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## ORCHARD AND GARDEN NOTES.

May 1-8.

Set out a strawberry and a raspberry bed.

Make another sowing of peas, spinach and radishes.

See that a bird bath is built, out of reach of the cat.

There is still time to sow grass seed and establish a good lawn.

Every garden should have an herb border. Many of the herbs are ornamental as well as useful.

Roses should have been pruned before this, but may be gone over now. All weak or injured wood should be cut out.

Plant a few gladioli bulbs, and follow this with other plantings for several weeks. This will give a longer season of flowers.

A good hand cultivator makes gardening easier. With proper attachments, furrows may be opened, seed covered, and weeds killed.

Plant a few pots or berry boxes of cucumbers, melons, or other vegetables for early use. Keep in cold frame or hotbed until the latter part of May, when all danger of frost is over, and then plant out.

Set out shade trees and shrubs if it has not been attended to. Spread the roots well and fill in with fine rich soil. Always make this soil firm about the roots. Leave the top soil loose. —LeRoy Cady, Associate Horticulturist, University Farm, St. Paul, Minnesota.

## ORCHARD AND GARDEN NOTES.

May 8-15.

Do not plant out tender vegetables or bedding plants until about May 25.

To get white cauliflower tie the leaves over the head as soon as the head is formed.

Strawberries may be set out at this time. The Senator Dunlap is a good variety.

Plant a few Lima beans. The dwarf varieties ripen a little ahead of the pole sorts and are as good.

The beauty of a shade tree depends on its even natural growth. It must be pruned to prevent the growing of too many branches, to give shape, and to get out dead wood, but the pruning should not mutilate the tree.

In a recent Illinois Supreme Court decision it was held that a community has the right to exclude the bill board entirely from its residence districts and to regulate the size and character of such boards anywhere within its limits. —LeRoy Cady, Associate Horticulturist, University Farm, St. Paul, Minnesota.

## LOSS OF BEES MIGHT HAVE BEEN PREVENTED

The bee-keepers in Minnesota last winter suffered a loss of nearly \$200,000. Various causes for this loss are given by Francis Jager, chief of the Division of Bee-Keeping, University Farm, St. Paul. The emphasis, however, is on the need of careful wintering, and the secret of successful wintering lies in strong colonies of good strains of bees, a sufficient supply of pure honey, and a liberal amount of good luck.

The artificial feeding of bees was necessary last fall. Most bee-keepers used almost any sweetened medium. Mr. Jager at University Farm used the best grade of sugar mixed with an equal amount of water. He stored his bees in a dry cellar which was kept at an even temperature of about 42 degrees. Whereas the loss to some bee-keepers of the State was something like 60 per cent, there was no loss at all at University Farm.

For wintering, no strain of bees can be compared with the Carniolans. They lie practically dormant and eat little or no honey through the winter.

## THREE HINTS FOR UP-STATE POTATO MEN

Northern Minnesota has splendid opportunities as a potato region, but, says M. J. Thompson, Superintendent of the Northeast Experiment Station of Duluth, "we must fight the menace of disease." In this fight Mr. Thompson recommends three things:

Selection of disease-free stock as far as possible.

The planting of this stock in new land or in clover or blue grass sod, never repeating immediately on old potato land.

Treating potato seed before planting, with either formaldehyde or corrosive sublimate.

## SPARE THE HOUSE-FLY AND SPREAD DISEASE

The fly is preparing to make an attack on the health of your family, of yourself, and of your pocket book.

The house fly breeds, usually, in fresh manure. The more of this waste that is allowed near the house, the more will the dwelling be infested with flies. Not only do flies breed in filth, but they have filthy habits. They are distributors of disease germs of all kinds, including tuberculosis germs. Extreme care should be taken therefore to destroy breeding places and to keep flies out of the house.

Extension Bulletin No. 43, by F. L. Washburn, Entomologist of the Minnesota College of Agriculture, tells of the fly's habits and how to control the pest. Free upon application to the Office of Publications, University Farm, St. Paul.

## ARE YOU OPERATING A MOSQUITO FARM?

Do you know that you are probably a breeder of mosquitoes? Many a man keeps a regular mosquito farm and does not know it. Are you one of this kind? You are, if on your premises you have open water barrels, empty tin cans, open water tanks, marshy or low ground that holds the water after rain. Of course, if you like being bitten by mosquitoes and like to run the risk of having them carry to you some taint of disease, why you will not do anything to destroy the mosquito breeding places. If the people of every community would get together on the mosquito question, the "domestic" mosquito could be eliminated.

