

Climate Change: Are the tools available what agricultural professionals need?

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Center for
Sustaining Agriculture
& Natural Resources
WASHINGTON STATE UNIVERSITY

Northwest Climate Conference
Tacoma, October 10-11, 2017

TOOL BOX 'TOONS © Trosley

THE SECRET
TO A HAPPY LIFE?

BE
ADJUSTABLE!

www.georgetrosley.com

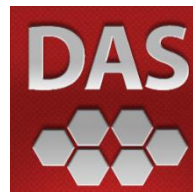
Tools Are Made to be Used



AgBiz Logic™



Climate Engine



Climate Visualization Tool



Seedlot Selection Tool

**Agriculture Climate
Network**



Agriculture and Climate Change Research in the Pacific Northwest

Pacific Northwest Biochar Atlas

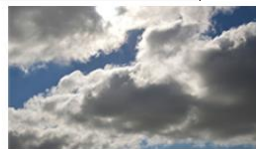
A resource for regional biochar users and producers

The Northwest Climate Toolbox

A collection of web tools for visualizing past and projected climate and hydrology of the Pacific Northwest, USA.



AGRICULTURE



CLIMATE



FIRE



WATER

A. Understand the different perspectives on what success looks like

SUCCESSFUL SCIENCE: PERCEPTIONS AMONG BIOEARTH RESEARCHERS

What defines a successful outcome for the research project?



Photo: Sonia Hall, WSU

Prepared by Elizabeth Allen

BioEarth



Biosphere-relevant earth system model

A. Understand the different perspectives on what success looks like

USABLE CLIMATE SCIENCE: WHAT WE HEARD FROM STAKEHOLDERS

1. Regional land use change projections
2. Analysis of technological, social and economic factors
3. Analysis of impacts across jurisdictions and management sectors

