June 2025

Agrivoltaics in Washington

American Farmland Trust and The Nature Conservancy surveyed Washington farmers, ranchers, and agricultural landowners across the state and conducted in depth interviews with producers, solar developers, policymakers, researchers, and utility representatives to learn more about the opportunities, challenges, and nuances of agrivoltaics in Washington.

The following includes key findings and recommendations.

"Agrivoltaics" means the use of land that intentionally integrates agriculture and solar photovoltaic energy generation.

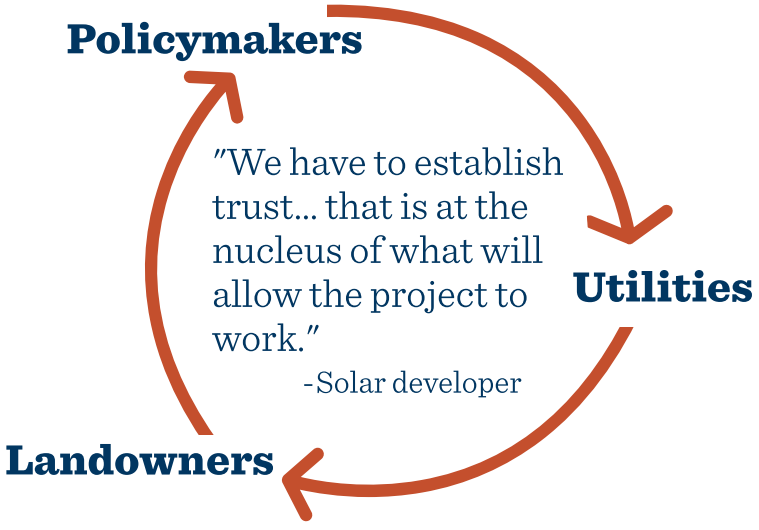
Agrivoltaics in Washington is still in early stages.

There is currently only one active commercial agrivoltaic operation in Washington (with sheep).

A $2.45 million WSU research agrivoltaic apple orchard is under construction and there is increasing interest in agrivoltaics from producers and utility stakeholders across the state.

In general, Western Washington producers are more in favor of solar development on agricultural land than Eastern Washington. Eastern Washington producers are also being more aggressively contacted by solar developers.

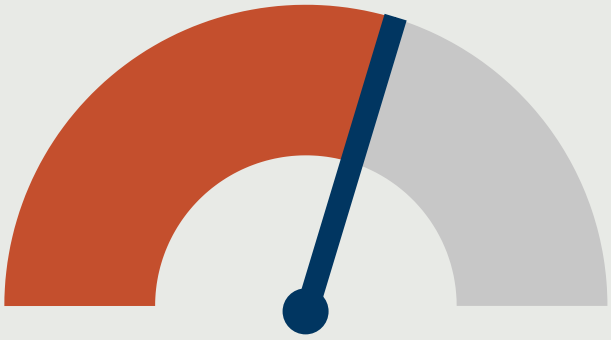
Communication and trust between landowners, solar developers, utilities and policymakers is key.



> If it's well done with cooperation, understanding, and great communication, [it] can be a one plus one equals three kind of thing. But you have to understand what that land is going to be used for on the farming side.
>
> -Energy consultant

Maintaining agricultural activity on the land changes perceptions of solar development.

Over half (59%) of survey respondents would be willing to host solar panels on their land if they could continue farming under and around the panels



