CONTROL OF CALLERY PEAR IN PASTURES, RIGHT-OF-WAY, AND NATURAL AREAS

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Veg Management
Solutions for the Growing World
Overview

- *Pyrus calleryana* Dcne. (Rosales: Rosaceae) is quickly becoming one of the most widespread, aggressive invaders of ROWs, and Pastures. Currently some states have convinced nurseries, and big box stores to stop the sale of ornamental pears to slow the spread. To-date there have been no products labeled for *Pyrus calleryana* control in the US.
Background

- *P. calleryana* was introduced to the US by Frank Reimer, Southern Oregon Experiment Station, to combat fire blight in common pear (*Pyrus communis*).

- **Native of Southeast Asia**

- Common varieties
  - ‘Bradford’ – 1962, Maryland
  - ‘Chanticleer’ - mid-1965 Ohio
    - Select, ‘Stone Hill’, ‘Select’, and ‘Glenn’s Form’
  - ‘Aristocrat’ – 1969, Kentucky
  - ‘Whitehouse’ – 1977, Maryland
  - ‘Autumn Blaze’ – 1878, Oregon

Culley and Hardiman (2007)
Range and Adaptation

Comparison of adaptation of *Pyrus calleryana* between the US and China based on similar latitudes.

Provinces in China where *Pyrus calleryana* are found (shown in black)

*Pyrus calleryana* has escaped cultivation along infrequently managed areas, forming dense stands that displace other vegetation.

Adapted from Qian and Ricklefs (1999); and Culley and Hardiman (2007)
Severe roadside infestation of *Pyrus calleryana*
Regrowth after mowing
Stubble remaining after mowing and regrowth the next season.
Thorns are a common characteristic of escaped *Pyrus calleryana*
Material and Methods (IVM and R&P Product Study)

- **Locations**
  - Columbia, MO
  - Lake St. Louis, MO

- **Application**
  - 27 August 2013
  - 20 GPA

- **Randomized complete block design**
  - 11 trees per treatment

- **Data**
  - Brown-out (30 days after)
  - Control (1 year after)
25% Garlon® 4 Ultra herbicide + 75% Basal Oil
# Treatments – IVM and R&P Product Study

<table>
<thead>
<tr>
<th>Herbicides</th>
<th>Rates</th>
<th>Actives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Garlon® 4 Ultra</td>
<td>4 pts</td>
<td>Triclopyr Ester</td>
</tr>
<tr>
<td>Capstone™</td>
<td>9.0 pts</td>
<td>Aminopyralid + Triclopyr Amine</td>
</tr>
<tr>
<td>Opensight®</td>
<td>3.3 oz</td>
<td>Aminopyralid + Metsulfuron</td>
</tr>
<tr>
<td>Opensight®</td>
<td>6.6 oz</td>
<td>Aminopyralid + Metsulfuron</td>
</tr>
<tr>
<td>Surmount®</td>
<td>4.0 pts</td>
<td>Picloram + Fluroxypyr</td>
</tr>
<tr>
<td>Garlon® 4 Ultra +</td>
<td>1:3</td>
<td>Triclopyr Ester</td>
</tr>
<tr>
<td>Bark Oil Blue</td>
<td></td>
<td>Basal Oil</td>
</tr>
</tbody>
</table>

All treatments include NIS at 0.25% v/v
Material and Methods (R&P Product and Adjuvant Study)

> Location
  • Peculiar, MO

> Application
  • 12 August 2014
  • 20 GPA (foliar only)

> Split-Plot
  • Whole Plot – herbicide treatment
    • (24ft x 60ft (average size))
  • Sub-plot – Adjuvant
    • (12ft x 60ft (average size))

> 8 treatment x 3 reps
  • 10 – 60 trees per treatment, block dependent
  • 2-4 ft tall trees

> Data
  • Brown-out (30 days after)
  • Control (1 year after)
# Treatments – R&P Product and Adjuvant Study

