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ORCHARD AND GARDEN NOTES.

December 1.

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

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

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

The Carrie gooseberry is a heavy bearer, hardy and freer 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 apple rust which is very injurious to apples, especially the Wealthy.

As soon as the chrysanthemums are through blooming the flower stalks may be cut off and the plants set in a cool place until new shoots grow. 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.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

ORCHARD AND GARDEN NOTES.

December 8.

Keep the palm and fern leaves free from dust by washing frequently in a tub of water.

Apples wrapped carefully in paper keep better than those unwrapped. Common newspaper may be used.

Was a pot of parsley saved for winter garnishing? It may be easily grown in any light window.

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

Watch the orchard closely for rabbit injury. A wire tree protector is a splendid protection against both rabbits and sunscald.

Why not devote part of an evening meeting of the Farmers' Club to discussing ways of fixing up the school yard to make it more attractive as well as comfortable?

Hang suet or a bundle of grain out near the buildings so that birds may find them. It pays to feed birds in bad weather when they have difficulty in getting food.

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 plant needs it.

A good windbreak about the buildings is comfortable at this time of year. White spruce is both ornamental and useful for this purpose, although slower-growing than many deciduous varieties.—LeRoy Cady, Associate Horticulturist, University Farm, St. Paul.

FARM CROPS LABORATORY MATERIAL.

To know the different varieties of the various farm crops, it is necessary to have the plants themselves, or such parts of them as are characteristic, to examine and compare. On most farms but one variety of each farm crop is raised and little or no opportunity is given to learn varieties that are grown elsewhere. In schools, difficulty in obtaining correctly named specimens and in keeping them in good shape after they are collected often causes instructors to rely mainly on text-book instruction, which is less interesting and hence less satisfactory. To overcome this difficulty the Division of Agronomy and Farm Management, University Farm, St. Paul, is supplying laboratory material at cost to individuals or schools. No teacher in the Northwest need be without an abundance of illustrative work in teaching agriculture. Write for Bulletin listing this material.—A. C. Arny, Assistant Agriculturist, University Farm, St. Paul.

BACK TO THE FARM.

The modern slogan, Back to the Farm, is the title of a rural drama which is being presented in a number of Minnesota towns, under the auspices of the Agricultural Extension Division of the University of Minnesota, not only as a means of entertainment but to mold public opinion in favor of better agricultural methods. The play was written by a student of the School of Agriculture and the cast is made up of students of the School and College of Agriculture.

The play opens with a scene representing an old, run-down farm the owner of which does not believe in education or modern farming methods. His son, Merton Merrill, having had a high school education, is dissatisfied with the grind of farm work with no time for recreation, and when the pretty little school teacher refuses to marry him because the life of a farmer's wife is one of "dull drudgery" he decides to try some other line. A young lawyer advises him to go to an agricultural school and learn better methods of farming. His father objects to the plan and as a result of a quarrel between the two the elder Merrill orders his son to leave and "never set foot on this place again."

The second act shows a ball room scene at a fraternity house. Merton has completed his course in agriculture and has refused a position with the Agricultural Extension Division in order to try his new methods on a farm. One of the guests is the young lawyer who advised Merton to go to school. He brings Merton news from home, telling him of his father's bad luck and poor health and Merton decides to use the money he has saved to pay the interest on the mortgage and save the old home. His mother appears and begs Merton to come home.

The last act shows the young farmer in his office. He has proved to his father and the neighbors that modern methods of agriculture pay and also convinces the school teacher that a farm home can be made the "happiest place in the world."

A fine vein of humor is introduced through the acting of the hired man, Gus, who is always ready to "quit" but who also adopts scientific methods and endeavors to teach them to Hulda, the hired girl.—Estelle Cook, English and Expression, University Farm, St. Paul.

ROASTERS.

A roaster is a young fowl about full grown, weighing from 4 to 8 pounds. The most profitable age at which to fatten them is when they are from 3½ to 4 months old, as they grow and put on flesh at the same time, and therefore make greater gains than at any other time. They should be fattened as early in the season as possible for prices, as a rule, are low in the fall, when most farmers rush their stock to market.—C. E. Brown, Poultryman, Northwest Experiment Station, Crookston, Minn.

