedlings are sent to the Bent Creek Experimental Forest Resistance Screening Center in Asheville, NC for screening.
 4. Screening involves challenging seedlings with rust spores at 3 weeks post germination and assessing whether seedlings have galls at 3 and 6 months.
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Greenhouse screening-2022

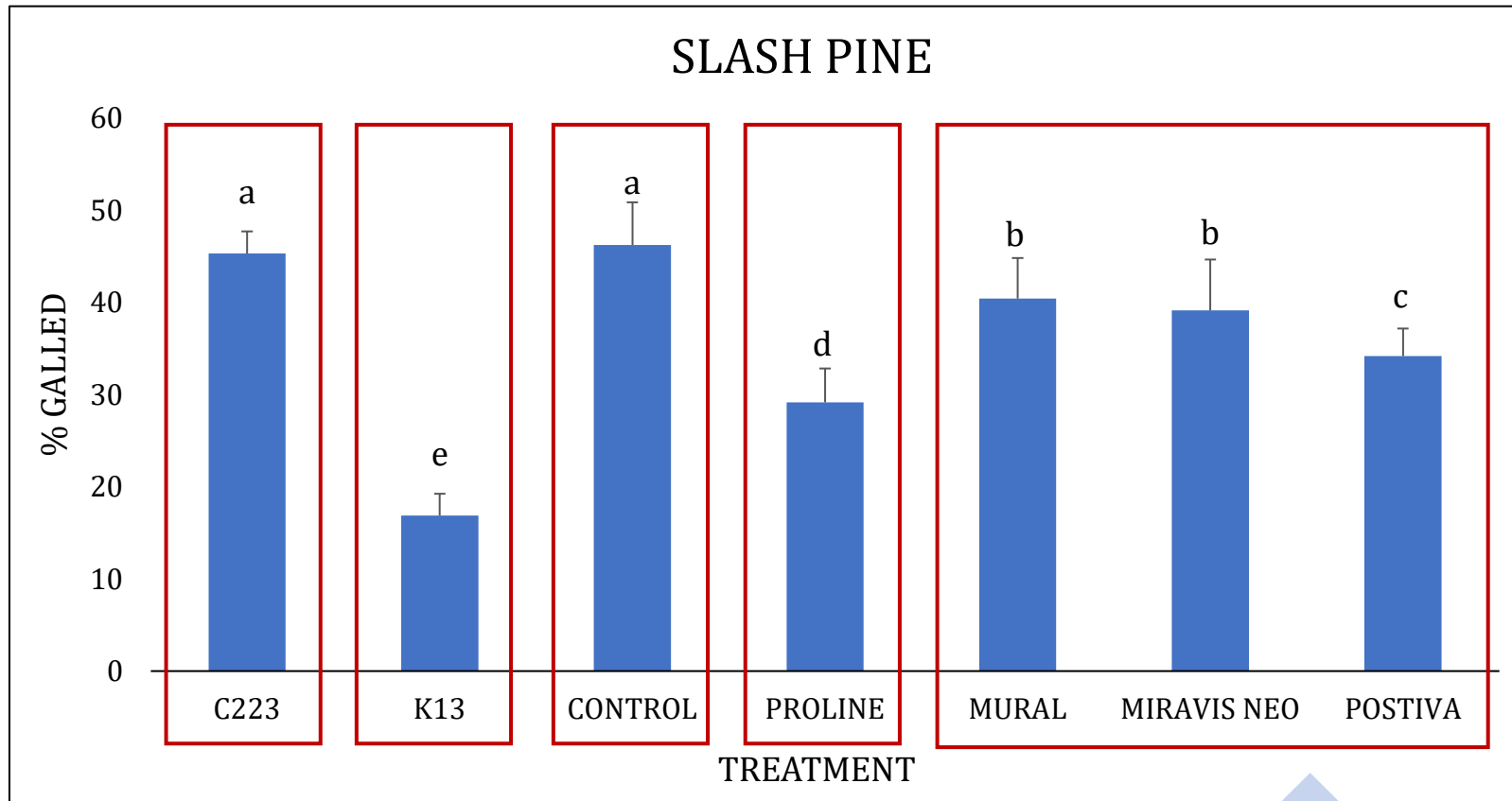
Tested three new fungicides



Greenhouse screening-2022 (6-month results)

