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ORCHARD AND GARDEN NOTES

May 15-22

Keep the onion field clean and well cultivated.

Make another sowing of peas, beans, beets, carrots, spinach, and Swiss chard.

Clean seed, clean soil, and good cultivation should give a good crop of potatoes this year.

Thorough cultivation must be given vegetables, fruit and flowers, if best results are to be obtained.

Don't forget to plant a few nasturtiums, California poppies, petunias, or other annuals in the garden.

January-sown pansies are on the market in full bloom, and bring from fifteen to thirty cents a dozen.

Peppers and egg-plant should not be planted outside until settled warm weather arrives about the last of May.

Plant a few gladioli bulbs. They provide excellent cut flowers in early autumn. The bulbs are cheap this year and should be planted in quantities.

A few radish seed scattered with onion or other slow growing seed will mark the rows so that cultivation may begin even before the plants are up.

It pays to prepare vegetables as well as fruits neatly for market. Clean, attractive packages do not cost much more than unattractive ones and bring much better prices. Try it.

Liver of sulphur (powdered sulphur) dusted on the leaves of roses and other garden plants inclined to mildew will keep it in check.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul, Minnesota.

ORCHARD AND GARDEN NOTES

May 22-29

All annuals and bedding plants may go into the ground after May 30.

Peas and beans may be planted between rows of newly set raspberries to advantage.

Don't plant melons, squash or other tender heat loving plants outside until about May 20 or 25.

White Spine cucumber is a good variety to use because of its quality and productiveness.

Soak celery or tomato plants thoroughly for several hours before transplanting. This will enable you to carry more dirt with the plant.

Use the best and most up-to-date machinery possible to obtain. Where large areas are to be cropped the machine requiring the least effort for the most work is desirable.

Hot bed or greenhouse plants should be "hardened off" before being set in the field. They are hardened by giving them all the air possible and by reducing the amount of water. Cabbage and tomatoes have a bluish cast when hardened.

Flowering cannas requires a warm, rich soil and must be given plenty of water in hot weather. Many varieties flower well. The bulbs are quite easily stored over winter if not allowed to get wet or too dry.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul, Minnesota.

SPRAYS FOR LICE AND CURRANT SAW FLIES

Farmers at this time of the year should watch their shrubs very closely so that attacks of insects may be controlled before they become serious, says William Moore, of the Minnesota Experiment Station. The snowball and other shrubs show the presence of plant lice at this time. The lice are found on the under side of the leaves, where they suck out the juice, causing the leaves to curl. Currants are very likely to suffer from plant lice at this time. Spraying should be done before the leaves are badly curled. The spray to use is tobacco extract—a 40 per cent solution at the rate of one tablespoonful to a gallon of water, with about a half-pound of soap for each five gallons to make the spray stick. Currant saw fly or "currant worm" also appears about this time. Spraying early with arsenate of lead will prevent injury to the currant, but if the berries are well-grown when the worms make their appearance, hellebore should be used as this will not be poisonous on the fruit. Hellebore is a powder and should be freshly bought and sprinkled over the plant while the dew is on.

The currant worm can be killed also with tobacco extract, and, if the aphid is also present, probably a thorough spraying with tobacco is the best treatment.

NEW WAY OF ENDING TYPHOID EPIDEMICS

"Boiling the water has been superseded as a means of combatting typhoid epidemics caused by tainted public water supplies," says Dr. H. W. Hill, of the Minnesota Public Health Association. Boiling the water is just as good as ever it was, but a better, because quicker and more comprehensive, method has been found.

"At Benson, Minnesota, during the typhoid epidemic last fall, a portable hypochlorite apparatus, for the treatment of infected water supplies was used. It was designed by H. A. Whitaker of the Minnesota State Board of Health in 1910, and the United States Public Health Service has just published a report of which it is the subject. The apparatus can be in full running order within a few hours after it has been received at any point. Once it is operating, the typhoid germs are put out of commission. Wherever this treatment has been installed for infected water, the results have been the entire destruction of the typhoid germs in the water supply."

LICE ARE CARRIERS OF TYPHUS FEVER.

Body-lice are of peculiar interest now from the discovery that the dreaded typhus fever is carried by them, says Dr. H. W. Hill, of the Public Health Association. The old idea that typhus fever resulted from a run-down condition due to poverty, starvation, and hardship is thus explained. But poverty, starvation, and hardship really had nothing essential to do with it. The bite of an infected louse will give typhus to a doctor, a nurse, or a king as quickly as to the meanest slum dweller. In the big war, spraying with purified turpentine (it must be purified, to prevent irritation of the skin) and even dusting the underclothing well with pulverized sulphur to be left in place for at least twenty-four hours while the clothing is worn, have been found efficacious.

