

APRIL, 1918

EXTENSION CIRCULAR No. 22

UNIVERSITY OF ILLINOIS
COLLEGE OF AGRICULTURE

EXTENSION SERVICE IN AGRICULTURE AND HOME ECONOMICS
IN COOPERATION WITH THE UNITED STATES DEPARTMENT OF AGRICULTURE
W. F. HANDSCHIN, VICE-DIRECTOR

URBANA, ILLINOIS

PROTECT THE WHEAT CROP
ERADICATE THE COMMON BARBERRY FROM
ILLINOIS

THE ESSENTIAL FACTS

Every grain of wheat is needed.

Wheat rust causes large loss.

The COMMON BARBERRY harbors the rust, serves as a source of infection, and thus increases this loss. The Japanese barberry is harmless.

Any rusted barberry bush is surely injurious to wheat, and a barberry bush even if not rusted is a possible danger.

The only safe course is to remove all the common barberry on your premises.

Inspectors will soon be on the watch for barberry in Illinois, and they will have the authority to force its removal when infected.

The State Council of National Defense and the State Department of Agriculture join with the U. S. Department of Agriculture in this movement.

SOME OF THE FACTS IN MORE DETAIL

WHEAT RUST

There are two stages of the black stem rust on wheat; the summer stage comes first, as yellow spots, and is followed by the winter stage, consisting of black spots (Fig. 1.)

The growth of this rust in the plant saps its vigor, stunts its growth, and results in an inferior grain. The loss from severe rusting is many bushels per acre. This loss is largest on spring wheat but it is also large on winter wheat.

THE BARBERRY RELATION

The spores of the black, or winter stage of the rust, can infect only the common barberry; they cannot directly infect wheat. In the spring they produce on the barberry leaves swollen spots bearing minute orange-colored cups full of another crop of spores. If the barberry leaves are not available, the crop of black winter spores becomes absolutely harmless and one great source of spring infection is avoided.

These facts have been known and scientifically proved repeatedly. Any farmer who has observed a barberry bush to windward of a wheat field has had opportunity to see the fan-shaped area of rust arising from the barberry bush. Such cases are obvious enough. *A barberry bush that is not near a wheat field is also to be feared* because the spores from the barberry may reach other susceptible grasses, of which there are many kinds, and there produce crops of summer spores which blow farther to other fields and so carry the disease to wheat fields.

It is an absolute fact that the common barberry increases wheat rust and that to remove the barberry would diminish wheat rust. Early laws requiring the removal of the barberry were made, but since they were not enforced they were not effective. The experience of Denmark, however, proves the wisdom of barberry eradication. The law enforcing the eradication was made in that country in 1903 and after eleven years we read:

- “1. That the black rust has disappeared gradually, contemporary with the barberry bush.
- “2. That the violent, destructive black rust attacks, which affected the whole or most of the country, with two or three years interval, have now ceased.
- “3. That the weaker attacks which affected the grain and grasses and especially the oats in Jutland are now practically unheard of, or at least come late in the fall.

- “4. That, where there is still found a barberry bush, the black rust has the power to infect and cause strong attacks upon the wheat.

“We cannot deny that here in Denmark we have as definite proofs as we can obtain about the hand-in-hand elimination of the barberry bush and the black rust.”

There are two species of barberry commonly planted in Illinois: (1) The tall, common, or European barberry (*Berberis vulgaris*); (2) The Japanese barberry (*Berberis Thunbergii*). There is a purple-leaved variety of the tall barberry, known as *Berberis vulgaris purpurea*, which of late years has been planted more extensively than the green-leaved form. The tall barberry is distinguished from the Japanese by the following characteristics:

JAPANESE BARBERRY

(Does not harbor rust)

1. Edge of leaf smooth
2. Twigs of last year reddish brown
3. Berries single or, rarely, in groups of 2 or 3
4. Thorns usually single

COMMON (EUROPEAN) BARBERRY

(Harbors rust)

1. Edge of leaf saw-toothed
2. Twigs of last year dun or grey
3. Berries in a cluster on one main stem
4. Thorns usually three-pointed



FIG. 1.—BLACK STEM RUST ON WHEAT
The elongated black spots are the spores in masses. (After Freeman)

