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REPORT OF VARIETY AND STRAIN TESTS OF VEGETABLES AND SMALL
FRUITS DURING 1937 AT THE ARTHURDALE EXPERIMENT FARM,
REEDSVILLE, W. VA.

by

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The trials reported herein were made for the purpose of obtaining information which will enable the growers of this section (altitude 1700 feet) to select the better varieties or strains of the sorts adapted to their conditions. Characteristics such as fruit type, color, size, yield, earliness, uniformity of maturity, and susceptibility to disease are used in making comparisons and govern recommendations. This work is under the direction of the department of horticulture of the West Virginia Agricultural Experiment Station and the Federal Department of Agriculture at Washington, D. C. The soils on which the plantings are made are for the most part Dekalb silt loams of average fertility.

The studies were begun during the season of 1935; consequently it should be borne in mind that the recommendations given here are based on the results of three seasons only. As the work is continued under different seasonal conditions it is possible that the recommendations may change.

The following suggestions as to the selection and care of vegetable seeds are pertinent in connection with the discussion of varieties: (1) Buy seeds from reputable sources because the best stocks are invariably the cheapest. (2) Use established varieties for the main crop, and plant the newer or untried sorts to a limited extent. (3) Order early before the best stocks are exhausted. (4) Do not discard excess seed supplies. (5) Most seeds, with the exception of carrots and parsnips, will remain viable for two or three years if kept in a dry place at a temperature of about 50° Fahrenheit.

Disinfecting Vegetable Seeds for Surface-Borne Diseases*

"Most vegetable seeds carry parasitic organisms which are capable of attacking the seedlings or the plant at some later stage of development. Many of these germs are readily killed by a surface disinfection which is easily secured by shaking the seed thoroughly with a very small amount of Semesan dust. A pinch of the Semesan dust is a sufficient amount to treat the ordinary 5 or 10 cent package of seed. Put the seed in an air tight container (glass jar), add the dust and shake thoroughly. Do not handle the seed more than necessary after dusting, as the dust is readily removed by the moisture of the hands. Care should be taken not to inhale the dust. If large quantities of seed are being treated use a dust protector over the nose and mouth.

*Prepared by C. R. Orton, Pathologist, West Virginia Agricultural Experiment Station.

All vegetable seeds except lima beans may be treated safely by this method. More vigorous seedlings, better stands, and larger yields will generally be secured. Red copper oxide (trade name Cuprocide Trioxide Red) may be used with success on lima beans, peas, and spinach."

Sweet Corn Trials

Forty-three stocks were tested to find a vigorous-growing type of sweet corn which combined size and production with quality.

The following ten yellow varieties, in order listed, produced the largest number of early salable ears.

Tendergold--Leonard Seed Co., Chicago, Ill.
 Woodruff's Early Bancross--Woodruff & Son, Milford, Conn.
 Golden Cross Bantam--Peter Henderson & Co., 35 Cortlandt St., New York
 Broomcross--D. Landreth Seed Co., Bristol, Pa.
 Early Bancross--Joseph Harris Co., Coldwater, N. Y.
 Top Cross Sunshine No. 36053--Associated Seed Growers, Inc.,
 New Haven, Conn.
 Spancross 2--F. H. Woodruff & Son
 Whipcross 39--F. H. Woodruff & Son
 Whipcross 39-6---F. H. Woodruff & Son
 Spancross 39--F. H. Woodruff & Son

The highest-producing early-white varieties are:

Extra Early Beverly - H. L. 36--D. Landreth Seed Co.
 Simon's Early Wonder--I. N. Simon & Son, Philadelphia, Pa.
 Early Columbia--F. H. Woodruff & Son
 Vanguard--D. Landreth Seed Co.

The eleven varieties and strains producing the largest total yield of marketable ears are named below in the order of their desirability.

Golden Cross Bantam--Peter Henderson & Co.
 Golden Cross Bantam--Livingston Seed Co., Columbus, Ohio
 Vanguard (white)--D. Landreth Seed Co.
 Extra Early Beverly H. L. 36 by D. Landreth Seed Co., and
 Earliest Golden Sweet by Vaughan's Seed Store, 10 W.
 Randolph St., Chicago, Ill.
 Tendergold--Leonard Seed Co.
 Whipcross 39 by F. H. Woodruff; Early Bancross by Joseph Harris Co.,
 and Burpee's Sweet Orange by W. Atlee Burpee, Philadelphia, Pa.
 Woodruff's Early Bancross by F. H. Woodruff, and Leonard's Early
 White by Leonard Seed Co.

Canning Tomato Trials

Nineteen varieties and strains were on trial to find, if possible, a prolific, vigorous-growing variety which produces medium-size, smooth, round, solid, bright red fruit which colors uniformly. Attention was also given to uniformity of internal coloring or ripening, size of core and to fleshiness.

