

Potatoes In Maine



MAINE
POTATOES



Potatoes in Northern Maine

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1. What is a Potato?

Scientists call the common cultivated potato *Solanum tuberosum*. It belongs to a very large family of plants that (Solanaceae) includes tomato, eggplant, tobacco, locoweed, deadly nightshade, and many others. All of the members of this family have flowers with five equal parts and many-seeded berries or capsules. Many members of the potato section of this family have tubers. Tubers are swollen parts of underground stems in which food is stored. Like above-ground stems, tubers can have “branches.” Branches of tubers come from the “eyes” or buds and are called sprouts. Tubers can survive under ground in the winter and produce sprouts and plants in the spring. The tubers are the potatoes we eat and the seed the farmer uses to produce a new crop.

2. Origin of the Potato

Wild potatoes grow in the Andes mountains of South and Central America. Some species are found in areas as far north as the southwestern United States. Some of the wild species are still grown by farmers in South America. Many of them produce small potatoes with a mixture of colors and shapes.

When the Spanish arrived in South America, they discovered potatoes and took them back to Europe. The potato became a major food item, especially in Ireland. Centuries of cultivation and selection led to the use of only a few varieties of one species. This was a contributing factor in the late blight epidemic in Ireland that was responsible for thousands of deaths and thousands of emigrants to the United States and other areas in the 1850s.



Because of its mountain ancestry, the potato grows very well in the northern climates of the United States and Canada. In southern areas (Florida, Alabama, Texas, North Carolina) the potato is a winter or spring crop, but in Maine, potatoes are planted in May and grow throughout the summer. Harvest of potatoes begins in Florida in February, later in North Carolina, and so on up the east coast until Maine's September harvest. Potatoes are grown on every continent except Antarctica.

3. Potatoes in the Diet

Throughout history, potatoes have made an important contribution to the nutritional needs of individuals. In countries where the potato is the main food source, even poor, undernourished people are seldom malnourished. For example, potatoes were grown on the private lands of Frederick the Great in the 1770s to demonstrate to the German people an inexpensive and easy way to avoid starvation. One acre of potatoes could feed a family of six and the hog.

Potatoes are high in complex carbohydrates. Complex carbohydrates are mainly long chains of sugars. They include starches and three types of dietary fiber (cellulose, hemicellulose and gums). A single serving of potatoes (148 grams, 5.5 ounces) provides about 10 percent of the recommended daily carbohydrate requirement. In addition to the health benefits, starchy foods are actually a good source of energy for those who want to lose weight.

Potatoes are also a good source of vitamin C; a single serving provides 45% of the recommended daily value. Since vitamin C is heat and light sensitive, the method of preparation and storage will affect the concentration of vitamin C in potato products.



A single serving of a medium sized potato (about 5.5 ounces or 148 grams), without the butter or sour cream, has the following nutritional composition:

Calories	100
Total Fat	0
Saturated Fat	0
Cholesterol	0
Sodium	5 mg
Potassium	720 mg
Carbohydrates	26 g
Protein	4 g
Sugars	3 g
Dietary Fiber	3 g

Percent of daily value:

Calcium	2
Iron	6
Vitamin C	45
Vitamin B6	10
Thiamin	8
Niacin	8
Folate	6

Potato consumption in the United States has remained relatively stable with per capita consumption at about 140 pounds (64 kg). Fresh potatoes and french fries make up over 80 percent of the total per capita consumption. However, with consumer demand for convenience foods increasing, the potato processing industry has introduced several new products into the marketplace. These products include refrigerated and frozen mashed potatoes, pre-peeled refrigerated potatoes in several forms, and frozen diced, sliced, and whole potatoes. Many of these products can be prepared in the microwave, making it easy for the consumer to include potatoes in a nutritionally balanced diet.

Nutrition Facts

Serving Size 1 potato (148g/5.3oz)

Amount Per Serving

Calories 100 **Calories from Fat 0**

% Daily Value*

Total Fat 0g **0%**

 Saturated Fat 0g **0%**

Cholesterol 0mg **0%**

Sodium 0mg **0%**

Potassium 720 mg **21%**

Total Carbohydrate 26g **9%**

 Dietary Fiber 3g **12%**

 Sugars 3g

Protein 4g

Vitamin A 0% • Vitamin C 45%

Calcium 2% • Iron 6%

Thiamin 8% • Riboflavin 2%

Niacin 8% • Vitamin B₆ 10%

Folate 6% • Phosphorous 6%

Zinc 2% • Magnesium 6%

*Percent Daily Values are based on a 2,000 calorie diet.

