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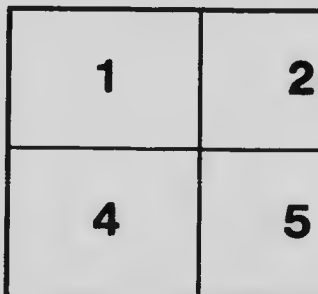
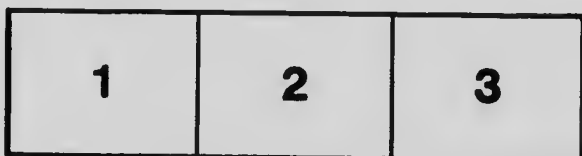
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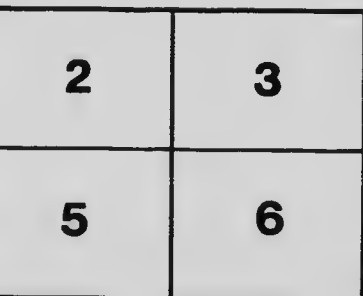
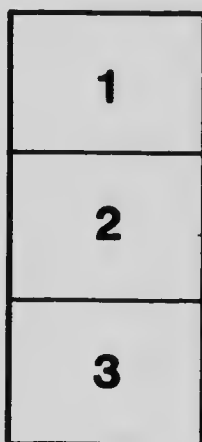
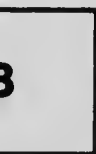
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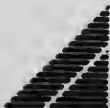
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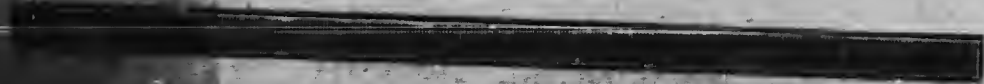
By

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ALFALFA

By P. A. Beving, Associate Professor
of Agronomy, University of British
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The grain bill, always, and never so much as now, is a large factor in cutting down, or out, the profit in feeding. The concentrates, like cotton and linseed meals, gluten, etc., are used chiefly for the purpose of putting a larger proportion of protein into the ration than it would otherwise contain. Protein, generally speaking, is the most expensive part of a normal ration, and every effort should be made to obtain it as cheaply as possible.

Alfalfa has a higher protein content than any of our other dry roughages, and, moreover, experiments (Hart and Humphrey) seem to indicate that alfalfa-protein is at least as effective for the production of milk as that of cornmeal. Practical experience goes to prove that alfalfa is one of the most

valuable plants of the farm, and the old Arabs were certainly justified in naming it "Alfacacah," which means "The Best Kind of Fodder." In comparison with other feeds it has been shown that only 2.2—2.25 lbs. of alfalfa hay are needed to equal 1 lb. of mixed concentrates, whereas 2.5 lbs. of clover hay and 3 lbs. of meadow hay are required to make up the same feed value. All animals relish alfalfa, be it given in the green state or as hay.

"What about alfalfa for ensilage?" It seems to be the consensus of opinion that when it is possible to make alfalfa into first-class hay it should not be put into the silo. During a rainy season it may be impossible to get the hay up without some damage, and under such conditions siloing may



The smoothing harrow should always follow the disc, so that the rougher cuts may be closed up.

be justified. It should, however, be remembered that this in itself excellent plant makes only a fair quality of silage, and that it should be fed within a few months after being siloed, particularly if it is put up without an admixture. The addition of some carbohydrate material, such as molasses, cornmeal, green rye, or corn stover, improves the quality of the ensilage and increases its keeping capacity.

Alfalfa is not only a good, palatable and nourishing feed, but, what is more, it is also a cheap feed. Under the same conditions where we may obtain for instance 6,000 feed units per acre of *corn* (10 lbs. to 1 F. U.) and 4,000 feed units of corn silage (7 lbs. to 1 F. U.), we can safely count on 3,600 feed units of alfalfa from about four tons of hay. It is self-evident that one feed unit of alfalfa can be obtained at a lower cost than one feed unit of

the others, once a good permanent stand has been secured.

"Well, if this be so, why is it that this wonder crop is not grown more extensively?" There may be several reasons. For one thing it is just possible that these facts have not yet been realized to their fullest extent. However, the chief reason seems to be that alfalfa is a rather tricky crop, under certain conditions, and that it has very pronounced likes and dislikes. It is one of the aristocrats in the plant world, and is rather particular in regard to locality and associations. While alfalfa does not feel at home in such good company as the clovers, it absolutely detests bad company, and considers weeds and grasses as belonging to the same category.

To ensure the best results, i.e., to ensure vigorous growth and a good



Discing alfalfa prolongs its life by destroying weeds, creating a mulch, and letting in the air.

stand that will yield heavy crops for consecutive years, alfalfa should preferably be planted on land with a good subsoil which will permit the plants to send down their roots to a considerable depth. Hardpan or impenetrable clay near the surface will seriously check the growth and the yielding capacity of the crop. A high water table has the same effect. Sour or acid soil is quite unsuitable, chiefly because the bacteria which are essential to the growth of the alfalfa cannot live in soil of that kind.

Failures in obtaining a satisfactory yield of alfalfa can generally be traced back to one or more of the following causes:

1. Lack of drainage.
2. Lack of lime, phosphorus and potash.
3. Lack of bacteria.
4. Lack of suitable seed.
5. Lack of tillage.

Drainage

It is useless to attempt to grow alfalfa on land which is not well drained, either naturally or artificially. Some of the best fields observed have been secured on drained bottom lands. The good stand and heavy yields may have been due partly to the fertility of the land. But fertility alone, without good drainage, would not have produced such good results.

