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ORCHARD AND GARDEN NOTES.

May 1.

It is easier to put up the pea trellis before the peas come up.

Cabbage, cauliflower, and kohl rabi may be set out early in May.

Set strawberries, raspberries, and other hardy plants or shrubs.

Keep a sharp lookout for the cut worms. They will soon be active.

Plant spinach, radish, lettuce, onions, peas, and other early garden vegetables.

Start a few muskmelons, cucumbers and watermelons in pots or boxes in the cold frame.

The hop vine, wild cucumber, cardinal climber, and morning glory are good annual vines to use as screens.

Pergolas or summer-houses may be made not only beautiful but useful by growing the wild grape or Beta grape over them.

Use plenty of manure in the garden. Good cultivation and plenty of plant food is responsible for most of the "good luck."

Many flowering annuals, such as petunias and portulacas, may be sown in the open ground as soon as it is well warmed.

Early May is not too late to set out a few King raspberries, Senator Dunlap strawberries, Beta grapes, or Perfection currants.

Prune gooseberries and currants in May if it has not already been done. Take out old, weak wood and any new shoots that are crowding.

A group of highbush cranberries in the back yard not only adds color to the yard in autumn but also furnishes a good jelly material close at hand.

Protect and shelter the birds as much as possible. A few windbreaks or thickets of brush on the farm give the birds a nesting-place and they pay for it by catching many injurious insects.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

ORCHARD AND GARDEN NOTES.

May 8.

Late cabbage may be sown in the cold frame or open ground.

Keep the cultivator busy in both garden and orchard. It pays.

Gladioli and dahlias may be set out the latter part of the month.

Plan several sowings of peas, beans, spinach, corn, radish, and lettuce.

To get a succession of gladioli, make several plantings of the bulbs.

Do not prune spring-flowering shrubs until after they have flowered.

A planting of sweet corn should be made as soon as all danger from frost is over.

Alderman or Nott's Excelsior peas may be sown any time before the middle of May.

Don't sow seed on poorly prepared land. It means more work and often poor returns.

Hardwood ashes are fine to put on the fruit plants and may also be used in the garden.

Swiss chard, or leaf beet, makes excellent greens and will last much later in the season than spinach.

Treat all potatoes before planting with corrosive sublimate or formalin for scab. Then plant on clean land.

There is still time to do some top-working and to set out some ornamental plants and shrubs about the house.

Cut asparagus just below the surfact of the ground rather than break it. Breaking is apt to injure the crowns.

Asparagus is growing nicely. Are you enjoying cuttings from your own bed? It is not too late to set out a bed for future years.

Harden off all plants before setting in the open ground. This is done by reducing the amount of water given and giving more air to the plant. It is simply a hardening of the tissues to withstand field conditions better.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

SUMMER SCHOOL COURSES.

The regular annual summer session of the College of Agriculture will occur at University Farm, June 15 to July 24, 1914.

Those who are interested should write to Professor A. V. Storm, Director of the Summer Session, for further and more complete information.

CARE OF HOGS AT VACCINATION.

Bad results sometimes follow improper or careless methods of handling and feeding, both prior to and immediately after vaccination, in spite of the fact that clean, potent serum and fresh, uncontaminated virus were used. Among the things that can be done to contribute to good results are the following:

Feed the hogs moderately for twenty-four hours before vaccinating. Do not fast them, as this will cause them to be wild and hard to handle.

During hot weather, vaccinate early in the morning or towards the evening, rather than in the middle of the day, when it is hot.

The hogs should be kept in a clean dry place before vaccination. This is better both for the hogs and for the persons who are to handle them.

If possible, group the hogs according to size. This will lessen the chances for error in estimating the doses of serum to be injected.

Provide a box or table on which to place the bottles of serum and virus, disinfectants, syringes, etc., where they will be convenient but not likely to be upset.

It is even more important that the hogs be kept clean and dry after vaccination, to reduce to a minimum the chances for infecting the needle wounds.

Get the hogs into an enclosure where they can be caught without chasing them. This should be done before the arrival of the veterinarian.

Special attention should be paid to the feeding of the hogs after vaccination. Corn should be excluded from the diet entirely for at least a week. Give reduced rations of slightly laxative feeds.

Watch the hogs carefully for at least three weeks after vaccination, especially if the double treatment has been used. If all goes well for three weeks, there is little to be feared later on.

