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ORCHARD AND GARDEN NOTES.

October 1.

Final banking of late celery should begin now.

Save seed of the best annuals and perennials for sowing next year.

Tulips should be set in the ground now for spring flowering.

Tulips, narcissi and daffodils, may be planted in pots or boxes now for spring flowers.

Nuts for winter use should be gathered now if the matter has not been attended to before.

Prune out limbs and twigs of apple trees infested with blight. Disinfect tools after each cut.

Viburnum lantana, highbush cranberry and snowberry have been loaded with attractive berries this autumn.

Clean up the garden, remove and burn all weeds and trash. They harbor insects through the winter.

Celery banked with earth late in the fall seems more palatable than where boards are used. Do not bank when the foliage is at all moist as this will aid decay.

Leaves raked from the lawn may be piled in some corner and allowed to decay. The leaf mold thus formed is useful for potting plants or mixing with soil for seed-sowing.—LeRoy Cady, Horticulturist, University Farm, St. Paul.

ORCHARD AND GARDEN NOTES.

October 8.

Manure and plow the garden for early planting next spring.

Wild grape and bittersweet arbors have been especially attractive this season.

Branches of wahoo or burning bush make excellent bouquets for the table.

Chrysanthemums should begin to show signs of blooming. Feed slightly and do not let them get too dry.

Prune grapes as soon as foliage is off. Lay them down and cover with earth before the ground freezes.

See that the grass is pulled away from the base of small trees. Better put wire protectors about them so mice or rabbits cannot injure them during the winter.

Hardy hydrangea flowers cut just before frost and put in dry vases will last a large part of the winter. Straw flowers treated the same way make attractive bouquets until late in winter.

Save seeds, fruits, and ornamentals. Either plant them at once in very sandy soil or mix with sand and store over winter, planting in good garden soil as soon as the land can be worked easily in spring. Highbush cranberry, buffalo berry, buckthorn and plum may also be treated in this manner.—LeRoy Cady, Horticulturist, University Farm, St. Paul.

FOREST SERVICE BULLETIN.

It is worthy of note that the first bulletin issued by the Minnesota State Forest Service deals with the question of windbreaks and prairie plantations. In it Mr. P. C. Records has set down some very practical advice, on the selection of species for successful planting, the best methods to use, and the value of such work.

It is as a whole a very valuable and instructive pamphlet which every farmer should read and heed. And there are one or two points which deserve special attention. In the dry summers of 1910 and 1911 many of the grain crops in the southwest were burned up by the hot winds. On a certain farm in Watonwan County, and on all of the neighboring farms, the grain crops were completely destroyed with the single exception of a strip along the north side of an east and west windbreak. This strip produced enough grain to supply all the seed—lacking two bushels—for the next year and the crop from the seed thus produced yielded three times as much as that from the bought seed. That one yield in 1911 more than paid the rent on the land occupied by the windbreak since planting.

This is only one instance. There are thousands of others where, as the bulletin points out, the groves and windbreaks have increased the value of the farm by the protection afforded to the people, crops, stock, orchards and insect-eating birds; by keeping out wind-blown weed seed; by increasing the beauty of the scenery; and by increasing the selling price of the farms.—E. G. Cheyney, Forester, University Farm, St. Paul.

SCHOOL OF AGRICULTURE A SUCCESSFUL PIONEER.

Minnesota was the first state to establish a special short course in Agriculture and Domestic Science, consisting of three winter terms of six months each. This leaves the students free for work in their homes or on their fathers' farms during the busy cropping season even of the years of which they are in school. It makes every effort to return them well prepared to be good citizens, good farmers and good home makers. Its success is indicated in part by the fact that about 80 per cent of the school's graduates are doing work connected with agriculture and about 60 per cent are actually farming although many of them came to the School of Agriculture from the adjacent Twin Cities. If we omit these who are not so likely to prefer the farm, the percentage of the school's graduates actually farming would be still higher. Over half of the women graduates are housekeepers and about one-fourth are teachers.—A. F. Woods, Dean and Director, Department of Agriculture, University Farm, St. Paul.

PACKING APPLES.

The way fruit is put on the market determines whether it will sell at the highest figure. If we are to be successful in disposing of the surplus fruit this season, under the slogan, "Eat Minnesota Apples," we must be sure the fruit is packed in an attractive manner. The package often sells the fruit.

