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ORCHARD AND GARDEN

December 1 to 8

Be sure that the shrubbery is well mulched for the winter.

Begin to plan next year's garden now before this year's garden is forgotten.

Highbush cranberries, cotoneaster, wahoo, barberry, and snowberry still hold their fruit and make attractive plants on the lawn.

Put the orchard windbreak on the south and west. This will protect from the hot drying winds of summer.

Perennials should not be covered with heavy material. Straw or hay is good. Aim to keep them dry without smothering.

The Carrie gooseberry is a heavy bearer, hardy and free from disease than others, although the fruit is smaller. It is easier to pick since there are few spines.

Norway poplar is a quick growing tree and gives shade quickly, but a good, well grown, hard maple, elm or hackberry lasts longer and becomes prettier as it grows older.

Do not use red cedar as a windbreak tree near an orchard. It gives a harbor to one stage of the orange rust, which is very injurious to apples, especially the Wealthy.

Jerusalem cherry, a form of pepper, makes a very pretty house plant for Christmas time with its scarlet berries.

Watch the orchard closely for injury by rabbits. A wire tree protector is a splendid protection against rabbits and other rodents.

A good method of watering ferns is to set the pot in a pan or tub of water long enough to soak the roots and soil thoroughly. Do not water again until the plants need it.

Can the house yard be improved by planting a few shrubs and plants? Now is a good time to study the matter. Pick those shrubs that have some attractive features over a long season, such as lilac, peony, Van Houtte spirea or highbush cranberry.—Le Roy Cady, associate horticulturist. University Farm.

ORCHARD AND GARDEN

December 8 to 15

Christmas wreaths can be made of small spruce boughs wired on a hoop to give it the wreath shape. Add a bunch of cones and a little red ruscus for color.

Street or road trees should never be planted closer than forty feet. The branches of white elm or hackberry planted on rich soil at this distance will often come together. Give plenty of room for future development of the tree as naturally as possible.

Flowers make acceptable gifts at this, or in fact any season of the year. Why not send a plant or box of cut flowers to friends instead of candy?

Trees that have died during the year, especially if they have been killed by borers, should be removed and burned this winter. If left until spring insects will lay eggs in healthy trees and perhaps cause their destruction.

Antirrhinums, commonly known as snapdragons, are among the most useful of summer flowering plants. They are often grown and flowered in the greenhouse. They like a warm, dry location, although they will thrive on almost any good soil.

A large quantity of excellent celery is raised on the peat bogs north of St. Paul. These are well drained and yet allow the water to come to within eighteen inches of the top at times. While the bogs are rich in humus, much manure must be added each year if good crops are to be raised. Barnyard manure is at present used, but as it is growing harder to get, commercial fertilizers are being considered.

It is a good plan to mulch lawn shrubs lightly with manure, which can be spread into the ground in the spring. It will keep the snow about the shrubs this winter.

Apple cions for next season's use should be cut now and put in a cool cellar in sawdust or other material which will keep them from drying out or growing.—Le Roy Cady, associate horticulturist. University Farm.

GROW MORE FRUIT IN 1923 ADVISED BY CADY

This is not the time to stop planting and caring for fruit plants and trees. "On the other hand," says Le Roy Cady, university horticulturist, "homes which are without fruit plants should set out a good supply next year, and the owner of a good orchard or fruit plantation should take every precaution to insure good results in the years to come. Every home should use more fruit than it does now. More can be grown in the gardens than has been the case. Do not grow more than can be well taken care of and used to advantage. A dozen plants well cared for will give better results than two dozen indifferently cared for."

MINNESOTA MAY GROW OWN PEARS, PEACHES

Minnesota home grown pears and peaches are within the realm of probability at some time in the future, says Prof. W. H. Alderman, chief of the division of horticulture, University of Minnesota. Already a pear known as Minnesota No. 1, developed at the State Fruit Breeding farm at Zumbra Heights, is ready for distribution for trial.

