3-1923

Selecting and Treating Seed Potatoes

George H. Valentine

Extension Circular No. 125

South Dakota State College
and U. S. Department of
Agriculture Cooperating.

SELECTING AND TREATING SEED POTATOES

by

George H. Valentine, --
Ass't Agronomy Specialist.

A. The Best Variety of Potatoes to Plant:

Before a potato grower can decide upon a variety it is necessary for him to consider the purpose for which the crop is to be used. A variety which will answer the demands for an early market will not answer the purpose for late consumption. Furthermore, certain sections are noted for producing a certain kind of seed successfully and it may be futile for the growers of that section to profitably grow any other variety to sell as seed stock.

On this point Dr. William Stuart, Horticulturist for the U. S. Department of Agriculture, says, "The question of varieties is important and should be considered carefully when deciding upon which one should be grown in order to get the best results. The desirability of confining one's effort to a single variety, or at most to two varieties, one early and the other late, cannot be over-emphasized. The necessity of community action is a matter extremely important, as it is much easier to attract buyers to a locality if carload lots of a single variety can be purchased than if each individual grower is producing a different sort.

"There is another decided advantage in confining one's efforts to a single variety, or at most to two varieties, viz., that of becoming thoroughly familiar with the variety which is grown. It is much easier to keep it free from varietal mixtures, and there is greater likelihood that individual hill selection work will be carried on."

B. The Kind of Tubers to Select for Planting:

If potato growers are to increase the quality and yield of their crops it is imperative that good seed be used. Maximum yields cannot possibly be expected from use of inferior

---

Cooperative Extension Work in Agriculture and Home Economics, W. F. Kumlien, Director. Distributed in furtherance of Acts of Congress, of May 8 and June 30, 1914.

seed any more than maximum milk yields can be expected from scrub cows. Good seed may be described as that which is pure with respect to the variety; is produced by healthy, vigorous, heavy-yielding plants; reasonably uniform in size and shape and firm and sound with the first sprouts beginning to develop at planting time.

C. Treating the Seed Potatoes:

A complete statement for the treatment of seed potatoes is given in Bulletin No. 196 of S. D. Agricultural Experiment Station which is as follows:

"Seed treatment consists merely in disinfecting the outer surface of the tubers for the purpose of killing any disease organizms which are present. Only those diseases which are present upon the surface are killed. It is, therefore, of the utmost importance that tubers with internal diseases be not included in the seed. If when cutting the seed one finds tubers that have dark or brown streaks running through them or that are partially rotted they should be discarded and the cutting knife disinfected in the solution of formaldehyde in which the tubers were treated. Treatment is generally effective against scab and light attacks of Rhizoctonia. When, therefore, Rhizoctonia is present in quantity and other clean seed is not available, corrosive sublimate should always be used.

FORMALDEHYDE TREATMENT

Formaldehyde . . . . . 1 pint
Water . . . . . 30 gallons

Purchase 1 pint of formaldehyde at any reliable drug store. Mix with the 30 gallons of water. The sacked potatoes may be immersed in this solution for one-half to two hours. Drain, cut, and plant as soon as possible. Treatment should always be carried on before cutting. For best results the cutting knife should always be sterilized after cutting a diseased potato.

CORROSIVE SUBLIMATE ($HgCl_2$) TREATMENT

Corrosive sublimate . . . . . 4 ounces
Water . . . . . 30 gallons

Purchase 4 ounces of corrosive sublimate at a reliable drug store. Dissolve in 30 gallons of water. This

solution is very poisonous and must be kept from children and animals as well as used with discretion by the one doing the work. It must not be used in a metal container. A wooden tub or barrel is necessary. Immerse the potatoes in the solution and allow them to remain for one-half to one hour. If the sclerotia of Rhizoctonia are large and abundant and no other seed is available it may be well to soak for one and one-half to two hours.

"The length of time for treatment is variable. Good results may be obtained by soaking in either solution a shorter time but it is generally agreed that from thirty minutes to one hour is about right.

"Often the potatoes will be somewhat sprouted. Corrosive sublimate may injure sprouts if they are left in it too long. Formaldehyde is one of the most widely used disinfectants. The fact that it is cheap and safe is one of which we are not to lose sight. Then, too, the solution can be used over and over until it is all gone. In fact it becomes stronger with evaporation. On the other hand, while corrosive sublimate is a more powerful disinfectant, it is very poisonous, must be used in wooden containers, and is more costly. It gradually becomes weakened by use and must be replaced (add 4 oz. cor. sub. and water to make up to 30 gal.) after three lots of potatoes have been treated if effective results are to be secured".

D. Cutting the Potatoes to be Planted.

The results of experiments within South Dakota conducted by the Agricultural Experiment Station conclusively prove that it pays to use large seed pieces. The young potato plant may rightly be compared to a young animal. It needs a good start in life and a large quantity of food material to start the young plants assist materially in giving the young sprouts a good start making it possible for it to grow faster and making it possible to resist disease more completely. Following is shown the results of this eight years of experimental work.

Table Showing Comparative Yields of Large, Medium and Small Seed Pieces in Two Varieties.

Early Ohio:

Large	146.4 bu.
Medium	120.0 "
Small	73.2 "

Carman No. 3:

Large	157.2 bu.
Medium	124.8 "
Small	81.6 "

These results should be conclusive evidence to anyone in favor of large seed pieces.

---------oOo---------

References:

"Selection and Preparation of Seed Potatoes - Size of Seed Piece and Bud Variation", S.D. Bulletin No. 155, Agricultural Experiment Station, Brookings, S. D.

"Potatoes in South Dakota", S. D. Bulletin No. 196, Agricultural Experiment Station. Brookings, S. D.

"Potato Culture in S. D.", S. D. Bulletin No. 176, Agricultural Experiment Station, Brookings, S.D.

"Production of Late or Main Crop Potatoes", Farmers'Bulletin No. 1064, U. S. Dept. of Agriculture, Washington, D. C.