

variety depends in the first place on its ability to withstand the rigours of the Canadian winter, i.e., to come through without being winter-killed. A great many "varieties," particularly those originated in southern countries with mild winters, have proven unreliable, and experiments with them, have therefore, been dropped. The only variety of true alfalfa that has proven suitable to Canada in general is Turkestan alfalfa. It is grown at present at the Experimental Farm, Brandon, Man., the Experimental Station, Scott, Sask., the Experimental Station, Lacombe, Alta., and the Experimental Station, Summerland, B.C. On all these stations it came through last winter very satisfactorily.

Perhaps the most widely known alfalfa varieties in Canada are those which can be termed "Variegated Alfalfa," so called on account of the variation in the color of the flowers. Whereas a variety of true alfalfa has purple flowers, a variety of the variegated type has them variously colored, from yellow to purple with all kinds of intermediates. The variegated alfalfas are all crosses between true Alfalfa (*Medicago sativa* L.) and Yellow Lucern (*Medicago falcata* L.), and are of particular interest because of their high degree of hardiness. Among the variegated alfalfas the following are best known in Canada, viz.: Grimm's, Ontario Variegated, Baltic and Liscomb. They are all much alike in general appearance and may be equally well recommended for Canada in general.

#### Cultural Conditions Affecting Alfalfa Growing

**Preparation of the soil previous to seeding.**—A number of observations made this spring on some of the Experimental Farms and Stations indicate that best results in alfalfa growing depend to quite an extent on the preparation of the soil previous to seeding.

The Experimental Station, Scott, Sask., reports: "Last season a nine-acre field of alfalfa was sown in May. A part of this field had grown potatoes in 1915, a part field roots, another part fodder corn and the balance field peas. The alfalfa is more vigorous on the potato and corn land, and less vigorous after peas." Similar results have been obtained by the Experimental Station, Kentville, N.S., and the Experimental Farm, Agassiz, B.C., which report that best results of alfalfa are realized on land previously in hoed crops. That a hoed crop is apt to have a beneficial effect on the conditions of the soil for alfalfa is obvious. Not only is the land after a hoed crop cleaner than after other crops, but the subsoil is also apt to be more loosened up. That

the opening up of the subsoil is of importance for a good start of alfalfa is emphasized in the report given by the Experimental Station, Sidney, B.C. This report states that blasting of the subsoil previous to seeding to alfalfa has a most favorable effect on the ensuing crop.

Fall plowing of the land intended for alfalfa is universally to be recommended, whether the previous crop is a hoed crop or grain. It is also essential to work the land well in the spring. At the Experimental Station, Lacombe, Alta., "thorough spring cultivation has been given on fall-plowed stubble, with the result that by the middle of May land was in first-class condition for seeding, both as to the condition of the soil and because of the fact that several crops of weeds had germinated and been destroyed." The Experimental Station at Charlottetown, P.E.I., also reports that "the land should be cleaned of weeds, and given thorough cultivation until it is worked into good tilth for seeding."

**Treatment late in the autumn.**—Alfalfa sown in the spring should be given every chance to establish itself firmly before the frost. It should be clipped frequently during the summer with the last clipping so timed as to allow the plants to reach a height of about 8 or 10 inches at the end of the growing season. This growth should be left untouched for winter protection. Never should live stock of any kind be allowed to graze on an alfalfa field the season it is sown.

In case of old and well-established fields it is generally advisable not to graze or cut too late in the fall, but leave a certain amount of growth standing. Thus the Experimental Station at Sidney, B.C., where four growths of alfalfa generally are obtained in a season, recommends that the fourth growth to be left standing for winter protection. The Experimental Farm, Agassiz, B.C., and the Experimental Station, Charlottetown, P.E.I., also recommend that grazing or cutting too late in the fall be avoided. On the other hand, the Experimental Station, Invermere, B.C., reports that "In some cases alfalfa in this district has been allowed to stand after the second cutting, but more generally has been pastured until late in the autumn with no apparent injury to the plant."

**The relationship of inoculation to the establishment of satisfactory stand and vigor of crop.**—It is a very common misapprehension that alfalfa cannot be grown satisfactorily without inoculation on land that has not grown alfalfa or sweet clover before. Numerous data have been collected during the past few

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