

## VARIETY SELECTION AND MANAGEMENT

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Selecting a variety to grow and sell has become more complex in recent years. Many characteristics must be considered when choosing a variety. Information in this chapter will help growers make informed decisions.

If the market will accept a new variety, the opportunity for inclusion is available, but many additional factors become important to the decision-making process. Each variety has characteristics that present distinct strengths and weaknesses (Tables 1 and 2). Factors to be considered include yield potential in the area of intended production, conformity to market specifications that will result in price incentives, and resistance to common defects, diseases, pests, and stress-related problems (Tables 3 and 4). Defining these characteristics is critical so that an informed decision can be made regarding the cost-effectiveness of producing a variety.

At least three precautions must be considered in selecting a variety to be grown:

- Make sure the intended market place exists and will accept the variety. A contract should preferably be in hand until wide acceptance is achieved.
- Make sure the variety will perform as intended. A wise practice is to test some acres in the first few years to avoid costly surprises.
- Make sure sufficient information is available on managing the new variety. The full potential of a new variety may not be realized unless proper management is implemented.

Table 1. Characteristics of potato varieties commonly grown in Idaho.

<b>Variety</b>	<b>Maturity</b>	<b>Tuber</b>	<b>Usage</b>
Alturas	Very late	Lightly russeted, oblong	Processing
Atlantic	Medium	White (buff) with light netting, round	Chips
Bannock Russet	Very Late	Heavy russeting, blocky	Fresh, frozen processing
CalWhite	Early	White, oblong	Processing, fresh
Chieftain	Medium	Medium red, oblong-round	Fresh
Chipeta	Late	White (buff), round	Chips
FL 1533	Early-medium	White, oval	Chips
Gem Russet	Medium-late	Russet, long	Fresh, frozen processing
IdaRose	Medium-late	Dark red, round-oval	Fresh
Ivory Crisp	Medium	White, round	Chips
NorDonna	Medium	Dark red, oval to round	Fresh
Norland	Early	Medium to dark red, round	Fresh
NorValley	Medium	White, smooth, round	Fresh, chips
Ranger Russet	Medium-late	Russet, long	Frozen processing
Red LaSoda	Medium	Light red (pink), oblong	Fresh
Russet Burbank	Late	Russet, long	Fresh, frozen processing
Russet Norkotah	Early	Russet, long	Fresh
Sangre	Medium	Red, oval-oblong	Fresh
Shepody	Early-medium	White, long	Frozen processing
Umatilla Russet	Late	Russet, long	Fresh, frozen processing
Yukon Gold	Medium	Yellow skin, light-yellow flesh, oval	Fresh

Table 2. Primary strengths and weaknesses of potato varieties grown in Idaho.

Variety	Primary Strengths	Primary Weaknesses
Alturas	Very high yields and specific gravity; Resistant to most tuber defects	High tuber set with associated small tuber size
Atlantic	Consistent yield and high specific gravity	Susceptible to hollow heart and internal heat necrosis
Bannock Russet	Resistant to many diseases; Good fry characteristics	Short tuber length and very late maturity
CalWhite	Very high yielding; Resistant to most internal and external defects	Short tuber dormancy with associated heat sprouts
Chieftain	Wide adaptability; High yields; Good tuber color and appearance	Deep eyes; Susceptible to skinning and growth cracks
Chipeta	High yields with long growing season; Resistant to most internal and external defects	Tendency for oversize tubers; Erratic yields
FL 1533	High yields with good size distribution	Very susceptible to late blight; Poor storage characteristics
Gem Russet	Attractive type and good fry color	Very susceptible to PVY; Erratic tendency for moderate yields
IdaRose	High yields; Excellent culinary quality; Long dormancy	Shatter bruise and associated infection with Fusarium dry rot
Ivory Crisp	High specific gravity; Cold-sweetening resistant; Low incidence of internal defects	Susceptible to shatter bruise and common scab
NorDonna	Attractive deep red skin; High percentage of medium to small sized U.S. No. 1 tubers	Skinning if tubers not mature; Susceptible to early blight tuber rot
Norland	Early maturity with good yields; Few internal or external tuber defects	Tuber shrinkage and loss of skin color during storage
NorValley	Attractive tuber type; Cold-sweetening resistant	Mediocre yields in some environments; Low specific gravity under irrigation
Ranger Russet	Good fry quality; Resistant to most internal defects	Susceptible to blackspot bruise, common scab, and late blight tuber rot
Red LaSoda	High yields; Good culinary characteristics	Off-shape tubers with deep eyes, Susceptible to hollow heart
Russet Burbank	Good storage, processing, and culinary qualities	Susceptible to environmental stresses leading to tuber defects
Russet Norkotah	Early with excellent type and high percentage of U.S. No. 1's	Susceptibility to early dying and PVY, Mediocre culinary quality
Sangre	Good storage characteristics with retention of skin color	Excessive tuber netting under dry soil conditions
Shepody	High yields and early maturity; Low incidence of blackspot and hollow heart	Poor storage characteristics; Variable tuber solids; Susceptible to metribuzin
Umatilla Russet	High yields; Good fry color; Resistant to most internal and external tuber	Pear-shaped tubers; Susceptible to shatter bruise leading to rot

