American Potato Journal

PUBLISHED BY
THE POTATO ASSOCIATION OF AMERICA
NEW BRUNSWICK, N. J.

MOHAWK: A NEW BAKING POTATO[1]

E. V. HARDENBURG[2]

Cornell University, Ithaca, N. Y.

AND

F. J. STEVENSON[3]

Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry Station, United States Department of Agriculture, Beltsville, Md.

INTRODUCTION

A new variety of potato should be introduced to the trade only when it is known to possess merits not present in existing varieties, for production under specific environmental conditions, or for a specific need. The Mohawk variety was named and introduced jointly by the Department of Vegetable Crops of the Cornell University Agricultural Experiment Station and the United States Department of Agriculture in 1942. Because of its desirable shape and high starch content, it is offered to the trade as a high quality baking variety which can be grown under favorable conditions in New York for successful competition with the Russet Burbank. The latter is very subject to second growth and other tuber malformations under eastern conditions.

[1]Paper No. 251 of the Department of Vegetable Crops, Cornell University.
[2]Professor of Vegetable Crops, Cornell University.
[3]Senior Geneticist, Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, Agricultural Research Administration, U. S. Department of Agriculture.

Origin

Mohawk is a selection from a cross of Green Mountain by Katahdin, formerly designated as U. S. D. A. Seedling 46,000. It was developed at Presque Isle, Maine, as part of the national potato breeding program sponsored by the United States Department of Agriculture. It has been widely tested since 1935 for yield and quality under diverse soil and climatic conditions. The results have been especially promising in New York under conditions favorable to Green Mountain and Houma. Its foliage closely resembles its Green Mountain parent, whereas the tubers combine the high market quality of Katahdin with the high baking quality of Green Mountain.

Characteristics

The outstanding characteristics of Mohawk are (1) dry, mealy quality of flesh and excellent tuber shape, making it especially well adapted for baking, (2) remarkably high percentage of marketable sized tubers, and (3) freedom from common tuber defects, such as sunburn, second growth, misshape, growth cracks, and deep eyes. In Maine cooking tests in 1941, its tubers showed about the same degree of dryness as Green Mountain. The specific gravity of these two varieties ranged between 1.100 and 1.105, with estimated starch equivalents of 18 to 19 per cent. Also in Maine, Mohawk has shown less tendency to blacken after cooking than Green Mountain. Of even greater significance in the Maine tests is the fact that Mohawk has shown no tendency to net necrosis as a current-season symptom of leaf roll, which tuber defect is very serious in Green Mountain. Quality tests made by the New York State College of Home Economics on the 1939 crop grown both on the Sassafras silt loam soils of Long Island and the Lordstown silt loam soil near Ithaca, N. Y., resulted in ranking Mohawk among the mealiest varieties.

With respect to disease resistance, this new variety is resistant to mild mosaic and to net necrosis due to leaf roll. In this it resembles its Katahdin parent. It is susceptible to leaf roll and to date there is no evidence that it is resistant to either scab or late blight. In a comparison of 16 varieties grown on muck in Wayne County in 1942, Mohawk showed less tipburn injury than any other varieties except Sequoia and Katahdin, and less flea-beetle injury than any other varieties except Sequoia and Houma. In the tests at the Bureau of Plant Industry Station, Beltsville, Maryland, it was not quite as resistant to hopper-