GOOD RATION FOR TURKEYS.

During the winter season the stock turkeys should be fed and watered twice a day. Only sufficient food should be given to keep them in good healthy condition. When winter is over it is advisable to feed them a small amount of grain each evening to encourage them to return to their roosting quarters and thus prevent them from wandering away with other flocks. The following ration is a good one for the turkeys: Mix equal parts by weight of corn or barley, oats and wheat screenings, and in addition to this green food should be supplied once a day. For this purpose mangels, cabbage, or clover leaves are the best. Grit and water should be supplied at all times.—C. E. Brown, Poultryman, Northwest Experiment Station, Crookston, Minn.

SHELTER FOR DUCKS AND GESE.

Ducks and geese will stand rather low temperatures if they are sheltered from the wind and snow and the floor is well bedded with clean dry straw. They should be given their liberty whenever they choose to go outside. Their shelter should open toward the south. A house of this style is a splendid shelter for ducks and geese and costs very little to build. The ducks and geese run together in the house except at feeding time, when the ducks are fed at a separate trough.—C. E. Brown, Poultryman, Northwest Experiment Station, Crookston, Minn.

RE-STOCKING THE HERD.

Farmers who have lost all or part of their hogs from cholera are asking for advice as to the best way of re-stocking their herds. In this connection there are a number of things to be kept in mind. All hogs that pass through an outbreak of cholera can be regarded as being permanently immune, especially if they showed symptoms of the disease. However, only a small portion of a herd will survive an outbreak, unless the serum treatment is employed. In herds treated with serum, provided there were undoubted cases of cholera present, all hogs surviving can be reasonably regarded as being immune. Close association with sick hogs at the time of treatment is very essential.

Where it is desired to bring new hogs into the herd, they should be vaccinated before or at the time they are placed on the infected premises. Some breeders are selling brood sows and boars guaranteed immune to cholera. Where such stock is obtained from reliable parties, no further treatment should be necessary. When immune stock cannot be purchased, arrangements should be made to have the serum-virus (double) treatment given, either before or at the time the hogs are placed in the infected pens, or yards. In such cases the serum-only (single) method of treatment is not sufficient, owing to the uncertainty of the treated hogs actually getting infection from the premises at the time of treatment. The serum will afford a temporary protection, but after a while the hogs will again be susceptible to cholera. There is no way of telling whether a hog is immune to cholera or not, without actually exposing it to the disease in some way.

Pigs from immune sows will inherit a certain amount of immunity from their mothers, enough to protect them from cholera for a variable period after birth. When the pigs are about a month old, it would be well to give them a small dose of serum, 10 to 15 cc., this to be followed by the serum-virus (double) treatment when they have been weaned and weigh from 40 to 50 pounds. The double treatment given earlier does no harm to the pigs, but the immunity given very young pigs is not always lasting. By waiting until the pigs are older, permanent immunity will be practically assured by the double treatment.

The State Serum Plant is still receiving orders for all the serum that can be produced, owing to the fact that cholera still exists in a number of localities in different parts of the State. For the present, serum is being restricted to infected herds, especially for the treatment of breeding-stock in such herds. Orders for the double treatment are being placed on file, and will be filled in their regular turn, unless cancelled, just as soon as a small reserve of serum can be accumulated for emergency use in sick herds. When hog raisers wish the double treatment immediately, the Veterinary Division will order the serum and virus from a reliable source, and arrange to have them administered by a field veterinarian from the State Live Stock Sanitary Board.—H. Preston Hoskins, Assistant Veterinarian, University Farm, St. Paul.

WHEAT IN ROTATION.

