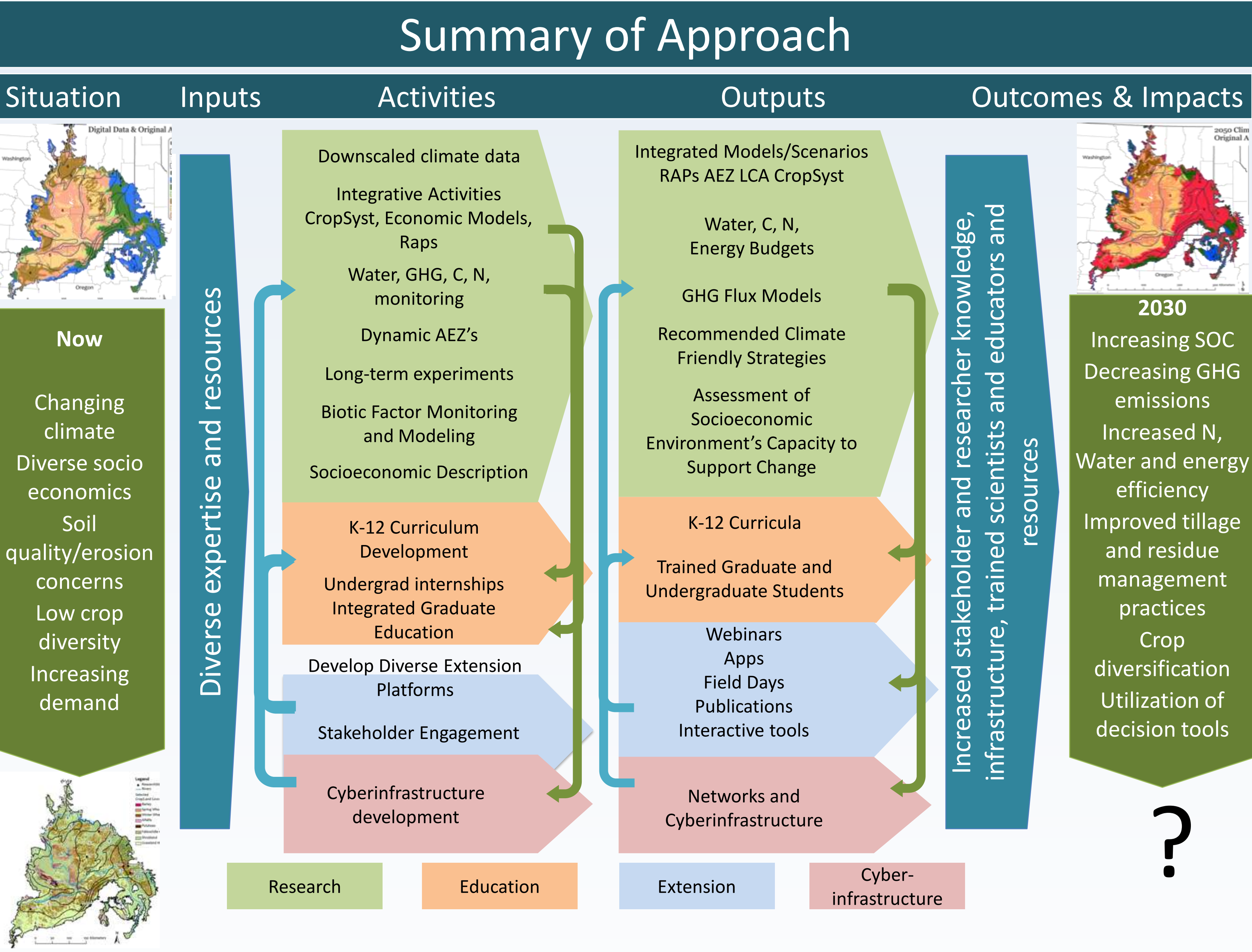


# Encouraging Cross-Disciplinary Collaboration in a Large Climate Science Project

Sanford D. Eigenbrode<sup>1</sup>, John T. Abatzoglou<sup>2</sup>, John Antle<sup>11</sup>, Erin Brooks<sup>16</sup>, Ian C. Burke<sup>5</sup>, Susan Capalbo<sup>11</sup>, Penelope Diebel<sup>11</sup>, Paul Gessler<sup>3</sup>, David R. Huggins<sup>9</sup>, Stephen Machado<sup>10</sup>, Jodi Johnson-Maynard<sup>1</sup>, Stephanie Kane<sup>12</sup>, Chad Kruger<sup>6</sup>, Brian K. Lamb<sup>8</sup>, Stephen Machado<sup>10</sup>, David Meyer<sup>14</sup>, Philip Mote<sup>13</sup>, Kate Painter<sup>12</sup>, William Pan<sup>5</sup>, Steven Petrie<sup>10</sup>, Timothy C. Paulitz<sup>9</sup>, Jeff Reimer<sup>11</sup>, Claudio Stöckle<sup>7</sup>, Jonathan Velez<sup>15</sup>, Von Walden<sup>2</sup>, J.D. Wulforst<sup>12</sup>, Kattlyn J. Wolf<sup>4</sup>

1. Plant, Soil and Entomological Sciences, University of Idaho, Moscow, ID, 2. Department of Geography, University of Idaho, Moscow, ID, 3. Dept. of Forest Ecology & Biogeosciences, University of Idaho, Moscow, ID, 4. Agricultural & Extension Education, University of Idaho, Moscow, ID, 5. Crop and Soil Sciences, Washington State University, Pullman, WA, 6. Center for Sustaining Agriculture & Natural Resources, Washington State University, Wenatchee, WA, 7. Biological Systems Engineering, Washington State University, Pullman, WA, United States, 8. Civil and Environmental Engineering, Washington State University, Pullman, WA, 9. USDA-ARS, Pullman, WA, 10. Columbia Basin Agricultural Research Center, Oregon State University, Pendleton, OR, 11. Agricultural & Resource Economics, Oregon State University, Corvallis, OR, 12. Agricultural Economics and Rural Sociology, University of Idaho, Moscow, ID, 13. Oregon Climate Change Institute, Oregon State University, Corvallis, OR, 14. Boise State University, Boise ID, 15. Agricultural Education, Oregon State University, Corvallis, OR, 16. Biological and Agricultural Engineering, University of Idaho, Moscow, ID,

