

# *CDA's Energy Program*

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# *CDA's Energy Program*

**Agrivoltaics.** Research & demonstration grants to encourage multibenefit projects

**REAP TAG.** Technical assistance for USDA renewable energy grant applications

**ACRE3.** Matching funds for energy efficiency & renewable energy projects



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# Opportunities for Agriculture & Photovoltaic Dual Land Use

|  |                   | SCALE  |  |  |   |   |
|--|-------------------|--|--|--|---|---|
|  |                   | RURAL  |  |  |   | URBAN   |
|  |                   | <b>COMMODITY CROPS</b>   | <b>LIVESTOCK GRAZING</b>   | <b>SPECIALTY CROPS</b>   | <b>GREEN HOUSE</b>  | <b>ROOFTOP AGRICULTURE</b>  |
| ARRAY TYPE   | <b>ADVANTAGES</b> | <ul style="list-style-type: none"> <li>▶ Potential for PV integration at a large scale</li> <li>▶ Unique environmental effects in different regions</li> </ul>   | <ul style="list-style-type: none"> <li>▶ Provides shade for livestock</li> <li>▶ Reduction in PV array maintenance costs</li> </ul>          | <ul style="list-style-type: none"> <li>▶ Provides shading for drought stressed crops</li> <li>▶ Can provide protection for high-value crops</li> </ul>         | <ul style="list-style-type: none"> <li>▶ Production of food and energy is close to the point of consumption</li> <li>▶ Offset high demand for energy</li> </ul> | <ul style="list-style-type: none"> <li>▶ Production of food and energy is close to the point of consumption</li> <li>▶ Efficient land use</li> </ul>    |
|  | <b>CHALLENGES</b> | <ul style="list-style-type: none"> <li>▶ High capital costs</li> <li>▶ Potential interference with farm equipment</li> <li>▶ Socio-political barriers</li> </ul> | <ul style="list-style-type: none"> <li>▶ Potential damage to PV infrastructure with larger livestock</li> <li>▶ Zoning ordinances</li> </ul> | <ul style="list-style-type: none"> <li>▶ Potential interference with equipment</li> <li>▶ Unique PV system design depending on crop growth patterns</li> </ul> | <ul style="list-style-type: none"> <li>▶ Limited PV production</li> <li>▶ Dependent on semi-transparent PV technologies</li> </ul>                              | <ul style="list-style-type: none"> <li>▶ Small scale for PV</li> <li>▶ Some roofs may be difficult to access</li> <li>▶ Retrofit engineering</li> </ul> |
|  | <b>ARRAY TYPE</b> | Linear Vertical Bifacial   | Fixed Ground Mount   | Tracking Ground Mount  | Building Integrated Bifacial  | Rooftop Ballasted or Pergola  |
| <b>UNIVERSAL BENEFITS ACROSS ALL SCALES</b> <ul style="list-style-type: none"> <li>▶ Efficient Land Use</li> <li>▶ Access to renewable energy on-site</li> <li>▶ Opportunity for dual income</li> <li>▶ Reduction in water consumption</li> <li>▶ Increase global renewable energy output</li> <li>▶ System-based solutions</li> </ul> |                   |  |  |  |   |   |