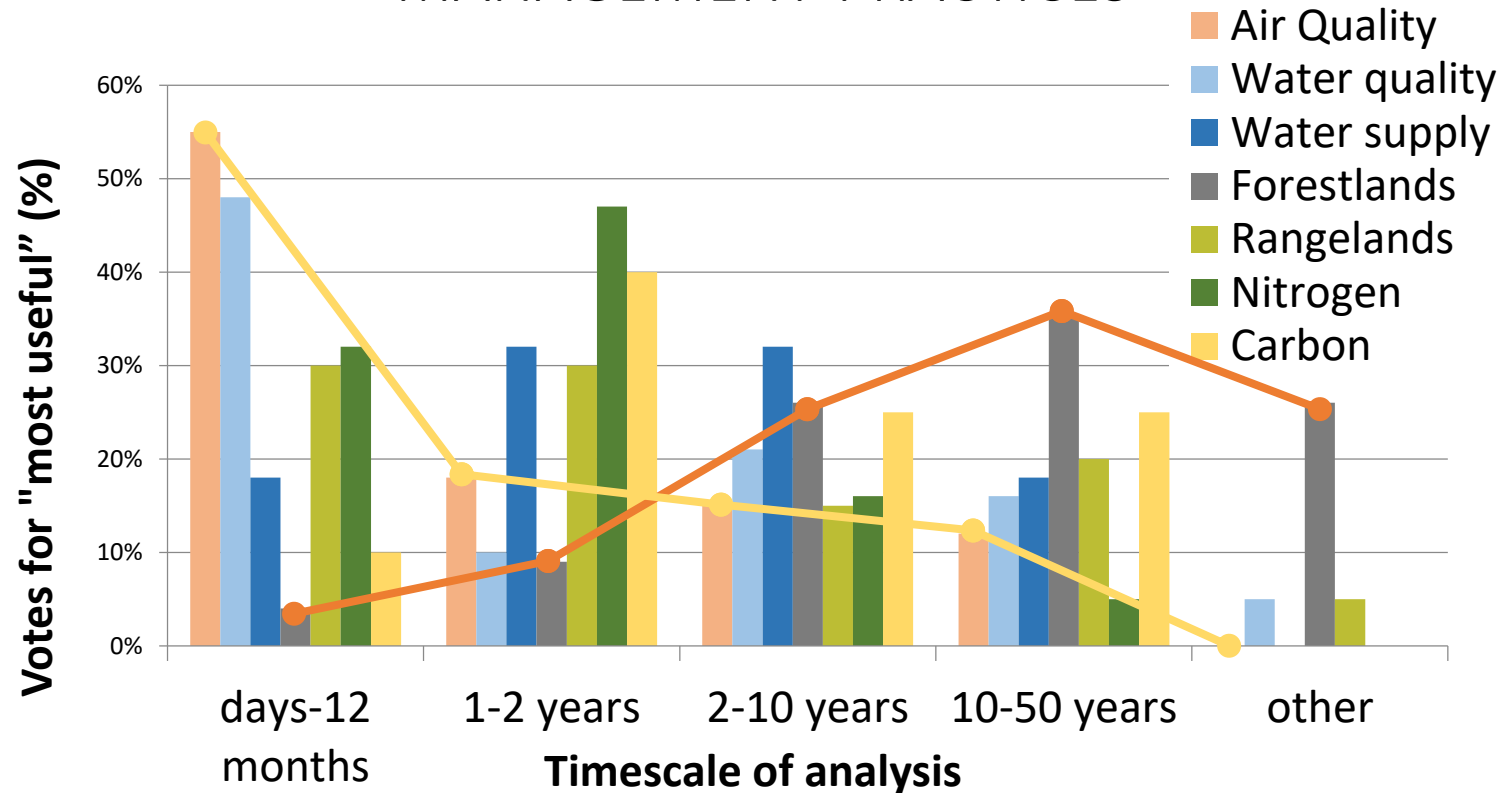
Prepared by Elizabeth Allen



Biosphere-relevant earth system model

B. Early input from users is key

TIMESCALES OF INTEREST FOR ANALYZING