SFNMC Contact Meeting

Shellman, Georgia

July 29, 2025

2024 Container Herbicide Trials

Gallery®75 DF

Nina Dowling Payne

2024 Container Herbicide Trials

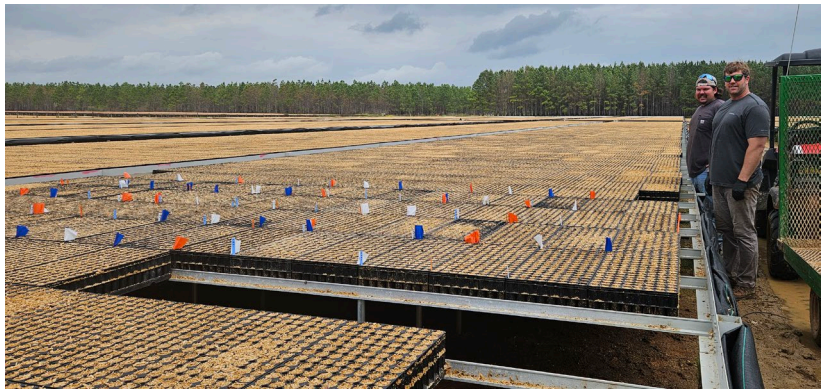
Gallery®75 DF

Purpose
Methods

2024 Gallery®75 DF (isoxaben) trials in container pine

Purpose of trial

- To test Gallery®75 DF for its suitability for use in weed control in containerized seedlings
- SFNMC Gallery®75 DF history:
  - First SFNMC trial
  - PRT-IFCO tested in 1 US nursery in 2022 and 2023 at 30 days post-sow
  - Used in PRT Canadian nurseries
- Gallery®75 DF:
  - Pre-emergent
  - Broadleaf weeds, including carpetweed, hyssop spurge
  - U.S. label and Canadian labels are different
  - Corteva product



Nick Green and Nicholas Boone at PRT-IFCO Atmore AL Nursery

2024 Gallery®75 DF (isoxaben) trials in container pine

Canadian label

2015-1219
2015-04-23

(Container)

DOW Dow AgroSciences

Gallery™ 75 DF
Herbicide

A selective preemergent herbicide for certain broadleaved weeds in conifer bareroot and container nursery stock for listed trees, shrubs and groundcovers grown for silviculture purposes, and containerized ornamentals grown in nurseries. For outdoor use only. Not for use on cut flowers.

COMMERCIAL

READ THE LABEL AND THIS LEAFLET BEFORE USING
KEEP OUT OF REACH OF CHILDREN

GUARANTEE: isoxaben 75%

REGISTRATION NO. 24110 PEST CONTROL PRODUCTS ACT

CAUTION POISON

NET CONTENTS: 454 g

Dow AgroSciences Canada Inc.
Suite 2100, 450 - 1 Street S.W.
Calgary, Alberta
T2P 5H1
1-800-667-3852

U.S. label

Specimen Label

Dow AgroSciences

Gallery®
75 Dry Flowable

Specialty Herbicide

®Trademark of Dow AgroSciences LLC

A preemergence herbicide for control of certain broadleaf weeds in:

- **Established Turfgrass**
- **Landscape Ornamentals**
- **Container Grown Ornamentals**
- **Field Grown Ornamentals**
- **Groundcovers/Perennials**
- **Non-Cropland**
- **Ornamental Bulbs**
- **Non-Bearing Fruit and Nut Trees and Non-Bearing Vineyards**
- **Christmas Tree/Conifer Plantations**

Active Ingredient:	
isoxaben: N-[3-(1-ethyl-1-methylpropyl)- 5-isoxazolyl]-2,6-dimethoxybenzamide and isomers	75%
Other Ingredients	25%
Total	100%

Contains 0.75 lb active ingredient per pound.
U.S. Patent Nos. 5,086,184 and 4,636,243

EPA Reg. No. 62719-145

Keep Out of Reach of Children

CAUTION PRECAUCION

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Precautionary Statements
Hazards to Humans and Domestic Animals

Causes Eye Irritation • Harmful If Inhaled

Avoid ingestion, breathing dust or spray mist, and contact with skin, eyes, or clothing.

