III POTATOES

Arizona Potato Variety Trials, 1961-64

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Abstract: In potato variety trials in Central Arizona, Kennebec and Merrimack performed the best as potatoes for chipping. Red varieties Viking, LaRouge, and Red LaSoda yielded about the same as Red Pontiac, the standard for the area; however, Viking had much better appearance and uniformity than the other three reds.

Introduction

Each year since 1961, the University of Arizona has tested potato varieties extensively in the Queen Creek area. New and promising varieties and advanced breeding lines have been evaluated and compared to standard varieties. This report presents some of the more important results observed.

Methods

The trial plots were located in growers' fields. Each variety plot was 30 seed pieces long and replicated four to six times in each test.

Normal commercial practices during the growing season were followed. Fertilizer was applied at the rate of 1,000 lbs./A of 16-48-0 banded 4 inches to each side and level with the base of the seed piece.

Phorate for psyllid and aphid control was applied in the fertilizer band. Single-row observation plots consisting of 30 hills were planted also. Planting usually occurred during the first week in February. Harvest took place the first part of June. The harvested tubers were graded and tested for specific gravity and chip yield and color.

Results and Discussion

Results of replicated plots for 1963 and 1964 are summarized in Tables 1 and 2.

Of the chipping varieties, Kennebec and Merrimack stood out in field yield and chip quality.

Kennebec, the standard chipper in Arizona now, consistently produced good yields and good chips. However, under certain conditions, it developed tubers with second growth, growth cracks and cat-eye.

Merrimack, because it produced high yields of good quality chips and had a high specific gravity, is considered worthy of trial by growers, especially for chipping and possibly for an all-purpose potato.

Merrimack showed little cat-eye, but was later in maturity, and one year developed a slight internal discoloration. With Merrimack, the planting of more dormant seed from Michigan did lower yields. A comparison of these two varieties over four years is shown in Figure 1.

One other variety which appears promising for chipping is La Chipper. Those which looked good in single-row observation plots but require further testing as chippers are: TL 8117, BL 894-24, RD 46, 5814-1P, TL 7627 and 57322-4P.

The red varieties which produced good yields in the replicated tests were: La Rouge, Red LaSoda, Viking, and Red Pontiac. Differences in yields between these varieties were not significant. For fresh market use, Viking would be preferred because of its smooth appearance, shallow eyes and uniformity. Red Pontiac, the standard red for the area, had more variation in size and had deep eyes. Both La Rouge and Red LaSoda had medium to deep eyes and variation in shape of tubers. Yield comparison for these varieties can be seen in Figure 2.

Single-row observation plots showed 57431-5P, TL 8134 and 170-10P as interesting red varieties worthy of more testing.

Although these russet varieties were not replicated, they deserve to be mentioned. Shoshoni (A 175-7) and A 466-L show some potential as russets for Arizona. Shoshoni is round to oblong with shallow eyes.

Table 1. Yield, specific gravity, and chip yield of potato varieties in University of Arizona replicated plots near Queen Creek. 1963.

Variety	Seed Source (State)	Yield per Acre "A" Size		"B" Size	Culls	Specific Gravity	Chip 2/ Yield
		Cwt.		Cwt.	Cwt.		
Kennebec	N. D.	408	a 1/	40	16	1.083	35.8
Kennebec	Wis.	407	ab	47	27	1.080	35.4
Merrimack	Wis.	401	ab	46	17	1.089	37.0
La Rouge	Wis.	355	abc	45	19	1.072	34.2
Merrimack	Me.	352	abcd	26	34	1.085	36.7
Red Pontiac	N. D.	346	abcd	58	18	1.073	34.0
Red La Soda	N. D.	343	bcd	36	12	1.073	33.8
Navajo	Colo.	321	cde	37	27	1.081	34.8
La Chipper	Wis.	318	cdef	34	24	1.075	35.4
Viking	N. D.	313	cdefg	16	4	1.075	35.8
Snowflake	N. D.	289	cdefgh	47	59	1.075	36.8
Pungo	Me.	282	defgh	33	10	1.077	35.7
Plymouth	Me.	259	efghi	28	50	1.069	-
R D 8	Wis.	253	efghi	61	34	1.069	33.2
Norland	N. D.	242	fghi	62	18	1.072	34.4
Merrimack	Mich.	237	ghi	47	9	1.086	37.1
R D 60	Wis.	212	hi	21	41	1.065	33.8
Arenac	Mich.	187	i	69	29	1.077	34.1
R D 36	Wis.	187	i	28	39	1.083	36.1
Superior	Wis.	181	i	47	18	1.078	35.8

Table 2. Yield, specific gravity, and chip yield of potato varieties in University of Arizona replicated plots near Queen Creek. 1964.