In the first place the apples should be hand picked. One cannot expect to compete with Western fruit if care is not used in picking and grading. In the second place, clean boxes or barrels should be used. Do not put choice apples in old boxes, sacks, or barrels. Pack the apples tightly to prevent bruising.

Select the type of package best suited to the demands of the market. Some markets want apples in boxes, while others prefer the barrel. Always consider the other fellow. Would you want to buy apples that were wormy, badly bruised, good and bad in the same package? No! you want apples of uniform quality, put up in an attractive form.

We have made Minnesota famous for "bread and butter" now let us make our Minnesota Wealthy apples just as famous.—R. S. Mackintosh, Extension Horticulturist, University Farm, St. Paul.

DIGGING POTATOES.

Whether it pays to dig potatoes before they are mature depends on the variety, when they were planted, and the price that can be secured. It would often pay to dig early planted Early Ohios when only half of the leaf surface is dead. The price at that stage must be from 12 to 15 per cent more per bushel than when growth is completed to make up for the lower yield secured. In many cases digging ten days earlier would mean a considerably larger profit per acre.

During the last three or four weeks of healthy foliage Early Ohios grow at the rate of three and a half or four bushels a day per acre for each one hundred bushels of the ultimate potato yield. As the leaves begin to die the rate of growth decreases.

If there is danger of a hard freeze before the digging can be finished considerable protection can be given in a short time by ridging the rows with a disk cultivator.

There are numerous methods of digging by hand, by plowing, with a shaker digger, and, for large areas, by means of the large four-horse diggers. The methods of picking up are also numerous, each having its special advantages. In the Red River Valley cylindrical, half-bushel, wire baskets are used and the potatoes are dumped into sacks, two baskets in each, as fast as picked up. In the sandy potato sections north of the Twin Cities it is a common practice to pick up potatoes into baskets which are dragged along the rows on a stone-boat. About six baskets are hauled at one time and the potatoes are sorted as fast as picked up.

Where the latter method is followed the potatoes are often dumped into piles in the field to allow them to cure and the skin to harden and toughen before further handling. These piles must be covered to protect the potatoes from the sun, rain, and frost. Potatoes should be left lying on the ground about two hours after they are dug before piling them up, so as to give them a chance to dry off. Dirty, moist potatoes do not keep as well as clean, dry ones. None should be left lying on top of the ground over night.—A. R. Kohler.

THE SERUM SITUATION.

Hog cholera is usually most prevalent during late August, September, and October, but this year it has appeared a month earlier than usual and in sections of the state heretofore regarded as uninfected.

It seems hard that we should know the best methods of preventing this disease and yet be unable to put this knowledge to good use, but the legislature at its last session appropriated $10,000 a year for the next two years with which to supply Minnesota farmers with serum, but specified a price which is only about one-fourth of its actual cost. This means a heavy loss on all serum sent out, and practically limits the output of the plant as it must stop the distribution for any given year when it has lost $10,000. When serum was sold at cost the plant was self-supporting and there was no limit to the amount of serum distributed except the capacity of the plant. Now that we must sell at a loss we must stop as soon as we lose a certain amount each year.

We have orders now on file for as much serum as we can produce during the next six months, and in making our shipments are giving the preference to sick herds. We advise local veterinarians to procure serum from commercial serum plants, but they are also unable to fill their orders.

If the disease has not yet appeared in your herd, read up on hog cholera, especially as to how it is spread, and take every possible precaution to keep out infection. Do not allow visitors or neighbors to go into your hog pens or yards. Have one person designated to look after your hogs and do not allow him to go near a farm where cholera exists. At the first appearance of cholera in your herd, consult your nearest competent veterinarian. If you have none near you, get into communication with the Experiment Station, and place your order on file. You will be told when it will be possible to send you the serum, and when a veterinarian can be sent to administer it.—H. Preston Hoskins, Assistant Veterinarian, University Farm, St. Paul.

WOOD SHOP BULLETIN.

Wood working exercises for the Agricultural School Shop is the title of a bulletin recently published by Hall B. White, Instructor in Charge of Carpentry at University Farm, St. Paul. It is published primarily to meet the demand of instructors in Minnesota schools for suitable carpenter shop exercises. It shows not only photographs of the finished articles, but drawings with dimensions and other help for use in turning out many useful pieces of work.

