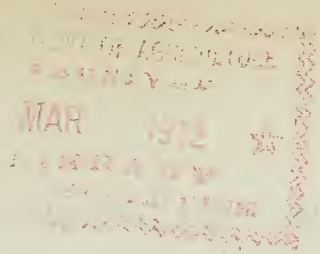

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SUGGESTIONS TO POTATO GROWERS ON IRRIGATED LANDS.

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SUGGESTIONS TO POTATO GROWERS ON IRRIGATED LANDS.

INTRODUCTION.

Considering the difficulties which have confronted potato growers on the irrigated lands of western Nebraska and northeastern Colorado during the last year, it would seem wise to pay special attention to such questions as the preparation of land, the time and manner of irrigation, the seed supply, and the rotation of crops on lands designed for potato culture.

PREPARATION OF LAND.

Since the potato is a deep-rooted crop and forms its tubers beneath the soil, it stands to reason that it requires a much deeper seed bed than will be necessary for cereal crops. In fact, the preparation for potatoes should be as deep and as thorough as for sugar beets, whether in the irrigated or in the humid region. If a preparatory crop such as alfalfa or clover is to be turned under for potatoes, it is advisable to plow this crop under in the fall and to compact the soil sufficiently to make it a good retainer for water, but not so smooth that it will blow. Before planting in the spring the land should be made fine to a depth sufficient to admit of planting and cultivation. If unusually dry the land should be irrigated before the crop is planted. If the normal precipitation has occurred during the winter and spring months, the crop may be planted without irrigation. It is not advisable, however, to plant the crop in dry, hot earth and to immediately irrigate it. Irrigation should precede rather than follow the planting. If the crop does not grow rapidly after planting, irrigation should be provided from time to time as the appearance of the crop and the condition of the soil would indicate; a dark-green or blackish color shows a lack of moisture on the part of the plants, while light-green or yellowish tints indicate the presence of too much moisture. The plant should be kept growing at the maximum rate from the time it appears above the ground until it has completed its season's work, and cultivation supplemented by irrigation must be relied upon to keep the plant working.

METHOD OF IRRIGATION.

The water for irrigating potatoes is best applied in every other furrow, the furrows being narrow and deep and the water so applied that the ground will not be saturated above the point where the tubers are formed. This will induce the formation of a deep instead of a superficial root system. In order to accomplish this the rows must be sufficiently wide apart to admit of throwing up broad high ridges, with narrow deep furrows between, in which the water can be led in a small stream for a long period rather than by means of a large stream flowing only for a short time. The successive irrigations should be carried on in alternate rows; the second irrigation should be in the rows not used by the first, and the third in the rows used during the first. Cultivation should follow irrigation as quickly as the condition of the soil will permit, but as soon as the tubers have made their growth, usually about September 1, water should be withheld so that the soil will dry and the crop ripen in proper condition for harvesting.

After the crop has been harvested it is wise to rake and burn all refuse matter. Vines allowed to decay upon the land tend to perpetuate any disease that may have been present upon the crop during the growing season. There is little fertility in the vines, and the danger of contaminating the following season's crop by harboring disease is greater than the value of the vines for manurial purposes.

A good winter treatment would be to plow the land deeply and allow it to remain in a rough condition during the winter in order that it may hold all the snow which may fall and rapidly absorb the rains. Rough earth will not blow as badly as that which is smooth.

SEED.

As a rule, seed from a distance does not do so well the first year in any given locality as home-grown seed. For this reason it is advisable each year to bring in sufficient seed to grow a seed patch large enough to supply all of the tubers necessary for planting the next year's crop. By this method new seed will be available, and it will have had the advantage of one year's growth in the home locality and will not have the disadvantages that arise from repeated reproduction on lands frequently used for potato culture.

ROTATION OF CROPS FOR POTATO CULTURE.

Throughout the eastern United States and upon the irrigated lands of the West it has been the prevailing practice to grow potatoes upon lands which have previously grown a leguminous crop, such as clover or alfalfa. These crops supply organic matter in abundance and at the same time provide the necessary amount of nitrogen for the potato crop.

After careful observations of the behavior of the crop on irrigated soils, particularly on those of a retentive nature, it is believed that more satisfactory results will be obtained by following a somewhat modified rotation in which the leguminous crop is plowed under for a cereal crop, such as corn, which is given clean cultivation, and the cereal crop is followed by the potato crop. If corn is not grown in sufficient quantity to bear this relation to the rotation, oat or wheat stubble might be used instead. The decaying organic matter produced by plowing under alfalfa or clover would then be removed far enough from the potato crop to allow complete decomposition of the organic matter and a slight withdrawal of nitrogen by the cereal crop.

On some of the lands where the alfalfa-potato rotation has been carried on for a number of years, the growers say that it is necessary to raise a crop of sugar beets from time to time when the land gets too rich for potatoes. It is believed that this observation is very pertinent to the success of the potato industry in the irrigated section and, although alfalfa must always form the main crop of any rotation system in this region, a greater use of cereals, particularly corn, would prove an advantage in connection with potato culture.

UNFAVORABLE CONDITIONS IN 1911.

The conditions which have prevailed in western Nebraska and northeastern Colorado during the last crop season have been such as to induce very extraordinary behavior on the part of the potato plant. The hot, dry weather which occurred early in the season tended to weaken the potato plants and make them backward in the production of tubers. The delay in irrigation until the plants showed signs of decided need of water produced a check in the plants. When the water was applied it brought about conditions unfavorable for the growth of the potatoes, but very favorable to the development of disease. Diseases which are usually present, but which only manifest themselves later in the season, were during the present year moved forward to such an extent that instead of lessening the crop to a very slight extent, as is the usual occurrence, they came early enough to practically prevent the development of the crop.

If normal conditions obtain next season, it is not likely that there will be a recurrence of the troubles which have caused so much loss during the present year. It is believed, however, that should the season of 1912 prove to be a repetition of that of 1911 the above precautionary suggestions, if carefully followed, will in a great measure serve to overcome losses.

SUMMARY.

Cultivate the soil deeply, making a deep seed bed. Watch carefully the needs of the plants and irrigate as often as necessary, using a minimum quantity of water and a maximum amount of cultivation. Provide deep furrows for irrigation, so as to stimulate the development of a deep rather than a shallow root system in the plants. Use clean seed. Clear the fields of diseased vines and rubbish at the close of the harvest season and use every device known to induce a rapid, continuous, healthy growth in the plants from the time they appear above the ground until the crop is made.

Approved:

JAMES WILSON,
Secretary of Agriculture.

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