A Brief History of Common Barberry Eradication in Wisconsin, 1918 to 1976 (and beyond?)

Adrian Barta
DATCP Pest Survey
Barberry, Wheat and Stem Rust

Stem rust (*Puccinia graminis*) is historically the most destructive disease of small grains.

1916 stem rust epidemic cut N. American wheat yields by 2/3—estimated loss of >200 million bushels.
Common barberry (*Berberis vulgaris*) is the alternate host of stem rust.

The association between rusted wheat and barberry was noticed as early as the 1600s.
1918 The War Emergency Board of American Plant Pathologists is formed with the goal of ensuring that the food supply in the nation would remain secure. This was accomplished by identifying important diseases and focusing efforts on these diseases through a collaboration of state and federal personnel.
Rationale for eradicating common barberry

Remove early spring source of rust inoculum

Reduce the likelihood of new races of rust arising (not quite understood in 1918)

Increase the lifespan of wheat varieties
A well-liked and useful plant

Wine,
jam,
dye,
tool handles,
fencing,
color
BLACK STEM RUST SPREADS FROM COMMON BARBERRIES
to Wheat, Oats, Barley, Rye and other Grasses.
This barberry bush is a kin of the Kaiser.

Its owner has been requested by the Nebraska State Council of Defense and the U.S. Government to dig it up and destroy it.

Do it now!

Barberry Eradication Day, May 4th, 1918.
HELP!

DESTROY AN ENEMY OF THE WHEAT CROP!
DIG OUT EVERY BARBERY BUSH

They start black stem rust on grain. Help us locate every bush.
They are a cultivated, not a wild shrub. Owners must dig them up within
TEN DAYS after notification. [See Senate Bill No. 134]
J. N. HOGAN, Commissioner of Agriculture and Labor

WARNING

OUTLAWED COMMON BARBERY BUSHES have escaped from cultivation and may be found growing wild in woods, pastures and along fence rows and streams in this vicinity. They spread Black Stem Rust, a plant disease which annually destroys millions of bushels of Wheat, Oats, Barley and Rye. Common Barberry bushes have been condemned and must be destroyed.

Learn to Recognize them by

Leaves

Thorns

Berries

Bark

Shape of Bush

EXAMINE YOUR PLANTED SHRUBBERRY—YOU MAY BE HARBORING A CRIMINAL.

REPORT the location of such bushes to the State Leader of Barberry Eradication, in care of your State Agricultural College or your State Department of Agriculture.
Would you let thieves steal your grain?

YOU WOULD NOT!

Then why let stem rust do it?

DESTROY THE COMMON BARBERRY

This is a Common Barberry and is an "Alien Enemy."

The Minnesota Commission of Public Safety, Order No. 28, requires the immediate destruction of this bush.

STATE ENTOMOLOGIST
University Farm
St. Paul, Minnesota.
NATIONAL RUST BUSTERS CLUB

JOIN NOW

N. R. B. C. Medal

Any boy or girl in Iowa can obtain a beautiful bronze medal like the one shown above and become a member of the National Rust Busters Club, if he or she will report a property on which common barberry bushes are growing.

Common barberry spreads a disease called "black stem rust," which destroys millions of bushels of wheat, oats, barley, and rye every year. Help us find these bushes and "bust the rust."

Of course, in order to find and report common barberry bushes, you must know what they look like and where they may be found growing. Every school is entitled to a complete set of educational material about the barberry, consisting of colored charts, posters, bulletins, a pressed specimen, and a lesson plan. Find out what the common barberry looks like and how it spreads black stem rust.

To report a common barberry, mail a small twig to the Barberry Eradication Office, Iowa State College, Ames, Iowa.

Presented by the Rust Prevention Association, 210 Lewis Building, Minneapolis, Minn., in cooperation with the Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.
Iris Graves beside one of the common barberry bushes found in the area of escapes which was discovered as a result of her efforts.
Cooperative program between USDA and State Departments of Agriculture.

Crews went door-to-door, farm-to-farm, throughout the Upper Midwest, urban and rural, to find and destroy barberry bushes.
By 1934, 350 people were working on barberry eradication in Wisconsin

Found bushes at 18,442 properties in the state over the course of the program
## RESURVEY

### CHANGE OF TENG

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<thead>
<tr>
<th>DATE</th>
<th>SCOUTS</th>
<th>BUSHES FOUND</th>
<th>BUSHES DESTROYED</th>
<th>BUSHES REMAINING</th>
<th>CHEMICALS, KIND AND AMTS. FURNISHED BY</th>
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### ORIGINAL SURVEY

- **COUNTY**: South Dakota
- **OWNER**: Marie Dunn
- **LEGAL DESCRIPTION**: NE 1/4 S. 4, T. 110, R. 66
- **NUMBER OF BARBERRIES**: 18
- **LEGAL NOTICE SERVED**: 18

