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✓
TUBER COLOR OF RED POTATOES

W. C. Sparks

A few seasons ago it was noticed that the color on the red potatoes coming from certain areas in Colorado had faded from a deep red to a pink or even to a pinkish white. The results of this fading in color meant a loss in market demand for red potatoes and also resulted in a price difference of from 7 to 15 cents per hundred pounds between dark red and light red tubers.

The reasons for this loss of color were twofold: (1) The tubers used for planting were dark red at planting time, but because of some soil condition the color had faded at harvest time. (2) The tubers used for planting were of the Peachblow variety which is normally a light red potato and will not normally produce dark red tubers.

Experiments were carried on by the Colorado Agricultural Experiment Station at various points in the State with various fertilizers and with many elements. These trials were conducted by the Horticulture Section at (1) the San Luis Valley Demonstration Farm near Center, (2) the Greeley Potato Station, (3) Fort Collins, and (4) Fruita. These experiments showed that the color, yield, and quality of red potatoes could be increased in certain sections by applying small amounts of copper, iron, and manganese to the soil as though they were fertilizers.

The results obtained by adding various elements to the soil in the San Luis Valley were very promising. A combination of copper, iron, and manganese seemed to give the best results. This combination increased the yield of McClure by 42 sacks per acre and of Triumph 31 sacks per acre. Other advantages were the increased thickness of the skins of the potatoes and thus an apparent lowering of the amount of skinning that took place at harvest time, and an increased skin color from a pinkish color to a dark red color. Other treatments increased the color slightly, but not as much as did the copper, iron, and manganese treatment. Zinc had a tendency to cause the tubers to be thinner skinned and thus be more easily skinned by the harvest operations.

The mixture of elements (copper, iron, manganese) was applied at a total rate of 75 pounds per acre (25 pounds of copper sulfate, 25 pounds iron sulfate, and 25 pounds manganese sulfate) and was applied at planting time by use of a fertilizer attachment.

These results are those of a single season only and should not be taken as a recommendation for the commercial grower. Instead, if a person is going to try these elements he should do so cautiously and on a small scale to see if there is any improvement on his own particular soil.

✓ CAN YOU DISTINGUISH EARLY BLIGHT FROM LATE BLIGHT?

W. A. Kreutzer

There are two blight diseases of potatoes which appeared in Colorado last season. One is known as early blight, while the other is late blight. Despite the similarity of names, they are entirely distinct and different diseases.

Early blight causes some damage in our potato fields every year. Late blight is a newcomer, having been observed in the State only within the past 2 years. Late blight is much more destructive than early blight and must be considered as a serious threat to the potato crop wherever it is found.

Both early blight and late blight can be controlled by the use of copper sprays. The best spray is Bordeaux 4-4-50. Fortunately, copper is even more toxic to the late-blight fungus than to the early-blight fungus.

We know that early blight in wet years can frequently cause a great deal of damage and of course it would be a good idea to spray to delay or prevent the development of early blight. Growers in general, however, pay little attention to early blight since it does not rot the tubers and usually occurs when the plants are nearly mature. Late blight is another matter. It is extremely destructive.

Late blight symptoms should never be ignored.

It is important that growers should know these two diseases when they see them. Can growers distinguish the earliest symptom of late blight from those of early blight? We know that these symptoms can be and frequently are confused. It is the purpose of this article to give growers definite information which should prevent them from confusing these two diseases.

The Early Symptoms of Early Blight

Early blight of potatoes, or "leaf spot" as it is sometimes called, is characterized by the appearance of dark-brown to almost black circular spots on the leaflets. These spots usually show concentric rings, giving a "target-board" effect (see diagram). The spots may form on any part of the leaflet and may be small or fairly large in size. They are not water-logged in appearance. Small spots may join or coalesce and form larger spots. Infected leaves may appear ragged because of dying of tissue and subsequent fraying away of the dead tissue. Infected leaves, as a rule, do not wilt.

Early blight usually becomes serious as the plants begin to mature.

