CIHM
Microfiche
Series
(Monographs)

ICMH
Collection de
microfiches
(monographies)

Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming are checked below.

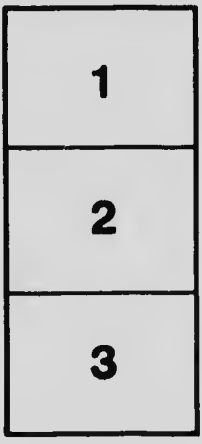
- ☐ Coloured covers / Couverture de couleur
- ☐ Covers damaged / Couverture endommagée
- ☐ Covers restored and/or laminated / Couverture restaurée et/ou pelliculée
- ☐ Cover title missing / Le titre de couverture manque
- ☐ Coloured maps / Cartes géographiques en couleur
- ☐ Coloured ink (i.e. other than blue or black) / Encre de couleur (i.e. autre que bleue ou noire)
- ☐ Coloured plates and/or illustrations / Planches et/ou illustrations en couleur
- ☐ Bound with other material / Relié avec d'autres documents
- ☐ Only edition available / Seule édition disponible
- ☐ Tight binding may cause shadows or distortion along interior margin / La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure.
- ☐ Blank leaves added during restorations may appear within the text. Whenever possible, these have been omitted from filming / Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.
- ☐ Additional comments / Commentaires supplémentaires:

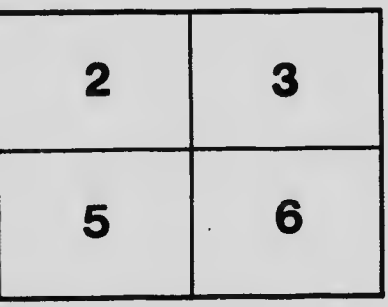
L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

- ☐ Coloured pages / Pages de couleur
- ☐ Pages damaged / Pages endommagées
- ☐ Pages restored and/or laminated / Pages restaurées et/ou pelliculées
- ☑ Pages discoloured, stained or foxed / Pages décolorées, tachetées ou piquées
- ☐ Pages detached / Pages détachées
- ☑ Showthrough / Transparence
- ☐ Quality of print varies / Qualité inégale de l'impression
- ☐ Includes supplementary material / Comprend du matériel supplémentaire
- ☐ Pages wholly or partially obscured by errata slips, tissues, etc., have been refilmed to ensure the best possible image / Les pages totalement ou partiellement obscurcies par un feuillet d'errata, une pelure, etc., ont été filmées à nouveau de façon à obtenir la meilleure image possible.
- ☐ Opposing pages with varying colouration or discolourations are filmed twice to ensure the best possible image / Les pages s'opposant ayant des colorations variables ou des décolorations sont filmées deux fois afin d'obtenir la meilleure image possible.

This item is filmed at the reduction ratio checked below / Ce document est filmé au taux de réduction indiqué ci-dessous.

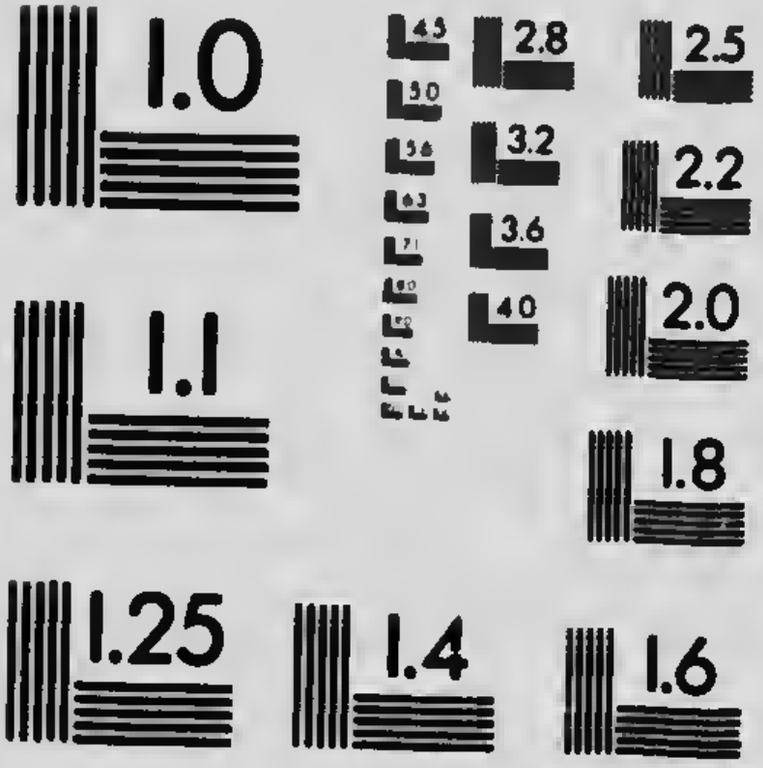
10x	12x	14x	16x	18x	20x	22x	24x	26x	28x	30x	32x
								✓			





MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc
1653 East Main Street
Rochester, New York 14609 USA
(716) 482 - 0300 - Phone
(716) 288 - 5989 - Fax

ALFALFA GROWING IN MANITOBA.

BY

W. C. McKILLICAN, B.S.A.,
Superintendent, Experimental Farm, Brandon, Man.

There are many reasons why alfalfa should be grown more generally in Manitoba. Chief among them are, its enriching effect on the land, its high yielding power and its great value as a feed. Its value is being recognized to some extent in Manitoba

Alfalfa and Western Rye Grass on Brandon Experimental Farm.

and the acreage is increasing each year. For the benefit of those who are beginning to grow this crop here without having had previous experience, this pamphlet deals with the methods found most successful in Manitoba.

DOMINION EXPERIMENTAL FARMS.

J. H. GRISDALE, B.Agr.
Director.

W. C. McKILLICAN, B.S.A.,
Superintendent, Experimental Farm, Brandon, Man.

EXHIBITION CIRCULAR No. 80.

(*June, 1917.*)

22359

CHOICE OF SOIL.

Alfalfa does best on a rich, deep soil that has a plentiful supply of moisture and yet is well drained. Good wheat land in this province is usually good alfalfa land. A very common cause of failure in moister countries is the presence of acid in the soil; we have very little sour soil in Manitoba and consequently do not have this trouble. Alfalfa being deep rooted requires a fairly open subsoil, and one of the conditions most likely to cause failure is a layer of hard-pan near the surface through which the alfalfa roots are unable to pierce. Too high a water level in the soil has the same effect, but this is almost never met with in Manitoba. Alfalfa will grow on light land as well as on heavy, but, like other crops, yields best on rich land.

PREPARATION OF LAND.

Alfalfa is most likely to succeed on land that has been summer-fallowed the year before it is sown, or it does about as well on corn or potato land if the land has been kept free from weeds. It should never be sown on land that has a large number of weed seeds in it or is infested with perennial weeds, such as thistles or couch grass. Neither should it be sown on land that is exhausted of moisture. This means that land that has grown grain for several years is usually not in suitable condition. However, a good, clean, grain field, if fall ploughed, can be got into shape for alfalfa, provided there is enough moisture. Sod land may be used to sow alfalfa on if it is broken early in the season and then backset later in the summer. This method will usually kill out all the grasses. Alfalfa should not be sown where the grasses persist, as they are likely to crowd it out.

Alfalfa should not be sown on spring ploughing, as there is likely to be too deep a layer of dry earth for the seeds to germinate well and the young plants to take hold. Fall ploughing is better, but summer ploughing is best, as it gives more opportunity to store moisture. Where alfalfa is sown after a grain crop, the land should be ploughed as soon as possible after the grain is cut.

Before the seed is put in, the land should be got into a fine state of tilth. All lumps should be broken down into a fine condition. There should be a supply of moisture coming within an inch of the surface and the soil should be firm.

INOCULATION.

Alfalfa has the capacity of storing up nitrogen in the soil as well as using a large amount of this element in its own make-up. It does this by drawing on the free nitrogen of the atmosphere, a source that is beyond the reach of most plants. Alfalfa and other leguminous plants are able to obtain this nitrogen, which is the most valuable element of plant food, by means of bacteria that live on their roots. If these bacteria are absent from the soil, the alfalfa does not thrive and is likely to die in about two years. Much of our prairie land, never having grown alfalfa or anything akin to it, is deficient in these bacteria. It is therefore advisable to introduce them artificially when the alfalfa is sown. This is called inoculation. There are two means of inoculation commonly used. The first is to take earth from a field where alfalfa is succeeding and spread it over and work it into the new land where it is to be sown. At least 100 pounds of earth per acre should be used, and it is much easier to get it all over the field if a larger quantity is used. The other method is to obtain the bacteria in a jelly-like culture and inoculate the seed. This culture may be obtained from the bacteriological department of any agricultural college, or from the Division of Botany, Central Farm, Ottawa. When applying for culture, the quantity of seed to be treated should be stated. Either method is quite successful when properly carried out, but the culture method requires much less work than spreading the soil. Directions for applying the culture come with it. When soil is used, it should be harrowed into the ground as soon as possible to avoid drying and exposure to sunlight, either of which will kill the bacteria.

