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ORCHARD AND GARDEN

June 1 to 8

All tender plants and bulbs may be set in the garden now.

Do not set dahlias in land that has recently been heavily manured.

Another planting of gladioli may be made now. Dahlias may also still be set.

Watch for worms on cabbage and currants. Spray as soon as the insects are seen.

Swiss chard or leaf beet makes good greens and is also much liked by poultry.

Many roots, such as beets and carrots, are much better to use during the winter if planted late.

Rosa rugosa makes a good group plant because of its foliage and its habit of bearing flowers all summer.

Keep the hedges clipped. They look better and the work can more easily be done when they are not too heavy.

If stocky dahlia plants are wanted it is well to pinch out the head when the plant is a foot or so high. Do not plant more than one or two tubers in a hill. A clump gives too much foliage and no flowers.

Have you put up a bird bath yet? No matter how simple or elaborate it may be, it should be well protected from cats.

Are you provided with a good canning outfit so that use may be made of the surplus tomatoes, corn, etc., of the garden? Now is a good time to get one.

Garden roses require sun and air. They do not want to be shut in close. Neither should they be exposed to wind and storms. Watch for insects on the foliage and get rid of them at once. When they begin to flower see that they are well supplied with water at the roots. Sometimes frequent applications of liquid manure do them good. Weaker-growing roses flower best if severely pruned in the spring.—LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minnesota.

ORCHARD AND GARDEN

June 8 to 15

Sowing of beans and peas should be made now.

Cannas do best in a warm, rich soil. They require a great deal of water.

If you cut asparagus after June 20 you do so at the expense of next season's supply.

Draw the leaves over the cauliflower heads and tie them if you want white heads.

Surplus strawberries and raspberries should be canned.

Do not cultivate beans when the foliage is wet, as it is likely to promote rusting of the foliage.

Strawberries should soon be ripe. Have you made provision for saving the surplus fruit?

If you want rhubarb to continue good until well into the summer, pull out all blossom stalks, and, if the soil is poor, give liquid manure, or mulch the plants.

Keep the ground about shrubbery and perennials spaded and well cultivated all summer. It is well to work a space two or three feet around the shrub.

Water dahlias when they are budding heavily, if the ground is dry. This will apply to most flowering plants. They require the most water just at the time they blossom.

Plant beans in all vacant places in the garden. They grow easily and may be kept for a long time after harvesting. Navy beans will yield from ten to fifteen bushels an acre.

Cabbage needs frequent cultivation to supply moisture and air to the soil and also must have plenty of plant food in the soil. Hen manure makes a good fertilizer for cabbage. Scatter it over the ground and cultivate it into the soil.

Don't neglect to cultivate the garden. Weeds or no weeds, it needs to have the soil stirred frequently. This is where many new, as well as old gardeners, fail.—LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minnesota.

USEFUL HINT FOR THE BEAN GROWER

The high price of beans has brought in the market beans of indifferent quality for seed, and beans from California and other western states. Prospective bean growers should be very careful, therefore, to have germination tests made before they plant their beans and should refuse absolutely to buy beans from California or other Pacific coast states. Beans raised in the west require from 125 to 145 days to mature. This is much longer than the growing season in Minnesota and such beans planted here are said to be practically killed by frosts before they mature.—A. C. Army, University Farm, St. Paul.

USEFUL BULLETIN FOR NEW GARDENERS

In order to promote the plan of a garden for every home in Minnesota this summer, the state committee on food production and conservation through the agricultural extension division of the University of Minnesota, has issued Special Bulletin No. 11 on gardening, by R. S. Mackintosh. This bulletin may be had free by addressing office of publications, University Farm, St. Paul.

It tells how to plan, plant and cultivate a garden, and gives interesting and valuable information as to the various vegetables, including beans, beets, cabbage, carrots, parsnips and turnips, radishes and lettuce, onions, peas, potatoes, pumpkins and squash, spinach and swiss chard, and tomatoes. An interesting feature is a planting table which names the suitable varieties of various vegetables, the amount of seed required, how far apart to plant, depth of planting, when to plant and length of row for the average family.

INSECT ENEMIES OF THE GARDEN

The insect enemies of the garden and methods of combating them are given herewith:

Tomato worms.—Pick or spray with arsenate of lead.

Cabbage worms.—Pick or spray with arsenate of lead plus soap.

