College of Agriculture. Minnesota Experiment Station. Farmers' Institutes. School of Agriculture.

UNIVERSITY FARM PRESS NEWS.

Published Semi-Monthly by the University of Minnesota, Department of Agriculture, Extension Division.

Vol. II. University Farm, St. Paul, Minn., June 15, 1911. No. 12.

ntered as second class matter, Jan 15, , at the postoffice at St. Paul, Minn., under act of July 16, 1894.

Garden and Orchard Notes for June.

By Le Roy Cady.

eep the cultivator going through h orchard and garden.

ate celery should go into the den about the last of June.

f gladiolus bulbs have not been nted, there is still time up to July 1.

lake plantings of Golden Bantam other early corn up to the first of y, for late corn. Beans may also planted for late use.

Thin carrots, beets, etc., if they are ick. The extra plants become weeds, effect, if allowed to grow.

Transplant late cabbage to the field te in June, in rows three feet apart d about two feet between the plants.

If any fruits or vegetables are arketed, see that they are put up in ean, neat and well-graded packages. hey will sell quicker and at a better ice.

It often pays to grade strawberries ry carefully. A customer pleased d satisfied means a steady market r produce.

Keep the coleus and other foliage ants, used as borders, trimmed even-. Neatness and symmetry pay in the namental garden.

If the plums or apples are setting o much fruit, thin out some of it. hat is left will be much better and ill pay for the extra work.

If the lawn is weedy and the grass es not seem to make a good growth, ply nitrate of soda at the rate of 0 to 200 lb. per acre. Scatter broad-st just before a rain or before water-g. Nitrate of soda may also be used spinach and other leaf crops to ad-ntage.

Watch the currants and goose-rries for the currant-worm. As soon it appears use Paris green and lime, enough Paris green in slaked lime to ve the lime a greenish tinge. Dust er the plants while wet. If the orms appear near fruiting time, pick e fruit and then apply the poison, as will otherwise disfigure the fruit.

Stop cutting asparagus about June , if you want a good crop in the ture. It is well to manure the bed oroughly after the last cutting, and ork the manure well into the soil. sparagus stores up a large part of its od in the late summer and fall for xt season's growth, hence it should well fed and cultivated while mak-g this growth.

Tulips and other spring flowering lbs—which are in the way of plant-g bedding plants, such as geraniums, leus, etc.—may be taken up and left a cool, shady place until the leaves e dry, and then stored in a cool llar until fall, when they may be re-anted. They may be left where they and unless the space is needed for her plants.

Kitchen Economy.

Hang up the broom! It will last nger, and sweep better, if properly red for; and if always in place, is sily found. When through using the ub-brush, wash, rinse and put to dry istle side down. Treated in this way is always clean and is more durable. The period of usefulness of the vege-ble-brush is lengthened by half if red for in the same manner.

Mops and all cloths used in cleaning ould be washed in clean water, and ng in such a manner that they will y quickly. They will then be clean l sweet when again needed.

Wash the dish-cloth in clean soapy ter, rinse, wring dry, and hang in h a manner that it will dry quickly. ng out-of-doors if possible.

An oiled kitchen floor, whether of rd or soft wood, is much more easily aned than an unoiled floor. An oil-floor is more durable than an unoil-one. Use boiled oil; heat it and ply to the floor with an old woolen th. Rub the oil in well. Cover the or with papers, to prevent the oil cking if the room must be used ile the oil is still fresh. If the oil-g is done late in the afternoon or at ght, the papers may be removed in e morning and the floor washed with ol water. If no washing of the floor done for several hours after oiling, ore of the oil wil soak into the or, and it lasts longer. Floors are ch more easily cared for, and look tter, if oiled once a month.—Mary L. ll, Extension Division, University rm.

Fodder Corn as a Substitute for Hay.

Common field corn, sown on well-prepared land, in drills from 3 feet to 3 feet 8 inches apart, and using 30 to 40 pounds of seed per acre, makes excellent fodder corn. It may be planted as late as June 20th to July 1st, under favorable moisture conditions, with a reasonable prospect of getting a full crop; though earlier seeding is preferred. Sown at this time of year, but little cultivation will be necessary except to conserve moisture, and the crop will be able to take care of itself during the busy season. The yield of field cured corn foder will vary from 3½ to 5 tons per acre, depending on the kind of land upon which it is grown and the season at which planted. In case of a shortage of hay, it could well be substituted for that food-stuff; and in fact, for some classes of live stock, it is more than an equivalent, pound for pound. A ton of thimothy hay will contain approximately 56 pounds of digestible protein, 868 pounds of carbohydrates, and 28 pounds of fat. A ton of corn fodder will contain approximately 50 pounds protein, 792 pounds of carbohydrates, and 24 pounds of fat. The amount of nutriment contained in the ton of corn fodder is slightly less than in the hay, but the more succulent nature of the fodder corn makes it especially adapted as feed for dairy cows, sheep and growing colts. When compared on the basis of an acre of land, corn fodder has a decided advantage. An acre of fodder corn, yielding 4 tons per acre, will give 200 pounds of digestible protein, 3168 pounds of carbohydrates, and 96 pounds of fat, as compared with 112 pounds of digestible protein, 1736 pounds of carbohydrates and 56 pounds of fat from an acre of timothy yielding two tons.

