

TO: North Dakota Legislature, 69th Legislative Session

RE: Testimony in favor of 2106

1/30/2025

My name is Jacob Grieger, of Arnegard, Mckenzie County. I am a 6th generation, in America, farmer-rancher, with a degree in Agronomy from Purdue University. My family originally came over in 1850, homesteaded in Iowa, then the Red River Valley in 1873 Northwest of Fargo and from there to the Badlands of the west when they were opened.

Due to this interesting past, this has led to relatives spread from one end of the state to the other, giving me a chance to see the state in many different perspectives.

In the east you have the Red River Valley, full of high value, high yielding crops; 150 bushel or more corn, sugar beets, a variety of sensitive yet expensive beans, 80 bushel or more wheat and barley, and so on. It is also home to the relatively rich cities of Fargo and Grand Forks, both of which have dealt with their share of storms and water problems, right now construction is under way to move water from Lake Sakakawea to the Sheyenne to help Fargo and the rest of the Valley from going thirsty, while also building the Fargo Diversion, which will flood the south half of the Valley when it inevitably holds back water and as shown by the numerous buyouts and forced relocations.

In the central region, you have a mix of the east and west, but with more irrigation-and hail. It is virtually a trademark of Burleigh and Morton counties, and Bismarck and Mandan, to be statewide news at least once a year with the extensive hail damage. I myself tried avoiding one of these storms a couple years ago, from Wing to New Salem, and yet was caught in the heaviest part right by the Cloverdale plant in Mandan on the interstate. I came over the small hill just before the plant into what looked like a blizzard. A wall of white, taillights everywhere, in the ditch, in the median, stopped in the middle of the interstate, people trying to put coats, blankets, anything on their windows to save them, people getting stuck trying to turn around, trucks sliding all over. I followed one semi that kept going, being shielded partly by the airflow over its van trailer. That did not save my new service pickup from extensive hail damage however and even then, I struggled to keep it on the road due to the amount of hail that had built up, it was similar to driving on black ice. By the time I made it to the scenic overlook west of Mandan, the service body was severely dented, my windshield was shot, and the cab and hood looked similar to a golf ball. When I got back in the pickup, AM 550 was being

overrun by the NWS warning: Large and severe hail west of Mandan detected and reported, Bismarck and Mandan prepare now. By the time I got home, I did catch it on KUMV that once again, it was statewide news. Bismarck and Mandan had been hit with severe hail again.

In the west we fight drought and hail. It is why the program started in the first place. My Grandmother talked about when they were trying to get the program started, when it was voluntary to pay in, how the neighbor who was against it didn't pay, and they did. We got hailed out, the pictures show it was like the hail hit just our field turning it black, avoiding the neighbors land on both sides. Since the program began, our farm and ranch has not seen any noticeable positive effects of this program. Hail insurance is not lower, we have at least one field hailed out every year, as well as a decent part of our pastureland, we appear to be in a drought "bubble" with Richland County, Montana, and Dunn County, North Dakota, better off moisture wise. Using flight trackers, and our own eyes, we have watched the planes go over us. I recorded every storm this past summer, overlaying FlightRadar24's data over the State's Williston radar. The results were as expected: the storms appear to break apart after they are treated and then rebuild as they leave the county, or intensify extremely, as shown by a storm two years ago in south Williams and northern Mckenzie County.

My understanding of this program, all of it through my own research as very little fair information was ever provided by the State Water Commission, now the Department of Water resources, is what I observed is what is to be expected. When you treat a storm, it does not take effect instantly, it takes 25 to 75 miles to take effect, depending on the system, which is what we have seen on the radar, so it shorts us in Mckenzie County and rebuilds in Dunn and other eastern counties. Dunn County is where more relatives of mine reside, and luck would have it that they are in line with us, weather wise. They, on average, receive at least two more inches of rain every summer. They successfully grow 100 bushel corn there, without irrigation, whereas we in Mckenzie do not have an average, it usually is only cut, and insurable, for silage, as unless you have irrigation, it does not make it to combining and when it does, it is well below 75 bushels an acre.

Given this information, you may think I selected the wrong category. I have not, as I will explain.