IMPACTS OF MANAGEMENT PRACTICES



Elizabeth Allen et al., 2017. Climate Services

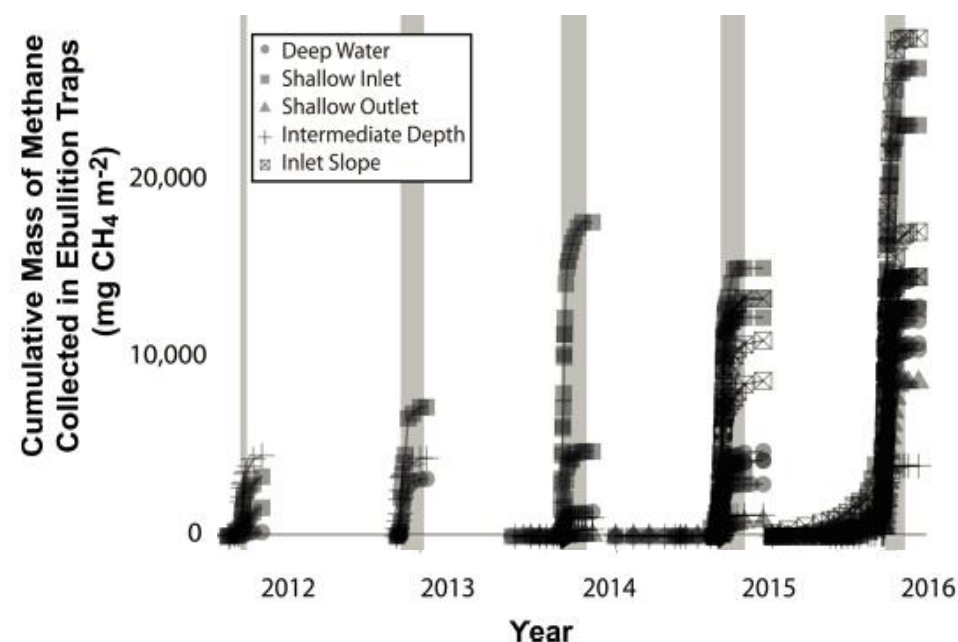
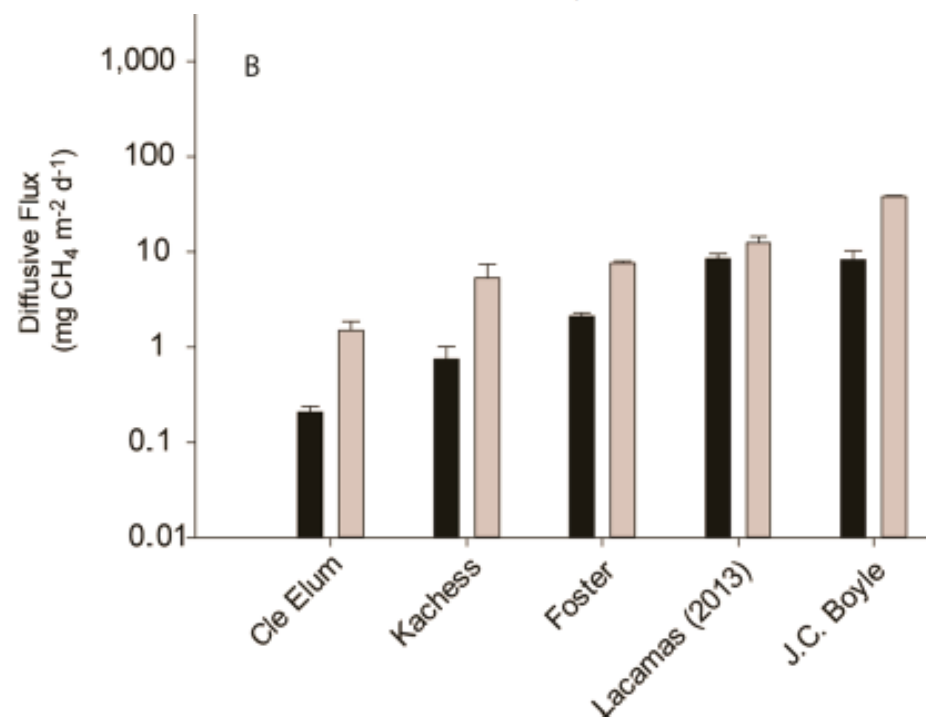
BioEarth