"GET" THE FLY, OR IT MAY "GET" YOU

The best way to eliminate houseflies, at their deadly work as carriers of disease, is summarized in the following rules taken from a circular by C. W. Howard, issued from the office of the State Entomologist:

Prevent their breeding in stable manure by drawing it out daily if possible, or at least twice a week in summer and spreading it on the field. If it cannot be drawn out so often, then store it in fly-proof manure closets or bins, or even in covered barrels.

Prevent breeding in kitchen garbage by storing garbage in tight tins until it can be drawn out, buried, or burned.

Prevent breeding in privies or outdoor closets by making them fly-proof.

Prevent the possibility of flies carrying disease infection by proper disposal of garbage, by constructing fly-proof privies or by installation of a septic tank system, by fly-proofing the houses and by insisting that dealers in food make their stores fly-proof.

THERE IS PROFIT IN ROAD-DRAGGING

Good roads save money, because:

They cheapen transportation to the markets.

They reduce the drain upon capital invested in horses.

They prevent waste of time, and "time is money."

They add to the joy of living, and joy adds to the effectiveness of life.

Good roads may be had by dragging.

Use the drag.

APPLES ARE IMPROVED BY CAREFUL THINNING

Superior fruit always sells. Size and color attract the eye and win the favor of purchasers who would otherwise hesitate. Well-colored Wealthy apples often bring 50 cents a barrel more than poorly colored fruit of the same variety. The Wealthy is the leading commercial apple in Minnesota. The present season promises a large crop, too large a crop in fact, says R. S. Mackintosh, University Farm, St. Paul. For this reason every owner of an orchard should make it his aim to get, not the largest possible crop, but the best possible crop. By sacrificing quantity he can improve the quality of his product. This shift from quantity to quality is made by "thinning." Thinning should be done in the early summer. To thin properly, but one fruit in a cluster should be left, and there should be about six inches between fruits. Poor, mis-shapen, or injured fruits should be removed. The earlier the work is done after the imperfect fruits have dropped off, the better will be the results.

ITALIAN BEES FOR MINNESOTA APIARIES

Pure-bred Italian queen bees, from the best breeding queens that could be obtained in the east, have been placed within the reach of the bee-keepers of Minnesota by the Minnesota College of Agriculture.

Francis Jager, head of the Division of Bee Culture, says he will have 3,000 such queens for distribution at 25 cents each and that he will begin to fill orders on June 1, dating requests in the order in which they are received.

Mr. Jager says the Italian bees are gentle and may be handled by anybody, that they survive the winters well, and are industrious workers; that they are very superior to the average run of bees in Minnesota, which are savage, often sting badly, and are generally hard to manage.

THE FLIES' REVENGE

Ten little flies
All in a line;
One got a swat!
Then there were.....

Nine little flies
Grimly sedate;
Licking their chops—
Swat! Then there were.....

Eight little flies
Raising some more—
Swat, swat! Swat, swat!
Then there were.....

Four little flies
Colored green-blue;
Swat! (Ain't it easy)
Then there were.....

Two little flies
Dodged the civilian—
Early next day
There were a million!

—Buffalo News.

Swatting flies helps some, but not much. The best way to remove these carriers of typhoid and other diseases is to clean up their breeding places—piles of refuse about horse stables. Do it now, and enjoy a flyless summer.

CANKER WORMS A MENACE THIS YEAR

Measuring worms, or canker worms, are worse than usual this spring in the vicinity of Minnetonka, and elsewhere in the State.

The young caterpillars or loopers are now very small, and, where spraying can be done, as in an orchard, the early sprays containing arsenate of lead will be very effective. The only protection for large shade, or forest trees now is to band those not in contact with other trees, with tree tanglefoot or other sticky material, thus catching the worms as they crawl from tree to tree.

It has been definitely proved that both the fall and the spring canker worms are here, says A. G. Ruggles, of the Minnesota Experiment Station. The only difference between the two varieties is that the adult moths of the fall canker worm leave the soil and lay eggs on the trees in the fall, while the adults of the spring canker worm leave the soil and deposit eggs in the spring. The proper time to "get" these insects is at the egg-laying period. Tanglefoot around tree trunks catches the wingless moths on their way up the tree to lay eggs.

