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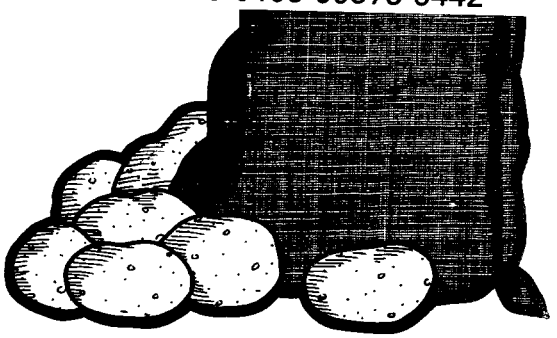

POTATOES for the Home and Market Garden

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North Dakota is a major commercial potato producing area. Commercial production is highly mechanized with large modern storage facilities for holding potatoes under optimum conditions.

Home and market gardeners, producing a small patch to a few acres, are generally concerned with growing early potatoes for either home use or local markets. A great number of home gardeners are planting potatoes for economic reasons as well as the enjoyment of growing some of their own food.

Culture

Seed. Plant only healthy, disease-free seed potatoes. Good appearance of potatoes does not insure freedom from disease. Never plant table stock potatoes purchased at a grocery store since most have been treated with a sprout inhibitor that will prevent sprouting if they are planted. They could also be diseased.

Try to obtain and plant certified seed potatoes each year. You can buy seed through seed catalogs, garden stores, or direct from certified potato seed growers. Certified seed is maintained by careful testing, roguing of diseased plants, isolation and field and storage inspections. Gardeners should contact County Extension Agents or the North Dakota State Seed Department for sources of certified seed potatoes.

Cutting Seed. Cut the seed potatoes into blocky pieces weighing about 1½-2 ounces. Each seed piece must have at least one healthy eye. Plant the same day you cut. Do not unnecessarily expose seed to sun or wind between cutting and planting. Short, green sprouts are desirable on the seed pieces at planting time. You can plant small B size tubers (2-3 ounces or smaller) without cutting. Potato eyes, often sold by nurseries and seed companies, are quite satisfactory for home garden use. You can expect lower production with potato eyes than with the use of 1½-2 ounce seed pieces.

Planting. Plant potatoes 2 inches below the level soil surface in most soils. Rows are usually 38 inches apart in the Red River Valley, but should be long enough and far enough apart for the best use of any mechanical equipment that may be available for planting, cultivating, or harvesting the crop. Plants should be 9 to 12 inches apart in the row in the Red River Valley, but farther apart in the drier areas. Mid-May is the best time for planting potatoes in North Dakota.

Fertilizer. Potatoes grown on stubble land in the Red River Valley respond the best in yield and quality to 400 pounds of 20-20-10 (or any 2-2-1 nutrient ratio) fertilizer per acre. Less nitrogen may be used on fallow or legume land. Place fertilizer below and slightly to the side of the seed piece at planting time.

Cultivation and Weed Control. The soil should be loose at planting time with a minimum of preplanting tillage. Reduce or eliminate small weeds by hand raking, hoeing or light roto-tilling prior to or as potatoes emerge. Harrows or mechanical weeders are used on larger acreages for the same purpose as well as for leveling the field. The first cultivation may be close to the row to kill the weeds and aerate the soil.

The second cultivation should be shallow and far enough away from the row to avoid root damage. Throw only enough soil over the rows in the first cultivations to cover the weeds. The third cultivation should be a hilling operation to cover the rows with enough soil to prevent late tuber damage by sunlight exposure. Finish cultivation before the tubers form. Fewer cultivations may be used if weeds are not a problem. Weed control chemicals are available for market gardeners or commercial growers. The use of herbicides is not recommended for home gardens because of the cost and danger of possible damage to other vegetable crops. The hoe is still an excellent weed control tool for small gardens.

Irrigation. Potatoes need an even, moderate moisture supply. You can use irrigation, if carefully

handled, to even out the moisture supply during dry periods. However, dry periods alternating with very wet periods can quickly ruin a potato crop by causing knobs, growth cracks and hollow heart. For further information, see Circular AE-96 "Growing Potatoes Under Irrigation."

