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Potato Scab.

Potato scab is much in evidence in the potato crop each year. It is one of the easiest diseases to keep under control. The method usually employed is to dip the seed potatoes in some infecting solution. Two kinds are used, the formaldehyde solution and the corrosive sublimate solution.

The Formaldehyde Treatment.—The formaldehyde dip is prepared by pouring a pint of 40 per cent formaldehyde into 30 gallons of water. Dipping the potatoes in this solution for 24 hours will destroy the scab.

Thirty gallons of the mixture will dip about 30 bushels of potatoes. It can be renewed by adding new mixture made up in the right proportions. The old is used up, but it is probably best not to use less than one gallon of the solution to each bushel. Large amounts of mud should not be allowed to accumulate in the barrels. The barrels should be kept covered.

While the formaldehyde solution is somewhat poisonous, if taken internally, and would kill if enough were taken, it is far less deadly than the corrosive sublimate solution, and is so, on account of its peculiarities, less likely to be taken by mistake. If ordinary precautions are observed, there is very little danger of any person or animal being injured through its use; and, from the standpoint of safety, this remedy is vastly more desirable than the corrosive sublimate solution.

The Corrosive Sublimate Treatment. The proportions for the corrosive sublimate solution are 4 ounces of corrosive sublimate to 30 gallons of water. The corrosive sublimate should be dissolved in about a gallon of hot water, before pouring it into the balance of the water required. Dipping the potatoes in this solution for an hour and a half will kill the scab on the tubers.

This dip does not lose strength as the formaldehyde dip does; and may, therefore, be used almost indefinitely. The barrels, or whatever the solution is used in, should be kept securely covered, to prevent the evaporation of the water from the solution, which would make it stronger, and to prevent animals from drinking it.

Caution: Corrosive sublimate is one of the most deadly poisons known. It must be kept out of the reach of children, and its use must be most carefully guarded, to prevent animals from drinking of the poisonous solution or eating the treated potatoes. On account of the danger associated with the use of this remedy, the formaldehyde dip is generally far more desirable.

Method of Dipping.—Ordinary 50-gallon barrels are convenient for dipping. Any number may be provided, according to the needs. One barrel would suffice for handling from 12 to 15 bushels per day.

It is usually most convenient to put the potatoes in sacks for dipping in the barrel containing the solution.

Care of Potatoes After Treating.—Potatoes must be cut and planted soon after dipping. If not, they should be spread out to dry.

Other Sources of Infection.—Potatoes may become more or less scabby from other sources than the infected seed. If a scabby crop has been once grown on a piece of land, the soil becomes infected with the disease, and remains so for probably five or six years. However, if undipped scabby seed-potatoes are planted on such soil, the crop will be more scabby than if the seed-potatoes had been dipped. Rotation of crops is of great value in preventing the soil from becoming seriously inoculated with the germs of this disease.

Another source of infection may be through manure. If scabby potatoes are fed to stock, the manure will contain the scab germs, and will infect the land. Such potatoes should be cooked before feeding, to destroy the scab germs; or the manure should be spread on land which will not be used for potatoes for a number of years.

Relation of Manure, Lime, and Wood-Ashes to Scab.—Manure, especially fresh manure, lime and wood ashes are often said to be the direct cause of scab; but the assumption is of true. There can be no scab unless the scab-germs are present. If there are no scab germs on the seed-potatoes, nor in the land, nor in the manure, then the use of manure or the other substances mentioned cannot of itself cause scab. These substances, are, however, favorable to scab; and, if the scab-germs are anywhere present, an increased amount of scab is likely to result from their use.—A. R. Kohler, Potato Specialist, Minn. Univ. Farm.

Population and the Labor Supply.

The natural requirements of a population of ninety millions of people are more than sufficient to afford employment, the year round, for every pair of efficient hands included in the number. It follows, then, that wherever willing hands are compulsorily idle, some human requirement remains either wholly or partially unsatisfied. Idle labor involves a double loss; that of the laborer himself, whose means of subsistence are shortened, and that of the community, which is poorer by the value of what the laborer might have produced if kept steadily employed. The advocates of a system which contemplates "a surplus of labor" as a desideratum for the prosperity of industrial enterprises are as foolish as they are selfish and inhuman. For whatever conditions mark the general prosperity of the State must in the long run react against that of particular industries which seemingly profit, for the time being, through the existence of such a surplus of labor, with its attendant low scale of wages.

