

Irish Potato Manual

FOR

4-H Club Members



Field of Irish Potatoes grown by 4-H club boy

NORTH CAROLINA STATE COLLEGE OF AGRICULTURE AND ENGINEERING
OF THE
UNIVERSITY OF NORTH CAROLINA
AND
U. S. DEPARTMENT OF AGRICULTURE, CO-OPERATING
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I. O. SCHAUB, DIRECTOR
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OUTLINE OF POTATO PROJECT

Object:

1. To demonstrate methods that underlie Irish potato growing by the use of good seed, proper culture, control of insects and diseases, and grading for market.

Plan of Work:

1. Each member should plant three 150-pound bags ($7\frac{1}{2}$ bushels) of potatoes on one-half acre of good potato soil.
2. Practice improved cultural methods.
3. Spray to control insects and diseases.
4. Determine the cost of production and profit per bushel and per acre.
5. Determine the total yield according to U. S. grading rules.
6. Write a story of work.
7. Each member to make a local or county exhibit with potatoes graded according to market requirements.

Basis of Rewards:

Yield	40
Cost of production and profit	20
Exhibit	20
Story	20
Total	100

GROWING IRISH POTATOES

By H. R. NISWONGER, Extension Horticulturist

This circular has been prepared primarily for 4-H Club members who have selected the Irish potato as a club project. It also may be used as a guide to potato culture by adult farmers.

PROJECT

The project may be devoted to the production of potatoes for home use, commercial sale, or certified seed.

The growing of certified seed should be confined to the Western and Northwestern mountain area of the State, preferably at altitudes above 2,500 feet.

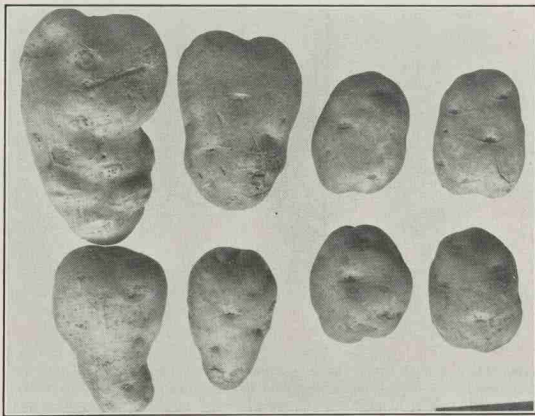


Fig. 1. Green Mountain Variety. Potatoes at right are distinctly oblong (flattened) and are characteristic of the variety. Those at left are not suitable for seed purposes.

VARIETIES

Irish Cobbler and Green Mountain are two desirable varieties commonly grown in North Carolina for home use and for general market purposes.

It is suggested that new varieties, such as the Katahdin, Chippewa and Golden, be tried out when seed is available.

SEED AND TREATMENT

Sort out and discard seed potatoes with diseased spots and blemishes. Seed potatoes tending to be longer than typical of the variety and other tubers which are knobby, extremely large and pointed at the end have low yielding power. (Figs. I and II.) It is best to discard seed of this kind.

Plant at the rate of 15 bushels of seed per acre.

Treat seed potatoes before cutting into seed pieces.

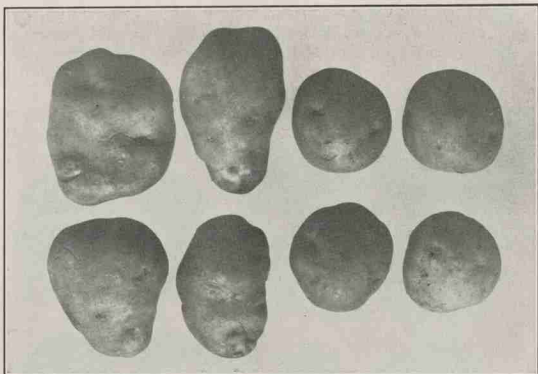


Fig. 2. Irish Cobbler Variety. The four potatoes at right are typical of variety and indicate high yielding qualities. Those at left, extremely large, deep eyed and pointed at ends, are off types of the variety.