The Early Symptoms of Late Blight

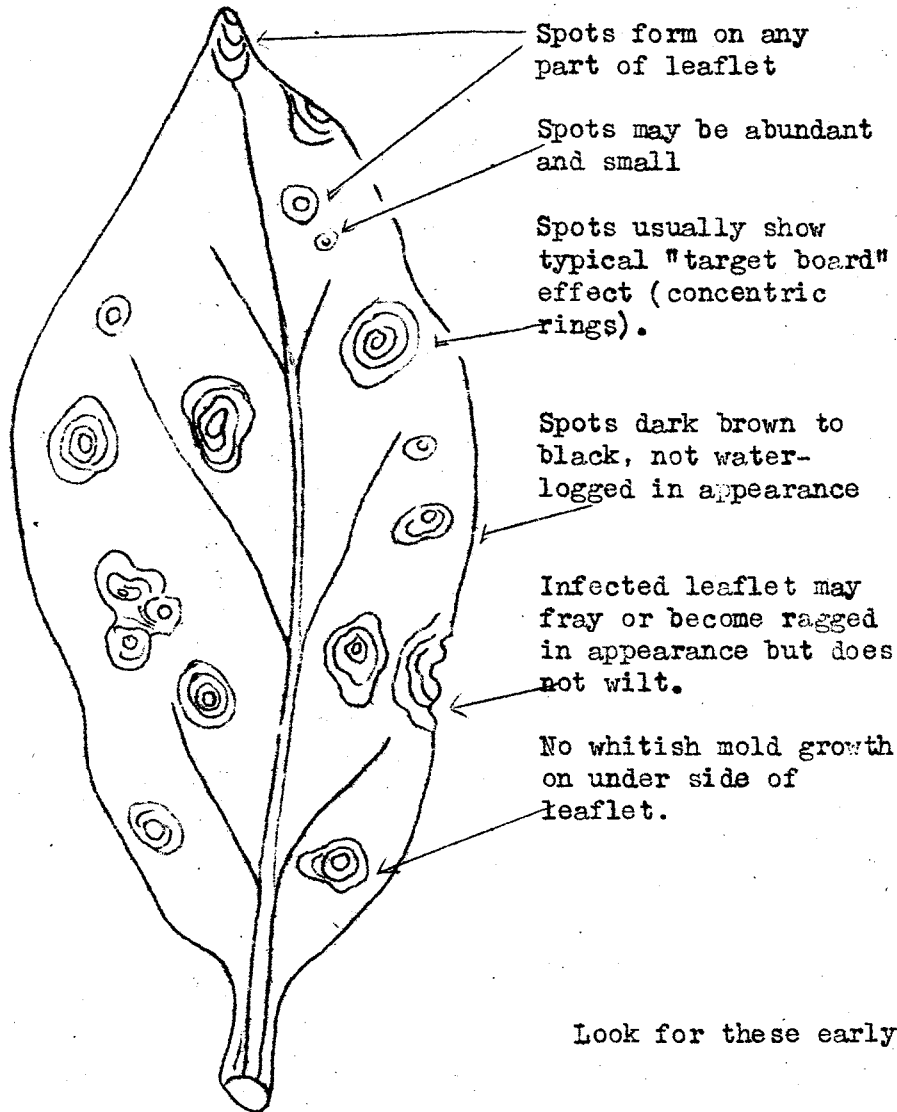
Late blight usually starts on the tip or edge of a leaflet (see diagram). The infected portion is usually dark brown to black and moist or water-logged in appearance. This infection is usually accompanied by wilting of the leaflet. The infected areas show no rings, and in moist weather a whitish to gray mold growth can frequently be seen on the under side of a diseased leaflet.

In order to contrast the early symptoms of the two diseases discussed, the diagram on page 3 should be referred to.

Prompt action should be taken if late blight is observed in your field on any plants and should be reported immediately to your county agent.

