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PLANT EVERGREENS WITH ROOTS MOIST

Evergreens cannot stand the rough usage that hardwood trees can. This is partly because they do not possess and cannot sprout latent buds which will produce new roots as cottonwoods or willows do, in case their roots are dried out or injured.

If the roots of evergreens are dried out, the tree is beyond hope of recovery. In transplanting or planting evergreens, therefore, prevent the roots from getting dry. Be sure that the trees are well packed if bought from a nursery. Examine them before accepting the shipment, and if the roots are dry and poorly packed, reject them. Wet the roots when they are received and keep them wet until they are planted. Carry them in a pail with enough water to keep the roots covered and take them out of the pail only when a hole is made and everything is ready to put them in the ground. Have the hole in which the tree is to be planted large enough to accommodate the roots without doubling them up. Plant the tree as deep as the mark on the bark shows the tree was in the ground before it was dug up. Put the best dirt in around the roots. Pack it quite firmly and cover with the poorer dirt. Keep the trees cultivated and they will show a greatly increased growth.—W. H. Kenety, Superintendent Forestry Experiment Station, Cloquet, Minn.

WATCH FOR INSECT ENEMIES OF CROPS

The Minnesota College of Agriculture is calling on farmers of Minnesota to report evidences of insect injuries to crops of any sort. The plan is to prevent future ravages by the various insect pests.

Very often the attack on insects must begin in the fall and reports made at this time will enable the entomologists of the College of Agriculture to send warnings and instructions as to procedure over the Twin Cities.

Maximum yields of grain must be produced for several years to come. To obtain such yields the ravages of the Hessian fly, the chinch bug, the army worm, cut worms, grasshoppers, white grubs, bill bugs, corn root-aphis, and wireworms must be prevented. Farmers' Bulletin 835 of the United States Department of Agriculture deals especially with the insects named. Copies may be had by addressing Division of Publications, United States Department of Agriculture, Washington, D. C.

SHORTS OR CORN? HOG FEEDING QUERY

"Shall I feed shorts of $40 a ton, oil meal at $41, corn at $1.57 a bushel, or oats at 60 cents a bushel?" asks a hog raiser, using clover and timothy for pasture.

In 100 pounds gross weight of shorts there are of total digestible nutrients, 69.3 pounds; in oats, 70.4; in oil meal, 76.9; and in corn, 85.7 pounds. Good quality is assumed in all cases. On this basis 100 units of total digestible nutrients or food value would cost $2.66 in oats, $2.67 in oil meal, $2.89 in shorts and $3.27 in corn.

Practically the feeder can supply separately oats, shorts and oil meal, allowing the pigs to select their own combination; or he can mix the feeds (grinding the oats) and use as large a proportion of oil meal as the pigs will eat readily and without scouring. Quality is the big consideration.

FARM EXPERIMENTS AT GRAND RAPIDS

The work being done at the North Central Experiment Station at Grand Rapids is told in considerable detail in a report of progress, prepared by O. I. Bergh, superintendent, which has just come from the printers. The report covers the following general experimental projects:

Weather records, potato investigations, corn experiments, investigations with grasses, fertilizer experiments, garden crop investigations, forestry investigations, the management of the dairy herd, poultry breeds, peat for barn litter, and water levels on tiled muskeg land.

The report is one of interest to every north central Minnesota farmer.

Copies may be had by addressing Office of Publications, University Farm, St. Paul, or North Central Experiment Station, Grand Rapids, Minn.

RAISING FALL PIGS AT UNIVERSITY FARM

After three years' tests in raising fall pigs under fair conditions only, without feeding milk, and including the entire litters, runts and all, R. C. Ashby, specialist in charge of swine at University Farm, St. Paul, announces the following averages:

Beginning weight per pig.	39.4 lbs.
Final weight per pig.....	181.15 lbs.
Daily gain per pig.....	.99 lbs.
Grain required for 100 lbs. gain	458.00 lbs.
Pork produced per 56 lbs. grain fed	12.22 lbs.

In all 146 pigs were started on these feeding tests and 137 were marketed.