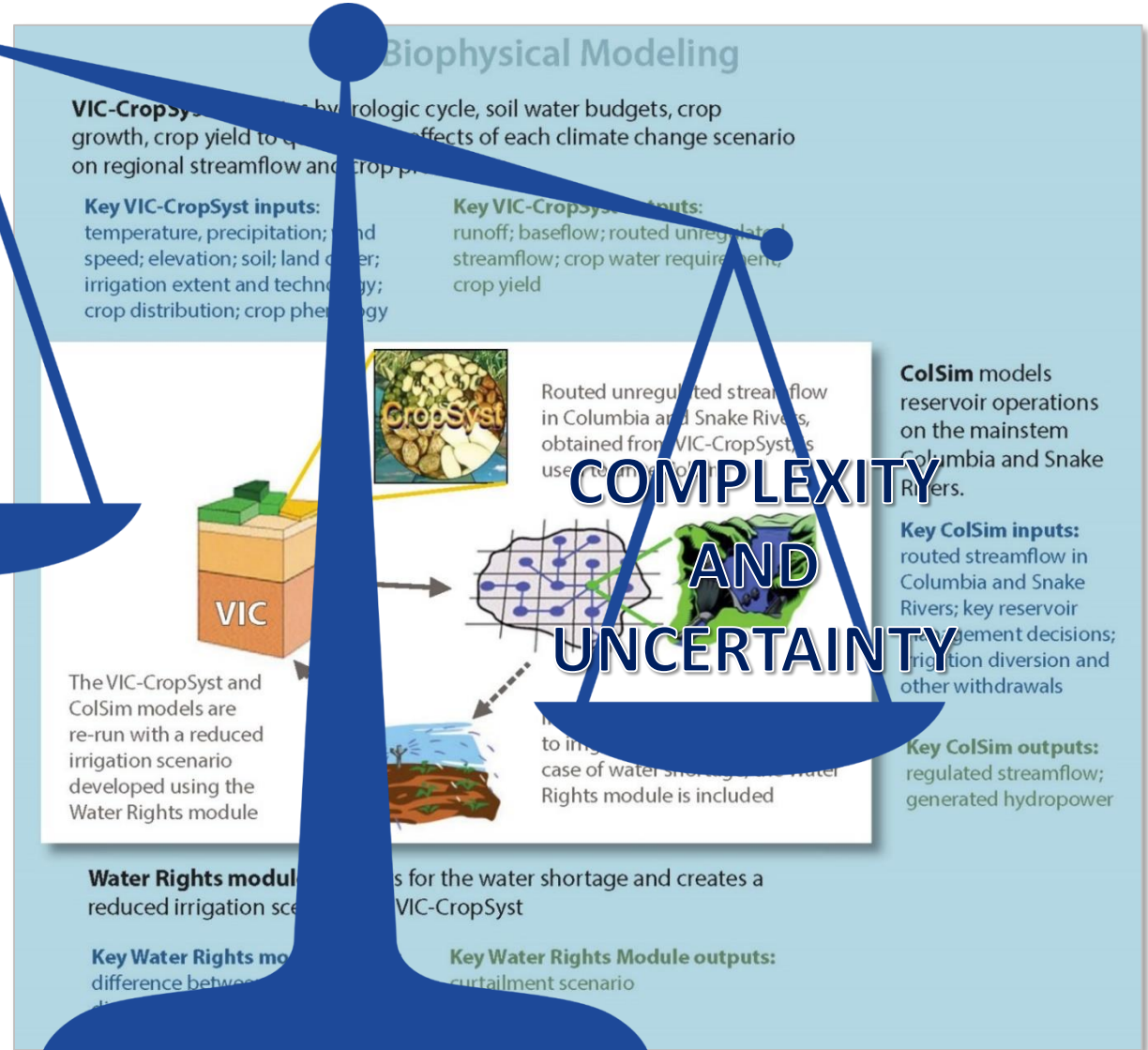
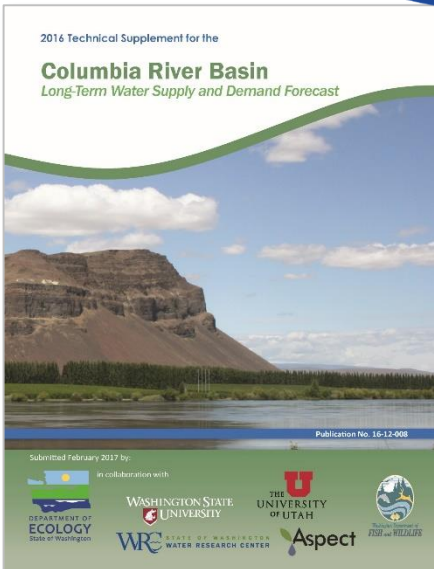
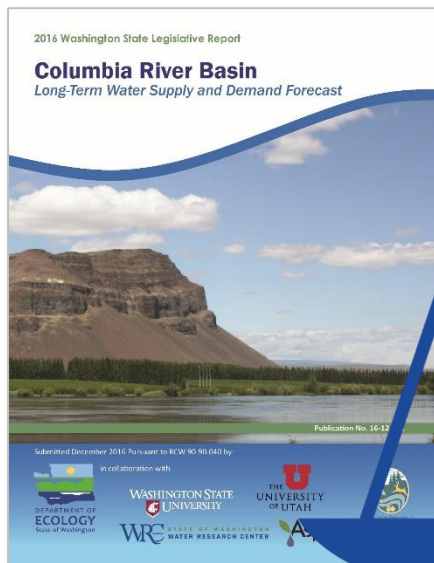
Biosphere-relevant earth system model