SAVE YOUR APPLES FROM "GREEN BUGS"

The apple plant louse, aphid, or "green bug," is very plentiful on the apple leaves this year and probably will do a tremendous lot of damage to the setting fruit, says A. G. Ruggles, University Farm, St. Paul. We have found that the best spray for these insects is a tobacco extract containing 40 per cent or more of nicotine in the form of nicotine sulfate. Several products are on the market, notably Black Leaf No. 40. A half-pint of this in 50 gallons of water is very effective. If this material, or an equally good one, is not to be obtained on the market, a home made preparation may be used, but its qualities are not reliable. This home-made spray is made as follows:

Steep tobacco stems in water sufficient to cover them. When the strength has been well drawn out, the liquid is the color of fairly strong tea. The commercial product may be added at the regular rate to the ordinary spray compounds such as arsenate of lead plus Bordeaux mixture or arsenate of lead plus lime sulfur. If the tobacco is used alone, it is better to add whale oil soap at the rate of 3 to 5 pounds for every 50 gallons of the spray.

Remember, the best time to spray in order to prevent wormy apples, is just after the blossoms fall.

TANKAGE FOR HOGS OUTDOES OIL MEAL

Tankage, as a supplement to corn rations for hogs, is more profitable than linseed oil meal at present prices, and for nearly all classes of hogs is a more valuable feed.

Recent tests at the Minnesota Experiment Station are of interest to every Minnesota hog raiser who does not have plenty of milk or buttermilk. R. C. Ashby, in charge of swine at the University Farm, gives the following results with hogs fattened for market last winter.

Of five lots of hogs fed from December 22, 1914, to February 24, 1915, three were fed on corn, shorts, and tankage, and one on corn, shorts, and oil meal. The average ration for the tankage lots was:

Shelled corn	84.45 per cent
Shorts	7.37 " "
Tankage	7.47 " "

The average ration of the oil meal lot was:

Shelled corn	77.83 per cent
Shorts	8.20 " "
Oil meal	13.58 " "

The initial weight of the oil meal lot was 136.75 pounds; the final weight 211.70 pounds; the average daily gain 1.17 pounds; the number of pounds of grain for each 100 pounds of gain was 531.13; and the profit per bushel of grain 5.3 cents. The average initial weight of the three tankage lots was 138.83 pounds; final weight 228.17 pounds; the average daily gain 1.39 pounds; the number of pounds of grain for each 100 pounds of gain 482.16; and the profit per bushel of grain 12.5 cents. All feeds were paid for at the following prices: Corn 50 cents a bushel; shorts \$26 a ton; oil meal \$36 a ton, tankage \$50 a ton.

From December 24 to March 23, Mr. Ashby had on feed five lots of fall pigs, each lot receiving somewhat different rations. Of these one lot was fed corn, shorts, and tankage, while a second lot was fed corn, shorts, and oil meal. The tankage fed lot made an average gain of 0.722 pound a day, and the oil meal lot 0.621 pound a day. The tankage fed lot made 100 pounds of gain for each 376 pounds of grain eaten, while the oil meal lot required 460 pounds of grain for each 100 pounds of gain. The feed cost of 100 pounds gain on the tankage lot was \$4.32 and on the oil meal lot was \$5.27.

Tankage is a product marketed by the packing houses and is obtained from animal carcasses—blood, meat scraps, etc. It contains 60 per cent of protein and from 15 to 17 per cent of mineral matter, while oil meal contains 31 to 33 per cent of protein and from 6 to 7 per cent of minerals. Mineral matter is used to build bone and frame, and protein is used to develop muscular tissue, blood, and vital organs. Tankage is rich in lime and phosphorus, two materials greatly needed by young hogs and brood sows.

A certain amount of oil meal is good, but a mixture of the two feeds is better. The man who can supply all his feeds at home is fortunate. He who must buy should secure those materials which serve his purpose best and give the largest return for their cost price.

POISON THE GOPHER; PROTECT YOUR CROPS

This is a good time of the year to poison pocket gophers, says F. L. Washburn, University Farm, St. Paul. A piece of potato or apple about an inch square, into a cut in which is introduced a very little powdered strychnine, makes an excellent bait. If not already open, the branch gopher hole which comes to the surface, should be opened with a trowel, and the bait should be thrown down as far as it will go. Strychnine, of course, is a deadly poison and should be kept out of the reach of children.

