Washington Grain Commission
Wheat and Barley Research Annual Progress Final Report

Project #: 4168 1353

Final Report Year: __4__ of __3__ (maximum of 3 year funding cycle)

Title: Stem Rust and Common Barberry Awareness Education

Cooperators: Diana Roberts (WSU Extension Spokane/Lincoln Counties), Tim Murray (WSU Plant Pathology), Xianming Chen (USDA-ARS Pullman), and Steve Van Vleet (WSU Extension Whitman County).

Executive summary: The project is complete. There is a greater teachable moment for this topic due to the stem rust outbreak in 2012. We got barberry listed as a Class C Noxious Weed in Washington. In November 2014, we published an Extension fact sheet; FS151E Control of Common Barberry to Reduce Stem Rust of Wheat and Barley, which is available free at https://pubs.wsu.edu. Without the alternate host, the disease triangle is broken and stem rust is rarely a problem. In a 2013 WSU Extension survey, 61% of 124 respondents had increased their understanding of stem rust and 30% had used our information in making on-farm management decisions.

Impact: Stem rust can easily cause 100% yield loss in spring wheat and barley. It is unlikely to cause widespread loss in Washington as it is rare that we have warm, moist summer weather that it requires. 2012 was the closest I have ever seen to summer rainfall patterns here. The primary threat due to stem rust is providing an area in eastern WA where the rust pathogen can undergo sexual reproduction on common barberry, the alternate host, and thus develop new, virulent races that could spread to the Midwest and cause major loss there.

Following an Extension talk on stem rust and barberry in Colville in December 2014, a grower took a copy of the new bulletin. A few days later he found a large barberry bush in his mother's yard, adjacent to the fields that have been infected with stem rust since 2007. The bush was not listed on the original data cards. According to the family, it had been transplanted from a neighboring home. It was likely very small when the eradication crews came through first in 1959. The grower will eradicate the bush in the spring. However, it is likely that there are more bushes in the local area and in eastern Washington. Having the new bulletin available will make it easier for landowners to identify and eradicate common barberry on their land.

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Project PI(s):	Diana Roberts (WSU Extension Spokane/Lincoln Counties), Tim Murray (WSU Plant Pathology), Xianming Chen (USDA-ARS Pullman), and Steve Van Vleet (WSU Extension Whitman County).			
	Jul-11			
Project year:	3			
Objective	**Deliverable**	**Progress**	**Timeline**	**Communication**
1. Education of growers and field consultants	Flyers and posters describing stem rust and barberry.	Completed and published 2011		Poster published in Wheat Life, flyers available at workshops and tours
	Educational curricula (PowerPoint presentations) that we are developing right now that we will begin to use at grower workshops this winter (2011).	Completed and published 2011, updated annually by Diana Roberts and Tim Murray . We are also working with the WA State Weed Association on putting out educational materials. Extension fact sheet on identification and eradication of barberry published in November 2014		Presentations in 2012 reached 166 growers in Spokane, Lincoln, Yakima Counties (WA) and bonner County (ID). In 2013 reached 60 growers in Steven County, which is likely a center for barberry bush regeneration. In a2013 WSU Extension survey, 61% of 124 respondents had increased their understanding of stem rust and 30% had used our information in making on-farm management decisions. Following an Extension talk on stem rust and barberry in Colville in December 2014, a grower took the new bulletin and found a large barberry bush in his mother's yard, adjacent to the fields affected since 2007.
	A webinar for winter 2011/2012 that will reach a regional and national audience.		Completed February, 2013	
	Articles written annually for popular magazines, including Wheat Life.	Articles in Wheat Life 2011. Statewide newsrelease published August 2012 due to widespread incidence of stem rust with the wet summer conditions that year		Articles in Wheat Life 2011. Statewide newsrelease published August 2012 due to widespread incidence of stem rust with the wet summer conditions that year
	A web-based reporting system for stem rust infestations and barberry bush locations	Completed and made available in 2011 at www.PNWstemrust.wsu.edu A grower from Stevens County reported stem rust in 2013 - he has had regular occurences since 2007 so there is likely barberry in his area. We seearched for it in the fall of 2012 but were unable to locate bushes.		There was some use of this system in 2012 following the newsrelease about the stem rust outbreak in September 2012

2. Best management practices for common barberry eradication	Identify effective treatments to eradicate common barberry		An Extension fact sheet FS151E Control of Common Barberry to Reduce Stem Rust of Wheat and Barley was published November 2014 and is available free online at https://pubs.wsu.edu/	These data were included in presentations made since November 2012.
3. Develop a GIS database of the original barberry eradication records from ID, OR, WA, and MT.		This database is well under way - with funding from an alternate source	Funding is from an alternate source	Datapoints close to a stem rust infection site in Stevens County did not yield barberry bushes when examined in November 2012. Stem rust occurred in barley fields here again in 2013 and 2014. The bush likely responsible for infection was found in December 2014 and was not listed on the original data cards - it had been transplanted from a neighboring home and was small when the eradication crews came through.