"Pears have never been grown successfully in Minnesota except under special conditions," says Professor Alderman. "At the fruit breeding farm seed was secured from wild pears in Mongolia. Four thousand trees were grown. Out of these, two only remain—one, a small, insignificant, hardly edible fruit, the other, Minnesota No. 1, a pear of large size, fine texture and high quality. It is not likely that this pear will prove hardy enough to be grown much north of the twin cities, but for southern Minnesota it seems of much promise."

Professor Alderman believes that in the course of time all fruits common to the temperate zone will be bred into hardiness and grown in Minnesota. "We do not even exempt from this list of fruits the sweet and the sour cherry nor even the tender peach. The experiment station is trying to introduce the peach to the society of Minnesota fruits through a mating with the sandcherry and some of its hybrids. Whether this will be a happy marriage or not, time alone can demonstrate."

MINNESOTA TO FIGHT "TB" WITH AREA PLAN

The "area plan" of fighting tuberculosis in cattle is to be introduced in a short time in two Minnesota counties, yet to be selected, according to Prof. H. R. Smith, commissioner for the National Livestock Exchange, who drew a vivid picture of the tremendous losses caused by bovine tuberculosis before the annual conference of agricultural extension people at University Farm. Under this plan all the herds in a given territory are put under rigid tests and animals found diseased are destroyed.

Costs of testing have been reduced under the area plan, says the United States Department of Agriculture. Records of the department show that for 25 counties in various states for which figures are available, the cost of testing was only 34 cents a head. Steuben county, N. Y., where 45,000 cattle were tested by 33 veterinarians in 19 days, did the work at a cost of 23.5 cents a head. In Missouri the testing done by federal veterinarians cost only 28 cents a head. This included salary, subsistence, and travel expenses. In some counties work has been done at as low a cost as 15 cents a head.

"If we can get rid of tuberculosis in cattle," said Professor Smith, "we can keep it out of our swine herds, for 98 per cent of the tuberculosis in hogs can be traced to the cow and her milk. Probably 20 per cent of the hogs in this immediate territory are affected with tuberculosis. In 1898 only 2 per cent of the hogs of the country had tuberculosis. Today 14 per cent of the swine have the disease. Statistics show that the hog growing industry is imperiled to an extent little known or appreciated by people generally."

Mr. Smith emphasized the importance of adequate state funds for the expenses of the work, and said that \$500,000 would be needed for an effective campaign in Minnesota. This should not be considered an expenditure, he said, but rather an investment.

DRAINAGE NEEDS OF STATE STUDIED AT "U"

The state university's division of farm engineering is carrying on drainage work at 16 permanent drainage research stations in localities in Minnesota having 32 separate and distinct soil types. The object is to acquire accurate data on the movement of ground water under varying conditions and types of soils so that drainage designs fitting the different types can be prepared. All stations but four are maintained by individuals and not by the state.

"The Little Swan installation in St. Louis county is the most complete experimental drainage plant on record," says G. R. B. Elliott, assistant professor of farm drainage. "It has a self-contained drainage basin, completely tiled, at the outlet of which has been installed an automatic recording device for measuring the flow. Tile lines are installed at various depths and spacings. About 50 observation wells provide for accurate data on water levels and movement. Maximum and minimum aerial recording thermometers, as well as subsoil thermometers for obtaining temperatures at 8, 15, and 36 inches below the surface, have been installed on both upland and lowland. A rain gage is provided for recording precipitation."

The work at Little Swan is being done in cooperation with the Hibbing school board and with George C. Pauley, superintendent of the farm.

PRESS NEWS TO BE DISCONTINUED DEC. 15

The University Farm Press News will not be published after December 15, 1922.

The Extension Division, Department of Agriculture, University of Minnesota, has been moved to adopt this course through a desire to aid the Office of Publications of the University Department of Agriculture in developing a more effective news service.

This will be attempted through the enlargement of the News Letter, which is now a news service exclusively for country weeklies; through the development of a regular news service of a different sort for the daily papers of the state, and through a special service for the farm journals. By this arrangement, it is felt, a better service to reach each class of publications can be maintained.

The issue of the Farm Press News for December 15, then, will be the final number.

