

Problematic Weed Species in Northeast Oregon

By Judit Barroso and Jennifer Gourlie



In November 2014, I was hired to succeed Dr. Dan Ball as the weed scientist at the Columbia Basin Agricultural Research Center (CBARC; with locations near Pendleton and Moro). I am an agricultural engineer with a Ph.D. in Weed Science from the Polytechnic University of Madrid, Spain. I came to the USA in 2010 with a Fulbright Post-doctoral scholar at Montana State University and worked there as a Post-doc researcher for about four years.

Being new to CBARC and to northeastern Oregon, I thought it would be important to know first-hand what the stakeholders felt were the most important weed species in the region to plan my research. At CBARC's 2015 Field Days on June 9 at Pendleton and June 10 at Moro, my research assistant (Jennifer Gourlie) and I collected surveys from 33 growers and industry personnel (attendants of those events) about the presence of weed species in the region and the difficulty in controlling them. Respondents were asked to identify weed species that were present in their crop productions. They were then asked to choose the difficulty in controlling each species based on a 1 – 4 scale, 1 being easy to control, 2 difficult but manageable, 3 hard, and 4 impossible to control.



Figure 1. Weed species more present in northeastern Oregon.

According to the survey's answers, downy brome was identified as the most prevalent weed species (Figure 1), followed closely by tumble mustard, feral rye, and Italian ryegrass. Rattail fescue, morning glory, and Russian thistle followed next, and prickly lettuce, jointed goatgrass, and kochia were listed as having a lower presence in the region. Other species mentioned with less than 9% in the responses where tarweed fiddleneck and wild oat, and with only one answer reporting presence were many others: Canada thistle, pigweeds, witchgrass, knapweed, yellow star thistle, puncture vine, Scotch thistle, flixweed, marestail, catchweed bedstraw, western salsify,

Why Does This Matter?

▶ Input from growers on presence of different weed species and difficulty in control will guide weed research program going forward



Downy brome infestation in winter wheat at crop peak biomass at CBARC



Russian thistle infestation in the fall near Lexington

dalmation toadflax, tansy mustard, rush skeletonweed, annual bluegrass, and scouring rush.

However, we could observe that species abundance was not necessarily related to difficulty of control according to the answers. Of the 10 weed species listed, 9 of them were rated between “moderate difficulty (#2)” and “hard to control (#3)”. Downy brome was considered as the species most difficult to control (Figure 2), followed by jointed goatgrass, morning glory, rattail fescue, and feral rye. On average, these five species were rated as hard to control (considering hard to control values > 2.5). Prickly lettuce, Italian ryegrass, Russian thistle and kochia were rated as moderately challenging, with moderately difficult control values between 1.5 and 2.5.

Tumble mustard, even though it was listed as one of the most abundant weed species (Figure 1), was listed as easy to control (Figure 2), while jointed goatgrass, which was listed as one of the least abundant species, was rated as one of the hardest to control.

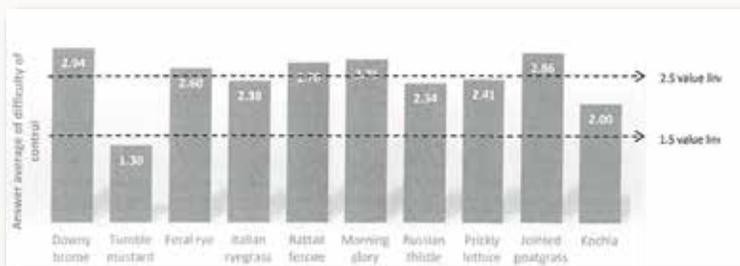


Figure 2. Control difficulty of the ten weed species indicated in Figure 1.

While these surveys are subjective to each individual and crop production, they are providing important insights into what weed species growers and industry personnel have difficulty in controlling. The survey will further help to guide the weed science research objectives in this region.

Some of the upcoming research that we have planned for this season are chemical control studies on rattail fescue and

downy brome in winter wheat. We will also be investigating some practices at wheat harvest to control and reduce seed dispersion of weed infestations, particularly of feral rye and Italian ryegrass.

One research project of particular interest to growers is an evaluation in Northeast Oregon of potential glyphosate resistance in Russian thistle populations. Another study being conducted, in cooperation with the USDA-ARS scientists at Pendleton, is evaluating the benefits in weed management of intensified crop rotations. Results from these and other future investigations will be properly published and presented to growers. I do encourage you to come to our field days where you will be informed about on-going research and our results. We look forward to interacting directly with you and learning more about your weed problems or agronomic concerns. For this coming season, the field days are June 14 in Pendleton and June 15 in Moro.

Finally, we would like to thank greatly those who participated in last year CBARC’s field days for taking the time to visit us and respond to this important survey. We would also like to encourage the readers of this magazine to fill out a different survey that Mary Corp, the new director of CBARC, is collecting to help understand what the greatest challenges are in your cereal production and how we could better address them and communicate the results with you. If you have five minutes to do so, please copy this link (http://oregonstate.qualtrics.com/SE/?SID=SV_9zz1nAtV9OMCPdz) into your internet browser and fill it out online. It will be much appreciated.



Sampling of a big morning glory patch in winter wheat