4. Potato Cultivation

Planting: Pieces of potato tubers are planted in long rows and covered with 5-10 cm (2-4 inches) of soil. The spacing between seed pieces varies from 15 to 35 cm (6 to 14 inches) depending on the variety and the type of crop desired. Varieties that produce many tubers per plant or long-shaped tubers are planted further apart. The farmer who wants smaller potatoes (for next year's seed or for potato chips) will plant the seed closer together than the farmer who wants large potatoes for french fries or the fresh market.

Growing: A season's worth of fertilizer is usually placed in furrows beside the seed pieces at planting. Some farmers prefer to apply part of the fertilizer at planting and more later. Once the potato plants begin to grow, they are cultivated to loosen the soil and control weeds. As the plants get larger, tools called spades are used to pile soil up around the base of the plant, a practice called "hilling." Potatoes are grown in hills 17 to 26 centimeters (8-12 inches) high, primarily because sunlight causes the potatoes to turn green and to produce a bitter substance (glycoalkaloid). Green sunburned potatoes taste bitter and should not be eaten because they might cause an upset stomach. Artificial light also causes greening of potatoes. Therefore, potatoes at the grocery store are typically displayed in paper bags or otherwise shaded from light.

Protecting: In order to avoid an epidemic of late blight, early blight, or other disease, the farmer sprays fungicides on the potato plants each week. If any insects threaten the potato crop, insecticides may also be used.



Killing: Potato plants are killed before harvest for three reasons. Actively growing potato tubers have a very thin skin that can easily be damaged during harvest. If the plants are dead for two or three weeks before the tubers are dug, the skin will be more resistant to bruising. Secondly, it is important to complete the harvest before the ground freezes. If the plants are allowed to grow until they become mature and die naturally, there may not be time enough for harvest before freezing damages the potatoes. Finally, killing before the end of summer reduces the chance for infection with viruses or tuber diseases.

Harvest: When potatoes were first planted in Aroostook County they were dug out of the ground with a mechanical digger and picked up by hand, put into baskets, then dumped into barrels. The barrels were lifted (at first by hand, later with motorized lift chains) onto a flatbed truck and hauled to storage or to the processing plant. Since the 1960s potatoes have been dug with harvesters which lift them out of the ground, carry them over conveyors (past workers riding on the harvester who pick out the rocks and bad potatoes), and drop them into a bulk-body truck (like a dump truck) for transport.

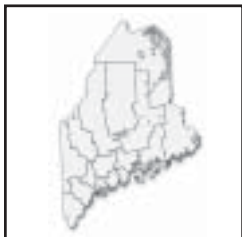
Storage: Potatoes grown in the southern United States are sold immediately after harvest, but most of those grown in the northern U.S. are stored through the winter. Potato houses have large bins in which the potatoes are piled for storage. Seed and fresh-market potatoes are stored at 3°C (38°F); french fry potatoes at 7°-10°C (45°-50°F) and chipping potatoes at 10°-13°C (50°-55°F). Storing potatoes too cold will make them too sweet (too much sugar) for good processing; storing too warm will make the potatoes sprout or lose too much weight because of water loss and respiration.



5. Potato Production in Maine

The potato is northern Maine's primary agricultural product. In the 1940s Maine's potato production exceeded any other state. However, due to increased irrigation in the western states, by 1994 Maine had fallen to the eighth ranked potato producer in the United States, after Idaho, Washington, North Dakota, Colorado, Oregon, Wisconsin, and Minnesota. Maine ranks seventh in the number of acres devoted to potato cultivation. In 2000, Maine grew 63,000 acres of potatoes, 4.6 percent of the U.S. potato acreage and produces about 1.8 billion pounds of potatoes or 3.7 percent of the U.S. crop. Nearly 90 percent of Maine's potato acreage is grown in Aroostook County.

