



High-residue farming publications available for irrigated growers

Andrew McGuire (andrew.mcguire@wsu.edu) WSU Extension

Farmers in the irrigated regions of the Pacific Northwest (PNW) have not adopted high-residue farming to any great extent. High-residue farming (HRF) is an umbrella term that covers cropping systems in which the volume of the soil that is tilled is reduced in order to maintain crop residue cover of the soil. Crop residue covering the soil provides the many benefits of HRF, though the specific amount of residue will depend on the previous crop, the current crop, and soil and climate factors. No-till, strip-till, ridge-till, and vertical tillage are all variations of HRF.

IMPACT

High-residue farming is relatively new to irrigated cropping systems of the PNW. A new series of extension publications will help irrigated growers to begin to adopt these systems more widely.

Many of these terms describe the type of tillage used (for instance, strip-till) or not used (no-till), and most also have other names, such as direct seeding for no-till, and zone tillage for shallow strip-till.

Compared to the Midwest, adoption of HRF in the PNW has been slowed by the challenges of using these systems with surface irrigation, by intensive crop rotations that include vegetables and other nonagronomic crops, and by the relatively less urgent soil conservation issues (at least in terms of precipitation-induced water erosion) in arid climates. Recently, however, needs for water conservation, a new interest in building soil quality, increased overhead irrigation, and increased focus on controlling wind erosion have spurred adoption of high-residue farming. To assist farmers with this major change, I have produced a series of extension publications:

These extension publications (Figures 2-6) will support producer decision making and adoption of high-residue farming practices in the irrigated region of the inland PNW. They were posted online in September 2014 and will be printed together in a booklet format (funded through the REACCH Extension Curriculum Grants Program) in October 2014.

The material in these publications is the basis of a four-hour workshop that I developed and conducted. In 2013, I held four of these workshops around the Columbia Basin of WA and one in Madras, OR. In post-workshop evaluations, 35% of participants rated the workshop as “outstanding,” with another 54% rating it “above average.” The number of participants is limited to facilitate good discussion and interaction. “The small group,” commented one grower, “made it easy to learn.” I am planning to conduct another three workshops during the winter of 2014-15, where I will also give out the printed booklets. The booklets were also available to growers at a December 2014 soils meeting in Moses Lake, WA, and will be provided at a February 2015 networked regional soil health workshop in the Columbia Basin.

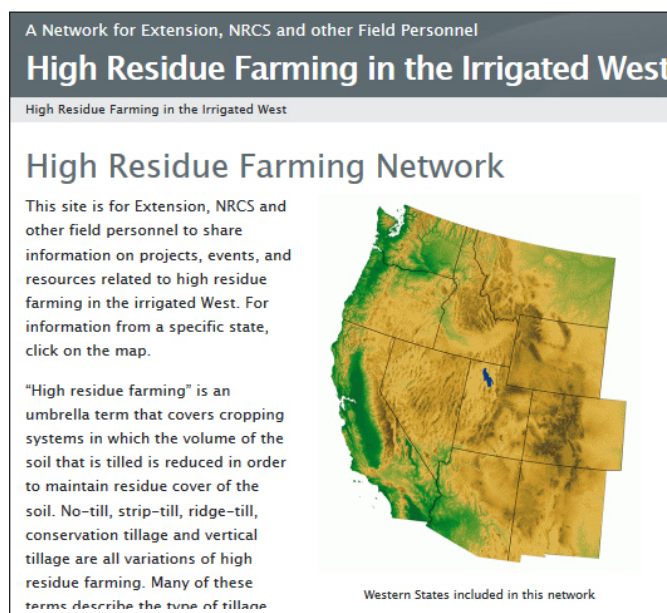


Figure 6. High Residue Farming in the Irrigated West website.

Although produced in WA, these publications are relevant to many regions of the irrigated West, especially those where overhead irrigation is common and high-value vegetables are grown. To reach out to this wider audience, a western regional network of extension, U.S. Department of Agriculture (USDA) Natural Resources Conservation Service, and other field personnel interested in high-residue farming was formed in early 2014 (funded by USDA Western Sustainable Agriculture Research and Education). A website set up for this network to share information, westernhrf.wsu.edu/, will be used to disseminate information about these HRF publications throughout the West (Figure 6).