American rural life will never attain its best economic and social development so long as farmers depend upon transient or nomadic labor for the carrying on of their operations during the critical seasons of the year, and habitually repel the permanent population whose coming would double or quadruple the value of their lands. The denial of homes and steady employment to the agricultural laborer, and the general refusal to employ married men unless they will agree to leave their families elsewhere, attack the very sources of a wholesome development.

The only natural and healthy labor system, in an agricultural region, presupposes the occupation of the land by those who till as well as by those who own it. Attach the laborer to the land by the tie of ownership, no matter how small an area so that it suffices for a home, and the foundation is at once laid for such a system. The average Minnesota farm of 160 acres may profitably afford homes, with four or five acres attached, for a dozen families beside that of the present owner. In France and Germany, thirty or forty families find on such an area the means of livelihood, for educating the children, and for saving up something for investment.

The essential heartlessness of a large portion of the "deals" between farmers and laborers is illustrated by a plan commended in Farm, Stock and Home as used by "one of the most successful farmers and handlers of men in the Northwest." It is outlined as follows:

"When hiring a man he engages him for the entire season, say for eight months, at a total of \$240. Assuming the time of beginning work to be April 1st, the hired man is credited for April and May with \$18 per month. In June a credit of \$20 is placed to his account. July he receives a credit of \$22. During August this amount is raised to \$30, and in September, when harvest wages begin to appeal to the man hired on the ordinary flat schedule, his month's credit is \$35. There remains due him for the entire period \$93, which is distributed over the remaining two months."

In its commendation of this plan as securing the farmer against loss by the hands quitting without warning, and as being also "to the advantage of the man who hires out," the paper quoted entirely ignores the fact that at the end of the engagement the man is rewarded for his faithful service by being thrown out of work, with a dubious chance of finding other employment for the remaining one-third of the year. Spreading the \$240 he gets over the additional four months, his wages in reality amount to only \$20 a month. If the "successful farmer" who shrewdly contrived this scheme should address himself to the problem of finding year-round employment for as many men as he at any time needs on his farm, and tying their fortunes to his by allotments of small parcels of land, he would probably find it not difficult of solution, and in many ways profitable, in the long run, to himself. For any increase of the permanent population has, from the beginning of history, been everywhere attended with a marked increase in the value of land; and the substitution of a settled for a nomadic laboring population means a large increase in the general prosperity.—C. R. Barns, Extension Division, Minn. College of Agriculture.

The Lawn—Preparation and Seeding.

The lawn is probably the most important feature that deals with the impression of a beautiful home. In making a lawn, the first feature is grading. It should always be graded before the surface is prepared and the grass sown upon it, for the grade can with difficulty be changed in after years

and must be more or less permanent. If hard-pan or stiff clay lies near the surface, it should be removed, and only the best top portions of the soil be retained.

Drainage should be considered in connection with grading. It is essential to have the lawn well drained, for grass will not do well when there is water standing at its roots. Our Minnesota sandy loam soil will usually obviate any necessity for detailed attention to drainage; yet all lawns should have good under-drainage; and if the situation is flat, probably tile drainage will have to be resorted to.

After the grading and the drainage are attended to the surface should have a top-dressing of well-rotted manure, preferably that which has not had weed-seeds or any other undesirable foreign material coming into it. The dressing should be worked into the top soil; and then the soil, with the worked-in dressing of manure, should be turned over with a plow or by spading.

When the plowing or spading has been completed, the ground may be levelled and thoroughly pulverized with garden-rakes or with a harrow. If seed is put upon a lawn that is lumpy, and that has not been thoroughly prepared, one cannot expect good or quick results. The seed should be secured during the winter months, in anticipation of the lawn that is to be made in the spring.

A very good mixture of seed to use is composed of 30 pounds of extra cleaned Kentucky Blue Grass and 10 pounds of the same quality of white clover per acre. Thirty pounds of Red Top is also very frequently added to the mixture.

The blue grass is rather slow in germination; and, to get quick results, timothy may be added at the rate of ten pounds to the above mixture; or a peck of rye may be sown, per acre, in order to give a green appearance very quickly. It should be remembered that, in order to get good results with lawn grass-seeds, they should be sown just as soon as the ground can be worked up in the spring, so that germination and early growth may be secured while the weather is yet cool. Most of these seeds germinate best in the time when the nights and the days are comparatively cool. The usual practice is to sow the seeds and depend upon the showers to wash them into the soil. Very often a brush harrow, made from a thorn bush cut and dragged over the ground, will give a covering that is sufficient.—K. A. Kirkpatrick, Extension Div. Minn. College of Agr.

Buying Seed Corn.