Nearly 25 percent of Maine's potato production is for seed to supply the east coast. Another 45 percent is used for french fry processing, 20 percent for potato chips and 10 percent for the fresh market for home, restaurant and institutional raw potato use.



US and Maine Potato Producing Areas



6. Potato Varieties

Variety Distribution in Maine's Potato

Production	(% of acreage)
Russet and Long White (French fry & baking)	49
Russet Burbank	34
Shepody	11
Russet Norkotah	4
Round White Table	20
Ontario	9
Superior	6
Norwis	3
Katahdin	2
Round White Chipping	16
Atlantic	3
Snowden	2
Frito-Lay Varieties	11
Red Varieties	4
Other Varieties	11

(Data from 2000 production; total acres planted = 63,000.)

Each variety has distinct characteristics. Some of the characteristics used to distinguish varieties are flower color, vine type, leaf shape and color, tuber shape and color. Other characteristics are important in the end use of the potato: tuber dry matter content is important in determining whether to use the variety for boiling or baking, canning or processing (chipping and french fry). Sugar content of the tuber is also important for varieties used in chipping and french frying.

One way in which potato varieties are often grouped is by tuber color and shape: russet, round white, red, and yellow-fleshed. Russet refers to the brown color and net-like texture of the potato skin. Round white varieties usually have a smooth white skin, although



some have a light netted texture (Atlantic and Superior). Most red-skinned varieties have white flesh like the russet and round white groups. The yellow-fleshed group is the only one of these four with a different flesh color. Yellow-fleshed varieties are common in parts of Europe. Red-fleshed and blue-fleshed varieties are rare.

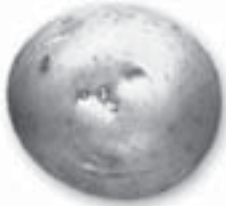
“Round White” Potatoes

The first two color groups include several types of potato varieties. The round white group is the most diverse, and “round white” is the most misused description of a variety. Describing a potato as round white tells only its shape and color, but nothing about its cooking qualities. It would be more appropriate to group these potato varieties according to their use: french frying, chipping, baking, or boiling. (*Potatoes good for boiling can also be used in canning and salads.*)

Round white potatoes include varieties used for making chips (they do not boil well, but can be baked), as well as varieties which do make good canning and boiling potatoes. Unfortunately some chipping potatoes end up in the fresh market area of the grocery. When you buy potatoes for home use, be sure to check the variety name to see if they should be baked or boiled.

Russet Potatoes

The russet group is also mixed, including processing varieties (Russet Burbank), table varieties (Russet Norkotah), long white varieties used for french fry processing (Shepody), and even sometimes long white varieties used in the fresh market (White Rose – known as the California long white potato). Because of their long shape and high dry matter content, most of this group are good for baking, as well as french frying.



Russet

Round White

Another way to group potato varieties is by their use: processing, chipping, table, and specialty. The specialty varieties include red, blue, yellow, and other unusual types.

Processing Varieties

Processing varieties (usually russet or long white varieties) are used primarily to make french fries for the fast-food chains. French fry varieties are long in shape and have high dry matter along with relatively low sugars. Dry potatoes use less oil during the cooking process, and high amounts of sugar would make the french fries too dark. French fry varieties: Russet Burbank, Shepody.

Russet Burbank (1914) is the most commonly grown potato variety in North America, making up one third of the seed potato acreage and nearly 90 percent of the table and processing acreage. Its high yields, good storage qualities and dry nature make it very good for baking and french fry production. Russet Burbank potatoes are long, brown with light netting, relatively large, and often knobby or otherwise misshapen.

Shepody (1980) was developed by the Canadian Department of Agriculture because Russet Burbank matures too late for northern climates and the french fry processing factories wanted to start their season in August. Shepody potatoes are large, long, white, and early maturing.

Table Varieties

Varieties that are high in dry matter (chipping and french fry varieties) can be baked but may fall apart when boiled. Varieties with low dry matter can be boiled

MAINE RUSSETS

The Right Potato



MAINE RUSSETS

The Right Potato



FINE HOLED BUCK

MAINE RUSSET
NET WT. 10 LBS. (4.5 KG)
U.S. NO. 1

MAINE GRADE

PRODUCE USA
NET WT.
10 LBS. (4.5 KG)
U.S. NO. 1

MAINE

MAINE GRADE

PRODUCE USA
NET WT.
10 LBS. (4.5 KG)
U.S. NO. 1

or baked, although they do not have the dry flaky texture many people prefer in a baked potato. Baking varieties: Russet Burbank, Russet Norkotah. All-purpose varieties: Katahdin, Norwis, Superior, Mainstay.

