tetradecyl amine for the 3rd treatment. The addition of the thickener did not make a significant improvement in the effectiveness of the oil-soluble amine regardless of the gallonage rate for either the first or second treatments (Table 2). Morphactin and paraquat treated plots were equally as good as phenoxy treated plots.

A consideration of soil persistence based on total effect (Table 3) shows that the 2,4-D acid, sodium salt and do + tetradecyl amine are significantly more persistent than the other 2,4-D chemicals, but this effect was reflected only in the first 2 weeks bioassay (Table 3). Results from the samples bioassayed 4 weeks after treatment show that chemically treated plots generally exhibited a slight inhibition of growth relative to untreated (check) plots. This is thought to be the result of reduced fresh organic matter in treated plots at the time of the rototilling which resulted in poorer soil aeration, drainage and nitrification processes.

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BLOSSOM REMOVAL IN THE STRAWBERRY WINTER NURSERY

E. E. ALBREGTS

Strawberry and Vegetable Field Laboratory
Dover

ABSTRACT

The effect of removing the emerging blossoms from mother plants on plant production in the winter nursery was studied for two seasons. In 1968 the removal of blossoms statistically increased plant production with the clones 113-D5, 'Torrey', La. 1158 and 'Florida 90', and increased plant production with the clones 113-D5, the plant production of all other clones tested. In 1969 each of the clones tested, 'Sequoia', 'Aliso', 'Tioga' and 'Solana', produced significantly more plants when the emerging blossoms were removed. During both years the control plants not only produced fewer plants but also smaller plants.

INTRODUCTION

Plant production is an important consideration to the strawberry industry of Florida. It has been demonstrated that clones differ in their ability to produce daughter plants (1). With the discontinuance of the prolific plant producer 'Florida 90' and the growing importance of California developed clones in Florida, plant production problems have been encountered. Low plant production in Florida of clones developed elsewhere is generally related to their diverse genetic make-up as well as to the environmental differences existing between these areas and Florida (1). It is known that variations in temperature and light affect fruit production as well as plant production (1, 2, 5).

Vegetative growth has been demonstrated to be antagonistic to the flowering and fruiting of the strawberry (6). Fruiting inhibits plant growth by depressing leaf size and area and delays leaf and runner emergence. These inhibitions begin before or soon after flowering not waiting for the fruiting period (3).

Plant production in the more northern areas of this country has been increased by blossom removal. Hand labor is required since efforts to use chemicals as de-blossoming agents have not yet proven satisfactory (4).

MATERIALS AND METHODS

This study involves field trials conducted in 1968 and 1969 at the Strawberry and Vegetable Field Laboratory on a Scranton fine sand. Plants of ten clones ('Solana', 113-D1, 113-D5, La. 1158, 'Tioga', 'Earlibelle', 'Torrey', 'Missionary', 'Florida 90', and 'Dabreak') were transplanted on February 1, 1968 after being held in storage at

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35°F for one month. In 1969, the plants of four clones ('Aliso', 'Tioga' 'Solana', and 'Sequoia') were transplanted on January 28 after forty-five days of storage at 35°F. The field design was randomized complete block with three replicates. There were six and twenty-four transplants per replicate in 1968 and 1969, respectively. Plots were broadcast fumigated with thirty-five gallons of Vorlex per acre. Standard fertilizer and pesticide spray programs were used. The transplants were set two feet apart in rows four feet apart. Transplants in 1968 came from either the Strawberry and Vegetable Field Laboratory nursery or the Sub-Tropical Experiment Station nursery at Homestead, Florida. All transplants in 1969 came from the Strawberry and Vegetable Field Laboratory nursery. During both years the treatments consisted of either permitting all blossoms and fruit to remain on plants or of removing all blossoms soon after their appearance. At the termination of the field trials all daughter plants which had two or more visible leaves were counted and recorded as plant production.

Results and Discussion

The results for 1968 are presented in Table 1. No comparison was made among clones.

The most prolific plant producers for 1968 were 'Florida 90', 113-D1 and 113-D5 which were developed in Florida. Although 'Missionary' is a clone which has been grown in Florida for several years, its performance was similar to those from other areas of the country.

The effect of blossom removal on plant production was evident. In no instance did the number of daughter plants produced by the plants on which the blossoms were not removed equal or exceed those produced by the de-blossomed plants (Table 1). But the de-blossomed plants of only four clones produced significantly more daughter plants than those not so treated. The 'Torrey' de-blossomed plants produced significantly more daughter plants at the 5% level while the 113-D5, La. 1158 and 'Florida 90' de-blossomed plants produced significantly more plants at the 1% level.

In Table 1, the number of stolons produced per treatment to April 29, 1968 is recorded. The de-blossomed plants generally initiated stolons earlier and in greater number. Only the 'Dabreak' clone exhibited a decline in stolon production because of blossom removal.

