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ORCHARD AND GARDEN

November 1-8

Head lettuce thrives best in cold, moist weather, in autumn or spring. Keep potatoes and root crops as cool as possible if you would have crisp, firm vegetables later in the winter.

The English fruit crop is reported as one of the poorest on record. Small fruits have done better than tree fruits, but not nearly so well as usual. Because of the lack of fruit, rhubarb has been used to take its place, and fields have been pulled so closely that next year's crop has been endangered.

See that the southwest side of young fruit trees and smooth-barked ornamental trees are protected from the sun. Lath, wire screens, or corn fodder may be used for this purpose.

Strawberries should be covered about four inches deep with straw. If the bed is in a windy location, five or six inches may be used to advantage. Coarse marsh hay is sometimes used where straw is not easily available.

The New Jersey Experiment Station calculates that two crops of green manure contain as much phosphoric acid and potash and nearly as much nitrogen as twenty tons of stable manure. Rye, soy beans and clovers are crops most often used. In the gardening sections of the state rye is planted as a cover crop as soon as potatoes and early vegetables are out of the way. This is plowed under and takes the place of some of the barnyard manure that was formerly hauled.—LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minn.

ORCHARD AND GARDEN

November 8-15

Current bushes may be protected from breaking down on account of the weight of snow in winter by collecting the canes together and tying them.

Get the icehouse ready. If there is none on the place, it will be worth while to build one. Ice is as necessary on most farms as in most city homes.

Save all the barnyard manure. Fertilizers are getting more expensive each year. Barnyard manure and green manuring should be employed wherever possible on garden and farm.

It is estimated that 147,000,000 board feet of elm are used each year in cooperage work. It is strong and bends well. It will pay to plant elm as a future crop for cooperage work on many acres of land in Minnesota.

What horticultural books or magazines are you reading? Many bulletins and papers can be read now and the information be used next season.

If labor conditions continue next year as they are now, more home gardens will be needed to feed the people of the United States. Many professional gardeners must of necessity grow crops that require less labor because of the lack of help. This will mean higher prices and fewer vegetables of some sorts.

Community markets have been a success in some cities and towns this year. They might be more of a success in many places if people were not afraid to be seen carrying a market basket. When the cash-and-carry plan becomes the correct thing in society, community markets of all sorts will be a success.

Don't put much dependence on advice to grow asparagus in your cellar for winter use. As a rule, it does not pay for the labor and trouble of digging the plants and carrying the trash out of the cellar again. Rhubarb, however, can be grown with splendid success in any dark cellar. It may be grown in cinders or ashes if dirt is not available.—LeRoy Cady, associate horticulturist, University Farm, St. Paul, Minn.

SHADE TREES ARE NOT

GOOD MACHINE SHEDS

Shade trees and fence corners are not good places in which to store farm machinery for the winter. Storing machinery in such places merely decreases its life of usefulness. Machinery experts in the department of agriculture, University of Minnesota, say that the life of any machine is lengthened by protection from winter, by frequent oiling and by prompt attention to repairs. Farm machines, therefore, should be stored in the fall where they can be overhauled and put in shape for the next season's use before the time for such use arrives.

SUMMER BUTTERFAT PRICES WERE HIGH

Cooperative creameries in Minnesota paid the highest prices for butterfat during August that has ever been paid during the summer season. One cooperative creamery paid 61 cents, 4 paid 60 cents, 58 paid between 55 and 59 cents, 130 paid between 50 and 54 cents, 38 paid between 46 and 49 cents, and 24 paid between 42 and 45 cents.

Cream buying stations during August paid between 43 and 47 cents, the majority probably paying between 44 and 45 cents net.

Cheese factories paid as high as 66 cents for butterfat during August. The range of prices for butterfat for cheese-making was from 53 to 66 cents.

Cooperative creameries and cheese factories are receiving more patronage this year than ever before.—A. J. McGuire, agricultural extension division, University Farm, St. Paul.

UNUSUAL COW HAS HUMAN DISEASE

A Minnesota Guernsey cow has assumed the distinction of a human ailment, according to reports from the veterinary division, department of agriculture, University of Minnesota. This cow developed a pancreatic stone—a very unusual thing for a cow to do. As the result she had to be killed.

The pancreas is a gland on the right side of the body in the region of the kidney and upper part of the liver, being also attached to the "paunch." It is one source of sweetbreads. It aids in the digestion of fats, proteins and starch, and is one of the most important glands of the body.

