



INCENTIVIZING AGRICULTURAL WATER CONSERVATION

PAJARO VALLEY ROTATIONAL COVER CROP FALLOWING

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IN PARTNERSHIP WITH THE RESOURCE CONSERVATION DISTRICT OF SANTA CRUZ COUNTY

THE SETTING: PAJARO VALLEY, CALIFORNIA



Highland Economics

- **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

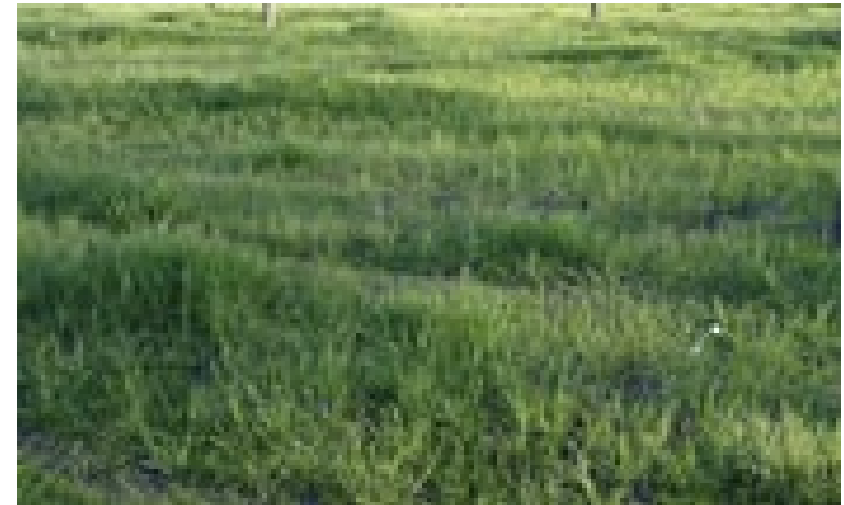


POTENTIAL SOLUTION: PAYMENT FOR COVER-CROPPING



Highland Economics

- 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

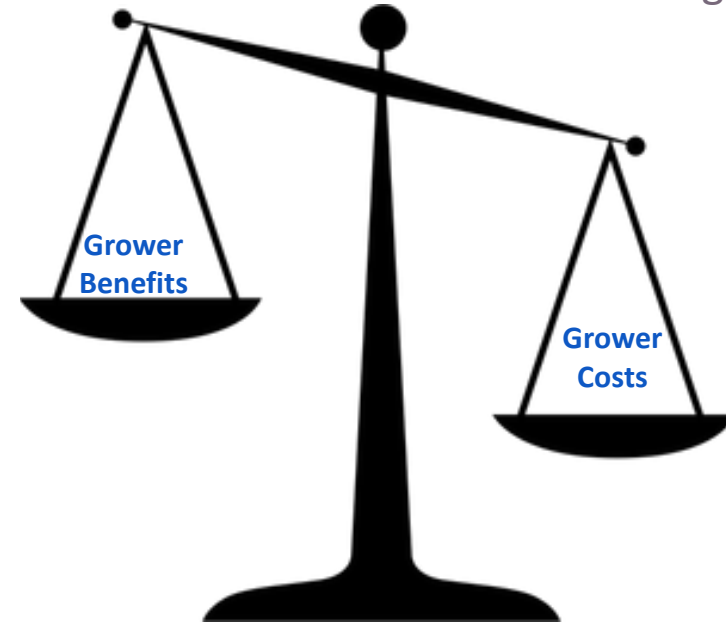


IS THIS A GOOD IDEA? IF SO, HOW TO IMPLEMENT?



Highland Economics

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

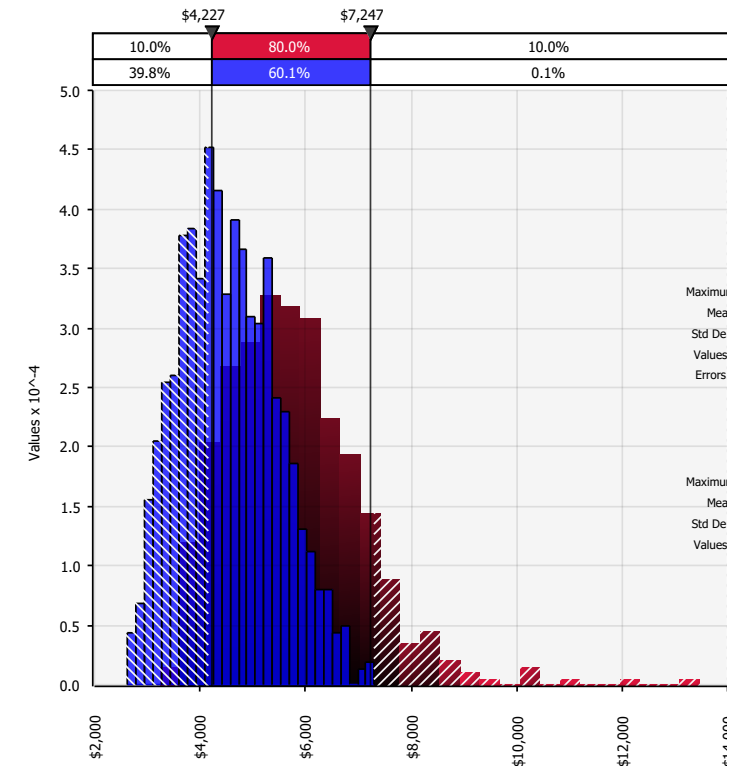




Highland Economics

APPROACH

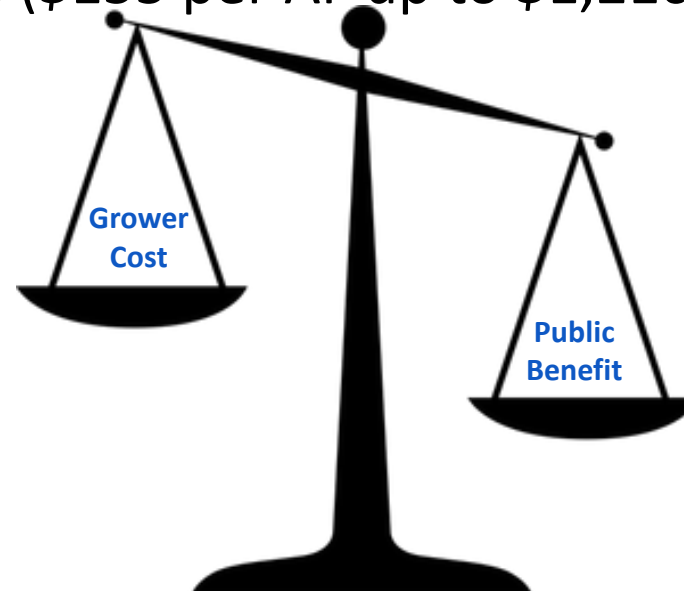
- 6 Cropping Scenarios
- Probabilistic model - Capturing Variation & Uncertainty in Agriculture
 - Crop costs and returns based on a range of values for yields, prices, cover cropping costs, land rents, water use/savings
 - Public benefits based on range of values from Pajaro Valley research on water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

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