

at once penetrate the more solid soil below and the hot air does not affect them to so great extent. Again, the moisture is best conserved by this course. If the land be solid to the surface, the moisture is brought up by capillary action to the surface, and is there taken up by the atmosphere; while if there is two inches of friable land, it acts as a mulch to retain the moisture, much the same as a covering of straw, chaff or sawdust. Carefully conducted experiments at one of the American Experiment Stations recently, demonstrated that by deep cultivation fully one-fourth more moisture was given off than by very shallow cultivation, while an experiment made in a very small way with corn clearly demonstrated that a mulch of one-fourth of an inch of soil instead of shallow cultivation, effected a still greater saving of moisture. In this connection allow me to depart from my subject to call attention to the benefits to be derived from harrowing the grain after it is up, and that much of this is due to the fact that this loosening of the soil renews the mulch, so to speak, and still further conserves the moisture. As to sowing the grain I am not here to advertise any special seeder or drill, and will only say sow with the implement that will deposit the grain at a uniform depth and cover it all the same. I am firmly of the opinion that if a given amount be sown on an acre, that it matters little whether it be sown broadcast or drilled in, so long as it is evenly distributed, planted at a uniform depth and all covered. I must say, however, I have no knowledge of a broadcast seeder that will accomplish this, and do not expect to see one, while almost any drill if properly manipulated will do so. Various objections are made to the drill. Some people claim that weeds grow more profusely where the grain is sown with the drill. This is certainly incorrect, but it is quite possible that it might appear so. Others claim that drought affects the crop more if sown with the drill. I am, however, firmly of the opinion that this is a mistake, as where the seed is broadcast some is deposited so near the surface that except in especially favorable years it must, of necessity, suffer for moisture, while if the crop be drilled in it is not any more liable to suffer from excess of moisture than if sown broadcast. What about rolling? you would naturally ask. I answer, roll as much as you please when the ground is dry enough that it will not pack, but always before sowing, never after. If the grain be sown with the drill after the land is rolled a loose covering of earth of the depth the grain is sown is left as a mulch. If the land is rolled after sowing it is comparatively solid to the surface, and as there is nothing to break off the capillary action the moisture comes to the surface and is taken up by the atmosphere instead of being saved to be brought in contact with it through the plants. It must, to make this plain, be borne in mind that water is nature's great conveyor and its chief use in vegetable economy, or so far at least as plant growth is concerned, is to dissolve the plant food in the soil, and while holding this food in solution it is taken up by the plant which assimilates the food and gives off the water by evaporation to the atmosphere. In recapitulation, then, let me say, for the very best results select the very best seed. Clean it thoroughly, treat with one pound of bluestone to a patent pail of water for ten bushels of wheat, prepare the ground solid in the bottom, loose on

top, and sow with the drill that will deposit the seed most evenly and at a uniform depth, harrow two or three weeks after the crop is up, and again later if weather and crop will admit, and you can conscientiously claim that you have done your part, and leave the result to Providence.

Flowers for Manitoba.

BY H. L. PATMORE, EXPERIMENTAL FARM,
BRANDON.

When we consider the great interest taken in floriculture in this province, not only in the towns, but also among the farmers and their families, it is surprising how little attempt is made to grow flowers in the open air during the summer season. Perhaps the reason of this is the idea prevailing that the culture of flowers requires considerable skill and expense. But the tests made during the past two summers on the Manitoba Experimental Farm show that many varieties of nearly all the most popular hardy flowers and shrubs can be grown here to perfection, and need not involve a great amount of either.

Last summer a plot of ground 100 feet square was laid out as a flower garden, and in this were sown and planted more than 40 varieties of flowering plants and shrubs. All of these grew well and produced flowers in abundance, which were a source of great interest and pleasure to the many visitors to the farm, who were allowed to carry away an immense number of bouquets with scarcely any perceptible diminution of the mass of bloom. The expense of this flower garden was very light, the main cost being in the preparation of the beds. The after cost, for labor and attention during the summer months, only amounted to 75 cents per week.