Personal Protective Equipment (PPE)
Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Shoes plus socks

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations
Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

First Aid
If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person.
If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards
Do not contaminate water when disposing of equipment washwaters. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Drift may result in reduced germination or emergence of non-target plants adjacent to treated area.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use and Limitation of Remedies elsewhere on this label. If terms are unacceptable, return at once unopened.**

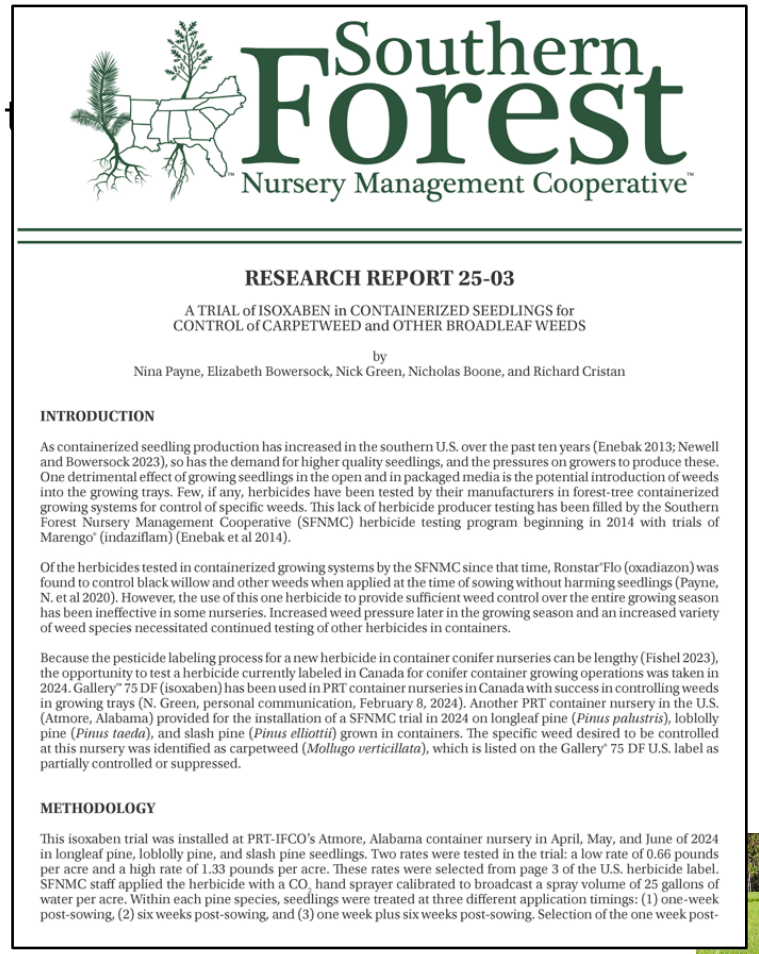
In case of emergency endangering health or the environment involving this product, call 1-800-992-5994. If you wish to obtain additional product information, visit our web site at www.dowagro.com.

Agricultural Chemical: Do not ship or store with food, feeds, drugs or clothing.

2024 Gallery®75 DF (isoxaben) trials in container pine

Methods

- Trials in PRT-IFCO Atmore, AL Nursery
- Trials in longleaf, loblolly, and slash pine
- 3 rates: 0, 1/2X, and 1X label rate
- 3 application timings:
    1. at 1 week post-sowing
    2. at 6 weeks post-sowing
    3. at 1 week and 6 weeks post-sowing
- 90 trays per species used



Southern Forest Nursery Management Cooperative™

RESEARCH REPORT 25-03

A TRIAL of ISOXABEN in CONTAINERIZED SEEDLINGS for CONTROL of CARPETWEED and OTHER BROADLEAF WEEDS

by
Nina Payne, Elizabeth Bowersock, Nick Green, Nicholas Boone, and Richard Cristan

INTRODUCTION

As containerized seedling production has increased in the southern U.S. over the past ten years (Enebak 2013; Newell and Bowersock 2023), so has the demand for higher quality seedlings, and the pressures on growers to produce these. One detrimental effect of growing seedlings in the open and in packaged media is the potential introduction of weeds into the growing trays. Few, if any, herbicides have been tested by their manufacturers in forest-tree containerized growing systems for control of specific weeds. This lack of herbicide producer testing has been filled by the Southern Forest Nursery Management Cooperative (SFNMC) herbicide testing program beginning in 2014 with trials of Marengo® (indaziflam) (Enebak et al 2014).