Although school work and exercises were given the first consideration, the bulletin will be useful in the farm shop, especially if used with Farmers' Bulletin 347, which may be secured by addressing the United States Department of Agriculture, Washington, D. C. The Farmers' Bulletin cannot be secured from University Farm, St. Paul, although the Experiment Station Bulletin will be sent free of charge from that point, to all who ask for Bulletin 135.—J. O. Rankin, University Farm, St. Paul.

POULTRY DISEASES.

Tuberculosis has wiped out a number of flocks in this state. It affects the liver and intestinal tract in the majority of cases.

Sick birds should be removed from the flock, and dead ones burned, in an outbreak of any disease.

White diarrhoea of chicks is caused by a germ which is often passed from the hen to the chick through the egg.

Vessels and troughs in which feed is placed should be frequently scalded, or disinfected with a five per cent solution of carbolic acid.

It is a wise precaution to fumigate your incubator with formaldehyde gas before placing the eggs in it for hatching.

Be careful in introducing new birds into your flock to see that they are perfectly healthy, and not likely to bring disease with them.

The disease called "scaly legs," is caused by a mite belonging to the same family of parasites that cause mange in cattle, sheep, and other farm animals.

A dusting powder for ridding birds of lice may be prepared by mixing equal parts pyrethrum (insect powder) and flowers of sulphur. Apply it with a powder gun.

Poultry diseases, just like other diseases, are favored by unsanitary surroundings, spoiled food, stale and dirty drinking water, and poorly ventilated and insufficiently lighted coops.—H. Preston Hoskins, Assistant Veterinarian, University Farm, St. Paul.

GIVE CHICKENS SOUR MILK.

Cracked Corn Soaked in Sour Milk Brings Higher Returns As Chicken Feed Than As Hog Feed.

Sour milk is utilized in one of the best possible ways by feeding it to chickens. Those who think that they get greater returns by feeding it to hogs should remember that the flesh of chickens brings at least twice as much on the market as that of hogs.

Milk and corn are both liked by chickens, and a proper mixture of the two makes one of the best and most appetizing rations for the season when the days are warm and the nights cool. For the best results the corn should be cracked and soaked several hours in either sweet or sour skimmed milk or in buttermilk. The corn may be put in pails in the morning and the milk poured on until the top of the corn is submerged two or three inches. When this has been absorbed more should be added at intervals during the day and the mixture will be excellent for feeding by night.

A liberal supply of this ration will keep the chickens growing rapidly and insure their being constantly plump and in excellent condition for the market. Try it once and the fowls will tell you whether they like it. Try it two weeks or a month and they will show you whether it is a good and economical feed.—A. C. Smith, Poultryman, University Farm, St. Paul.

FEEDING DRY COWS.

Grain Ration Should Be Reduced While Cows Are Not Milking.

During the eight or ten weeks that cows go dry, their food should be chiefly roughage. A daily allowance of two pounds of bran or oats, or a mixture of two parts each of bran and oats and one part of linseed meal or corn oil-meal, makes a proper feed for a cow near calving. Some roots, cabbage, pumpkins, or squashes are also very good. Highly carbonaceous roughage, such as straw and corn stalks, is not good at this particular time. Such feeds, with cold water, cold drafts, or lying out at night on damp or frozen ground, are the chief causes of caked udder or garget.—T. L. Haecker, Dairy and Animal Husbandman, University Farm, St. Paul.

STORING POTATOES.

The place for storing potatoes should have plenty of ventilation. Bins ought not to be over eight feet square and should have slat walls with hollow partitions, or there should be plenty of ventilating tubes with slat sides reaching from top to bottom of the bin. Where bins are as large as eight feet square a ventilating tube in the middle of each one would be desirable. Ventilation helps to carry off moisture, thus keeping the potatoes dry and making it possible to cool them off quickly in the fall and keep them cool during the winter.

The best temperature for potatoes is as near 35 degrees Fahrenheit as possible. A good tested thermometer or several in different locations and at different heights should be kept in the cellar and watched at frequent intervals.

In putting potatoes into a storage cellar they should be run over a screen that will take out the dirt. Large potato cellars should be filled in layers so as to give the potatoes the best possible opportunity to cool off and dry. Dumping a whole day's digging in one place is not the best practice.

