

RESEARCH ON THE CONTROL OF SALT CEDAR¹
AT NEW MEXICO STATE UNIVERSITY

- OBJECTIVES:
- 1) Development of more effective methods of control using currently available herbicides.
 - 2) Investigate the effectiveness of newly developed herbicides for the control of salt cedar and the hazards to adjacent crops.
 - 3) Determine the factors in the physiological makeup of salt cedar that are responsible for producing a foliage that is highly susceptible to systemic herbicides and a root system that resprouts vigorously in spite of repeated treatments.

PREVIOUS WORK AND PRESENT OUTLOOK:

This station has continually pointed out that any control measures that depend on herbicides alone are doomed to failure. On land that is accessible to ground equipment, salt cedar could be controlled with currently available herbicides by the same combination that has proved effective for controlling persistent perennials on farm lands, namely, tillage, chemicals and competing crops such as grasses. An outline for the control of salt cedar and research based on this principle was submitted in 1954 to the State Engineers Office at their request. The state legislature had appropriated \$100,000 for the control of salt cedar under the direction of the State Engineers Office. The research outline that was submitted along with an estimated cost of \$12,000 for the first year was not implemented since the attorney general ruled that the funds allocated to the State Engineers Office were for control and not for research.

Again in 1960, the importance of ecology was stressed along with the need for basic research when a research proposal for the control of salt cedar and other phreatophytes was submitted to the Crops Division of ARS at the request of the associate director, Dr. Weiss. Basic research was suggested in the fields of soils, water consumption, physiology and the establishment and management of replacement vegetation.

Even on small experimental plots the chemical control of salt cedar has been disappointing. The propionic formulations of the phenoxy herbicides have proved to be statistically more effective than the acetic formulations of 2,4-D or 2,4,5-T. However, a statistical difference has little practical significance in this case since 40 per cent control is little better than 20 per cent control. While again we may say the propionic formulations have proved statistically safer from the standpoint of injury to adjacent cotton crops, they are still not safe enough. Then too, as one might expect, the unit price of the propionic formulations is much higher than for comparable acetic formulations.

¹ Abstract of talk given by J. Wayne Whitworth, at Fifth Annual New Mexico Water Conference, New Mexico State University, on November 1, 1960.

Because of danger of injury to adjacent cotton crops, most of our studies on salt cedar have been conducted by the use of dormant, and/or basal applications. Oil has proved to be a superior carrier to water, but even with oil, a rate of approximately 10 lb/A of 2,4-D must be applied in a drenching spray to obtain results that approach 90 per cent control. Of the susceptible periods studied by means of basal applications, November, March, and July were the months of maximum susceptibility and July and September were the months of maximum resistance. These findings may not hold true for foliage applications of herbicides.

Soil sterilant type herbicides have given erratic performance and their cost makes their use prohibitive.

Currently, we are in the process of completing laboratory facilities which will make possible a study of the movement of systemic herbicides from the foliage to the roots of salt cedar. Measurements will be made by histological as well as by tracer methods.