Very few farmers would have any use for a flower garden as large as this, but I venture to say that few can realize what a source of pleasure a small flower garden would be to themselves, and more especially to their families. We in the Northwest are in a land of flowers, as our prairies give abundant evidence during the summer season; and why should we not give a little more attention to the cultivation of flowers and shrubs, and so make our homes more attractive to strangers and more pleasurable to ourselves and families?

A brief mention of some of those varieties most noticeable on the Experimental Farm last summer will perhaps be useful. A number of plants of the well-known Lilace came through the previous winter without injury and looked green and thriving. *Rosa Rugosa*, a red rose, of Russian origin, wintered without protection and bloomed in July. The Flowering Currant and Spirea were uninjured and making good growth. *Clematis Flammula* and *Lycium Europeanum* (climbers), although the previous year's growth was winter-killed, quickly grew up again, flowering in August and September. There were a number of perennial plants which survived the winter of 1889-90. The best known of these were the Sweet William (*Dianthus Barbatulus*), a pink (*Dianthus Imperialis*); the Pansies, Campanula, Snapdragons and *Linum Perenne*, or Flowering Flax. The last was very noticeable; it commenced to grow very early in spring, and produced an abundance of small blue flowers every morning, from early in June to the end of October. Of the hardy annuals the *Dianthus* or Pinks, Verbenas, Phlox, Asters,

Stocks, *Linaria*, Petunias and Pansies, were the brightest and best, remaining longest in bloom. The fall frosts had very little effect on these plants. Most of them, especially the *Dianthus*, *Linaria*, Phlox, Verbena and Pansies, continued blooming until late in October. These should have a place in every Manitoba flower garden. The Balsams, Tinnias, *Salpiglossis*, Larkspur, Godetia, and several others bloomed well, and were very attractive during the summer season, but were too tender to survive long after the first fall frost. Some annual climbing plants were also sown. Of these the *Humulus Japonicus*, or Japanese Hop, was the most noticeable. It grew very rapidly and had large leaves of a bright emerald green.

The seed of most of the hardy annuals and perennials can be safely sown early in May in the open ground. If a very hard frost should come after the plants are up they can easily be covered with a blanket or bags; a slight frost will not injure them, but the more tender varieties require to be kept from the cold and frost and should be sown in small boxes and kept in the house or hot-bed until all danger of frost is past. The beds should be dug, digging in plenty of well rotted manure, and all lumps removed from the surface with a garden rake. Unless the garden was a large one, this would involve but a small amount of labor, and with the low cost of the necessary seeds, there is no reason why we should so seldom meet with the farmer's flower garden.

A Mammoth Breeding Establishment.

It is a source of great pleasure to visit some of our leading studs and herds. We believe, perhaps, the largest one in Canada is at Lachine, P.Q., owned by Messrs. Dawes & Co. At the present time they are breeding Thoroughbred and Shire horses, Jersey, Polled-Angus and Hereford cattle, Berkshire and Yorkshire hogs. To attempt to describe the individual animals would occupy too much space—much more space than we have at our command at this issue, but we hope to give a more lengthy report of this establishment at an early date. Messrs. Dawes & Co. have spared neither pains nor expense in procuring choice specimens in each line, and our readers would do well to visit this farm, or write for particulars before purchasing.

Mr. J. Thomas Prost, Heaslip, Man., writes: "Enclosed find one dollar for your valuable paper, THE FARMER'S ADVOCATE. I might remark after looking the January number over I conclude that every farmer in Canada should take it. If I have a little spare time I will try and send you a few names free."

At a recent meeting of farmers, a sensible lecturer said:—"Mind is more than muscle. A mule has four times the muscle of a man; use the muscle of the mule. I was in St. Joseph, Michigan, and saw asparagus for sale. One lot was roughly put up in boxes to be returned. Another in neat white boxes, which did not cost half of the other, was put up neatly in bunches, tied with red tape in neat bows, tied no doubt by a woman, and brought 40 per cent. more, cost less than the other." Curiosity led him to the home of the man and found him doing less hard work and showing more general prosperity than his average neighbors. I also knew a milk dealer who kept an account with his cows, each having a separate account, and the cow that did not show a profit was sold to the farmer who did not keep books." He asked all the farmers present who kept farm accounts or even a cash account to raise their hands. Not one hand was raised.