It is true that the growing of fodder corn is a somewhat more expensive process than the growing of an acre of hay; but the amount and kind of forage obtained warrants any one with a large amount of live stock in growing at least a moderate acreage of fodder corn. This is especially true, this year, on any farms where there is likely to be a shortage of rough feed.—Andrew Boss, Supt. University Farm.

The Value of Green Manures.

The plowing under of a luxuriant green crop of alfalfa, clover, field peas or vetches, which might be harvested and sold, or used as feed, seems "against Nature." Perhaps it is for this reason that it is comparatively little practiced. Nevertheless a greater gain may often come from plowing under than from harvesting.

Dr. Cyril G. Hopkins, of the Illinois Station, in comparing green manures with farm manures, make the following significant statement: "As an average, animals digest and thus destroy two-thirds of the dry matter in the food they eat, so that one ton of clover hay plowed under will add as much humus to the soil as the manure made from three tons of clover hauled off and fed, even if all the manure is returned to the land without loss by fermentation."

Prof. Marshall, of the Colorado Agricultural College, says of the addition of green manure to the soil, that it

1. Increases its fertility by the large amount of organic matter which it acquires.
2. Increases its water-holding capacity.
3. Utilizes soluble plant food that would otherwise escape from the soil.
4. Brings plant food from the lower soil to the surface soil.

So far from being "against Nature," this method is but following the lead of and improving upon the method adopted by Nature in preparing the land for the occupancy of man. To form humus, she has allowed countless forms of vegetation to grow and decay unused; and in the process, half or more of the humus-forming and fertilizing elements have been lost, which are saved by plowing under at the time when those elements are most abundant in the plants.—C. R. Barns, University Farm.

The Poor Little Bugs.

Hundreds and hundreds of millions
Of little bugs were sad
Because no longer could they eat
The fruit that once they had.
They tried to cheer each other,
They hoped the worst had come,
They said that such another
Condition would be bum.
Hundreds and hundreds of millions
Of little bugs ran round
On plants and trees, and poisoned there
Came tumbling to the ground.
At last but one was straying
In loneliness about—
"Gee whiz," he cried, "this spraying
Has knocked us bugs all out."

—W. J. Lampton.

Blight in the Orchards.

What tuberculosis or yellow fever is among human beings, what hog-cholera or glanders among animals, that the so-called "fire-blight," "apple-blight" or "pear-blight" is among the trees of the orchard. Originating in a bacillus invisible to the naked eye; so contagious that it may be borne to the orchard by insects from an infected plant half a mile away or on the bright steel of a pruning-knife which seems as clean as it is bright, this destroyer adds mystery to the deadly effectiveness of its attacks; and the discouraged fruit-grower is made to feel that he is dealing with a foe whose operations border on the domain of the supernatural.

But the organism which produces blight has been recognized, its habits defined, and some means have been found, more or less effective, of staying its ravages. Its name is **Bacillus amylovorus.** Its guilt is proved by the fact that it is found in large numbers in freshly-blighted twigs. From such twigs the bacteria have been taken and grown in laboratory cultures. Suitable healthy wood, inoculated with these cultures, quickly manifested disease, exhibiting the bacteria in abundance.

Moisture favors their growth; dryness is fatal to them. They therefore thrive in moist, warm weather; but freezing does not harm them. They are as active as ever after being kept frozen for long periods. Their main points of attack are the inner bark and growing layer of the tree's trunk and limbs. The dead blossoms, leaves and branches seen on infected trees are the result of a stoppage of the upward flow of life-giving sap. The disease travels downward from the point of infection, at the rate of from two or three inches to a foot a day—the faster and further in succulent, sappy shoots.

The upward mounting of the sap from the roots, in the warm days of spring, furnishes the starchy, sugary substances for which the bacteria, having found lodgment on the tree, have been waiting. Now they grow and multiply rapidly. The pressure of the sap stream causes the sap to ooze out at the disease margins. Thence the sap may often be seen running down the branch or trunk, a sweet, slimy, sticky substance, swimming with virulent bacteria. Lured by this, even that friend of humanity, the bee, becomes an agent for the spread of blight to other plants and trees.