Reservoir Water-Level Drawdowns Accelerate and Amplify Methane Emission

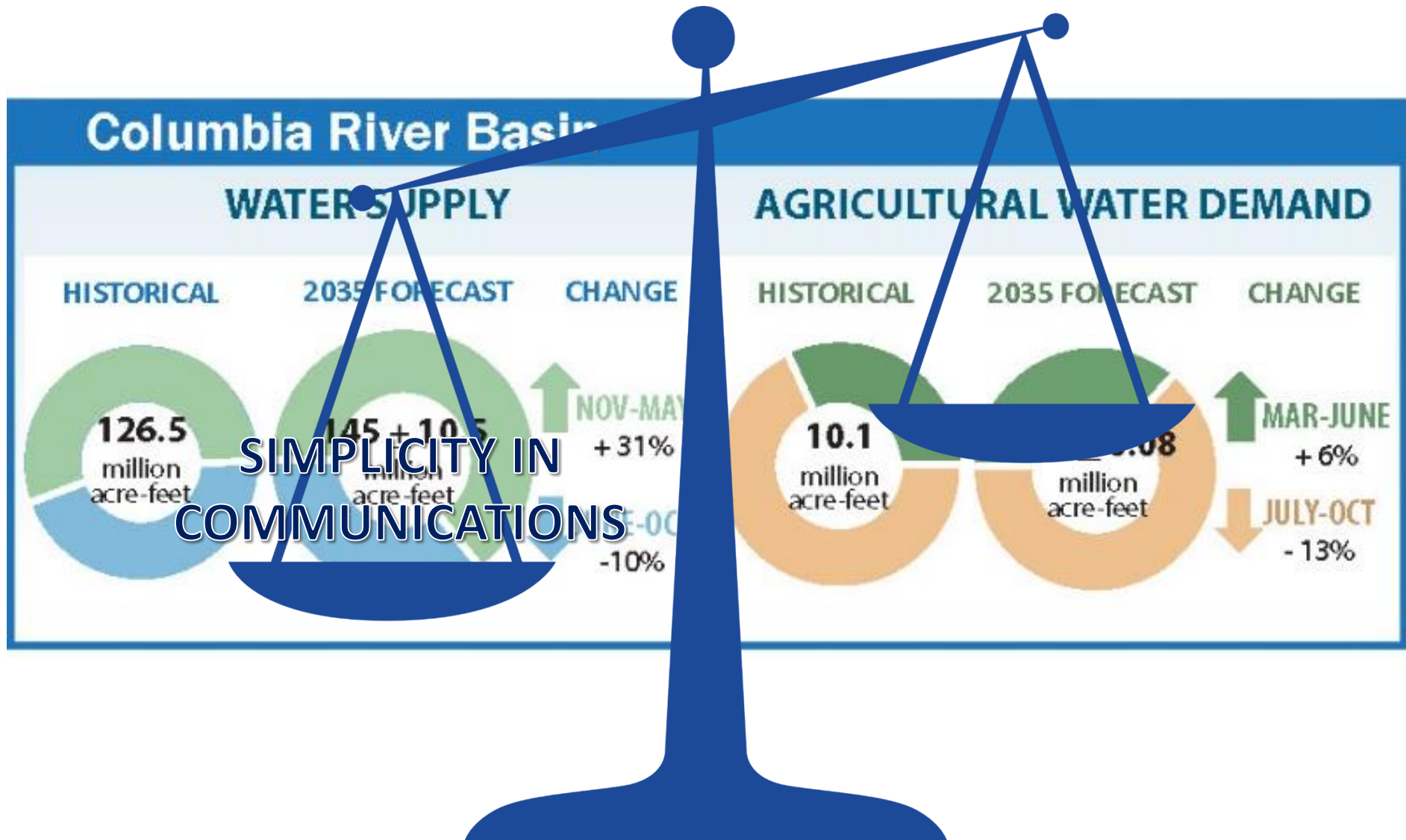
John A. Harrison,^{*,†,‡,§} Bridget R. Deemer,^{†,‡} M. Keith Birchfield,[†] and Maria T. O'Malley^{†,§}