Cucumber beetles.—Cover with frames; apply tobacco dust or spray with arsenate of lead. For immature forms and roots apply nicotine sulphate.

Cutworms attack tomatoes, cabbages, beans, onions.—Apply poison bait, place tin or paper collars around plants, hand pick.

Potato beetles attack potatoes, eggplants, tomatoes.—Hand pick and apply arsenate of lead.

Aphis (plant lice) attack cabbage groups and other plants.—Spray with a solution of hard soap or nicotine sulphate plus soap.

CUTWORMS INVADING MINNESOTA GARDENS

Cutworms are invading the war gardens of Minnesota. In not a few localities they are likely to undo the work of the patient and hard-working gardeners, as they are persistent and do not disappear until they have eaten all they want.

They should be starved, killed outright, or poisoned. They may be starved and killed by careful cultivation, and they may be poisoned by the use of a bait that consists of shorts 50 pounds, paris green 1 pound, molasses 1 gallon and water 1½ gallons, for each acre.

Shorts or bran and paris green should be mixed dry. The molasses should be stirred into the water and then poured slowly over the shorts, as they are stirred with a paddle or with the hand. The bait should be scattered over the field late in the afternoon.

3 SHORT COURSES FOR RURAL TEACHERS

Three special short courses will be given in connection with the teachers' training school at University Farm, June 18 to July 27. These are for principals of consolidated schools, for teachers of home training in Class B consolidated schools, and for teachers of rural demonstration schools.

The short course for consolidated school principals includes a study of consolidated school problems, school administration, elementary school supervision, and playground supervision. The course for teachers of home training requires a full program for the student during two summer sessions. The course for teachers of rural demonstration schools includes a special course by the supervisor of training departments, a course in nature study, and elective work in primary methods, in handwork, and in other subjects.

HOME-MADE CHEESE MEAT SUBSTITUTE

Make cheese at home and sell meat, is a suggestion made by R. M. Washburn, University Farm, St. Paul, as one means of helping to meet the present food shortage, which is certain to continue.

Cottage cheese, made from skimmilk, is a very wholesome, growth-promoting, and strength-giving food, adds Mr. Washburn. For the general farm family 1½ pounds of cottage cheese will take the place of a pound of meat. Ordinary market cheese is so easily transported and used that there is a large demand for it for shipment, but farmers' wives can readily make their own dairy cheese. Almost no outlay of tools is needed, the cheese can be made in

TEACHERS' SCHOOL OPENS ON JUNE 18

From 1,200 to 1,500 teachers from the schools of Minnesota are expected to attend the teachers' training school at University Farm, St. Paul, June 18 to July 27.

This school is held every year by the department of agriculture and the state department of education. The object of the courses offered is to give teachers a chance further to equip themselves for their work.

The subjects studied are arranged according to groups so that students may obtain either academic or professional credits.

Three short courses are included—one for principals of consolidated schools, one for teachers of home training in class B consolidated schools, and one for teachers of rural industrial schools.

Excursions to interesting points in the vicinity of the twin cities, addresses by leading educators and other specialists, play hours, and entertainments will be attractive features.

Instruction is free to all Minnesota teachers.

BEEES READY TO HELP IN FOOD PRODUCTION

Armies of industrious and busy bees are ready to help solve the food shortage problem under proper direction. Persons who have no land and are anxious to help increase the food supply might keep bees, says Francis Jager, head of the division of bee culture at University Farm. Mr. Jager believes that last year's production of 300,000,000 pounds of honey should be increased at least 100,000,000 pounds this year, and that every pound of honey will release a pound of butter or of sugar for other food purposes. This is mentioned as the present supply of sugar in the United States is 10 per cent below the average and the shortage may become acute by July or August.

Mr. Jager urges that bee keepers should sell no honey until they have received official government quotations. Reports will be published in all bee papers and also wired to the secretary of every beekeepers' association on application.

PATRIOTS ARE URGED TO GROW MORE FLAX

Flax promises to be an unusually profitable crop this year. There is a shortage of nearly 8,000,000 bushels in this country and in Canada and Argentina, and a still greater shortage is probable next year. Moreover, the war is going to increase the demand for linseed oil. For these reasons and for the further reason that the plowing of new areas for flax increases the cultivated land available for foodstuffs next year, the government is making a special effort to encourage flax growing this spring, especially as flax can be seeded late—up to June 15.

