

Drought raises curiosity about cloud seeding in Central Oregon

By **GEORGE PLAVEN**
Capital Press

MADRAS, Ore. — Another year of exceptional drought in Central Oregon is raising questions about whether cloud seeding can boost the region's water supplies by increasing snowfall that feeds into streams and reservoirs.

Finding out the answer, however, could be difficult and expensive, with no guarantee it would make a meaningful difference, some experts say. Others say it could cause more precipitation to fall from storms, bolstering the overall water supply.

Cloud seeding is a form of weather modification in which certain chemical compounds — most commonly silver iodide — are released into the atmosphere by either aircraft or ground-based generators. The particles provide a "seed" for moisture in the air to condense and fall to the ground as rain or snow.

Mike Britton, executive manager of the North Unit Irrigation District in Madras, Ore., said he is familiar with cloud seeding programs in Idaho and California, and believes it could hold promise for the parched Deschutes and Crooked river basins.

"We've been in about a 10-year dry cycle, with the last two years being really bad," Britton said. "It's driven me looking into this even more, given where things are today."

Conditions are dire for patrons of the NUID. The district, which provides irrigation water for 59,000



Idaho Power Co.

Idaho Power Co. crews maintain a cloud seeding generator in the mountains above Garden Valley, Idaho.

acres of farmland in Jefferson County, set its 2022 water allotment for 0.45 acre-feet per acre, less than one-quarter of the normal need.

"You can't grow a whole bunch of stuff on less than half an acre-foot of water, unfortunately," Britton said.

If it can be done practically, Britton said cloud seeding might help to deliver more snow in parts of the Cascade Range that eventually melts and feeds the river system, benefiting farms, wildlife and hydroelectric generation.

But first, a climatology study is required to determine if the region can actually support cloud seeding. Such a study could cost several hundred thousand dollars. Britton said he is considering approaching state lawmakers about funding.

"If it's going to get done, it needs to be done sooner rather than later," he said.

Study required

Larry O'Neill, Oregon state climatologist, said cloud seeding has been tried in the state before.

In the late 1970s, Portland General Electric experimented with cloud seeding to enhance runoff for hydro power. The project was dropped after PGE estimated it increased average snowfall by just 10%, which O'Neill said was not statistically significant.

Residents also raised concerns about whether cloud seeding changed the intensity of snowstorms, making roads more dangerous.

Neither the Oregon Climate Service nor the Oregon Climate Change Research Institute are currently involved in exploring cloud seeding locally, O'Neill said.

"I don't know of any immediate environmental conditions in the rest of Oregon that would necessarily preclude such efforts here," he said. "However, the water supply bene-

fits are fairly small and wouldn't substantially change the severity of the droughts we've been experiencing, unfortunately."

How to do it

The nonprofit Desert Research Institute has run a winter cloud seeding program since the 1960s, and assists with operating projects in California, Nevada and Colorado.

Frank McDonough, the program's director, said to develop an effective cloud seeding project, they need to study weather models to determine when, where and how often clouds may be ripe for seeding — that is, whenever there are enough water droplets in subfreezing clouds to initiate precipitation.

While McDonough said nobody has ever seriously talked with the institute about cloud seeding in the Oregon Cascades, his gut instinct is the storms are "probably seedable."

"The real challenge would be where the equipment could be put, and who wants the water," he said.

Such a project would need to be sponsored by the state or a public agency such as an irrigation district. Oregon law already has a licensing system in place for weather modification through the state Department of Agriculture. Applications can be filed for a \$100 fee.

Idaho's experience

In Idaho, the utility Idaho Power began cloud seeding operations in 2003. The goal, similar to that of PGE, was to augment runoff for hydroelectric generation.

Since then, the program has expanded from the Payette Basin to the Upper Snake and Wood river basins, using 57 ground-mounted generators and three aircraft to disperse silver iodide during the winter.

Shaun Parkinson, cloud seeding and water resources leader for Idaho Power, said results are proving to be worth the effort. Depending on the watershed, he said cloud seeding has increased winter precipitation 5-15%, resulting in an additional 1 million acre-feet per year of unregulated runoff.

For comparison, 1 million acre-feet of water is equal to five times the capacity of Wakiup Reservoir in Central Oregon.

What started as a smaller pilot project gained traction when the state of Idaho became interested in whether cloud seeding could help watersheds become more drought-resilient by recharging aquifers and bolstering reservoir carryover.

Today, Parkinson said Idaho Power, the state of Idaho and local irrigation districts all share in the cost of the program, which is about \$3.5 million per year.

"You can wind up with a lot of common interest in cloud seeding," he said. "It's hard to find people who oppose having more water in water-stressed environments."

That being said, Parkinson emphasized that cloud seeding is not a "drought solution," but rather a long-term water management tool. It does not create new snowstorms, but may increase the amount of snow that falls from existing storms.



Associated Press File

U.S. beef for sale in a Japanese grocery store.

