Modeling Alternative Crops Using GIS in Northwestern Wyoming. (A03-vance202935-Poster)

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Abstract:

The Big Horn Basin in northwestern Wyoming is an important region for crop production agriculture. Currently, dominant crops grown in the area are sugar beet, alfalfa and edible beans. To promote expansion of the agricultural industry, the potential for introducing new crops was evaluated. We investigated 28 alternative crops including canola, buckwheat, amaranth and faba beans. A geographic information system (GIS) was used to combine spatial data identifying areas with unique combinations of soil and climatic characteristics. Geostatistics was used to interpolate data from 18 weather stations to develop continuous climate coverages for summer temperatures, precipitation, growing degree days and frost free season. A soils data layer was developed for the study area using a predictive model based on surficial geology, bedrock geology and elevation. Crop growth parameters were used in combination with environmental conditions to identify areas with potential to support new crops. A GIS database and spatially-derived maps of different crops were created to facilitate information transfer to potential users.

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