Dr. Fitch says that no case of a pancreatic stone in a cow is described in English, although cases have been described in French and German.

TILE DRAIN AND OPEN FIELD DITCH CO-OPERATE

Don't shy at the open ditch. It is a dividend producer. If it is a field ditch, make it broad and shallow so you can farm right across it. It helps a lot where you have no outlet for tile drains. Tile drains are, of course, better. The two together are best. They can be used in cooperation. Make your open field ditches with a side-push road grader in the fall after the crops are harvested.—H. B. Roe, extension agent, University Farm, St. Paul.

Keep open outlet ditches clean. Weeds, brush and mud banks in ditches ruin your drainage. Remove obstructions in the district ditch in the fall when it is dry. Then you can expect early drainage in the spring. A little work at frequent intervals will keep a ditch clean and working, and prevent the recurrence of heavy maintenance expense with its consequent discouragement every few years.—H. B. Roe, division of agricultural engineering, University Farm, St. Paul.

BELGIAN HARES UNDER TEST AT U. FARM

The division of entomology and economic zoology at University Farm is conducting experiments to test the adaptability of Belgian hares to Minnesota's climate, and to their production under Minnesota conditions. The tests are being made in order to aid in the solution of the meat problems brought on by the war.

The meat of these animals is almost white, nothing like that of the cottontail rabbit or of the prairie hare, and must not be compared with the meat of the latter named animals. It is delicate, well flavored and much like the white meat of chicken. Young hares for table use weigh from two to four pounds each and lose nearly half of this weight in dressing. Old hares do not lose as much. Adult hares weigh from 10 to 13 pounds. The cooking methods employed with young chickens and fowls are applicable in preparing rabbits for table.

GUIDE FOR FIGHTING INSECTS OF GARDEN

The agricultural extension division of the University of Minnesota has just issued a guide for the gardener who wishes to make successful war on the insects which often rob him of the fruits of his labors. This guide is known as Special Bulletin 29 and the title is "Garden and Small Fruit Insects." The authors are A. G. Ruggles and S. A. Graham of the division of entomology and economic zoology.

Horticulturists say this bulletin should be studied through the winter in order that the gardeners of next summer may be prepared for the insect pests in advance. Copies may be had without cost by addressing Office of Publications, University Farm.

WARTS A SERIOUS POTATO DISEASE

Notice of the discovery of the potato wart disease in Pennsylvania has just been received by A. G. Tolaas, extension potato specialist, University Farm, St. Paul. This is a very serious disease, in fact, so serious that in 1912 the federal government placed a quarantine against European potatoes. Thirteen million bushels of potatoes were imported in 1912 before the quarantine was established and recent discoveries indicate that a portion of these were distributed in certain parts of Pennsylvania. All of the importation has not been fully traced and it is possible that some of the infected stock was brought to Minnesota.

The disease produces black warty outgrowths on the tubers, and when once in the soil may remain for several years. It may be spread by planting tubers grown on diseased soil, by the distribution of manure from animals that have been fed with diseased potatoes, by the distribution of uncooked peelings from diseased potatoes, by drainage from infected fields and by farm implements.

Owing to the serious nature of the disease, the possibility of its occurrence in Minnesota should be given careful consideration. It is urgently requested that all suspicious looking tubers be sent to the section of Plant Pathology, University Farm, so that if the disease should occur, proper steps can be taken immediately to prevent its spread.

THRESHERS SAVE 16,000,000 BUSHELS

Cleaner harvesting and threshing in the United States have come to stay, according to reports received by the United States food administration from threshermen, farmers and local representatives in grain growing states. The so-called "blanket test" has shown thousands of grain producers how to determine when a threshing machine is operating properly, and has been especially impressive. Other methods of farm conservation have resulted in further large savings of marketable grain.

Of thirty-three grain states where efforts toward cleaner threshing were centered, two-thirds have already reported an aggregate saving of 16,000,000 bushels of wheat.

