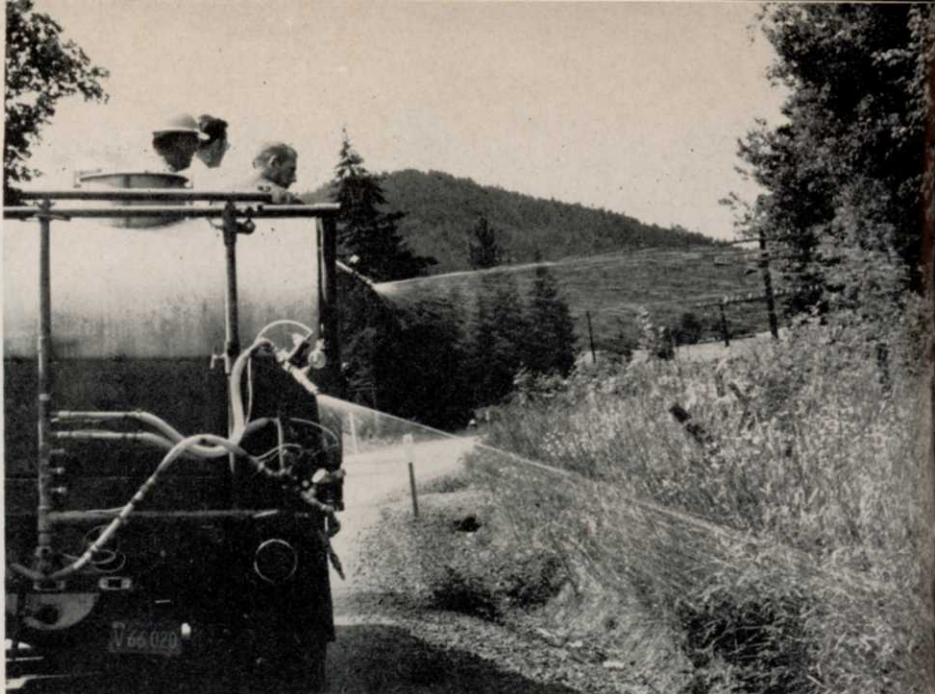


Dow Roadside and Range Tour



Directed spraying from the Dow roadside spray demonstration truck, using a mixture of Tordon with Norbak. This technique assures precision application with minimal drift.

A Look at New Product Field Tests

A WTT staff report based on a tour of roadside and rights-of-way field test areas during September '67 in Southwestern Oregon.

PINPOINT spray placement has been a constant goal of spraymen. Costly drift, which means chemical loss and liability from kill outside the target area

still mars the public image of the spray industry.

Outcrys about wildlife kill, injury to humans, and damage to landscape beauty affect the entire pesticide industry. Manufacturers and spraymen together share the public concern for safety and efficiency in chemical use. Both are making great

Evaluating Dow field test results during tour were representatives of Oregon and Washington state highway commissions, Oregon State University, University of California, Bonneville Power Administration, Portland General Electric and Pacific Gas and Electric companies.



Lew Corbin, sales manager for agricultural and industrial bioproducts for The Dow Chemical Company, Midland, Mich., at the right, and Weeds Trees and Turf editor Art Edwards visit during tour of Bonneville Power Administration right-of-way brush control demonstration.

strides in improving the total picture.

The Dow Chemical Company is among those who have developed effective chemicals, along with a delivery system to assure on-target spray placement. A tour of their field testing program in Oregon shows the tremendous progress made during the past few years.

Tordon, a Dow chemical, is a new selective herbicide which does not harm people or wildlife. It gives excellent vegetation con-

trol. When used with Norbak, a particularizing agent which picks up the lightweight fine particles in a spray and turns them into easily controlled heavy gelled droplets, the chemical has been safely targeted from both helicopters and ground spray equipment.

The tour of field test demonstrations where these two new products have been used was staged during September by Dow Chemical Company near the Coos Bay area of Oregon and inland for some 50 miles. Helping evaluate results were members of the Oregon and Washington state highway commissions, Oregon State University, University of California, Bonneville Power Administration, Portland General Electric and Pacific Gas and Electric companies.

Dr. J. F. Kagy, research director of the bioproducts western division of Dow, and one of the key Dow research personnel who developed Tordon, said that the nation now has the chemical tools to carry out safe and effective vegetation control. Besides Tordon, he pointed to the phenoxy herbicides such as 2,4-D and 2,4,5-T, and others which Dow and other formulators have made available to the market. These have practically eliminated the need for expensive mechanical brush control.

During the tour of roadsides,



Roadside maintenance near Bandon, Oregon. The strip at right was cleared of gorse by Tordon treatment and has since grown a desirable grass cover. Note dead gorse stumps in foreground, and gorse plants at left.

Dow developed adjustable in-flight swath system is demonstrated by Jim Welton, representative of Dow's western division for bioproducts.