Dissolve 4 ounces of corrosive sublimate in two quarts of boiling water in a wooden or earthen container. Add to it 30 gallons of slightly warmed water in a wooden barrel. Put the seed in bushel baskets or slatted crates, pass through plain water to remove most of the soil and then set them into the solution. Soak the first batch 1 hour, the second 1 hour and 15 minutes, and the third $1\frac{1}{2}$ hours. Throw the solution away after 10 bushels have been treated and make up a fresh one. Allow the potatoes to dry before planting. Corrosive sublimate is highly poisonous and must be kept away from children and farm animals.

Cut potatoes into seed pieces weighing $1\frac{1}{2}$ ounces (Fig. III). The seed pieces should be as chunky as possible. One good eye to the seed piece is sufficient. Potatoes ranging around $1\frac{1}{8}$ inches in diameter or about the minimum size of U. S. No. 1 grade may be planted whole. Small

unsalable potatoes should not be used for seed purposes unless they have been produced from healthy, vigorous, productive plants.

Seed that has dried out or badly sprouted should be avoided.

SOIL

Any well-drained soil of loose texture is satisfactory for Irish potatoes. The soil should be well supplied with organic matter or humus.

Clover or grass sod land or where clovers, peas, beans or vetch have been turned under is preferred.

Fresh stable manure should not be used as a source of humus unless applied to the land in the fall and plowed under or used on a crop preceding potatoes. Freshly manured lands tends to produce scabby potatoes (Fig. IV).

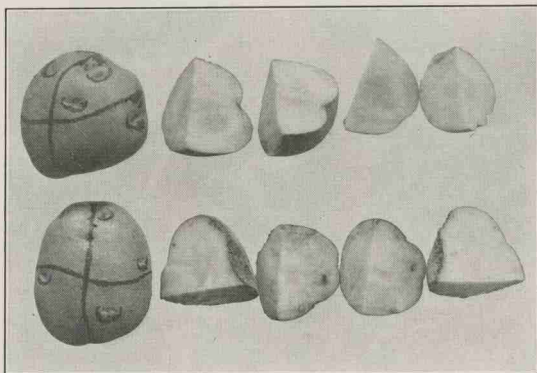


Fig. 3. How seed pieces are cut. The upper potato is an Irish Cobbler. The lower is of the Green Mountain variety. Each seed potato weighs six ounces and is cut into one and one-half ounce seed pieces.

Heavily limed land should not be used as it tends to produce scab. Soil slightly acid (pH 5.0 to 5.4) is best for potatoes. pH is a term used to designate the degree of acidity or alkalinity of the soil.

FERTILIZER

On light sandy soils and dark loamy soils in Eastern North Carolina 2,000 pounds per acre of mixed fertilizer containing 5 per cent nitrogen, 7 per cent phosphoric acid, and 5 per cent potash is recommended. On the sandy soils in rainy seasons side dress with 100 pounds of sulphate

of ammonia or 150 pounds of nitrate of soda or other readily available nitrogen when plants are 4 to 6 inches high.

In the Piedmont and Mountain sections of the State 1,000 to 1,200 pounds of 5-8-6 (N-P-K) or 5-7-5 is recommended. On very rich soils a 3-8-6 may give enough nitrogen.

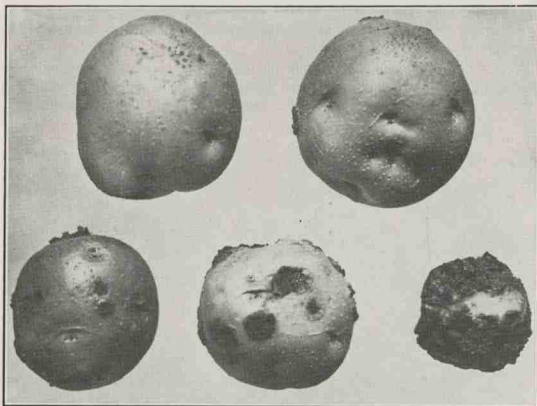


Fig. 4. Potatoes showing infection of the Scab disease.

The nitrogen in the fertilizer mixture should consist of one-third organic from cottonseed meal, dried blood, fish scrap or high grade tankage and two thirds inorganic from sulphate of ammonia, urea, or nitrate of soda. A combination of two or more inorganic nitrogen compounds usually gives better results than when all inorganic nitrogen is from one source.