Horticulturists are endeavoring, with more or less success, to bring into existence a class of fruit-trees which will not be susceptible to the attacks of bilght. Duchess apples, for instance, are counted freer from the trouble than Wealthy, and Kieffer pears than Bartlett. Here lies the secret of the first line of defense against the foe: Plant non-susceptible varieties.

A second line of defense consists in the adoption of cultural methods inimical to the blight. These, unfortunately are also inimical to the best growth of the tree. They consist in annual pruning, small in amount, and preferably done in the growing season; of a limitation of fertilization; and of limited cultivation of the ground—confined, perhaps, to only a middle strip between the trees.

The third line is the extermination of infected parts of trees, or even of a whole tree, as a measure of protection to others. Wherever blight has found a foothold, every tree and shrub of the **pome** family should be examined for its presence; and, if found, that part should be ruthlessly cut out and burned, as quickly as observed. Repeated inspections should be made at different seasons, and not a single case allowed to escape.

In pruning out, cut back of any perceptible injury, at least 6 inches. If on the trunk, remove the bark for the distance named, and scrape and burn the surface; or treat it with a strong solution of copper sulphate or corrosive sublimate. The tools used in cutting out blight should never be carried from one tree to another without disinfection in formaldehyde or carbolic acid solution.

The above are the most efficacious means at present known for checking the attacks of blight. The suggestions here offered are condensed from a longer article, in the Minesota Farm Review, by K. A. Kirkpatrick, of the Extension Division.—C. R. B.

Ensilage Compared with Hay.

While it is true that it requires 3 pounds of ensilage to equal 1 pound of hay in feeding value, because of the large amount of moisture contained in the ensilage, it has been shown that, from an equal quantity of dry matter, more milk was obtained from the ensilage than from corn fodder, corn stover or hay. At the Massachusetts Station it was shown that whenever ensilage replaced a part of the hay ration, there was a reduction in the cost of production. It is fed with good results in both winter and summer.

Save the Hay.

The indications are that the hay crop of Minnesota will be short this year. Clover killed out entirely in most sections of the state, and is a very thin crop in many places where it did live through the winter. Timothy, blue grass and other tame grasses were also injured by the drouth of last season, and have recovered slowly this spring. The recent rains have improved the chances somewhat, but there is not time for a full crop to develop. Even the wild meadows on the lowlands are much thinner than usual, and the only conclusion that can be drawn is that all of the hay possible must be saved if the demands for the coming year are to be met.

Special attention should be given to securing in good season any hay that may be available. It is also very important that every bit of hay be well cured, in order that its feeding value may be preserved. A small amount of good-flavored, well-seasoned hay is much more effective in securing large yields of milk, or heavy gains in flesh, than is a large amount of coarse, rough hay that is largely indigestible. Hay cut soon after coming into blossom, cured largely in the cock—thus saving all of the leaves and flavor-giving elements,—and stored in well-protected stacks or in barns, will have at least ⅛ greater feeding value than hay overripened and poorly cured.

In securing the hay crop more attention than usual should be paid to climatic conditions, securing favorable days for the operation if possible. Clean cutting and raking, picking up of the windrows and cocks in the field, and clean stacking, are all factors in securing the largest amount of hay. While many substitutes for hay can be offered, and some of them are quite acceptable, it is more than likely that a strong market will be found for good hay, and that any surplus can be sold at a profitable price if not needed for feed.—Andrew Boss, Minn. University Farm.

Save the Birds.

Almost without exception the birds seen in the garden are, in the long run, very useful in eating injurious insects. The Robin is omnivorous, the Cuckoo eats hairy caterpillars, the Meadow Lark consumes many insects which would prey upon grass land, and the Chipping Sparrow, Scarlet Tanager, Rose-Breasted Grosbeak, House Wren, Cat Bird, Chickadee and other feathered creatures destroy thousands of injurious insect pests when raising their young birds. It, therefore, behooves every boy and every girl, every school teacher, and every citizen to do all they can by precept and example to conserve the birds, and give them all possible protection. —F. L. Washburn.

The Crookston School.

The first Senior Annual published by the class of 1911, Crookston School of Agriculture, contains an interesting historical article by Mr. Harry Hedin, one of the members of the class. The farm on which the school is located was donated to the state in 1894 by James J. Hill. Prof. T. A. Hoverstad, a graduate of Minnesota Agricultural College, was its first superintendent. The land was broken up, stock was purchased and various demonstrations were carried out. In 1904 Prof. Wm. Robertson took charge of the station, and soon afterwards the school was organized. A system of drainage was installed on the farm. Several school buildings were erected, and the school grew from 30 pupils the first year to 120 in 1909. In 1910 Prof. C. G. Selvig was appointed superintendent of the farm and station. Two new buildings were completed last summer, and several will be erected this year. The school enrollment reached 140, with 115 additional Short Course students. The sixth year of the school opens October 3. The new catalog, giving the nature and scope of the work done by this school, is out. Anyone wishing a copy may procure it by addressing the Superintendent, School of Agriculture, Crookston, Minnesota.