It Pays to be Able to Distinguish Late Blight from Early Blight

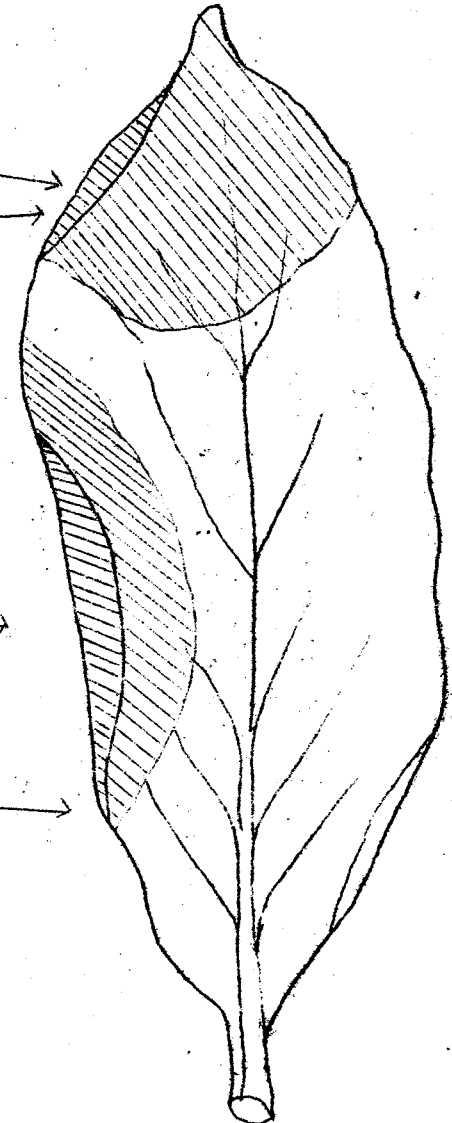
Early Blight



- Spots form on any part of leaflet
- Spots may be abundant and small
- Spots usually show typical "target board" effect (concentric rings).
- Spots dark brown to black, not water-logged in appearance
- Infected leaflet may fray or become ragged in appearance but does not wilt.
- No whitish mold growth on under side of leaflet.

Late Blight

- Spots usually start on edge or tip of leaflet and move inward.
- Spots large and few in number.
- Spots show no rings.
- Spots dark brown, water-logged in appearance.
- Wilting of diseased leaflet is of common occurrence.
- In damp weather under side of leaflet may show whitish to gray mold growth.



Look for these early symptoms - then act accordingly!

✓ POTATO WORK AT THE COLORADO AGRICULTURAL EXPERIMENT STATION

J. G. McLean

Growers frequently ask what we are doing on potatoes at the Colorado Agricultural Experiment Station and who is doing what. There are a number of men in different departments working together on spud problems. Potato work is only a part of what most of these men do; you'll find them working with everything from eggs to typhoid fever.

Potato plots are planted in Mesa County, the San Luis Valley, Weld County, Arkansas Valley substation and at Fort Collins. In Mesa County the work is carried with the Agricultural Research Committee on two potato growers' farms and deals with fertilizers and minor elements to increase yield and quality. At the San Luis Valley Demonstration Farm a number of trials are being run. Among these are: Rotation plots, depth of covering and planting, dates of planting and dates of planting from last year used as seed to determine the seed value of the different planting dates. Several types of fertilizer trials include: Different rates of fertilizer, different ratios of nitrogen, phosphorus, and potassium, tests of copper, iron, manganese, and sulphur applied with the fertilizer and applied alone, and depths of fertilizer placement from 6 to 16 inches, with different combinations of fertilizers and minor elements. Also included are variety tests, and new seedlings from the U. S. D. A. Potato Station at Greeley are tested for disease resistance and adaptability to Valley conditions.

In Weld County there are plots for forecasting late blight and to study its spread by irrigation water, and controlling psyllid and flea beetle. At Fort Collins we are concentrating on late blight and ring-rot and the control of psyllid by new sprays and dusts.

In Horticulture McLean, Sparks and Binkley are doing the work and sending out Spud Notes. Kreutzor in Botany and Plant Pathology wrestles with the spud diseases and draws pictures for the cover of SPUD NOTES. Click in Bacteriology works on cutting-knife disinfectants and how long the ring-rot bacteria can live outside the potato. List and Daniels in Entomology are hunting new ways to control potato insects without hurting the plants. Gardner in soils tells us what is wrong with soils. Pyke in Home Economics runs cooking and dehydrating tests on potato varieties and on those grown under different treatments.