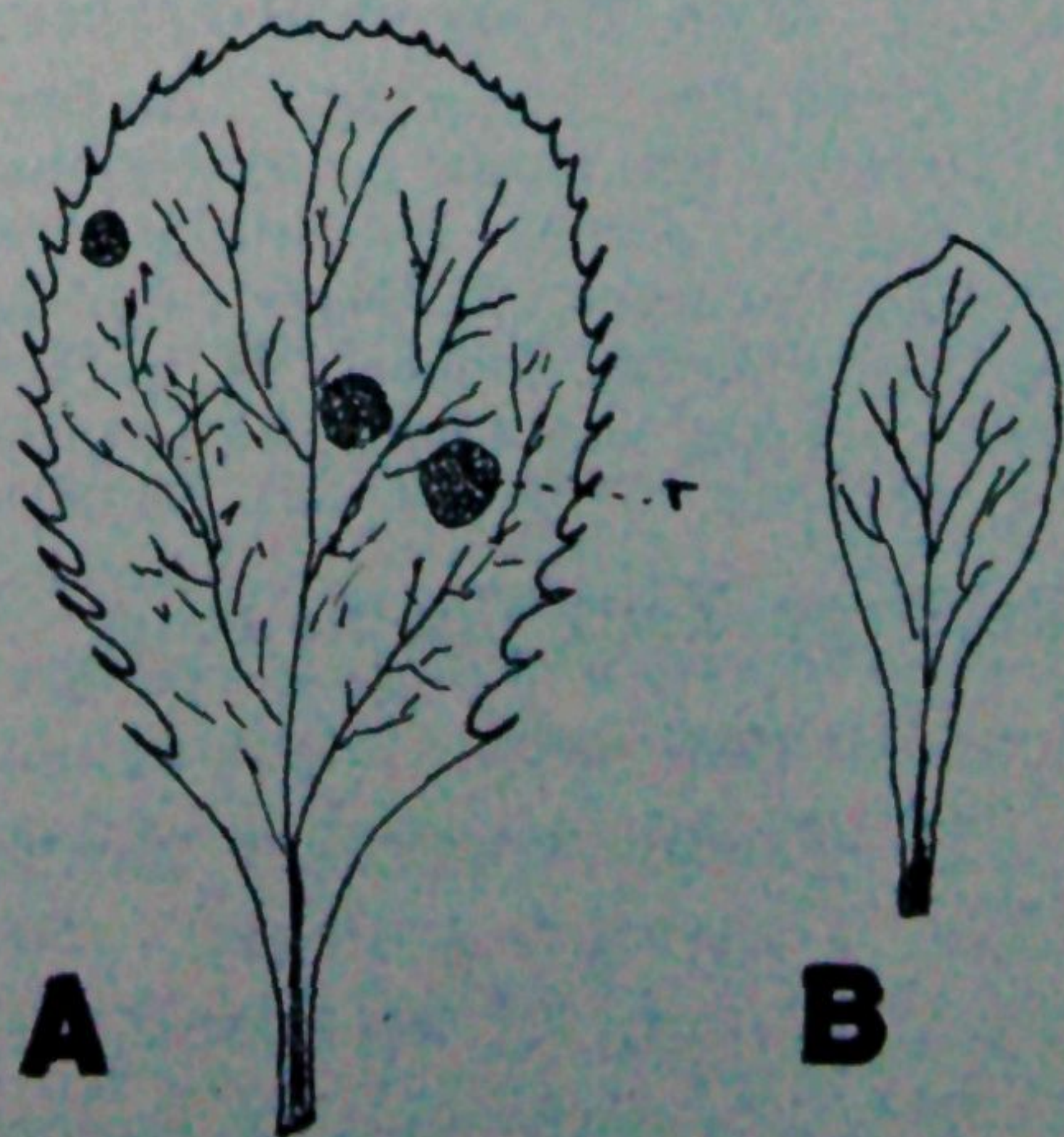


FIG. 2.—LEAF OF THE COMMON BARBERRY AND OF THE JAPANESE

A—Common barberry leaf infected; r, Rust spots, orange red in color. Note saw-toothed edge of leaf.

B—Japanese barberry leaf. Note smooth edge of leaf and relative size as compared with A. This species does not harbor rust.

The European barberry and its purple-leaved variety harbor the rust, while the Japanese barberry does not. Several species of Ma-

honia (*Mahonia ilicifolia*, *M. aquifolia* and *M. repens*) are also known to produce the rust, and these should not be planted. Other species of barberry are rarely found in ornamental plantings in Illinois, and may be passed over with a word of warning to all who desire to use such species. All species which resemble the European, or tall form, in general habit are susceptible and should not be planted.

Fortunately the common, or tall, barberry is not wide-spread in Illinois and is not of any value esthetically or otherwise. Look upon it as you do upon the rat and exterminate it. This recommendation is made by the U. S. Department of Agriculture, and concurred in by the State Department of Agriculture, and the State Council of National Defense.

