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✓ POTATO DAMAGE FROM FIELD EXPOSURE FOLLOWING DIGGING

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Last year we reported, in "Spud Notes," the effects of field exposure upon potato damage. Tests were made during the August harvest near Gilcrest, Colo. Nebraska Agricultural Experiment Station Bulletin No. 634, "Experiments in Shipping Early Washed Potatoes," just issued, gives a detailed account of this test.

The day of the test was cloudy, with temperature at 63°F., relative humidity at 73 percent, and wind velocity at 8 mph in the morning, and at 75°F., 40 percent, and 3 mph in the afternoon. Potatoes in the test were either left on the ground behind the digger, or immediately picked into sacks and left in the field. After various periods of field exposure, the potatoes were hauled to a farm storage and kept at about 70°F. and 50 percent r.h. for 2 days before injury determinations were made. Damage from exposure was found only on the skinned areas of the tubers.

The accompanying graph shows the amount of browning and scalding of the potatoes as related to the time of digging and the extent of field exposure.

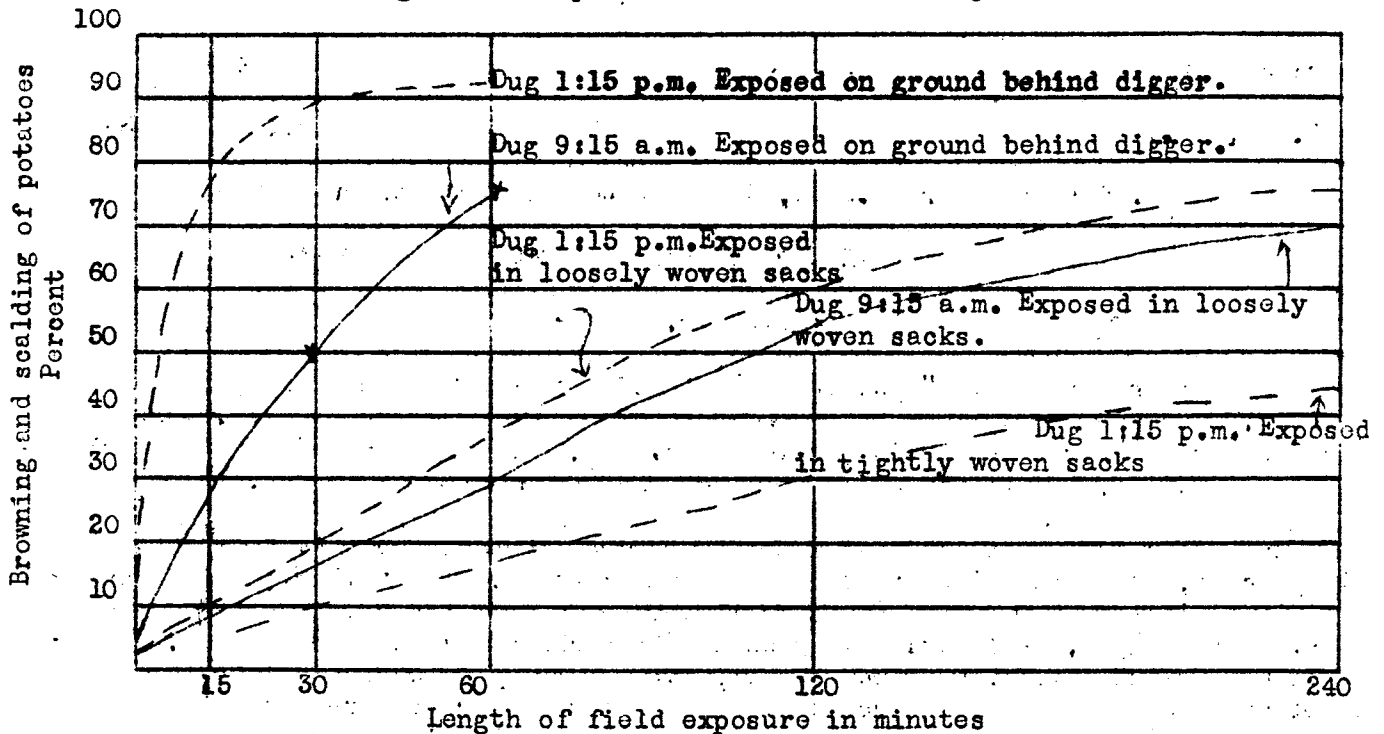
The variation in the amount of browning and scalding, as related to the time of digging and to the extent of exposure, is probably due to the difference in wound healing rate. Potato wound healing is quicker at high humidities, and sacks maintained higher humidities than that around potatoes lying on the ground fully exposed to the wind. While free moisture on the unhealed skinned areas of potatoes is very objectionable, this test emphasized that too rapid drying of these areas is also objectionable.

In July and August harvesting, the best practice is to pick potatoes just behind the digger and to haul them to the shipping plant immediately after picking. A new development at the shipping plant is expected to be tried at Keenesburg this summer. Provisions are planned to permit the unloading of trucks, just as soon as they reach the plant, upon skids or pallets for temporary storage awaiting grading. There will be no waiting of loaded trucks in the sun. The grader may be run two or even three shifts during the peak harvesting period.