Eight of the 14 lots fed were self-fed, all feeds being dry. Three different rations were tried. The percentages of the ingredients consumed were as follows:

1. Shelled corn, 81.47 per cent; shorts, 11.11 per cent; tankage, 7.42 per cent.

2. Ground barley, 81.45 per cent; shorts, 12.55 per cent; tankage, 5.99 per cent.

3. Shelled corn, 60.10 per cent; ground barley, 23.52 per cent; shorts, 9.07 per cent.

Summing up Mr. Ashby says that under Minnesota conditions the net cost of pork is higher with fall pigs than with spring pigs, though many factors affect the results. The margin of profit is not large but it is reasonably safe. With good shelter and water available 24 hours a day, fall pigs will do well. The important facts are dry, comfortable beds, water above the freezing point whenever wanted, freedom from parasites and all the feed the pigs can use. More rapid gains can readily be secured by the use of skim-milk or butter-milk. Whether these will be cheaper depends upon the relative costs of all the feeds used.

CROP NOTES OF DULUTH STATION

M. J. Thompson, superintendent of the northeast station of Duluth, reports that oats growing on soils which last year grew crops of potatoes and rutabagas, are showing up better on rutabaga land than on potato land. The indication is that either the potatoes were harder on the soil or else that the level cultivation of rutabagas saved moisture and thus advanced the crop.

The very early and very late varieties of oats are making the best showing this year. The medium varieties were in blossom in the hot weather of late July and were somewhat blighted. Nevertheless, the yield is promising for all varieties.

The value of top-dressing old meadows was demonstrated at the Duluth station this year. In spite of the dry, cold weather, one of the old meadows that has never been plowed and had been pastured annually after the hay crop was harvested, this year yielded within a few pounds of the 1916 crop. This yield was gained by liberal top-dressing last winter and spring. Wherever a definite crop rotation is followed the yield of hay has much improved.

The value of crop fertilization and rotation in the control of insect pests is well demonstrated by the rutabaga crop. Where the land is rich and there is a proper rotation, plant lice are not troublesome, but where the land has been steadily cropped the insects are numerous and destructive.

The present very dry season has demonstrated the value of underdrainage. A tile field recently inspected showed the location of the tile lines very readily by distinct lines of taller and greener grain.

U. S. IS PROMOTING FARM BUREAU IDEA

The United States department of agriculture is encouraging the organization of farm bureaus, as a means of obtaining needed local co-operation. The county farm bureau, says F. E. Balmer, leader of county agents in Minnesota, helps to unify the efforts of existing farmers' organizations and to increase the efficiency of their work. The county farm bureau is like a rural chamber of commerce, doing for the farmers much the same kind of a service that the chamber of commerce or the commercial club does for the city or town.

The membership of the county farm bureau, adds Mr. Balmer, should be general, and at least four-fifths of the members should be farmers.

Any who are interested in the organization of farm bureaus or in the development of farm bureau work should write to A. D. Wilson, director of agricultural extension work, University Farm, St. Paul.

STATE WILL ADD TO WINTER WHEAT AREA

Minnesota has been asked by the federal government to increase its winter wheat and rye area, making the 1918 crop acreage larger than that for 1917, and C. P. Bull, secretary of the State Committee of Food Production and Conservation, says that in all probability the state will do even more than add ten per cent to this year's acreage. The acreage this year was 71,000 for winter wheat and 412,000 for rye, and the demands for seed point to an interest on the part of many farmers in both grains.

Rye, says Mr. Bull, is perfectly hardy throughout the state and is a good cash crop. Therefore farmers in every part of the state are asked to plant rye as a part of his grain for 1918.

SIMPLE RULE FOR PICKLING CABBAGE

Cabbage may be put down in large quantities and kept for months, if the following directions are observed:

To one quart of chopped cabbage use one level tablespoonful of sugar, one of salt, and one of white mustard seed.

Put the cabbage in in layers, sprinkle with the salt, sugar and mustard seed. Add a little pepper if desired. When the desired amount is packed, cover with cold vinegar, sprinkle on a few cloves, lay clean horseradish leaves over the top, weight down with a plate and set away.—Mary L. Bull, University Farm, St. Paul, Minn.

PROTECT THE DEER AS A WAR MEASURE

The federal government is sending out an appeal to the people of the states in which deer are game to protect deer as a war measure. The appeal says that every pound of venison brought in from the woods should be made to save a pound of beef, mutton, or pork. All persons are urged to co-operate to secure the best possible protection of deer so as to get the maximum amount of venison as a source of meat. In other words, the source should not be exhausted or destroyed.

