

Title:

Off-Season Strawberry Production

Research Proposal:

Southern Region Small Fruit Consortium Research Proposal

Investigators:

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Objectives:

- 1) To evaluate the potential of fruiting 'Sweet Charlie', along with two day neutral strawberry varieties during the fall of year, when strawberries are not normally available from the Southeastern U.S.
- 2) To evaluate the spring production potential of 'Sweet Charlie' strawberry plants fruited in the previous fall.
- 3) To evaluate the off-season production potential of two day neutral strawberry varieties grown using the annual plasticulture production system.
- 4) To evaluate the economic feasibility of these potential enterprises.

Justification:

During the fall of the year, strawberries often bring \$35 to \$40/flat. If a producer could receive this price for strawberries, fall production might be feasible. A couple of growers in the Southeastern U.S. have been able to cover their establishment costs from the revenue generated from fall fruited 'Sweet Charlie' strawberry plants. By recovering the production costs in the fall, the fall fruit production lessens the production risks of annual plasticulture strawberry production.

In addition to reducing risk, some growers realize the importance of having fruit at the marketplace. Buyers will drive a considerable distance for small fruit, but are generally more reluctant to travel far for vegetables alone. Therefore, in order to keep consumer interest, some growers are looking for ways to provide small fruit in their on farm markets from frost to frost, or possibly after frost. Summer and fall strawberry production give these producers another small fruit option, extending until nearly Thanksgiving.

Research is being conducted in Florida to force 'Chandler' and 'Camarosa' strawberries to bloom in the fall. However, both temperature and light have to be manipulated to force these varieties to bloom. Researchers in North Carolina have shown that 'Sweet Charlie' is more photoperiod sensitive, and that manipulating light could possibly be enough to force 'Sweet Charlie' to fruit in the fall of the year.

Methodologies:

Bare root dormant plants of 'Everest' and 'Seascape' day-neutral strawberries were to be planted into a plasticulture system at the end of April or early May. However, by March, when plants were being ordered, no 'Everest' plants could be obtained from Nourse Farms, the only source of

'Everest' plants. Therefore, only bareroot plants of 'Seascape' were planted in a randomized complete block design into black and white plastic mulch. Four replications of each plastic treatment were utilized. Two dates were also evaluated; May 5 and May 25. This trial was conducted at the University of Tennessee Plateau Experiment Station near Crossville, TN.

Some of the 'Seascape' plants were also given to Mike Bradley, a grower in Sumner Co., TN. Mike planted into white plastic mulch in May and again in late June or early July.

A second experiment was conducted at the Plateau Experiment Station. Bare root dormant 'Sweet Charlie' and 'Seascape' plants were planted into black and white plastic mulch in late June. The experimental design was a randomized complete block with a split block factorial arrangement of treatments and 4 replications.

Results:

Several unforeseen obstacles complicated all of the trials conducted this year. As already mentioned, the unavailability of 'Everest' plants prevented the evaluation of that variety. Heavy rain throughout much of the growing season prevented the timely execution of many aspects of the two experiments at the Plateau Experiment Station. In spite of utilizing chemical weed control, the frequent and heavy rain resulted in heavy weed pressure between the rows. However, the worst problem resulted from wildlife feeding. Before we realized what was happening, the deer grazed on the spring plantings and ruined the trial. Most plants had significant feeding damage, including the removal of foliage and even some blooms; while other plants were pulled from the soil. A few berries were produced, but with all of the feeding damage, the yield data was not worth collecting.

Since additional operations preparing for fall berry planting needed to be conducted in the same field, a deer fence was not erected until after the plastic for fall planting was applied. Therefore the summer planted trial also suffered from wildlife damage and no data was collected. This amount deer damage has never been experienced at this location in the past.

In addition to the heavy and frequent rain which also fell at Mike Bradley's in Middle Tennessee, a serious disease problem was experienced. Apparently the 'Seascape' plants received from California were infected with anthracnose (*Colletotrichum acutatum*). The high rainfall conditions in conjunction with the presence of the disease organism resulted in more than 90% of the fruit being infected with anthracnose fruit rot. Therefore, yield data was not collected.

Conclusions:

Prepare for wildlife damage, even when it is not expected and order plants early to ensure availability.

Impact Statement:

At this point no impact statement can be made. **The proposed trials will be repeated at the Plateau Experiment Station during the 2005 growing season.**