LENAPE:[1] A NEW POTATO VARIETY HIGH IN SOLIDS AND CHIPPING QUALITY[2]

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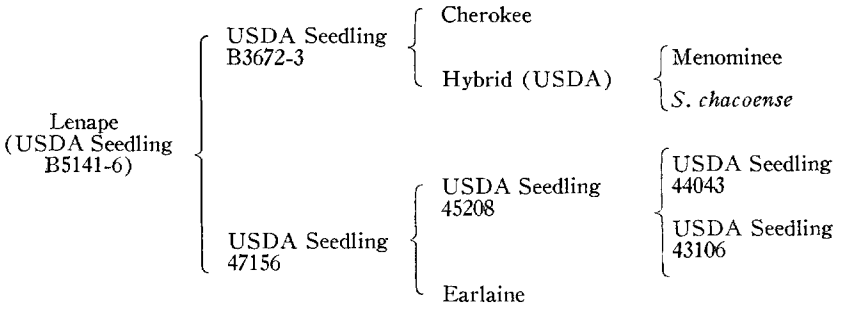
Lenape, a new potato variety, was released November 15, 1967, by Crops Research Division of the United States Department of Agriculture and the Agricultural Experiment Station of Pennsylvania.

Lenape, tested under the pedigree number B5141-6, was selected from a cross between USDA seedlings 47156 and B3672-3. Seedling 47156 was selected because of its high specific gravity and yielding ability, and B3672-3 for its resistance to late blight and common scab.

The pedigree and description of Lenape are as follows:



DESCRIPTION

PLANTS — Medium-late maturing, medium-large sized, upright. *Stems*: Green and pigmented purple, uneven and mostly at nodes. *Nodes*: pigmented purple. *Wings*: inconspicuous. *Leaves*: medium green, smooth, open. *Terminal leaflets*: lanceolate with acuminate apex, base truncate, lobes mostly symmetrical, mean length 87.4 ± 0.8 mm, mean width 52.8 ± 0.5 mm, index 60.6.[7] *Primary leaflets*: lanceolate with acuminate apex, base truncate, lobes mostly symmetrical, 3 pairs, mean length 82.8 ± 0.5 mm, index 56.1.[7] *Secondary leaflets*: numerous. *Tertiary leaflets*: medium to numerous. *Midribs and Petioles*: green, slightly pubescent.

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[1]The name Lenape is derived from Lenni-Lenape, a well-known Algonquin tribe of the Delaware Indians. Accepted for publication January 24, 1968.

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[7]Calculated by dividing the width by the length of 100 terminal or primary leaflets and multiplying by 100.

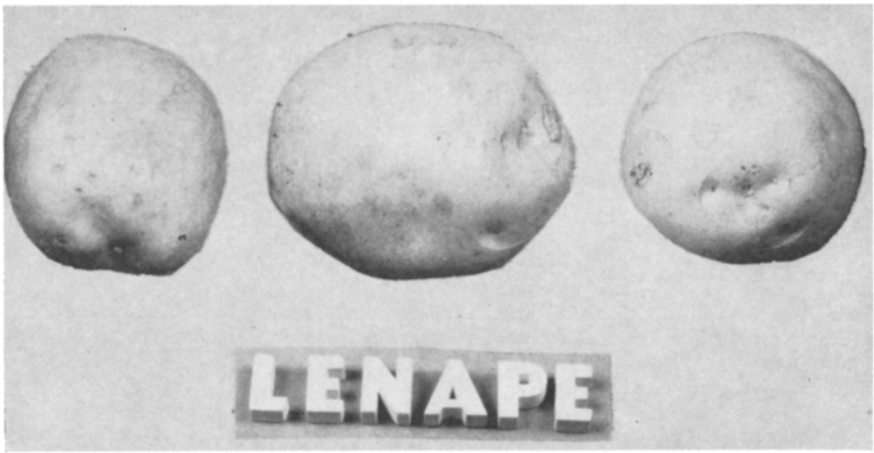

FIG. 1.—Tubers of Lenape variety grown in Maine, 1967.

FLOWERS — *Buds*: bluish. *Stipules*: large, clasping. *Calyx lobes*: green with purple pigmentation, slightly pubescent, awl-shaped, recurrent tips, medium-sized (5-7 mm). *Corolla*: blue, medium (30-35 mm). *Anthers*: orange. *Pollen*: abundant, fertile.

TUBERS — round to oblong, flattened, medium smooth, mean length 84.8 ± 0.4 mm, indices width to length 92.2, thickness to length 69.6, thickness to width 75.7.[8] *Skin*: smooth, dark cream-buff. *Eyes*: shallow, of same color as skin. *Eyebrows*: inconspicuous. *Flesh*: white. *Sprouts*: purple tip and same for leaf scale in darkness. *Maturity*: medium-late, separates easily from stolons (Fig. 1).

The true seed from this cross was first grown in the greenhouse at Beltsville, Maryland, in 1959. From this family of 386 seedlings increased in Maine the following year, 16 were selected for further testing and evaluation.