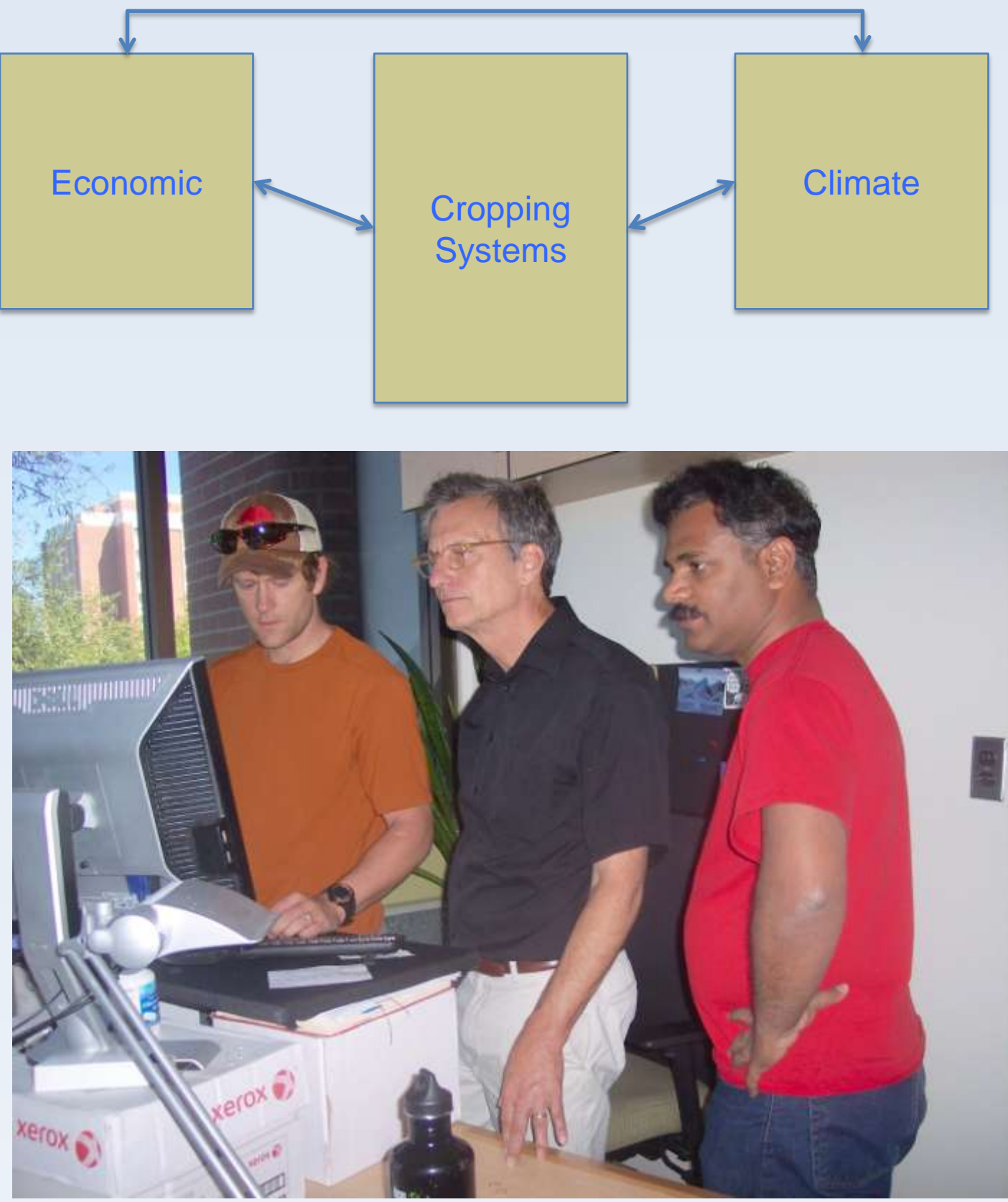
The long-term environmental and economic sustainability of agriculture in the Inland Pacific Northwest (IPNW) is threatened by climate change. To address this threat, three land-grant institutions [Oregon State University (OSU), University of Idaho (UI) and Washington State University (WSU)] and USDA Agricultural Research Service (ARS) are partners in a collaborative project - *Regional Approaches to Climate Change* (REACCH). The REACCH framework and approach (below) was developed to accomplish the cross-disciplinary approaches required to improve both adaptation and climate change mitigation in IPNW cereal production systems. Approaches to cross-disciplinary thinking, research and analysis utilized by REACCH may be studied and applied to other large, interdisciplinary projects in the future.



