

Chemicals

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Steve Puett, Lane County Weed and Brush Supervisor, field surveys county roads and highways before setting up season's spray schedule. Tour helps develop workable schedule which will catch most weeds when they are susceptible to chemical spraying. Survey also helps spot adjacent crops and time spraying when these are less apt to be damaged.

"WEEDS are great travelers, they are indeed the tramps of the agricultural world . . . like other tramps they find it safest by the highways," John Burroughs, author and naturalist, once said. "In the fields they are intercepted and cut off, but on the public road every boy, every passing flock of sheep or cows gives them a lift."

This statement becomes obsolete as state and county highway agencies turn to chemicals to wipe out these "tramps of the agricultural world." Oregon's Lane County, a county that stretches from the Pacific Coast to the Cascade Mountain Range, is one agency that is quietly but systematically eradicating this tramp—the roadside weed.

Actually, when we talk about roadside weeds, we are talking about more than just Canadian thistles or morning-glories. Roadside weeds include blackberry vines, cattails, trees, or anything else which grows in the right-of-way and thus interferes with either the beauty of the area or the visibility from the road.

There are numerous reasons

for keeping our highways free from the clutter of roadside weeds and brush. A high growth of brush along the edge of the road has caused a great many highway accidents. A deer, a pedestrian, or even another car are hidden from a motorist's sight by tall roadside weeds. The removal of the weeds and brush makes the area look cleaner; it enables tourists to enjoy scenery

that might otherwise be hidden by the tall brush along the edge of the road. By keeping drainage ditches clear from weeds and brush that tend to clog them so that they overflow onto the road, road maintenance costs are greatly reduced. Clean drainage ditches are important to both the Lane County Public Works Department and to property owners whose fields and yards might

Prior to spraying season, Lane County's three spraying trucks and equipment are serviced. Puett checks largest unit used on county highways and roadways.



Cut Roadside Clearing Costs For Lane County, Oregon

be flooded if ditches were clogged. Fire danger is, of course, reduced when weeds are removed. There is not nearly the fire hazard present in weeds and brush that have been eradicated by chemicals that there is to vegetation that has dried up from lack of water or because it is the end of the growing season. For the county there is the added bonus of good will, and often cooperation, between the Public Works Department and the farmer who tries to keep his fields free from weeds.

Spraying is Efficient

For efficiency in cleaning weeds and brush from roadside rights-of-way, Lane County has found an answer in the use of chemicals. Lane County, as one of the first organizations to experiment with a complete spraying program, has gained recognition from other counties within Oregon and in other states. It has even had requests for reports on spraying success from 2 foreign countries.

Spraying is both cheaper and faster than the mechanical method for clearing roadside weeds and brush. For example, Lane County had both spraying crews and brush crews clearing roadside areas last summer. The brush crews worked in areas not previously sprayed including new roads and in areas where the spray might endanger a tree or landscaping that should remain. By comparing the work accomplished in these two methods for clearing rights-of-way,

Weed and Brush Supervisor Steve Puett found that four men were able to spray 71 miles per month while the 4-man crew that was clearing brush by using graders and caterpillar tractors was able to clear only about 2¼ miles per month. The difference between 71 miles a month and 2¼ miles a month becomes significant in a county with more than 1400 miles of county roads to be maintained. Public Works Director Gerald Attig explains that since Lane County has been spraying, the roadside clearing work is done so much more quickly and easily that the Public Works Department has been able to devote much more time to more important things. Prior to the spraying program the Public Works Department had to spend so much time clearing

roadside brush that there was very little time to devote to anything else.

In the 9 years that Lane County has been using chemicals for roadside brush control, it has been able to make the road clearing program an annual accomplishment on all the major county roads. Nearly all other county roads are sprayed at least every 2 years. This tends to speed up the time required for clearing brush and weeds because they do not have the opportunity to return unchecked year after year. With the mechanical brushing techniques it was often years from the time a road was cleared until it could be cleared again. This makes a considerable amount of difference in an area where weeds and trees grow rapidly. Along the coast

Hand labor for weed and brush control is largely eliminated today in Lane County. Chemicals handle the job around guardrails and posts quickly and do the job at a lower cost.





Bridge abutments, culverts, sign posts, and similar areas previously inaccessible to power equipment are easily covered with chemical spray equipment. Lane County costs approximate 63¢ per structure to spray.

in Lane County, for example, an alder tree will grow as much as 6 feet a year. At that rate, if the tree is not sprayed within 1 or 2 years, county crews would find themselves removing a large tree after just a few years of neglect.

Primarily as a result of the decrease in the time required for clearing weeds, the county has been able to cut costs considerably. Whereas it would cost from \$400 to \$500 a mile each year to reshape ditches and clear weeds and grass by mechanical means, in 1966 it cost \$19.60 for each mile (\$5.63 an acre) of road sprayed for summer foliage. The cost for the early spring sterilization program in 1966 in Lane County was \$92.40 per mile (or \$30.80 per acre) for sterilizing areas that had not previously been sterilized and \$65.41 per mile (or \$21.80 per acre) for maintaining areas that are sprayed each year. Lane County's program over the past 9 years has been one of progressively enlarging the maintained area until all 1400 miles of road are included.

Experimentation with the sprays has shown Lane County the importance of paying strict attention to such things as the careful selection and timing of roads to be sprayed, attention to the proper use of pump pressures in spraying, and awareness of the weather conditions and

wind and their possible effects at the time the spraying is done.