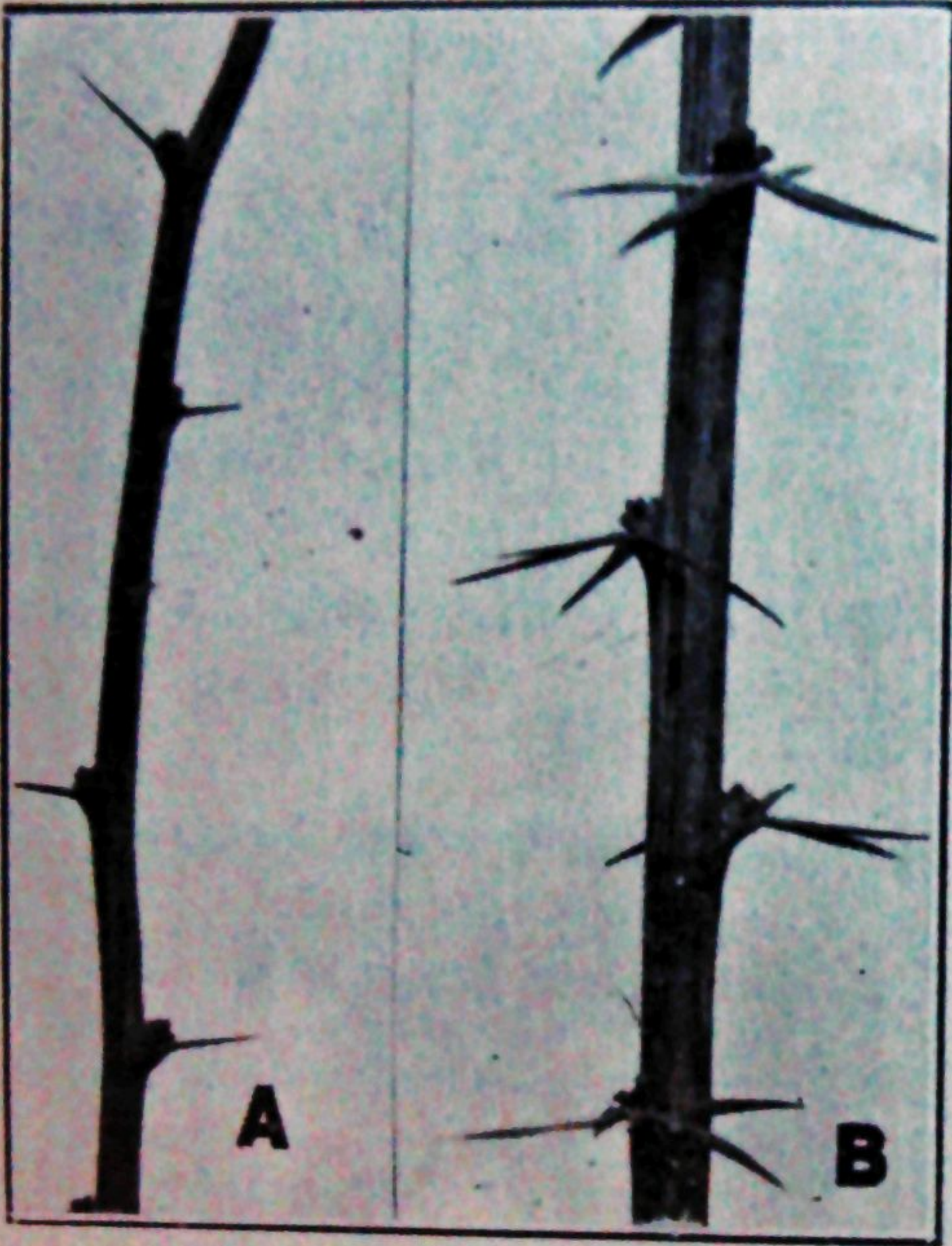


FIG. 3.—TWO TWIGS OF BARBERRY

A—Japanese barberry (*Berberis thunbergii*) has single-pointed spines. It is safe to plant. B—European or Common Barberry (*Berberis vulgaris*) has three-pointed thorns. It harbors black rust and should not be planted.

We Urge Your Cooperation

Send to us:

1. Facts concerning the location of any common barberries that are not removed. State name and address of owner or occupant of premises.
2. Also information concerning the existence of the rust on such bushes.

F. L. STEVENS
H. W. ANDERSON
Commission in Charge of Barberry Extermination in Illinois, University of Illinois