Soil moisture can be conserved for next year by early plowing. This has been demonstrated in Oklahoma in a five-year test. Land plowed there in the middle of July, during a five-year period, produced twenty-seven bushels of wheat per acre; that plowed about the middle of August produced twenty-four bushels per acre; that plowed during the middle of September yielded twenty-two bushels per acre. It will be found, when a comparison is made, say about the middle of September, between land that is plowed now and a fine mulch maintained, and land plowed in September—that there is a vast difference in the soil moisture, in favor of early plowing and harrowing. This will be especially noticeable when the comparison is made with land on which weeds have been permitted to grow until plowing is done in September.

Filling the Silo.

The important thing in this is to exclude the air by close packing. Whether the silage be delivered by carrier or blower, it is very necessary that one or two good men remain in the silo to pack the ensilage thoroughly. If air get in, the ensilage spoils. The heating of the ensilage is due to bacteria, which multiply at 140 to 160 degrees. After a time a slower fermentation process succeeds and acetic acid is formed, which gives a relish to the feed. To facilitate these processes, a fair amount of moisture is needed; so, if the corn is at all dry it is well to turn a stream of water into the silo as it is being packed. (See Farmers' Bulletin No. 303, Dep't of Agriculture, Washington, D. C.) If the ensilage is frozen, no material harm is done.—Geo. P. Grout, University Farm.

Silos and Ensilage.

It does not pay to devote high-priced land, for long periods, to pasturage and the production of hay. The land can be put to more profitable use. In order, therefore, that dairying may continue profitable, instead of depending, as in the past, wholly upon the pasture for the chief food-supply of their herds, many of our farmers are turning toward the silo as affording a beneficent solution of the feed problem. It is doubly beneficent in that it not only does away with the necessity of devoting so much land to pasture; but also, by making available a cheap supply of succulent and highly-relished food all the year round, it deprives stall-feeding of some of its objectionable features, while keeping the milk flow at a higher level. During the past two or three years, more silos have been built than in all previous years combined. The more prosperous farmers are often supplied, not merely with one, but with two good silos.

The economic value of this method of handling feed being generally recognized, the only real obstacle to the general introduction of the silo seems to be the first cost of the structure and of the machinery for filling it. More stock can be kept and profitably fed, per acre, when ensilage is grown, than by almost any other method of feeding.

The silo practically increases the producing capacity of the farm at least 10 per cent, and often more. A 160-acre farm with a silo will produce as much revenue as one of 180 acres without. Therefore, the first cost of a silo—like that of a dwelling-house, a barn or a team—should be considered part of the initial investment; and, if one's capital is limited, it is better to buy a farm smaller by ten per cent, rather than dispense with a silo. The producing value of a silo on $50 land would be equal to that of twenty acres added to the 160-acre farm, or $1,000; on $100 land, it would be $2,000. This is a low estimate; for the stock-carrying capacity of the farm will often be increased fully 25 per cent by the adding of a silo. As compared with its producing value, the cost of constructing the silo is small. Round wooden silos cost from $1.50 to $3.00 per ton of capacity; those of stone, brick or cement, from $2 to $4. It has been shown by actual experiment in Minnesota that—working co-operatively in the purchase of materials, etc.—a number of farmers in a locality may erect on each of their farms a stave silo, of 140 to 150 tons capacity, for about $275.—Geo. P. Grout, University Farm.

The Tuberculosis Half-Story.

There is little doubt that a large proportion of the cases of tuberculosis among farmers have had their origin in the low, close, unventilated sleeping-rooms common in the story-and-a-half dwelling to be found on so many farms. To save a little in the cost of lumber, the farmer has—unwittingly no doubt—prepared conditions the most favorable for the development of the germs which may at any time find lodgment in the lungs of his children. A case is cited where four boys and girls, born of robust parents—but compelled to pass their nights, from early childhood to manhood and womanhood, in close "half-story" rooms—were carried off by consumption almost as soon as they reached maturity. To their ancestry, the disease was unknown; they had ever enjoyed the occupancy of high-ceiled, well-ventilated rooms.

The so-called "bungalow" type of dwelling is little more than a revival, under another name, of the old, plainer, pestiferous "story-and-a-half" dwelling. If its owner will only sleep on its wide porch, winter and summer, he may, from the view-point of health, afford to live in it. But to sleep in a room, the slope of whose ceiling will allow one to stand only on a limited portion of the floor, and where the air-space is totally insufficient for health, is often to commit slow suicide. If high ceilings are anywhere desirable, that "where" is in the sleeping-rooms. —C. R. Barns, University Farm.