

Growing Potatoes For Home Use

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For home use, potatoes are planted on a wide range of soil types but good yields can be expected only on deep, friable, well drained loams, high in fertility. Most soils can be made to produce satisfactory crops through the judicious use of crop rotations, manures and commercial fertilizers. A long rotation of 4 to 5 years is best for potatoes. Preferably, legumes should precede the potato crop.

In the vegetable garden a very good combination is the growing of potatoes one year and such crops as tomatoes, cabbage, onions, or other vegetables the next year. The fertility of the soil may be maintained by following the potatoes and truck crop with a green manure and by heavy applications of barnyard manure preceding the vegetable crops.

Barnyard manure is a common source of plant food for the potato crop and it may be supplemented with superphosphate, where this is obtainable, since most manures are low in phosphorus. However, if it is applied in large amounts, over 10 or 12 tons per acre, preceding the potato crop, the development of scab will be increased.

Commercial fertilizers have come into general use for potatoes. Since most Missouri soils are deficient in phosphorus, the potato crop shows the greatest individual response to this plant food when used alone or in mixed fertilizers. Fertilizer mixtures analyzing 4 to 5% nitrogen, 10 to 16% phosphorus, and 4 to 6% potash are most generally advised. If liberal quantities of manure are used, a fertilizer carrying only nitrogen and phosphorus such as ammo-phos and other ammoniated phosphates is satisfactory. An application of 300 to 600 lbs. of an analysis such as 4-12-4 or 4-16-4 may be used economically.

The fertilizer is most often applied at planting time. It is generally applied in the furrow and mixed thoroughly with the soil before planting. If convenient, even better results may be obtained by placing the fertilizer in bands about 2 inches to each side and practically level with the seed pieces. It should be placed near the seed piece but not in direct contact since nitrogen and potash salts cause serious injury to the young sprouts. Soil containing enough

lime to support clovers will not require additional amounts for the potato crop. Limestone should not be used in excessive quantities or applied just preceding the potato crop since this material tends to cause the scab to develop.

Potato Varieties.—None of the new varieties which have been introduced during the last few years have been found to be superior to the older kinds. The commercial acreage is almost entirely planted to Irish Cobbler and Bliss Triumph varieties. The Cobbler is justly the most popular variety throughout the state for both home and commercial plantings. The new variety, Red Warba, may become a valuable sort for growing in the farm garden and where an early maturing red variety is desired. The varieties, Chippewa, Kathadin, Houma, and Pontiac are vigorous, disease resistant and of high quality but mature so late that production is limited by summer temperatures.

Seed.—One of the most important factors in successful potato production and one over which the grower has complete control is the selection of good seed. Such factors as purity of variety, and freedom from defects and surface disease, can be readily determined by visual inspection of the seed potatoes. Those qualities which have the greatest effect on yield, as strain, vitality and the internally carried diseases, cannot be discerned by examination.

Northern Grown Seed.—The potatoes produced in the northern states have been proven by many trials to be better for planting in Missouri than home grown seed. Moreover, if obtainable, only certified seed should be planted.

Seed Treatment.—There is much confusion in the mind of the average grower concerning seed treatment and certified seed. No method of seed treatment will free seed stock from the diseases carried inside the tubers. On the other hand, certified seed may carry appreciable quantities of scab and black scurf (*Rhizoctonia*).

Since most seed even if certified may carry these diseases, it is usually a profitable practice to treat all seed before planting. The only equipment needed is a barrel or tank, a drain board, and baskets. Metal containers may be corroded if treating solutions stand in them for some time.

Acidulated Mercury Method.—For small amounts of potatoes, dissolve 2 ounces of corrosive sublimate in about a pint of commercial hydrochloric acid (muriatic acid). Add this mixture to 6 gallons of water and stir solution thoroughly. The 6 gallons of solution will treat 10 to 14 bushels of potatoes unless they are very dirty. The usual length of time of immersion is 5 minutes. If, however, there is considerable scab or black scurf, the time should be longer. For treating larger amounts of potatoes, increase the chemicals and water proportionately.

Organic Mercury.—There are several organic mercury compounds sold on the markets under trade names. These materials are simple to use and are quite effective. They should be used strictly according to the manufacturer's recommendations. Since no soaking period is required and unpainted metal containers can be used, this method is satisfactory for the small grower.