VARIE[illegible]

Grimm's is probably the hardiest alfalfa obtainable in Western Canada. However, it is as yet very scarce and the seed is very expensive. It is recommended for locations with a severe climate but cheaper varieties will do as well in favourable locations. Baltic is a name applied to a strain very similar to Grimm's and perhaps identical with it. Turkestan alfalfa has proven itself hardy and productive at the Experimental Farm at Brandon. Common alfalfa, when the seed is grown in a fairly northerly state, has also done quite well here, but for the western farmer Canadian-grown seed of any variety can be recommended in preference to seed of the same variety grown outside of Canada.

It is important in buying seed to get the best grade, in order to get high vitality and freedom from weed seeds.

SEEDING.

Alfalfa succeeds best in this climate when sown fairly early. Any time during May gives good results, and even the first week in June is usually satisfactory. After that date the chances of success are not so good. Recent experiments have shown that 12 to 15 pounds of seed per acre give as good a stand as the larger amounts that used to be considered necessary. If the land is at all dry or lumpy, more seed is needed as it will not germinate well under these conditions.

Alfalfa does best when sown without any nurse crop. On land that has an abundant store of moisture, it may sometimes be sown successfully with a nurse crop, especially if the season turns out to be not too dry. Under average prairie conditions, however, it is decidedly better to sow alone. The ordinary grain drill may be used to sow alfalfa, but in order to get the seed on thinly enough it must be mixed with some coarser material. At the Experimental Farm we use cracked wheat for this purpose. The wheat is run through the crusher and ground as coarsely as possible. The floury particles are screened from this, and the coarse pieces are used to mix with the alfalfa. They will run through the drill at about the same rate as grains of wheat. The alfalfa can then be mixed in and the drill set to put on the amount wanted, for instance, 15 pounds of alfalfa mixed with 45 pounds of cracked wheat and the drill sowing one bushel per acre will mean 15 pounds of alfalfa sown per acre.

TREATMENT OF ALFALFA FIELD.

Once a good catch of alfalfa is obtained, there is very little subsequent treatment required. The chief consideration is to prevent ill-treatment. It should not be pastured closely, and the first year should not be pastured at all. It should never be cut late in the fall in our climate, but should go into winter with enough crop standing to catch the drifting snow.

The first year no crop should be expected; the alfalfa should be clipped off with the mowing machine as soon as any weeds among it come in flower, to prevent them going to seed. The clippings may be left on the ground as they fall. A second clipping is often advisable in order to prevent weeds from seeding. Cutting will not harm the alfalfa provided it is done not later than September 1.

A top dressing of well-rotted manure is of great benefit to an alfalfa field. It should be spread on thinly and uniformly. Cut straw for bedding is the best, as it will not rake up with the hay as long straw will.

Some soils get very hard and cracked when the alfalfa has been growing a few years. A good discing will establish a surface mulch again, and if the disc is not set at too great an angle, it will not damage the alfalfa.

MAKING HAY.

Alfalfa must be cut for hay as soon as the blossoms begin to show. Another and better indication of the time to cut is when the shoots for the second crop begin to grow. The first crop should be cut before these get long enough to be cut off, otherwise they will be set back and the growth of the second crop delayed and lessened.

Alfalfa is rather hard to cure on account of its great juiciness and its heavy yield. If dried spread out in the open air, the leaves shrivel up and fall off before the juice is out of the stems. As the leaves are the best part of the plant, this method of drying is wrong. The crop should be raked and coiled either the same day as cut if the weather is hot and bright, or the next day if it is cloudy and cool. Small coils are best when alfalfa is handled this way, as the air gets through them, whereas large coils get airtight and make the hay turn yellow in the middle instead of drying it. If the weather is favourable, the hay may dry in the coils, but usually it is found advisable to shake them out on a promising morning about three or four days after cutting and then draw to barn or stack in the afternoon. In judging as to the fitness of alfalfa hay to be stored, the stems should be observed rather than the leaves. The leaves may be crackling and the stems full of juice at the same time. The stems should be got dry enough that no moisture can be squeezed out before the hay can be considered cured.