



# Chemical Control of Three Desert Shrubs

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Brush control on rangelands is one of the major range problems of ranchers in Arizona. Undesirable brush is robbing grass of water and plant food needed to grow forage for livestock. It also increases costs of operation, interferes with handling livestock and usually increases soil erosion.

To help ranchers with this problem, the range management staff of the University of Arizona has been spraying shrubs throughout the state with various chemicals.

## Applied to 3 Shrubs

On the Pete Keller and Boquillas ranches near Tombstone, the herbicide 2,4,5-T in the ester form is being tested on three prominent desert shrubs, whitethorn (*Acacia*), creosotebush (greasewood), and tarbush (blackbrush). These experiments were started in April, 1954, and will be continued for several years.

During the first two years the herbicide was applied in water at rates of 16.7 and 33.4 pounds acid equivalent per 100 gallons and hand sprayed on the plants

until they were dripping wet, which figured approximately 50 gallons per acre. The lower rate gave satisfactory kills on all three shrubs—85 to 100 per cent on whitethorn and tarbush, and 65 to 85 per cent on creosotebush. The higher rate gave greater kills, but differences were not significant.

The time of application was found to be very important. On both ranches the highest kills were obtained on plants sprayed during the summer months of August and September. Some kills, almost as high, were obtained on plants sprayed during March and April, but these results were variable. Lowest kills were recorded on plants sprayed during November, December and January.

## Tie-in With Moisture

There appeared to be a correlation between the percentage kill and soil moisture available during the growing season. The highest kills in the summer occurred approximately 30 days after the summer rains started. In reference to the variable and the high kills obtained during the spring, it is not known whether a correlation exists between soil moisture or temperature and degree of kill.

Checks made during the two-year period showed no residual effect from the herbicide, since the percentage kill did not change significantly after the first growing season following spraying.

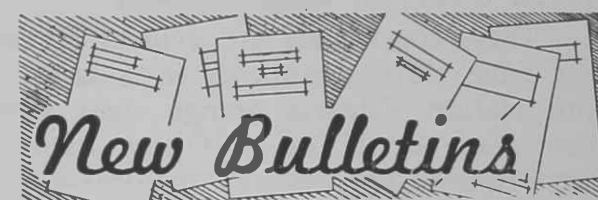
Pete Keller, Tombstone rancher, and Bruce Branscomb, UA research assistant, note dead brush and grass recovery on a sprayed strip two years after it was sprayed with 2,4,5-T ester. The sprayed strip extends toward the tree in the background, with untreated brush on both sides.



## Grass Recovers Quickly

Some grass was killed back by the herbicide, but recovery was rapid and in a short time the sprayed strip was producing more grass than the untreated brush area.

Present results show that high rates of 2,4,5-T ester, approximately nine pounds of acid equivalent per acre, will kill these undesirable shrubs and increase valuable grasses. It is now planned to test lower concentrations with different carriers in an attempt to find an effective control at reasonable cost.



## Agricultural Extension Service Circulars

- 179 (revised)—Control Cotton Insects
- 192 (revised)—Vegetables, Fruits—Select them, Show them
- 206 (revised)—An Easy Way to Iron a Shirt
- 249 —When You Buy Or Build a Field Sprayer

## Agricultural Experiment Station Reports

- 142—The Influence of Some Factors On Prices in the Phoenix Cotton Market
- 144—1956 Corn Variety Tests
- 145—Consumer Acceptance of Beef
- 147—Sources of Economic Information Relating to Cattlemen's Production Decisions.
- 148—Arizona Range Cattle Market Report
- 150—Electro-Reclamation

## Bulletins

- 277—Quality and Cost of Ginning Upland Cotton in Central Arizona
- 278—Growing Head Lettuce in Arizona
- 279—The Climate of Arizona
- 280—Growing Onions in Arizona
- 281—Arizona Agriculture 1957