ACCPNA **CAP Logic Model**

Situation

•Changing climate in the IPNW
•Unique spatial gradients of precipitation and temperature across the IPNW
•Variable community networks and economic bases across the study region
•High soil erosion rates and declining SOM linked to variable climate (wind, water)
•Low and variable adoption of conservation tillage
•Extractive, annual cropping with little crop diversity
•Crops with low soil C returns linked to declining SOC
•Effects of cropping system practices on SOC incompletely understood.
•Soil C storage and N use efficiency linked to variable climate
•Projected increases in export market demand for food crops with rise in global population

Inputs

I1-Steering Committee (PIs and key collaborators)
I2-Participating research and teaching faculty at three Land Grant universities and ARS
I3-Faculty expertise (FE) and dedicated centers in climate change in the region
I4-FE in cropping systems modeling in response to climate change
I5-FE in conservation tillage cropping systems
I6-FE in soil carbon sequestration and dynamics
I7-FE in economic and social dimensions of adoption of agricultural practices.
I8-FE in pests, weeds and diseases of cereal crops
I9-FE in extension and education
I10- A Stakeholder Advisory Committee (SAC) representing industry, commodities, federal and state agencies, environmental groups

Activities

Ac1-Establish a transdisciplinary framework to develop regional approaches to climate change in agricultural systems of the region (**I1-I10**)
Ac2-Develop down-scaled climate models for the region (**I1,I3,I14)**
Ac3- Establish GHG, C, N, water field monitoring network that inform models, efficiency assessments and LCAs (**I3,I4,I10,I5,I6**)
Ac4-Develop agroecological zonation for the region (**I1-I8,I10,I14**)
Ac5-Establish long-term studies of cropping system alternatives at sites throughout the region (**I1,I4,I12**).
Ac6-Identify and respond to climate change effects on crops, pests, diseases and weeds (**I4,I8,I9,I10,I11,I12**)
Ac7-Establish cyber infrastructure plan (**I1, I14**)
Ac8-Establish physical infrastructure and management (**I1, I15**)

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Outputs*

O1-Current and future climate driven socio-economic+biophysical AEZ delineation of the region (**Ac1,Ac4**) *(D1.3, D9.5b,d)*
O2-. Regional and subregional C, N,water, energy budgets and GHG flux models, LCA models and management recommendations (**Ac1-Ac5**) *(D1.4, D2.5, D3.4, D4.5b, D9.5c)*
O3- Spatial representation of adoption likelihood incorporating socioeconomic variability (**Ac1-Ac6)** *(D1.5)*
O4-Vulnerability assessments and forecast driven management recommendations for climate-driven changes in crops and pressures from weeds, pests and pathogens (**Ac6**) *(D5.5)*
O5- Sustainable network for researchers, industry, agencies, growers, citizens to dialogue over climate change issues **(Ac14)** *(D 8.2)*
O6-Develop and share transdisciplinary models of adoption of adaptation and mitigation strategies, drawing upon data from O1-O4 **(AC1)** *(D3.4, D4.5a, D9.5e)*

Outcomes & Impacts

Knowledge
IM 1-Improved researcher, student and stakeholder knowledge of soil C, N and agricultural GHG dynamics and variations across the AEZs and their impact on climate change **(O1-O7)**
IM2-Greater awareness by stakeholders of the impact of climate on farming and effective approaches to adapt with projected climate change**(O7)**
IM3-Delineation of potential interdisciplinary issues and interconnectivity pertaining to SOC in the region **(O6)**

Actions
IM4- Measurable adoption of agricultural practices designed to adapt to and mitigate climate change **(O11)**
IM5- web-based extension interface between ongoing project activities and data and researchers, stakeholders **(O10)**
IM6-Linkage to appropriate Community of Practice for eXtension engagement **(O11)**

I =Input, Ac = Activity, O = Output, Im = Impact

* D = deliverable. See Deliverables and Milestones, P. 18 of Project Narrative for a full key.

ACCPNA **CAP Logic Model (p. 2 cont.)**