Striped gophers can be killed at this time of the year with poisoned wheat or poisoned corn, but this should be kept out of the way of chickens and other creatures of the farm.

KILL THE WARBLE GRUBS ON CATTLE

Owners of cattle should be on the look out for warbles on the backs of their animals this spring, says C. W. Howard, of the Division of Entomology, University Farm, St. Paul.

Evidence of the presence of these flies is found in tumors or warbles on the backs of cattle. In the spring or early summer from these warbles drop grubs which burrow into the ground and after about a month emerge as flies. These flies lay their eggs on the legs of cattle, the cattle lick the eggs off, and after a time the warbles appear on the backs of the cattle. The grubs may be removed by pressure around the warbles, and then crushed; or they may be destroyed by the injection of grease or oil into the openings of the tumors. In Europe from 20 to 40 drops of tincture of iodine is sometimes injected to kill the grubs.

DATE FOR RURAL LIFE MEETING JULY 27-31

A Rural Life Conference and Short Course for Country Life Leaders will be held at University Farm, St. Paul, July 27 to 31 inclusive. This is a conference for all interested in any way in country life and the development of its resources.

A speaker and rural worker of great ability has been secured for a series of interesting lectures. This man is Charles Otis Bemie, of Pennsylvania, who comes to Minnesota with the highest recommendations, and with a list of lectures which indicates that he has studied the problems of rural development from various important angles. Others on the program will be Rev. E. C. Hickman, Byron, Minnesota; Rev. E. H. Edwards, Castle Rock, Minnesota; A. M. Locker, Secretary of the Minnesota Sunday School Union, and various members of the Faculty of the Minnesota College of Agriculture.

Those attending the conference can secure accommodations in the dormitories on the campus at a charge of \$5 for board and room for the week.

For further information address A. F. Woods, Dean, Department of Agriculture, University Farm, St. Paul.

TEACHERS' TRAINING SCHOOLS OPEN JUNE 14

Teachers' training schools will be held from June 14 to July 24 at University Farm, St. Paul; the School of Agriculture, Crookston; and the School of Agriculture, Morris.

These schools are organized and maintained by the Department of Education of Minnesota. The courses are open to teachers of rural and other elementary schools of Minnesota, free of charge. The object is to offer instruction in methods of teaching; school organization and management, emphasis being placed on the professional side of the training of teachers; to offer review work and credit courses in the subjects required for common school certificates; to give special instruction in agriculture, manual training, and home economics, and in drawing and music. Courses will be offered in subjects for first and second class certificates.

For full information address J. M. Drew, Registrar, University Farm, St. Paul; C. G. Selvig, Crookston, Minn.; or E. C. Higbee, Morris, Minn.

CALVES NEED CARE IN FIRST SUMMER

The first year of a calf's life is the most important with respect to its growth. Unless animals are kept growing during this period their final development will be much retarded, and the chances are they never will reach the scale which their inheritance would give them, says R. M. Washburn, University Farm, St. Paul.

On the best regulated dairy farms calves are born in the autumn and early winter, and they should receive skim milk in moderate quantities through much, or all, of the summer following birth. On farms having hand separators there is no difficulty in providing the sweet milk for calves, morning and evening; but farmers who patronize whole-milk creameries or who still skim by hand should remember that after the first few weeks milk for calves should either be thorough sweet or fully sour, that the most dangerous condition is the half-sour stage. If milk is fed to calves when it is in this changing condition it is almost certain to cause indigestion. It should not be half sour, nor sour one day and sweet the next, but always one or the other.

Clean feeding pails must be used, otherwise the germs of fermentation and diarrhoea will be brought to the infant cow from the slime of the dirty drinking dish, and with young calves it is important that the temperature at which the milk is fed be nearly that of the body. Older animals may receive milk of the temperature of the milk-holding tank.

While it is very important that heifers should have free access to pasture during the second summer, to develop strong bodies, the calf need not have pasture the first summer. In fact, for calves born after the first of the year, pasturing may be a disadvantage. Most young calves in this country are better off chewing tender hay in the quiet and half-dark stable than fighting flies, panting from the heat, and cropping tough grass in the pasture.

Celery, cabbage, and other plants of this sort do much better if transplanted once or twice before going into the field. They will form a much heavier root system, which is desirable in all plants.

The following are excellent roses for Minnesota and will do as well as any varieties: Mrs. John Laing, Frau Karl Druski, General Jacqueminot, M. P. Wilder, Anna Diesbach, Clio, Gruss-an-Teplitz, Madam Plantier.