FARMERS ARE URGED TO SAVE MACHINES

Word is being sent out to farmers over the country to take special pains this fall and winter to protect their machines. Prices have advanced greatly, and care of farm machinery will pay doubly well this year. So the word is going out:

To put machines under cover as soon as the season's work with them is over.

To go over every machine carefully as soon as opportunity will permit, tightening bolts, replacing broken parts, and oiling carefully to prevent rusting.

To paint machines, as painting lengthens the life of a machine. Bridge paint is suggested as the best for iron parts.

FARMERS WARNED OF SMOOTH PLAN

Warnings are being sent out against representatives of companies which offer to buy supplies for farmers at unusually low prices and to sell farm products at attractive prices.

Representatives of such companies ask the farmers to make a small cash payment and to give his note for $50 or $100 additional. In return the company is to give its services in buying and selling for five years.

It is reported that some seven hundred farmers have already been caught by this scheme.

The markets division of the State Committee of Food Production and Conservation is responsible for the warning now being issued.

RURAL SCHOOLS AS PATRIOTISM CENTERS

The opening of school gives a splendid opportunity of the spread of patriotism as a means of meeting the present war crisis. The governor of West Virginia, seeing this, has sent letters to all the teachers of his state calling on them to familiarize themselves with the events which drew this country into the war, in order that they may be able to make their school houses centers of patriotism. He also urges on them the duty of teaching the principles of conservation. This is a good idea, say members of the State Committee of Food Production and Conservation,—good for West Virginia, and good for Minnesota.

SAVE ROUGHAGE; ITS VALUE GREAT

There is a serious shortage of rough feed in many parts of the Northwest. This is a season, moreover, when livestock should be maintained as largely as possible on rough feed in order to save all grain food for human consumption. Many rough feeds that are usually wasted, therefore, should be converted into forage to relieve the shortage.

Oat and barley straw has a considerable feeding value. A ton of oat straw contains more than half as much nutriment as good timothy hay, says Andrew Boss of the Minnesota Experiment Station. Corn stover, which is corn stalks after the corn has been husked out, is worth as much as oat straw. There is a large amount of corn not cut in Minnesota every year. This year it should be cut and cured as well as possible, and fed to livestock. Straw and corn stover cannot very well be shipped, but they can be fed where grown, thus freeing the hay which can be baled and shipped.

Many of the farmers of the northwestern states will be obliged to sacrifice their livestock this winter unless they can obtain feed from outside sources. Anyone having a surplus of straw, stover, or hay will find a ready market for it, if he is within shipping distance of a good market point.

Do not burn any roughage, concludes Mr. Boss; it should be plowed under to feed the soil if it cannot be sold as feed for livestock.

CHANCE TO STUDY GRAIN MARKETING

The producer of grain ought to study the problems of grain marketing; or, at least, ought to have a chance to study the subject. For this reason the office of markets of the federal government has issued a bulletin on "Marketing Grain at Country Points." The bulletin deals with the function of the country elevator, methods of purchase, methods of sale, place of sale, price paid to the producer, contracting with farmers for future delivery, storing grain for farmers, and similar details. The bulletin is by George Livingston and K. B. Seeds, and copies may be had by addressing Office of Markets and Rural Organization, Washington, D. C.

NEW BULLETINS FROM EXPERIMENT STATION

Three new bulletins are announced by the Minnesota agricultural experiment station. They are:

"Co-operative Buying by Farmers' Clubs in Minnesota," by E. Dana Durand and H. B. Price, division of research in agricultural economics.

"Co-operative Creameries and Cheese Factories in Minnesota, 1914," by E. Dana Durand and Frank Robotka, division of research in agricultural economics.

"Preliminary Study of White Spruce in Minnesota," by W. H. Kenety, forest experiment station, Cloquet.

Copies of these bulletins may be had by addressing Office of Publications, University Farm, St. Paul.