Variety	Seed Source (State)	Yield per Acre Jumbo + "A" Size		"B" Size	Culls	Specific Gravity	Chip 2/ Yield
		Cwt.		Cwt.	Cwt.		
Kennebec	Alas.	238	a 1/	24	14	1.072	35.9
La Rouge	Wis.	227	a	19	6	1.068	35.1
Merrimack	Me.	217	ab	23	7	1.077	38.6
Red La Soda	N. D.	212	abc	21	11	1.067	36.0
Viking	N. D.	208	abc	9	9	1.072	36.8
Kennebec	N. D.	207	abc	23	11	1.070	36.0
Red Pontiac	N. D.	204	abc	30	18	1.063	35.2
Viking	N. D.	203	abc	11	5	1.071	36.7
Merrimack	Wis.	200	abc	19	13	1.076	37.6
La Chipper	Wis.	191	abcd	21	10	1.072	38.0
4524-7R	N. D.	169	bcde	30	7	1.066	36.2
Haig	Neb.	162	cdef	28	11	1.069	35.7
RD-8	Wis.	147	def	20	8	1.064	35.7
RD-36	Wis.	126	ef	21	14	1.076	37.5
Pungo	Me.	125	ef	30	10	1.067	35.4
Norland	N. D.	117	f	18	10	1.062	34.7

1/ Varieties covered by the same letter are not significantly different from each other.

2/ Expressed in per cent of weight of fresh peeled potatoes.

Figure 1. Yields of Merrimack and Kennebec in University of Arizona trials. 1961 - 1964

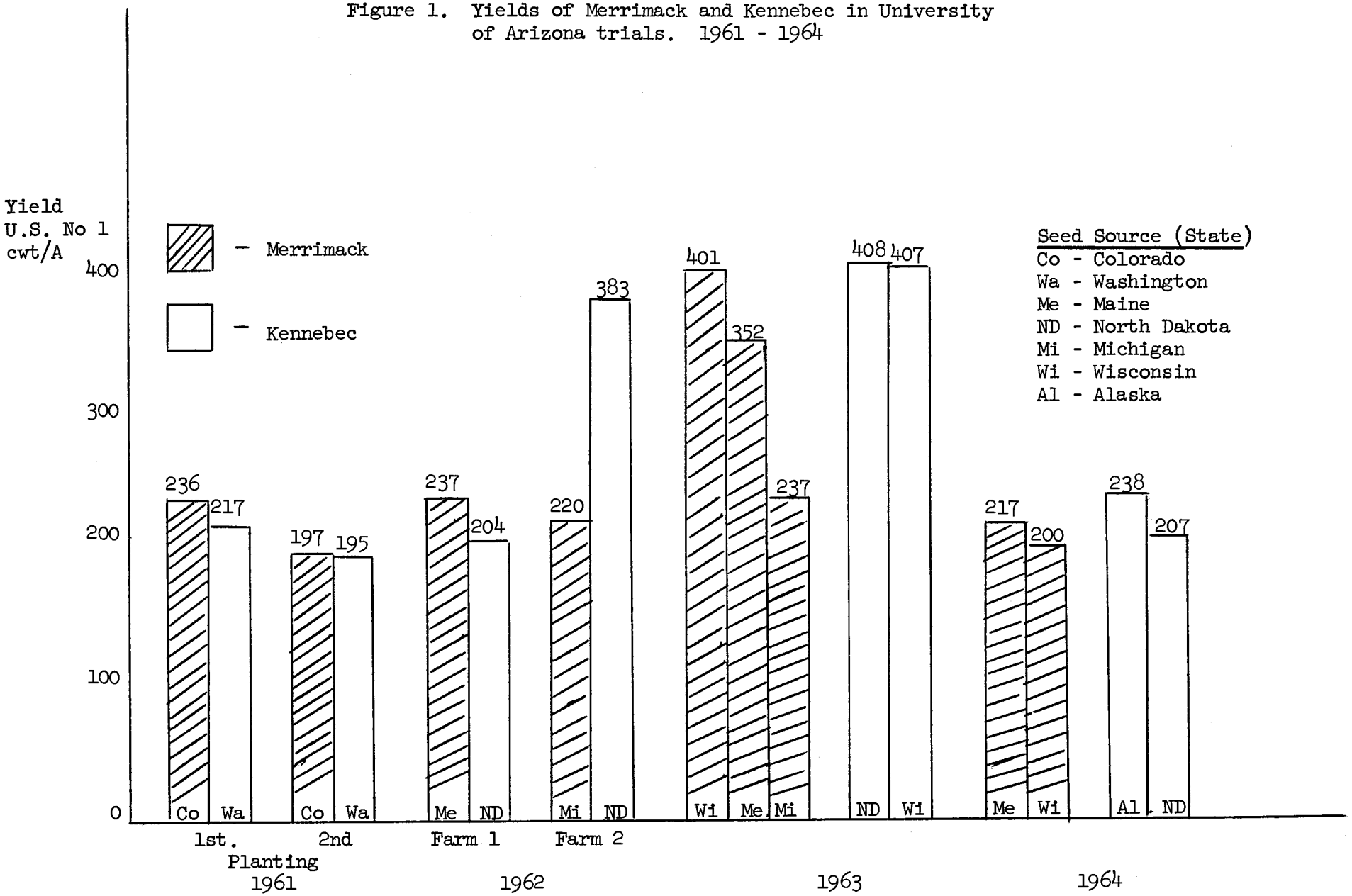

Figure 2. Yields of red potato varieties in University of Arizona Trials. 1961-64