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PROCEEDINGS
OF THE
CARIBBEAN FOOD CROPS SOCIETY



FOURTH ANNUAL MEETING
KINGSTON , JAMAICA
JULY 25 -- AUGUST,1 1966

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Tsuno, Y. and Fujise, K. (1965), Studies on the dry matter production of sweet potato, Bull. Nat. Inst. of Agric. Sci. (Japan) Series D. No. 13.

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EVALUATION OF BLACK POLYETHYLENE MULCH PAPER FOR TOMATO PRODUCTION IN PUERTO RICO

H. Irizarry, H. Azzam and R. Woodbury

An experiment was conducted in February, 1959 to evaluate the economic use of black polyethylene mulch paper for tomato production in Puerto Rico.

Four treatments and five varieties were used in a randomized block design with 4 replications. The combined treatments used were described as follows:

1. Mulching, No staking, No weeding
2. No mulching, No staking, Weeding
3. No mulching, No staking, No weeding
4. No mulching, Staking, Weeding

The varieties included in this trial were Rutgers, Platillo, Plamar, and local breeding lines P. R. 123 and P. R. 126.

The results of this study showed that black plastic suppressed the growth of 102 different weeds, but the cost per acre when compared with regular weeding remained a limiting factor (Table 1). A single layer of the plastic did not prevent the growth of nut grass (Coqui), Cyperus rotundus L., in tomato fields.

No significant yielding differences among treatments were observed at the 1 percent level (Table 2). A decrease in yield was detected in the mulched treatment when compared with treatment 4 (No mulching, Staking, Weeding) at the 5 percent level.

Mulching apparently did not have any remarkable effect in reducing the incidence of soil fruit rot. Although the experiment was harvested during the rainy season the total number of rotten fruits were very low and generally uniform among treatments.

The fact that the variety X treatment interaction with respect to the weight and number of fruits was not significant, indicated that these varieties did not respond to any particular treatment. However, the Rutgers tomato had the poorest performance of all the varieties included in this trial (Tables 3 and 4).

Black polyethylene increased soil temperature to 1°F. when compared to bare soil temperature at a depth of 2-4 inches (Table 5).

Table 1 - Estimated cost per acre of three hand weeding vs. the use of black polyethylene mulch paper in tomato

Treatment	Man hr. used per weeding or mulching	Cost per weeding or mulching ^{1/}	Cost of materials ^{2/}	Total cost
Hand weeding	93.8	\$ 56.28	---	\$ 168.84
Mulching	30.25	18.15	\$ 330.00	348.15

^{1/} Based on wages paid in 1959, \$0.60/hr.

^{2/} Based on local price of the material, 1.1 cents/sq. ft.

Table 2 - Comparison of treatments and weight of fruits

Rank	Treatment	Corrected mean ^{1/} wt. (lbs./plot)	Out yields significantly at 5-percent level
1	4 (No mulching, staking, weeding)	47.21	1, 3
2	2 (No mulching, No staking, weeding)	45.20	
3	1 (Mulching, no staking, no weeding)	40.41	
4	3 (No mulching, no staking, no weeding)	39.89	

$$S_{\bar{x}} = 1.913 \text{ lbs./plot}$$

$$\text{Error } df = 44$$

^{1/} Means corrected on the basis of plant stand due to significant effect of this factor on treatment differences.

Table 3 - Comparison of varieties and weight of fruits

Rank	Variety	Mean wt. (lbs./plot) ^{1/}	Out yields significantly at 1-percent level
1	P. R. 123	54.60	Rutgers
2	Platillo	53.99	Rutgers
3	P. R. 126	43.45	Rutgers
4	Piamar	42.07	Rutgers
5	Rutgers	21.77	

$$S_{\bar{x}} = 3.134 \text{ lbs./plot}$$

$$\text{Error } d_f = 12$$

^{1/} Means not corrected because the effect of plant stand on variety differences was not significant.

Table 4 - Comparison of varieties and number of fruits

Rank	Variety	Mean number of/ fruits/plot ^{1/}	Out yields significantly at 1-percent level
1	P. R. 123	405	Rutgers, Platillo
2	Piamar	365	Rutgers
3	P.R. 126	331	Rutgers
4	Platillo	257	Rutgers
5	Rutgers	120	

$$S_{\bar{x}} = 24.64 \text{ fruits/plot}$$

$$\text{Error } d_f = 12$$

^{1/} Means not corrected because the effect of plant stand on variety differences was not significant.

Table 5 - Air and soil temperature recorded during the tomato growing season, February 15 - May 11, 1959.

	:Air temperature:Soil temperature in °F at 2-4" depth		
	: in °F	: Under mulching	: No mulching
Ave. minimum	67.3	79.5	79.0
Ave. maximum	87.0	93.6	92.2
Mean	77.2	86.6	85.6
Range	62-92	74-100	74-96

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RESULTS OF MAGNESIUM FERTILIZER RESEARCH IN PUERTO RICO

E. Hernández-Medina^{1/}

ABSTRACT

The results obtained in studies undertaken to determine the influence of magnesium on the yield of various crops of economic importance in Puerto Rico are briefly summarized as follows:

1. Magnesium increased significantly yields of sweet potatoes when this nutrient was applied to a Lares clay and Sabana Seca sandy clay soils.

2. The application of magnesium sulfate as spray and in the soil relieved grapefruit trees from visual symptoms of deficiency of magnesium. Heavy shedding of the leaves was corrected by using this nutrient.

3. On a highly alkaline soil magnesium applications to the soil were not effective in correcting magnesium deficiency in citrus trees. However, magnesium sprays were quite effective in controlling visual symptoms of magnesium deficiency.

4. There was a significant yield increase of marketable coffee in favour of magnesium-treated trees. The difference in

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