RIGHT KIND OF CARE OF STOCK IN WINTER MAKES FOR SUCCESS

"For the most part the principal object in keeping livestock on a farm in winter is to have it available to utilize grass in summer," says Prof. W. A. Peters, chief of the division of animal husbandry of the University of Minnesota. "At least it may be said that the cheapest gains made by livestock of any kind on the farm are the gains made from grass. On many farms whatever profit there is in livestock comes from the cheap summer gains made from the pastures. Looking at the problem of wintering stock from this angle, it is readily seen that the principal object must be to winter the herds as cheaply as possible and yet avoid losses and keep the breeding animals and the young growing stock in a thrifty condition so that they will be in shape to go on pasture in the spring and utilize grass to the best possible advantage.

"Too high an overhead expense in buildings, labor and feed has been the cause of failure of livestock to show a profit on many farms. On the other hand, too low an expenditure and too little effort and too little attention to the stock in winter has also often resulted in failure. There is a happy medium between these two extremes.

"This happy medium is found where animals are so housed as to be kept comfortable, yet allowing of their being handled with a minimum of labor; where feeds suitable to the wintering of the stock have been grown upon the farm and are supplied to the animals with regularity and in the proper amounts required to attain the object in view. Such matters as providing bedding, keeping sleeping quarters clean and sanitary, supplying water in such a way that animals can drink without risk of falling and hurting themselves or without being chilled by drinking from an ice covered tank, seeing that animals inclined to take too little exercise, such as brood sows, growing pigs and breeding ewes, are compelled to take the necessary exercise—all these items and many more similar in character must be studied and worked out ever with the idea of holding down wintering costs and yet avoiding shrinkage or loss of animals in so far as it is possible to accomplish this."

STATION MEN INDORSE NEW SOIL ACIDITY TEST

A new test for soil acidity commonly known as the thiocyanate test has recently come into use. A saturated solution of potassium thiocyanate in very pure wood alcohol is added to a small amount of soil in a test tube, shaken, and allowed to stand fifteen minutes for the soil to settle, when the color of the solution above is noted. If the liquid is clear, the soil is not acid. If it is slightly pink, it is of slight acidity, and if dark red the soil is acid.

The division of soils of the University of Minnesota has tested this method and finds it rapid and easily made, and subject to limitations mentioned below, a satisfactory method. The test must be made while the soil sample is moist, that is, in the condition that it comes from the field. Soils excessively wet, or those which have been allowed to become dried, do not show their true acidity by this method. It is not satisfactory for most of Minnesota's peat soils.

Dr. C. O. Rost of the division says the potassium thiocyanate sold under the trade name of Richporpo is a very satisfactory reagent and reasonable in price. One quart of solution will easily make 100 acidity tests. If it is bought in quart lots the cost will amount to approximately one and one-half cents per test. If bought in gallon lots, the cost is reduced to practically one cent.

SMUTTY SILAGE CAN BE FED WITH SAFETY

Smutty silage can be fed to livestock with no danger of ill consequences, says T. W. Gullickson of the dairy husbandry division at University Farm. Not so long ago many inquiries were being received at the dairy division headquarters regarding the advisability of feeding smut infested corn in the form of ensilage. To answer these questions authoritatively Mr. Gullickson had collected some 800 pounds of pure corn smut which he ran through the ensilage cutter and put in sacks which he placed in the silo and covered with about 10 feet of ensilage. A few months later the corn smut in the bags was substituted for the regular silage ration and fed to a Holstein heifer at the rate of 18 to 30 pounds a day. The heifer was not forewarned of the abrupt change in her diet, but took no exceptions to the corn smut menu, appearing in fact to relish it. Mr. Gullickson says the feeding of the smut was continued for three weeks, during which the heifer remained normal in every respect.

PLANS FOR 1923 "MUMS" SHOULD BE MADE NOW

"When chrysanthemums are through blooming, the flower stalks may be cut off and the plants set in a cool place until new shoots grow," says Le Roy Cady, horticulturist, University Farm. "Cuttings may be taken from these and rooted in sand or water, giving new plants for next year's flowers. The single and pompon sorts give the best results in the house."

