Did You Know?

Snow can cause trouble for slip-sliding motorists, headaches for parents scrambling for child care on school snow days, and backaches for couch potatoes forced to shovel snow from their sidewalks.

But did you know that snow plays a crucial role in agriculture by providing a valuable source of irrigation water in the arid West? ARS scientists are carefully studying how future climate change could reduce mountain snow levels, and they are developing crop management strategies to capture more melting snow on crop fields.

At an ARS mountain observatory in Idaho, researchers found that over the past 50 years, climate warming is causing it to rain more—and snow less—at the Reynolds Creek Experimental Watershed near Boise. The most profound changes are at lower elevations, which saw a shift from 44 percent snow to 20 percent. That means more stream flow in winter and less in spring, when crops need water.

ARS scientists at Boise say it's more important than ever to monitor changing weather and its impact on water resources. If warming trends continue and mountain snowpack declines as predicted, agriculture in the arid West will become more challenging.

Accordingly, ARS researchers in Pullman, WA, are looking at how conservation practices can trap snow. They found that a smooth blanket of snow in the winter can help boost dryland crop productivity in the summer—and that no-till crop management is one way to ensure that snow stays on fields, rather than being blown away by winter winds.

Pullman scientists found that standing wheat residue on a no-till farm significantly increased the amount and uniformity of snow cover across the entire field. Snow depths on the no-till field averaged 11 inches, compared with 8.5 inches on conventionally tilled fields nearby.

The researchers calculated that the greater storage of soil water in no-till systems could increase winter wheat yield potential by 13 bushels per acre on ridge tops, 6 bushels per acre on south-facing slopes, and 3 bushels per acre in valleys.

So the next time you dread that winter snowstorm, remember that ARS scientists continue to play a key role in making sure that this valuable resource is available for farmers who produce our food. So let it snow, let it snow, let it snow!

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