C. Balance between complexity and need for synthesis products

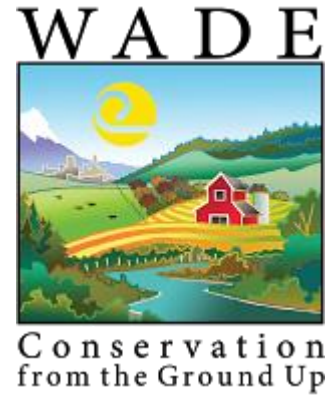


C. Balance between complexity and need for synthesis products



D. Make it easy for users

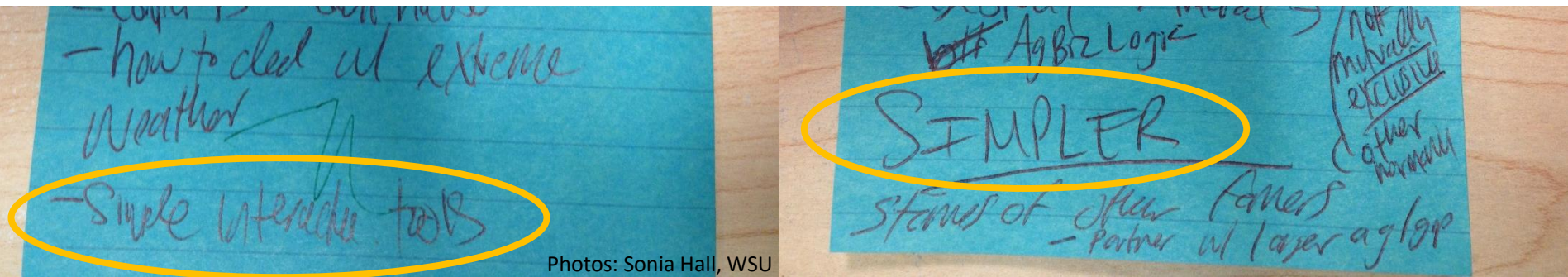
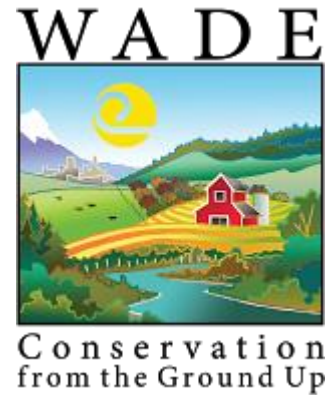
What would assist you in helping producers incorporate climate change considerations into their decisions?



D. Make it easy for users

WHAT WE HEARD

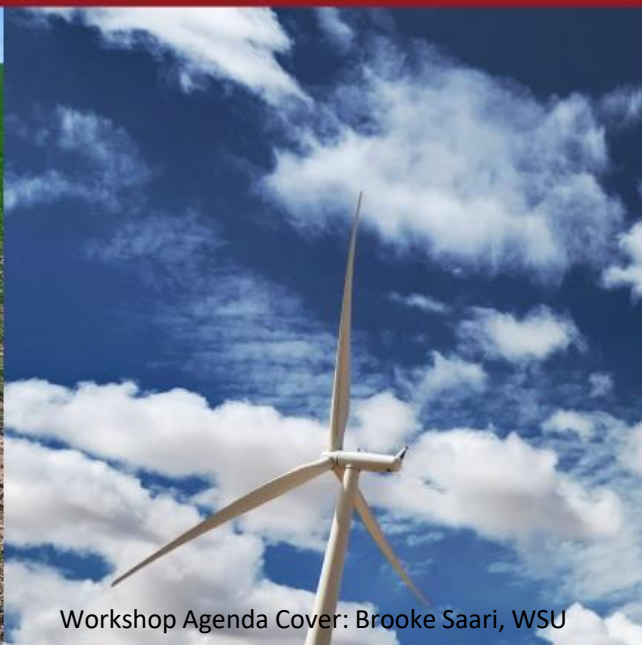
- **Simple, interactive tool** where you can change variable magnitude
- **Very visual**
- **Transportable** – take tool on the farm
- **Cost is critical. Include financial variables**
- **Integrate climate change tools with tools the Conservation Districts are already using**



E. Integrate climate change into existing tools

Agriculture in a Changing Climate: **Implications for Educators, Industry, and Producers**

March 9-11, 2016 • Red Lion Hotel Columbia Center • Kennewick, WA



Workshop Agenda Cover: Brooke Saari, WSU

E. Integrate climate change into existing tools

Northwest U.S. Agriculture in a Changing Climate: Collaboratively Defined Research and Extension Priorities