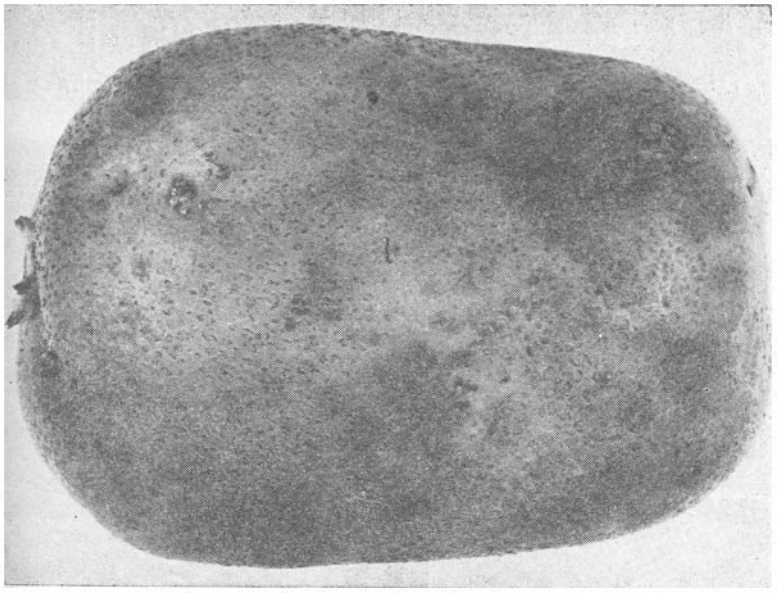

FIGURE 1—Mohawk: single tuber showing oblong-flattened shape, flaky skin.

burn as Sequoia but much more resistant than Irish Cobbler and Triumph.

ADAPTATION

During the 8-year period 1935-'42, inclusive, Mohawk has been systematically tested on heavy and light soils, on muck soils, and under widely differing ranges of soil moisture and seasonal temperatures. Yields show it to be tolerant of varying conditions of seasonal rainfall, but on the heavier soils the tubers tend to lose their normally regular shape. It is best adapted to the lighter soils, to muck, and to the cooler regions found in northern New York and the higher altitudes elsewhere. The plant sets relatively few tubers, a high percentage of which reach marketable size. It matures in approximately the same period as Green Mountain and usually a little earlier than Katahdin in New York.

YIELD TESTS

Mohawk has been tested for yield on the Aroostook Farm, Presque Isle, Maine, from 1935 to 1942, with the exception of 1938. In these

TABLE 1—*Yields of the Mohawk variety of potato as compared with standard varieties at Presque Isle, Maine, from 1935 to 1942,[1] inclusive. Yield data are given in bushels of U. S. No. 1 tubers per acre.*

Variety	Yield per Acre							Mean Yield per Acre	Yield U. S. No. 1 Tubers
	1935	1936	1937	1939	1940	1941	1942		
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Per cent
Mohawk	351	504	310	222	251	450	229	331	94
Green Mountain	354	518	405	195	337	429	273	359	91
Chippewa	310	480	372	192	276	369	233	319	87
Houma	287	471	355	165	323	343	200	306	84
Katahdin	269	432	274	135	237	356	216	274	88
Sebago	317	492	351	197	260	376	197	313	91
2 x S.E. of difference between means	39	59	43	37	40	50	40	16	

[1]No yield data taken in 1938.

tests, yield data were obtained for six replications of 25-hills each grown in randomized blocks. More extensive tests of Mohawk in comparison with other varieties have been made in New York State at the Cornell Agricultural Experiment Station, Ithaca, since 1935, and in a number of county tests since 1937, with the exception of 1941.

The average yields of Mohawk and the percentages of U. S. No. 1 tubers produced in the Maine plots are shown in table 1.

The data in table 1 indicate that on the basis of a 7-year average, Mohawk significantly outyielded Houma, Katahdin, and Sebago. It was in the same class as Chippewa but was outyielded by Green Mountain. Mohawk also produced a higher percentage of U. S. No. 1 tubers than any of the other varieties.

Yield trials, carefully replicated, have been made at Ithaca, N. Y., since 1935 to compare with all of the commercially important varieties grown in that state. With the exception of Rural and sometimes Green Mountain, the seedstocks tested were provided by the United States Department of Agriculture and shipped from Aroostook Farm, Presque Isle, Maine. Although other new varieties and seedlings were included annually in these tests, yields from only the established varieties are reported here. The yield results for the Cornell trials for the years 1935 to 1942 inclusive are shown in table 2.

In the tests at Ithaca, Mohawk significantly outyielded Chippewa and Katahdin, approximated the yields of Green Mountain and Houma, and was significantly outyielded by Sebago and Rural. As in the Maine trials, Mohawk averaged a higher percentage of No. 1 size tubers than any other variety.