Of the herbicides tested in containerized growing systems by the SFNMC since that time, Ronstar®Flo (oxadiazon) was found to control black willow and other weeds when applied at the time of sowing without harming seedlings (Payne, N. et al 2020). However, the use of this one herbicide to provide sufficient weed control over the entire growing season has been ineffective in some nurseries. Increased weed pressure later in the growing season and an increased variety of weed species necessitated continued testing of other herbicides in containers.

Because the pesticide labeling process for a new herbicide in container conifer nurseries can be lengthy (Fishel 2023), the opportunity to test a herbicide currently labeled in Canada for conifer container growing operations was taken in 2024. Gallery™ 75 DF (isoxaben) has been used in PRT container nurseries in Canada with success in controlling weeds in growing trays (N. Green, personal communication, February 8, 2024). Another PRT container nursery in the U.S. (Atmore, Alabama) provided for the installation of a SFNMC trial in 2024 on longleaf pine (*Pinus palustris*), loblolly pine (*Pinus taeda*), and slash pine (*Pinus elliottii*) grown in containers. The specific weed desired to be controlled at this nursery was identified as carpetweed (*Mollugo verticillata*), which is listed on the Gallery® 75 DF U.S. label as partially controlled or suppressed.

METHODOLOGY

This isoxaben trial was installed at PRT-IFCO's Atmore, Alabama container nursery in April, May, and June of 2024 in longleaf pine, loblolly pine, and slash pine seedlings. Two rates were tested in the trial: a low rate of 0.66 pounds per acre and a high rate of 1.33 pounds per acre. These rates were selected from page 3 of the U.S. herbicide label. SFNMC staff applied the herbicide with a CO_2 hand sprayer calibrated to broadcast a spray volume of 25 gallons of water per acre. Within each pine species, seedlings were treated at three different application timings: (1) one-week post-sowing, (2) six weeks post-sowing, and (3) one week plus six weeks post-sowing. Selection of the one week post-

- To determine effect of seedling survival (% fill), used initial number of cells sown and counted number of seedlings per tray prior to spray for 6 week post-sowing applications; counted number of seedlings per tray in all trays in November and December 2024
- In November and December, collected 10 sample seedlings per tray for processing
- Results in Research Report 25-03

2024 Gallery®75 DF (isoxaben) trials in container pine

Longleaf pine treated at 1 week post-sowing

Treatment	Percent fill of tray from sowing[1]	Shoot height (cm)[2,3]	Root collar diameter (mm)	Shoot dry weight (g)	Plug dry weight (g)
Control	68.8 ± 1.27	30.0 ± 0.31 b	8.01 ± 0.14	3.61 ± 0.11	13.0 ± 0.13
low label rate	67.9 ± 0.75	**31.0 ± 0.23** a	8.16 ± 0.13	3.70 ± 0.86	12.9 ± 0.09
1X label rate	68.6 ± 2.20	**31.8 ± 0.21** a	8.30 ± 0.12	3.60 ± 0.86	13.1 ± 0.15
p-value	*0.910*	*<0.001*	*0.269*	*0.694*	*0.349*

[1]Calculated from difference in cells containing seeds at sowing (March 25) to cells containing seedlings at collection (November 20).
[2]Bold within a seedling characteristic indicates significant difference between that rate and control (p>0.05).
[3]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 4 Table 1

2024 Gallery®75 DF (isoxaben) trials in container pine

Longleaf pine treated at 6 weeks post-sowing

Treatment	Percent fill of tray from sowing[1]	Percent fill of tray from 6 weeks post-sowing[2]	Shoot height (cm)	Root collar diameter (mm)	Shoot dry weight (g)	Plug dry weight (g)[3]
Control	69.3 ± 1.17	97.7 ± 0.81	31.9 ± 0.27	7.86 ± 0.14	3.56 ± 0.14	12.2 ± 0.08 ab
low label rate	68.7 ± 1.22	96.8 ± 1.06	32.2 ± 0.24	7.54 ± 0.12	3.32 ± 0.08	12.1 ± 0.08 b
1X label rate	70.6 ± 1.45	98.6 ± 0.57	32.0 ± 0.24	7.93 ± 0.13	3.55 ± 0.06	12.5 ± 0.09 a
p-value	*0.556*	*0.350*	*0.751*	*0.0764*	*0.151*	*0.027*

[1]Calculated from difference in cells containing seeds at sowing (March 25) to cells containing seedlings at collection (November 20).
[2]Calculated from difference in cells containing seedlings at 6 weeks post-sowing (May 6) to cells containing seedlings at collection (November 20).
[3]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 4 Table 2