<table>
<thead>
<tr>
<th>Herbicides</th>
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<th>Adjuvant</th>
<th>Actives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chaparral™ + Remedy® Ultra</td>
<td>2 oz + 1 pt</td>
<td>NIS</td>
<td>Aminopyralid + Metsulfuron Triclopyr Ester</td>
</tr>
<tr>
<td>Chaparral™ + Remedy® Ultra</td>
<td>2 oz + 1 pt</td>
<td>MSO</td>
<td>Aminopyralid + Metsulfuron Triclopyr Ester</td>
</tr>
<tr>
<td>GrazonNext® HL + Remedy® Ultra</td>
<td>1.5 oz + 1 pt</td>
<td>NIS</td>
<td>Aminopyralid + 2,4-D Triclopyr Ester</td>
</tr>
<tr>
<td>GrazonNext® HL™ + Remedy® Ultra</td>
<td>1.5 oz + 1 pt</td>
<td>MSO</td>
<td>Aminopyralid + 2,4-D Triclopyr Ester</td>
</tr>
<tr>
<td>Remedy® Ultra</td>
<td>4 pts</td>
<td>NIS</td>
<td>Triclopyr Ester</td>
</tr>
<tr>
<td>Remedy® Ultra</td>
<td>4 pts</td>
<td>MSO</td>
<td>Triclopyr Ester</td>
</tr>
<tr>
<td>Surmount®</td>
<td>4.0 pts</td>
<td>NIS</td>
<td>Picloram + Fluroxypyr</td>
</tr>
<tr>
<td>Surmount®</td>
<td>4.0 pts</td>
<td>MSO</td>
<td>Picloram + Fluroxypyr</td>
</tr>
</tbody>
</table>

NIS at 0.25% v/v
MSO at 1% v/v
Results
Effect of DAS Herbicides on Callery Pear Control

*Pyrus calleryana* - Lake St. Louis, MO (1 year after application)

Mean values below box

NIS applied at 0.25% v/v

Treatment
Effect of DAS Herbicides on Callery Pear Control

Pyrus calleryana - Columbia, MO (1 year after treatment)

Mean values below box

NIS applied at 0.25% v/v
Effect of DAS Herbicides on Callery Pear Control

*Pyrus calleryana - Lake St. Louis and Columbia, MO (1 year after application)*

Mean values below box

NIS applied at 0.25% v/v
Effect of DAS Herbicides and Adjuvant on Callery Pear Control

*Pyrus calleryana - Peculiar, MO (1 year after application)*

Mean values below box

<table>
<thead>
<tr>
<th>Treatment</th>
<th>%Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMU+NIS (4pts/a)</td>
<td>51.4</td>
</tr>
<tr>
<td>REMU+MSO (4pts/a)</td>
<td>41.8</td>
</tr>
<tr>
<td>GRZNHL+REMU+NIS (1.5pts/a+1pt/a)</td>
<td>40.2</td>
</tr>
<tr>
<td>GRZNHL+REMU+MSO (1.5pts/a+1pt/a)</td>
<td>38.2</td>
</tr>
<tr>
<td>CHAP+REMU+NIS (2oz/a+1pt/a)</td>
<td>17.1</td>
</tr>
<tr>
<td>CHAP+REMU+MSO (2oz/a+1pt/a)</td>
<td>12.1</td>
</tr>
<tr>
<td>SRMT+NIS (4pts/a)</td>
<td>70.4</td>
</tr>
<tr>
<td>SRMT+MSO (4pts/a)</td>
<td>93.0</td>
</tr>
</tbody>
</table>
Summary

- Low volume basal applications are most consistent. *(25% Garlon® 4 Ultra herbicide + 75% basal oil carrier)*
- Tougher to control via Broadcast applications.
  - Most sensitive to picloram (i.e. Surmount® herbicide)
  - Methylated Seed Oil appears to be important for leaf penetration.
- Spot application rates may be needed to control *P. calleryana* with other ai’s such as triclopyr and aminopyralid.
- Regrowth of treated trees may require sequential applications to prevent re-infestation.
Low Volume Basal (*Day of application 5/15/15*)

25% Garlon® 4 Ultra herbicide

+ 

75% Basal Oil
Low Volume Basal (7/13/15)

25% Garlon® 4 Ultra herbicide
+ 
75% Basal Oil
Future Research Needs

• How will foliar applied individual plant treatments work?
• How will dormant stem applications work?
• What other actives can we combine?
References


Questions?