Katahdin (1932) has been a favorite variety in Maine for many years. This potato has excellent all-around qualities that make it a favorite for boiling and home cooking. It also withstands most diseases and provides good yields under many different weather conditions. Katahdin potatoes are round, white, medium to large sized, and are more prone to sunburn than most other varieties.

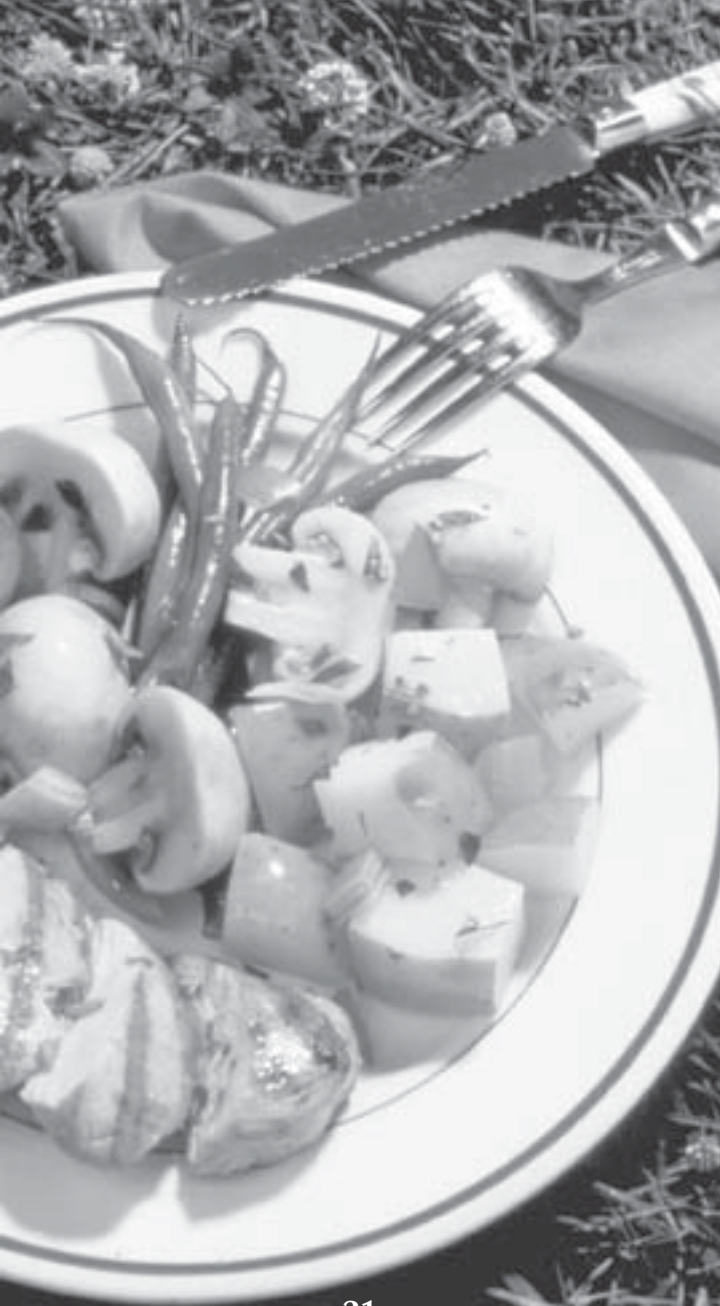
Superior (1961) is the most widely grown round white table potato because of its early maturity. However, it cannot be stored for long periods of time, and most of them will be sold before March. Superior potatoes are round, white, small to medium sized, and may have a very light netting.

Salad Varieties

Varieties with very low dry matter content are good for salads because they can be boiled and cut without sloughing (falling apart). These include most of the red and some of the round white groups. Salad varieties: Red Pontiac, Norland, Ontario.