2024 Gallery®75 DF (isoxaben) trials in container pine

Longleaf pine treated at 1 and 6 weeks post-sowing

Treatment	Percent fill of tray from sowing[1]	Shoot height (cm)[3]	Root collar diameter (mm)	Shoot dry weight (g) [2,3]	Plug dry weight (g)
Control	70.3 ± 1.32	32.9 ± 0.23 ab	8.18 ± 0.12	3.73 ± 0.11 a	12.9 ± 0.21
low label rate	68.7 ± 0.96	32.2 ± 0.23 b	8.21 ± 0.12	3.55 ± 0.08 ab	12.8 ± 0.15
1X label rate	70.4 ± 1.48	33.1 ± 0.22 a	7.96 ± 0.12	**3.39 ± 0.07 b**	12.9 ± 0.10
p-value	*0.569*	*0.020*	*0.290*	*0.042*	*0.812*

[1]Calculated from difference in cells containing seeds at sowing (March 25) to cells containing seedlings at collection (November 20).
[2]Bold within a seedling characteristic indicates significant difference between that rate and control (p>0.05).
[3]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 4 Table 3

2024 Gallery®75 DF (isoxaben) trials in container pine

Loblolly pine treated at 1 week post-sowing

Treatment	Percent fill of tray from sowing[1,3]	Shoot height (cm)	Root collar diameter (mm)[2,3]	Shoot dry weight (g)	Plug dry weight (g)[2,3]
Control	88.3 ± 0.77 ab	29.3 ± 0.34	4.83 ± 0.05 a	2.76 ± 0.08	12.5 ± 0.09 a
low label rate	92.2 ± 1.02 a	29.9 ± 0.33	**4.59 ± 0.05** b	2.60 ± 0.04	**11.9 ± 0.10** b
1X label rate	85.6 ± 1.90 b	30.2 ± 0.30	4.84 ± 0.05 a	2.74 ± 0.09	12.2 ± 0.15 ab
p-value	*0.006*	*0.109*	*0.001*	*0.25*	*0.003*

[1]Calculated from difference in cells containing seeds at sowing (April 30) to cells containing seedlings at collection (November 26).
[2]Bold within a seedling characteristic indicates significant difference between that rate and control (p>0.05).
[3]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 5 Table 4

2024 Gallery®75 DF (isoxaben) trials in container pine

Loblolly pine treated at 6 weeks post-sowing

Treatment	Percent fill of tray from sowing[1,3,4]	Percent fill of tray from 6 weeks post-sowing[2,4]	Shoot height (cm)	Root collar diameter (mm)	Shoot dry weight (g)	Plug dry weight (g)
Control	90.1 ± 0.45 b	98.8 ± 0.26 ab	32.0 ± 0.32	5.03 ± 0.24	2.89 ± 0.07	12.2 ± 0.08
low label rate	90.9 ± 0.71 ab	99.6 ± 0.29 a	31.6 ± 0.31	4.84 ± 0.06	2.82 ± 0.07	12.4 ± 0.07
1X label rate	**92.2 ± 0.56** a	98.3 ± 0.43 b	31.2 ± 0.30	4.76 ± 0.06	2.77 ± 0.07	12.0 ± 0.10
p-value	*0.046*	*0.049*	*0.174*	*0.404*	*0.513*	*0.051*

[1]Calculated from difference in cells containing seeds at sowing (April 30) to cells containing seedlings at collection (November 26).
[2]Calculated from difference in cells containing seedlings at 6 weeks post-sowing (June 10) to cells containing seedlings at collection (November 26).
[3]Bold within a seedling characteristic indicates significant difference between that rate and control (p>0.05).
[4]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 5 Table 5

2024 Gallery®75 DF (isoxaben) trials in container pine

Loblolly pine treated at 1 and 6 weeks post-sowing

Treatment	Percent fill of tray from sowing[1,2,3]	Shoot height (cm)	Root collar diameter (mm)	Shoot dry weight (g)	Plug dry weight (g)[3]
Control	87.9 ± 1.00 a	33.2 ± 0.29	4.77 ± 0.05	2.90 ± 0.10	12.4 ± 0.13 ab
low label rate	88.6 ± 0.92 a	32.5 ± 0.33	4.78 ± 0.06	2.84 ± 0.06	12.2 ± 0.12 b
1X label rate	**83.7 ± 1.54** b	32.6 ± 0.30	4.79 ± 0.07	2.89 ± 0.11	12.8 ± 0.13 a
p-value	*0.014*	*0.264*	*0.972*	*0.901*	*0.018*