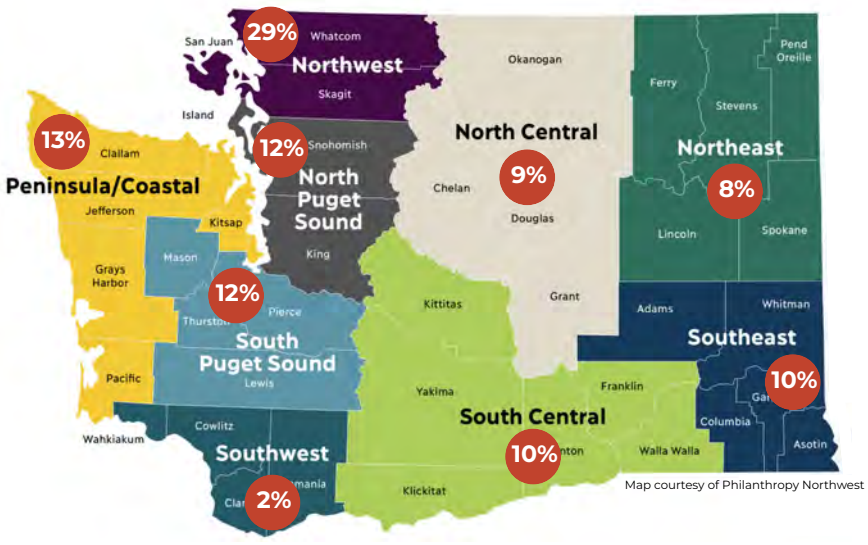
59%

Key benefits include:

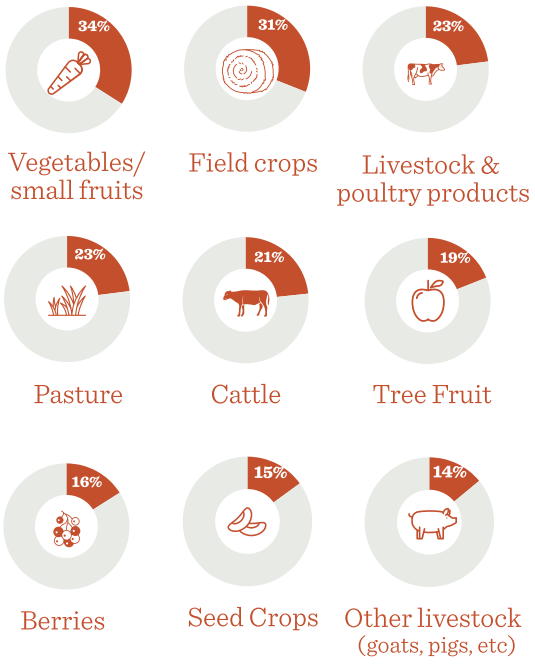
- **Stable income for producers**
- **Improved rural power infrastructure**
- **Shade for crops and animals that need it**

Almost one third of survey respondents are located in Northwest Washington

Diverse types of producers are represented in the 121 survey respondents.



Map courtesy of Philanthropy Northwest



Forest/Timber products (12%), Apiary products and pollination services (9%), Sheep (9%), nursery crops (9%), Other (8%), Grapes (7%), Poultry (7%), Nuts (2%)

High Value Crops are the best fit for agrivoltaics

Washington's apple industry is dominated by high value varieties, like Honeycrisp.

> Deploying [solar panels] over a Honeycrisp is going to be more valuable that deploying over a Red Delicious.
>
> – Researcher

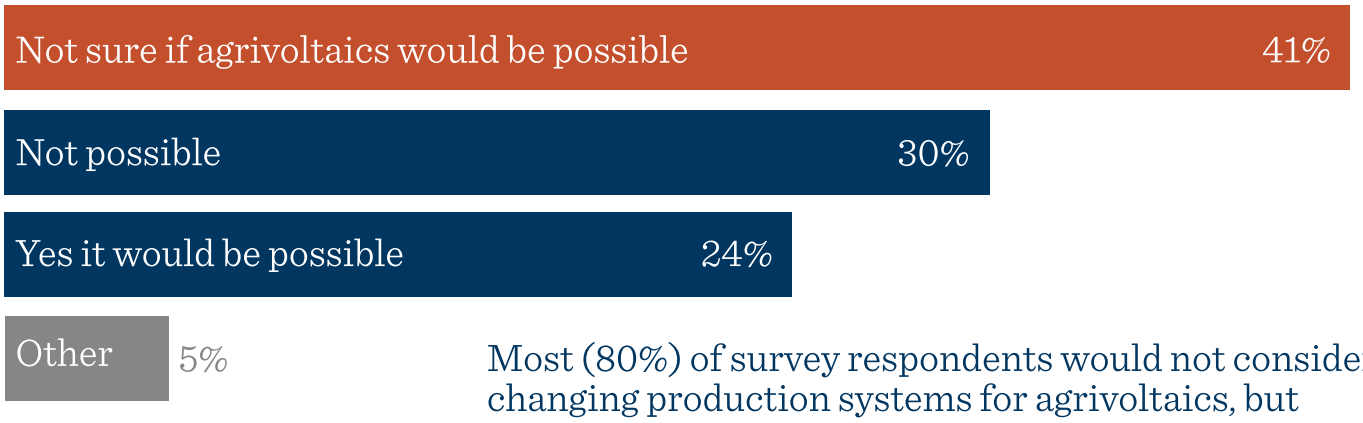
Orchards and solar panels have similar lifespans, although market forces and unknowns around orchard automation pose challenges.

