barley after the grain had come up,and cover the seed by going over the field with a light harrow. This would pull out some grain, but in the end, would be beneficial. If one wanted to grow a large amount of hay and was willing to take the risk of the cost of seed, he might sow with the nurse crop, with a more than even chance of getting a catch; a lot, of course, depending upon the rainfall.

Although we have advised red clover, we would not overlook alfalfa. The reason we did not at once suggest it is that it is not suitable for a mixture. It requires to be grown alone. For a ranch fodder it is more suitable than any other, and when once established remains for years. Alfalfa is a deep rooted plant and will, therefore, do better over a term of years, and in districts subject to dry spells, than any other clover or grass. It should be sown on clean, well prepared land; land that has been deeply worked, well packed, with a mulch on top, and with moisture moving up to the mulch, and then held. Alfalfa seed sown in such land will grow and provide the best of fodder for all kinds of stock, will give two or three crops each season, and take the place of grain in fattening stock. The seed should be sown at the rate of twenty pounds to the acre and covered with a light harrow. Alfalfa very seldom does well with a nurse crop and should be protected from stock at all seasons, it cannot stand pasturing,but can be cut several times each season.

Every rancher and farmer should have his plot of alfalfa. It's just the crop for this country, where people do not go in for rotations. The alfalfa field can be located near the buildings, and if hogs are kept, can be cut and fed to them all summer, or if a large bunch of stock is run, the clover can be put up for winter forage. The land where alfalfa is seeded should not be under water, nor should the soakage be near the surface. The plant requires plenty of room for the roots. Every farmer in Alberta and Saskatchewan should have the bulletin published last spring by Mr. Fairfield of Lethbridge. It can be had by writing the Department of Agriculture, Ottawa.

The Improvement of Crops in Western Canada.

EDITOR FARMER'S ADVOCATE:

The idea of improving the cereal crops of a country by the observance of certain definite principles of breeding hitherto thought to obtain only in the breeding of animals is of comparatively recent conception. True, certain general principles were observed even by the old Romans, who recognized that care had to be exercised in the choice of seed, but it remained for modern science to reveal the possibilities along these lines. Once improvement was considered possible, several systems were devised. The Germans believed with Darwin that improvement was a gradual process in which the principles of "natural selection" and the "survival of the fittest" operated, hence originated what is known as the "German system of selection." This system has a great deal to commend it for use among practical farmers, who have neither the time nor the training to engage in some of the more complicated methods followed by certain individuals and institutions of repute. The German system is the system followed in Canada by the Canadian Seed Growers' Association, an organization which is rapidly coming to take a prominent place among the institutions designed to promote the agricultural interests of the Dominion.

The work of hybridizing, or crossing one variety on another, with a view to securing a hybrid combining the desirable qualities of each parent plant is of still more recent origin, yet since its inception, many valuable hybrids have been produced. As an instance, we have the Preston wheat,which is a hybrid resulting from a cross of Ladoga on Red Fife, made with a view to developing an early ripening variety for the northern districts of the West. This particular line of work is essentially the work of experts, and is therefore limited almost exclusively to experiment stations. At the present time a great deal is being done along the various lines of plant improvement in all the progressive countries of the world, and really, wonderful results are being achieved. In Canada there exists a great range of climate and soil, and the promoters of the work of plant improvement in this country believe that the production of the best crops for all these parts is a proposition of local concern. The various experiment stations are doing excellent work in testing varieties, in selecting and building up pure productive strains, and in creating new varieties through hybridization. Seed from these improved strains is finding its way to the farms of Canada where, in the majority of cases, a different set of conditions is met with. To secure best results from this seed *systematic selection must be practiced* from year to year. Not only is such selection necessary to insure maximum yields, but it is necessary in order to effectively combat the natural difficulties which are bound to creep in in the absence of any preventive measures. In the West, for instance, our Red Fife wheat, so highly prized in the world's markets for its unsurpassed quality, is rapidly becoming mixed with other less desirable sorts. The bearded wheat, known as the Assinaboia, is probably the most conspicuous impurity. Yet this is by no means the only foreign variety found.

THE COMMON PRACTICE IN PREPARING SEED DEFECTIVE.