[1]Calculated from difference in cells containing seeds at sowing (April 30) to cells containing seedlings at collection (November 26).
[2]Bold within a seedling characteristic indicates significant difference between that rate and control (p>0.05).
[3]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 5 Table 6

2024 Gallery®75 DF (isoxaben) trials in container pine

Slash pine treated at 1 week post-sowing

Treatment	Percent fill of tray from sowing[1]	Shoot height (cm)	Root collar diameter (mm)	Shoot dry weight (g)	Plug dry weight (g)
Control	80.9 ± 1.57	25.2 ± 0.34	4.64 ± 0.07	3.08 ± 0.10	11.8 ± 0.14
low label rate	83.5 ± 1.40	24.1 ± 0.34	4.59 ± 0.08	2.87 ± 0.14	11.6 ± 0.18
1X label rate	78.4 ± 2.15	24.7 ± 0.33	4.98 ± 0.18	3.17 ± 0.06	12.0 ± 0.12
p-value	*0.128*	*0.058*	*0.052*	*0.138*	*0.151*

[1]Calculated from difference in cells containing seeds at sowing (April 25) to cells containing seedlings at collection (December 4).

RR 25-03 Page 6 Table 7

2024 Gallery®75 DF (isoxaben) trials in container pine

Slash pine treated at 6 weeks post-sowing

Treatment	Percent fill of tray from sowing[1,3,4]	Percent fill of tray from 6 weeks post-sowing[2,3,4]	Shoot height (cm)	Root collar diameter (mm)	Shoot dry weight (g)[3,4]	Plug dry weight (g)[3,4]
Control	76.9 ± 1.02 b	96.4 ± 0.74 b	26.3 ± 0.37	5.00 ± 0.08	3.48 ± 0.11 a	12.5 ± 0.12 a
low label rate	**84.1 ± 0.88** a	**98.7 ± 0.44** a	26.3 ± 0.37	4.78 ± 0.07	**3.12 ± 0.10** b	**11.8 ± 0.12** b
1X label rate	**81.0 ± 1.08** a	**98.9 ± 0.31** a	26.2 ± 0.37	4.98 ± 0.08	3.37 ± 0.08 ab	12.4 ± 0.06 a
p-value	*<0.001*	*0.003*	*0.936*	*0.078*	*0.041*	*<0.001*

[1]Calculated from difference in cells containing seeds at sowing (April 25) to cells containing seedlings at collection (December 4).
[2]Calculated from difference in cells containing seedlings at 6 weeks post-sowing (June 5) to cells containing seedlings at collection (December 4).
[3]Bold within a seedling characteristic indicates significant difference between that rate and control (p>0.05).
[4]Different letters within a seedling characteristic indicate significant differences in rates (p>0.05).

RR 25-03 Page 6 Table 8

2024 Gallery®75 DF (isoxaben) trials in container pine

Slash pine treated at 1 and 6 weeks post-sowing

Treatment	Percent fill of tray from sowing[1]	Shoot height (cm)	Root collar diameter (mm)	Shoot dry weight (g)	Plug dry weight (g)
Control	82.3 ± 1.07	24.5 ± 0.32	4.88 ± 0.08	3.23 ± 0.15	12.0 ± 0.14
low label rate	83.1 ± 1.11	24.7 ± 0.37	4.80 ± 0.07	3.12 ± 0.12	11.9 ± 0.10
1X label rate	82.6 ± 0.97	24.3 ± 0.33	4.80 ± 0.07	2.99 ± 0.12	12.0 ± 0.09
p-value	*0.847*	*0.695*	*0.693*	*0.442*	*0.77*

[1]Calculated from difference in cells containing seeds at sowing (April 25) to cells containing seedlings at collection (December 4).

