

# USDA: Climate change affects crops, livestock, water

## 'Impacts are pervasive right now'

**By Judith Kohler**

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DENVER – Climate change is increasing the risk of U.S. crop failures, depleting the nation's water resources and contributing to outbreaks of invasive species and insects, the U.S. Department of Agriculture said in a report re-leased Tuesday. Those and other problems for the U. S. livestock and forestry in-dustries will persist for at least the next 25 years, said the report compiled by 38 scientists for use by water and land managers.

"I think what's really eye-opening is the depth and breadth of the impacts and consequences going on right now," said Tony Janetos, a study author and di-rector of the Joint Global Change Research Institute at the University of Maryland.

Scientists reviewed and syn-thesized research from more than 1,000 publications, rather than conduct new research, to produce the report. It's part of a federal assessment of global warming for the U.S. Climate Change Science Program, spon-sored by 13 federal agencies.

"Just to see it all there like that and to realize the impacts are pervasive right now is a little bit scary," said Peter Backlund, di-rector of research relations at the National Center for Atmospher-ic Research in Boulder.

Drought-strained forests in the West and Southeast are easy prey for tree-killing insects like bark beetles. Snow in the West-ern mountains is melting earlier, making it more difficult for man-agers overseeing a long-estab-lished system of reservoirs and irrigation ditches that serves Western states.

The Southeast doesn't have the same kind of storage system because rain historically has been more consistent. Current weather disruptions have the re-gion struggling with drought,

See *Climate*, 12A

### On the Net

**U.S. Climate Change Science Program report:** [www.climatescience.gov/Library/sap/sap4-3/default.php](http://www.climatescience.gov/Library/sap/sap4-3/default.php)

# Climate: Carbon levels change plants' metabolism

*Continued from 1A*

Janetos said.

Rising carbon-dioxide levels are changing the metabolism of grasses and shrubs on range land, decreasing the protein levels in plants eaten by cattle. Sea corals are dying as water temperatures rise.

Warmer, drier weather is altering the biodiversity of deserts in the Southwest and the high, colder deserts of Nevada, Utah and eastern Washington, said Steve Archer with the University of Arizona. Plants and animals already living in extreme conditions face threats from wildfires and non-native species, he said.

"These areas historically support a large ranching industry, wildlife habitat," Archer said. "They are major watersheds and airsheds."

The scientists said longer growing seasons provided by higher temperatures don't necessarily translate into bigger crop yields because plants have certain growth patterns.

Their report focuses on the next 25 to 50 years, rather than the next 100 years as other studies have done.

"Sometimes it's so far out that people just don't grasp that it's a problem. This really brings it home," said Jerry Hatfield, lab director of the National Soil Tilth Research Laboratory in Ames, Iowa.

The report makes no recommendations. Hatfield said it could help farmers consider breeding new strains of drought-tolerant varieties of corn and other crops and new planting cycles to accommodate seasonal changes.