To aid those who wish to put in flax but have no seed, F. E. Balmer, state leader of county agents, is calling upon the county agents of the state and others to report any surpluses of seed they may know of, in order that those without seed may be supplied. Farmers, bankers, and grain dealers are expected by the government to give the same kind of information to Mr. Balmer or to C. H. Clark, a government flax specialist, who has taken charge of the work in the northwest, and has an office at 326 Flour Exchange, Minneapolis.

JUNE NOT TOO LATE FOR HATCHING CHICKS

Late chicks may be made to help increase the supply of poultry flesh and eggs which is woefully short, says A. C. Smith, University Farm, St. Paul. For this reason the hatching season should be extended. The larger breeds can not be hatched in June and July and be made to lay in November or even in December, but pullets of light and middle weight breeds that will begin laying in midwinter can be hatched at any time in June and so can broilers which are sure to bring an exceedingly good price this year.

Chicks hatched in the latter part of May or in June and July can be raised more cheaply than chicks hatched at any other time.

Late hatched chicks should have a run apart from the old fowls and from chicks hatched earlier. A field that has not been occupied by chicks or fowls earlier in the season is desirable. Give late hatched chicks the same chance that was extended earlier ones and the profits will be more than satisfactory.

about an hour, and it is ready to eat in from two to four weeks. It will keep for several months.

For a circular of information, address the Dairy Department, University Farm, St. Paul.

DAIRY COW EXCHANGE AT UNIVERSITY FARM

The dairy husbandry division of the Minnesota College of Agriculture is starting a dairy-cow exchange, announces H. H. Kildee, head of the division. It is calling upon farmers who have more dairy cows and heifers than they need or can feed to list such animals with the division so that sale lists may be made up and sent out to prospective buyers.

The aim is to prevent the needless slaughter of grade dairy cows and heifers capable of returning a large income from milk and butter fat. The demand for dairy products is rapidly increasing and promises to increase still more rapidly in the next two or three years regardless of the length of the war. The slaughter of dairy cows at this time, therefore, is something like killing the goose that laid the golden egg.

Before deciding to sell to the butcher, the farmer should communicate with the dairy husbandry division, University Farm, St. Paul, in order that his surplus stock may be placed where it will be of the greatest service to the people.

SCHOOL NURSES ARE NEEDED IN SUMMER

"Communities that are really in earnest about infant welfare work will retain their school nurses during the summer months to look after the babies and mothers," says Dr. I. J. Murphy of the Minnesota Public Health association.

"Each year the number of school nurses retained for general public health work during the summer months increases. These are some of the things school nurses find to do during summer:

"Hold infant welfare clinics and little mother's classes.

"Give instructions in prenatal care. Provide for classes in home nursing and attention during confinement.

"Make tuberculosis surveys.

"Take a school census. Examine candidates for kindergarten rooms and secure physical corrections for those needing the same and for other school children not previously corrected."

SOIL BULLETIN IS BEING DISTRIBUTED

The University library has for sale Bulletin 13 of the Geological Survey, "Surface Formations and Agricultural Conditions of Northeastern Minnesota." This bulletin contains map and text showing soil conditions in northeastern Minnesota and supplements the report on northwestern Minnesota in Bulletin 12. Bulletins 12 and 13 are of special interest to bankers, lawyers, real estate men, and farmers. They may be had by addressing J. T. Gerould, librarian, University of Minnesota, Minneapolis, at 25 cents each.

BOYS WIN HONORS IN COW TESTING

Two hundred and sixty boys, making up 24 clubs, recently completed the state cow-testing contest organized by the agricultural extension division of the University of Minnesota. For four months the boys kept records of the milk produced by each cow, the amount of butter fat in such milk, the amount of each kind of food consumed, the cost of feeds, and the cost of milk and butter fat.

Prizes were awarded as follows:

Twenty-five dollar scholarships in Minnesota agricultural schools, the gift of the De Laval Separator company; Frederick Abbe, Mora, highest individual record in the state, 96.5; Charles McClelland, Mora, best in the club having the highest average, 96; Obert Skrei, Glyndon, next highest in the club having the highest average, 95.25; Thomas Kosmoski, Faribault, with the best record in the largest club, 94.5.

Holstein calf, gift of Ed Ulrich, Bisbee: Claude Bailey, Medford, having the best record in work with Holsteins, 95.5.