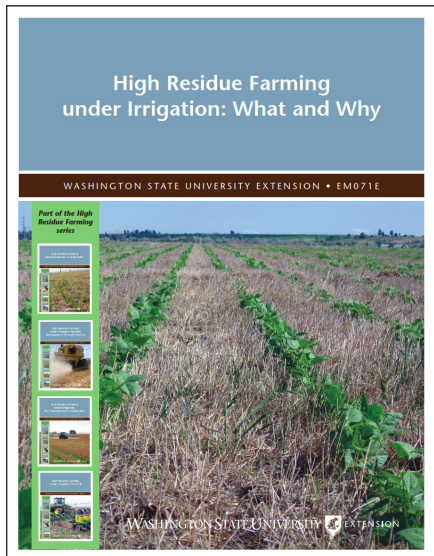


Figure 1. EM071 High Residue Farming under Irrigation: What and Why provides an overview of high-residue farming, including its benefits and challenges. It also discusses some special considerations for high-residue farming in the irrigated agriculture regions of the far western United States.

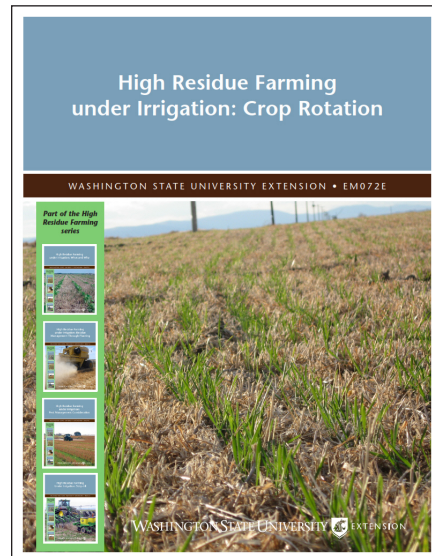


Figure 2. EM072 High Residue Farming under Irrigation: Crop Rotation covers choosing a cropping sequence, specific cover crops, and special considerations for irrigated cropping systems in the far western United States.



Figure 3. EM073 High Residue Farming under Irrigation: Residue Management Through Planting explains how to plant crops into high-residue conditions with a planter or drill. It covers residue management, planter and drill modification, and soil fertility adjustments.

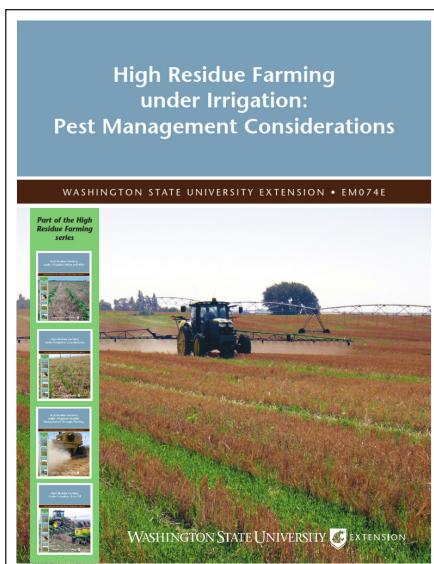


Figure 4. EM074 High Residue Farming under Irrigation: Pest Management Considerations gives an overview of the effects of adopting HRF on the management of weeds, insects, and diseases.

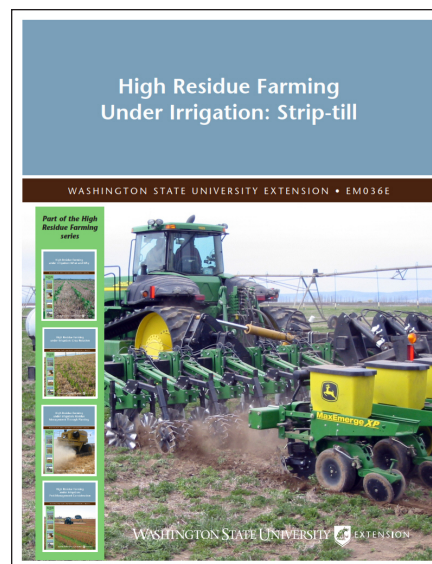


Figure 5. EM036 High Residue Farming under Irrigation: Strip-till covers the benefits, challenges, and implementation of strip-till planting. This particular high-residue farming system combines some of the benefits of clean tillage systems with those of high-residue cover.