Assistance in such work may be found in Extension Bulletin No. 55, by C. W. Howard, of the Minnesota College of Agriculture. Copies free on application to the Office of Publications, University Farm, St. Paul.

## CUT WORMS KILLED BY USE OF POISON

The cut worm will get your garden truck if you don't watch out. If you haven't fall plowed, you may successfully fight the pests by the use of poison.

A slightly different formula from the old-fashioned poisoned bran mash was found very effective against grasshoppers in Kansas in 1912, says A. G. Ruggles, of the Minnesota Experiment Station. In 1914, this mixture was very successfully used against crickets, army worms and cut worms.

The formula for the Kansas mixture is as follows: Bran, 1 lb.; Paris green, 1 oz.; syrup, ¼ pt.; orange or lemon, ¼ of; water, 1½ pts.

Mix the bran and Paris green separately while dry. Squeeze the juice of the orange or lemon into the water, grating the peeling and pulp, and adding this also to the water. Dissolve the syrup in this mixture and wet the poisoned bran, stirring thoroughly. This mash is scattered around the infested areas.

## CLEAN FLAX SEED FOR CLEAN LAND

The methods of controlling flax wilt are simple. In the main they call for the sowing of clean flax seed on clean land, says E. C. Stakman, of the Minnesota Experiment Station.

To obtain clean seed, first fan it carefully; then grade it, in order to remove all of the light kernels and bits of chaff and other materials which may harbor germs, and, finally disinfect the bright healthy seed, obtained by fanning and grading, with formaldehyde, one pint to forty gallons of water.

To disinfect the seed put it in a thin layer on a clean floor. Then apply the formaldehyde solution with a force pump sprayer, giving a fine mist-like spray, while someone else rakes or shovels the grain over rapidly. The idea is to moisten the outside of each kernel, but not to wet the seed enough to make it mass together.

After the seed is thoroughly treated it should be covered for two or three hours. It may then be planted immediately or be kept until time for sowing, but if it is to be kept for any length of time it should be spread out to dry in order to prevent its heating or molding. It should not be allowed to come in contact with anything which has contained untreated flax seed, since it may again become contaminated.

The seeder and other things with which seed comes in contact should be thoroughly cleansed by scrubbing them with a solution of formaldehyde made up at the rate of one pound (one pint) of formaldehyde in ten or fifteen gallons of water.

After the seed has been thus selected and disinfected it should be planted on land which has not produced a crop of flax for at least five or six years. The disease lives not only in the seed but also in the soil.

## SILAGE SUBSTITUTE FOR SMALL FARMS

On large farms, succulent feed is provided in the form of ensilage. On smaller farms, or where there is no silo, root crops, such as mangels, rutabagas and stock carrots, may be used with profit as a substitute. Silage is produced almost entirely with machine labor. Roots require a good deal of hand labor, but entail little or no extra expenses for machinery.

Ten tons of roots per acre—about the amount that can be grown on land that will yield 50 bushels of corn to the acre is not a profitable crop, but 20, or even 25, tons may easily be secured under good management, and will pay well.

Experience shows that a definite system of cropping should be arranged so that one may be preparing for his root crop a year or more ahead. Heavy manuring, followed by a crop of potatoes that can be cultivated with horse labor, will result in a good crop of potatoes, will enrich the soil, destroy weeds, and leave the soil in good shape for a root crop.

Mangels, as a rule, are the best roots to grow. They should be planted in rows from 2 feet to 30 inches apart, to allow for cultivation with a horse. From 8 to 12 pounds of seed will be required for an acre. The seed should be planted about corn-planting time, or very soon after, on deep-plowed, thoroughly disked and pulverized soil. The cultivation at first can be done with a wheel hand-hoe, later with a horse and fine tooth cultivator. When the plants are from 2 to 3 inches high, they should be thinned by chopping crosswise of the row with a good sharp hoe, leaving little bunches of plants from 6 to 10 inches apart. These bunches should then by hand be thinned to one plant. After that a large part of the cultivation can be done with a horse cultivator.

Twenty tons of roots will furnish 20 pounds of roots per day for 10 cows for 200 days. Roots are not only valuable for dairy cows, but are just as valuable for young stock and brood sows.

## PUNCHED FOR PROGRESS.

Want me to join a gold mining company? Nope! A good live potato association suits me better. Good potatoes are as good as gold.

The grunting of contented hogs in a pasture is better than the jingling of money in the pocket. The hogs keep growing, the money keeps going.

If I had a small farm and no silo, I'd grow root crops as a substitute for silage. It pays to grow twenty tons of root crops to the acre, and—it can be done!

Clean your flax seed, treat it with formaldehyde, and plant it on land that hasn't been in flax for five or six years, if you want a good yield of good flax.