During the years 1937, 1938, 1939, 1940, and 1942, Mohawk was tested for yield in comparison with the six important mid-season and late varieties in many different counties. Samples of the same seed as that tested at Ithaca were sent to each county and by cooperative arrangement with the farm bureaus planted according to a uniform plan. No Mohawk seed was available for inclusion in these tests in 1941. For the 5 years a total of 56 yield trials was made. The number of county tests made each year, the annual average yields, the unweighted 5-year average, and the weighted average yield of No. 1 size potatoes for the 56 tests are reported in table 3.

On the basis of either the 5-year averages or the weighted averages for the 56 tests, yield differences among these seven varieties are, in most instances, not significant. The data in table 3, however, indicate that Mohawk was outyielded by none of the other six six varieties and that it significantly outyielded Chippewa, Katahdin, and Rural.

TABLE 2—*Yields of Mohawk in comparison with other varieties at the Cornell University Experiment Station, Ithaca, N. Y., 1935 to 1942, inclusive. Yield data are given in bushels of U. S. No. 1 tubers per acre.*

Variety	Yield per Acre								Mean Yield per Acre	Yield of U. S. No. 1 Tubers
	1935	1936	1937	1938	1939	1940	1941	1942		
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Per cent
Mohawk	175	172	165	146	178	212	151	207	175	87
Green Mountain	278	150	219	129	158	202	225	223	198	83
Houma	240	169	160	73	136	191	178	248	174	79
Chippewa	143	91	234	79	119	160	54	255	142	71
Katahdin	194	99	174	122	101	138	147	195	146	85
Sebago	—	—	375	115	145	249	162	254	217[1]	86
Rural	223	231	385	166	152	230	244	298	241	86

[1]6-year average.

TABLE 3—*Comparative yield data in bushels of U. S. No. 1 tubers per acre of Mohawk and six other established varieties tested in various counties of New York.*

Variety	Yield per Acre					Average Yield on Basis of 5-year Average	Average Yield Weighted on Basis of 56 Tests	Rank on Basis of 56 Tests
	1937	1938	1939	1940	1942			
	7 Tests	14 Tests	13 Tests	12 Tests	10 Tests			
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels	Number
Mohawk	311	302	201	312	317	289	285	1
Green Mountain	346	319	204	262	315	289	283	3
Houma	352	303	182	280	338	291	282	4
Chippewa	326	296	188	282	295	277	272	6
Katahdin	287	276	190	288	286	265	262	7
Sebago	307	291	216	325	298	287	284	2
Rural	330	263	210	256	347	281	273	5

Availability of Seed Stock

Foundation seed stock of Mohawk will be multiplied by growers in New York and Maine in 1943, but no certified seed will be available until the spring of 1944.

Summary

The Mohawk variety of potatoes (U. S. D. A. Seedling 46,000) originated in Maine from a cross between Green Mountain and Katahdin. Since 1935 it has been tested for yield and quality under various sets of environmental conditions. Results have been promising in New York, especially in sections favorable for Green Mountain and Houma. Mohawk combines the high market quality of Katahdin with the high baking quality of Green Mountain. It produces high yields of mealy fleshed, regularly shaped, somewhat elongated, tubers. It is resistant to mild mosaic and moderately resistant to tip burn, flea-beetle injury, and hopperburn. Its tubers, so far, have not shown net necrosis. It is offered to the trade in New York State as a high quality baking variety.

LATE BLIGHT OF POTATOES IN COLORADO

L. A. Schaal and W. C. Edmundson[1]

Division of Fruit and Vegetable Crops and Diseases, Bureau of Plant Industry, Agricultural Research Administration, U. S. Department of Agriculture, Greeley, Colo.

Late blight, caused by the fungus *Phytophthora infestans* (Mont) de Bary, has been one of the limiting factors in the production of potatoes in the cool and moist areas of the world, but very few reports of serious, or even light damage, have come from the more arid sections that are relatively free from fogs, heavy dews, and rains during the growing season. Kreutzer and McLean (1) reported late blight as occurring in the potato fields of northern Colorado during the season of 1941, and that some damage was observed in stored tubers. The disease was also noted by the present writers on vines in the early crop area near Gilcrest, Colorado, the first week of July, 1941. These small infected

[1]Associate pathologist and horticulturist, respectively.