The shortage of good seed-corn is becoming more apparent every day. Many of those who had seed-corn for sale have already sold out, and the farmer who sold out, or is short of seed, is beginning to realize that good seed is going to be in big demand and that there is going to be a continued advance in the price until the planting season is over.

Any marked advance in the price is bound to bring into the market a considerable amount of undesirable seed-corn. Even corn that in other years would have been used only for feed is certain to be offered for seed. This will mean that any one who must purchase seed-corn will have to exercise unusual care in his purchase.

Only varieties known to ripen in the locality should be purchased; and, whenever possible, it should have been grown in the immediate locality. Corn that requires the full length of the season to ripen in a given locality, cannot with safety or profit be grown very much farther to the northward. This will mean that the farmers should insist on seed-corn that is high in its germination-test and strong and vigorous in its vitality. Good vitality makes seed-corn worth a good price, while poor vitality makes it dear at any price. Seed-corn growers are usually honest; but, if one would know what he is buying, he should purchase his seed-corn only on the ear. This will afford him an opportunity to know the type of corn that he is buying; and, when bought under a guarantee as to its germination test, he can give it the individual-ear test and compel the seedsmen to make good his guarantee.—O. M. Olson, Extension Division, Minn. College of Agr.

Varieties of Apples for Minnesota Planting.

Aside from seedling apple trees, as to the hardness of which each variety must be tested separately, there are comparatively few varieties of apples of which the quality of the fruit is good and the tree hardy enough to be reasonably sure of wintering in this latitude. Referring to the list that is made up and revised by the Minnesota State Horticultural Society at its annual gathering, the four varieties classed as of the "first degree of hardness" are all of Russian origin.

The Duchess is an early apple, of good quality for cooking, and by many

prized for eating. The tree is very hardy, an early and abundant bearer, and as safe to plant as any in this region.

The Hibernian ripens early in the fall. It is a good cooking apple; and may be kept for a few weeks, and when ripe to the point of mellowness it is not by any means a bad eating apple. The Hibernian is valuable, on account of its hardness, and because it makes an excellent stock upon which to top-graft varieties that in themselves are not quite hardy enough for successful planting in Minnesota.

The third variety in the class referred to is Patten's Greening, a kind grown from seed of the Duchess by Mr. Chas. G. Patten, of Charles City, Iowa. Patten's Greening is a large green apple, ripening about the time of the Hibernian, but is a little better keeper. Its size and quality commend it not only for home use, but for market. It has been quite thoroughly tested in Minnesota, and found to be one of the most successful of our hardy varieties.

Okabena, the last of the four named in the class of "first degree of hardness," is also an early fall apple, having originated at Worthington from the seed of the Duchess, many years ago. It is a very hardy tree, exceedingly prolific in bearing, and its fruit in appearance is much like that of its parent, the Duchess, but not so large in size. Being, however, a much better keeper, it has found a general place in Minnesota orchards.

The list above referred to as adopted by the Minnesota State Horticultural Society contains also a class for apples noted under the head of "second degree of hardness," the first of which is the Wealthy; a variety more generally planted throughout the State, perhaps, than any other, on account of its prolificness and the exceedingly high quality and beauty of its fruit. It may be classed as a late fall apple. Although of Minnesota origin, it is, not as hardy as either of the four varieties previously described. When top-grafted on the Hibernian the probabilities of success during a long period of years are considerably increased. It must not be understood from this classification, however, that the Wealthy is not a reasonably hardy tree. In most sections of the State it is standing well and has been found profitable for long terms of years; so that it is more generally planted than any other, and almost as much, indeed, as all other sorts recommended for this region.

There are other classifications in the lists of apples referred to; also lists of grapes, crab apples, plums and all kinds of small fruit. The Horticultural Society is endeavoring to place this list in the hands of every one in the State who is buying or planting fruits of any sort. If the reader has not already a copy, address the secretary of the society, and one will be forwarded promptly, without expense.—A. W. Latham, Secretary, 207 Kasota Block, Minneapolis, Minn.

Rejuvenating the Lawn.

The rejuvenation of an almost worn-out lawn is a frequent spring problem. A light application of white clover and blue grass on the lawn, after it has been thoroughly raked, will often bring good results. Do not be afraid to rake the surface severely. The breaking of the roots of the old stand of grass will be conducive to good results. If it can be had, a light top-dressing of well-rotted manure may be applied before the raking is done; and the seed sown after the raking. If the lawn has been covered with coarse manure, as a protection during the winter, the heavy coarse parts may be removed, and the finer parts will then take the place of a top-dressing. Very often a sickly-looking lawn may be built up and given a better appearance by giving it a top-dressing of commercial fertilizer. For this purpose ground bone is one of the best materials. It should be sown broadcast very early in the spring, at the rate of about 300 pounds per acre.