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Damage of Triumph Potatoes From Field Exposure



✓ THE PAWNEE POTATO

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In 1930 a potato-breeding program was inaugurated at the Colorado Potato Experiment Station, Greeley, Colo., in an effort to obtain disease-resistant and better early-maturing varieties of potatoes. Each year the most promising seedlings are tested by the Colorado Agricultural Experiment Station at substations and in farmers' fields. The Pawnee was the first potato variety developed in Colorado under the cooperative set-up.

Early-maturing varieties of potatoes are especially desired by the farmers of Colorado who grow both sugar beets and potatoes, because they can harvest early potatoes before starting to dig the sugar-beet crop. Some growers are apt to harvest late varieties before they are mature; as a result, the tubers skin badly, are of inferior quality, and present a poor appearance on the market.

The Pawnee is a rapid-growing variety, which matures soon after Irish Cobbler and Triumph when grown for either the early or the late crop in the Greeley district. In some instances it has been almost as early as Triumph. It was developed by crossing two late-maturing varieties, Rural New Yorker No. 2 and Katahdin.

The Pawnee was under observation and test at Greeley for 7 years before it was introduced. During this time it produced tubers of better appearance than the leading commercial varieties grown in the district.

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A test made in cooperation with the Bureau of Home Economics, U. S. Department of Agriculture, showed that the cooking quality of Pawnee grown at the Colorado Potato Experiment Station was good and compared favorably with Triumph, Rural New Yorker No. 2, and Katahdin, the leading commercial varieties grown in the Greeley district.

Pawnee also has good keeping quality.

The tubers are smooth, short-elliptical to roundish, and have very few eyes, which are shallow. The variety consistently produces a very high percentage of No. 1 tubers with a relatively tough skin.

When the Pawnee potato is grown under irrigation on very fertile soil, the seed pieces should be spaced close together so that the tubers will not become overgrown and develop hollow heart. However, Pawnee does not develop growth cracks from rapid growing as does the Rural New Yorker.

Because of the small vine, Pawnee grown for the early crop should be harvested as soon as the vines begin to ripen to prevent the development of heat necrosis. Most varieties may develop heat necrosis in hot weather after the vines mature. This is especially true of varieties with small vines.

When grown for the late crop, tests in the Greeley district, indicate that Pawnee should not be planted until after the middle of June. Certified seed growers have found that plantings made between June 18 and 22 are very satisfactory.

Pawnee is susceptible to certain races of scab and should not be grown on land that is known to produce scabby potatoes.

✓HAIL INJURY

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Hail sometimes causes serious damage to potato plants during the growing season. The plants may recover fairly well after hail injury, but recovery depends on time of injury, period of growth, growing conditions following injury, and cultural practices followed.

Hail storms, generally accompanied by wind and heavy rain, often defoliate the plants and break the stems. Potato plants may be badly injured by hail and still produce a good yield if there is sufficient growing time and conditions are favorable for vine growth and tuber development. Healthy vigorous plants with a well-developed root system have a much better chance of recovery than weak or diseased ones. Wounds on stems caused by hail heal quickly, and stems that have been beaten to the ground gradually become erect and develop new leaves.

The soil may be worked to put it in good physical condition after hail injury if this can be done without further breaking the stems or otherwise injuring the plants. If such injury results, cultivation should be delayed for a few days until the plants become more erect. The regular cultural practices of cultivation, irrigation,

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and spraying should be followed. Plants injured in the early stages before the tubers have formed will be delayed in time of blossoming and in the forming of tubers.

Plants that are badly injured after tubers have formed must develop new tops before tuber growth will be resumed. Tubers that are partially grown at time of injury may mature without further growth if the plants are badly damaged, or they may continue to grow and develop second-growth tubers, sprouts, or stolons from the bud end. Sprouts or stolons produced in this manner generally dry up and are not in evidence after the plants mature. The best type tubers produced by hail-injured plants are generally from the small tubers which would have remained small under normal conditions.

Because of the length of the growing season, the early crop generally has a good chance of producing a satisfactory yield after injury. The late crop may not have sufficient time before frost to develop fully, and the tubers may be under-sized at time of harvest. If the vines are badly injured near the normal harvest period, early harvesting of the crop is generally desirable.

A severe hailstorm damaged the potato crop on many farms in the Gilcrest area June 27 last year. A second hailstorm covering about the same area occurred on August 5. At the time of the first storm, most of the potato plants were in full bloom with tubers about egg size. The hail destroyed most of the foliage and the stems were badly damaged. Some growers sprayed with lime sulfur in an effort to aid in healing the injured stems. Plants left unsprayed in the same fields recovered as rapidly as those sprayed. The plants made a fairly rapid recovery, requiring about 25 days to complete the vine growth.

Most fields of Irish Cobblers that were injured by the two hailstorms produced fair yields. Growers obtained from 100 to 125 sacks per acre. One field produced only 70 sacks per acre. Triumphs injured by the two hailstorms produced from 90 to 125 sacks per acre, with one grower harvesting only 55 sacks per acre from a badly injured field.

Several fields of potatoes that were severely damaged by the one storm that occurred on June 27 produced good yields. In one field, Triumphs yielded 200 sacks per acre, and in the same field, Cobblers yielded 175 sacks per acre. Both varieties graded 70 percent U. S. No. 1.

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