Apple orchards are "getting moved around and replanted with unfortunate frequency: every 10 to 15 years instead of the couple of decades that many growers hope for."

– Tree fruit expert

Solar installations have a lifetime of 25-30 years

Most farmers and ranchers don't know if agrivoltaics would be possible in their current production system.



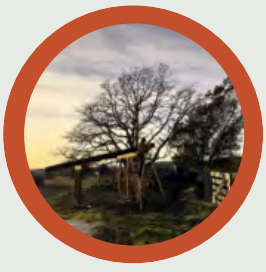
Most (80%) of survey respondents would not consider changing production systems for agrivoltaics, but 5%-20% would consider it or aren't sure.

There are opportunities to explore solar development on agricultural land that is not technically agrivoltaics.

Pivot Corners

"The corners of center pivots are not productive...They're a perfect place to think about significant deployment of solar. It starts to add up, because the corners of a center pivot can be 15%-25% of land surface area...and the production systems that happen under center pivots are not viable for agrivoltaics."

Livestock shelters



For example, "sheep shack shelters" in San Juan County

Dairy / Feedlots

"The most logical thing is to couple solar farms and dairy operations or cattle feeding operations.... It would be a benefit to the animal and it wouldn't change the use of the space."

Recommendations

"People are going to need to see pictures [of agrivoltaics] to make it make sense for them."

Photo credit: Jo DelNiro/NREL

- Smaller scale community solar projects would expedite the timeline for connecting to the grid.

- Stakeholders need to see visual examples of agrivoltaic systems reflecting different forms of agriculture.

- Favorable policies and zoning regulations are needed. For example:
  - Legal definition of agrivoltaics
  - Special consideration for stormwater permitting regulations
  - Incentives for solar projects with active agricultural production