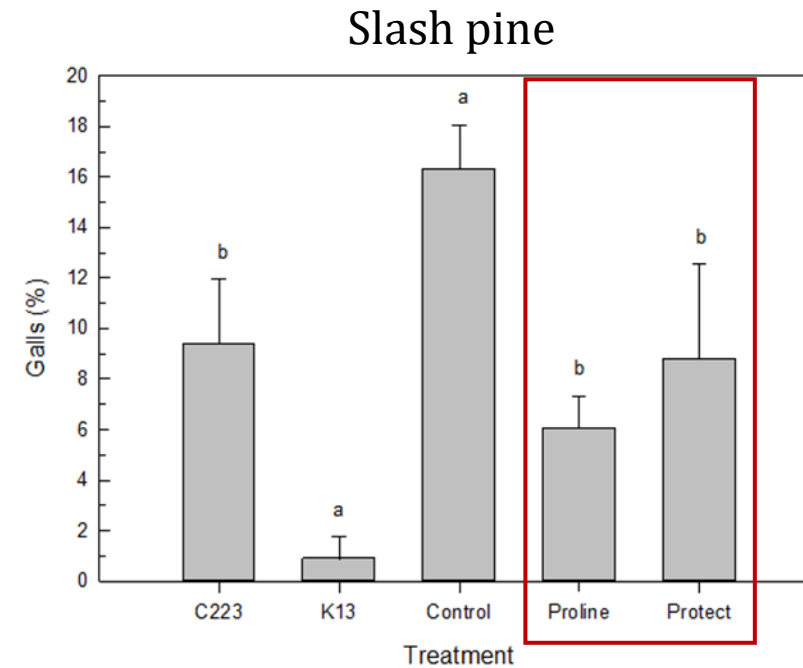
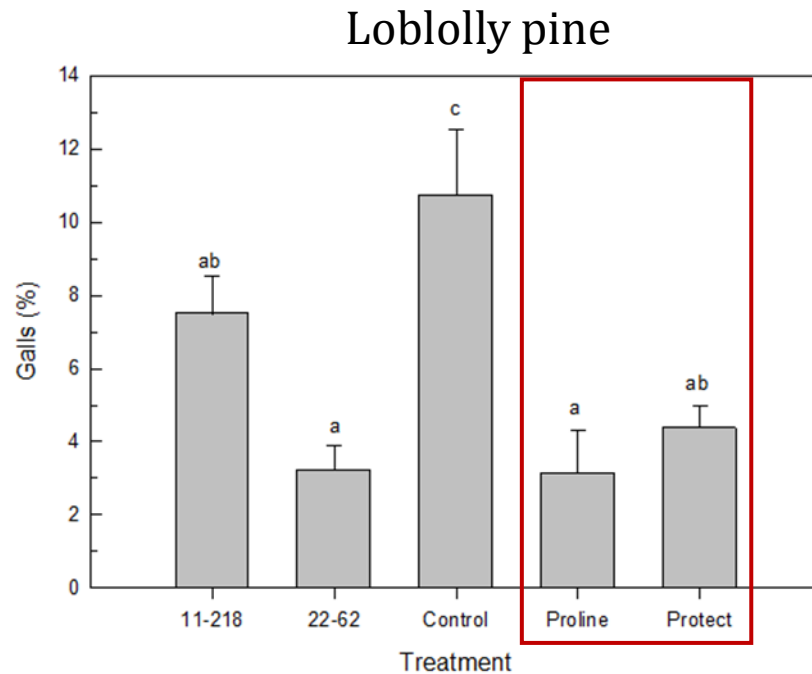


Greenhouse screening-2022 (6-month results)