Minerals in the Soil

In common with other leguminous plants, the alfalfa requires large amounts of calcium, which is the active principle of lime. Also, alfalfa cannot develop properly in soils which are at all acid, because the nitrogen-gathering bacteria which live upon the alfalfa roots, and in their turn provide the alfalfa with nitrogen, cannot live, work and multiply under acid conditions. If a test should show the soil to

be acid (blue litmus paper turning red) it is advisable to apply one or two tons of crushed limestone per acre, preferably some weeks before seeding.

While alfalfa obtains practically all its nitrogen from the inexhaustible supply of it in the air it should be remembered that it draws upon the soil for phosphoric acid and potash. Wherever fertilizer experiments have shown that one or both of these elements are lacking, there is every reason to supply necessary amounts of these minerals in the form of commercial fertilizers.

Bacteria

A number of successful stands of alfalfa have been obtained without inoculation. Yet fewer failures are recorded where the presence of the necessary bacteria was secured by inoculation. On soils which do not naturally contain these bacteria it is absolutely essential that they be introduced. This can be done in two ways:

1. Soil from the surface foot of an old alfalfa field, or sweet clover field, may be broadcasted at the rate of about 600 lbs. per acre and immediately harrowed or disced in, or, still better, 150-300 lbs. of screened soil may be put in with a grain drill ensuring a more uniform distribution. Bacteria are sensitive to light, and the inoculation soil should consequently never be exposed to the sun for any length of time.

2. Where soil for inoculation cannot be secured, artificial culture may be used to good advantage. Such culture can be obtained, with directions as to its use, from the Central Experimental Farm, Ottawa. When the Province of British Columbia permits her University to develop properly such culture among other things will undoubtedly be available from there.

Seed

Three distinct kinds of alfalfa are grown:

1. Blue flowered A. (*Medicago sativa*).
2. Yellow flowered A. (*Medicago falcata*).
3. Variegated A. (*Medicago media*).

Of these the variegated, which is a cross between the first two named, combines very successfully the higher yielding power of the blue flowered with the greater winter hardiness of the yellow flowered type. The variegated type is represented by several varieties more or less adapted to Canadian conditions. Among these the Grimm easily takes the first place. If this variety cannot be secured the Ontario Variegated, the Battle or the Turkestan varieties may be chosen. Homegrown seed is naturally to be preferred to imported seed.

Tillage

It is not only necessary to provide drainage, lime, bacteria and good plump seed of a suitable variety. If this seed be not sown in a good, clean and well prepared soil the farmer invariably courts failure. A dressing with stable manure goes a long way towards ensuring good growth. So does a thorough checking of the weeds, which is most easily effected by whole or half fallow previous to seeding.

Alfalfa may be sown with or without a nurse crop, broadcast or in drills. If planted with a nurse crop the seed is sown in the spring at a rate per acre of 15-20 lbs. of alfalfa and one bushel of some early ripening grain, preferably Success barley. Under favorable moisture conditions alfalfa may be seeded as late as up to the beginning of August without a nurse crop, but under semi-arid conditions late summer seeding cannot be recommended. Drilling at 18in. spac. between the rows has often given quite as good

results as broadcasting, and even better. By drilling one sows a little seed, 9 lbs. of seed per acre is quite sufficient, but the extra cost of keeping the field cultivated during the first season evens the score. Sowing too early in the season, when the ground is still wet and cold, is not advisable. In irrigation districts it is therefore better to irrigate the land and to let it warm up thoroughly previous to seeding, than to put on the water shortly after planting, while the alfalfa seedlings are still young and tender.

Care of the Alfalfa Field

No hay crop should be removed the first year, except under such conditions where an especially vigorous growth may have been produced after early seeding on rich land. Even so, the crop should not be cut later than the month of August. Where weeds are prevalent it may be advisable to clip the field from time to time during the first season in order to give the alfalfa a fighting chance. It should be remembered, however, that "close" cutting at this time often kills the crop. Late, summer-seeded alfalfa is always left uncut.

In this connection it may be worth mentioning that in following seasons the flowering or blooming is no safe indicator as regards time of cutting. This is more accurately determined by watching the new shoots which are thrown out from the crown. As soon as the new shoots appear, and before they reach any appreciable length, the crop should be cut whether the alfalfa is in flower or not.

Once established, nothing will secure better yields and greater longevity to the alfalfa field than does thorough cultivation in the second and following seasons, early in spring, or even after the first cutting. It is immaterial whether one uses a spring tooth or a disc harrow, followed by a spike tooth or drag harrow for smoothing

purposes. If in this manner weeds and grasses are destroyed, if moisture is preserved, and if air is admitted to the roots every year, these will continue to yield an abundant, nourishing and cheap food which will considerably help the economy of every farmer who is dependent upon livestock as a source of income.

"All this is good and well, but alfalfa will not grow on my farm whereas ordinary clovers yield abundantly." If this is the case, and in a good many localities it is the case, don't worry about alfalfa; concentrate on clovers. This is what we have to do on the University Farm at Vancouver, where

we can produce six to eight tons of good clover hay under the same conditions that will give only four to five tons of alfalfa hay. Nevertheless we shall always continue to grow some alfalfa on account of its ability to give three cuts yearly of a highly nutritious and palatable feed. Personally, I would never abandon alfalfa until such time when extensive trials on a small scale may convince me that my farm will not grow this valuable crop. And even then I might try it again, remembering that after all it is **ALFACFACAH, THE BEST KIND OF FODDER.**



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