Wheat-growing has been on the decline in the northern states for some years, owing to plant diseases and insect pests, and also to the fact that live stock raising has increased and that some of the land has been required for this purpose. The consumption of bread made from wheat flour is continually on the increase, however, and the indications point strongly toward the possibility of profits from wheat when grown in combination with other crops or in rotations. Yields of from 25 to 35 bushels per acre of spring wheat have been obtained where a good rotation has been followed and where proper conditions for wheat-growing have been maintained.

Wheat does not deplete the soil fertility more than other grain crops and the profit in growing the crop is greater on the average than from most of the other cereals. Where good seed is sown and the land is properly prepared there is no reason why a crop of wheat once in four or five years can not very well be fitted into the farming scheme. Farmers will do well to pay attention to proper conditions for wheat-growing and will find good profits from the wheat crop in most years, if the land is in condition to yield from 25 to 35 bushels per acre.

Some excellent information regarding wheat-growing is given in Bulletin No. 233 of the Wisconsin Experiment Station. The bulletin may be obtained by addressing the Director of the Agricultural Experiment Station, Madison, Wisconsin.—Andrew Boss, Agriculturist, University Farm, St. Paul.

FEED COWS REGULARLY.

Care Is Necessary if Best Results Are to Be Obtained.

It is of great importance that strict regularity should be observed, both in feeding and in milking, in order to secure the greatest degree of contentment in the herd. If cows are fed at stated intervals, they will not worry for food until the time for feeding arrives. If it is then given to them in proper quantity, they will eat and lie down, chew the cud and sleep or rest contentedly until time for another feed. First give the grain mixture, and milk the cows while they are eating it. This routine is recommended because, with some cows, the milk comes more freely while they are eating that portion of their ration which has the most relish. Cured roughage should be fed after milking because it fills the air in the barn with dust. Succulent feed, like silage and roots, should also be fed after milking, because of the odor that it gives. Feeding twice a day will bring better returns than more frequent and wasteful feeding. Give half the concentrates and half the roughage in the morning, and half in the evening. Cows will soon become accustomed to this routine. In the winter they should be allowed to spend the day in the stall, and for two or three hours about midday they should not be disturbed. Turning them out into the yard, or giving them access to a straw-stack or field of corn stalks, will cause them to shrink in milk, no matter how much or how well they may be fed in the morning and evening. No more feed should be given them than they will eat up. The mangers should be absolutely clean and free from any feed, during the day and night.—T. L. Haacker, Dairy and Animal Husbandman, University Farm, St. Paul.

MILK.

Milk may convey the active agents of some of our transmissible diseases. Cows having tuberculosis of the udder give off tubercle bacilli in the milk. This milk may be sent to a creamery and there be mixed with the milk coming from a large number of herds, which may be free from tuberculosis. All the milk is then contaminated. Hogs are frequently fed on skim milk from creameries, and this may be the reason why so many hogs are condemned by the meat inspectors every year for tuberculosis. During the year 1912 the Bureau of Animal Industry condemned 42,267 hogs and parts of 314,581 other hogs as tuberculous.—H. Preston Hoskins, Assistant Veterinarian, University Farm, St. Paul.

SILAGE FOR HORSES.

Silage has been fed to horses in different sections of the country with varying degrees of success. When it first came into general use for feeding dairy cattle, the corn was cut at a very immature stage. This kind of silage, when fed to horses, resulted the same as feeding green corn, producing colic, scours, and other digestive disorders. In recent years, silage has been fed successfully by many farmers, although in isolated cases it results disastrously, probably due to one of several causes: (1) The silage may have been made from immature crops, resulting in a very acid or sour silage; (2) the crops may have been too mature at the time of filling the silo, resulting in moldy silage because of failure to settle and exclude the air; (3) poor preservation, due either to the method of filling or to the silo not being air tight; (4) carelessness in feeding, permitting decomposition to start in the silo; or (5) failure on the part of the feeder to use a sufficient amount of time in getting horses accustomed to a succulent feed after having been fed continuously on dry feed for a considerable length of time. Great care and judgment should therefore be used in feeding silage to horses and it would not be safe feed in the hands of one who is in any way careless.—C. C. Palmer, Assistant Veterinarian, University Farm, St. Paul.