Of course, the sowing of seeds and the "rejuvenation" will be of little account unless the lawn receives good care during the season. Poultry should not be allowed to run about the lawn. They keep the grass in a foul condition, and prevent its giving the best results. As soon as the grass makes sufficient growth, a lawn-mower should be placed upon it and it should be kept cut quite closely during the early part of the season. This will help the turf to thicken up, and will be productive of a good lawn in after years. If there are small clods and trash on the ground, it should be rolled, and the trash should be raked off before the lawn-mower is put on. The stronger one can make the turf, the less trouble there will be with weeds. Usually, if there is a very heavy stand of grass and a good well-knit sod, dandelions and other weed-pests will not give much trouble.—K. A. Kirkpatrick, Horticulturist, Extension Div., Minn. College of Agr.

A National Drainage Congress.

At the 1911 meeting of the National Irrigation Congress in Chicago, various persons interested in reclamation by drainage met and organized a National Drainage Congress. This Congress is to hold a meeting in New Orleans, La., April 10th to 13th, 1912. Its object is to work along lines similar to those of the Irrigation Congress, for the promotion of drainage reclamation. In the four days' session it will bring together men from various parts of the country interested in the various phases of drainage. Prominent speakers will be secured, who will discuss drainage from all standpoints as it relates to sanitation, increased crop production, benefit to roads, and general improvement to agricultural conditions. The program committee has already secured the promise of an address by Col. Gorgas, who is in charge of sanitation in the Panama Canal zone.

The Congress is to be composed of delegates appointed by governors, mayors of cities, and county boards. Various state organizations, such as agricultural, horticultural and engineering societies will be entitled to representation, as well as all state and government officials interested in the general agricultural development of the country.

John T. Stewart, Chief of the Division of Agricultural Engineering, University of Minnesota, is executive committee member for the State of Minnesota.

Even Planting.

The importance of planting the seeds of grain crops at an even depth, and with an even distribution, is illustrated by a contributor to the "Farmers' Review," who says:

"I have examined many oat fields just as the plants were fairly up, and I have found some astonishing results. I take a square foot and count the shoots before they stool, and have found from none to more than a hundred shoots per square foot, and found them planted from nothing to four inches deep. Those not covered did not grow. Those covered four inches deep came up late and weak and were smothered out. Those too thick did not stool out, and grew very small heads, and the bare places produced nothing. Now I have been figuring what we might raise if we could get them perfectly even and all the right depth. If we could plant one grain on each two-inch square it would make 25 grains per square foot. And if each threw out two shoots (which is very moderate, for I have seen six), making three heads to each square, and each head contained 60 grains (I have counted 225 per head), it would make 450 bushels per acre, and would only take 2 1/2 to 2 3/4 bushels of seed per acre, which is less than is usually sown."

But not only is it impracticable to secure, by any means now available, such a perfectly even distribution of seed, so closely planted, and at such a uniform depth as is necessary to the achievement of results like those pointed to by the above "mathematician's dream," but actual experiment shows that such close planting would probably defeat the object sought, since the largest actual yields, so far, have been obtained by a much more liberal allowance of space to the individual plants.

Actual experiments at University Farm, under the supervision of Profs. Andrew Boss and C. P. Bull, show that with such a careful preparation of the seed-bed as is given a garden, and with a uniform depth of planting secured by running the wheels of the drill on planks, a yield of 132.3 bushels of oats per acre is made practicable. Contrast this with the average Minnesota yield of only 32 bushels per acre, and the lure which invites, both to a more perfect preparation of the land and to the further improvement of the drill, is certainly a powerful one. Thirty-two bushels to the acre are worth, at the high rate of 40 cents a bushel, \$12.80. Between this and the production, shown to be within actual reach, of 132.3 bushels per acre, worth \$52.92, the margin is an enticing one. To secure even a fraction of it, it would seem that it would "pay" to bestow on the oatfield even the extreme pains which careful truck-growers bestow upon their garden beds.—C. R. Barns, Extension Div., Minn. College of Agriculture.

A contributor to the Dakota Farmer suggests, as a means of trapping ants, a bottle set in the middle of the hill, so that the soil comes close up to the mouth of the bottle. He says "they will go in fast, and be unable to get out."

The steer which can usually be depended on to fetch the best price at the stock-yard is one whose fattening began early, whose appetite has been satisfied and kept on edge by a variety of feedstuffs, but without over-feeding or permitting him to go off his feed. Growth once interrupted seldom progresses as well afterward.