



# VEGETABLE CULTIVAR AND CULTURAL TRIALS 1999

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## **Agronomics of New Potato Cultivars**

This trial was designed to evaluate some of the basic agronomic characteristics and management parameters required for several newly released cultivars of interest to Saskatchewan's potato industry.

The trials were conducted on the Plant Sciences Department Potato Research plots located in Saskatoon utilizing standard production practices for commercial potatoes. The crop was seeded in mid-May, in rows 1 m apart. Irrigated plots were watered once soil water potentials fell below -60kPa. Typically, 2.5 cm of water was applied at each irrigation event. The dryland plots relied solely on rainfall. Yields were evaluated at 90 and 120 days after planting. At both harvests, the crop was graded into size categories; small = < 44 mm diam., 44 < medium < 88 mm and oversize = > 88 mm diam. Table stock yields included the medium and oversize categories while the seed category included the pooled yield of small and medium size tubers.

### **New Cultivars tested;**

**ND2937-3**     *is a newly released very dark red skinned variety under exclusive Canadian licence to the Saskatchewan Seed Potato Growers' Association.*

**Umatilla**     *a new release from the Idaho breeding program, this Russet skinned potato is believed to have superior processing and disease resistance characteristics.*

**Gem Russet**     *A new release from the Oregon breeding program, this Russet skinned potato is believed to have better yields and processing characteristics than Russet Burbank.*

The 1999 growing season was cooler and wetter than normal from May through July. Little supplemental irrigation was required until mid-August. Frost killed the vines in early September, just prior to the 120 days harvest. Yields under irrigation only marginally exceed those for the dryland trials. For many of the cultivars, there was little increase in yields from the 90 through to the 120 day harvest. In the dryland trials, this could be attributed to late season moisture stress. The lack of yield increase with time in the irrigated trial was unexpected.

Norland was higher yielding than the new red variety ND2937-3, irrespective of harvest date or availability of moisture during the growing season. Both of the two new russet lines were higher yielding than Russet Burbank, but not as high yielding as Russet Norkotah. The average tuber size of both Umatilla and Gem Russet was small indicating excellent potential for seed growers. Specific gravities of Umatilla and Gem Russet were far higher than Russet Burbank, indicating excellent processing ability but also suggesting the potential for problems with blackspot bruising.

**Table 1. New red-skinned potato cultivar yields, 1999.**

EARLY HARVEST - 90 days								
	Table (t/a)	Seed (t/a)	Avg. Tuber Wt. (g)	Specific gravity	Table (t/a)	Seed (t/a)	Avg. Tuber Wt. (g)	Specific Gravity
	<i>DRYLAND</i>				<i>DRYLAND</i>			
Norland	18.9	21.1	126	1.067	21.5	23.6	129	1.067
ND2937-3	11.7	16.6	82	1.072	10.2	15.3	86	1.074
<i>LSD 0.05</i>	**	0	**	<i>NS</i>	**	**	**	**
	<i>IRRIGATED</i>				<i>IRRIGATED</i>			
Norland	18.5	20.6	175	1.066	20.0	21.2	158	1.066
ND2937-3	12.3	14.7	137	1.074	14.9	19.5	100	1.071
<i>LSD 0.05</i>	**	**	**	0	**	<i>NS</i>	0	<i>NS</i>

**Table 2. Yields for russet-skinned lines in 1999.**

EARLY HARVEST - 90 days								
	Table (t/a)	Seed (t/a)	Avg. Tuber Wt. (g)	Specific gravity	Table (t/a)	Seed (t/a)	Avg. Tuber Wt. (g)	Specific Gravity
	<i>DRYLAND</i>				<i>DRYLAND</i>			
R. Burbank	10.5	15.0	100	1.083	11.7	15.3	123	1.088
R. Norkotah	15.6	17.7	157	1.078	18.9	19.6	188	1.078
Gem Russet	11.5	19.2	94	1.085	10.2	18.4	101	1.095
Umatilla	10.3	14.2	108	1.083	10.7	15.3	107	1.093
<i>LSD 0.05</i>	3.1	4.4	13	0.007	3.6	<i>NS</i>	13	0.008
	<i>IRRIGATED</i>				<i>IRRIGATED</i>			
R. Burbank	10.9	13.8	120	1.084	16.2	18.8	165	1.088
R. Norkotah	16.0	17.3	172	1.079	19.6	19.9	213	1.081
Gem Russet	11.7	16.7	110	1.093	17.7	21.8	152	1.093
Umatilla	11.9	16.2	114	1.087	18.6	22.2	150	1.092
<i>LSD 0.05</i>	3.8	<i>NS</i>	16	0.007	<i>NS</i>	<i>NS</i>	12	0.008