EVELTH WORKING OUT HEALTH PLAN

Preparedness in Eveleth means, according to Miss C. Frances Cameron, head nurse of the Minnesota Health Association, a card index system showing the physical condition of each citizen of the community. Miss Cameron says:

"A 'health census' of the entire population is being taken. The plans adopted were the result of suggestions for permanent follow-up work submitted by Dr. I. J. Murphy, assisted in a health week program here early in the spring. I was detailed here July 1. Briefly the plan is this: A house-to-house canvas is being made, taking one block at a time; sanitary conditions are recorded; a thorough physical examination is given each resident. All those found to have physical defects will be followed up, with particular attention to tuberculosis and diseases of children.

"Eveleth with a population of less than 10,000, promises to maintain a city health organization which will not be surpassed by the larger cities of the state. It already has: A whole time health expert who acts as health officer and school physician, a child welfare station, a clinic for sick babies, a free dispensary at which any citizen may obtain an examination and to which all cases of tuberculosis report regularly, and four public health nurses."

WINTER RYE GOOD IN WESTERN MINN.

Winter rye has several points to commend it to the western Minnesota farmer this fall.

The spring of 1918 will probably see the largest acreage in the history of the state put into crops, and this will undoubtedly mean an unprecedented rush of spring work to get the spring crop in at the proper time. A substantial acreage of rye will do much to relieve the pressure of spring work and to distribute the labor evenly. This will be true not only of spring but of harvest time as well, as the rye will be in the shock before other grains are ready to cut.

Winter rye is also an enemy of wild oats, mustard and quack grass. When fall seeding is done, the weed seeds germinate only to be killed when cold weather comes. The spring crop of weeds will be killed before the seed is mature in the early summer when the rye is harvested.

Winter rye, again, is a very profitable cash crop under present war conditions. This season Minnesota No. 2 rye averaged 31 bushels to the acre at the West Central Experiment Station.

Rye in western Minnesota should be seeded from September 1 to 15 for the best results, although later seeding often gives good results. The plants should be well stooled and rooted before cold weather sets in. Six pecks to the acre on fall plowing or summer fallow worked up into a good seed bed is enough.—P. E. Miller, West Central Minnesota School and Station, Morris, Minn.

CORNSTALKS NEEDED AS FEED THIS YEAR

"Where corn has not been put into the silo this year, the stalks should be cut and shocked for dry forage this fall," says C. P. Bull, University Farm. "It may not be as good as clover or timothy hay but it will sustain cattle through the winter and that is everything to the farmer who is just beginning to develop a herd.

"Most of us," continues Mr. Bull, "do not realize the seriousness of the shortage of roughage this year. If we did, we should save every bit of corn stover possible. Even in southern Minnesota, it should be saved and used in order that hay may be baled for shipment to other sections of the Northwest where roughage is very scarce. The crops division of the State Committee of Food Production and Conservation believes it a patriotic duty this fall to save the cornstalks."

SEED LABORATORY HEAD IS DRAFTED

W. L. Oswald, head of the seed laboratory at the college of agricultural, has been drafted by the division of markets of the federal government to assist in making a complete survey of the seed situation in the United States. For the survey the government has divided the country into twelve districts, and has assigned to Mr. Oswald the district which includes Wisconsin, Minnesota and the two Dakotas. Mr. Oswald will have headquarters in Minneapolis.

The university will grant Mr. Oswald a year's leave of absence. He has been with the department of agriculture of the university for 13 years and in charge of the seed laboratory for 8 years. In 1910 the laboratory made about fifteen hundred seed tests for farmers and others. Last year it made about twenty-five thousand.

R. C. Dahlberg, seed analyst, will be in charge of the laboratory in the absence of Mr. Oswald.

STATE'S CREAMERIES DO A BIG BUSINESS

Co-operative creameries have a big lead in Minnesota, according to figures found in Bulletin 166 of the Minnesota Experiment Station, by E. Dana Durand and Frank Robotka of the Division of Research in Agricultural Economics. The bulletin covers the year 1914, and shows that the co-operative creameries for that year had 65,037 patrons as against 15,825 for the proprietary creameries; that the number of cows producing for co-operative creameries was 519,785 as against 119,977 for their rivals; that the amount paid the patrons of the co-operative enterprises was $18,544,122 as against $3,788,891 paid the patrons of proprietary establishments. The centralizers had 31,141 patrons with 231,090 cows, and paid their patrons $7,374,237.

Copies of the bulletin may be had by addressing the Office of Publications, University Farm, St. Paul, Minn.