

Effects of Plant Size on Mechanical Clipping of Pickling Cucumbers

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Photo 1, above, cucumbers cut back to 3-inch height, when plants were 5 inches high (treatment 1).

Photo 2, below, check row comparison with cutting back to 5 inches when cucumber plants were 12 inches high (treatment 3).

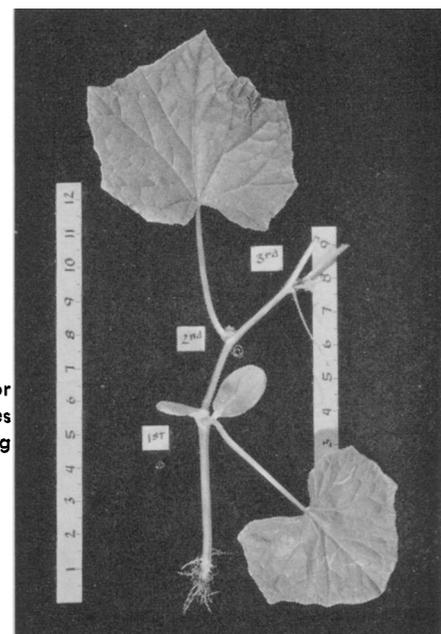
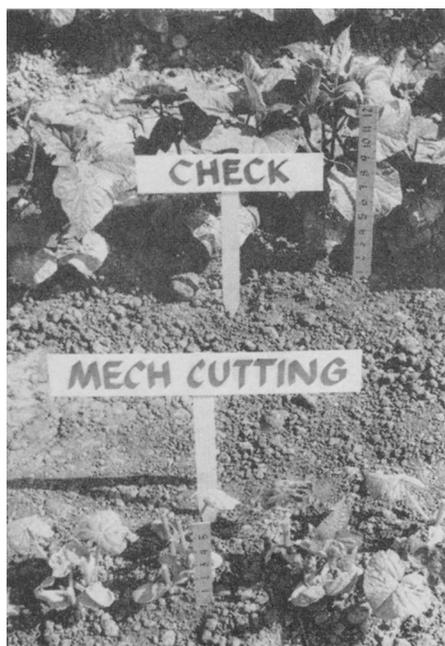


Photo 3, right, best sized cucumber plant for mechanical clipping in these tests was 12 inches high, and then cut back to 9 inches, leaving three to four nodes.

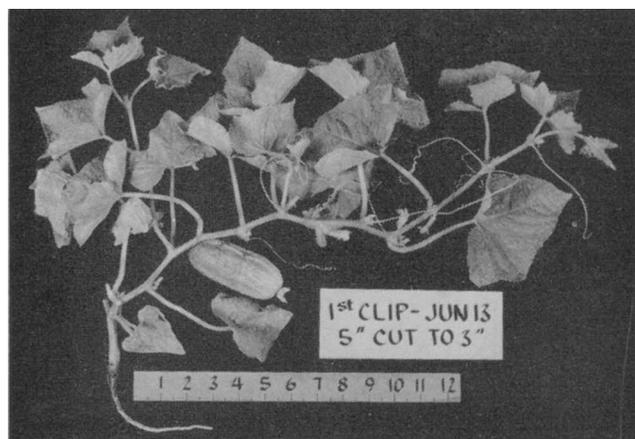


Photo 4, right, average length of vine for treatment 1 was 19.2 inches at harvest, with single branching below cut.

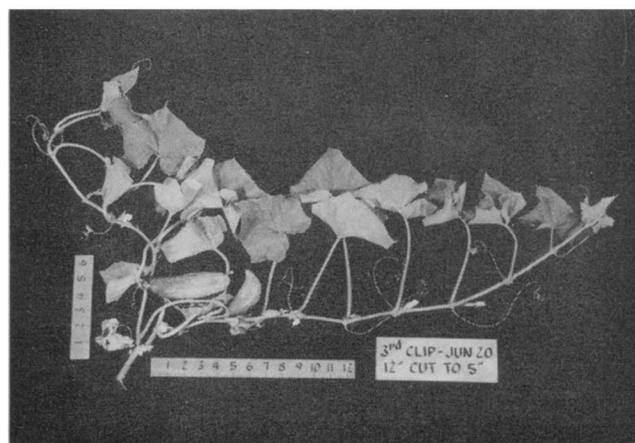


Photo 5, right, average length of vine for treatment 3 was 21 inches at harvest, with double branching from two nodes below cut.

PREVIOUS STUDIES of mechanical clipping, or topping of canning tomato plants grown for mechanical harvesting showed that this technique could be used satisfactorily to spread harvest dates and obtain plant uniformity. Since a once-over or single harvest method is also being used in the mechanical harvesting of pickling cucumbers, the purpose of these tests was to determine whether a similar delayed-maturity effect might occur that would aid growers in scheduling cucumber plantings for mechanical harvesting.

