The Use of Metsulfuron for Lygodium Control

IFAS Aquatic Weed Control Short Course
Coral Springs, FL
May 10, 2018

Stephen Enloe & Jonathan Glueckert
UF Center for Aquatic and Invasive Plants
Old World Climbing Fern (*Lygodium microphyllum*)
Lygodium microphyllum (Cav.) R. Br.
SPECIAL LOCAL NEED 24(C) LABELING

DUPONT\textsuperscript{TM} ESCORT\textsuperscript{R} XP HERBICIDE

FOR CONTROL OF OLD WORLD CLIMBING FERN

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF FLORIDA

DUPONT\textsuperscript{TM} ESCORT\textsuperscript{R} XP HERBICIDE

EPA Reg. No. 352-439

CONTROL OF OLD WORLD CLIMBING FERN
IN THE STATE OF FLORIDA

EPA SLN No. FL-030010

Active Ingredient: Metsulfuron methyl
Methyl 2-[[[[4-methoxy-6-methyl-1,3,5-triazin-2-yl]amino]carbonyl]amino]sulfonyl]benzoate ............... 60% (by weight)

Inert Ingredients .......................................................... 40% (by weight)

TOTAL 100%

GENERAL INFORMATION:
DuPont ESCORT\textsuperscript{R} XP Herbicide (ESCORT XP) is a dispersible granule that is mixed in water and applied as a spray. The use of ESCORT\textsuperscript{R} XP under this Special Local Need registration is specific to application(s) for control of Old World Climbing Fern (Lygodium microphyllum) in/on freshwater marshes (sloughs, wet prairies, and sawgrass marshes), mesic forests (flatwoods and hammocks), hydric forests (flatwoods, floodplains, hammocks, and swamps), Everglades tree islands, and Everglades prairie scrub.

DIRECTIONS FOR USE:
It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Target Pest: Old World Climbing Fern (Lygodium microphyllum)

Application Sites: Freshwater marshes, mesic forests, hydric forests, Everglades tree islands, and Everglades prairie scrub.

Application Rate: Apply 1/2 - 2 ounces of ESCORT\textsuperscript{R} XP per acre for broadcast application, or the equivalent of 1/2 - 2 ounces of ESCORT\textsuperscript{R} XP per 100 gallons of diluent for spot applications made on a spray-to-wet basis.

Methods of Application: Aerial applications may be made by helicopter only. Spot applications may be made with high pressure sprayer and hand gun, or portable equipment such as backpack sprayers, hand-held sprayers, or spray bottles.

Frequency of Applications: Do not apply more than 2 ounces of ESCORT\textsuperscript{R} XP, via broadcast application(s), per acre per year (i.e., once every 12 months). Spot applications to limit regrowth may be made on an as-needed basis.

Do not apply this product through any type of irrigation system.

Applications should be made only to areas where the surrounding and/or receded waters are not used for irrigation or drinking water wells.

For product information, call 1-888-6-DUPONT. You may also contact 1-800-441-3637 for emergency medical treatment information.

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H - 64550 Page 1 of 2 EPA SLN NO. FL-030010
FL- 24(c) SLN Label maintained by Bayer
Aerial: Escort @ 0.5-2.0 oz/A
Lygodium microphyllum (Cav.) R. Br.

- Biology, ID
- Native to...
- Introduced in...
- History of activity
Backpack Foliar: Escort @ 0.5-2.0 oz/100 gal
Poodle cut + Escort @ 0.5-2.0 oz/100 gal
Backpack metsulfuron treatments have not always provided good Lygodium efficacy.

Why is that?
This is a three part problem

1) The original SLN label wording
2) The Escort mixing issue
3) The application volume issue
Original Escort 24(c) SLN label wording...

- “Apply ½ to 2 oz of ESCORT XP per acre for broadcast application, or the equivalent of ½ to 2 of Escort XP per 100 gallons of diluent for spot applications made on a spray to wet basis”
The Escort Mixing Issue

2 oz = 56.6 g to add to 100 gallons
The Escort Mixing Issue

2 oz = 56.6 g/100 gal

= 0.566 g/gal

= 2.83 g/5 gallon
This is not easy to measure without a balance
What does “spray to wet” mean?
Not exactly easy to get a truck or ATV sprayer out here...
Low volume backpack applications (20-50 GPA)
2 oz / 100 gal mix size applied from a backpack at 20-50 GPA = 0.4-1.0 oz/A!