"Swat the fly?" Not me! Flies breed in filth. I keep my farm clean, and my folks don't have to waste much time swatting flies. An ounce of prevention beats swatting.

Corn-planting is something of a science. You don't want to plant too thick, too thin, too deep, or too shallow. It depends on what you're planting for, on the condition of the soil, and a few other things. Study the problem as applied to your own farm.

Opportunity knocks more than once. That United States senator from Kansas, who wrote a poem saying it knocked only once, was dead wrong. It knocks all the time for the farm boy or man in Minnesota. Perhaps the poetic senator had never been in Minnesota. —The Farmer with the Punch.

## SAN JOSE SCALE AGAIN IN STATE

The State's Entomologist reports that the inspection force has found large numbers of San Jose scale on young trees near the Twin Cities. Invariably these are found on trees shipped into Minnesota, but they evidently survive the climate and reproduce in this State. The San Jose scale is most dangerous to fruit trees, shade trees, and shrubbery. Citizens finding scales on trees or shrubs will do well to send them to the Entomologist, University Farm, St. Paul, in order that they may be identified and the proper treatment may be advised.

## Spray For The Onion Maggot.

The onion maggot, which does a lot of mischief, may be fought with a new spray compounded to kill the fly which lays the eggs from which the maggots come. This spray should be applied, before the maggots appear, with a coarse spray. The mixture consists of one pint of Orleans molasses, one sixth of an ounce of sodium arsenite, and one gallon of water.

Prune spring flowering shrubs after they are through flowering. Rosa Rugosa, elder, and hardy hydrangea may be pruned in early spring.

## PORK IS PRODUCED CHEAPLY ON PASTURE

Pork is produced from 8 to 10 per cent more cheaply on pasture than in the dry lot. Last year at the Iowa Station, with corn at 50 cents, the feed-cost for 100 pounds of pork was \$3.73 on alfalfa pasture and \$4.07 in the dry lot. After adding the original cost of the pig and interest on the investment, there is left a good profit.

For Minnesota, the best pasture crops for hogs are alfalfa, rape, clover and combinations of field peas, oats, rape or clover. The following figures from three experiment stations are given for comparison and also to indicate the possible value of a good pasture:

Pork Produced Per Acre			
Crop	Missouri	Kansas	Iowa
Alfalfa	591.8 lbs.	408 lbs.	744 lbs.
Red Clover	560.7 "	400 "	728 "
Rape	274 "	202 "	865 "
Oats, peas and rape	394 "	966 "	

In all of the above tests liberal grain rations were fed with pasturage.

At the Minnesota Station last year, three-quarters of an acre of rape furnished plenty of pasture for twenty pigs from the middle of June until frost. They were given, in addition, 3 pounds of corn per day for each 100 live weight.

Allow an acre of pasture for each 15 pigs, grain being fed. Seed rape now or later, using four to six pounds of seed per acre. By making a couple of seedings the best of pasture is available all summer.

Good pasture combinations are: rye (early spring), rape (summer); corn in field and rape (fall); rye, alfalfa, corn; rye, clover, oats and peas.

## THREE DEADLY FOES OF THE RASPBERRY

There are three diseases of the raspberry against which every grower of small fruits should carefully guard. These are anthracnose, cane blight, and crown gall, says E. C. Stakman of the University Experiment Station.

Anthracnose forms grayish sunken spots with purplish borders on the canes, and similar spots on the leaves. It sometimes ruins entire plantations.

Cane blight has only come under observation as a serious disease in the State in the last few years. The canes first wilt. On close examination the affected portions are seen to be discolored. Later the bark peels off. The blight is gray but shows small black eruptions. The wood in affected areas is usually very dark.

Both of these diseases live during the winter on affected canes and the greatest precaution should be taken therefore, to keep them cut out. As soon as the canes are cut they should be burned. All old canes should also be promptly removed.

Evidence shows that a raspberry plantation ceases to be very profitable after about four years, and a rotation should, therefore, be practiced.

If spraying is resorted to, also, it should be begun about the time the leaf buds are commencing to break. The canes should be well protected until they are, at least, two thirds grown. It is questionable, however, whether or not spraying raspberries pays commercially. The methods of sanitation, before outlined, are probably more important.

Crown gall is a bacterial disease which causes tumor-like growths on the roots and at the crown of the raspberry plant. There is probably little doubt in the minds of raspberry-growers about the damage done by crown gall to raspberries. There is absolutely no method of prevention or cure except to set out healthy plants. Very serious losses can be prevented, therefore, by examining all canes carefully and by rejecting all of those which show any signs of gall, at the time they are set out.

