Control Burroweed With 2, 4-D

Tests Give Facts On Time and Amount

By Albert L. Brown

Southern Arizona ranchers will soon have a satisfactory method of controlling burroweed if further experiments are successful. Tests near Oracle Junction have shown that burroweed is susceptible to 2,4-D applied in the right quantity at the proper stage of growth.

Burroweed (see photo) is a woody half-shrub that competes with range grasses and causes serious livestock poisoning. Its rapid increase in the 1920's led to development of many control methods, including hand-grubbing, mowing, and burning. All of these methods give satisfactory control, but are not universally applicable because of time required, expense, rough terrain, rocky soil, or lack of fuel.

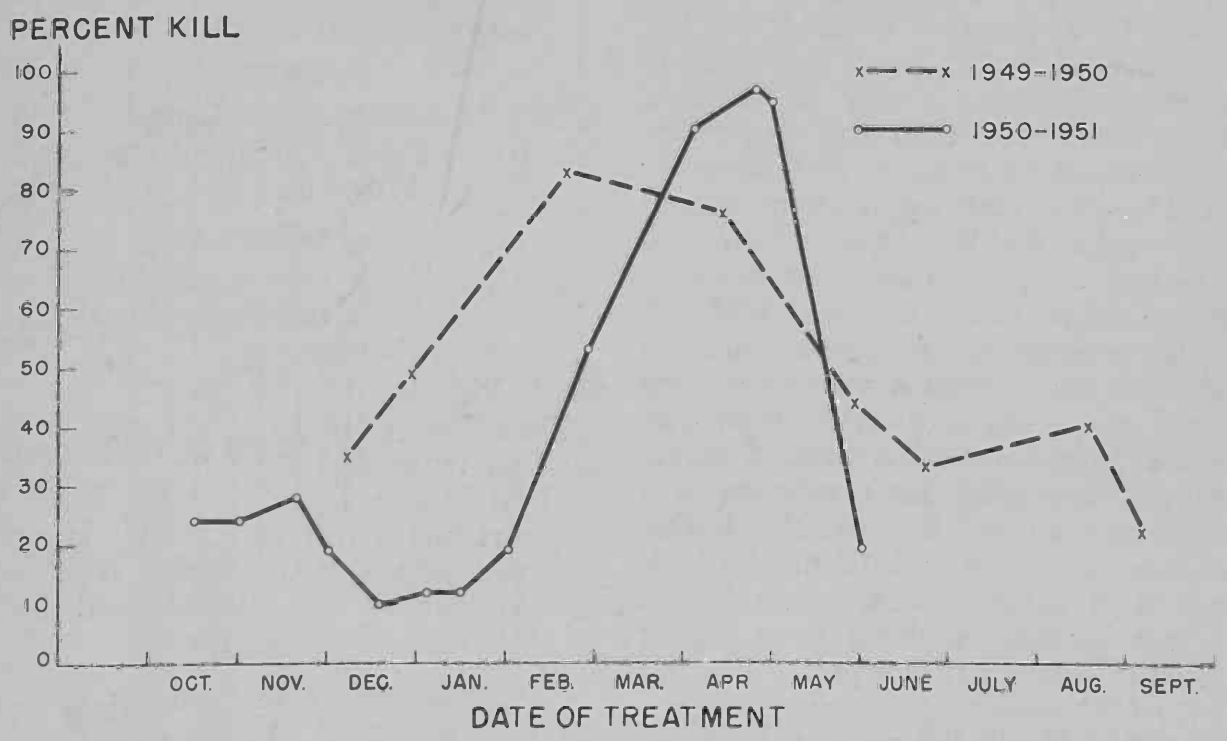
Control with 2,4-D overcomes many of these objections. It is relatively cheap and can be applied readily to large range areas. A single properly applied treatment kills 80 to 95 percent of the plants.

A mature burroweed plant. This poisonous half-shrub occurs on grassland ranges throughout southeastern Arizona.

Time of Year Important

Satisfactory control with systemic chemicals requires strict attention to plant condition at spraying time. Two years of date-of-spraying tests on the Page-Trowbridge Experimental Range indicate that burroweed can be killed between March 1 and May 1. (See graph at bottom of page.) April was the best month for spraying. During that month, the leaves become fully expanded, but have not had time to harden. Treatments from May through February were unsatisfactory, giving very low kills.

Plant condition depends on temperature and moisture as well as season. In 1950, March and April rains were low (0.37 inches compared to 3.74 inches in 1951), and burroweed was drying up by April. Kills were less in 1950 than in 1951, although still satisfactory.



Effect of date of treatment with 2,4-D on burroweed mortality. Natural mortality on check plots was ten percent over the two-year period.

Quantity and type of herbicide and quantity and composition of its carrier are important in getting satisfactory and economical control. At one pound per acre, 2,4-D ester was superior to other chemicals used. (See table below.) 2,4-D amine and 2,4,5-T ester were less effective, but gave satisfactory control. 2,4,5-T amine was poorest of the four chemicals.

Percent Kill of Burroweed Resulting From Different Formulations and Rates Per Acre Applied in April.

	Rate (Lbs. Per Acre)			
Formulation	½	1	1½	2
Ester of 2,4-D	91	97	97	98
Ester of 2,4,5-T	80	86	90	92
Amine of 2,4-D	69	86	91	93
Amine of 2,4,5-T	48	77	83	88

Higher rates (1½ and 2 pounds per acre) were only slightly better than the one pound rate. The only time heavier rates are superior is at the beginning of the spraying season (February and early March). At one-half pound per acre, 2,4-D ester was the only formulation that gave satisfactory control.

Carrier Needed

A carrier of 4 parts water to 1 part diesel oil, applied at five gallons per acre, was superior to straight water, and almost as good as straight diesel oil. Ten gallons of the 4:1 carrier per acre was no better than five gallons.

2,4-D can be applied by any boom-equipped ground sprayer capable of giving adequate plant coverage at low volume. On large acreages, airplanes can do a faster job. Although no airplane spraying tests have been conducted here, other studies have shown that a properly equipped and flown airplane can do as effective a spraying job as a ground rig.

Spraying in 1952 should be limited to small acreages, since this treatment has not been checked in other areas of the state. A recommended treatment for this year would be one pound (acid equivalent) 2,4-D ester in four gallons water and one gallon diesel oil per acre, applied when the leaves are almost fully expanded.

—Albert L. Brown is Instructor in Botany and Range Ecology.