Red Pontiac (1945) has been a favorite red variety for many years because of its high yields. It is not an early-maturing variety and does not keep its red color well in storage like some of the new red varieties, but it produces large, oblong, medium-red potatoes with deep eyes and an irregular rough shape.

Norland (1957) is the most common red variety, primarily because of its early maturity. It was developed in North Dakota. Norland potatoes are small to medium sized, round, dark red and fairly shallow-eyed.



Chipping Varieties

Varieties used for making potato chips have especially stringent requirements. They are round in shape with thin skin, and have very high dry matter but low sugar content. Chipping varieties: Atlantic, Norchip, Snowden.

Atlantic (1976) was developed by the USDA. This variety is the predominant chipping variety in the East because it combines high dry matter with high yields/ a combination not found in other chipping varieties. The major drawback to this variety is its susceptibility to heat necrosis in the southern states. Atlantic potatoes are small to medium sized, round, and dark buff colored with a strong netted appearance.

Specialty Varieties

Red-skinned varieties like Norland and Red Pontiac are used in microwave meals to provide color to the meal. Blue-skinned and yellow-fleshed varieties are also desired for their unique properties. They command high prices but have a limited market share. The yellow-fleshed varieties are preferred in some European countries. They are just recently catching on in the United States. Specialty varieties: Yukon Gold, All Blue, Red Cloud.

Yukon Gold (1980) is a Canadian developed variety, which has caught on very well in Michigan, and is the major yellow-fleshed variety in North America. Yukon Gold potatoes are medium-sized, round to oblong and pale yellow colored with yellow flesh.

Variety Distribution in Maine's Seed Potato Production (% of acreage)

Round White Table Varieties: 31.50

Superior	12.0
Norwis	5.4
Ontario	4.7
Katahdin	4.5
Kennebec	3.9
Mainestay	1.0

Chipping Varieties: 27.2

Atlantic	9.9
Monona	3.5
Reba	3.5
Snowden	2.9
Kanona	2.7
Andover	2.6
LaChipper	1.2
Pike	0.6
NorValley	0.3

Russet & Long White French Fry Varieties: 19.70

Russet Burbank	9.8
Shepody	5.6
Russet Norkotah	2.7
Goldrush	0.7
BelRus	0.7
Ranger Russet	0.2

Red Varieties: 4.80

Dark Red Norland	1.7
Red La Soda	1.2
Chieftain	0.9
LaRouge	0.6
Red Pontiac	0.4

Yellow-Fleshed Varieties: 4.7

Yukon Gold	4.2
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All Frito-Lay Varieties 10.3

9 Other Varieties 1.8

2000 Data. Total acres planted: 15,606

7. Developing New Potato Varieties

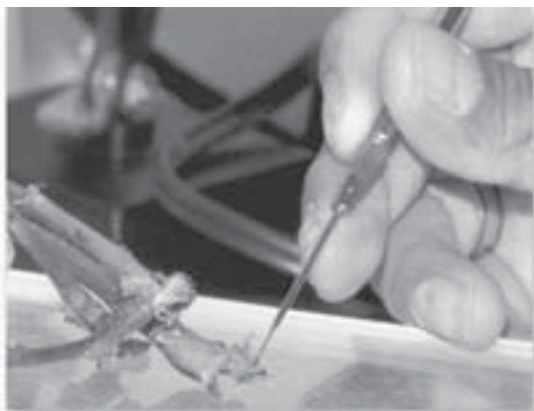
Although there are already several hundred potato varieties, none are perfect, and as things change, new qualities are needed. For example: not all potatoes that bake well in a conventional oven will cook well in a microwave oven; diseases like the late blight fungus change, and varieties with better or different resistances are needed; the public is constantly demanding better quality and new food products; farmers always want higher-yielding varieties, and varieties better adapted to their growing conditions.

Potato variety development in Maine is done at the University of Maine Aroostook Research Farm Experiment Station. This program was funded by the Maine Potato Board from 1969 to 1996. Since 1996 it has been supported by grants from the federal government.

The University of Maine potato breeding program has named and released fourteen new potato varieties: Delta Gold, Allagash Russet, Yankee Chipper, Yankee Supreme, Islander, Sunrise, Campbell 14, Somerset, MaineChip, Prestile, Portage, Mainestay, St. John's, and Quaggy Joe.