Insect Control. Insect pests of potatoes include aphids, leafhoppers, the potato flea beetle and the Colorado potato beetle. See chart for chemicals and application rates for control.

Insect	Chemical	Formulation*	Rate Spray (per gal. of water)	Waiting Period (Days to Harvest)
Aphids	Malathion	50% EC	1 Tbsp.	0
	Diazinon	25% EC	2 tsps.	35
		4% D		35
Leaf hoppers	Malathion	50% EC	1 Tbsp.	0
Flea beetles	Diazinon	25% EC	2 tsps.	35
		4% D		35
	Carbaryl (Sevin)	5% D		0
Colorado potato beetle	Carbaryl (Sevin)	5% D		0
	Malathion	50% EC	1 Tbsp.	0
	Diazinon	25% EC	2 tsps.	35

*WP-Wettable Powder, D-Dust, EC-Emulsifiable Concentrate

Disease Control. Potato foliage diseases, early blight and late blight, can be a problem under certain weather conditions in North Dakota. You can often reduce these diseases by dusting or spraying with a fungicide such as Maneb or Ortho Vegetable Disease Control. Soil-borne diseases, such as scab, may be reduced by growing resistant varieties. (See Varieties.) Follow manufacturers' directions for safe use of all chemicals.

Harvesting. Potatoes are ready to dig and store when the skin ceases to slip from thumb pressure. People with large gardens may have a potato digger available, but those with small gardens may lift potatoes out with a plow or potato fork. Take care not to injure the tubers. Do not leave potatoes exposed to sun or wind in the field after digging.

Storage. Store potatoes the first two weeks at about 65 degrees F. and 85-95 percent relative humidity to allow injuries to heal. Store dry for the remainder of the storage period, the temperature should be 35-40 degrees F. with moderate humidity. Prolonged storage above 40 degrees F. results in sprouting. Total darkness is necessary in a potato storage since light turns potatoes green. Greening makes the tubers unfit for table use. Discard extremely green potatoes. Light green areas may be peeled away prior to use.

Varieties

Norchip, Russet Burbank, Red Norland and Red Pontiac are the most extensively grown potato varieties in North Dakota. Potato varieties adapted to home garden use are:

Early

***RED NORLAND:** This is a very early maturing red variety; tubers are oblong, smooth, with shallow eyes. Red Norland has **moderate resistance to common scab**, and has good table quality. For greatest yield, space Red Norland 12 to 14 inches within the row. This variety is very **well adapted** for home gardens.

***NORCHIP:** Norchip, a white-skinned potato, has high quality, good yield and some resistance to flea beetle. Ideal for baking and french frying.

***REDSEN:** An early maturing, high-yielding variety with exceptionally bright red color. The tubers are smooth, shallow-eyed and very uniform. Excellent quality. Has some resistance to late blight and moderate resistance to scab and silver scurf.

Mid-Season

***NORKING RUSSET:** NorKing Russet is resistant to common scab. Tubers are smooth to slightly blocky, with shallow eyes. NorKing is excellent for baking and french fries.

***NORGOLD RUSSET:** Norgold Russet has **excellent resistance to common scab.** Tubers are oblong to long, smooth with a netted skin. Eyes are shallow. Norgold Russet is a good baking or boiling potato, producing a cooked product that is exceptionally white and mealy.

***RUSSET NORKOTAH:** A 1987 NDSU introduction. Tubers are long with beautiful russet skin. Excellent for baking. Sets tubers relatively early in the season.

***VIKING:** Viking is a high-yielding red variety that has excellent culinary qualities. The tubers are large, round to oblong in shape with smooth shallow eyes.

Late

KENNEBEC: Kennebec is a very smooth variety, popular as a good source for french fries. It is white skinned, shallow eyed, late blight resistant and has good table quality. It also is popular for baking.

RED PONTIAC: Red Pontiac is a high yielder with only fair table quality. Tubers tend to become over sized with abundant rainfall.

***NDSU INTRODUCTIONS**

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