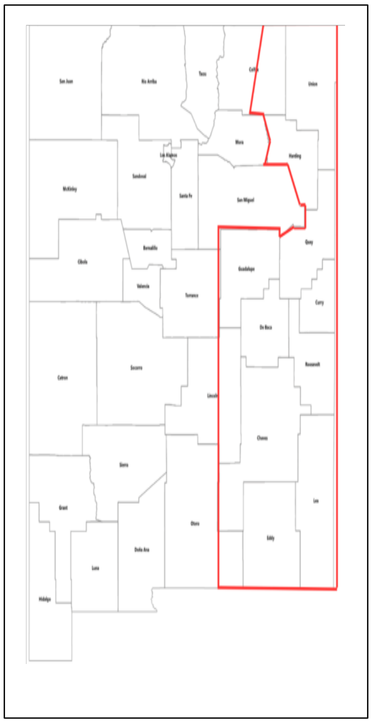
IMPACT OF CLOUD SEEDING ON NEW MEXICO WEATHER DURING 2025

A quantitative assessment, using National Weather Service radar data, of rain-enhancement operations from April 15 through June 30, 2025



Changes in Storm Behavior from Seeding

The **R**ain **A**ugmentation **I**n **N**ew Mexico (RAIN) project consisted of 34 days of cloud seeding operations, the earliest on April 19 and latest on June 30. Of those days, 59% (or 20) occurred in June, with another 29% in May. Of the 101 storms that were treated, 71 (or 70% of the total) were small (single-cell) convective towers, while 10 more were large (multi-cell) cloud systems. The remainder (20) were cloud complexes, many of which migrated into the target area with a lifespan of longer than one hour.

The comprehensive analysis of radar data revealed:

- Seeded storms, on average, lived 50 percent (or 25 minutes) longer than neighboring, unseeded storms;
- The area (on the ground) where rain fell from seeded storms was, on average, 26 percent (or 14,555 acres) larger than that dampened by unseeded storms;
- The volume of a seeded cloud (376 km^2 on average) exceeded that of unseeded (nearby, or control) clouds by 42 percent;
- Seeded clouds grew (to 11.5 km on average) only 4 percent taller than their unseeded counterparts—evidence that seeding does not contribute to any storm becoming "severe."
- The amount of *supercooled* water droplets (the fuel for growing raindrops), cultivated by seeding, exceeded those of non-seeded storms, on average, by 83 percent.
- The total rainwater mass released (1,270 k-tons on average at cloud base) from a seeded storm was more than double (a 120 percent increase) the amount of rainwater produced by unseeded, neighboring storms.

The total rainwater output of both small (single cell) and larger (multi-cell) storm clouds that were seeded during the 2 1/2-month period was, at a minimum, an *additional* **900,884 acre-feet** of water—*or 46 percent of the conservation capacity of Elephant Butte Lake in New Mexico*.

The seeding-induced *additional* rainfall, when evenly distributed over target area counties (with number of operational days in parentheses):

County	*Increase*			*County*	*Increase*		
	Acre-ft	*In.*	*%*		*Acre-ft*	*In.*	*%*
Roosevelt (11)	138,200	1.06	18.1	Eddy (12)	105,900	.47	7.8
Lea (9)	204,200	.87	13.6	Chaves (12)	61,800	.30	5.7
Lincoln (8)	90,300	.35	13.4	Harding (8)	42,900	.38	5.6
Union (9)	118,400	.73	10.8	De Baca (13)	45,000	.34	5.5
Curry (5)	58,500	.78	10.5	Guadalupe (7)	26,800	.17	2.6
Quay (7)	103,600	.67	8.2				
				Average (101)	***1,039,600***	***.56***	***9.1***

- Only two storms (over Quay County, May 25; over Curry, De Baca, and Roosevelt counties on June 2) were unable to be seeded.
- NEXRAD radar data were available for analysis on all 34 operational days.
- On average, for single storms, the seeding operation last about 7 minutes; for larger, multi-cell systems, seeding lasted on average 11 minutes—and the storms were, on average, 20 minutes old when seeding commenced.
- Dosages of glaciogenic material averaged between 20 and 30 ice nuclei per liter. From 91% (single clouds) to 95% (multi-cell clouds) of all seeding material reached destination in the initial half-life of cloud duration.
- Total increase in rainwater (1.039 million acre-feet, shown above) includes the estimated increase of 138,859 acre-feet from the cloud complexes ("Type B") that migrated into the target area prior to seeding.

Flare Usage

	Single Storms	*Multi-Cell*	*Type B*
Glaciogenic (AgI)	323	57	131
Hygroscopic (salts)	14	3	13

(The analysis of radar data was done by Arquimedes Ruiz, Ph.D. (Texas Tech University), who used specially-engineered software (known as TITAN) to measure various properties of both seeded, and nearby untreated, storms.)