## Fostering Cross-disciplinary Research

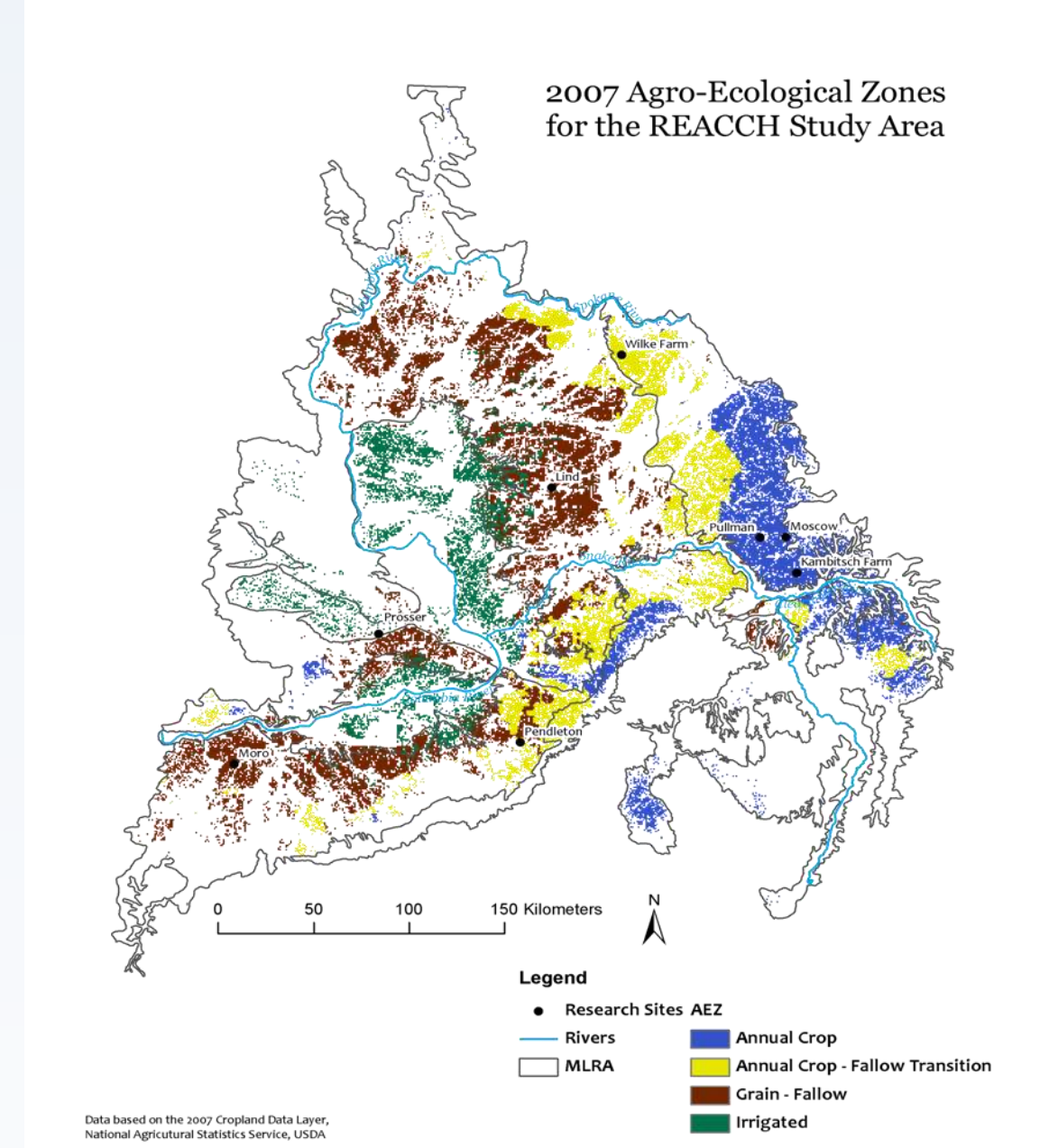
- The REACCH framework requires and encourages effective cross-disciplinary interactions through multiple means including:
- Use of tools for cross-disciplinary communication
  - Cross-cutting teams and integrating themes
  - Monthly integration meetings
  - Half-day workshops
  - Cross-disciplinary graduate student projects
  - Graduate student training in cross-cutting themes
  - Annual evaluation

## Coupled Modeling Framework



## Cross-Cutting Objectives

Defining agroecological zones (AEZs) and Life Cycle Analysis (LCA)



- Based on NASS data and statistical procedures, AEZs provide a framework for monitoring, forecasting, modeling, experimentation, extension programming and data analysis. The AEZ concept will assist researchers in the integration of data sets taken at different spatial scales. LCA will be used to determine system-wide impacts of alternative management practices.

## toolbox for Cross-disciplinary Communication

Effective cross-disciplinary communication is critical to achieving cross-disciplinary research and solving complex problems. REACCH faculty, students and staff participate in a Toolbox session to encourage these skills.

Toolbox is a philosophical approach to improving communication about research within cross-disciplinary groups

Toolbox sessions involve completing an instrument (~15 min) that focuses on several dimensions of research followed by facilitated discussion of prompts.

Toolbox has created continuing dialog regarding philosophical viewpoints across the project.

REACCH graduate students were strongly impacted by the toolbox experience.