Georgine G. Yorgey^{1*}, Sonia A. Hall², Elizabeth R. Allen³, Elizabeth M. Whitefield⁴, Nichole M. Embertson⁵, Vincent P. Jones⁶, Brooke R. Saari², Kirti Rajagopalan³, Gabrielle E. Roesch-McNally⁷, Beatrice Van Horne⁷, John T. Abatzoglou⁸, Harold P. Collins⁹, Laurie L. Houston¹⁰, Timothy W. Ewing¹¹ and Chad E. Kruger¹

OPEN ACCESS

DSS Priority A. Integrate climate change-related DSS with existing DSS tools and integrate financial planning components, so producers can evaluate the economics of potential management actions and investments.

E. Integrate climate change into existing tools



Orondo 

Conditions

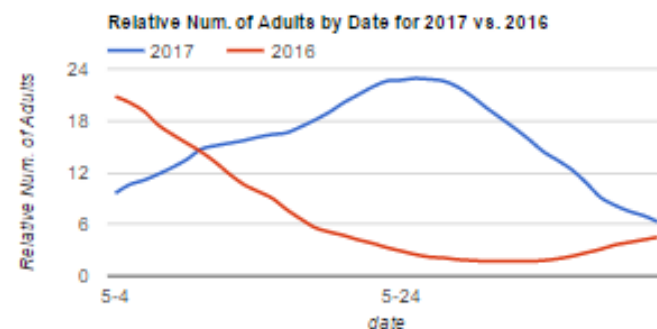
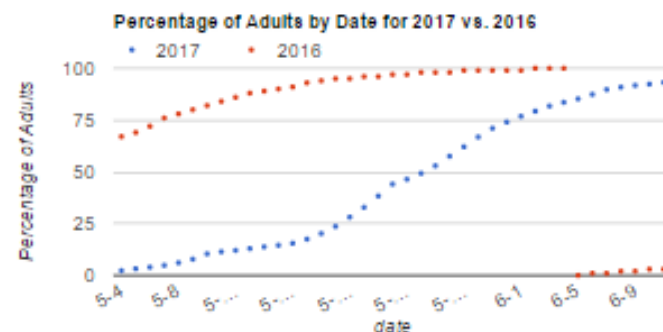
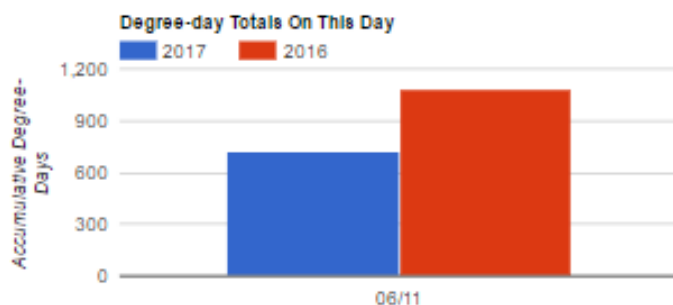
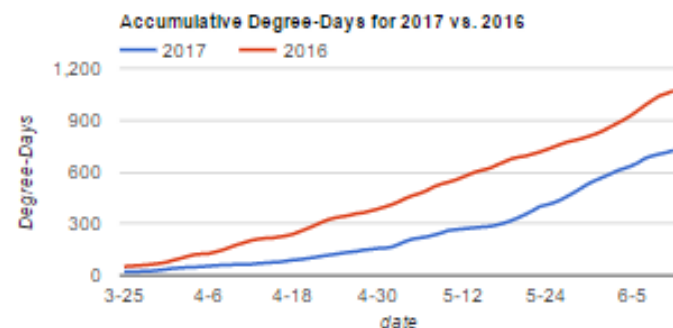
Charts

Data Table

Spray Guide & MRL

Weather Forecast

Comparison to Last Year



The degree day total of 724 happened around May 23 of last year which makes this station about 19 day **behind**

Screenshot from <https://www.decisionaid.systems/>

Summary

Insights we consider when engaging users to help make our tools useable:

- 1. Engage users early (and often)**
- 2. Agree on what success looks like**
- 3. Balance complexity and synthesis**
- 4. Make it easy for users**
- 5. Integrate into existing tools**

Thank You

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