Cutting the Seed.—All potatoes showing rotten or badly diseased areas are thrown out when cutting the seed. Each seed piece must contain one healthy eye. The first cut is preferably made lengthwise of the tuber. Further transverse cuts divide it into blocky pieces weighing from $1\frac{1}{4}$ to $1\frac{1}{2}$ ounces each. It is best to plant the seed as soon after cutting as possible. When this is not feasible, store the cut seed in shallow piles or half-filled sacks in a well ventilated place, safe from freezing temperature and away from strong sunlight and drying winds.

Seed Required.—If the seed pieces are planted 12 inches apart in rows 36 inches wide, 5 bushels of seed will be required for each quarter acre.

Soil Preparation.—The special requirement of this crop is a deep loose seed bed. Any operation which has a tendency to firm or pack to the soil must be avoided. The potato field should be plowed as deeply as possible.

Date of Planting.—As a general rule potatoes should be planted as early in the spring as the soil can be prepared. In Central Missouri this will occur between March 20, and April 1. Conditions will be satisfactory for planting potatoes a month earlier in the southeastern part of the state.

Planting Depth.—Tuber formation, under ideal conditions, takes place about four inches under the soil surface. Since some soil must be thrown over the rows when cultivating, 3 to $3\frac{1}{2}$ inches is probably the proper depth.

Planting Distance.—Potatoes are planted in rows varying from 30 to 42 inches apart with the seed pieces spaced from 8 to 16 inches in the row.

Cultivation.—The primary object of potato cultivation is to control weeds. Cultivation of the crop should be as shallow as possible for many of the roots of the potato plant are near the surface of the soil.

The first cultivation with garden tools may be deep and fairly close to the row, but later workings should be shallow and far enough from the plants to make certain that few roots are cut. Three cultivations are usually all that can be given before the plants occupy the ground. During the later cultivations, some soil is thrown toward the row to form a broad ridge. This ridge helps prevent sunburn, aids drainage and makes digging easier.

Potato Insects.—The Colorado Potato Beetle is the most destructive potato insect in Missouri. Most of the injury is done by the leaf eating larvae. Since it is a chewing insect, the control must be in the form of a stomach poison. Calcium arsenate may be applied as a dust using $1\frac{1}{4}$ to $2\frac{1}{2}$ pounds per quarter acre. The dust is first applied when the bright yellow egg masses are discovered on the under sides of the leaves, and repeated as necessary. For small acreages, arsenate of lead or calcium arsenate may be used as a dust by mixing one part with twelve parts of gypsum or hydrated lime. When a spray is applied, use 1 to 2 tablespoonfuls of the arsenical to 1 gallon of water.

Potato Diseases.—Missouri growers are indeed fortunate in that the disease problems are less serious in this area than in most of the other potato producing states. Control can usually be secured by using certified stock, seed treatment and careful soil management.

Harvesting.—When potatoes are grown for home use, it is best to leave them in the ground until they are fully mature. If the skin no longer slips when pressed with the thumb, the tubers have stopped growth and are considered to be mature. When the vines are almost dead, there is nothing to be gained by permitting the potatoes to remain in the ground.

The freshly dug potatoes should not be allowed to lie exposed to the direct rays of the sun for any length of time. They should be picked up as soon as the soil dries. When the temperature is high and the soil dry, they must be picked up as soon as dug. The potatoes must be handled carefully since they are easily scuffed, bruised or cracked.

Storage.—Many growers of potatoes for home use make the mistake of allowing the crop to remain in the ground exposed to the heat of late summer. This is permissible only when there is no better storage place available. The ideal home storage for potatoes is a cool, dark place such as a cave or ground cellar where a high humidity can be maintained and adequate ventilation given.

The crop intended for storage should be allowed to become fully mature before digging. It must be handled carefully since only potatoes that are entirely free from mechanical injury are suitable. Tubers showing deep scab, worm holes or other disease injury must also be sorted out.

The potatoes after digging should be cured before placing in storage. If possible, the potatoes should be spread out in shallow piles on the ground floor of a shed or on a barn floor away from the light and strong winds. After curing for 2 to 6 weeks, the potatoes are removed to the best permanent storage available.