Agreement on U.S. beef exports to Japan kicks in

By **CAROL RYAN DUMAS**
Capital Press

The U.S. and Japan have signed an agreement that will allow more U.S. beef into the island nation without triggering higher tariffs.

The agreement increases Japan's beef safeguard trigger level under the U.S.-Japan Trade Agreement, which went into effect Jan. 1, 2020.

The volume-based safeguard measure is meant to protect Japan's domestic beef producers. It was triggered in March 2021 by record-setting U.S. beef exports to Japan, and U.S. beef was subject to a higher tariff than competing beef for 30 days.

The U.S. and Japan quickly entered into negotiations, resulting in an agreement in principle announced in March of this year that raises the trigger level.

That negotiated agreement still had to be approved by the Japanese government, and the June 2 signing formalized implementation, said Kent Bacus, senior director of international trade and market access for National Cattlemen's Beef Association.

The original agreement signed in 2019 put tariffs on U.S. beef at the same level as competitors in the Japanese market, decreasing them from 38.5% to 25.8% with a phased in decline. Today, those tariffs are at 24.1% and will phase down to 9% in 2033, he said.

"Where we were at the disadvantage was the volume we could send. Now we won't be there anymore," he said.

The agreement includes a new three-trigger mecha-

nism whereby all three triggers must be hit for Japan to implement the safeguard and impose a higher tariff of 30%. That safeguard tariff will drop to 20% in 2028.

The three triggers are:

- Imports from the U.S. must exceed the original beef safeguard trigger level under the U.S.-Japan Trade Agreement.

- The aggregate volume of beef imports from the U.S. and the original signatories of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) must exceed the CPTPP beef safeguard.

- Imports from the U.S. must exceed the total amount of beef imports from the U.S. during the previous year.

"It's going to be very hard to hit all of those triggers," he said.

The industry wanted to resolve the issue quickly because it's hard on importers to know how much beef they can purchase, he said.

"We want to make sure Japanese importers can get as much as possible at a competitive price. This makes us more predictable, more competitive in the long run," he said.

There's a clause in the agreement that allows for consultation if by chance U.S. exports hit all three triggers. But that's highly unlikely, he said.

In 2021, Japan was the largest volume export market for U.S. beef, exceeding 320,000 metric tons, and the second-largest value market. Those exports set a record in exports to Japan of nearly \$2.38 billion, according to the U.S. Meat Export Federation.

California almond harvest may shrink despite record bearing acreage

By **SIERRA DAWN McCLAIN**
Capital Press

California's 2022 almond harvest is expected to be down 4% from last year despite record-high bearing acreage, according to USDA.

Yield is forecast at 2,040 pounds per acre, 8% below 2021's yield of 2,210 pounds per acre.

The main culprits behind the smaller crop, according to experts, are frost damage and drought.

The projections come from an initial subjective forecast USDA's National Agricultural Statistics Service released in May, which estimates this year's crop will weigh in at 2.8 billion pounds, 4% under last year's 2.92 billion pounds.

The subjective survey was based on opinions from 500 randomly selected California almond growers from many different regions and operation sizes.

On July 8, the National Agricultural Statistics Service will release its more accurate production estimate, called the 2022 California Almond Objective Report.

The ongoing drought is expected to limit this year's crop size.

"The lack of water continues to be a top concern for almond growers," the National Agricultural Statistics Service reported. "Despite record-high bearing acreage, the 2022 crop is



Almond Board of California

USDA's National Agricultural Statistics Service predicts a smaller almond harvest in 2022 due to frost damage and drought.

not expected to be as large as the past two years."

Forecast bearing acreage for 2022 is a record high of 1.37 million acres.

The report also attributes the smaller expected crop to frost damage that happened during bloom in February.

According to USDA, the state's northern almond-growing region, which had an earlier bloom than southern and central regions, was "hit hardest" by the February frost. The impact of the freeze also appeared to differ by almond variety, with late-blooming varieties faring better than early-blooming varieties.

University of California Cooperative Extension specialists Franz Niederholzer, Katherine Jarvis-Shean, Luke Milliron and Curt Pierce echoed concerns about the freeze-damaged crop in a recent publication.

"Record low temperatures on Feb. 24 severely reduced nut set and limited almond yield across thousands of acres of orchards in the Sacramento Valley," the researchers wrote.

Some almond industry leaders have also agreed with USDA's National Agricultural Statistics Service prediction that frost and drought will shrink this year's harvest.

"A lower crop estimate was not totally unexpected versus last year's 2.9 billion pounds," said Richard Waycott, president and CEO of the Almond Board of California. "Some growers' crops this spring were impacted by frost, while all growers are managing continuing concerns about water availability."

Despite the challenges, Waycott said global demand for California almonds remains strong.

Although demand remains high, however, almond growers and agricultural economists say it's a difficult time for the industry with shipping logjams, increasingly thin margins and expensive supplemental water some growers have to buy on the spot market.



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