Early Spraying Is Best

The best results in killing weeds and brush, Lane County has found, are obtained in the early part of the season when the leaves of the plants are young. As summer comes and the foliage reaches full maturity it becomes necessary to use larger quantities of the spray and, therefore, to increase costs.

The county has 3 major areas within its roadside spraying program. Early in the spring ditches are sterilized to prevent new growth, in the summer foliage spraying is done, and later in the summer noxious weeds such as poison oak and berry vines are sprayed.

The summer spraying program in Lane County actually begins in February. At that time field reconnaissance is done to select roads to be sterilized and to make up a schedule for spraying. Sterilization then begins the first part of March. The county, after experimenting with numerous chemicals and formulations, now uses two different formulations of chemicals in the sterilization of roads. One solution is used for roads that are to receive an initial application of the sterilants and a weaker mixture of the same chemicals is used for areas where spraying has been done previously. (See Table 1

Table 1. Formula for initial application for sterilization

Chemical	Lbs.
Atrazine	12 80W, plus 8 ounces X-77 surfactant per 100 gallons of water
Hyvar X	6 plus 8 ounces X-77 surfactant per 100 gallons of water
Simazine	12 80W, plus 8 ounces X-77 surfactant per 100 gallons of water

100 gallons of the above formulation will adequately treat one acre. If there is foliage within the area to be treated, one gallon of Amitrol-T is added to each 100 gallons of water.

for the formula used in areas not previously sprayed and Table 2 for the formula used when spraying has been done.)

By the end of April a field survey is made prior to beginning the summer foliage spraying program. This survey is made to determine the amount of spraying to be done, but more important than that, it attempts to organize the spraying program to coordinate it in relation to adjoining domestic crops so that it will not be necessary to spray next to a planted field at a time when that crop might be destroyed by drift from the spray blowing over the field. The formulation used for summer foliage is one gallon of 2,4-D and 2,4,5-T esters plus 8 ounces X-77 surfactant to 100 gallons of water.

In the middle of May the noxious weed spraying program begins with a field survey as in the other spraying programs. In Lane County, the Public Works Department coordinates its work with the Lane County Weed District. The county sprays rights-of-way for Canadian thistle, poison oak, and berry vines with Tordon 22K and Amitrol-T and the Weed District sprays areas

Table 2. Formula for maintenance application for sterilization

Chemical	Lbs.
Atrazine	6 80W, plus 8 ounces X-77 surfactant per 100 gallons of water
Hyvar X	3 plus 8 ounces X-77 surfactant per 100 gallons of water
Simazine	6 plus 8 ounces X-77 surfactant per 100 gallons of water

100 gallons of the above formulation will adequately treat one acre. If there is foliage within the area to be treated, one gallon of Amitrol-T is added to each 100 gallons of water.

outside rights-of-way with Amirtol-T. Later in the summer, conifers, cattails, and morning-glories are spot sprayed.

Lane County has a policy that requires any public utility cutting brush on a county right-of-way to obtain a permit which requires it to report that cutting to the county. When these reports are turned in to the Weed and Brush Department for the county, men are sent out to spray the stumps in order to halt any resulting new growth. For spraying stumps, the county uses a mixture of one gallon 2,4-D and 2,4,5-T esters to each 24 gallons of diesel.

Personal Contact Helpful

When Lane County first began spraying in 1958, there were many complaints from people who were afraid that either they or their livestock might be harmed by the chemicals. County officials launched into a public relations effort to combat public fear of the chemicals. The public relations program presently used by the county is basically the same as that begun in 1958. Printed literature designed to explain the safety of the chemicals used is carried in the trucks with the spraying crews. Thus, when someone questions the men who are spraying, they

have literature to hand out. Supplementing this literature program, of course, is the personal contact that people have with the men who do the spraying. Before these men are sent out to spray roadside brush, they are trained in the techniques of spraying, the value and purposes of the program, and the public relations and spraying policies of the Public Works Department so that they are able to answer many of the questions people might have. In addition, the Public Works Office receives numerous phone calls, thus enabling the office personnel to explain about the chemicals to people who have questions and complaints. The third area of the public relations program consists of an educational program aimed at groups that are interested in or affected by the use of sprays in their area. County officials are encouraged by requests to speak at Grange meetings, County Farm Bureau meetings, and Garden Club meetings. Partly as a part of the public relations program, and partly for their own records, the county has made it a point to take before and after pictures with colored slides.

Not all of the complaints were settled by public relations techniques, however. In addition to calls from people concerned

about their livestock when the spraying program was new in Lane County, there were also complaints from people whose crops or shrubs were damaged from spraying in the area. After the first year of spraying, the county found that pump pressures should seldom exceed 40 or 50 pounds per square inch. When pump pressures were reduced and wind and weather conditions were watched more carefully by the spraying crews, the complaints diminished. Many of the people who had previously complained about the spraying no longer realize that spraying is still being done in their neighborhoods. Drift is apt to result if there is a wind when the spraying is done. Volatility becomes a problem when there are changes in air currents, temperature, and humidity. These vapors are more apt to move on a still, hot day when air currents gently begin to circulate with changing temperatures.

By 1960, as a result of more experience and more caution regarding drift, volatility, pump pressures, and proper timing for spraying, very few complaints were reported. In fact, within 2 years there were many requests from people for more spraying or for advice on formulations and methods for doing their own work.

Neglected right-of-way such as this was common in Lane County prior to countywide spray program. Treated roadsides are not only more attractive, but have been found to be much safer.



Farm operators find contamination from roadway weed seeds a thing of the past where rights-of-way are regularly sprayed. Roadside above is one in Lane County and is typical of the area today.

