The Agricultural College Is a Friend to the Farmer

Bulletins and News Notes From the Staff at Pullman.

VIEW OF WASHINGTON AGRICULTURAL COLLEGE AT PULLMAN, WASH. ITS SOLE AIM IS TO AID AGRICULTURISTS.

Save Farmyard Manure; It Is Best Fertilizer

By E. B. Stookey, Agronomist.

EXPERIMENTS at this Station, as well as those at many other stations, have proved conclusively that barnyard manure is the best fertilizer that can be used for most crops on our soils. With systematic crop rotation and the application of 15 to 20 tons of manure per acre every three or four years the fertility of most soils in Western Washington can be materially increased, and so be made to yield increased returns.

On the proper handling of manure depends the amount that can be saved to apply to the land, and also its fertilizing value. When planning to handle manure to save all the fertility possible two facts should be kept well in mind: 1st, the liquid excrement of animals contains equally as much fertilizing value as does the solid excrement; and 2d, fresh manure in the open will lose one-half or more of its bulk and almost half of its fertilizing value in six months. The loss in the open is largely due to leaching and heating. The annual loss in fertilizing value in the United States from the leaching and wasting of farmyard manure is estimated at $750,000,000. Any method the farmer may employ to reduce these losses to the minimum will increase his supply of fertilizer and be well worth while.

Experience and experiments show that manure can be stored with the least amount of loss when kept under cover, the manure from the different farm animals being well mixed and well compacted by the tramping of farm stock. This plan anticipates the use of sufficient bedding to absorb all the liquid manure. The above plan can very well be put into practice where a covered concrete manure pit is provided. The farm animals should be allowed to use the shelter and tramp over the manure, or such a pit might well be part of a covered barnyard for housing the stock in Winter. The pit should be built with sloping sides so that the manure can be more easily hauled out.

Provision is often made to store the liquid manure from dairy barns in concrete tanks. This plan is practical but in order that it may work satisfactorily there must be catch basins close to the ends of the gutters from which the drain leads to the liquid manure tank. Without these catch basins the drain becomes clogged periodically, much to the annoyance and inconvenience of the farmer.

The time to apply manure is largely a question of farm management. The greatest fertilizing value would undoubtedly be secured if the fresh manure were hauled every day on to the land, especially grass land. If the manure is applied to the land in the Spring it should be plowed under and the soil well worked down so that the manure becomes thoroughly incorporated with it. When a heavy coat of strawy manure is plowed under it may form a layer in the bottom of the furrow through which moisture from the subsoil cannot penetrate, in which case the land is apt to suffer in case of drouth.

Considerable losses may occur when manure is applied to land in the Fall where there is much surface drainage unless the land can be plowed before periods of heavy rain.

The really important thing is to get as much manure on to the land as possible and in such a way that there is but little loss of fertility.

A page of interesting items from the Oregon Agricultural College at Corvallis will alternate in the farm weekly with a page of news notes from the Washington State College at Pullman. This will afford an interchange of views from the two big agricultural colleges of the Northwest that should prove of benefit to the reader, for the institutions deal with similar problems.

Succulent Feed Supply Should Be Home-Grown

By W. A. Linklater, Superintendent.

IT is often practical for Western Washington dairymen to buy part or all of the hay and grain feeds required by their cows, but all of the succulent feed needed should be home grown. Succulent feed should be provided throughout the year and must be if the cows are to be held up to maximum and profitable milk yields.