In cooperation with many State Experiment Stations and other agencies, especially the Wise Potato Chip Company, for its original evaluation of its low sugar content and excellent chipping qualities, Lenape has shown the following characteristics: medium-late maturity, resistance to the common races of late blight and to tuber symptoms caused by stem-end browning and seasonal leafroll infection, and immunity to mild mosaic. The tubers of Lenape are round, oblong, flattened, and medium in size with dark, creamy-buff skin and shallow eyes (Fig. 1).

CHARACTERISTICS

Since 1964, Lenape has been tested for yield, specific gravity, and chipping qualities in many States in comparison with standard varieties, especially Katahdin and Kennebec. The 1966 yield and specific gravity ratings for one location in each of five States are presented in Table 1.

[8]Calculated from length, width, and thickness measurements of 100 tubers, each of a weight of approximately 8 ± 1 ounces.

TABLE 1.—*Yield and specific gravity of Lenape compared with those of Katahdin and Kennebec grown at five State locations in 1966.*

State	Yield in hundredweights per acre[1]			Specific gravity		
	Lenape	Katahdin	Kennebec	Lenape	Katahdin	Kennebec
Maine	221	294	373	1.118	1.092	1.091
North Carolina	315	228	247	1.093	1.063	1.069
New Jersey	380	332	399	1.082	1.062	1.071
Pennsylvania	245	224	340	1.100	1.078	1.078
Texas	422	316	318	1.048	1.060	1.061
Mean	317	279	335	1.095	1.071	1.074

[1]U.S. No. 1 grade (over 2 inches) in all States except Texas where total yields were used.

Lenape, with a mean yield of 317 hundredweight per acre for the five State locations, exceeds the 279 cwt yield of Katahdin by 38 cwt and is below the 335 cwt yield of Kennebec by 18 cwt. In general, Lenape grown in Maine will yield fewer potatoes by weight than the standard varieties. In the States that produce the late spring and early summer potato crops it usually equals or exceeds the yields of the standard varieties grown in these areas.

One of the outstanding features of Lenape, wherever it is grown, is its relatively high solids content expressed in specific gravity ratings.

The mean specific gravity of Lenape (Table 1) for all locations is 1.095 or approximately 22.9% total solids. Katahdin and Kennebec had ratings of 1.071 and 1.074 or 17.7 and 18.4% total solids, respectively. Since Lenape had high specific gravity ratings of 1.082 for New Jersey, 1.084 for Texas, and 1.093 for North Carolina, Lenape is expected to have a high specific gravity rating where it reaches maturity under increasingly high temperatures.

The varietal means for chipping color ratings after harvest and after storage at 50 F and sampling at seven intervals over the next 78 days are presented in Table 2. Lenape had a mean of 1.1, the lightest chip color of all entries. Its ability to make acceptable chips from storage at 38-40 F from September 3 to January 25 is shown in Series B (Table 2) under the first date, January 25. It rated 6, slightly over the acceptable color, compared to 13 for Kennebec. The mean for Lenape sampled and tested at four intervals in 35 days is 3.0 compared to 8.2 for Kennebec. Similar data from other areas show that Lenape is excellent in chipping quality before and following cold storage and reconditioning.

Lenape, with its high solids content and excellent chipping qualities and very low sugar content, should be very valuable for the processing of potato chips, especially in production areas where the crop matures under high environmental temperatures. Its medium maturity, high yielding ability in warmer climates plus its resistance to the common races of late blight, mild mosaic, and tuber necrosis from leafroll and stem-end browning, are additional features that are helpful in growing and maintaining this variety.

Comparatively low yields in Maine and a relatively short rest period are handicaps that will need consideration in the culture of this variety.

TABLE 2.—*Chip color ratings for 11 varieties and seedlings[1] grown at University Park, Pennsylvania, in 1966.*

Variety or seedling	Series A: Dates of sampling and chip scores[2]									Series B: Dates of sampling and chip scores[3]				
	9/13	9/20	9/26	10/12	10/19	10/24	11/9	11/30	Mean	1/25	2/3	2/16	3/1	Mean
Katahdin	3	3	2	1	1	1	1	1	1.6	12	6	6	1	6.2
Kennebec	1	3	1	5	2	1	2	1	2.0	13	11	6	3	8.2
Lenape	1	2	1	1	1	1	1	1	1.1	6	2	2	2	3.0
B4829-7	4	5	5	6	2	7	3	6	4.7	14	14	13	10	12.7
B5000-18	1	2	4	4	2	2	1	5	2.6	13	10	8	8	9.7
Wauseon	2	2	2	1	1	1	2	1	1.5	11	9	8	9	9.2
B5052-7	3	1	5	3	3	3	5	7	3.5	....	....	....	....	.....
Alamo	3	5	4	4	3	4	3	3	3.6	13	10	7	9	9.7
B5088-7	2	3	3	1	3	2	4	5	2.9	13	13	14	12	13.0
B5090-11	2	2	1	2	1	2	2	1	1.6	14	12	13	12	12.7
B5132-3	1	2	3	2	3	1	1	2	1.9	11	12	5	2	7.5

[1]Chip scores of 1-4 are desirable; 5 acceptable; over 5 unacceptable.
[2]Chipped at harvest, then placed in 50 F storage.
[3]Held at 38-40 F storage until January 25, then at 70 F.