During the last century, Weather Mod's planes were allowed to fly into Montana to treat the storms, 25 to 100 miles, at times, into Montana. In the 1980s and 1990s, Montana, who also at one time had a weather modification program in Eastern Montana, pushed to stop North Dakota from treating the storms in Montana, citing much debated studies and the same conclusion I reached above: it was breaking up storms, stopping the precipitation. Montana passed a state law requiring the State of North Dakota and Weather Modification Inc/LLC to provide a study that shows, with out question, that North Dakota/Weather Mod Inc was not and is not "stealing Montana's rain" and to put up a multi-million dollar bond for any damage claims.

The State of North Dakota and Weather Modification Inc/LLC responded by simply no longer flying in Montana. If that does not make a statement about this program, I do not know what does.

In the 1970s, a study was done by the South Dakota School of Mines, funded by a grant from the National Weather Service's own Weather Modification department and North Dakota's weather modification department, came to an interesting conclusion. This study which studies the "control" area of Eastern Montana, and the "test" area of Western North Dakota, came to the conclusion that it was possible that it possibly improved the rain and reduced the hail but explicitly stated that it could not be proven that weather modification was the reason, it could have been the way the weather pattern was. It also went on to note that most studies reference the turbulent weather of the 1930s, 1940s, and when the program started, 1950s as their control data, which is correct as some NDDWR studies do refence the weather of those decades as their control. Those same decades, as known by virtually all, were noted for the weather being extreme, the state records for high and low temperature were set, it is on record that one year was record dry and the following record wet, wind records were set, Fargo's infamous 1957 tornado occurred, partly forming over my Grandfather's farm by Absaraka, so it is clear that one can not honestly label those said decades as "control years".

(The study in question is found here:

<https://journalofweathermodification.org/index.php/JWM/article/download/384/423>)

The abstract of said study, for easy of testimony:

RESULTS OF HAIL SUPPRESSION EFFORTS IN NORTH DAKOTA AS SHOWN BY CROP HAIL INSURANCE DATA

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Abstract. An examination of crop-hail insurance data as a tool to evaluate hail suppression efforts in western North Dakota is presented. Six western North Dakota county (Target area) data are compared to twelve eastern Montana county (control area) data. Target/control seed years versus non-seed years wheat yields, insurance liability, and loss cost values are compared. The data analysis using double ratios and target/control comparisons suggests that a 17 to 41% lower hail insurance loss experience is found for the areas participating in the North Dakota cloud seeding project. The data suggest that the direction of the hail loss experience supports the goals of the North Dakota project, but cannot be used to establish unequivocally that the direction and its magnitude are the result of the cloud seeding efforts.

Now, given all of that information, one can argue studies, data, recollections, memories, for decades, which we have already done. I say the most impactful argument is this:

The rich, fertile, Red River Valley of Eastern North Dakota, full of high value, high yielding crops, extremely sensitive to drought and hail, cities with water supply issues, and with Fargo and Grand Forks, the largest populations in the state, does not use weather modification.

The central region, home of the capital, the political center of North Dakota, known for farming like both the East and the West, known for its yearly hail barrage, does not use weather modification.

The west, known for its droughts, fires, the grasslands, "Big Western Farms", large cattle operations, and the "Banana Belt" of the Southwest, at one point fully used weather modification, over a quarter, almost a third of the state used weather modification, but is down to two counties: Mckenzie and Bowman. Mountrail and Williams overwhelmingly voted to end theirs last election. Mckenzie is on well on its way to putting weather modification to a vote this coming election. Those counties that have ended it have not seen a significant difference.

If weather modification worked, the central region would use it to cure its hail problems.

If weather modification worked, the East would use it to solve its water problems. Weather Modification Inc/LLC is even based in Fargo, at Hector Airport, by the jet center. They even train pilots to do this at UND in Grand Forks.

Neither the East nor Central use it, and the West is well on its way to shut it down. Even the State of North Dakota, and Fargo based Weather Modification Inc/LLC do not have enough faith in the program to do the required study and put up the required bond to continue flying in Montana, which is when the program was favored the most by the most.

The overwhelming majority of the state, and the state itself, does not have faith in this program anymore, if it had any in the first place, due to its share of reasons. The program should be halted due to that fact.

Respectfully,

Jacob Grieger

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