defects

Yukon Gold	High level of consumer acceptance and name recognition	Susceptible to internal tuber defects and common scab; Irregular stands
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Table 3. Reaction of potato varieties to common field diseases.

	Late Blight <sup>1</sup>		Early Blight		Verticillium wilt	Common scab	Leafroll net necrosis	Potato virus Y
	foliar	tuber	foliar	tuber				
Alturas	MS	MS	R	MR	VR	MS	R	MS
Atlantic	S	MS	S	R	MS	S	R	MS
Bannock Russet	S	S	MR	MR	R	R	R	R
Cal White	S	S	S	MR	MS	MS	S	VS**
Chieftain	S	S	MS	MR	MS	MS	MR	S
Chipeta	S	S	MS	R	R	MS	R	MS
FL1533	VS	VS	S	S	S	MS	R	MS
Gem Russet	S	MS	MS	R	MS	MR	MR	VS**
IdaRose	S	MS	MS	R	MR	MS	MR	S
Ivory Crisp	S	S	S	MR	MS	S	R	MS
NorDonna	S	S	S	VS	S	MR	MR	S
Norland	VS	S	S	MR	S	MR	MR	MS
NorValley	S	S	S	R	S	MR	R	S
Ranger Russet	S	VS	MS	MS	MR	MS	MS	MR
Red LaSoda	S	VS	S	S	MS	MS	MS	S
Russet Burbank	S	MR	MS	MR	MS	MR	S	S
Russet Norkotah	VS	VS	VS	MR	VS	MR	MR	VS**
Sangre	S	S	MS	MR	MR	MR	MR	MS
Shepody	VS	VS	S	MR	MS	S	S	VS**
Umatilla Russet	S	MR	MS	MR	MS	R	VR	MR
Yukon Gold	S	MS	S	MR	S	MS	MR	MS

<sup>1</sup>Tested at Corvallis, OR, Mount Vernon, WA, and Rosemount, MN, against US11 and US8 strains of late blight.

\*\*Very susceptible to infection with PVY but tolerant of the virus; generally showing very mild symptoms.

S = susceptible; MS = moderately susceptible; VS = very susceptible; R = resistant; MR = moderately resistant; VR = very resistant

Table 4. Response of potato varieties to storage rots, internal and external defect problems, and metribuzin injury.

	Storage Rots	Internal Blackspot	Hollow Heart	Growth Crack	Metribuzin Sensitivity
Alturas	MR	MR	R	MS	R
Atlantic	S	R	S	R	MS
Bannock Russet	MS	MR	S	MR	R
Cal White	MS	MR	MR	R	S
Chieftain	MS	MR	R	S	-
Chipeta	MS	MR	MR	MR	R
FL1533	MR	MR	R	R	MR
Gem Russet	MR	MS	MR	R	R
IdaRose	S	MR	R	R	R
Ivory Crisp	MS	MR	MR	R	MR
NorDonna	S	MR	MR	R	S
Norland	MS	MR	MR	MR	MR
NorValley	MS	R	R	R	MS
Ranger Russet	MR	S	R	R	R
Red LaSoda	MS	MR	S	S	MS
Russet Burbank	MS	MS	S	S	R
Russet Norkotah	MR	MR	MS	R	R
Sangre	MS	MR	R	R	R
Shepody	S	MR	MR	MR	S
Umatilla Russet	S	MR	MR	R	R
Yukon Gold	S	MR	MR	R	R

S = susceptible; MS = moderately susceptible; R = resistant; MR = moderately resistant