THIS THE TIME TO POISON FIELD MICE

Rodents of various kinds cause so much damage that it behooves farmers and orchardists to take precautions in time. Trunks of young orchard trees should be protected from depredations of rabbits and field mice by wood veneer sheets, which can be bought for about 75 cents per hundred. These last for two years and afford good protection against sun scald in the case of young trees as well as against rabbits and field mice. Field mice may be trapped with small guillotine traps, three of which used to sell for 5 cents. The pan should be rubbed with bacon, as that is very attractive bait. A little oatmeal scattered on the pan is an additional attraction. Field mice are easily poisoned, and particularly so at this time of the year, when they are evidently seeking their winter store of provisions. A piece of apple one inch square in which a small amount of powdered strychnine is placed is good. We believe that at this time of year poisoned grain is not so efficacious as something like apple. Melons growing near brush and grass land frequently suffer from depredations of field mice, but poisoned apple appears to be more attractive than melons.

The group Rodentia includes the rabbits, squirrels, ground squirrels, gophers, field mice and woodchucks. The loss occasioned by these pests in Minnesota alone amounts to many thousands of dollars.—F. L. Washburn, division of entomology and economic zoology, University Farm, St. Paul.

MAIL COURSES IN FRENCH OFFERED

Unusual interest is manifested this year in the study of French in the evening classes of the General Extension Division of the University of Minnesota. The beginning classes show an increase in enrollment of 20 per cent over last year. The work is undertaken by those who are likely to go into service in France and also by people who want to learn French in order to understand the French people and their institutions better.

For those who cannot attend evening classes, the correspondence-study department offers courses by mail in both French and Italian. Full information about these courses can be secured by writing the general extension division of the University.

SAVE WHEAT MILL FEEDS; SUBSTITUTES

The United States food administration is asking dairymen to conserve wheat mill feed. That Minnesota dairymen can comply with this request without any hardship is evident from a study of the following tables. In the first table bran is compared with protein feeds, and in the second with carbohydrate feeds.

	Price per ton protein feeds	Per cent protein	Cost per 100 lbs. digestible protein.
Cottonseed Meal	\$64.00	37	\$7.54
Oil Meal	60.00	30.2	8.34
Bran	34.50	12.5	9.93
Gluten Feed	59.00	21.6	10.91
Oats	40.00	9.4	14.36

This table gives the cost per 100 pounds of digestible protein after proper allowance has been made for the carbohydrate equivalents. Note that there are two feeds giving a cheaper source of protein than bran. It is necessary to take into account the quality of the cottonseed meal that is usually sold in Minnesota, and also the fact that cottonseed meal does not have a desirable effect upon the digestive tract. Oil meal is perhaps the most satisfactory protein concentrate to use in balancing up the ration.

	Price per ton carbohydrate feeds	Per cent carbohydrate equivalent	Relative cost 100 lbs. carbohydrate equivalent
Barley	\$40.00	.70	\$2.80
Oats	40.00	.60	3.30
Bran	34.50	.48	3.60
Corn	55.00	.77	3.70

When bran is compared with corn, oats and barley, we find that barley and oats have the advantage. At present prices barley is the best carbohydrate feed. It should be rolled rather than ground for feeding. Not more than one-third barley should be used in making up a grain mixture.

It is possible to substitute for a considerable part of the bran, used in feeding the dairy herd, without sacrificing production. It should be remembered, however, that the grain ration must be light and bulky, palatable and properly balanced in order to give most satisfactory results.—J. C. Cort, Department of Agriculture, University of Minnesota.

BARLEY VS. CORN FOR HOG-FEEDING

W. H. Peters, of the Animal Husbandry Division, University of Minnesota, says that 500 pounds of barley meal are about equal to 400 pounds of shelled corn for feeding hogs. With barley selling at 75 cents per bushel, 100 pounds is worth \$1.56. If to this figure is added 10 cents per hundredweight for grinding or soaking, the price of barley meal would be \$1.66 per hundredweight, and 500 pounds would be worth \$8.30. Four hundred pounds of corn is seven and one-seventh bushels, and upon the foregoing basis corn is worth \$1.16 per bushel for feeding hogs under the conditions stated. In feeding barley, as with corn, the best gains will be made only when some protein supplement is used, such as skimmilk, tankage or bright, leafy alfalfa hay in a rack.

ONIONS CAN HELP TO WIN THE WAR

Let Minnesota onions help America win the war.

This is an appeal which has just gone out from the Minnesota food administration.

The reason for making such an appeal is that Minnesota has more onions than can be taken care of this fall, and they will go to waste unless they are eaten.