If any hogs show signs of sickness following the double treatment, they should be isolated from the rest of the herd. Sometimes another dose of serum will save them.

If an abscess forms at the point of injection, it should be opened promptly, and given a chance to drain. Very few abscesses should occur, however, if the foregoing rules are followed.—H. Preston Hoskins, Assistant Veterinarian, University Farm, St. Paul.

CANADA FIELD PEAS.

The Canada Field Pea is a crop that deserves more attention on many farms in Minnesota. A ten-year average yield of twenty-one bushels of seed per acre has been secured on University Farm. The weight per bushel is sixty pounds. Mixed in the proper proportions with other feeds, ground peas make a good feed for live stock. They are higher in protein content than the grains commonly grown on the farm and can be used in some mixed feeds to take the place of bran. For the production of an annual hay crop, peas and oats mixed at the rate of two bushels of peas and one bushel of oats and drilled early in spring give good results. From one and a half to three and a half tons of hay can be secured. Oat and pea hay can be fed to advantage to all classes of farm animals. Oats and peas drilled early in spring at the same rate as recommended for hay, make an excellent hog pasture crop, ready for use about July 1. Twenty bushels of White Canada Field Peas produced in 1913 are on hand at University Farm. They can be procured for use as seed at $1.50 per bushel.—A. C. Arny, Assistant Agriculturist, University Farm, St. Paul, Minn.

FEEDING YOUNG CHICKS.

We do not feed little chicks before they are two days old, but from the beginning give them water. During this period the hen is given her food out of reach of the little ones. The first feeds are given sparingly every two hours, and are usually wet mashes.

After the third day, we feed some of the cracked grains, a little at a time, till, at the end of the fifth or sixth day, we are giving only two feeds a day of the mash, and three feeds of the cracked grain. Occasionally we give a little whole wheat, and by the end of eight weeks we are feeding most of the grains whole. If the chicks are unable to get worms or insects in sufficient quantities, they must be supplied with a substitute, such as milk or beef scraps. Green feed is given in the form of finely-chopped lettuce, a piece of potato or turnip or mangel when they are not able to run outside on the grass.—C. E. Brown, Poultryman, Northwest Experiment Station, Crookston, Minn.

MOSQUITO PREVENTION.

A State like Minnesota, with many small ponds, lakes, and swamps, is sure to be more or less afflicted with the mosquito pest each season. Many of our "wild" mosquitoes deposited their eggs last autumn on the dead leaves and grass where water will collect this spring. So we may soon expect to find "wrigglers" in such places, although these collections of water may be only temporary. This early generation of mosquitoes will remain with us all summer. Other "wild" mosquitoes breed in our ponds and swamps and along quiet, shallow margins of lakes and rivers, during the entire summer.

We may also speak of "domestic" mosquitoes, for several species prefer to breed in our rain barrels, clogged up roof-drains, broken bottles, dishes, and old tin cans on the rubbish heap which have collected rain water.

Mosquitoes can breed only in water, notwithstanding the many popular statements to the contrary. The whole structure of the young mosquito fits it for a life only in water. So in combating mosquitoes, the obvious remedy is to remove the breeding-places. No pool or collection of water is too small or too filthy to serve such a purpose. The only requisite is that it be stagnant and that it remain permanent long enough for the mosquito "wrigglers" to reach full growth. Care must be used therefore in searching for breeding places so as not to overlook some of the smaller ones.

Draining of marshy lands, or sometimes filling of such places, dredging of the margins of lakes so that there are no weedy shallows left, and the introduction of small fish are the best remedies to give permanent relief. A film of kerosene or light fuel oil placed on the surface of water prevents the wrigglers from breathing and kills them. About one ounce of oil will cover a surface area of fifteen square feet. It must be renewed once in two or three weeks.

For "domestic" mosquitoes, clean up rubbish, place tight-fitting mosquito screens over the rain barrels and, if necessary, place oil on top of collections of water not otherwise removable.—C. W. Howard, Assistant Entomologist, University Farm, St. Paul.

KILLING DANDELIONS.

Cut the dandelion roots off below the surface of the ground.

Gasoline or kerosene, applied at the crown of the dandelion, will kill individual plants.

When only a few stray plants appear persistently use the spud, or knife.

On badly infested lawns, good results may be obtained by spraying with sulphate of iron.

Use 1½ pounds of iron sulphate, which can be purchased at any drug store, to 1 gallon of water, remembering that it will discolor clothing and cement walks.

