

A Grower Case Study Approach for Trans-Disciplinary Integration and Technology Transfer

Georgine Yorgey^a, Kathleen Painter^b, Kristy Borrelli^c, Hilary Davis^b, Chad Kruger^a, Dennis Roe^d, Erin Brooks, Sylvia Kantor^a, Leigh Bernacchi^b, and Andy McGuire^a

^a Center for Sustaining Agriculture and Natural Resources, WSU; ^b Northern Extension District, University of Idaho; ^{c, d} Department of Crop and Soil Sciences, Washington State University; Department of Plant, Soil, and Entomological Sciences, University of Idaho

Abstract



Large interdisciplinary projects face many challenges, from encouraging the necessary interaction among scientists to achieve transdisciplinary goals, to stakeholder engagement, to farm-level technology transfer. Focusing on one grower's farm at a time using a case study approach has provided a successful platform for these needs.

At the same time, it can help growers think through the challenges of adapting to climate change, which will require collective innovation to develop and use new knowledge.

To support this process, we have developed multimedia producer case studies for cereal-based cropping systems in the Pacific Northwest. Case studies span both irrigated and dryland cropping areas, and highlight a range of innovative strategies that enhance resiliency.

Each case study includes a short (5-7 minute) video, and a more detailed written profile. The written profile includes details from growers on how participants successfully adopted these practices, their perspectives on benefits and challenges, and their thoughts on risk and climate change. Sidebars (approximately 6 per case study) are used to address additional topics in a trans-disciplinary manner. For example, the case study on precision agriculture includes a sidebar that describes ongoing on-farm research into nitrogen dynamics, and explains potential farm-level implications. Meanwhile, another sidebar provides details on fertilizer cost savings achieved using precision agriculture tools.

Final video and written case studies will be available at

www.casestudies.reacchpna.org.

Case Study Locations and Themes



Mustard Cover Cropping Under Irrigation,
Dale Gies,
Moses Lake, WA



Precision Nitrogen Application,
Eric Odberg,
Genesee, ID



Conservation Tillage in Winter Wheat-Fallow,
Ron Jirava,
Ritzville, WA

Crop Diversity,
Steve & Becky Camp,
LaCrosse, WA



Integrating Cover Cropping and Livestock Production,
Drew Leitch,
Nez Perce, ID

High Residue Farming Under Irrigation,
Eric & Alan Williamson,
George, WA



Stripper Header,
Ron & Andy Juris,
Bickleton, WA



Flex Cropping,
Bill Jepsen,
Lone, OR



Crop Diversity,
Steve & Nathan Riggers,
Craigmont, ID



Deficit Irrigation,
Jake Madison,
Echo, OR

Project Background: The Power of Peers

While early climate impact assessment studies (Adam et al. 2012; Stockle et al. 2010) have prioritized agricultural concerns related to climate change, scientists have so far been able to provide only generalizable recommendations regarding adaptation strategies (e.g., develop new plant varieties, new crop protection tools, more farmer innovation). With continuing climate uncertainty, farmers who are adopting innovative practices can provide insights into their resilient management practices, enabling others to join them.

Adapting to climate change will require the development and use of knowledge and a capacity for collective learning and innovation (Berkhout et al. 2006). Farmer-to-farmer learning through case studies has been shown to develop personal and collective responses for adaptation and strengthen knowledge transfer through social networks (Röling & Wagemakers 1998; Hemstead et al. 2012; Mills-Novoa 2011). Our case studies build on the established trust of peers, focusing on mitigation and adaptation strategies already being used by ground-breaking farmers in the inland Pacific Northwest.



While these written case studies publications are not yet available, the videos have been popular and widely used by a variety of stakeholders, with viewings at regional agricultural conferences, during regional teacher trainings, and by researchers. The four published videos have also been viewed more than 1300 times on line, and have successfully piqued interest in the written publications and associated research.

Literature Cited

Adam, J.C., M.E. Barber, M.P. Brady, K. Rajagopalan, C.S. Stockle, C.E. Kruger, R. Nelson, K. Chinnayakanahalli, K. Malek, S. Dinesh, J. Yoder, and G.G. Yorgey. 2012. 2011 technical report for the Columbia River Basin long-term water supply and demand forecast. Publication No. 12-12-001. Washington Department of Ecology, Olympia, WA.

Berkhout, F., J. Hertin, and D.M. Gann. 2006. Learning to adapt: Organizational adaptation to climate change impacts. *Climatic Change* 78(1), 135-156.

Hemstead, K., R. L. Cates, Jr., and T. Cadwallader. 2012. Passing Along Farm Knowledge: A Mentor-Intern Handbook for Dairy and Livestock Farmers. University of Wisconsin (UW)-Madison.

Mills-Novoa, Megan. 2011. Sustaining Family Farming Through Mentoring: A Toolkit for National Family Farm Coalition Members. National Family Farm Coalition.

Röling, N. G., and M. A. E. Wagemakers, editors. 1998. Facilitating Sustainable Agriculture: Participatory Learning and Adaptive Management in Times of Environmental Uncertainty. Cambridge University Press, Cambridge, UK and New York, New York, USA.

Stockle, C.O., R.L. Nelson, S. Higgins, J. Brunner, G. Grove, R. Boydston, M. Whiting, and C. Kruger. 2010. Assessment of climate change impact on Eastern Washington agriculture. *Climate Change* 102(1-2): 77-102.

Acknowledgements

This work was funded through Award #2011-680020-30191 from USDA National Institute of Food and Agriculture and the Laird Norton Family Foundation.

Thanks to Erich Seamon for generating the map used to show case study locations.