The best method for keeping moisture from collecting on the inside of the roof of potato cellars is to cover them with straw or strawy manure. Giving plenty of ventilation also helps.—A. R. Kohler.

CANNING GREEN TOMATOES.

Remove stems, wash, and drain the tomatoes. Pare them and remove all inedible parts. Slice or chop them and put in an acid-proof vessel, adding one level teaspoonful of salt for each pint of tomato.

Set the vessel on the back of the range or in a mild oven, where it will receive only a moderate amount of heat. Add no water, but allow the tomatoes to cook in their own juices, stirring occasionally to prevent sticking. They must cook until thoroughly done, not less than an hour.

Have the jars sterilized and the rubbers on. Keep them hot until the tomatoes are ready; then fill the hot jars with the hot fruit, seal tight, and when cold wipe and set away for future use.—Juniata L. Shepperd, Domestic Science, University Farm, St. Paul.

FALL APPLICATION OF PHOSPHATES.

Grain Yields May Be Increased By Plowing Under Phosphates With Manure or Vegetable Matter.

Only slowly available commercial fertilizers should be applied in the fall for a following spring crop. Prominent among these is raw rock phosphate applied because it supplies the element phosphorus. It is applied as a very fine powder, containing about 12 per cent phosphorus or the equivalent of from 28 to 30 per cent phosphoric acid. An idea of its extreme fineness may be gained from the fact that about 90 per cent of it will usually pass through what chemists call a 100 mesh sieve—that is one which has 10,000 openings per square inch.

Acid phosphate is made by treating the rock form with sulphuric acid, but this makes the phosphorus cost about four times as much in this more available form. For fall application, however, the ground rock phosphate is better because of its cheapness, because of the fact that it will hold its strength longer, and will benefit the following crops. In fact, it is two or three years before much of its phosphorus is regarded as available for use by plants, but this depends on the soil. When much humus or decaying vegetable matter is present, acids are formed which act on the rock phosphate and set the phosphorus free for the use of the plant. This is the reason for the application of barnyard manure mixed with the raw rock phosphate at the rate of from 150 to 200 pounds of phosphate per load of manure. This mixture should be applied at the rate of about of 1,000 pounds of phosphate per acre.

Lack of phosphorus in the soil is often shown by poorly filled heads of grain, but this may result from other causes. Phosphorus aids in the development of the seed, and where it is deficient grain yields are likely to be light, even though the straw appears heavy enough for large yields. Continuous grain growing has undoubtedly decreased the available phosphorus in many of our soils, especially when no barnyard manure or crop residue is returned. Another reason for plowing under barnyard manure or green crops with rock phosphate arises from the increased bacterial action which tends to break up the phosphorus compounds and make them available for the growing crops.—W. H. Frazier, Assistant Soils Chemist, University Farm, St. Paul.

HOUSING POULTRY.

Remember that most cases of colds and roup are incurred in the fall because birds are not housed as early as they should be. Fowls are timid in new quarters and are prone to crowd and huddle together on the roosts and drop boards. In this way they become overheated at night only to be chilled when they separate in the morning. It is an excellent plan, therefore, to house a few at first and as soon as they feel at home, add a few more until the pen has received its capacity.

It is an accepted fact that any change in location affects the laying stock, therefore in order to induce early laying the pullets should be put in permanent winter quarters two or three weeks before they are expected to mature.—A. C. Smith, Poultryman, University Farm, St. Paul.

FREE SEED CORN BULLETIN.

If you have Farmers' Institute Annual No. 23, read the article on page 62 on Selecting and Storing Seed Corn. This article is a copy of Extension Bulletin No. 9. If you haven't the Annual or Bulletin, be sure to get a copy of the bulletin by addressing the Agricultural Extension Division, University Farm, St. Paul. This is only an eight-page bulletin, but it is worth $10.00 a page to any corn grower.

GREEN TOMATOES.

When the tomato vines have been killed by frost, pick off all green tomatoes and put those that are turning red or are whitish in appearance, in a dry, sunny place to ripen. Those that are very green will not be first class when ripened in this way, so they should be prepared for use green.

Every woman is familiar with the preservation of green tomatoes in chow chow, piccalilli, plain and sweet pickles, but there is usually a surplus after these products are finished, and these should be canned to be used later in making pies, marmalade, butters, mince meat, or simply as a vegetable.—Juniata L. Shepperd, Domestic Science, University Farm, St. Paul.