2,100 COUNTIES IN U. S. HAVE EXTENSION HELP

More than 2,100 of the 2,850 agricultural counties in the United States employ at least one agricultural-extension worker, who acts as a joint representative of the United States Department of Agriculture and the state agricultural college in conducting demonstrations of farm and home practices found most successful by experiments of these institutions. They also give advice and assistance in farming matters by personal visits, correspondence, telephone messages, community meetings, and articles in the local press.—Official Record, U. S. Department of Agriculture.

Leguminous Crops for Minnesota

(This is the third of a series of short articles, prepared by Minnesota Experiment Station men, on the value of legumes—soybeans, alfalfa, red clover, sweet clover, alsike, cowpeas, and Canada field peas—in the farming scheme on the average Minnesota farmstead.)

MORE CLOVER SHOULD BE GROWN IN STATE

Approximately one million acres are cropped each year in Minnesota to clover and timothy mixed and clover alone.

All the other legumes combined total about 60,000 acres. Of the non-leguminous crops, Minnesota produced nearly sixteen millions of acres. This gives for the state as a whole one acre of leguminous crops to every fourteen and a half acres of non-legumes. On well diversified farms where the aim is to maintain or increase the productivity of each acre, the ratio of leguminous crops to non-leguminous crops is usually from one acre to three to five acres.

In order to approach the desirable ratio, Minnesota should increase the use of legume forage and hay and more than double her acreage of legumes. The largest part of any decided increase in acreage will be medium red clover and medium red and alsike mixed with timothy, for the reason that these clovers are well adapted to the conditions on the large majority of the farms in this state. However, other leguminous crops should be grown where they are better adapted than the medium red clover. Mammoth red clover is better adapted to the sandy areas than medium red or alsike. On poorly drained soils alsike clover takes a prominent place. On the heavy lands sweet clover is continually gaining as a pasture plant. On light sandy soils properly prepared alfalfa is the best legume, and on all the heavy well-drained lands that are not acid a much greater acreage of this crop may be grown to advantage.

Medium red clover usually mixed with timothy is sown with a grain crop. The grain crop is sown at the usual rate, although a somewhat lighter seeding gives the clover and timothy a better chance. Lodging of the grain crop results in the loss of the clover stand. Therefore on very productive soils grain crops that are not likely to lodge should be chosen. Flax and wheat do not lodge as easily as oats or barley.

A firm seed bed gives the clover and grass plants better conditions for growth and grain is less apt to lodge under such conditions.

Clover should not be pastured down close during the first fall. Much of the growth made the first season is necessary to protect the plants during the winter.—A. C. Arny, in charge of farm crops for the University of Minnesota.

LEWISTON COMMUNITY MADE POULTRY CENTER

Winona county will help demonstrate the value of better poultry the coming year, says Miss Cora Cooke, poultry specialist with the university's agricultural extension division. The community surrounding Lewiston has been selected as one of the ten poultry demonstration communities in the state, following the completion of a five-months' poultry project in August. This community is nearly 100 per cent in number of flocks culled. Since the completion of the project, members of the group have made two shipments of graded eggs to Chicago. It is expected that coöperative shipping will be made a main project of this group the coming year.

NOW IS TIME TO PLAN ICE STORAGE FOR 1923

My, how hot it was last summer. Didn't that ice you brought over from neighbor Smith's help a lot to make the lemonade refreshing? Didn't mother say she wished that she had ice to use right along? She was sure it would save a lot of food from being wasted. You thought at the time you'd see about putting up some ice next winter.

If there is to be ice next summer it is now time to plan on where it is to be stored to be convenient. It does not take very complicated shelter to store ice if plenty of sawdust or planer chips are used. Of course, a good icehouse that is well built and permanent is an addition to the farm buildings of which the owner may well be proud.

Plans for an icehouse may be seen in the office of the county agent, and he will gladly tell you where they may be obtained.—H. B. White, assistant professor of farm buildings, University of Minnesota.