Classical Potato Breeding

Classical potato breeding is done by cross-pollinating different varieties of potatoes. The breeder taps pollen from the flower of one variety onto the thumbnail and carries it to the flowers of another variety, just like a bee. Successfully pollinated flowers produce fruits that look like small green tomatoes. When the fruits ripen and turn soft, they are picked, cut, and the seeds removed. These seeds must be stored for about one year during their dormant period, then they are planted



to grow new potato seedlings. Every seedling is different from all others, and each is a potential new variety. Many seedlings will have characteristics which are not desired and must be discarded. About one in 100,000 seedlings will be good enough to become a new variety. Only one in every 30-35 named varieties is ever used in commercial production.

Genetic Engineering

Genetic engineering is a new tool the potato breeder uses to improve potato varieties. Useful genes from one potato variety, or any other species, can be inserted into a popular potato variety to improve it. A few genetically engineered potato varieties have already been grown commercially. A commercial company has inserted genes into the varieties Russet Burbank, Atlantic, Superior, Shepody, Snowden, and Hi-Lite Russet. These genes have made the plants resistant to the Colorado potato beetle and to virus Y.

8. Agricultural Pests and Diseases

Pests and diseases fall into three categories: those that damage or destroy the plants (insects, fungi); those that primarily reduce yields (viruses); and those that damage or destroy tubers (bacteria, fungi, worms).

Plant Pests

Fungi and insects that attack the potato leaves and stems include the Colorado potato beetle, late blight, early blight, and verticillium wilt.

The Colorado potato beetle is the most serious insect pest of potato. In just a few days the larvae of this beetle can eat all of the leaves from the plant on which the eggs were laid. Recently two very effective



Colorado Potato Beetle Larva



Colorado Potato Beetle



Wireworm

controls have been developed: a chemical called “Admire” can be put into the seed furrow at planting, or sprayed onto the plants during the growing season. NatureMark has provided another type of resistance to the beetle by using genetic engineering to insert a bacterial gene into some of the major potato varieties.

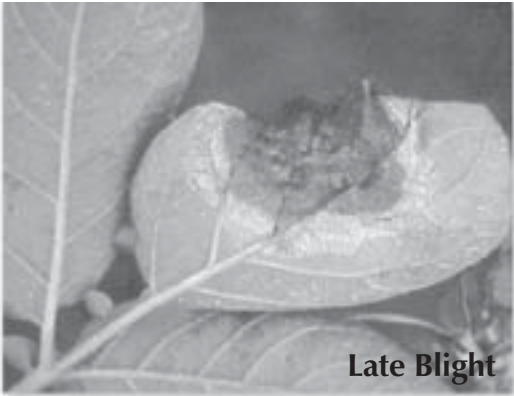
Late blight is the same fungus that caused the infamous potato famine of Ireland. It was under control in Maine through the 1980s with a curative chemical spray; however, the fungus mutated so that it is no longer killed by that chemical. Presently, preventative chemicals must be sprayed onto the potato leaves before fungal spores begin to grow. Once the fungus starts to grow, the only way to stop it is to kill the potatoes. Late blight can also infect the tubers and cause breakdown in storage.

Verticillium is a fungus that causes the early dying disease. Infected plants wilt and turn yellow before dying. There can also be a discoloration of the vascular tissue of the tubers, although there is no tuber breakdown with this disease.

Virus Diseases

Viruses that weaken the plant and reduce yields include leafroll, Y, and X. These viruses are most important to seed potato growers, since their presence in the seed will prevent the grower from certifying and selling the seed.

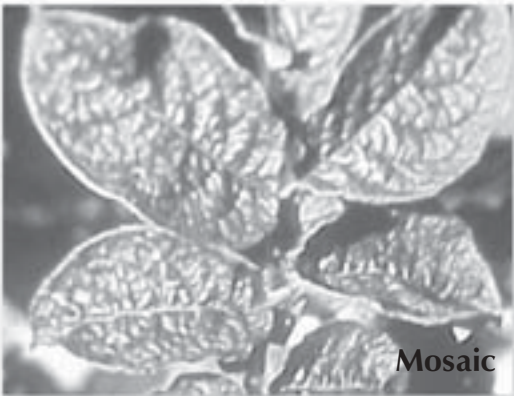
The leafroll virus is spread by the green peach aphid. In susceptible potato varieties during the first year of infection, this virus can cause a streaking and speckling inside the tuber called net necrosis. When infected tubers are used as seed, the plants will be stunted, yellowed, and have peculiarly rolled leaves.



