

Coyote Brush on Rangeland

control of brush by chemicals successful in tests for reclaiming farming land in San Mateo County

Bryan C. Sandlin

Coyote brush—*Baccharis pilularis*—a perennial evergreen shrub growing from two to eight feet in height, is the principal problem-brush on San Mateo County rangeland.

On wind-swept and exposed slopes near the ocean, the coyote brush often leans low over the ground. Land covered with this brush produces little or no forage for livestock. In 1945, a series of tests were established on coyote brush. From these and subsequent tests it was learned that two to four pounds actual acid of 2,4-D would effectively control coyote brush. Applications of amine salt in 10 gallons of water per acre by helicopter give good to excellent kill. Plants are dead in six to nine months after application. Dead brush does not resprout as in contrast to brush removed by mechanical methods.

Land cleared by bulldozing will return to a solid stand of brush unless farmed to hay crops for three to four years to suppress sucker growth. Erosion is high on this type of land when plowed.

Clearing brush by fire has been tried, but because of high humidity along the coastside of the county, it is very seldom that all conditions for burning are favorable. As a result, a scattered burn is obtained, and after a period of two to three years, regrowth is oftentimes worse than the original brush unless some means are taken to combat the suckering.

During the period 1947 to 1953, forty-two farmers co-operated in a chemical control program by spraying more than 3,000 acres of brushland. In most cases results were excellent.

Spraying is not harmful to native pasture species if timed properly and it apparently benefits the pasture through killing weeds.

Much of the treated land has returned to good stands of native annual feed composed of ryegrass, bur clover, filaree, and bromegrasses. Usually it has not been necessary to remove the dead brush because the cattle grazing the areas push the brush over and it eventually disappears. However, some of the thicker brush areas have been burned and the ashes seeded to perennial grasses and legumes. Good stands of feed are being developed by this method.

A few growers are feeding hay—from irrigated pastures—in brushland in an

attempt to reseed rangeland through the livestock. Some success is reported.

Timing of application and the material used are important factors in controlling brush by chemicals. Either factor can determine whether control will be successful. Best results were obtained in the San Mateo County trials where the chemicals were applied to actively growing plants. Not only is there greater leaf surface to absorb the brush killer but translocation to the root-zone is greatly facilitated. This prevents resprouting and regrowth.

Rocky or very thin soils seldom produce sufficient forage to offset cost of clearing, so the land with the best possibilities should be treated first. Depth of soil and amount of brush present are good yardsticks to measure productivity of a particular area.

Many brushy areas of San Mateo County are by necessity sprayed from the air. Steepness of terrain, density, and size of brush oftentimes make it difficult or impossible to use ground machinery. Two to three pounds acid applied by helicopter in 10 gallons of water per acre gave excellent control.

Several ranchers have obtained very good results by ground application to areas that have returned to brush since they were farmed; to small plots of brush, to strips along roadsides and around edges of pastures.

The San Mateo County tests—and others—have furnished valuable information on which material to use on a particular brush species. Coyote brush can be killed with the lower cost amine 2,4-D at two to three pounds actual acid per acre. Several other species, however,

require esters of 2,4-D and 2,4,5-T. Among these species are poison oak—*Rhus diversiloba*—California blackberry—*Rubus vitifolius*—California lilac—*Ceanothus thyrsiflorus*—coffeeberry—*Rhannus californica*—and possibly others. Different esters and combinations of esters were tested with varying kill. Best results were obtained with three pounds acid equivalent per acre in nine parts water and one part light summer oil.

Unfortunately, when the time of application is optimum, there is usually some susceptible field crop growing adjacent to many of the brush areas to be sprayed, and possible spray injury to these crops is a problem. Tests were started in 1951 to determine the feasibility of spraying after nearby susceptible crops were harvested. This late spraying has been continued on an experimental basis with 23 different chemicals or combinations of chemicals tried. Comparative results are being obtained, and it appears possible to extend the season of spraying to later dates and avoid drift hazard to nearby crops.

Dryland pasture improvement is tied in with brush control. Stands of perennial grasses and legumes must be developed on many areas because native pastures are gone. A good perennial pasture sod will offer competition to the establishment of new brush seedlings and reduce erosion tremendously. Good feed is being obtained from land that once was virtually worthless from an agricultural standpoint.

Bryan C. Sandlin is Farm Advisor, University of California, San Mateo County.

Close-up of dryland pasture established on land formerly in brush. This land was reclaimed by the use of chemicals and reseeded.

