

good quality when cut at the right time and properly cured. However, it has its faults which are well known, and are due to the same qualities which give it its value. It is difficult to kill out, and it spreads rapidly both by seed and root. Consequently it has become a pest on many farms. There is no plant grown in the West the opinions on which vary so widely. Thousands "swear by" it and equally as many "swear at" it. It certainly has a great value, and until something better is discovered is necessary for many parts of the West, but it must be used with discretion, especially in avoiding sowing it where it will get into shelter belts, gardens and other places where it is difficult to keep it under control.

#### Western Rye Grass

Next to brome grass, Western rye grass is the most drouth resistant and the heaviest yielding grass under cultivation in the West. It is a native grass and is perfectly hardy. It does not form a sod like brome grass, but forms detached clumps, hence it is not as effective in restoring vegetable matter to the soil, and is not particularly good for pasture. However, for hay production it is very satisfactory, giving a large yield of excellent quality of hay when cut early. If allowed to stand too long it gets very woody.

#### Timothy

Timothy is probably the most generally known of all grasses, but in many districts it might better be replaced by Western grass or brome grass, as it does not produce nearly as much hay as either of them when the seasons are dry. In districts where rainfall is plentiful, and in the sheltered bushy country it produces well, but on the open prairie does not yield enough. In regard to quality, it is generally considered the most acceptable hay for horses.

#### Kentucky Blue Grass

This grass is the great permanent pasture grass of the humid regions of the East. Where the rainfall is plentiful it is unexcelled for this purpose, as it produces an abundant growth of the finest quality of pasture. It is suited to limited areas in the northern parts

of our western country, but not to open prairie conditions. It is of little value for hay, as it grows too short and fine to harvest successfully, and does not produce enough even if all could be harvested.

Red Top has little value under Western conditions. It is suited to sour wet land, but is hard to start and usually kills out easily.

Orchard Grass, Meadow Fescue, Perennial Rye Grass, etc.—There are many grasses that are of great value in damp mild climates, but are not suited to the severe conditions of the Western Prairie. The settler from Britain is disappointed when he finds his favorites are not a success, but the sooner he recognizes that practically none of the grasses that

purple and yellow flowered alfalfa, and is variegated in color of flower. Others of similar type are Baltic and Canadian variegated; these are harder than the pure purple-flowered kinds.

#### Alsike

Alsike is a perennial clover, which produces a very fine quality of hay and is used much in Eastern Canada to mix with timothy for horses. It requires plenty of moisture, and on the whole has not been of much value in the West. Occasional reports of success with it have come from Alberta, but the areas where it will produce abundantly are quite limited.

#### Biennial Crops

Red Clover is the most valuable biennial hay crop wherever it will

used successfully. It has to be handled very carefully or it becomes woody. Most stock do not like it at first, on account of its bitter taste, but they can be trained to eat it.

#### Methods of Growing Perennial and Biennial Hay Crops

**Nurse Crop.**—All these grasses and clovers do best when sown alone, but they will usually start when grown along with a crop of grain. Which is the best policy depends on moisture supply. At Brandon we are able to get a good catch with a nurse crop, and the added yield gained by sowing alone is not sufficient to pay for the lost crop of grain. In drier districts sowing done would be necessary to obtain a successful stand of hay. The three common

grain crops can all be bred for nurse crops. Wheat and barley are rather better than oats, being less rank and leafy.

**Time of Sowing.**—Best results are obtained from sowing the grass seed early. These plants all stand frost well. They may be sown along with wheat in the middle of April and suffer no more damage than the wheat itself is liable to. By early sowing they are given a better start and are better able to stand the dry weather of mid-summer.

#### Preparation

—Grasses and clovers start best when sown after summer fallow or corn. This ensures a good supply of moisture for the first season. When they are sown after grain crops the moisture is usually deficient, and the nurse crop is likely to draw it away from the tiny grass plants and leave them unsupplied.

**Rates of Seeding.**—In sowing alone the following quantities per acre are found to be about right: Brome grass, 10-12 lbs.; Western rye grass, 10-12 lbs.; timothy, 5-6 lbs.; Kentucky blue grass, 15 lbs.; alfalfa, 12-15 lbs.; red clover, 8 lbs.; alsike, 5-6 lbs.; sweet clover, 12-15 lbs. When mixtures are used the amount should be reduced, so that the total of the mixture is proportionately slightly greater than would be sown of the same grasses singly.

**Inoculation for Clovers.**—All members of the legume group require that the soil be inoculated with the bacteria which grow on



A Fine Manitoba Crop of Alfalfa.

Courtesy: Manitoba Dept. of Immigration.

succeed in the Old Land are satisfactory here, the better for his own success.

#### Alfalfa

Wherever alfalfa can be grown with success, I have no hesitation in saying that it is the most valuable hay crop that we have. Unfortunately it has not been a success everywhere. Its roots go very deep in search of moisture, and probably one of the chief causes of failure is an impervious subsoil through which they cannot penetrate. Alfalfa produces two good cuttings of hay per season in this climate, and where successful may be counted upon to double the yield of timothy. Being a legume, it stores nitrogen in the soil and produces a hay very high in protein, and therefore of special feeding value. There are several varieties and strains of alfalfa and a good deal of difference in hardness among them. The hardest is one known as Grimm. It is a cross between

it. It is not hardy in all parts of the West, but in some locations where the snow protects it, it succeeds. At the Experimental Farm we have had very good success, and use it constantly in our hay mixtures. Being a biennial, it is usually sown with perennial grasses. One crop of the clover is harvested, and then in the next year the grasses occupy the land. Grasses will yield better a second year on account of the clover having been with them as it adds nitrogen to the soil. It often ripens seeds when the aftermath is not cut or pastured, and in that way reseeds itself and prevents disappearance.

Sweet clover is a very hardy biennial crop. It will grow where scarcely any other fodder crop will, and hence has a value for land that is not well suited to the growing of fodder crops that are of better quality. It yields abundantly, and if cut at the right time makes a grade of hay that can be