Late Blight



Leaf Roll



Mosaic

Viruses X and Y are called mosaic viruses. A mosaic leaf pattern is a mottled appearance caused by the loss of color in the interveinal areas of the leaf. The potato aphid and other aphids spread virus Y, but virus X is spread by physical contact.

Tuber Diseases - Field

Diseases that affect the tuber in the field are scab, rhizoctonia, silver scurf, and wireworms.

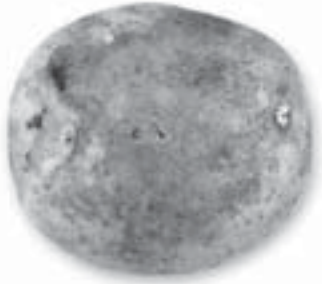
Potato scab is caused by a fungus-like bacterium that grows on the surface of the tuber producing a round scab-like lesion, which in extreme cases can spread over the entire tuber. There is no further harm to the potato, but peeling is more difficult and scabby tubers should not be used as seed.

Rhizoctonia fungi grow on the initial sprouts and the lower stems of the plant. It can completely girdle the stem or sprout, killing the plant. If infection occurs later, the result is reduced yields and poor quality tubers. The tubers from rhizoctonia infected plants are often cracked and misshapen with darker skin. The resting stage of rhizoctonia is a shiny black spot on the surface of the tuber called black scurf.

Silver scurf is another fungus that grows on the surface of potato tubers. It produces a thin layer of silvery brown color. Like black scurf and scab, silver scurf does not damage the tuber, but appearance sells, and this is not a good appearance.

Wireworms can sometimes be a problem especially if potatoes are planted in freshly plowed sod ground. These tiny worms make holes in the tubers as they grow.

Silver Scurf



Silver Scurf



Scab, Surface



Scab, Surface



Tuber Diseases - Storage

Bacterial and fungal diseases, which are primarily problems in storage, but may also show up in the field, are bacterial ring rot, blackleg, Fusarium, soft rot, and water rot.

Bacterial ring rot is most devastating to a seed grower. If this disease is found, all potatoes on that farm are uncertifiable. If after spending extra money to try to make sure the seed potatoes are disease-free, the grower must sell them at the lower tablestock or processing prices, great losses will be incurred.

Blackleg is another bacterial disease that affects the potato stem and tuber. While ring rot is a white rot primarily in the vascular ring of the tuber, blackleg is a black rot spreading from the point of attachment of the tuber to the plant. Both will destroy the tuber and can spread in storage.

The fungus known as Fusarium is the only one of the tuber rot diseases that does not produce a wet stinky potato. In fact it is also known as the dry rot fungus. It starts in cuts and bruises of the tuber surface and grows down into the tuber.

Soft rot is usually a secondary rot, coming in after another disease damages the tuber. It spreads rapidly and can ruin a whole bin of potatoes.

Water rot can do just as much damage. It usually starts in a low place in the field where rain water doesn't drain properly and the potato plants stand in water for a long time.

Blackleg



Blackleg



Fusarium Tuber Rot



Heat or Water Damage



9. Potato Soils

In order to identify a soil, soil scientists dig holes to expose soil profiles. A soil profile is the sequence of layers from the surface down to a two meter depth or to the bedrock if it is shallower than two meters. The Caribou gravely loam soil is typical of many potato fields. It is friable (easily crumbled) to a depth of 48 cm (19 inches) or more. Friable soil is important for potato farming, since the farmer works the soil at least seven times a year when potatoes are grown (plowing, harrowing, planting, cultivating, hilling at least twice, and harvesting). Very few large stones appear in the Caribou soils, and the soils dry out early in spring and can be farmed soon after they thaw. They hold a considerable amount of water available to the plants and are able to retain plant nutrients better than other mineral soils in the area (but they need to be fertilized to produce high yields of crops).