The following seedstocks are listed for your consideration in the order of their desirability. Those giving the largest early yields of No. 1 (first 12 days of harvest) are:

Nystate--Joseph Harris Co.
 Early Baltimore (Huelson Strain)--Vaughan's Seed Store
 Landreth--D. Landreth Seed Co.
 Pritchard--United States Department of Agriculture
 Pritchard--D. Landreth Seed Co.
 Stokesdale--Francis C. Stokes & Co., Inc., Moorestown, N. J.
 Tri-State Baltimore--Tri-State Packers Assn., Easton, Pa.
 J. T. D.--New Jersey Experiment Station, New Brunswick, N. J.
 Harris Early Stone--Joseph Harris Co.
 Rutgers--D. Landreth Seed Co.

Those given the greatest total yields of No. 1 fruit are:

Stokesdale (1938 strain)--Francis C. Stokes & Co., Inc.
 Tri-State Baltimore--Tri-State Packers Assn.
 Harris Early Stone--Joseph Harris Co.
 Pritchard (1937)--Francis C. Stokes & Co., Inc.
 Early Baltimore (Huelson strain)--Vaughan's Seed Store
 Rutgers (1937)--Geo. R. Pedrick & Son
 Stone (Out of Norton Cert. '36)--D. Landreth Seed Co.
 J. T. D. (1937) (1936 seed crop)--New Jersey Experiment Station
 Pritchard--United States Department of Agriculture
 Nystate--Joseph Harris Co.

It should be noted in respect to total yields that because of the continued warm rains in August a heavy infection of early blight and leaf spot appeared which was impossible to control. As a result the harvesting season ended a month earlier than usual, thus the total yields could be expected to differ slightly under normal conditions.

The heavy infection of the planting with early blight and leaf spot afforded opportunity for rating the varieties in respect to their resistance to these diseases. Rutgers from both D. Landreth Seed Co. and Geo. Pedrick and Son, Tri-State Baltimore from the Tri-State Packers Assn., and Stone from D. Landreth Seed Co. were least injured.

Cauliflower Trials

Variety and strain trials with this crop were carried on at this station for the first time. The market in this state prefers cauliflower having medium size heads which are thick and rounded in shape and composed of pure white, well-compacted "curds" of fine quality.

Eighteen varieties and strains were tested, and those listed below were found to be among the best yielders and were dependable "headers."

*Snowdrift--Holmes Seed Co., Canton, Ohio
 *White Mountain--Forbes Seed Co., Philadelphia, Pa.
 +Burpee's Dry Weather--W. Atlee Burpee & Co.
 +Earliest Surehead--John A. Salzer Seed Co., La Crosse, Wis.

+Wibolts Express--Gill Bros. Seed Co., Portland, Oregon
 *Erfurter #215--E. Suhr & Co., 135 Liberty St., New York
 *Super Snowball--Gill Bros. Seed Co.
 *Express Erfurter #18--E. Suhr & Co.
 +Snowball--E. Suhr & Co.
 *Henderson's Primosnow--Peter Henderson Seed Co.

*Early
 +Late

These results are not to be considered as conclusive, since it is probable that most of the strains headed abnormally early because of the frequent rains and warm weather at the later part of the season. These conditions could be expected to cause loose heading and poor texture. However, the results of these trials do serve to indicate the seedstocks which excelled under these conditions.

Broccoli and Brussels Sprouts Trials

Seven varieties of broccoli and two of Brussels sprouts were included in the plantings at this station and these were for the most part for observational purposes. The following varieties of broccoli were found most desirable and there was little difference in earliness and type.

Early Green Calabrese or Italian--D. Landreth Seed Co.
 Italian Green Sprouting--Holmes Seed Co.
 Kilgore's Bred-rite Italian Green Sprouting--Kilgore
 Seed Co., Plant City, Fla.
 Henderson's Riviera--Peter Henderson & Co.

Early Green Calabrese or Italian was the heaviest producer, but there was very little difference between the yields of the other three varieties.

Two varieties of Brussels sprouts, namely, Long Island Improved from the Livingston Seed Company and Burpee's Danish Prize from the Burpee Seed Company were on trial. Long Island Improved was far superior, both from the standpoint of early and total yields.

Canning Pea Trials

Trials with this crop were carried on for the first time at this station. Seventeen seedstocks were grown, but because of the shortness of the early season only twelve came into normal production. In suggesting the following varieties and strains for consideration such characteristics as vine type and vigor, pod set on the plant, pod size, shape and fullness, as well as earliness, quality, uniformity of maturity and yield were used as a basis of comparison. In order named, the most promising were:

Thomas Laxton--Roger Bros. Seed Co., 308 W. Washington
 St., Chicago, Ill.
 Thomas Laxton--Associated Seed Growers, Inc.
 Asgrow Alaska-- " " " "
 Resistant Alaska--Roger Bros. Seed Co.
 Hundredfold--Associated Seed Growers, Inc.
 Laxton Superb-- " " " "
 Ameer--Roger Bros. Seed Co.