Apply the spray three days after lawn is cut, on a bright day when the possibilities of rain are slight.

The solution should be applied with a sprayer which gives a fine mistlike spray—a sprinkler is not satisfactory.

The lawn should be sprayed about once a month during the summer, and not cut or watered for three days after the solution is applied.

Whatever method of eradication is used, it is always well to reseed the lawn in April, June, and September.

For reseeding, eight or ten pounds of seed should be used on a lawn 100x150 feet. The seed should be sown broadcast, raked in, then watered.

A good lawn-grass mixture is 14 pounds of Kentucky blue-grass, 2 of white clover, and 2 of redtop seed—buy good clean seed and mix it yourself.

With the thickening of the grass and the use of fertilizer, many of the dandelion plants will be crowded out.

Besides this reseeding, it is well to scatter nitrate of soda over the lawn before a rain or just before the lawn is sprinkled. Fifty pounds will fertilize a lawn 100x150 feet.—W. L. Oswald, Assistant Agricultural Botanist, University Farm, St. Paul.

FARMERS' CLUB PICNIC AT NORTHFIELD.

Twenty-one farmers' clubs and the Northfield Commercial Club are planning to have a picnic in a grove on Mr. Schilling's farm May 28. This picnic will be the means of bringing the farmers and business men of Northfield closer together, get them better acquainted with each other, and will promise them at least one good day's sport for the summer. Similar picnics will be held in quite a number of other towns in Minnesota this summer. We would like to learn of such picnics held in every town of Minnesota where there is a commercial club and a farmers' club in the same neighborhood.—H. M. Bush, Farmers' Club Specialist, University Farm, St. Paul.

CO-OPERATIVE GRAIN MARKETING IN CANADA.

The Grain Growers' Grain Company of Canada is undoubtedly the largest farmers' marketing organization on the American continent, and represents one of the most important developments in coöperative marketing the world over. This company was organized by the farmers of Saskatchewan and Manitoba in 1906, and established a selling agency in Winnipeg, where it became a member of the organized grain exchange.

The growth of the company has been phenomenal. During the first year it marketed 2,340,000 bushels of grain; in 1910 it marketed 16,333,000 bushels; and in 1913, almost 30,000,000 bushels. It has a subscribed capital of $810,000, of which $645,000 has been paid in. There are over 14,000 stockholders, all of whom are farmers. The company pays ten per cent dividends on stock, and places surplus profits in a reserve, which now amounts to nearly $200,000.

In addition to the selling of grain in the Winnipeg market, the Grain Growers' Grain Company now operates under lease 170 country elevators owned by the Manitoba Government, and two of the best terminal elevators of the Canadian Pacific Railroad at Fort William on Lake Superior. The company has also purchased a third elevator at Fort William, which is a well-equipped cleaning house with $45,000 worth of machinery. Late in 1913 it purchased a small elevator in Vancouver, B. C.

But this is not all. The Grain Growers' Grain Company operates under lease a small flour mill, and distributes the product among local associations of grain growers in carload lots, saving them from thirty to sixty cents per half-barrel sack, distributes coal in carload lots among farmers, saving them from two to three dollars a ton, and brings apples in carload lots direct from the coöperative fruit associations of Ontario to the grain growers of Western Canada.

The company has also purchased a vast timber tract in Western Canada, where it expects to erect saw mills, with a view of distributing lumber in carload lots. Not content with these various activities this farmers' company owns a printing establishment in Winnipeg and publishes its own paper, the Grain Growers' Guide, one of the leading farm papers of the Dominion.

To carry on this vast business the Grain Growers' Grain Company has offices in Winnipeg, Fort William, Calgary, and Vancouver. It has 350 employees during the busy part of the year. The company is still growing and has unlimited ambitions for the future.—L. D. H. Weld, Agricultural Economist, University Farm, St. Paul.

ELIMINATING THE GOPHER.

The latter part of April and the first week in May is the best time to get rid of the gophers in and around the field that is to be planted to corn this year. Poisoned corn is good bait. By laying the first bait about the middle of April, the second near the end of the month, and a third during the first week in May, the gophers should be pretty well eliminated by corn-planting time.

The poisoned corn may be prepared as follows: In a quart of hot water dissolve one-fourth of the amount of strychnine contained in a one-eighth ounce bottle. After the strychnine is dissolved and the water is cool, as much corn may be put in as the solution will cover. If less corn than that is needed, put in about what will go around. Leave the corn in the solution twenty-four hours, then remove it, saving the solution that was not taken up by the corn for use a little later.