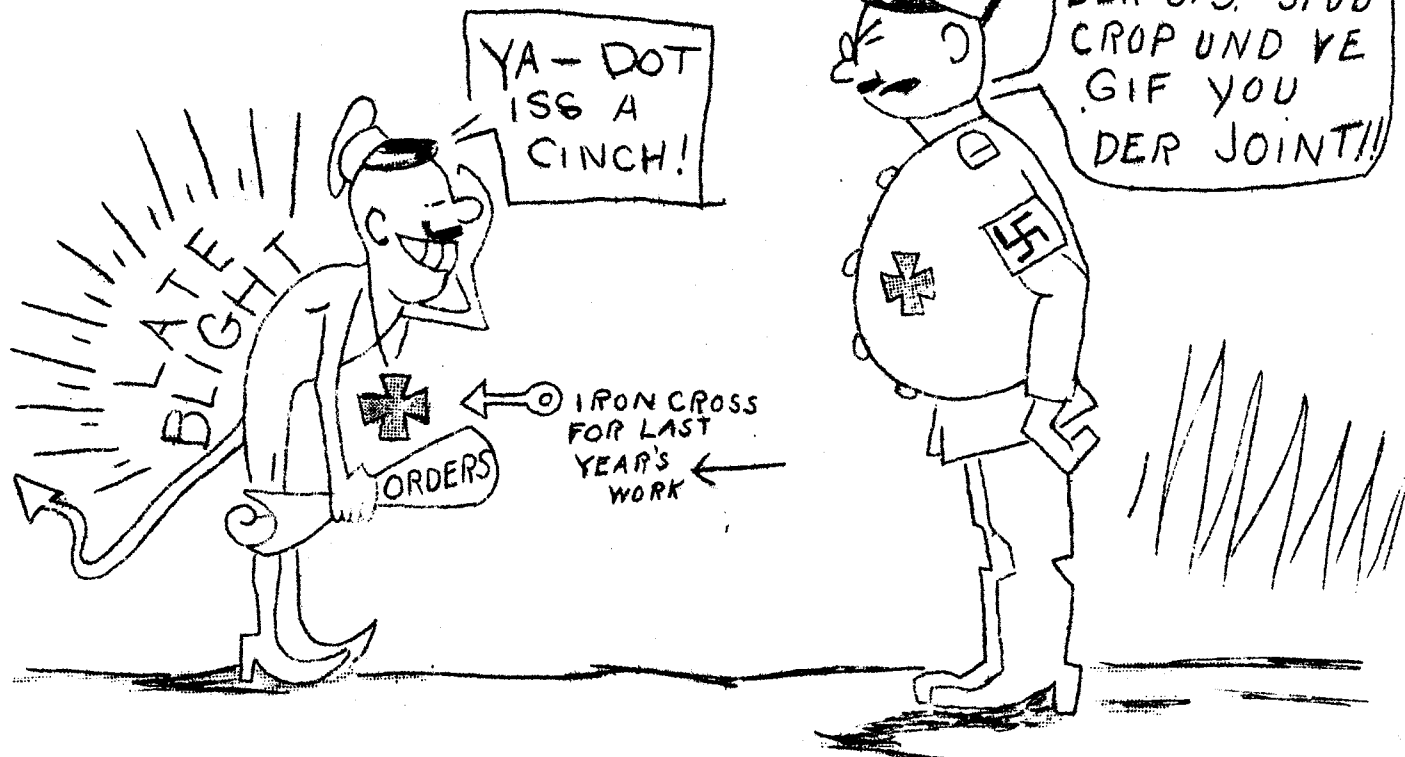
Edmundson and Scheel at the Greeley Potato Station are developing new varieties and getting them resistant to scab, Fusarium, and other diseases as well as finding ways of growing more and better potatoes.

McGarr, a U. S. D. A. research engineer, has designed potato storages in Maine, Michigan, Nebraska, and South Dakota, and is now helping us out in Colorado.

In the Extension Service, McGeer in Horticulture is in charge of potato certification and manager of the San Luis Valley demonstration farm, Henderson is the Extension plant disease man and McCampbell is their entomologist.

You will hear more from these Federal, Extension, and Experiment Station men in future issues of SPUD NOTES.

-OH YEAH!!



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