The two strains of Alaska were early and yielded well, but other varieties excelled from the standpoint of quality.

Late Cabbage Trials

The six highest-yielding varieties, in order named, out of the 16 varieties tested were:

Succession--Ferry-Morse Seed Co.
 Volga-- " " " "
 Marion Market--Ferry Morse Seed Co.
 Wisconsin All Season--Ferry Morse Seed Co.
 Glory of Enkuizen-- " " " "
 Wisconsin Hollander #8--" " " "

Although Succession and Wisconsin All Season produced large total yields they are not preferred by the market because of their flattened shape. All of the other varieties listed above had round, solid compact heads with a medium sized core. Marion Market, Succession and Glory of Enkuizen were the first ones of this group to come into production. The other three varieties are later maturing but desirable for their keeping qualities.

Time of Transplanting Late Cabbage Plants

Considerable difficulty has been experienced in obtaining a satisfactory crop of late cabbage in this section. Most of this is due to loss of plants, slow growth following transplanting because of excessively hot dry weather, and planting too late in the season. Tests were made in 1935, 1936, and 1937 to determine the best time of season for setting late cabbage plants in the field. The Danish Ballhead variety was used in 1935 and 1936 while the Penn State Ballhead was grown during the 1937 season. Plants were transplanted on five different dates separated by 9 to 16 day intervals. The results are:

| Date of setting in field | Yield in tons per acre | Average weight per head (lbs) |
|-----------------------------|---------------------------|----------------------------------|
| 1935 Season | | |
| July 1 | 8.7 | 2.30 |
| " 16 | 7.2 | 1.99 |
| " 25 | 6.4 | 1.76 |
| Aug. 6 | 4.1 | 1.13 |
| " 19 | 1.9 | .51 |
| 1936 Season | | |
| July 9 | 2.263 | 1.29 |
| " 20 | 0.998 | 1.07 |
| Aug. 5 | 0.218 | 0.78 |
| " 13 | | |
| " 20 | | |
| 1937 Season | | |
| June 18 | 9.775 | 4.482 |
| July 3 | 8.867 | 4.071 |
| July 13 | 7.622 | 3.546 |
| " 23 | 6.310 | 2.897 |
| Aug. 3 | 3.478 | 1.597 |

The results from the three years indicate that transplanting to the field should occur preferably during the latter part of June and the first two weeks in July. As indicated from the data listed above very small yields could be expected from plants set after the 15th of July.

The extremely dry and hot weather during July and August 1936 made it almost impossible to get a good stand and the yields were very low for this season. In 1937 with the weather conditions completely changed, good yields were obtained from plants set as late as July 23. However, the yields and size of heads from the plants set June 18th were significantly larger.

SMALL FRUIT TRIALS

Black and purple raspberry varieties

Hot dry weather at planting time in the spring of 1934 resulted in a poor stand in the variety planting begun at that time. Those plants which grew were poor in vigor and seemed unable to overcome this poor start during 1935 and 1936, so the planting was discarded in the fall of 1936. A new planting was set in early April, 1937, under ideal planting-setting conditions. Growth started very well, but slowed up greatly as the season advanced, even with good growing weather, indicating that some conditions, either soil or climatic, are unfavorable to black raspberry growth at Arthurdale. This variety trial is being continued, however, in order that more information may be obtained. The Bristol, Naples, Black Beauty, Cumberland, Quillen, and Plum Farmer black raspberries and the Sodus and Potomac purple raspberries are being tested.

Red raspberry varieties

The varieties being tested are Chief, Cuthbert, Latham, Newburgh, Taylor and Viking. Lloyd George had previously been included in the test, but failed to come through the winters, so Taylor was substituted in April, 1937. As with the black raspberries, growth has been quite poor with the reds, and yields have been too small to make any recommendations as to varietal supremacy.

Grape varieties:

The Beta, Caco, Champagne, Concord, Fredonia, Niagara, Ontario, Portland, Sheridan, Urbana, Wayne, and Worden varieties are under test. Late spring frosts killed back young shoots after they had made considerable growth in 1935 and 1936 and caused some injury in 1937, so indications are that commercial grape production will be unprofitable under conditions similar to those at Arthurdale. These trials are being continued, however.

Blueberry varieties

First yields were obtained from the variety planting in 1937. These were too small to give any indication of the relative value of the different varieties, but the berries of Rancocas and Jersey were larger than were those of the others.

Cabot, Concord, Grover, Jersey, Pioneer, Rancocas, and Rubel are included in the tests.

It should be borne in mind that the information given here has been the result of observation over a relatively short period of time. Nevertheless, this information is considered sufficiently reliable to warrant its release.

More detailed information concerning the varieties tested may be obtained upon inquiry to the Department of Horticulture, West Virginia University, Morgantown, W. Va.