The data of 1969 are presented in Table 2. The four clones investigated were those that exhibit potentiality or are extensively grown in the Plant City area. Daughter plant production was enhanced by blossom removal, and differences because of treatment were significant with all clones. Daughter plant production was reduced in 1969 by the very cool winter and spring.

The weights of the daughter plants were not recorded for either year, but size, as noted vis-

Table 1. Effect of blossom removal on plant response in nursery in 1968

Clone	Treatment[1]	No. plants per plant	No. stolen plant	Avg. plant[2] size
Florida 90	DB	54**	71**	1
	B	28	41	0.7
113-D1	DB	50	80**	1
	B	34	41	0.5
113-D5	DB	48**	54**	1
	B	25	34	0.7
Salinas	DB	39	52	1
	B	24	34	0.8
Missionary	DB	35	67*	1
	B	29	39	0.9
Earlibelle	DB	35	57*	1
	B	23	25	0.5
Torrey	DB	34*	57	1
	B	26	45	0.9
Dabreak	DB	25	42	1
	B	22	46	1
Tioga	DB	25	40	1
	B	15	23	0.9
La. 1158	DB	24**	30	1
	B	10	20	0.8

**, * Significant at 1 and 5% levels respectively within clones.

[1]DB = de-blossomed plants, B = control.

[2]Visual rating as to amount of foliage produced with DB rated as 1.

Table 2. Effect of blossom removal on plant response in nursery in 1969

Clone	Treatment[1]	No. plants per plant	Avg. plant size[2]
Solana	DB	34*	1
	B	19	0.9
Sequoia	DB	18*	1
	B	12	0.9
Tioga	DB	8*	1
	B	6	0.8
Aliso	DB	9**	1
	B	3	0.9

**, * Significant at 1 and 5% levels respectively within clones.

[1]DB = de-blossomed plants, B = control.

[2]Visual rating as to amount of foliage produced with DB rated as 1.

ually by amount of foliage produced, revealed that de-blossomed plants not only produced more prolifically but that those plants produced were larger. The only exception was in 1968 when the 'Dabreak' failed to produce larger plants when de-blossomed.

Daughter plants produced in the winter nursery are transplanted to the summer nursery. A review of the literature failed to clarify the effect of plant size on daughter plant production. Therefore, the use of larger transplants in the summer nursery may not be beneficial. But increased production of daughter plants is most desirable, and in these trials the average yields of the de-blossomed plants were from 114 to 300 per cent of the control plants. To obtain yields similar to de-blossomed plants, acreage for the control plants would need to be increased in a proportional manner. The cost of the additional fumigant ($150/A), plants ($50/A), fungicides, and additional land along with the burden of weed control for the increased acreage would usually be greater than the cost of blossom removal. The removal of blossoms on a weekly basis requires less than one man-hour per week per acre. De-blossoming is required for about ten weeks. With labor priced at two dollars per hour the cost of blossom removal would be approximately twenty dollars per acre. This is the value of the fumigant and plants needed for one-tenth of an acre of nursery.

The results of these trials confirm the information obtained elsewhere (4, 6) in indicating that de-blossoming is a profitable practice which promotes increased production of daughter plants in Florida's winter strawberry nurseries.

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AN UNUSUALLY SEVERE OUTBREAK OF SWEET AND FIELD CORN RUST IN COLLIER COUNTY

D. W. LANDER

University of Florida Extension Service
Naples
AND

C. H. BLAZQUEZ

South Florida Field Laboratory
Immokalee

ABSTRACT

An unusually severe outbreak of rust (*Puccinia sorghi* Schw.) of sweet corn (*Zea mays* var. *rugosa* L.) and field corn (*Zea mays* L.) was observed for the first time in two locations of Collier County. The disease was first discovered in the Sunniland area of Florida 112 field corn on April 9, 1969. Rust pustules were widespread on older leaves but not conspicuous on the younger leaves. On April 15 the rust disease was discovered spotting 75% of the mature foliage of a 50 acre block of Iobelle sweet corn 24 miles west of Sunniland. Although the disease did not affect the sweet corn ears, it did spread to an adjacent 50 acre field of younger sweet corn within five days. It is suspected that the rust spores were spread by the strong eastern winds, as a 400 acre field of sweet corn 15 miles southwest in the Royal Palm Hammock area escaped the disease. In the Sunniland area a single aerial spray application of Dithane M-45 80 W (manganous ethylene bisdithiocarbamate) at the rate of 2 lbs. per acre was sufficient to control the disease in mature plants of Florida 112 field corn, while unsprayed end rows were defoliated.

INTRODUCTION

Sweet corn was a minor crop in Florida prior to 1946 when it was estimated that less than one hundred acres were grown annually. The growth