

# Growing Potatoes in War Time

Prepared jointly with the Agronomy Department,  
Storrs Agricultural Experiment Station



Field of potatoes in flower

**Connecticut**  
**Agricultural Experiment Station**  
**New Haven**

## Growing Potatoes in War Time

THE WAR has made us potato conscious. Unlike some staples, the potato can be grown profitably in Connecticut. Also it is a crop adapted to the home or suburban garden.

This brief circular brings together some of the latest information on potatoes. It is not written for the large commercial potato farmer, but for the smaller grower—for home gardeners, for farmers who may plant an acre or two this year, and for estate owners who may wish to use their land and equipment to increase the nearby food supply.

Finally, it should be remembered that the potato is a nutritious food, containing protein, minerals and vitamins, as well as starch; that the minerals and vitamins are concentrated just under the skin, and for that reason potatoes are best cooked with the skins on.

### SEED

Most commercial growers now use "certified" seed only, from northern New England. This year the demand is so great that late buyers may have to take seed that is not certified, but this is not a serious matter if it is clean stock from northern New England. If seed store stocks are exhausted, good, northern-grown table stock may be used.

### Varieties

For many years the standard varieties grown in Connecticut were the *early* Irish Cobbler and the *late* Green Mountain. In quality these are still as good as or better than any, Green Mountain being our best eating potato.

Irish Cobbler, although it yields less than Green Mountain, is especially adapted to home gardens because, if planted early, it requires no spraying for disease control.

In recent years, several new varieties have been introduced and are being grown extensively in New England. They yield well and some are quite resistant to certain diseases and insects. Also they are smoother than the old standard varieties.

Katahdin is late, yields well, is smooth and cooks white. Chippewa is midseason, and is also smooth and a good yielder. Both are poor quality, if one likes mealy potatoes. Sebago, also late, yields well and has smooth bright skin. It is better quality than Katahdin or Chippewa, and is somewhat resistant to late blight.

### Cutting

Tubers should be cut into blocky pieces of from one to one and one-half ounces. If a piece has one live eye or bud, it is not important how many more are present. If they are from a certified field, small potatoes (seconds), planted whole, will produce as well as pieces of large ones.

If desirable to cut the potatoes several days before planting, the cut seed should be stored in thin layers or in crates in a cool, moist, clean place so that a corky layer will form on the cut surfaces. Dusting with sulphur or gypsum is of no benefit and in some cases is injurious.

#### Date.

### PLANTING

Potatoes planted during the second half of April require nearly twice as long to come up, and 50 per cent longer from time of planting to tuber formation, than those planted the latter part of May. At Storrs, yields of Green Mountains have been largest when planted about the middle of May. Much lower yields resulted from June plantings. Cobblers may be planted as soon as the ground is fit to work. New potatoes may be obtained earlier if the seed is spread out thinly in a warm, light place to form short green sprouts before planting.

#### Spacing

The usual distance of planting is 9 to 10 inches apart for Cobblers, and 11 to 13 inches for Green Mountains. Closer spacing will increase the number of second-sized tubers, while the yields of Number 1's will be reduced. The danger of over-sized, hollow-hearted potatoes will be increased by wider spacing. Rows may be 30 to 36 inches apart. Sixteen to 20 bushels of seed are needed per acre. A peck should plant 150 to 200 feet of row, and yield 2 to 4 bushels.

#### Depth

If planted too deep, potatoes come up slowly and the young stems are more subject to damage from Rhizoctonia. Two or 3 inches below the ground level gives the best results on most soils.

### FERTILIZERS

Potatoes make most of their vine growth in about two months. They are poor feeders for plant nutrients. Therefore, for best results, it is essential that rather large amounts of fertilizer be applied in the proper position.

In 1943 the mixed fertilizers available for potatoes on farms are 4-10-10 and 4-9-7. For home gardens, 3-8-7 only can be obtained. Because of the war, all of these grades are slightly lower in nitrogen than usual, but as nitrogen is the least important of the three nutrients for potatoes, yields should not be decreased appreciably by this necessary restriction.

One ton per acre of these fertilizers, or 50 pounds per 1,000 square feet, is sufficient for maximum production in this region. For 100 feet of row, use about 13 pounds (6-7 quarts). These amounts may be decreased 25 per cent without much reduction in yield. If stable manure is used, only half as much fertilizer should be applied.

Placement of fertilizers is important with potatoes. The best position is 2 or 3 inches to the side of, and slightly below, the seed piece. Where modern planters are not available, it is difficult to obtain that optimum

placement. For hand planting, the most practical method appears to be to place the fertilizer in the furrows between the seed pieces, after the pieces have been dropped. Care should be taken that the fertilizer does not come in contact with the seed pieces. To be sure the fertilizer is applied evenly, measure the amount needed for a row. Put on about half, and then go over again with the rest.

### LIME AND MAGNESIA

Very seldom do potatoes suffer in Connecticut for lack of lime and magnesia. Because lime or wood ashes favor scab, they should not be used on potatoes unless the soil is very acid. In such cases, possible deficiencies of lime or magnesia may be avoided by broadcasting magnesian limestone at 400-600 pounds per acre (10-15 pounds per 1,000 square feet).

