

Del. weather modification program completes second year

DOVER, Del. — The 1979 Delaware Weather Modification Program was conducted between June 20 and September 20, 1979.

This was the second year of a multi-year program run by the Delaware Department of Agriculture. This program is designed to determine the degree to which dynamic seeding of cumulus cloud systems with silver iodide will increase rainfall in Delaware.

According to Mark G. Kooker, Administrative Assistant to the Secretary of Agriculture, the results of the rainfall observations collected over the last two years continue to be encouraging. As in the past year, more than twice as many days were determined to be seedable in 1979 than predicted by the original computer study.

The 1979 cloud seeding operations were conducted by the Colorado International Corporation under the direction of the Secretary of Agriculture. To provide a broad based local control, Secretary Alden S. Hopkins, Jr. was advised by a seven member Weather Modification Advisory Committee concerning policy decisions and local crop moisture conditions.

The Delaware Agricultural Experiment

Station, College of Agricultural Sciences, University of Delaware was responsible for the evaluation of the results of the program.

A total of 54 missions were flown, compared with 39 missions during 1978. Thirty of these missions were seeding missions versus 25 the previous season. There were partial or statewide suspensions of seeding operations during 30 days this past season. These suspensions were placed by the Secretary, with the advice of the Advisory Committee.

Due to changing crop moisture condition, Secretary Hopkins ordered seeding operations suspended for three days during the latter part of June and the entire first week of July. Seeding operations were again suspended for three days during both the first and third weeks of August. After August 28, a daily decision to seed or not to seed was made because of the forecasted heavy rains associated with hurricanes "David" and "Fred".

The evaluation procedures closely followed those developed during the 1978 program. The procedures were based upon the results of research conducted in other areas, especially the

FACE program which has been conducted in Florida for several years.

For the purpose of analysis, the past summer's seeding program involved an experimental program from 12 noon to 10 p.m. during which two-thirds of the seeding missions used silver iodide and one-third used sand for a control measure.

All missions flown outside of the experimental period used silver iodide.

Seeding operations were conducted on 24 different days versus 13 days the previous year. Twenty-six seeding missions were flown during the experimental period.

Twenty-one of these missions conducted during the experimental period met the requirements for evaluation.

Fifteen of the 21 missions used silver iodide and the remaining six used sand.

A network of 176 rain gauges scattered statewide was used to measure the rainfall. The rainfall from the 15 missions using silver iodide averaged .491 inches while the rainfall during the

6 missions in which sand was used averaged .275 inches.

By combining the information gathered during the 1978 and 1979 programs we have 31 observations available for analysis, 22 silver iodide missions and nine sand missions.

The rainfall from the 22 missions using silver iodide averaged .400 inches while the average rainfall during those missions using sand was .209 inches.

The variation in the amounts of rainfall measured among the gauges was so great during each observation and the total number of seeding missions was so small, that the difference in the amounts of rainfall measured after missions using silver iodide and missions using sand were not statistically significant.


Based upon the results in Delaware over the past two summers, it is estimated that 80 observations will be required to produce statistically valid results.

Nineteen samples of rain water were collected during the program and analyzed for silver content. The results of this data tends to indicate that the level of silver found were within safe limits.

The authors of the University's Evaluation

Report are John R. Mather, State Climatologist and Chairman of the Department of Geography; Raymond C. Smith, Agricultural Statistician and Chairman of the Department of

Agricultural and Food Economics and William J. Benton, Association Dean of the College of Agricultural Sciences and Associate Director of the Agricultural Experiment Station.



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