

HORTICULTURE

SWEET POTATOES

The following experiments are under way with sweet potatoes:

1. Variety Trials.
2. Planting Dates.
3. Spacing Test (row widths).
4. Spacing Test (drill).
5. Fertilizer Formula Test.
6. Concentrated Fertilizer Formula Test.
7. Rates of Applying Fertilizer.
8. Sources of Ammonia.
9. Sources of Potash.
10. High Potash Applications.
11. Influence of Light and Heavy Applications of Fertilizer on Early Maturity.
12. Miscellaneous Plant Nutrients.
13. Methods of Cultivation.
14. The Effect of Vine Pruning on Sweet Potato Yields.
15. The Influence of Vine Parts on Sweet Potato Yields.
16. Color Inheritance in the Sweet Potato.

Detailed information regarding experimental data obtained from studies with this crop may be found in Bulletin No. 17, therefore only a brief discussion of the various experiments will be given in this report.

SWEET POTATO—VARIETY TEST: Porto Rico and Big Stem Jersey are the outstanding varieties to be grown for early market. The Big Stem Jersey should be grown exclusively as an early potato and for northern markets. Porto Rico should be grown primarily

for southern consumption, although it is used to a limited extent in the North. The Porto Rico potato besides leading in production as an early variety, is highly desirable as a late crop and as a storage potato.

SWEET POTATO—PLANTING DATES: In order to obtain a maximum yield from sweet potatoes for the early market, plantings should be made about the middle of March in the central Coastal Plain area. The minimum growing period for profitable yields is 115 to 120 days, therefore later plantings for the early market may be expected to produce little or no profit.

It has been found that 185 to 200 days are required for the maximum production of No. 1 potatoes, consequently the late crop should be planted not later than May if the highest returns are to be realized.

SWEET POTATO—SPACING TEST: Tests with sweet potato spacings in row widths and in the drill indicate that the most profitable returns may be expected from potatoes planted in 3½-foot rows, and 12 to 16 inches in the drill.

FERTILIZER TESTS.

SWEET POTATO—FERTILIZER FORMULA TESTS indicate that the most desirable combination of plant food elements for sweet potatoes is a formula consisting of 8 per cent phosphoric acid, 4 per cent ammonia, and 6 per cent potash.

SWEET POTATO—CONCENTRATED FERTILIZERS: Fertilizers of high concentration are less desirable than standard mixtures.

SWEET POTATO—RATES OF APPLYING FERTILIZER: Profitable returns are obtained from applications ranging as high as 800 pounds per acre.

SWEET POTATO—SOURCES OF AMMONIA: The highest yields of potatoes are resulting from fertilizer in which one-half the ammonia is derived from nitrate of soda and one-half from cotton seed meal.

SWEET POTATO—SOURCES OF POTASH: Kainit is decidedly the outstanding source of potash, for use in fertilizing potatoes.

SWEET POTATO—HIGH POTASH APPLICATIONS: This study was begun in 1931. In it the potash in the various formulas range from 8 to 20 per cent. This work will be continued until definite conclusions can be drawn.

SWEET POTATO—INFLUENCE OF LIGHT AND HEAVY APPLICATIONS OF FERTILIZER ON EARLY MATURITY: In this test the maximum yield of No. 1 potatoes from Porto Rico has resulted from 700 pounds per acre, while the use of 900 pounds with the Big Stem Jersey has given the highest yield.

SWEET POTATO—MISCELLANEOUS PLANT NUTRIENTS: The application of miscellaneous plant nutrients, such as sulphur and bluestone, has not increased sweet potato yields.

SWEET POTATO—METHODS OF CULTIVATION: High beds seem to be more conducive to heavy yields than medium to low beds.

THE EFFECT OF VINE PRUNING ON SWEET POTATO YIELDS: Pruning sweet potato vines reduces the yield in direct proportion to the amount of vines cut away.

THE INFLUENCE OF VINE PARTS ON SWEET POTATO YIELDS: This study indicates that the tip and intermediate part of sweet potato vines are slightly more desirable as a source of plants than the more fibrous parts near the base.

SWEET POTATO—COLOR INHERITANCE: From this study it appears that the true Porto Rico, when grown on Tifton and Norfolk soil types, has no tendency to lose its characteristic color and quality.

TOMATOES

The tomato experiments that are being continued for further study are listed below:

1. Variety Test.
2. Spacing Test.
3. Fertilizer Formula Test.
4. Rates of Applying Fertilizer.
5. Concentrated Fertilizer Formulas.
6. Miscellaneous Plant Nutrients.
7. Sources of Ammonia.
8. Sources of Potash.

TOMATO—VARIETY TEST: A study of tomato varieties extending over the period of years from 1922 to 1927, inclusive, showed New Stone to be the most productive variety included in the test. It is of greatest importance as a general purpose tomato, being a fair shipper, excellent for canning, and very desirable for home use as a fresh product. Livingston Globe and Cooper's Special produced less marketable fruit, but possess better shipping quality and therefore are more desirable as commercial varieties. In this particular test Marglobe showed indications of being a shy bearer, although it is of excellent quality, ships well and is very attractive in appearance.

In a more recent study of tomato varieties (extending from 1928 to 1931, inclusive) Clark's Early has produced the highest yield of marketable tomatoes, with Louisiana Pink coming second, John Baer third, and Gulf States Market fourth. See Table XXXIV. Break O'Day, a recent introduction by the United States Department of Agriculture, was included in the test in 1931 and

appears very promising. In marketable fruit it produced the highest yield for the year in question and is outstanding as a commercial variety. Marglobe continues to produce low yields, but otherwise is very desirable as a commercial tomato.

TABLE XXXIV.—TOMATO VARIETY TEST

Average Yield for Years 1928 to 1931, Inclusive.

Fertilizer: 800 lbs. per acre analyzing 8 per cent phos. acid, 4 per cent ammonia and 4 per cent potash.

Average date planted: April 17th.

Variety	Yield in Pounds per Acre			Days Required to Mature	Days Bearing Period
	Market- able	Culls	Total		
1. Clark's Early -----	6889	1986	8875	61	35
2. Louisiana Pink -----	6616	2006	8622	62	34
3. Cooper's Special -----	5311	3020	8331	64	34
4. John Baer -----	5835	2244	8079*	54	38
5. Gulf States Market -----	5779	2246	8025*	58	34
6. Livingston Globe -----	5268	2169	7437	62	32
7. Louisiana Red -----	5409	1963	7372*	54	37
8. Bonnie Best -----	5366	1692	7058	61	35
9. New Stone -----	4662	2064	6726	59	33
10. Marglobe -----	4849	1789	6638	62	34
11. Norton -----	4238	1949	6187*	65	34
12. Greater Baltimore -----	4075	2013	6088*	61	33

*Three-Year Average.

TOMATO—SPACING TEST: Tomatoes spaced 3 feet in the drill and in $3\frac{1}{2}$ foot rows are producing the highest yield of marketable fruit. (See Table XXXV).