### ATTITUDE OF OWNER

- **DATE**: Aug 31, 1952

### SCOUTS

<table>
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<tr>
<th>DATE</th>
<th>SCOUTS</th>
<th>LARGE</th>
<th>MEDIUM</th>
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**N.A.** —- Unknown
A —- Above Map
W —- Below Map
C —- Center Map
Fig. 13.—THE PROPER WAY TO REMOVE BARBERRY BUSHES

Dig deep enough to get all of the roots out with the plant to prevent sprouting. Heavy canvas gloves protect the hands.
CHANGE OF TENANT OR OTHER INFORMATION

<table>
<thead>
<tr>
<th>DATE</th>
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<th>BUSHES REMAINING</th>
<th>CHEMICALS, KIND AND AMTS. FURNISHED BY</th>
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<td>574</td>
<td>0</td>
<td>574</td>
<td>S</td>
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<td>8/28/47</td>
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<td>154</td>
<td>0</td>
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SPROUTING BUSHES FOUND  SPROUTING BUSHES DEST.  SPROUTING BUSHES REMAINING

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<th>SCOUTS</th>
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SEEDLINGS

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1937 bushes are on hillside south and south west of house.
Between 1918 and 1977, Wisconsin crews found and destroyed 5,782,536 barberry bushes in Wisconsin, according to USDA records.
States Cooperating in the Barberry Eradication Program

Each dot represents one rural property on which barberry bushes were destroyed.
More than 500 million barberries were destroyed during the program.
Is common barberry still a concern?

UG99, a new, particularly virulent race of stem rust was found in North Africa in 1999. A similar new race could arise here, or UG99 could (and probably will) reach the U. S.
After all those years (and all that salt), how’d they do?

DATCP resurvey work present

Random sample of Form L locations
192 sites with no barberry found

5 sites with common barberry present

Bushes at all five sites **do** have rust every year

Collections sent to USDA Cereal Disease Laboratory for analysis
Washington State University/APHIS-CPHST

Developing and Serving a Database of Historical Barberry Survey Data

- Farm-Bill funded program to collect, image, geocode and georectify all the remaining records from the USDA Barberry Eradication Program.
- Started on Wisconsin records in 2013.
- Returned digitized images in August 2014.
- Returned a shapefile of locations in 52 counties.
9,835 locations

Data includes Form L data of counts, number of resurvey visits
Prioritize barberry survey based upon:
- number of resurvey visits required
- number of bushes originally found
- density per township?

New possibilities for an old survey
Use data to target wheat stem rust survey
Proximity to historically high barberry counts
## Resurvey

**Change of Tenancy or Other Information**

<table>
<thead>
<tr>
<th>Date</th>
<th>Scouting</th>
<th>Bushes Found</th>
<th>Bushes Destroyed</th>
<th>Bushes Remaining</th>
<th>Chemicals, Kind and Amounts, Furnished By</th>
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<tbody>
<tr>
<td>5/27/47</td>
<td>10</td>
<td>7</td>
<td>43</td>
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<td>1 (40)</td>
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<tr>
<td>5-24-47</td>
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<td>13</td>
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<td>5 (85)</td>
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<tr>
<td>5-23-47</td>
<td>12</td>
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<td>1</td>
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<td>10 (180)</td>
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<tr>
<td>5-5-47</td>
<td>5</td>
<td>1</td>
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**Sooting Bushes Found**

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<th>Date</th>
<th>Scouting</th>
<th>Bushes Found</th>
<th>Bushes Destroyed</th>
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<th>Chemicals, Kind and Amounts, Furnished By</th>
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<td>7-22-47</td>
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<td>2</td>
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**Scouts Planted**

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**Second Original Survey**

- **County**: Dane
- **City**: Black Earth, Wis.
- **Owner**: C. Polk
- **Address**: Maganomac, R.R.
- **Legal Description**: 1-4-12 T.P.N., R.E. Black Earth, Wisconsin
- **Quarter Section Township Range, or Street and Number**: Sugar Bush, Township 1 North, Range 7 East
- **Number of Barberries**
  - **Size**: Planted: 1, Escaped: 3
  - **Legal Notice Served**: 10
- **Disposition of Barberries**: 13
- **Chemicals, Kind and Amounts, Furnished By**: 46, 5, 40
- **Attitude of Owner**: 8
- **Date**: July 29, 1929

**Description of Area with Map on Back**

- **Scale**: 1954
- **Legend**: Barberry, Bushes XX
- **Indicate Location of Fences and Permanent Landmarks**: Review a good map locating the bushes with reference to permanent landmarks.