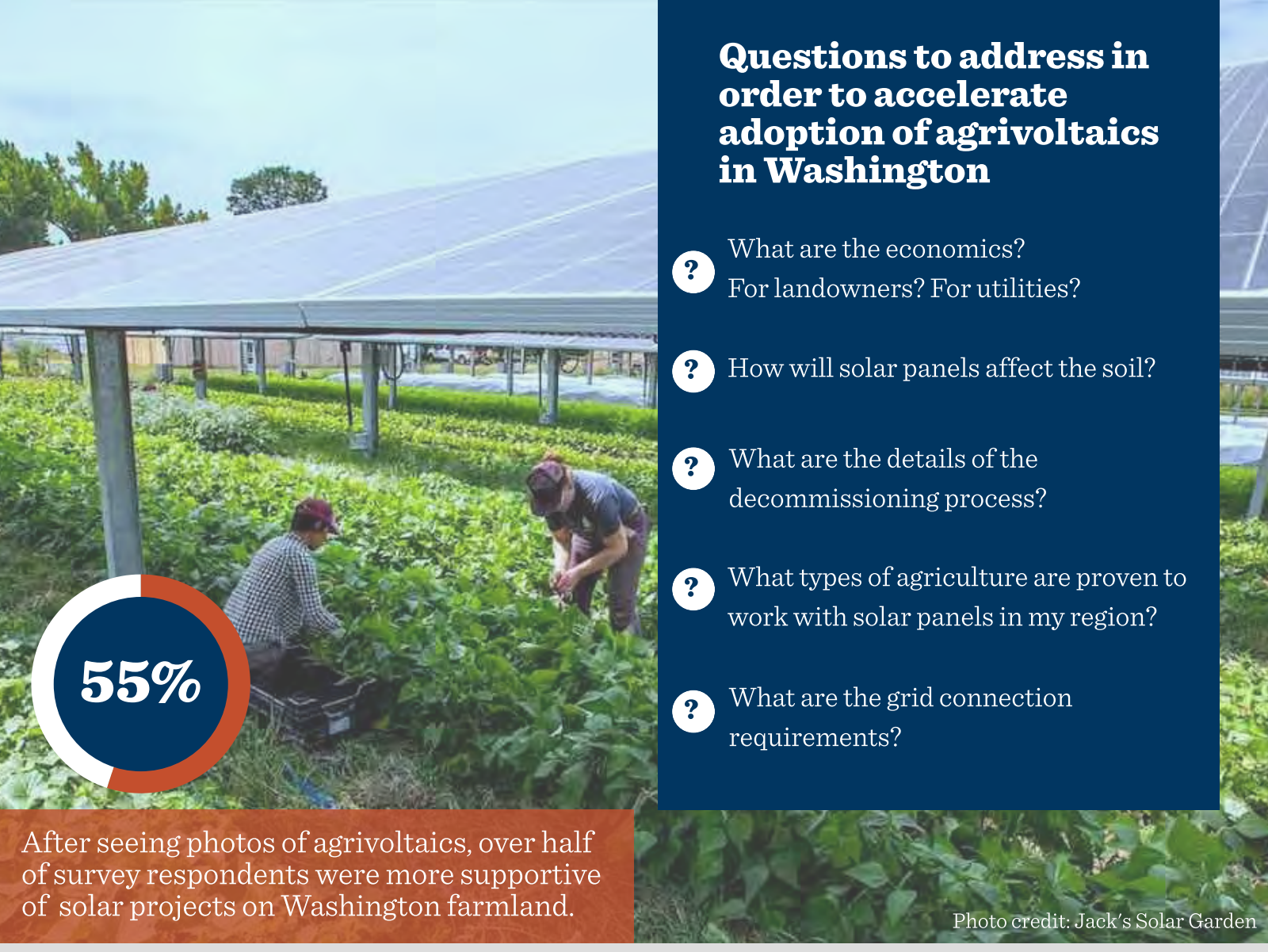
- Establish more agrivoltaics demonstration sites that showcase diverse production systems.

- While research suggests many forms of agriculture are suitable for agrivoltaics, WA stakeholders agree that livestock is the "lowest hanging fruit." Consider intentional collaboration with lamb and apple industries.

- Make the invisible visible. Share sample lease agreements, economic case studies and stories of successful agrivoltaic projects. Acknowledging pitfalls (alongside successes) will help to build trust and credibility.

Photo credit:Thomas Hickey

"If you want to do agrivoltaics, you have to have farmers involved in the design process."



Questions to address in order to accelerate adoption of agrivoltaics in Washington

- What are the economics? For landowners? For utilities?
- How will solar panels affect the soil?
- What are the details of the decommissioning process?
- What types of agriculture are proven to work with solar panels in my region?
- What are the grid connection requirements?

After seeing photos of agrivoltaics, over half of survey respondents were more supportive of solar projects on Washington farmland.

Photo credit: Jack's Solar Garden

"It's not a new idea for farmers to be doing energy on their farms. Look at all the ranches with oil derricks...Look at every farm having windmills back in the day....This is just a different way it is going to look."

– Washington farmer

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American Farmland Trust
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The Nature Conservancy