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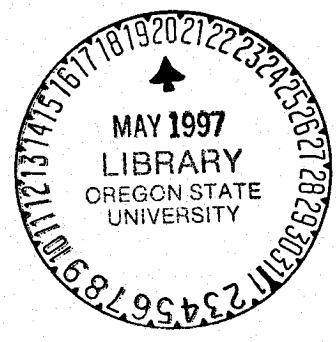
Production Management Guidelines for Umatilla Russet



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Management Guide for Umatilla Potatoes

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Umatilla is the progeny of a cross between Butte and A77268-4. This Oregon selection was evaluated as AO82611-7 in numerous Oregon and western regional trials. The long, medium russetted tubers of Umatilla are well suited for processing, but lack the attractiveness to compete in the fresh market arena.

Yield Potential

Total yield for Umatilla averages 8% less to 5% more than Russet Burbank in Oregon growing areas, while U.S. No.1 yield will be 15 to 24 percent higher than Russet Burbank (Table 1). Umatilla has similar but slightly higher yields of large tubers than Russet Burbank.

Plant and Tuber Characteristics

The medium-large vines of Umatilla have reddish-purple flowers and reach maturity in late season, but earlier than Russet Burbank. Plants have a tuber set similar to Russet Burbank. Tubers mature late in the season, have a medium russet skin, and long shape. In the Hermiston growing area tuber length to width ratios for Umatilla range from 1.7 to 1.8 compared to Russet Burbank at 1.75 to 1.9. Tuber eyes of Umatilla are shallow and well distributed. Tuber dormancy is shorter for Umatilla than Russet Burbank. Umatilla tubers stored at 45° F until mid-March exhibited 3-inch sprouts compared to Russet Burbank tubers which were just breaking dormancy. Tubers are resistant to most internal and external defects. Blackspot bruise ratings in Hermiston trials have been higher for Umatilla than for Russet Burbank, 11.8% verses 4.3% (Table 1). Hollow heart, brown center, and internal brown spot defects are minimal in Umatilla. Occasional occurrences of second growth have been reported.

Disease Reactions

Umatilla is more resistant to verticillium wilt and early blight than Russet Burbank. Umatilla plants are susceptible to potato virus Y (PVY) and potato leafroll virus (PLRV). Tubers are moderately resistant to net necrosis formation. Other disease reactions for Umatilla are similar to those of Russet Burbank. Reaction of Umatilla to root-knot nematode is also similar to that of Russet Burbank.

Seed Spacing

Three years of research conducted at Klamath Falls showed a numerically higher yield and tuber size at a 12-inch spacing although this was not statistically different from 6.8 and 8.7 inch spacings (1). Absolute spacing requirements may vary with growing area or selling requirements. For seed production, higher plant populations (6- to 7-inch spacing in 36 inch rows) will produce smaller tubers with no reduction in total yield.

Fertility

Production levels and growing environment will affect the fertility requirements for Umatilla. However, research conducted at the Klamath Experiment Station (1), Malheur Experiment Station (4), and the Hermiston Agricultural Research and Extension Center indicate that nitrogen requirements for Umatilla are similar to those for Russet Burbank. These levels are about 150, 200, and 240 pounds of nitrogen per acre for each area respectively.

Irrigation

Regional models designed to estimate the current water needs for a growing crop can be used to predict the water requirements for Umatilla. These water requirements will be similar to those for Russet Burbank. Umatilla will produce tapered tubers and second growth under stressed conditions, but is resistant to sugar end development (2,3).

Pest Control

Control of aphids to reduce spread of PLRV and PVY needs to be part of the pest management program. Early and late blight control practices should be similar to those followed for Russet Burbank. Weed pests can be controlled with herbicides commonly used with Russet Burbank. Umatilla is not sensitive to metribuzin at labeled rates. Control of nematodes and related diseases should be accomplished as for susceptible varieties.

Vine Killing and Harvest

Umatilla tubers going into storage need to be matured by proper and complete vine killing. Harvest should be delayed at least two weeks after application of vine killing chemicals. Umatilla tubers react similarly to fusarium dry rot, bacterial soft rot, and early blight as do those of Russet Burbank. Minimizing bruises and wounds at harvest will reduce storage problems.

Storage Management

Though tuber dormancy for Umatilla is less than that of Russet Burbank, storage of seed at 38° F should provide good quality at planting time. Umatilla stored for processing or fresh market will require standard sprout control measures or need to be utilized prior to breaking of dormancy.

Processing and Culinary Quality

Specific gravity of Umatilla is more consistent and higher than Russet Burbank. Tubers also produces lighter fry color from 45° F and 40° F storage than Russet Burbank and this fry color differential holds up well over time in storage. Umatilla will also have a more uniform fry color within tubers than Russet Burbank. Taste panels tests have rated color, flavor and texture of Umatilla at least equivalent to that of Russet Burbank.

Table 1: Average yield, specific gravity, and internal quality of Russet Burbank and Umatilla for four locations in Oregon, 1990-1994.

cultivar / location	total yield	U.S. #1 yield	over 12 ounce yield	specific gravity	hollow heart	brown center	internal brown spot	black spot bruise
	<----	cwt/acre	---->		<--------	percent	--------	------->
R. Burbank								
Hermiston[1]	730	444	167	1.0760	16.8	17.3	5.8	4.3
Powell Butte	430	320	44	1.0828	5.4	11.4	1.2	2.8
Klamath Falls	512	345	36	1.0856	4.6	2.6	0.0	0.0
Malheur	555	370	91	1.0788	1.2	0.0	0.0	0.0
Umatilla								
Hermiston	674	513	140	1.0798	0.3	0.0	2.8	11.8
Powell Butte	452	368	107	1.0814	0.0	0.0	0.0	5.6
Klamath Falls	495	403	91	1.0878	2.0	0.0	0.0	.6
Malheur	554	459	113	1.0864	0.6	0.0	0.0	1.0

[1] Average of 1990, 1991, 1993, and 1994 only.

1. Rykbost, K.A., and J. Maxwell. 1995. Potato cultivar response to seed spacing and nitrogen fertilizer rates. Crop Research in the Klamath Basin, 1994 Annual Report. Agricultural Experiment Station, Oregon State University, Special Report 949.

2. Shock, Clint, Erik Feibert, and Monty Saunders. Irrigation management for potato varieties: Variety tolerance to deficit irrigation, Agricultural Experiment Station, Oregon State University, Special Report 936. pp 70-81. June 1994.

3. Shock, Clint, Erik Feibert, and Monty Saunders. 1995. Cultural practices for new potato varieties. Part I. Irrigation management for potato varieties: variety tolerance to deficit irrigation. Oregon Potato Commission, 1994-1995 Research Progress Reports: pp 112-120.

4. Shock, Clint, Erik Feibert, and Monty Saunders. 1995. Cultural practices for new potato varieties. Part I. Nitrogen fertilization for potato varieties grown under sprinkler irrigation, 1994 trial. Oregon Potato Commission, 1994-1995 Research Progress Reports: pp 112-120.