The soils of northern Maine are often named for the town near which they were first observed and mapped, and they are derived from “till” (materials mixed by glaciers). The till-derived soils of “The Limestone Valley” of Aroostook County are in what is called the Caribou-Conant association. The most common use of this type of soil is potato production or other intensive row crop farming. About 75 percent of the Mapleton-Conant soil association is also farmed and it is well suited for cultivated crops except for scattered outcrops of bedrock or areas of wetness. Some till soils derived from slates and shales have dense subsoils and are on steeper slopes (Perham, Plaisted, Chesuncook); are too shallow or rocky (only 20 percent of the Thorndike-Howland association is farmed); or derived from

various tills that are too wet for good potato or row crop growth (Easton, Washburn, Monarda and Burnham). Soils along the St. John and Aroostook Rivers (Stetson-Allagash, Lille-Winooski soil associations) are derived from alluvium (materials sorted and deposited by water) and are frequently used for intensive farming. However, because the flood plains and terraces are narrow (mostly only a few hundred feet wide) only a few farms are limited to this type of soil.

Sources:

Soil Survey, Aroostook County, Maine, Northeastern Part, April 1964. USDA Soil Conservation Service and Univ. of Maine Agric. Experiment Station. U.S. Gov. Printing Office, Washington, D.C.

Ferwerda, J.A., K.J. LaFlamme, N.R. Kalloch, Jr., and R.V. Rourke. 1997. *The Soils of Maine.* Misc. Rept. 402, Univ. of Maine Agric. and Forestry Expt. Station, Orono, Maine.

10. Resources

Resources for the student:

The Amazing Potato by Milton Meltzer. Harper Collins Publ., NY. 0-06-020806-6. 1992. Here you will find an interesting history of the cultivated potato and an excellent bibliography for further resources.

Potatoes by Sylvia A. Johnson. Lerner Publ. Co., Minneapolis. 0-8225-1459-1. 1984. This book has a good section on how potatoes grow and what the plant is like. There are many nice pictures and sexual reproduction is clearly distinguished from tuber propagation. Although the stolon is incorrectly referred to as a rhizome, the glossary is otherwise good. There are excellent references.

Potato by Barrie Watts. Stopwatch Books, Silver Burdett Press, NJ. 0-382-09528-6. 1987. There are excellent pictures and a good story about how to grow potatoes, with few errors.

Blue Potatoes, Orange Tomatoes by Rosalind Creasy. Sierra Club Books for Children, San Francisco. 0-87156-576-5. 1994. This is a gardening book with good planting directions and a fun recipe for red, white, and blue potato salad on the two pages devoted to potatoes.

Potato Play Book by Wilhemine Estabrook and Vera DeWitt, New Brunswick Potato Agency, Centreville, N.B., Canada. An activity book about potato farming for younger children.

Visit the web site of the Potato Association of America:
potato.tamu.edu/variety/paa.htm

Resources for Teachers:

General:

The Potato by W.G. Burton. H. Veenman & Zonen N.V., Wageningen, Holland. 1966. The definitive potato book of its time; history, yield factors, nutrition, quality, and storage.

Potato Health Management edited by Randall C. Rowe. American Phytopathology Society Press. St. Paul, Minnesota. 0-89054-144-2. 1993. Growing potatoes and potato diseases; many nice colored pictures.

Taxonomy:

The Potato and its Wild Relatives by Donovan S. Correll. Texas Research Foundation, Renner, Texas. The George Banta Company, Inc. Menasha, Wisconsin. 1962. A treatment of Section Tubarium of the genus *Solanum* for the serious taxonomy student.

Potato Breeding:

Potato Breeding – Problems and Perspectives by Hans Ross. Verlag Paul Parey Berlin und Hamburg. 3-489-61110-1. 1986. Breeding techniques and strategies.

Cooking:

One Potato Two Potatoes (A Cookbook and More) by Janet Reeves. Ragweed Press, Charlottetown, Prince Edward Island. Seventh printing 1995. 0-920304-70-2. Mainly recipes, but also includes sections on history, nutritional content, description of the potato, varieties, buying and storing potatoes, helpful hints. The Potato Museum and the International Potato Centre.





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