Title: Strawberry Plasticulture Variety Trial

Progress Report

SRSFC Project Number: 2019 R-01

Research Proposal

Name, Mailing, and Email Address of Principal Investigator(s):

Principal Investigator: Dr. Erick D. Smith
Assistant Professor
Department of Horticulture
The University of Georgia – Tifton Campus
Ph. 229-386-3119
Email: ericks@uga.edu

Co-Principal Investigator: Dr. Phillip M. Brannen
Extension Fruit Disease Specialist
Plant Pathology
University of Georgia - Athens
Ph. 706-542-1250
Email: pbrannen@uga.edu

Co-Principal Investigator: Joshua L. Dawson
Extension Agent – Lowndes County
2102 East Hill Avenue
Extension - Fort Valley State University
Valdosta, GA 31601
Ph: 229-333-5185
Email: dawsonj01@fvsu.edu

Co-Principal Investigator: Jeff Cook
ANR Agent – Peach/Taylor Counties
7 Ivy Street
The University of Georgia - Extension
Butler, GA 31006
Ph: 478-862-5496
Email: mackiv@uga.edu

Objective: 1) To assess recent released June-bearing strawberry varieties and disseminate the findings to potential growers in the Southeastern U.S.

Justification and Description:

Most commercial strawberry growers in the southeast utilize an annual plasticulture production cycle. Growers, either large or small acreage, have been planting ‘Chandler’, ‘Camarosa’ or ‘Sweet Charlie’, which have been the standard cultivar recommendations from Extension for the Southeast (outside of Florida) for many years. ‘Sweet Charlie’ was released in 1992 and is recommended for u-pick operations and is not considered for large scale commercial operations due to soft fruit (Whitaker et al., 2018). ‘Chandler’ is quite cold hardy and has been popular throughout the southeast for many years. However, ‘Camarosa’ has become the variety of choice by growers, especially in the coastal plains of GA, NC, and SC; it is known for its tolerance to rains and suitable storability (Poling, 2012). Though these three strawberry varieties have proven
acceptability in yield and quality, there are a number of untested June-bearing varieties with potential for southeastern production that have become widely grown in California and Florida.

Strawberry flowering is photoperiod sensitive. Facultative short day or June-bearing varieties are grown in the Coastal Plain to minimize crop reduction from heat. High temperatures soften fruit, which dramatically reduces storability and acceptability as a fresh market product. Day-neutral and long-day varieties would not be acceptable in the Coastal Plain due to the extended season brought on by late flowering, which would delay harvest and expose the fruit to temperatures in excess of 85 °F. Both the University of Florida and University of California – Davis have in the last ten years or more released a number of June-bearing varieties that have yet to be evaluated under Coastal Plain growing conditions.

In Lowndes County, GA, a grower collaborator opened their farm to a strawberry variety trial. We have planted 13 varieties (Table 1), of which 4 are day-neutral everbearing (‘Albion’, Florida Beauty’, Florida Brilliance’ and ‘Cabrillo) and 9 short-day or June-bearing varieties (‘Calinda’, ‘Camarosa’, ‘Camino Real’, ‘Strawberry Festival’, ‘Fonteras’, ‘Merced’ ‘Florida Radiance’, ‘Ruby June’, and ‘Sensation’). The cultivation has been based on plasticulture production (Poling, 2001).

Experimental Plan:

Materials
Nine June-bearing cultivars and 4 day-neutral varieties as plugs have been established in Lowndes County, GA (Table 1). The day neutral varieties were added to the trial at the request of strawberry growers in the area. The plants were received from two sources: EZ Grow Farms, Langton, Ontario, CA. and Cottle Strawberry Nursery, Inc. Faison, NC. The plants were received from EZ Grow mid-September 2019 and stored in 34° F and 85% RH until planting. The plants received from Cottle Farms were in early October 2019 and were stored with the other strawberry plugs.

Treatments
Due to the drought, the plants were not established until November 2, 2019. The grower was unable to form beds until sufficient rain. Some of the plugs were not viable at planting and there has been further dieback since planting. We have been monitoring mortality and will adjust replications for the trial. The planting was established on 5 ft centers with 28 inch width beds that were planted in double rows at 14 inches between plants and 12 inches between rows. All farming practices are being conducted in accordance with Chapter 16 of the Vegetable Production Handbook of Florida ‘Strawberry Production’ (Whitaker et al., 2018). The beds are drip irrigated and frost protection will provided via row covers.

Analyses
We are anticipating first harvest by mid-February. At this time we will begin to evaluate the fruit for yield, fruit quality, and storability.
Table 1 Strawberry varieties selected for evaluation in Lowndes County, GA. Listed are the variety, photoperiod, and breeding program origin. Photoperiod are noted as either day-neutral (everbearing) or short-day (June-bearing) for flower induction.

<table>
<thead>
<tr>
<th>Variety</th>
<th>Season</th>
<th>Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albion</td>
<td>Day-Neutral</td>
<td>University of California</td>
</tr>
<tr>
<td>Florida Beauty</td>
<td>Weak Day-Neutral</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Florida Brilliance</td>
<td>Early production: photoperiod not noted</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Cabrillo</td>
<td>Day-Neutral</td>
<td>University of California</td>
</tr>
<tr>
<td>Calinda</td>
<td>Short-Day (June bearing)</td>
<td>Netherlands, Fresh Forward Breeding</td>
</tr>
<tr>
<td>Camarosa</td>
<td>Short-Day (June bearing)</td>
<td>University of California</td>
</tr>
<tr>
<td>Camino Real</td>
<td>Short-Day (June bearing)</td>
<td>University of California</td>
</tr>
<tr>
<td>Strawberry Festival</td>
<td>Short-Day (June bearing)</td>
<td>Florida Foundation Seed Producers, Inc.</td>
</tr>
<tr>
<td>Fonteras</td>
<td>Short-Day (June bearing)</td>
<td>University of California</td>
</tr>
<tr>
<td>Merced</td>
<td>Short-Day (June bearing)</td>
<td>University of California</td>
</tr>
<tr>
<td>Florida Radiance</td>
<td>Short-Day with long day characteristics noted</td>
<td>University of Florida</td>
</tr>
<tr>
<td>Ruby June</td>
<td>Short-Day with long day characteristics noted</td>
<td>Lassen Canyon Nursery, Inc.</td>
</tr>
<tr>
<td>Sensation</td>
<td>Short-Day adapted to plasticulture growing systems</td>
<td>University of Florida</td>
</tr>
</tbody>
</table>

References:
