

Colorado Agrivoltaic Learning Center Free Response Question

Question 2: Analyze an Environmental Problem and Propose a Solution using models and representations

APES Objectives: ENG-3.J Describe the use of solar energy in power generation
 EIN-2.C Describe sustainable agricultural and food production practices

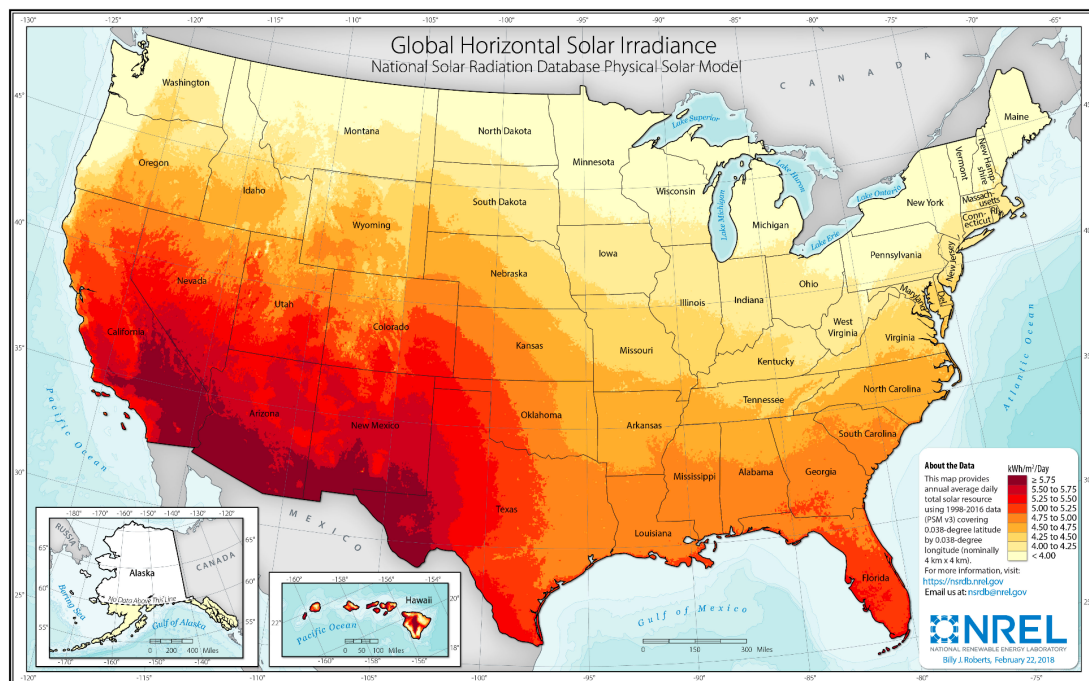
Agrivoltaics is the combination of agriculture and photovoltaic (solar) panels as seen in the diagram below.



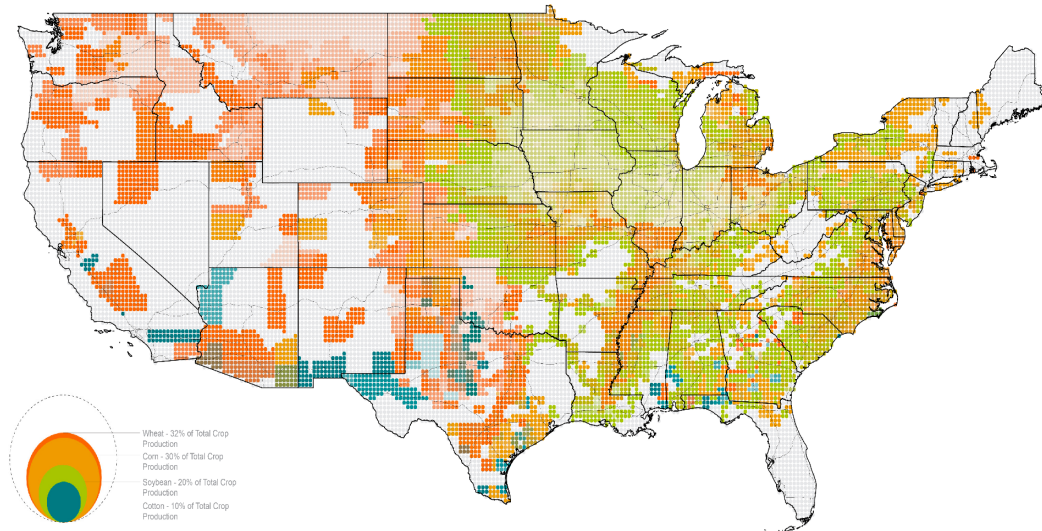
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- Describe** one environmental benefit of using solar energy.
- Describe** one disadvantage of using solar energy.
- Explain** how placing solar panels over plants (crops or native plants) would provide an **environmental benefit** greater than solar panels mounted over gravel or pavement in a conventional photovoltaic system.
- Describe TWO** ways that government or industry could promote the use of photovoltaic power systems integrated into agriculture.

The map below shows the amount of daily solar radiation across the United States. The map on the following page shows the agricultural areas of the county and their main crops.



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- e. **Identify** a specific state/area of the United States would have a high potential for agrivoltaics. **Explain** why the region has high potential using evidence from the maps.
- f. Many of the places where agrivoltaics are located are arid or semi-arid areas. **Describe** one positive effect of growing plants under solar panels in these climates.
- g. **Describe** how growing plants under solar panels could have a positive **economic effect** for farmers.

Climate change is causing far-reaching ecosystem changes, including a loss of agricultural lands in many of the world's biomes.

- h. **Propose** a solution to address the concerns of reduced land on which to grow food.