The common practice in preparing grain for seed is to run the required amount through a fanning mill, to blow out the chaff and lighter grains, and to separate the noxious weed seeds. This practice, while desirable in any case, does not go far enough. In the first place, this seed will probably contain a mixture of grain taken from a comparatively large area, and from an uneven surface, with the result that several stages of maturity and different degrees of quality may be represented. There are almost sure to be small patches here and there throughout the field, producing inferior, stunted or diseased plants, the seed from which becomes mixed with the remainder of the crop at threshing, and is impossible to completely separate.

In the second place, we find, mixed with every crop, a considerable number of inferior plants producing light or shrunken seed, or seed which in itself may be fairly plump, yet which may have come from mongrel parentage, and is therefore not likely to produce a profitable type of plant the following year. Such seed cannot be thoroughly separated from any sample, and is therefore left free to perpetuate its mediocrity in succeeding crops. In the light of all these facts, and realizing the national importance of the use of seed which has been specially selected for high productive qualities, the Canadian Seed Growers' Association already referred to was organized. The work of this organization embraces the whole of Canada, the head-quarters being located at Ottawa, where careful records are kept of all work done by the members, and from which certificates of registration are issued in course of time for all seed entitled to receive such recognition. The work is thus placed on a systematic basis and is conducted in a business like way.

As to the actual work required of a member, it may be said that the system does not entail very much more labor than is already given by many independent growers of seed throughout the country at the present time. In a word, the system consists in first choosing a suitable variety for foundation stock and securing a sufficient quantity of seed of that variety to sow a special nursery or "hand-selected seed plot" of at least ¼ acre. Before harvesting this plot, selection of good typical head is made by hand from strong vigorous plants to give a sufficient quantity of clean seed to sow a similar plot the following year. The remainder of the plot is then threshed and cleaned and kept by itself for general seeding purposes, or, for sowing on what is known as the "improved seed plot" or commercial field. Where this simple system has been practiced in the West the effect is most noticeable. Not only is there a marked freedom from other varieties in the plots, but the general vigor and uniformity of the crop and filling of the heads is improved greatly.

The demand for pure seed which has been grown and selected according to the above system is growing rapidly, and will continue to grow as the importance of the use of such seed becomes known.

The writer has just completed a six weeks tour of inspection through the West, and reports that excellent progress is being made by the men who have become actively engaged in the work of producing registered seed under the direction of the society. The work is being done carefully and well, and very gratifying results are being achieved, while the influence of the work itself, in stimulating others to take greater interest in the seed they use, is having a very potent effect throughout the country generally.

Arrangements have also been made to hold a special conference of the growers resident in Manitoba, at Brandon during Winter Fair week next March. This conference will probably be made an annual affair, and will serve as a means of bringing together a goodly number of active workers in order that successes and failures may be compared, and the underlying principles examined into. A regular programme of addresses will also be presented, and the session will be open to all who attend this great winter event. The public will also have an opportunity of examining for themselves the seed, plants, etc., produced by the growers, and placed on exhibition in the Seed Department of the Fair building.

L. H. NEWMAN,
Secretary, Canadian Seed Growers' Association.

PHOTO BY C. LOWNSBROUGH
HARVESTING WITH A TWELVE FOOT BINDER ON THE FARM OF R. D. MANN, ELMORE, SASK.

A Prize Farm in Morden District

The second prize farm in the Morden competition is one of the best mixed farms in Manitoba. It is owned by Mr. G. H. Bradshaw, who has been farming it for the past seven years. Previous to that an old countryman worked it and managed to get the place pretty badly weed-infested before he sold out. The farm consists of 320 acres, and lies about four miles out of town. The soil is a clay loam, the place level and free for cultivation except about thirty acres of oak scrub about the buildings. This bit of natural bluff makes an ideal wind protection for the house and barns. It circles around the north and west sides of the lawn and farm yard, and being thick and high affords the best kind of protection.

As one approaches the farm from the south the place looks very unlike the ordinary western farmstead. The buildings, and there are plenty of them, grouped close to the woods in the rear, all nicely painted and neat, the level, close cropped yard, an acre or so in extent, out in front with a bunch of sheep pasturing on it, make a farm home that some other farmers in this province could model their places after. To us it was one of the most pleasing farm scenes we have seen in Western Canada.

The buildings on this farm are very complete. They consist of a comfortable house, not over