TABLE 1 — Broadleaf weed control obtained from single treatments made in April, 1965, with FORMULA 40 and TORDON 101 MIXTURE

State	Applic. Date	Eval. Date	Broadleaved Weed Control Rating (a)			
			FORMULA 40		TORDON 101 MIXTURE Q1/A	
			1 1/2 Q1/A	1	2	3
Connecticut	4/13	9/23	7.5	10.0	9.7	10.0
New Jersey	4/10	9/24	9.2	10.0	10.0	10.0
Pennsylvania	4/19	9/21	9.0	9.0	9.7	10.0
Ohio	4/20	9/15	6.0	9.9	10.0	10.0
Michigan	4/22	9/13	5.0	5.0	9.5	9.5
North Carolina	4/6	6/7	7.3	8.5	8.3	9.0
Illinois	4/27	8/30	5.0	9.0	8.7	9.8
Minnesota	4/30	8/31	4.5	7.5	9.4	9.8
Wisconsin	4/28	8/31	5.0	8.0	8.9	9.7
Iowa	4/29	9/1	7.2	8.0	8.6	9.7
Indiana	4/23	9/15	4.0	5.5	7.0	7.8(b)
New York	4/14	9/22	4.5	7.5	6.0	9.5

(a) 0 = No control 10 = Complete kill
(b) One replicate treated during hard rain

Formula 40 is 2,4-D. It was applied at the rate of 1 1/2 qts. per acre or 1 1/2 lbs. per acre acid equivalent. By contrast, Tordon 101 Mixtures if 2 lbs. of 2,4-D and 1/2 lb. of Tordon. Used at the rate of 1 qt. per acre, this is .12 lbs. per acre of Tordon and 1/2 lb. of 2,4-D.

utility rights-of-way and livestock ranges, Dr. Kagy stressed the need of the industry to learn more about the how of using these chemical tools. Applicators must be well trained and properly directed, he said.

Tordon, Dr. Kagy said, is a

persistent herbicide. Tordon's persistence, according to Dr. Kagy, lies in its ability to stay in the soil and to be taken up by the root system. This has enabled Tordon to control field bindweed, Canada thistle, and other hardy-type weeds. Research has made possible recommendations which prevent excessive over or under dosage. With proper use, Dr. Kagy stated that Tordon can be used to kill only undesirable vegetation and permit growth of desirable grasses. Tordon, while toxic to many plants, is not toxic to all. It is non-toxic to animals. In common with many of the herbicides on the market today, the low order of toxicity to animals eliminates the danger to wildlife and domestic animal populations. Tordon, not as yet cleared for use on livestock rangeland is expected to be very shortly. Also of interest to contract applicators is the fact that almost all production is now being utilized in the war in Viet Nam.

Tordon has been extensively
(Continued on page 25)

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Dow Range Tour

(from page 7)

tested in numerous types of applications and nationwide (for one test see "Right-of-Way Brush Control," page 16, WEEDS TREES AND TURF, June, 1967). Excellent control of broadleaved weeds was provided when using 2 quarts of Tordon 101 mixture in 10 or more gallons of total spray volume per acre, applied with Norbak as a particulating agent to prevent spray drift. Two applications at half this rate also showed effectiveness. The Tordon 101 mixture gave better control than 2,4-D of certain troublesome species such as Canada thistle, clovers, wild carrot and milkweed. A spray volume study showed equal weed control results from use of 10, 15, 20 or 25 gallons per acre. The 5-gallon rate was less effective.

On the tour, use of Tordon on gorse, a troublesome weed plant which was introduced to this country as a domestic ornament and then escaped into the wild, proved to be very effective. Tordon at high dosages will prevent vegetation growth for up to three years. However, at lesser dosages the gorse and other undesirable broadleaved weeds are killed and native grasses come back during the first year. Tordon, for reasons as yet unexplainable, actually stimulates growth of grass in treated areas. Lew Corbin of Dow, located at Midland, Michigan, and sales manager for agricultural and industrial bioproducts, reports that researchers have some theories which as yet they have not established as fact, at least for publication. Nevertheless, in this Oregon area roadside field test, and in other areas, grass cover was noticeably stimulated after Tordon treatment.

The attack on the problem of drift has been successful with development of Norbak. Dow has used a company-developed demonstration rig which applies specified amounts of Tordon 101 with Norbak to roadsides. A particulated spray of the mixture is applied from 2 separately controlled nozzles of the application rig. Off center nozzles are controlled by the applicator on the

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truck and can be targeted to very precise limits. Tests begun in 1964 are continuing.

Working closely with Dow has been the Bonneville Power Administration. On the tour, Fred Gross, right-of-way maintenance superintendent located at Portland, Oregon, discussed the value of chemicals to BPA. A few years back, Gross said, BPA was spending \$300 to \$500 per acre for mechanical brush control. Budget for the 56,000 acres of land beneath BPA's 10,000 miles of lines was almost one-half million dollars. Today, with chemicals, BPA is spending only \$35 to \$40 per acre yearly for control. Gross indicated that this would be the pattern of BPA for some time to come, especially in light of the fact that underground transmission lines are 8 to 10 times more costly. Further, Gross said, new technical advances are needed before lines can be placed underground on a practical basis.

Jack Warren of Dow stressed the need for safety, economy and approval for chemicals prior to marketing them. Special problems such as eliminating brown-out and still maintaining brush control need to be solved. Thus, a company in marketing a product must develop an entire system, including chemical, particulating agent, and the equipment to place it on target. In this latter case, Dow has developed an adjustable in-flight swath system for use on helicopters.

For December:

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And Suppliers Guide