RR 25-03 Page 6 Table 9

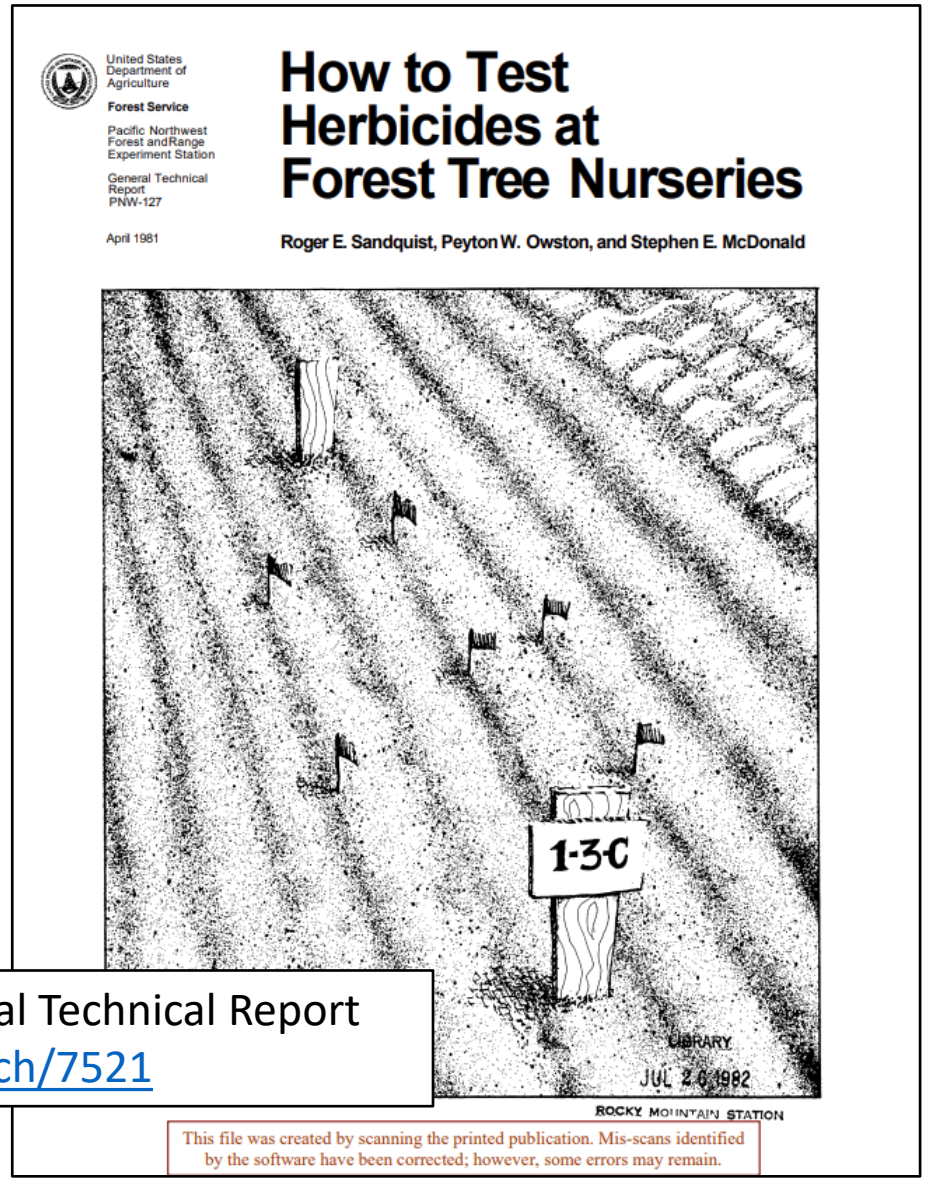
Results of 2024 Gallery®75 DF (isoxaben) trials in container pine

Conclusions

- First year of testing of Gallery®75 DF in container longleaf, loblolly, and slash pine showed good seedling tolerance
- SFNMC staff is in communication with Corteva to clarify allowable use of product according to the U.S. label
- It is legal for SFNMC nurseries to test this product without an experimental permit under

  Federal Code of Regulations, Title 40, Chapter 1, Subchapter E, Part 172, Subpart A, Section 172.3

https://www.ecfr.gov/current/title-40/chapter-I/subchapter E/part-172


United States Department of Agriculture
Forest Service
Pacific Northwest Forest and Range Experiment Station
General Technical Report PNW-127
April 1981

How to Test Herbicides at Forest Tree Nurseries

Roger E. Sandquist, Peyton W. Owston, and Stephen E. McDonald

1-30

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JUL 20 1982
ROCKY MOUNTAIN STATION

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"How To Test Herbicides In Forest Tree Nurseries", USFS General Technical Report PNW- 127, accessible at https://research.fs.usda.gov/treesearch/7521

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