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# BANISH THE BARBERRY.

## Common Barberrry a Menace in Spring-Wheat States—Spreads Rust to Wheat and Other Grains.

The common barberry is a direct spreader of black stem-rust, a terrible scourge of wheat, oats, barley, and rye in the spring-wheat districts. Common barberry on lawns and in hedges in cities and suburbs, as well as on farms, throughout these districts is a fearful thorn in the side of the wheat raiser. The presence of this shrub in your yard may mean that your county or district produces less bread to feed the Nation and the allies. While the farmers are being urged to take every cultural and protective measure to prevent rusting of their fields, owners of city yards and estates are called upon to



FIG. 1.—Common barberry, showing cluster cups on the leaves. Note the three-forked spines and the irregular edges of the leaves.

help by digging out and destroying this spreader of stem-rust.

How serious the black rust is to the bread supply of the Nation may be judged from the fact that this disease was the principal factor in reducing the yield of wheat alone in North Dakota, South Dakota, Montana, and Minnesota by nearly 200,000,000 bushels in 1916. Wherever grain is raised the presence of the common barberry bush may mean less bread. Get rid of the barberry bush and the farmers will be encouraged to practice early seeding, use of proper varieties of grain, effective soil management, and clean culture, which help keep this blight from the fields.

### Common Barberrry Spreads Rust.

The common barberry bush (*Berberis vulgaris*), including the purple-leaved variety, nurses the black stem-rust through one of its stages, helps it develop, and enables it to spread to the grains in the spring and early summer. (See figs. 1 and 2.) The most direct method of attacking this rust is to keep common barberry bushes out of wheat-growing regions. No more common barberry bushes should be planted; those now growing should be destroyed by May 1 in order to protect this year's crop. Less barberry means more bread.

The effect of a single barberry bush may extend for miles. They should be dug and destroyed throughout the upper Mississippi Valley, especially in the following States: Montana, Wyoming, Nebraska, South Dakota, North Dakota, Minnesota, Iowa, Wisconsin, Illinois, Indiana, Michigan, and Ohio. Less is known about the importance of barberry elsewhere. The question will be investigated in all grain-growing regions this season.

### Japanese Barberrry Harmless.

The Japanese barberry (*Berberis thunbergii*) does not rust; it is harmless and need not be destroyed. It is more beautiful, both in summer and winter, than the common barberry and can be distinguished from it quite easily. The edges of the leaves of the common barberry are toothed, while those of the Japanese barberry are not; the spines of the common variety are usually in groups of three, while those of the Japanese are usually single. (See fig. 3.) Both have red berries, but those of the common form are borne in racemes like currants, while those of the Japanese form are borne singly like gooseberries.

### Destruction Prevented Rust in Denmark.

Black stem-rust has not been serious in Denmark since barberry bushes were eradicated. A law providing for compulsory destruction of barberry bushes by owners was passed in Denmark in 1903. The rust had been serious periodically up to that time, but it has ceased to be destructive since the barberry bush was banned by law.

### Barberry Laws in North Dakota and Manitoba.

Destruction of common barberry bushes is required by law in North Dakota and Manitoba. These laws were passed in 1917. It is too early to know their effect on the rust, but it is safe to say that if neighboring States follow the example we shall have more wheat for the allies and ourselves.

### Other Methods of Preventing Rust.

Most good farmers know that proper cultural practices will reduce the severity of

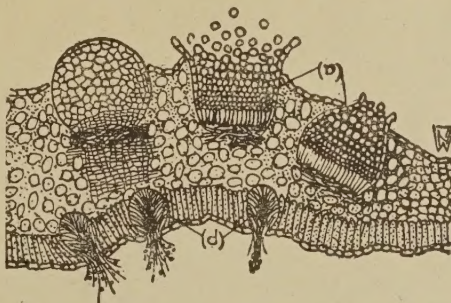


FIG. 2.—Cross section through barberry leaf, showing cluster cups containing a large amount of spores ("rust seeds") at (a) and other rust structures at (p).

rust attacks. Conditions should be made as favorable as possible for the grain, and as unfavorable as possible for the rust. This can be done in various ways.

*Select good land.*—Sow grains on high, well-drained land. Avoid pockets; rust is likely to be more destructive on low, poorly drained soils. The moisture does not cause rust, but enables it to spread rapidly.

*Seed early in a good seed bed.*—Grain which ripens early often escapes rust. Seed early on thoroughly prepared land, thus giving the grain a chance to ripen before the heavy attacks of rust occur. A week's difference in ripening often means the difference between a good crop and a poor one.

*Avoid excessive applications of manure.*—Overfertilization with nitrogen is likely to cause heavy, weak straw development and delayed ripening. When such plants rust they usually crinkle badly and yield poorly.

*Destroy wild grasses.*—Many wild grasses are pernicious breeders and spreaders of rust and should not be allowed to grow. Squirrel-tail grass (wild barley), quack



FIG. 3.—Japanese barberry. Note the simple spines and the entire edge of the leaves. This barberry does not rust.

grass, slender wheat grass, western wheat grass, and the wild rye grasses often rust badly, even in years when grain crops do not rust severely. This enables the rust to persist more easily from one season to another. It also enables the rust to spread more widely in any given season. Clean cultivation is one method of fighting rust.

*Use early maturing or resistant varieties.*—Some varieties mature early and escape rust. For this reason Marquis wheat may ripen before rust becomes severe in the spring-wheat area. Wherever early maturing varieties otherwise desirable are available, they should be used.

Resistant varieties are rare. Many durum wheats do not rust severely, and where these have been tried successfully they should be used. Kanred, a hard winter wheat of the Crimean group, is grown in Kansas and does not rust as heavily as common varieties.

Breeding and selection work to secure rust-resistant varieties is being done by the Department of Agriculture in cooperation with several States. Although no seed is yet ready for distribution, progress is being made.

Details have been omitted in this brief discussion. Further information, however, can be obtained by writing to the Department of Agriculture, Washington, D. C., or any State experiment station.

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