For more detailed information write the Plant Pathologist, University Farm St. Paul.

## SEED DOWN LAND RECENTLY BRUSHED

Don't forget to seed down the land recently brushed. This will hold down the weeds and brush and give fine pasturage by September if the season is favorable. At the Duluth station 3 pounds of red and alsike clover, 2 pounds of blue grass, and 1 pound of timothy to the acre is used, says M. J. Thompson, superintendent of the station. If white clover is not too expensive, replace 1 pound of blue grass with white clover. It has been found good to drag or disk the land as far as possible before sowing, and to follow the seeding with the spring-tooth. When no work is done before seeding, to drag a second time is a good plan.

Rhubarb and asparagus should be usable soon. Rhubarb is best set in the autumn, but asparagus may be set any time in the next two weeks. Use one-year-old plants.

## SUMMER SESSION AT AGRICULTURAL COLLEGE

Opportunity knocks all the time in Minnesota. The demand for farm-reared men who have taken an agricultural college course is very large. Men who are so prepared, even if they have no teaching experience, can secure places at salaries of from \$1200 to \$1500 a year. Men similarly equipped, who have had teaching experience, can secure places at salaries of from \$1500 to \$3000.

It is in part to meet the demand for such men, to keep open the doors of opportunity, that the Department of Agriculture of the University of Minnesota holds a summer session. The summer session this year, under the direction of A. V. Storm, will open Monday June 14 and end July 24. Students must register Friday and Saturday, June 11 and 12.

The courses offered are: Agronomy and Farm Management—Farm Crops, Farm Management, and Grain and Corn Judging.

Agricultural Chemistry—Chemistry of Plant and Animal Life. Agricultural Education—Methods, Teaching, and Organization and Management.

Dairy and Animal Husbandry—Breeds and Types of Live Stock, Feeding and Management of Market Stock, Poultry, Elements of Dairy Husbandry, and Incubating and Brooding.

Entomology—Economic Entomology. Home Economics—Textiles, Garment Making, Dressmaking, Foods and Cookery, Food Economics, Methods in Home Economics, and Drawing and Design.

Horticulture—Landscape Gardening, and General Horticulture.

Soils—Soil Physics and Management. Vegetable Pathology and Botany—Plant Pathology, and Agricultural Botany.

Veterinary Science—Veterinary Medicine.

Bulletins giving further particulars can be secured from J. M. Drew, Registrar, University Farm, St. Paul.

## SOME FACTS ABOUT CORN-PLANTING

For grain production, checking corn 3 feet 6 inches or 3 feet 8 inches, with 3 to 4 kernels per hill, is the method usually followed in Minnesota, says A. C. Arny, of the Minnesota College of Agriculture. Checking the corn permits cultivation both ways and gives a better opportunity to keep it free from weeds than does drilled corn. When the soil is exceptionally free from weeds, the corn may be drilled to advantage, and the plants should be from 12 to 14 inches apart in the row.

For silage, or for bundle-corn to be fed without husking, a plant every 6 or 8 inches in the row, either checked or drilled, will produce a larger yield and better quality than thinner planting.

From 1 to 2 inches is a good depth to plant if the soil is moist. If there is no moisture within 3 inches of the surface, the corn must be planted deeper. When the season is late and the soil still somewhat wet and cold, planting not more than 1 or 1½ inches deep is important. The deeper corn is planted the longer the time needed to reach the surface, which means that the growing season will be shortened. The probability that some plants will not be able to reach the surface is increased by planting unnecessarily deep. The corn plants cannot be made to root lower in the soil by deep planting. The permanent roots are developed about the same depth whether the corn is planted 2 or 4 inches deep.

## HARDY NURSERY STOCK NEEDED IN THE NORTH

Farmers of northern Minnesota should not purchase nursery stock until they have learned what the State Horticultural Society recommends for planting in their several localities, says M. J. Thompson, Superintendent of the Northeast Experiment Station at Duluth. The information gathered by the Horticultural Society is based upon the experience of hundreds of growers for many years. Mr. Thompson further urges farmers to buy seed corn grown within the State; for silage either Northwestern Dent, Minnesota No. 13, or Pride of the North; for mature corn Minnesota No. 23, Northwestern Dent, or some variety of flint.

## How and When to Spray

Growers of vegetables and fruit should have Special Bulletin No. 1, by A. G. Ruggles and E. C. Stakman of the Minnesota College of Agriculture. This bulletin, issued by the Extension Division of the College, treats of the various insecticides and fungicides and contains a spraying calendar as a guide to the growers in taking care of pretty nearly everything that needs spraying, from apples to sweet peas.