Progress Report

Weed Control Strategies in Blackberry Production

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Public Abstract:

Blackberry production currently accounts for over $2.3 million dollars in gross farm value in Louisiana. Blackberries rank 4th in gross farm value behind only strawberries, citrus and blueberries in Louisiana. According to 2018 LSU AgCenter statistics, 112 commercial growers are harvesting over 107 acres of blackberries across the state.

Blackberry acreage, prices and production are on the rise in Louisiana. In the last ten years, blackberry acreage has nearly doubled. In 2008 blackberries were grown on 65 acres and accounted for only $274,418 in gross farm value. This ten-fold increase in value has been fueled by a price per pint that has soared from $1.75 in 2008 to an average per pint price of $4.53 in 2018. The development of new and more productive cultivars has also allowed production yields per acre to double from 2,419 pints per acre in 2008 to over 4,884 pints per acre in 2018.

Unlike most other fruit crops grown in Louisiana, blackberries are not geographically restricted and therefore, can be grown across most soil types and latitudes around the state. Compared to citrus that is grown only in the south or blueberries and strawberries that thrive in sandy well drained piney woods soils, blackberries can be grown in all of Louisiana’s 64 parishes, from the coastal prairie of South Louisiana to the alluvial soils along the Mississippi river with similar degrees of success. Because of the widespread adaptation of blackberries, it is important for extension agents to be knowledgeable about this fruit crop that is grown in most parishes across the state.

Introduction

While blackberry gross farm value has soared over the last 10 years, in-state research and demonstration plot work for blackberry production in Louisiana has been minimal. Despite weed control being one of the major issues facing blackberry growers, little to no official research on weed control in commercial blackberries has been conducted in Louisiana in the last ten years. Correspondingly the LSU AgCenter website, weed control guides and fact sheets on blackberry weed control are not current.
As a training site for county agents and blackberry producers, on-farm weed control plots were established in March, 2020 in St. Martin Parish, near Breaux Bridge, LA. The efficacy of synthetic and organic herbicides as well as organic mulches, inorganic plastic mulch and landscape fabric were evaluated at this location. A comparison weed control products including cost per acre will be provided to give growers a more current estimate of overall weed control costs. Currently, no budget information on blackberry weed control costs exist in Louisiana.

**Methods:** An on-farm weed control demonstration was established at the D&D Blackberry Farm in Breaux Bridge, LA in late winter 2020. Herbicides and mulches were fully installed by March 3rd. A non-selective herbicide was used to destroy existing weed populations prior to mulch installation and herbicide applications.

The herbicides evaluated in the weed control demonstration included synthetic preemergence herbicides Princep (simazine), Surflan (oryzalin), Devrinol (napropamide), and Sinbar (turbacil). Organic herbicides evaluated included Preen Garden (corn gluten), a preemergence herbicide and Scythe (pelargonic acid), a postemergence herbicide. The organic herbicides were applied monthly for the duration of the study. Organic mulches evaluated at this location included pine bark, pine straw and sugarcane bagasse. Two inorganic row coverings, GCI 500 Series Landscape Fabric and 1.25 mil black non-degradable plastic mulch were included in the weed control demonstration as well. Weed control plots were evaluated monthly.

This project was initiated to provide a training for county agents and increase the knowledge of Louisiana blackberry producers. In order to extend the results of the demonstration plots to the clientele, an intensive agent training / producer field day was scheduled for the peak production period of the growing season.

**Results**

All mulches tested were equally effective in managing annual weed populations. Combinations of mulches + preemergence herbicides were highly effective as well. However, perennial weeds such as bahiagrass, bermudagrass, blue vervain, Virginia buttonweed, and yellow and purple nutsedge were the most common weeds infesting test plots regardless of weed control method used.

<table>
<thead>
<tr>
<th>Mulch</th>
<th>Cost/Acre</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine bark</td>
<td>$13,068</td>
<td>Labor intensive and expensive; heavy</td>
</tr>
<tr>
<td>Pine straw</td>
<td>$6185</td>
<td>Light material; may get dispersed by wind</td>
</tr>
<tr>
<td>Sugarcane bagasse</td>
<td>free</td>
<td>Free by-product of sugarcane production; labor intensive; attracts fire ants</td>
</tr>
<tr>
<td>GCI 500 series fabric</td>
<td>$7200</td>
<td>Most effective weed control evaluated</td>
</tr>
<tr>
<td>1.25 mil non-degradable plastic mulch</td>
<td>$580</td>
<td>Effective at suppressing most broadleaf and grassy weeds. Easily penetrated by nutsedge.</td>
</tr>
</tbody>
</table>
Bagasse is a free mulch option in sugarcane production areas of Louisiana.

The combination of pine straw mulch and heavy crop canopy suppressed weeds.
Summary of herbicide performance (0= no control 10 = complete control)

<table>
<thead>
<tr>
<th>Herbicide</th>
<th>Rate/Acre</th>
<th>Cost/Acre</th>
<th>Broadleaf Control Rating</th>
<th>Annual Grass Control Rating</th>
<th>Sedge Control Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simazine 4 L</td>
<td>2 qt</td>
<td>$15</td>
<td>8</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Oryzalin 4 EC</td>
<td>6 qt</td>
<td>$127</td>
<td>6</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Napropamide 50 DF</td>
<td>8 lbs</td>
<td>$124</td>
<td>8</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Turbacil 80 WDG</td>
<td>1 lbs</td>
<td>$58</td>
<td>9</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Corn gluten</td>
<td>870 lbs</td>
<td>$2,540</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Pelargonic acid</td>
<td>8% solution v/v</td>
<td>$243</td>
<td>6</td>
<td>6</td>
<td>3</td>
</tr>
</tbody>
</table>

Devrinol @ 80 days after treatment
Simazine @ 80 days after treatment

Blackberry Agent Training and Field Day
Although severe travel and meeting restrictions were placed on AgCenter personnel due to the coronavirus, a successful field day/agent training was conducted on May 22, 2020, 80 days after the demonstration plots were initiated. The goals of the training were to show the effectiveness of the different weed control strategies and to provide comprehensive production information for extension agents and current and perspective blackberry producers.

 Speakers and Topics at the Field Day
Dr. Stuart Gauthier – Demonstration Farm Information and Cultural Practices
Dr. Raj Singh—Blackberry Insects and Diseases
Dr. Kurt Guidry—Economic Factors to Consider for Blackberry Production
Dr. David Picha—Post Harvest Handling
Dr. Katherine Fontenot—Varieties and Cultural Practices
Dr. Ron Strahan—Weed Control in Blackberries and a tour of the demonstration plots

Extension agents and horticulture students evaluate herbicide demonstration plots

High quality blackberry production videos were produced and edited by the LSU AgCenter Communications Department. These videos have been well received by our clientele as they provide useful technical information for commercial/consumer blackberry growers and extension agents.

Stuart Gauthier https://www.youtube.com/watch?v=0xeTybmcfl64
Katherine Fontenot https://www.youtube.com/watch?v=KKO3JT2vrTc
Ron Strahan https://www.youtube.com/watch?v=giB3bLY9LLI
Raj Singh https://www.youtube.com/watch?v=Qo53Rv_EYKM
David Picha https://www.youtube.com/watch?v=K3wOkeLJFY
Craig Gautreaux https://www.lsuagcenter.com/articles/page1590602938333
Dr. Katherine Fontenot discusses blackberry cultural practices