If all of the gophers are not killed before the corn is planted, then corn soaked twenty-four hours in the strychnine solution mentioned above may be planted thicker than usual in a few of the outside rows. In a recent trial at University Farm, corn soaked in a strychnine solution for twenty-four hours germinated just as well as corn that was soaked in pure water for the same length of time, or as corn than was not treated at all. If the gophers are not out of the way by corn planting time, this method should be given a trial. It will help you get a better stand of corn, which means a higher yield. The planter will have to be regulated so as to give the desired drop of the soaked corn. Strychnine is a deadly poison and should be handled with the greatest care. Keep the strychnine solution and the soaked corn out of reach of children and all domestic animals.—A. C. Arny, Assistant Agriculturist, University Farm, St. Paul.

A NEW HORSE DISEASE.

Dourine is popularly known as equine syphilis, horse pox, breeding-disease, and covering-disease.

It is very probable that range mares from a large dourine-infected district in Montana have been shipped out of Montana and into neighboring states, including Minnesota. Some mares that were known to have been exposed and some that were actually affected with dourine were shipped into Minnesota during the past year. The shipment was reported by Federal authorities to our State Live Stock Sanitary Board and the affected animals were promptly destroyed. It is easily possible that other exposed mares, showing at the time no symptoms of the disease, have been shipped into this State, hence the issuance of this bulletin as a warning to owners of horse-breeding stock to be thoroughly on guard.

It seems advisable to issue a general warning to all owners of horse-breeding stock, especially to owners of stallions which are liable to come in contact with Western mares, urging them not to allow their stallions to serve range mares that have not been in Minnesota for more than one year.

Owners of mares should not patronize stallions that have come from Montana, North Dakota, or South Dakota within three years, or other stallions, unless their breeding-history is well known. Owners of healthy breeding-stock cannot afford to take chances. Infected stallions should be castrated and infected mares killed, regardless of value.

All horsemen who do not already have full information with regard to dourine should secure the free bulletin on the subject, recently published by the Agricultural Extension Division. It may be secured by addressing the Office of Publications, University Farm, St. Paul.—W. L. Boyd, Assistant Veterinarian, University Farm, St. Paul.

FLOUR INSECTS.

Not the Housewife's Fault, But the Miller's, Usually.

Sometimes weevils and so-called "bugs" found by a housekeeper in her flour are there because of carelessness in keeping the flour bins clean. Generally, however, these pests come from the mill from which the flour or meal was purchased. To avoid criticism in this connection, millers should not only practice the greatest care in keeping the mills clean but resort occasionally to fumigation.

Hydrocyanic acid gas is the best agent for this purpose, since it in no way injures dry mill products of any kind, and the fact that it is extremely poisonous makes one very careful in handling it.

Heating all parts of a mill up to 122° F., and holding it at that point for several hours will also kill mill pests and their eggs. Insects in grain stored in bins or elevators call for treatment with bisulphide of carbon the gas from which is inflammable. The process is attended with more danger than is the hydrocyanic acid gas treatment.—F. L. Washburn, Entomologist, University Farm, St. Paul.

SECONDARY CAUSES OF DISEASE.

Aside from germs there are secondary causes, or predisposing or contributing factors, which simply make it easier for disease germs to get a foothold in a living body, and produce their own disease there. Contributing causes lower the vitality or natural resistance of a person or an animal, and render that individual or animal less able to fight off diseases when exposed to them. Secondary causes or predispoing factors that may be mentioned are improper food; impure drinking water; uncleanliness; unsanitary surroundings, such as poor drainage, lack of sunshine, and insufficient ventilation; overwork, and exposure to extremes of heat and cold. By avoiding and correcting these, whenever and wherever posible, much diseae will be avoided.

Bulletin 44, of the Farmers' Library, contains much useful information regarding the cause, prevention and cure of diseases of animals. Write to the Office of Publications, University Farm, St. Paul, and a copy will be mailed to you, free.

O. H. Benson of the United States Department of Agriculture, Washington, D. C., has general supervision of the boys' and girls' club work in the northern states and a great many valuable bulletins on different club projects may be secured by addressing him. The Agricultural Extension Division of the University of Minnesota also has a number of circulars and bulletins on contest work.