COARSE GRAIN CROPS FOR EASTERN CANADA

THE inducement to change from oats to barley or from oats to mixed grains, resulting from the appeal made by the Government to produce more hogs as a step toward filling our war time contract with the United Kingdom, merits serious consideration. Such a change might be very definitely to the farmer's advantage since barley or barley and oat mixtures make a better feed for hogs than do oats alone. In some cases, however, soil and other conditions may make such a change inadvisable. A brief discussion, therefore, of the environmental conditions which make for maximum yields may be useful.

Environmental Requirements of Oats and Barley

Barley and oats differ appreciably as regards their environmental requirements for satisfactory development. Barley is much more exacting than oats as to soil fertility and drainage. The relatively ready response of barley to applications of fertilizers on soils lacking in fertility is an indication in itself that this crop is sensitive to plantfood deficiencies. The typical yellowing of the leaves in the early part of the growing season is regarded as an indication either of lack of nitrogen or poor drainage or both. Barley does not like "wet feet", and it should not be sown in low-lying, cold and undrained land. On such land, oats may be expected to give relatively better returns, provided they may be sown sufficiently early.

Until the advent of rust-resistant varieties of oats, it was not considered safe to sow oats on land which dried out slowly and had to be sown relatively late, since rust was liable to injure the crop. Under such conditions, barley often was used although frequently buckwheat was chosen as a last resort. Since seed of rust-resistant oats is now available in commercial quantities, the necessity of using grains which are likely to be less profitable under these conditions no longer exists.

On fertile, well-drained soils, barley usually produces more pounds of grain per acre than do oats. For such conditions barley naturally is strongly recommanded. However, when good barley land is not available, the grain land may be devoted to oats, or, in some cases, to a mixture of oats and barley to better advantage. Where it is considered more profitable to grow clear oats rather than barley, or oat and barley mixtures, and where barley is wanted in a pig or cattle ration, this may be obtained more profitably either by exchanging a quantity of oats for barley with a dealer, or by actually purchasing it. The desired proportions in the feed ration may then be made up.

by Authority of Hon. J. G. Gardiner, Minister of Agriculture, Ottawa.

Grain Mixtures

Many farmers in Eastern Canada consider the growing of a mixture a safer practice than the growing of single crops, especially where the land is uneven, either in fertility or lay. In the second place, the fear of rust in oats has caused many farmers to sow barley with oats rather than risk oats alone even on land which is relatively uniform.

With the appearance of rust-resistant varieties of oats, the situation is considerably changed.* No longer need one sow barley with his oats solely for the purpose of minimizing the damage which his oat crop might suffer, from a rust epidemic. Indeed on land to which barley is poorly adapted, a rust-resistant variety of oats sown by itself is likely to prove more profitable than oats and barley sown together. Where the land is in a fair to good state of fertility but uneven in contour, a mixture of oats and barley has much to commend it.

When oats and barley are grown together for a number of years, there is a tendency for the barley gradually to increase at the expense of the oats. Therefore, it is desirable to mix the seed in the desired proportion each year. The usual rate at which these crops are grown in combination is 50 pounds of each per acre.

Comparative Value of Oats and Barley

As a fattening feed, barley is highly prized for practically all classes of stock, and most particularly for hogs. Oats are considered valuable chiefly as a "growing" food. Mixtures of oats and barley are useful for practically all classes of stock.

The acre value of barley in the Eastern Provinces, in spite of the relatively low average yield, is considerably higher than that of oats. The average price per pound of oats from 1932-36 corresponded quite closely with the average price per pound of barley. On this basis, a yield of 40 bushels of barley would be equal in value to a yield of approximately 57 bushels of oats.

Oat Varieties

The new rust-resistant varieties of oats are Vanguard and Erban. Vanguard was developed at the Dominion Rust Research Laboratory, Winnipeg, Manitoba, from a cross between Hajira and Banner. This variety is resistant to stem rust but not to leaf rust. It is several days earlier maturing than Banner, thinner in the hull and shorter in the straw. The grain of Vanguard is much like that of Banner. In districts subject to stem rust rather than leaf rust, Vanguard is recommended without hesitation.

Erban is a medium early ripening variety, producing grain of good size and quality. It was developed at the Ontario Agricultural College, Guelph, from a cross between Banner and Early Ripe. It has ability to resist the races of leaf rust prevalent in Eastern Canada but not those commonly occurring in the Prairie Provinces. It is highly resistant to loose smut and covered smut, but is not able to resist stem rust. It is recommended for trial, in districts of Eastern Canada which are subject to periodic attacks of leaf rust rather than stem rust. In some of these leaf-rust-ridden districts, Erban has already proved a distinct boon.