Like many dairymen, we, at the Experiment Station cannot furnish sufficient pasturage to maintain our dairy herd throughout the Summer. We are not able to provide more than one-third of an acre of pasture land per cow and consequently have as great a need for succulent feed during the Summer season as at any other time during the year. We make use of a silo and grow corn for filling the silo in the Fall and Fall-sown oats and vetch for filling the silo in early Summer. Kale and mangels are also grown for cow feed. The feeding of kale is begun in the Fall as soon as the silo is filled with corn. Our kale crop usually lasts until about January. We grow about one ton of mangels per cow. These are stored in a root cellar before frost and are fed as soon as the kale crop is finished. When the mangel supply is exhausted or about March 1st, we open the silo and begin feeding corn silage. Usually some corn silage is still left in the silo when the season arrives for filling the silo with oats and vetch. The oat and vetch silage is put right in on top of this. We begin at once to feed oat and vetch silage and continue feeding it until the silo is filled again with corn. In this way a continuous supply of good, succulent feed is provided throughout the year.

We prefer oats and vetch, to rye and vetch, because the oat and vetch silage is somewhat more palatable than the rye and vetch and because if we have any of the crop left after the silo is filled, it makes a more palatable hay than the rye and vetch. We prefer mangels to turnips or rutabagas, because we secure as large or larger yields per acre and the mangels make a better chicken and hog feed than do the turnips or rutabagas. Also the mangels are not attacked by plant lice or by root maggots.

Some dairymen prefer carrots to mangels and others prefer rutabagas. In each case the carrots or rutabagas are preferred because they can be left in the ground practically all Winter and like kale, can be hauled direct from the field as needed while the mangels must be harvested and stored before heavy frosts.

Some dairymen prefer Fall-sown rye and vetch to Fall-sown oats and vetch because this crop will usually yield a somewhat larger tonnage or because rye will stand pasture during the Winter and early Spring somewhat better than oats.

A successful dairyman of the writer's acquaintance, whose land is sandy loam with good natural drainage, sows rye and vetch early in September. This crop is pastured from about the first of February to the 15th of March or the 1st of April when the cows are taken off and the crop is allowed to grow and is cut in mid-Summer for hay. His cows are pastured on the hay meadows from the middle of March or the 1st of April, till May, when they are turned onto the regular pasture fields.

Enough kale is grown to furnish succulent feed for the cows from the latter part of September until the middle of February when the rye and vetch is ready to pasture. In this way, without a silo, an almost continuous supply of succulent feed is provided. Such a plan is fairly satisfactory where the land will permit of Winter pasturing, but has one decided weakness in that no provision is made for succulent feed to supplement the pasture during the mid-Summer months when the pasturage is apt to be scant and insufficient if the season is dry.

The farmer who expects to stay in the dairy business and who has a herd of upwards of 10 cows will generally find a silo a profitable investment. The silo method is more economical of labor than soiling and insures a ready supply of succulent feed. The silo is just as useful for Summer feeding as for Winter feeding.

Protecting Young Trees From Field Mice Ravages

WITH the coming of Winter and the possibilities of deep snow we should immediately turn our attention to the protection of young trees from the ravages of the field mice.

The work of this little animal is greatest in hard Winter with deep snows and the results are many times not detected until we begin Spring work in our orchards. They gnaw the bark and often girdle the trunk just at the surface of the ground and make bridge-grafting necessary to save the life of a tree.

A clean, tidy place harbors few mice, and so it should be with our orchards. See to it that tall grass, weeds and other annual growths which become lodged about the trunks of trees are removed. They make an excellent harbor in which these little animals like to spend the Winters.

Cover crops are inductive to the habitation of mice, especially clover and alfalfa, where they are sown in solid blocks throughout the orchard and allowed to grow to a considerable height. A good plan is to mow down the dead stalks for three or four feet around the base and rake it back, leaving the ground clean next to the tree. After the first snow falls, tramp firmly close about the trees, thus compacting the grass so mice cannot find shelter underneath. Another plan that works well where mice are numerous and liable to do damage is to mound up earth around the body of the trees to the height of six to ten inches. This should be removed in the Spring after all danger of attack is passed.

Border fences of rocks, shrubbery and hedges are excellent harbors for mice. Here they can find shelter and a safe breeding place. The only method to pursue in this case is to plan for their destruction by the use of poisons or repellant washes put on the trunks of the trees.