Source: CSU Extension Agrivoltaic Fact Sheet 2022.  
 Design: Thomas Hickey



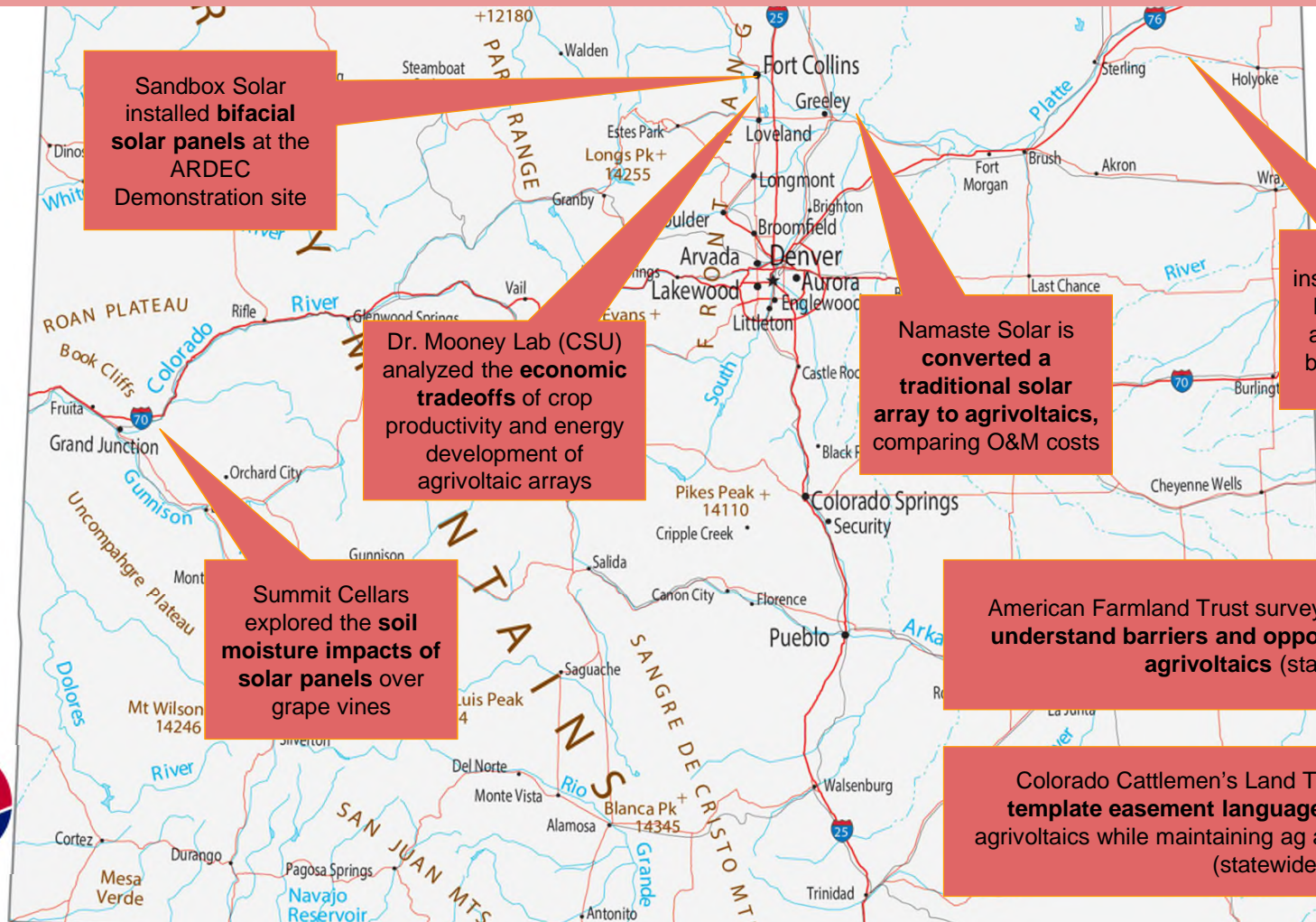
# Agrivoltaics R&D Grant Program

- 1st round of funding (\$500,000) funded 7 projects
- Received \$3.6M of requests
- Focused on demonstration of agrivoltaics and research projects
- 2nd round of funding just closed (applications due 7/28). Review committee meeting this afternoon!



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# Agrivoltaics R&D Grant - 2024 Awardees



Sandbox Solar installed **bifacial solar panels** at the ARDEC Demonstration site

Dr. Mooney Lab (CSU) analyzed the **economic tradeoffs** of crop productivity and energy development of agrivoltaic arrays

Longboard Power installed a **solar wind breaks** on a farm, and monitoring soil benefits and energy output

Namaste Solar is **converted a traditional solar array to agrivoltaics**, comparing O&M costs

American Farmland Trust surveyed producers to better **understand barriers and opportunities of installing agrivoltaics** (statewide)

Colorado Cattlemen's Land Trust (CCLT) created **template easement language** that would allow for agrivoltaics while maintaining ag and conservation values (statewide)

Summit Cellars explored the **soil moisture impacts of solar panels over grape vines**





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