CULTURAL PRACTICES

Disk land before plowing. Plow land to the depth of top soil. It is not best to turn up much of the subsoil. Prepare the land after plowing to a fine mellow condition as deep as it was plowed.

Grass or clover sod land, particularly in Western North Carolina, should be plowed in the fall or early winter. The winter freezes pulverize the soil, making it easier to prepare the land for planting. The sod will partially decay during the winter months and supply humus or plant food for the potato crop.

The potato rows should be 36 inches apart. The rows may be spaced 30 inches in very rich ground.

The fertilizer should be mixed thoroughly in the furrow a week or more before planting. Fertilizer concentrated in the area occupied by the seed piece often hinders the growth of the young potato sprouts and causes rough and russet areas on the surface of the new potatoes.

Drop seed pieces 12 inches apart in the drill. Wider spacing on rich ground will produce over-sized potatoes. Four inches is the usual depth for planting potatoes in North Carolina.

Harrow the field before potatoes come through and again lightly as soon as potato plants mark the row.

The first cultivation should be deep with later ones more shallow. Lay by cultivation when vines mat the row.

SPRAYING

Spray with 4-4-50 Bordeaux Mixture to control diseases of foliage. Add 2 pounds of arsenate of lead or 1 pound of calcium arsenate to the 50-gallon Bordeaux Mixture when flea beetles and potato bugs are present.

Begin spraying for flea beetles with the above poisoned Bordeaux Mixture when the potato plants mark the rows and repeat in about two weeks. The first brood of flea beetles appear as the potato plants come through the ground.

Begin spraying for diseases with Bordeaux without poison after slight infection appears. Add $\frac{1}{2}$ pound of soap in order to give sticking and spreading qualities to the spray. Spraying for late blight disease in the mountains should begin the latter part of June and extend into the middle of July.

Bordeaux dusts may be used in the place of Bordeaux solutions according to manufacturers' directions. As a rule they are not as effective as Bordeaux sprays. Dusts must be applied more often than sprays, generally after heavy wind storms and rains.

Preparation of 50 Gallons of Bordeaux Mixture: Fill a 50-gallon wooden container or barrel $\frac{3}{4}$ full of water. Add 4 pounds of dissolved blue stone, mixing thoroughly. Add 4 pounds of hydrated lime in a paste form straining it through a sieve mixing thoroughly. Add water to fill the container. Keep the mixture agitated while spraying. Bordeaux Mixture should be used the same day it is made.

HARVESTING AND GRADING

Harvesting: This may be done with a common plow or potato digger. The use of a hoe or a potato fork usually results in many cut and bruised potatoes.

One or more harrowings will help to find potatoes which were covered when a plow was used in harvesting the crop.

Pick up potatoes soon after they are dug. Long exposure to the sun will cause the potatoes to become scalded.

Grading: This involves the sizing of potatoes according to U. S. market grades and the removal of all others which are damaged by scab, rots, cuts and bruises.

The minimum size for U. S. No. 1 grade is $1\frac{1}{8}$ inches in diameter. Diameter means the greatest dimension at right angles to the position of the stem.

It is best to grade the potatoes in the field keeping the No. 1's separate from the others.

SELECTING SEED POTATOES

The practice of picking good looking seed potatoes from the stored crop does not insure good yields or freedom from diseases.

Select seed potatoes at harvest time.

Go through the field before harvesting the crop and dig separately a large number of hills keeping the potatoes of each hill to themselves. Secure the necessary quantity of seed potatoes from hills containing the largest number of uniform tubers typical of the variety (Fig. V).

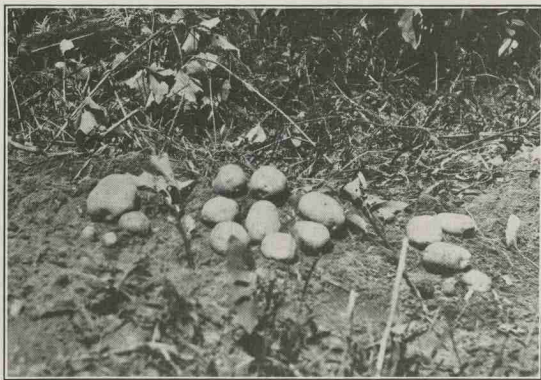


Fig. 5. Selection of Green Mountain potatoes in the field. Those in the center hill have all characteristics of the variety and are the kind to be selected for seed.