Onions have a definite food value. A serving of three or four medium onions or one-third cup of scalloped onions will give as much food value as two slices of Victory bread, two small baking powder biscuits, or two tablespoons of sugar, things we are trying to save for the boys over there.

The food administration's slogan for this fall is: Eat Onions to Finish the Fiendish Hun.

Glazed Onions

Peel small onions and cook in boiling water 15 minutes. Drain, put in buttered baking dish, add highly seasoned stock to cover bottom of dish and 2 tablespoons corn syrup. Bake until soft, basting with stock in pan.

Stuffed Onions

Peel large onions and remove a portion of the inside. Put in a saucepan, cover with boiling water and let boil six minutes. Drain and stuff with left-over meat which has been ground. Place onions in pan on thin, narrow slices of fat salt pork. Pour around one cup meat or chicken stock or one cup milk and bake until onions are soft. This takes about 35 minutes. Remove onions to serving dish, thicken and season stock and pour over onions.

WAY TO RESTORE BURNED-OVER LAND

Thousands of acres of burned-over low land in the fire-swept area of northern Minnesota can be made into excellent meadow if taken in hand before a second growth of trees and brush are under way. Much excellent meadow land of this section has never been mowed on account of brush and down trees. The fire has cleared up most of this and a little extra cleaning up by hand would make it possible to go over this land with a mower. The mower would keep down all second growth and lessen the danger of fires in the future as well as enable the farmers of this section to keep more than double the amount of livestock.—A. J. McGuire, agricultural extension division, University Farm, St. Paul.

SHEEP AND POTATOES WILL BE DISCUSSED

The development of the potato and sheep industries in Minnesota will be the chief topics of discussion at the fourth annual meeting of the Minnesota Potato Growers' association, to be held November 20 and 21, at Grand Rapids, in connection with the Northern Minnesota Development association and the Northern Minnesota Sheep Growers' Association. It is hoped that the potato show held in connection with the meeting will be at least twice as large as the one held at Brainerd last year. We want every county represented," says A. G. Tolaas, secretary and treasurer of the association.

"There will be two classes of exhibits, individual and county. Premiums will be awarded only for varieties recommended as standard for Minnesota: Early Ohio, Bliss Triumph, Irish Cobbler, Green Mountain, Rural New Yorker, Burbank, Burbank Russet and King. All other varieties belonging to the above named varietal groups will be considered in the group to which they belong.

"Individual exhibits shall consist of one peck (15 pounds); county exhibits shall consist of 15 half-bushel samples from 15 farmers in the county.

"The chief aim of the potato growers' association is to encourage potato improvement in the state. By holding such meetings and exhibitions an idea can be obtained of the progress being made.

"Let's see a delegation from your county to help boost for better potatoes, better markets and better prices."

FARMERS' CLUBS AID FIRE SUFFERERS

The Minnesota federation of farmers' clubs is organizing its clubs which are not in the forest-fire-swept region to aid members of clubs in the fire-swept region.

The executive committee is asking all farmers' clubs not in the burned area to call special meetings, make up donations of livestock, feed, machinery, seed or money, and notify the secretary, Mrs. I. E. Richardson, 1393 Cleveland avenue north, St. Paul, Minnesota, of what they have. The federation will then provide for the distribution of the donations. Clubs ready to cooperate should send to Mrs. Richardson nothing but a notification of what they have to give. She will then indicate to what points shipments should be made.

U. MAN BECOMES NUTRITION OFFICER

R. A. Dutcher, assistant professor of agricultural biochemistry at University Farm, has been commissioned captain in the division of food nutrition of the sanitary corps of the army. He will take preliminary training at Camp Greenleaf, Fort Oglethorpe, Georgia.

The war department plans to have a nutrition officer in every antonment. His duties will be to advise with the quartermaster in regard to the purchase of food for the men; to advise with the medical men in regard to the treatment of undernourished men; to make surveys of mess kitchens and mess halls; to improve and standardize the soldiers' dietary, and to save money for the government by directing the wise buying of food and the prevention of waste.

SCHOOL CHILDREN CAN SAVE FARM MACHINERY

The school children of Henderson county, Tenn., are uniting in a campaign to encourage the saving of farm machinery. At the suggestion of the county agent, H. A. Powers, the pupils in all schools are asked to see that the machinery on their home farms is properly taken care of before winter sets in.

Why wouldn't this be a good plan for Minnesota?