ALFALFA SEED.

Alfalfa and corn make a team that any farmer in the Northwest may be proud of having working for him. Both are great feed-producers. Alfalfa is the best of soil improvers and corn one of the best land-cleaners. If you intend to sow alfalfa next year, now is the time to get the seed. The best seed is picked up early in the season. When you get ready to sow alfalfa, you will have to take any seed that you can get and it will not be the best. If you need information as to where to obtain seed, address the Agronomy and Farm Management Division, University Farm, St. Paul, Minnesota.—A. C. Arny, Asst. Agriculturist, University Farm, St. Paul.

IMPROVEMENTS IN KESOSENE LIGHTING.

In artificial lighting there are two important factors to consider: (1) The cost per unit of light, and (2) the character of the light obtained with respect to its efficiency for the purpose for which it is intended. While the old style kerosene lamp probably furnishes the cheapest light which can be obtained, it is also the most inefficient, in that the yellow light produced is very far from the daylight which it is intended to replace. The most efficient light is the light which most nearly resembles daylight.

Up to a few years ago it was not considered possible to burn kerosene except in a wick lamp and other forms of fuel were advocated which could be burned under the so-called incandescent mantle because by means of this mantle a light much more closely resembling diffused daylight could be obtained. With the introduction of the mantle lamp for kerosene, however, artificial lighting in the farm home can be made very efficient as the character of the light depends not on the fuel but on the character of the mantle which is used. The kerosene mantle lamp requires somewhat more care than the ordinary lamp. The mantles are fragile and tend to blacken if the wick is not kept properly trimmed. Portable mantle lamps have also been devised for the use of other fuels.

With the introduction of denatured alcohol a fairly cheap fuel for lighting has been made available. Alcohol is in some respects more desirable than kerosene in that there is less danger of fire because alcohol can be extinguished with water; there is less tendency for the blackening of the mantles; and possibly most desirable of all, the disagreeable odor of burning kerosene is done away with. At present, however, even denatured alcohol is much more costly than kerosene and unless these secondary considerations just mentioned outweigh the difference in cost kerosene should be used. The mantle lamps are more costly than the ordinary kerosene lamp, ranging up from \$3.00, while the ordinary lamp can be bought for from 50 cents to \$1.00. The character of the light from the two styles of lamps, however, cannot be compared and where any amount of close work, such as reading or writing or sewing, is to be done by artificial light the light which is least harmful to the eyesight should receive first consideration.—R. M. West, Assistant Agricultural Chemist, University Farm, St. Paul.

COOPERATIVE LIVE-STOCK MARKETING.

Market Early in Week, in Carload Lots, and Through an Efficient Manager.

In order to market live stock cooperatively, an association must be formed. To do this requires only the adoption of a constitution and by-laws and the election of a board of directors who will appoint a manager to handle the business. The manager should be an honest, energetic, up-to-date man, a good judge of live stock and a good business man.

It is better to ship during the fore-part of the week in order to get the stock on the market when most of the purchasing is done for the week's slaughtering. In case there is not stock enough to fill a car each week, the stock should be held over, as the freight rates are much higher per hundred on less than a carload.

The farmers belonging to the association report to the manager by telephone when the stock is ready for shipment, stating the kind and approximate weight, so that the manager can order a car of the proper size for his shipment. All stock should be reported at least one day before the date of shipment.

On the day of delivery the manager and his helper receive and weigh the stock and give each man a receipt made out in duplicate for the number of animals delivered, the weight on delivery, and the number or mark used in marketing his stock. If all individuals are marked, each man's stock can easily be identified when sold on the market.—W. H. Tomhave, formerly of University Farm, St. Paul.

In 1912 more forest fires were due to lightning, than to any other cause; railroads, campers, and incendiaries following in the order named. About 38 per cent were due to carelessness.

According to the Federal Forest Service the average annual loss from forest fires is about 70 lives and \$25,000,000. If the cost of crops, buildings, stock and young trees were included the loss would be many millions more.