## Interdisciplinary Graduate Student training



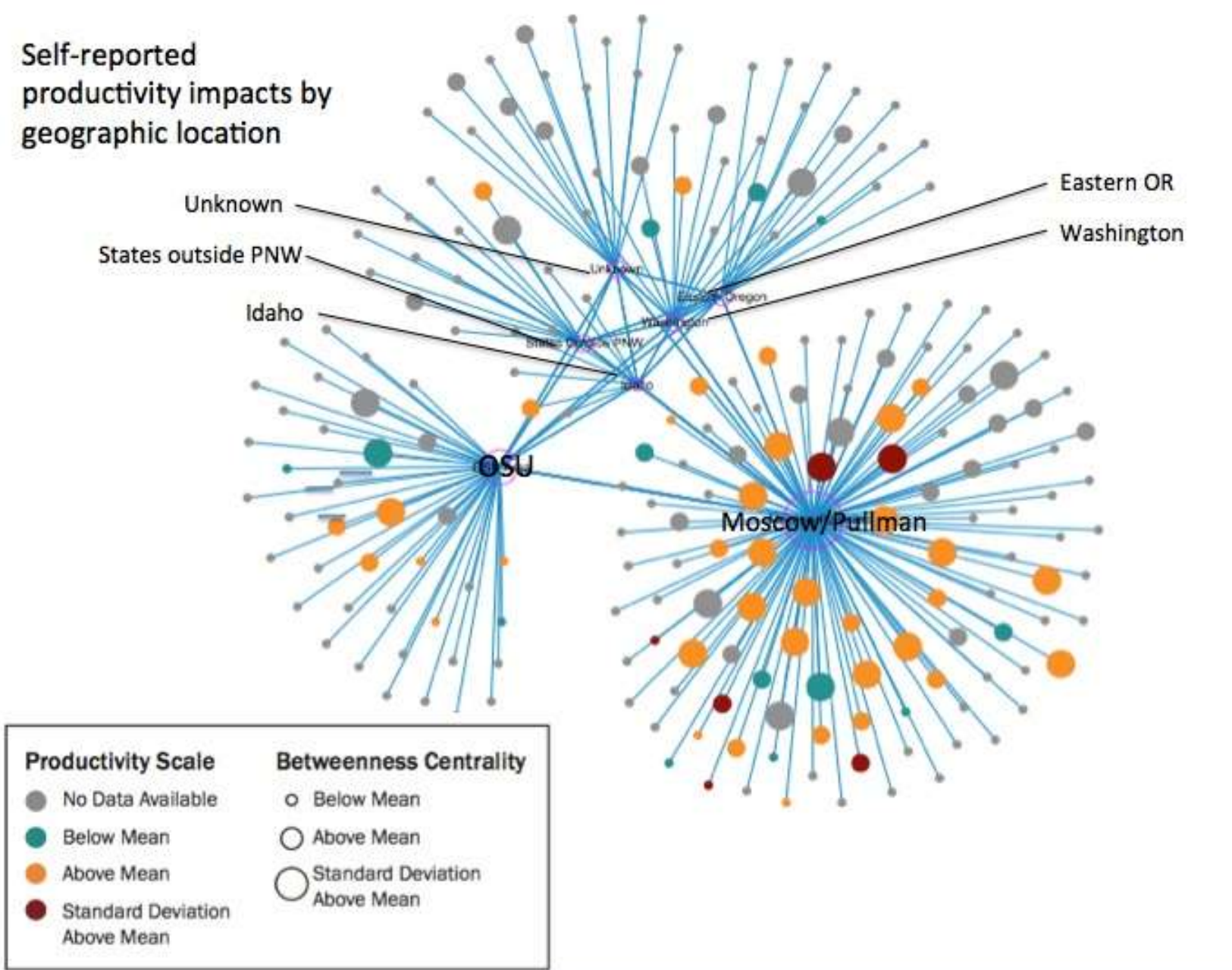
REACCH graduate students work in interdisciplinary groups to develop extension or education related products. Annual graduate student retreats provide structured time for students to work on their team projects and informal time for students to interact. Students received basic training in each REACCH discipline through required course-work, online short courses and webinars designed by REACCH faculty and staff.

## Integration Meetings and Workshops



Monthly integration meetings provide a forum where research from any REACCH objective can be discussed. Potential integrative products can be further explored during half-day workshops (1-2 per semester).

## How are we doing?



Results from annual surveys indicate that a high level of trust exists among project participants (Cronback's alpha score of 0.87). Results also suggest a high level of satisfaction with collaboration (0.85). Project impacts on the productivity of REACCH researchers is less clear (0.81).

This was further demonstrated by Social Network Analysis (left), which indicates that members at UI and WSU (only 10 miles apart) perceive a greater benefit than those at OSU or other off-campus locations.