

ing the Swedish two-rowed barley with the Baxter, a six-rowed sort. It has been tested each year since with satisfactory results. This barley has a stiff straw, is vigorous in growth and productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 53 bushels 26 pounds per acre. The Royal barley has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 45 bushels 4 pounds per acre. The largest crop yet given by this variety at any of the experimental farms was at Brandon, Man., in 1895, when it produced 65 bushels 30 pounds per acre.

The TROOPER six-rowed barley is a hybrid of the same parentage as Royal. It has been tested each year since with satisfactory results. This barley has a stiff straw, is vigorous in growth and productive. In the uniform test plots at the Central Experimental Farm it has given an average yield during the past four years of 48 bushels 17 pounds per acre. The Trooper barley has been similarly tested at all the experimental farms throughout the Dominion, and has given, as the result of four years' trial, an average crop of 46 bushels 29 pounds per acre. The largest crop yet given by this variety at any of the experimental farms was at Indian Head, N.W.T., in 1896, when it produced 67 bushels 14 pounds per acre.

Ornamental Shrubs

Written for "Farming" by E. Morden, Niagara Falls South, Ontario.

Ornamental shrubs and trees would be much more largely planted if examples in sight had been planted and managed with more judgment and taste. To distribute shrubs singly through a lawn is a mistake. Commonly the effect is bad, the labor of cultivating a space about each shrub is so great that it is rarely continued. A large bed or group of shrubs can be better and more easily cared for; while a single shrub is often interesting for a brief period a group of shrubs is interesting for months together.

If a considerable variety is planted there will be continuous bloom during the season of growth. While the foliage lasts plants with a golden or purple foliage give a continuous effect. The Forsythias give a very early abundant yellow bloom before the leaves appear. As these are often in bloom at the spring planting season they sell at sight. Their foliage is bright and good. Several of the spireas are early, and one has golden foliage. *Spirea ban Houttie* has good foliage and produces a snow bank of bloom. *Spirea thunbergii* is valuable on account of its peculiar light green narrow foliage. It is useful in bouquets for months together. *Meigela rosea* is a fine bloomer and useful in foliage. *Meigela variegata* has a nice golden-bordered foliage. The denterias in June make a fine show and ought to be more largely grown. Tartarian honeysuckle makes nice hedges. It comes into leaf very early in the spring, and is then much admired. In late summer, in time of drought, the foliage sometimes drops. Flowering quince and flowering almond are both fine in early spring, but singly are rather common place later on. Neither is reliable in northern Ontario. Syringas, single and double, with cream colored very fragrant blossoms, are valuable. Their resemblance to orange blossoms gives us the name mock-orange. *Rhodotypos kearoides* is a nice shrub with white flowers and light green foliage. Golden elder is visible at long distances. Prunes pissardi, or purple leafed plum, is a small tree, suitable for a centre or background in a group. Its foliage has a persistent dark liver color and is very distinct. Golden poplar is a small tree and valuable in a group.

Autumn flowering shrubs are peculiarly valuable. Of these the tree hydrangea, which holds its immense heads of bloom from August until the end of the season, is not as well known as it should be. It always blooms. In dry ground the heads are not so large. *Hydrangea paniculata grandiflora* is none too large a name for it. The Rose of

Sharon, althea, or tree hollyhock, bloom for months in autumn. The large flowers are red purple, blue purple, or white with red centre. Tree hollyhock is a good name and a correct one. A variegated leaf variety has leaves with distinct white colorings. These shrubs flourish here, but are not reliable in some parts of Ontario.

Manures and Manuring

By T. C. Wallace, Before the Ontario Farmers' Institute

(Continued from last issue.)

OUR SOILS.

To return again to our soils. As we got them from the prairie and forest primeval they contained a rich supply of humus, caused by the decomposition of ages of plant life which had grown up and dying down left plant bodies for food for following plants. This humus was rich in the atmospheric element of nitrogen, got from the air through the species of "nitrogen collectors" already referred to, and by the action of micro organisms of nitrification. It was rich also in mineral matter, which had taken new form in the plants which had formed it (though inorganic elements), and these soils are what we term organized or in a condition which grains, roots, grasses and fruits can feed from them readily. We term them rich. On these soils our farming generally began by

GRAIN GROWING

as an easy and remunerative method of working. As we found these lands in a state of rich humus supply, we may take as a first condition of manuring that a good supply of humus is necessary.

As we grew our grain crops let us inquire what was the general result on the fertility of our soils and how did it leave them for future agriculture. It may as well be stated here that the soils of our farms are mines of agricultural wealth, but it is mostly locked up so tight in the hard unyielding ground rock that our plants cannot feed from it. Only that portion of it which is available to our plants can be called fertility, the rest has yet to be rendered so.

The straw contains most of the potash removed from the soil by the crop. It was usually returned to the soil, apart from the fact that our soils are usually well stored with potash. Even often to a greater extent than lime, no serious loss of potash occurred by such grain growing.

If the straw was returned without burning, humus was also maintained to some extent. The most of the nitrogen goes to the grain, though the straw also carries some back to the land. It has been an accepted theory that wheat is a great user of nitrogen because it seems to be benefited by the application of soluble nitrates, but this, I think, is founded on empirics. The real fact would seem to be that the wheat grows during the early part of the season when nitrates are not very active in the soil and has yielded up its life by midsummer, after which nitrates are more active. The phosphoric acid of this crop then goes off almost entirely in the wheat seed, and the straw retains almost none of it, because it goes to effect perfect ripening of the grain and fit it for reproduction of the species. The loss, then, in grain growing is principally of the nitrogen and phosphate. So serious does this become in time that the grain gets poorer and softer, the crop less, the stand weaker, and the plants succumb to various fungoid diseases and the ravages of insects which are always in evidence to attack weakened constitutions. As it is in the animal kingdom, so it is in the domain of plant life. Gradually the seriousness of this state of affairs dawns upon us and we begin to realize the necessity of returning some of the lost fertility. We hit upon the plan of stock keeping for beef, mutton, pork and the dairy. The crops shall then be fed upon the farm and only the finished product sold off. The manure of the animals with the straw litter shall be returned to the land and we then think we have done our whole duty and fall into the error of calling that complete manuring.

(To be continued.)