Western Kansas Weather Modification Program
by Roxana Hegeman
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A 1-inch loss of rainfall during the growing season translates into economic losses in excess of $19 million for western Kansas, the study found.

An added inch of rain during the growing season in arid western Kansas can mean an economic gain of about $18 million to farmers there, according to Vulgamore's study.

"They can't say that with scientific certainty," he said. "But if they are changing rainfall by even a small amount, it will be economically significant."

And Vulgamore was especially critical of a 1994 study published last year in the Journal of Weather Modification that concluded the Kansas Weather Modification Program was decreasing rainfall by seven-tenths of an inch, while claiming that such an amount wasn't economically significant.

"Think of many ways," he said. "If this program is as bad as those people indicate, we wouldn't be doing it."

"Those people are not meteorologists, they are not scientists," said Keith Lebbin, manager of the Western Kansas Groundwater Management District. "It is impossible to delete their rainfall and make it fall downside. If this program is as bad as those people indicate, we wouldn't be doing it."

Vulgamore examined rainfall data for affected counties dating back to the 1940s and looked at hail data dating to 1948. He concluded it couldn't be scientifically proven that the cloud seeding program was affecting rainfall or hail in the region.

That is because to come up with a statistically significant reduction - given the wide variability of western Kansas weather - the program would have to suppress hail by 60 percent. That is something nobody is claiming the weather modification program can do.

But if the cloud seeding succeeds in reducing hail even by just 3 percent, the program would pay for itself just in the savings to farmers, Vulgamore said.

"It is a good technology," he said. "There is a huge possibility of benefit to this technology."

Vulgamore found that counties within the program's target area had a 15 percent drop in hail-related crop loss when compared with neighboring counties not in the target area. But he was quick to also note that such a reduction could be as easily attributed to natural hail patterns.

He noted that every one of the five to seven evaluations of the weather modification program done by the Kansas Water Office and other researchers through the years has come back with different results.

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At the Western Kansas Groundwater Management District, Lebbin said he had "no problem" with Vulgamore's study, saying it closely correlates to other studies done by the Kansas water office.

The Kansas Weather Modification Program covers 16,000 square miles, or 10.2 million acres. Last year, it included 16 full and six partial northwest Kansas counties and portions of three Colorado counties. It was begun in 1975 in southwest Kansas by the Groundwater Management District in Lakin. It expanded in 1997 into northwest Kansas.

Texas has 10 similar projects, and the entire state of Oklahoma has a weather modification program, as does western North Dakota, among others.

The latest scientific findings do little to ease the fears of Franklin, a fourth-generation farmer who runs cattle in addition to raising crops. He said the latest study could be interpreted many ways.

"I've farmed for 25 years and I never saw clouds dissipate in the way I've seen them in the last few years," he said.


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But Wayne Bossert, the manager of the Northwest Kansas Groundwater Management District, said that when clouds fall apart, it doesn't mean cloud seeding is responsible. That phenomenon is caused by the dew point where the clouds form, he said.

Lebbin also dismissed Franklin's observations: "That is just not true. If you have that kind of power with the program, it would be awesome. But it doesn't work that way."