Field trials were conducted at Davis during a three-year period (1966-68) and in the greenhouse during the winter of 1967. The monoecious pickling cucumber variety SMR-58 was used in all experiments. In addition to the SMR-58 variety, the gynocious hybrid Piccadilly was used in the 1967 and 1968 field tests and in the greenhouse study. The field plot work of 1967 with the variety SMR-58 represents the results of these findings and is reported here. The plots were seeded May 29 in double rows on 40-inch beds. Germination was on June 3 and plants were thinned June 8 leaving three plants per clump, 6 inches apart.

Timing

The treatments were designed to determine proper timing of the cutting with reference to the physiological age of the plant and thus to achieve the desired delay and uniformity of fruit maturity. The plots were replicated four times. Treatments, as listed in the table, were: 1) cutting back to 3 inches when the plants were 5 inches high (photo 1); 2) cutting back to 4 inches when the plants were 9 inches high; 3) cutting back to 5 inches when the plants were 12 inches high (a few flower buds were present but none were open) (photo 2); 4) cutting back to 9 inches when the plants were 16 inches in length (some had already begun to lie down and some had open flowers) and 5) no cutting—control. The first cutting was on June 13, the second June 16, the third June 20, and the fourth June 23. Harvest of each plot was made when three fruits were just beginning to star yellow at the blossom end.

Treatments 1 and 5 were harvested July 8 and 2, 3 and 4 on July 11.

An analysis of variance of the data shows significant differences in length of vine between the control and the clipped treatments. There were no significant differences in length of vine between treatments 1, 2, 3, and 4. There was a significant difference in yield between the control and clipped treatments

2, 3 and 4. The highest number of fruits in grade 2 and 3 were found in treatments 3 and 2.

Treatment 3 produced the highest number of double and triple lateral branches and the average length of vine was 21 inches (photo 5). Treatment 1 left only one bud for lateral branching and the plants remained the smallest, with average length of vine only 19.2 inches (photo 4). With proper timing, the cutting of the variety SMR-58 can give a four to five day delay in harvest and produce more lateral branching. Additional research has shown best results from plots with a plant height of 12 inches cut back to 9 inches, leaving three to four nodes (photo 3). The clipped vines had less length than the control group, thus aiding machine harvest.

Results of preliminary studies with cutting on the gynocious variety Piccadilly indicate less of a delay in maturity; however, cutting did reduce vine size.

It does not appear that clipping would be a recommended practice other than for the purpose of scheduling, where excessive plantings have been made for a single harvest period.

TABLE 1. EFFECT OF TIME OF CUTTING ON VINE SIZE AND YIELD OF THE SMR-58 PICKLING CUCUMBER

Plant Height at Mechanical Clipping	Vine Length at Harvest	Yield
inches	inches	tons/acre
(1) 5 cut to 3	19.2	3.3
(2) 9 cut to 4	21.2	4.6
(3) 12 cut to 5	21.0	5.6
(4) 16 cut to 9	24.7	4.0
(5) control (not clipped)	40.0	2.7

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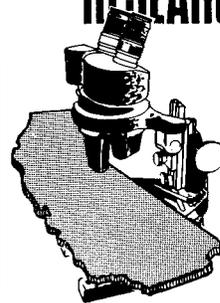
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RESEARCH PREVIEWS



A continuing program of research in many aspects of agriculture is carried on at University campuses, field stations, leased areas, and many temporary plots loaned by cooperating landowners throughout the state. Listed below are some of the projects currently under way, but on which no formal progress reports can yet be made.

BUNCH ROT ON GRAPES

It has been shown that the spores of the fungus causing summer bunch rot in grapes are dispersed to the grapevines in the dust caused by cultivation during the bloom period. This problem was partially overcome in one test vineyard by irrigating before bloom to settle the dust.

SOIL CLASSIFICATION

Soil scientists from Berkeley and Davis are using a computer to help gather, store, and retrieve information about the more than 700 soil series found in California. It is hoped that this data may be coordinated with information from other states over a broad area of the nation.

TOMATO DISEASES

Plant pathologists, engineers, and vegetable crops specialists at Davis are studying ways to control both preharvest and postharvest molds on tomatoes as an aid to better mechanical harvesting procedures.

BETTER TROUT

Animal scientists at Davis are working with the State Department of Fish and Game, on the genetic improvement of rainbow trout broodstocks used in fish management programs.

WATERSHED IMPROVEMENT

Agronomists at Riverside are working with the U. S. Forest Service on better use of weed-killing chemicals in chaparral areas. The project is aimed at increasing the water runoff capabilities of these areas where every drop of rain is important.

CROP RESIDUE vs DISEASES

The effects of turning under crop residues on the development of soil-borne plant diseases are being studied by plant pathologists at Berkeley, as part of a regional research program sponsored by the western states.