The older oat varieties such as Banner, Victory, Gopher, Alaska and Cartier, seem destined to disappear from districts which are subject to either stem rust or leaf rust.

Farmers would be well advised to communicate with their nearest Experimental Farm or Agricultural College before making their final choice, owing to the importance of choosing the right rust-resistant variety. Obviously the rust

* Information *re* sources of seed of new varieties may be had from the Plant Products Division, Experimental Farms Service, Department of Agriculture, Ottawa.

problem will not be solved by introducing a leaf-rust-resistant variety into a stem-rust district. Similarly, the introduction of the stem-rust-resistant Vanguard into a district notorious for leaf-rust attacks would be of little value. Regardless of rust, it is likely that very early maturing varieties such as Alaska or Cartier will continue to be grown in many districts where earliness is of prime importance.

Barley Varieties

The most commonly grown variety of barley in Ontario is O.A.C. 21. This is a six-rowed, rough-awned type produced many years ago at the Ontario Agricultural College at Guelph.

During the past few years, a number of very promising feed barleys have been under test. Of these, Velvet and Nobarb are the most notable in Ontario. Both of these varieties are six-rowed and bear awns which are devoid of teeth. The latter characteristic is a distinct advantage in that these smooth-awned types produce straw which may be fed to animals without fear of the awns becoming imbedded in their mouths. The smooth-awned types are also much more agreeable to handle.

In the Maritime Provinces, the two-rowed variety, Charlottetown No. 80, is most popular and is recommended for most Maritime districts. When an early-maturing variety is wanted, the six-rowed variety Olli may be used to advantage.

Buckwheat

As a farm crop in Eastern Canada, buckwheat is entitled to a place of considerable importance among the coarse grains. Although looked upon by many farmers more or less as a "last resort", nevertheless a study of actual yields and food values indicates that this crop is by no means to be despised.

Generally speaking, this crop is prized particularly throughout Eastern Canada for its ability to yield at least fair returns when sown on relatively infertile soils as well as on fields which cannot be prepared in time to be sown to oats or barley with hope of obtaining satisfactory returns. This ability to sow buckwheat late—even up to the middle of July—also enables the farmer to spread his labour.

Buckwheat is extremely resistant to the attacks of soil insects. Hence it provides a late seeded crop of value which can be used in replanting after such crops as wheat, barley, oats or corn have been so thinned or damaged by insects as to make a profitable yield impossible.

As a food for live stock, the best authorities regard buckwheat as almost interchangeable with barley. Where barley cannot be grown successfully, buckwheat, therefore, makes an excellent substitute. The value of this crop for all classes of live stock is discussed authoritatively elsewhere.

Varieties

Buckwheat varieties are classified into two main types, namely, the smooth-hulled types and the types characterized by a rough hull. Both types are used for cattle food but only the smooth-hulled types are used for the manufacture of buckwheat flour.

The two most common varieties belonging to the smooth-hulled types are known as Silverhull and Japanese. In the rough-hulled group, the two most common varieties are Rye and Rough. Over a long period of years, during which these four varieites have been under test at Ottawa, no essential difference in yielding ability has been found.

The Rough types mature slightly earlier than the smooth varieties but also incline to shatter more. They have never become generally popular.

Buckwheat as a Combination Crop

The practice of adding other grains, particularly barley, to buckwheat is followed in some districts, chiefly for the purpose of reducing the difficulty often experienced in harvesting a crop of buckwheat when sown alone. However, from the standpoint of yield, nothing is likely to be gained by growing buckwheat in combination with other grains. If barley is sown with buckwheat, it is recommended that six pecks of barley and four pecks of buckwheat per acre be used.

Wheat

Winter wheat is grown chiefly in central and western Ontario, and while a considerable quantity is used for milling into flour, a large percentage of the crop is utilized for poultry and stock feeding. Dawson's Golden Chaff is the most widely grown in the above area. Considerable red winter wheat is grown in Kent county and in areas bordering this county. Other varieties which are grown to a lesser extent are O.A.C. 104 and Junior No. 6.

The acreage now devoted to this crop in Eastern Canada, is comparatively small. This has been due, in no small part, to the low yields realized from wheat, largely because of the prevalence of rust. Now that high-yielding, rust-resistant varieties are available, it is reasonable to expect a revival of interest in this crop. The variety recommended is Coronation. In tests this variety has been uniformly satisfactory, outyielding Marquis and Huron by a substantial margin.

Cereal Division—Experimental Farms Service,
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