Guernsey calves, gift of Jean Du Luth, Caribou and Island farms: Kenneth Strickler, Glyndon, 95; gift of F. W. McClaren, Wrenshall: Orville Mosby, Luverne, 94.75; gift of Woodend Farm: Frank Aldrich, Buffalo, 93.25.

Jersey calf, gift of C. C. Webber, Minneapolis: Harold Gridley, Buffalo, 94.

\$10, \$7, and \$5 prizes by Farm, Stock, and Home, for the best story: Walter Davidson, Medford, 97; Olaf Halvorson, Warren, 95; Ralph Thompson, Mora, 94.

Trips to State Fair: Orville Mosby, Luverne, 94.75; Carl Husen, Luverne, 94.25; Jerry Vacha, Elk River, 90.

The largest club in the state in the contest was the Medford club, with 17 members. The club which made the highest average record was the Mora club.

CULTIVATION PAYS AND IS PATRIOTIC

Careful cultivation means more corn and more corn this year means more profits to a degree that is not usually the case, for this is a year of high prices which are sure to continue. Besides to cultivate is to be patriotic.

Cultivation, says A. C. Army, University Farm, St. Paul, kills weeds, puts the soil into condition to stimulate growth, and keeps the moisture in the ground where the plants can use it.

With the seed bed firm below, mellow at the surface, and free from weeds, shallow early cultivation will kill the weeds as they start, prevent the formation of a soil crust, and retain the moisture. For this cultivation a narrow-shoveled cultivator or a light harrow, the teeth of which are adjusted to slant backward is best. The cultivator is the better of the two if there are small loose sods or other material that may prevent the corn plants from reaching the surface. Harrowing should be done on a bright afternoon when the plants are slightly wilted and not easily broken.

If the seed bed has not been thoroughly prepared, or if heavy rains have packed the seed bed after planting, medium deep cultivation, either before the corn is up or as soon as the rows can be seen, followed by deep and close cultivation each way by the time the corn is from four to six inches high, is good practice.

SILO USEFUL AS WEAPON OF WAR

Silo building in all corn areas in Minnesota is being urged by the state committee on food production and conservation as one means of meeting the world's food shortage and of helping to win the war.

Silage on the farm this year will be as effective as shrapnel on the firing line. It will also add to the profits of the farm.

The grain fed to dairy cows alone in the United States can be reduced one-fourth by the use of silage. This would mean a saving of 75,000,000 bushels of grain for human food. In Minnesota, the saving would be 4,300,000 bushels of grain, says A. D. Wilson, chairman of the state food committee. This would be a tremendous contribution in helping to bring the war to a speedy end, and consequently in saving human lives. Moreover, it would add enormously to the farmers' income.

A silo built this year, also, would be a permanent addition to the profit-producing equipment of the farm.

The advantages of the silo in brief are these:

Silage cuts the amount of grain in livestock rations.

It gives practically a certain supply of livestock feed as corn is the surest crop in the state.

It gives feed of very high quality. Because silage makes use of the whole corn plant, it is palatable and succulent especially for winter feeding when most of the feed is in a dry form, and it increases the digestibility of the dry feeds.

The silo insures the corn crop, making it possible to save corn that might otherwise be lost on account of immaturity when frosts come.

Persons interested in building silos will find facts of value in Farmers' Institute Annual No. 27, which may be had by sending 6 cents to cover postage to the Extension Division, University Farm, St. Paul.

GROVES INCREASE VALUE OF FARMS

According to the real estate men in some of the prairie sections of the state, the presence of a grove increases the sale value of a farm tremendously. Some of them place this increased value as high as \$1,000 for every acre of grove up to three acres. This is entirely apart from the value of a grove as a producer of wood or as a protection from wind. It gives the farm a more homelike appearance and makes the whole country more attractive.

Even the unsentimental farmer looking for crop values views the soil in a pretty country with a more favorable eye. To his wife there is no comparison between the cozy home nestling in a pleasing grove and the bare house on the wind-swept prairie. The former is worth to her any increased cost that she can afford to pay. The freedom from dust, the cool shade, the picnic grounds, the fun for the children, the wild flowers and the birds all appeal to her.

The real estate man whose profits depend on his ability to estimate the value of land recognizes all these points and sets his prices accordingly.—E. G. Cheyney, Minnesota College of Forestry.