STORAGE

Air cooled storages of modern design with temperature 38° to 40° F. and humidity around 80° will keep potatoes in the western and north-western mountain areas. Store potatoes in slatted crates or in shallow bins.

A pit or trench in a well-drained shady place can be used for storage in the northern and western Piedmont and Mountain areas.

Potatoes placed in ventilated crates or barrels and set in a cool dark building can be kept for several months in Eastern Carolina.

Old buildings or cellars remodeled for air-cooled storages should be provided with openings near the floor for the intake of cold air. Other openings or flues should be constructed in or near the ceiling for outlets of warm and foul air. These openings should be screened to keep out rats and provided with air-tight doors to prevent chilling of potatoes during extremely cold weather. The air within storage should be changed frequently during days or nights when the temperature on the outside is above freezing. This is done by opening all air intakes and outlets.

A pit or trench for storing potatoes in the ground should be 4 feet deep, 5 to 6 feet wide and as long as is needed. Pour potatoes into the trench heaping them higher than the level of the ground. Cover the potatoes with a layer of coarse hay or straw a foot or more thick. Cover this with a layer of dirt, a foot deep, except a strip a foot wide along the ridge from end to end. This is to provide for ventilation. During rainy periods cover the ridge of straw with boards. When freezing weather comes cover the ridge of straw with dirt.

CERTIFIED SEED PRODUCTION

Certified seed is that which has been certified by State authorities and found to be reasonably free from varietal mixtures and diseases.

The potato fields are inspected during growing season by the North Carolina Crop Improvement Association. All diseased potato plants including their newly formed tubers must be removed from the field. A later inspection of the harvested potatoes is made relative to tuber diseases and market size. Only U. S. No. 1 Grade can be certified.

For information relative to expense incurred in having the potatoes certified, write to the North Carolina Crop Improvement Association, State College Station, Raleigh, North Carolina.

CROP ROTATION

Crop rotation is necessary to increase the humus content of the soil and to secure the most profitable production of potatoes.

Crop Rotation for Piedmont and Western Carolina:

1. (2 years)

First year: Potatoes followed by rye in the fall.

Second year: Rye followed by red clover or lespedeza sown in March.

2. (3 years)

First year: Potatoes followed by rye in the fall.

Second year: Rye followed by red clover and lespedeza sown in March.

Third year: Red clover and lespedeza (first crop for hay, second for turning under).

3. (3 years)

First year: Potatoes.

Second year: Corn followed by wheat in fall.

Third year: Wheat followed by lespedeza sown in March.

Crop Rotation for Eastern Carolina:**1. (2 years)**

First year: Potatoes, followed by cotton or soybeans for hay; vetch may be sown in fall for turning under in the spring.

Second year: Corn and soybeans; all roughage turned under.

EXHIBITS

Potatoes selected for exhibit purposes should be true to type and uniform in size. They should be smooth with comparatively few and shallow eyes, and free from scab and other blemishes. The skin should be bright and typical of the variety.

Medium or marketable sized potatoes are preferred. Medium sized potatoes will weigh around six to seven ounces.

Select the potatoes in the field at harvest time. Find a tuber which is typical of the variety and match others with it. Pick more than is necessary for the exhibit.

Wrap each potato separately in paper in order to prevent bruising the tender skin in moving to the storage.

Make the final selection of tubers from the stored lot just before sending to the show. Each potato should be as nearly alike in size, color and shape as possible. Brush each potato with a soft bristle brush to remove dirt from the skin and eyes. Wipe with a soft cloth.

Exhibit potatoes in trays. Place potatoes in trays two layers deep. The dimensions of trays are $11\frac{1}{2} \times 18 \times 3$ inches inside measurement.

Score Card Rating:

Uniformity (size, shape, color)	30
Type (eyes, shape, color)	20
Freedom from blemishes (cuts, bruises, insect and disease damage)	20
Size, marketable standpoint	20
Depth and frequency of eyes	10