### CULTIVATION

Cultivating should be done only for the control of weeds and to hill the potatoes. Harrowing down the ridges left by the planter about a week after planting and using a weeder before the plants are more than an inch or two high, usually will control the weeds while small. Cultivators should be used frequently enough to kill weeds. The later cultivations should be rather shallow to prevent root pruning, and preferably with attachments for throwing some soil around the potatoes to smother weeds in the row and to prevent the sunburning of the tubers. After the blossoming or tuber-forming stage, it is very doubtful if cultivation is of any benefit, and it may do considerable damage.

On the small plot, all this may be done with a rake and a hoe.

### CONTROL OF INSECTS AND DISEASES

#### Early Potatoes

Irish Cobblers or Chippewas grown as an early crop and harvested as soon as the vines die (during July and early August) are usually seriously damaged *only* by flea beetles. Aphids are occasionally abundant. Early blight is usually present but seldom causes enough damage to warrant treatment. Leafhoppers and tipburn come in during July, but the crop is nearing maturity.

Dusting with copper-free materials has been highly successful on early potatoes. A dust of 1 part cryolite or barium fluosilicate (Dutox) and 3 to 5 parts of pyrophyllite, clay or talc carrier (lime should not be used) has controlled both flea beetles and potato beetles. Two applications about 10 days apart in late May and early June are sufficient. Dusting should be done early in the morning, and 20 to 30 pounds per acre have been used.

Nicotine dust (3 per cent nicotine) may be used to control *aphids*. This material should be used at midday when temperatures are highest, using a cloth trailer (in commercial fields) to confine the dust to the vines.

On early potatoes bordeaux mixture sprays have not produced any greater yields than the copper-free dusts. Copper-lime dusts have not been as effective as the dusts mentioned above.

#### Late Potatoes

During the past 10 years, late blight was destructive in 1938 and 1942. Flea beetles and leafhoppers cause serious damage every year in Connecticut. Potato aphids are occasionally abundant and destructive. The Colorado potato beetle is seldom abundant. The European corn borer has been abundant in some fields, but reduction in yield has not been demonstrated.

Bordeaux mixture sprays have been highly effective in controlling blight and leafhoppers and reducing the damage by flea beetles. However, it has been proved definitely that bordeaux mixture reduces the yield of potatoes when no pests are present. This dwarfing effect is much worse on young than on mature plants. For this reason, spraying with bordeaux mixture should start as late in the season as possible, and as few applications as possible should be made.

The pests mentioned are most serious during July and August. Therefore, bordeaux spraying can be delayed until July 1, and application made at intervals of 10 to 14 days until September. In dry weather the longer interval between sprays is possible; in wet weather the more frequent treatment is needed. Calcium arsenate may be added to bordeaux *once* after July 1 to control the *Colorado potato beetle*. Nicotine sulfate, 1 pint in 100 gallons of bordeaux, may be added if *aphids* become abundant.

Early season infestations of flea beetles and potato beetles can be controlled by the copper-free dusts described for early potatoes. A spray of 3 pounds of calcium arsenate in 100 gallons of water may be used if no duster is available.

The concentration of bordeaux mixture to use depends on a number of factors. In general, 200 gallons per acre of 4-2-50 are superior to 100 gallons of 8-4-50. Coverage is improved by the application of more gallons per acre. If at any time copper sulfate is scarce, more potatoes can be produced by spraying the entire acreage with the copper available than by spraying only part of the crop. For instance, if the copper available were reduced by half, the concentration should be cut by half and all the acreage treated.

Bordeaux mixture is made by dissolving copper sulfate in water, mixing fresh hydrated lime in water and combining the two materials in the spray tank. For the 4-2-50 strength, 4 pounds of copper sulfate may be dissolved in 4 gallons of water, and added to 25 or 30 gallons of water in the spray tank. Two pounds of lime should be washed through the screen on the tank with enough water to make 50 gallons. The copper sulfate solution must be made in a wooden or glass container. The material dissolves more quickly if it is suspended in the water in a loosely woven cloth bag.

For the home garden, one ounce of copper sulfate in  $\frac{1}{2}$  gallon of water, and  $\frac{1}{2}$  ounce of hydrated lime in  $\frac{1}{2}$  gallon of water make one gallon of mixture ready to use. Pour the lime solution slowly into the copper sulfate solution, and stir.

Dry, powdered bordeaux mixtures are much less effective than the freshly prepared material.

#### Wireworms

No practical chemical control of the wireworm in potato fields is at present known for Connecticut conditions, and some chemicals, when applied, may not only be wasted, but may injure the seed, resulting in serious loss. In Connecticut, continued planting of a field to potatoes appears to increase the wireworm population, thus making it desirable to plant potatoes in rotation with other crops.

#### HARVESTING

In digging, grading and handling, all possible care should be taken to avoid bruising and cutting potatoes, for such injuries not only detract from the appearance of the crop but also provide ready entrance for the organisms that cause rot. To this end, digging should be deferred until the crop is mature; the metal parts of diggers and graders may be protected with rubber tubing. Dropping potatoes on a hard surface should be avoided.

Hand digging can be done best with a spading fork or a potato hook.

#### STORAGE

Storage houses or cellars should be well ventilated to carry out the heat and moisture given off by the potatoes. Bins should not be over 8 feet in height or width. Slatted floors and side walls, at least 4 inches from floor and walls, are also essential. According to recent experiments, potatoes keep best at 34° to 40° F. but are better for cooking if kept at 50° to 60° F. However, at the latter temperature they will sprout after several months of storage.