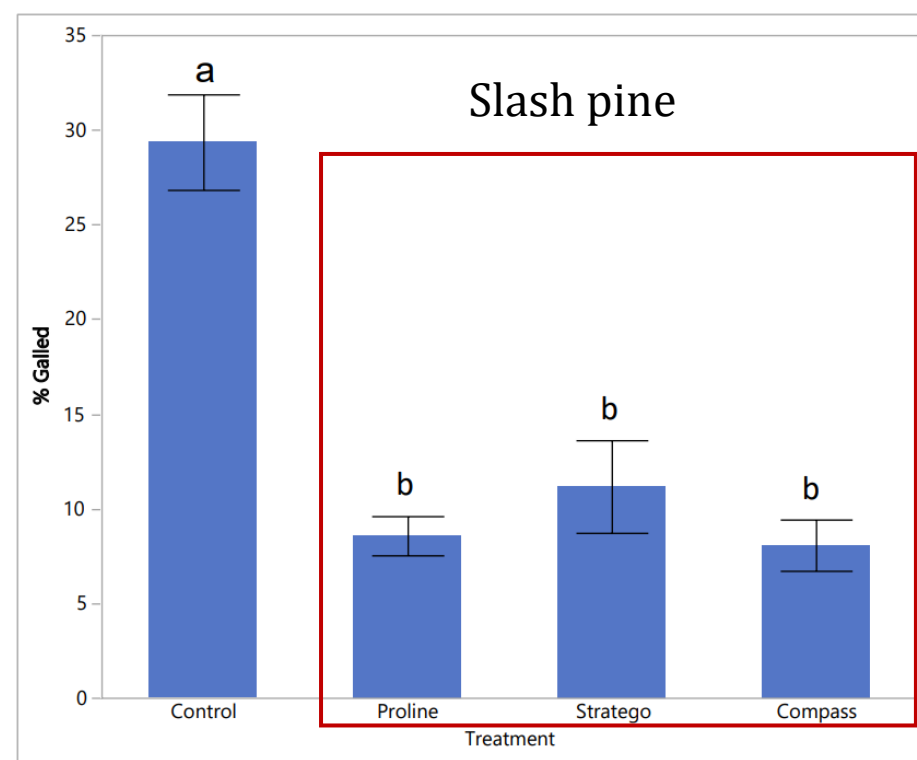
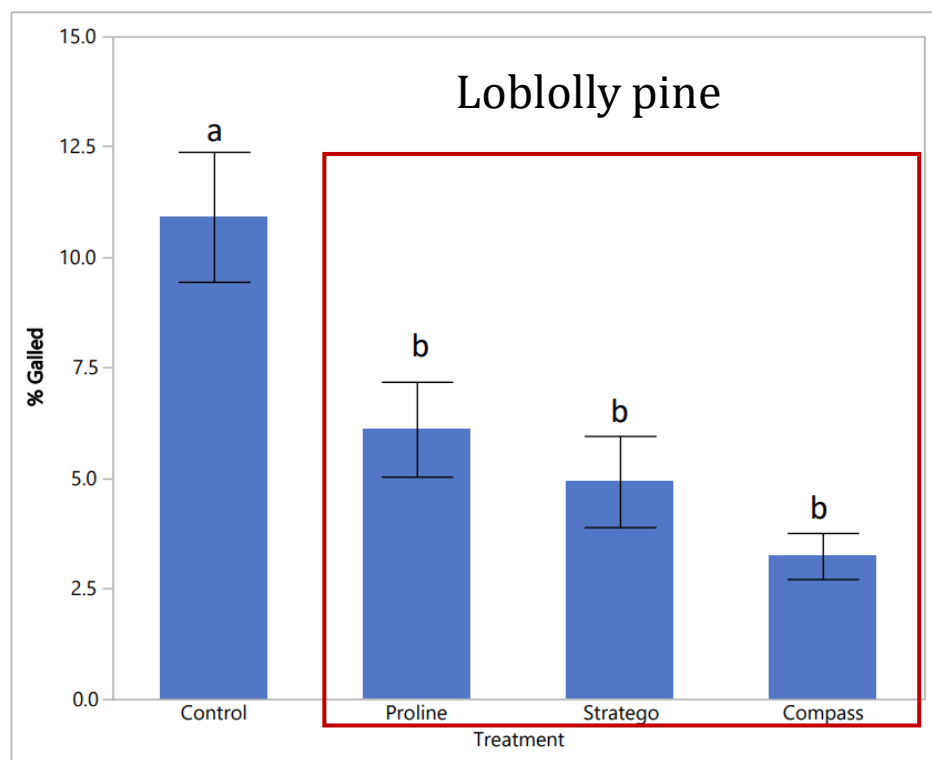


Field screening-2022

Protect® DF was effective in controlling fusiform rust in greenhouse studies in 2020 and 2021. Currently testing its efficacy in field studies. Data collection in November 2022.



2019-2020 Rust Studies



The background of the slide features a collage of chemical structures. A prominent structure in the center-left shows a cyclohexene ring with a chlorine atom at the 1-position and a hydrogen atom at the 2-position. An arrow labeled 'meta attack' points to the 3-position of the ring. Other structures include a cyclopentadiene derivative and various substituted benzene rings. The overall theme is organic chemistry, specifically focusing on electrophilic aromatic substitution and related reactions.

Future Studies

- Approach chemical companies regarding labelling of Compass®, Stratego®, and Protect® DF.
- Test Postiva™, Miravis Neo®, and Mural™ in field studies.
- Continue looking for new chemistries to test.



Acknowledgments

Resistance Screening Center USDA Forest Service, Asheville, North Carolina

ArborGen, Shellman Georgia

