

EFFECT OF THE AGE OF JUVENILE STAGE AVOCADO SEEDLINGS ON THE ROOTING CAPACITY OF THEIR CUTTINGS

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Among the factors which affect the rooting capacity of cuttings, the age of the stock plant from which the cuttings are taken is of major importance.

In experiments with rooting of cuttings from various plant species, it was found that the younger the stock plant, the better the rooting capacity of its cuttings (1, 2, 3, 6, 8). This fact is probably connected with the juvenility phenomenon (1, 6, 7), which has not yet been defined clearly. However, it is known to be connected with the morphological, anatomical and physiological processes in the development of the young plant (7).

In preliminary experiments with the rooting of avocado cuttings, it was found that cuttings taken from young seedlings (3-6 months old) of the West Indian types, which are considered hard to root, rooted easily within a relatively short period of time in a suitable rooting medium under artificial mist spray (4).

In the work described here, the rooting capacity of cuttings taken from Mexican avocado seedlings of different ages was examined.

MATERIALS AND METHODS

In late August 1973, 500 avocado seeds of the Mexican seedling variety Northrop 28/5 were collected. The seed coats were removed in order to obtain better germination (5), and the seeds were then sown in groups of 100 in boxes filled with vermiculite. During the fall, the seeds germinated and the plants were grown in a greenhouse.

The rooting experiments were carried out at two-month intervals in four age cycles.

a. At the beginning of March 1974, when the seedlings were six months old, 50 uniformly developed plants, about 30 cm tall and with a stem diameter of 3-4 mm, were chosen. The cuttings were cut with their bases just above the seed surface, transferred to a glasshouse, inserted in rooting beds filled with coarse vermiculite, and supplied with intermittent mist spray of two seconds in every 60-second cycle.

b. In the second cycle, 50 eight-month-old cuttings were inserted in beds for rooting at the beginning of May under the same conditions.

c. In the third cycle, 50 ten-month-old cuttings were taken at the beginning of July.

d. In the fourth cycle, 50 twelve-month-old cuttings have been taken in the beginning of September.

Surveys of rooted cuttings were carried out twice for each age cycle during the experiment period: two months after the beginning of the cycle, and four months after the beginning.

RESULTS

The results of the surveys of rooted cuttings are shown in Table 1.

TABLE 1. ROOTING OF AVOCADO SEEDLINGS CUTTINGS FROM FOUR AGE GROUPS, AT TWO DATES AFTER PLANTING.

Age of seedlings (months)	<i>two months after planting</i>		<i>four months after planting</i>	
	number	percent	number	percent
6	30	60	50	100
8	15	30	35	70
10	10	20	30	60
12	5	10	15	30

CONCLUSIONS

The rooting capacity of avocado cuttings taken from young Mexican seedlings was very high, reaching 100%. Apparently this capacity decreases with the maturation of the seedlings (time elapsing from the stage of juvenility). Other factors which may affect the reduction in rooting capacity, such as the elongation of the seedlings with the age, effect of the season of each cycle of cuttings, etc., were not considered in this experiment.

In practice, the high rooting capacity of the cuttings can be taken advantage of when the amount of seeds of a certain favored type (such as seeds of some West Indian types) available for the production of rootstocks is insufficient. In such cases the nurseryman can retain the tips which are being removed while top-grafting the young seedlings, to root them under suitable conditions, and thus double the number of rootstocks in his possession.

Obviously, one cannot expect to produce a population with more uniform genetic characteristics than the population of the seedlings from which the cuttings were taken, since each such rooted cutting will be identical in its genetic characteristics to the seedling from which it was taken.

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