Substantially less Escort than intended...
Objective

• Evaluate the performance of metsulfuron as concentration and application volume vary
Berman Dairy, Okeechobee FL
Methods

- 5m x 5m plots with one center pole
- Established in a grid and block pattern
- Sprayed with a CO2 backpack and single adjustable cone nozzle
- Application volume 40GPA
- 4 replicate plots per treatment

- Data is collected at baseline, 30, 60, 90, 180, 365 DAT
- % Visual Cover of live (green) OWCF from 4 quadrats within each plot
- Separate regrowth into recovery from rhizomes and sporeling recruitment
## Treatments

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Mix</th>
<th>App volume</th>
<th>Escort oz/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Escort</td>
<td>2 oz/100 gal</td>
<td>40 GPA</td>
<td>0.8 oz/A</td>
</tr>
<tr>
<td>Escort</td>
<td>4 oz/100 gal</td>
<td>40 GPA</td>
<td>1.6 oz/A</td>
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<tr>
<td>Escort</td>
<td>6 oz/100 gal</td>
<td>40 GPA</td>
<td>2.4 oz/A</td>
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<td>6.4 oz/A</td>
</tr>
<tr>
<td>Untreated</td>
<td>---</td>
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</tbody>
</table>
Escort concentration/Application volume Study (Berman Dairy)

<table>
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<tr>
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FIFRA Section 24(c) Special Local Need Label

FOR DISTRIBUTION AND USE ONLY WITHIN THE STATE OF FLORIDA

Only for control of Old World Climbing Fern (*Lygodium microphyllum*)

**Escort XP Herbicide®**

EPA Reg. No. 432-1549

EPA SLN. No. FL-170005

THIS LABEL IS VALID UNTIL 12/31/2020 UNLESS OTHERWISE AMENDED, WITHDRAWN, CANCELLED, OR SUSPENDED.

Active Ingredient:
Metsulfuron methyl.......................................................... 60%
Other ingredients................................................................ 40%

Escort XP Herbicide is a dispersible granule that is mixed in water and applied as a spray. The use of Escort XP Herbicide under this Special Local Need registration is specific to application(s) for control of Old World Climbing Fern (*Lygodium microphyllum*) in/on freshwater marshes (sloughs, wet prairies, and sawgrass marshes), mesic forest (flatwoods and hammocks), hyric forests (flatwoods, floodplains, hammocks, and swamps), Everglades tree islands, and Everglades prairie scrub.

**ENDANGERED SPECIES**
Do not apply to areas where the Federally endangered Okeechobee gourd (*Cucurbita okeechobeensis* ssp. *Okeechobeensis*) is present. To determine if the gourd is in the treatment area, which in South Florida is within one mile of Lake Okeechobee levees, contact Mike Bodle, member of the Lake Okeechobee gourd recovery team and Senior Environmental Scientist with the South Florida Water Management District, at (561) 685-6132 or contact Florida’s Endangered Species Protection Coordinator at (850) 487-0532.

**DIRECTIONS FOR USE**
It is a violation of Federal law to use this product in a manner inconsistent with its labeling. This label must be in the possession of the user at the time of pesticide application.

**Target Pests**
Old World Climbing Fern (*Lygodium microphyllum*).

**Applications to Sites**
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Other ingredients..................................................... 40%

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Target Pests
Old World Climbing Fern (*Lygodium microphyllum*).

Applications to Sites
Freshwater marshes, mesic forests, hyric forests, Everglades tree islands, and Everglades prairie scrub.

Application rate:
Apply 0.5-2.0 ounces of Escort XP for broadcast or spot applications. Select a spray volume and delivery system that will ensure thorough coverage and uniform spray pattern.

Do not apply more than 2.0 ounces of Escort XP Herbicide via broadcast application(s), per acre per year. (i.e., every 12 months)

Do not apply this product through any type of irrigation system.
Applications should be made only to areas where the surrounding and/or receded waters are not used for irrigations or drinking water wells.

**Method of Application:**
Broadcast applications may be made by ground application or by aerial application (helicopter only). Spot applications may be made with high pressure sprayer and hand gun, or portable equipment such as backpack sprayers, hand-held sprayers, or spray bottles. A non-ionic surfactant may be used per surfactant label directions.

Refer to the Federal Section 3 label for additional product information, precautions and restrictions.

For **MEDICAL** And **TRANSPORTATION** Emergencies ONLY Call 24 Hours A Day 1-800-334-7577. 
For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937).

As with any pesticide product, always read and follow label directions.

For additional information call toll-free 1-866-99BAYER (1-866-992-2937).
OWCF Summary

• Escort (metsulfuron) is still a use tool for Lygodium management

• The herbicide concentration/application volume issue is significant but may not play out for several months after treatment

• Backpack sprayer crews should practice calibration with the 1/128 method

• Low volume backpack mixing should be done with a portable microbalance
Questions?

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