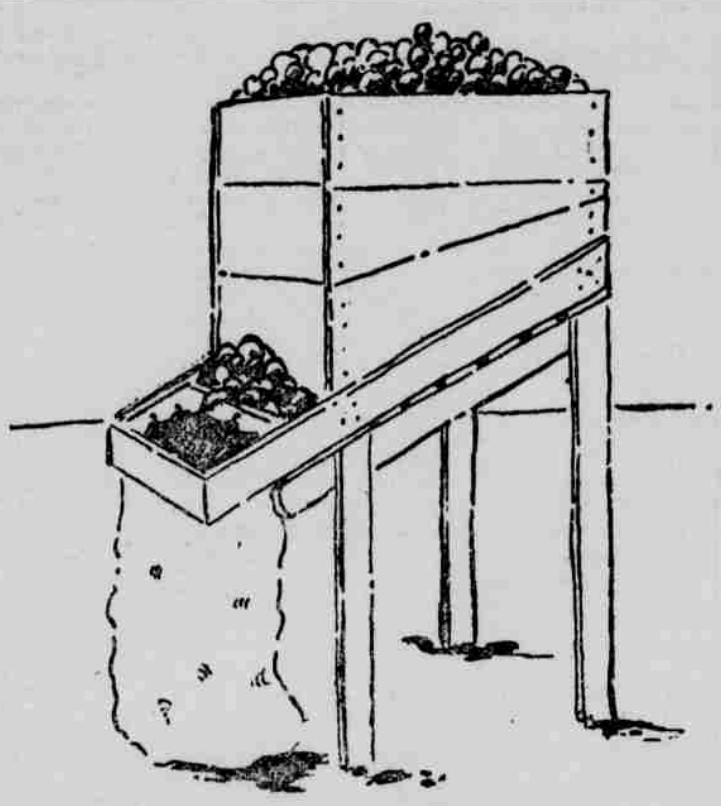
Growing Good Potatoes in the Pacific Northwest

Some Ideas on the Homely "Spud" by Men Who Know Whereof They Write.



Rack used by Colorado growers for cutting seed potatoes.

This is the second of a series of articles discussing potato growing.

By O. M. MORRIS, Horticulturist; J. G. HALL, Plant Pathologist, and M. A. YOTHERS, Asst. Entomologist.

THERE are few agricultural crops grown that are capable of greater increase in the average yields than the potato. The plant is grown as an annual, but is reproduced from a cutting of the tuber, which is an underground stem.

The young plants draw their nourishment from the piece of potato used as seed and are strong or weak in proportion to the nourishment obtained.

Small seed pieces produce small plants. Small potatoes used whole as seed have only a small amount of food for the young plants.

The general characteristics of the entire plant are more definitely reproduced in propagation than the special character of the small piece of the plant used as the means of reproduction.

Most Desirable Plant.

The plant that produces a large number of small potatoes is not suitable for the general crop and should not be propagated from. The most desirable plant is the one that produces a fair number of good, well-developed, medium to large potatoes of uniform size. The general characteristics of this desirable plant will be reproduced in the plants grown from its potatoes, if they are grown under similar soil and climatic conditions.

This fundamental principle is the basis of the fact that the best results are obtained in growing potatoes if the hill is used as the unit of selection instead of the single potato. The selection of seed potatoes from the bin, pile or sack is not satisfactory because the good individual potatoes selected may be from a hill that produced very few potatoes or from one that produced only one or two good potatoes and a large number of small ones. The use of small potatoes that are sorted out as culls has the same objection and generally produces plants that produce a large number of small potatoes.

Some of the most successful large growers in the Rocky Mountain states select their seed very carefully and plant special seed patches. In these patches the rows are about 36 inches apart and the hills about six to eight inches apart in the row. Planted this close the plants do not produce large potatoes, but a great many. The small to medium sized ones are used as seed and are planted whole.

Running Out.

When a variety becomes less vigorous, less productive, or the potatoes become of less desirable form, we say that the variety has "run out."

This change of character is nearly always due to some less favorable soil, or climatic conditions, or to poor selection of seed.

In some localities it is cheaper to import seed from other districts than to give the extra care and attention necessary in cultivation and seed selection to maintain the standard of the variety. These localities are exceptional and the growers in most regions should endeavor to improve their crops rather than let them "run out" and constantly ship in fresh seed.

Varieties.

In the State of Washington the local conditions vary so greatly that best varieties for any region can be determined only by actual trial. A little inquiry among the local growers will enable the planter to decide on the best variety for his use. The Burbank is planted more widely in this state than any other variety. It is the leading variety in the irrigated regions, the uplands east of the Cascade Mountains and is the main crop variety in several localities in Western Washington.

Of the diseases of the potato that occur in this country five are known to cause damage in this state. These five are "Late Blight," "Rhizoctonia," "Scab," "Dry Rot," and "Black Leg." In some regions of the irrigated sections of the state "Dry Rot" and "Black Leg" are reported as doing as much as forty per cent damage to the crop.

This disease is more prevalent west of the Cascade Mountains, where the climate is favorable for its development, than in the eastern part of the state. The disease appears on any part of the leaf, but usually the spots show first near the tip or margin. This may be due to the fact that the surface water does not evaporate so rapidly from these points. These diseased areas soon die and turn brown and if the weather conditions are favorable finally become black. This discoloration is often accompanied by the crumpling of the leaves. The diseased leaves finally undergo a total decay, which often has an offensive and characteristic odor.

Tubers Infection Source.

Upon the lower side of the leaves the spots are seen to be covered with a very delicate whitish gray downy coat, caused by the fungus (Phytophthera infestans (Mont. DeBy). From this downy coat are produced the spores which, under favorable circumstances, cause new spots upon the potato leaves.

Besides the leaves the disease also attacks the stems, causing them to decay. The disease causes sunken, dark-colored areas upon the surface of the tubers themselves (Fig. 2), while the normal white of the inside becomes a dirty brown. The disease in dry weather causes a dry rot of the tuber and in wet weather a wet rot. This disease continues to live in the tubers in storage, producing a rot and so causes a large loss. The signs given above are the usual ones to attract attention in the first place, but the disease really commences as soon as the sprouts start from infected seed. Such shoots do not develop normally, but remain dwarfed, take on a brownish color, and when suitable weather conditions prevail furnish the spores that cause a general epidemic of the disease.

The New York Experiment Station at Geneva has conducted experiments, the results of which go to prove the statements that the tubers are the main, if not the only, source of early infection of the plants in the field.

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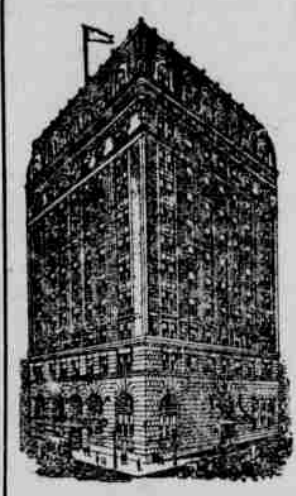

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