

CONNECTICUT
Agricultural Experiment Station

NEW HAVEN, CONN.

E. H. JENKINS, Director

BULLETIN OF IMMEDIATE INFORMATION No. 23

May 1, 1923

DISEASES CARRIED BY SEED POTATOES

By G. P. CLINTON

It has been found advisable for most of our growers to buy their seed potatoes each season from those who have raised them further north. This makes it impossible to practice seed selection and gain any of the advantages that may result from a personal contact with the preceding crop. One way of getting around this difficulty is, in part, the purchase of certified seed; another is the practice of seed treatment for specific infectious troubles; a third is the inspection of tubers and rejection of imperfect seed. It is the purpose of this bulletin, to briefly discuss these measures in relation to producing a more perfect potato crop.

There are certain potato troubles, usually of the so-called physiological type, that are carried by the tubers to the succeeding crop, and yet are not visible to the naked eye. Mosaic, where the leaves early in the season have a mottled yellow-green appearance, and Leaf Roll, where the edges of the leaves curl up, are two of these. Spindle sprout is another that can only be detected after the tubers put out their sprouts, as fine, often needle-like growths. An unusual number of pointed tubers, not characteristic of the variety, may be indications of another trouble; while tubers that show when cut across, a net-work of brown lines (Net Necrosis), or brown patches (Internal Brown Spot), are indications of troubles which may or may not appear in the succeeding crop. Tubers showing indications of any of these should be rejected for seed. It is with diseases of this kind that certified potatoes have an advantage over uncertified, since inspections of the crop in the field and bin will usually reveal them if present, and have caused the rejection of the crop for seed if at all abundant.

Another type of diseases are those of a fungous or bacterial nature which are seed-borne, of which one class is susceptible to control by seed treatment and the other not. Let us mention the latter first. One of the most serious is the Late Blight. Infected tubers can be detected by the slightly sunken spots on the surface showing as a reddish-brown dry rot just beneath when cut open. Wilt, not usually a serious trouble in this state, is also carried by the seed, and is revealed by the blackened bundles when the tuber is cut open. Tubers showing either of these troubles should not be used for seed.

Lastly, there are those types of disease that yield to seed treatment. Of these, scab, familiar to all, is the most common and important. Black leg, a bacterial disease where isolated plants here and there in the field rot off at the surface of the soil, is another. Black Scurf or Rhizoctonia, which shows on the surface of the tubers as dirt-like specks, is a fungous disease which acts something like the Black Leg in the field. Where trouble has been experienced with any of these, it is well to treat the uncut seed with either formalin, or corrosive sublimate (a poison). Formalin is used at the rate of one pint (1 lb.) to 30 gallons of water, and the seed is soaked for one hour. With corrosive sublimate, 4 ozs. are dissolved in hot water in a wooden container, diluted to 30 gallons, and the seed treated for $\frac{1}{2}$ to 1 hour. After treatment spread the seed out to dry if not planted immediately.

Seed treatment for scab has little value when the seed is planted on land susceptible to scab, as the treatment only kills the germs on the seed, and they can also carry over in the soil. Alkaline soils favor the infection from such germs to an unusual extent, so potatoes should not ordinarily be planted on land that has been heavily manured in the spring, and especially not on land on which lime or wood ashes have been used liberally in recent years. Some growers occasionally use infected or very susceptible soil by drilling in sulphur at the rate of 600 lbs. per acre, as this hinders scab infection, but too much sulphur may affect the yield.