INCENTIVIZING AGRICULTURAL WATER CONSERVATION

PAJARO VALLEY ROTATIONAL COVER CROP FALLOWING

BARBARA WYSE AND TRAVIS GREENWALT, HIGHLAND ECONOMICS

IN PARTNERSHIP WITH THE RESOURCE CONSERVATION DISTRICT OF SANTA CRUZ COUNTY
THE SETTING: PAJARO VALLEY, CALIFORNIA

- **Agricultural and Municipal Dependence on Groundwater**
  - Very high value agriculture dependent on groundwater
  - Urban growth, municipal supplies dependent on groundwater

- **Groundwater Problems**
  - Groundwater overdraft
  - Nutrient contamination of Groundwater

- **Policy / Partnerships**
  - State Policy Requiring Groundwater Sustainability
  - Resource Conservation District of Santa Cruz leading a Community Water Dialogue
POTENTIAL SOLUTION: PAYMENT FOR COVER-CROPPING

- Multiple Benefits
  - Benefits to Grower: Potential Increased Soil Fertility/Yield, Reduced Fertilizer/Pest Costs
  - Benefits to Public: Water Conservation, Water Quality Enhancement, Carbon Storage

- BUT Big Cost to Grower
  - Foregone Revenue from a Marketable Crop
  - Cost of Establishing and Managing Cover Crop
IS THIS A GOOD IDEA? IF SO, HOW TO IMPLEMENT?

- What are the Benefits and Costs?
- Do Benefits Exceed Costs?
- Who Pays?
- How Should Payments Be Structured?
**APPROACH**

- **6 Cropping Scenarios**

- **Probabilistic model - Capturing Variation & Uncertainty in Agriculture**
  - Crop costs and returns based on a range of values for yields, prices, cover cropping costs, land rents, water use/savings
  - Public benefits based on range of values from Pajaro Valley research on water use, water quality, carbon storage ($ value based on avoided costs)
  - Results as a range, including a low (10\textsuperscript{th} percentile), most likely (50\textsuperscript{th} percentile), and high (90\textsuperscript{th} percentile)
ECONOMIC FINDINGS

▪ Some Cropping Rotations Did Not Result in Net Benefits or Water Savings

▪ For the Cropping Rotations with Water Savings, Public Benefits Exceeded Grower Cost

▪ Benefit-Cost Ratios and Cost Effectiveness to Achieve Water Savings Varies Widely between Scenarios ($155 per AF up to $1,210 per AF)
POLICY IMPLICATIONS

▪ Payment Program for Cover Cropping Makes Sense in 3 out of 6 Cropping Rotations
  ▪ I.e., Value of environmental benefits to public outweigh costs to the grower in these rotations

▪ Structure of Incentive Payment Matters
  ▪ Paying on a per acre basis may not result in net benefits or water savings, or at least cost-effective water savings
  ▪ Paying on a per-acre foot conserved basis will provide greater cost effectiveness/net benefits

▪ Stakeholder Buy-in Matters
THANK YOU!

CONTACT INFORMATION:
BARBARA WYSE
HIGHLAND ECONOMICS
BARBARA.WYSE@HIGHLANDECONOMICS.COM
503-954-1741