1. Wash the trees with some persistent substance in which is placed Paris green. Maynard recommends the use of Portland cement the consistency of common paint for holding the poison, and applying to trunks of trees with a stiff brush.

2. Strychnine is the most satisfactory poison for field mice. Although a deadly poison and dreaded by many people, yet with the proper caution it can be safely used. Various baits can be used with it, such as wheat, cornmeal, oatmeal and bran. The bait should be soaked over night in a poison syrup which may be prepared as follows:

Dissolve an ounce of strychnia sudphate in a pint of boiling water, add a pint of thick molasses syrup and stir thoroughly. A few drops of oil of anise may be added to scent the syrup. While hot, pour over one-half bushel of one of the above mentioned baits and mix thoroughly; if too wet, add a little more of the dry material to take up excessive moisture; if not wet enough, add warm water until the mixture is all wet. There should be moisture enough to wet every particle and yet not enough to make sloppy and cause dripping. Let the poisoned bait stand over night. Then apply in small bits with a spoon or small paddle in obscure, sheltered places, where the farm animals and birds cannot get it, because of the danger of poisoning them.—C. B. Sprague, Assistant Horticulturist.

Woolly Aphid of Apple Is Very Insidious Pest

THE woolly aphid is one of the most insidious and dangerous of apple pests. It occurs on the roots and above ground, also on the branches. The branch form can be easily controlled by contact insecticides, but it is practically impossible to stamp out the aphids on the roots.

Winter weather of Eastern Washington is usually severe enough to destroy what individuals are above ground, so that developing colonies in the Spring come from wingless aphids of the roots or crown. These aphids are apt to locate on a bruise of the bark and soon become conspicuous because of a growth of "wool."

Their feeding poisons the tree and results in a local swelling and ultimately in a weak tree with small-sized fruit. After a couple of generations some winged individuals appear which migrate to other apple trees, thus spreading the pest.

The Summer generations are less vigorous, and in early Fall other winged migrating individuals are produced. These rarely seek apple trees, but are attracted to elms, if near by, and there give birth to wingless sexual aphids, the females of which produce a single egg, which is laid for the Winter deep in a crack of the bark. The following Spring the insect inhabits the leaves of the elm, forming rosettes of curled leaves. Its third generation is the winged Spring migrant that returns to the apple tree.

The woolly aphid is prevalent on nursery stock, and thus gets access to a new region. Apple stock showing swellings or galls should not be planted, and elm stock should be carefully searched for black eggs.

When the woolly aphid occurs above ground it can be destroyed by a light swabbing of alcohol, gasoline or kerosene, or if numerous by a spraying of tobacco-soap, such as is given for green aphis.

The underground form can not be effectively reached and is consequently most dangerous. Kerosene emulsion, sulphur-lime or an abundance of tobacco dust applied to the roots have been recommended, but give only partial benefit.

Plowing and cultivation to force the roots down are thought to be helpful since the aphids do not thrive much below a foot. Northern Spy trees are remarkably free from attack, and such stock would prove valuable in a badly infested district. The woolly aphis is too delicate and weak to force its way through the soil, but it will work along cracks and roots and thus spread through the orchard or nursery row.

To prevent branch infection from below, the trunk may be banded with equal parts of rosin and castor oil melted together and applied on burlap or cotton strips, or if in a dusty district where this method would be inapplicable, it has been suggested to pack around the trunk of the tree a goodly layer of sand through which the aphids cannot crawl.—A. L. Melander, Entomologist.

Winter School.

The Young Men's and Young Women's Christian Associations of the College are planning to receive the short course students and help them on their arrival in Pullman. Trains will be met, rooming and boarding places will be found and a reception will be given for all of the men and women. A series of discussions will be arranged for, dealing with the problems of rural life.

State College Wins.

In the recent stock judging contest held in Portland, the State College team, under the direction of Professor Hislop, won 83 points over Idaho. The states ranked as follows: Washington, Idaho, California, Oregon.