

conducted by Normand Dubois of the U.S.D.A. Forest Service at Hamden, Conn.

Dubois simulated aerial spray conditions to demonstrate the potency of the active biological ingredient required to control the gypsy moth.

In this carefully-controlled test, the product at the proposed field use rate, 8 Billion International Units per acre, killed 100 percent of the worms.

"Armed with that data, we moved to the next step which was to arrange field tests in three states where the gypsy moth was a leading pest problem" says Dr. Martin Rogoff, manager of microbiology for IMC.

The states involved were New Jersey, Pennsylvania, Connecticut and Massachusetts.

All four states had experienced widespread and severe forest damage from the gypsy moth in 1970 . . . and predictions of even greater infestations were being made for 1971.

The large scale tests of the biological pesticide were successful.

At Burkesville, N. J., trials conducted in replicated plots by William Metterhouse of the state's department of agriculture showed Thuricide HP reduced defoliation of leaves by more than 83 percent . . . indicating a direct correlation between worm kill and foliage protection.

Dr. W. G. Yendol and R. A. Hamlen of Penn State University obtained similar evidence. Foliage protection on treated trees in Berks County (a major gypsy moth area) ranged from 80 to 100 per cent. Worm populations tripled in the untreated control plots during the test period but not in the treated plots.

In Connecticut trials at Hamden and Bethany, Dr. Harry Kaya and Dr. D. M. Dunbar of the state agricultural experimental station at New Haven reported significant worm reduction of two major pests, the gypsy moth and the elm spanworm (which often appears a few days before the more publicized gypsy moth).

At Hamden, reductions of 60 per cent of original populations of both pests was observed in plots tested with Thuricide while worm populations doubled in the untreated plots.

Preliminary results of the Hamden trials led observers to claim a "major breakthrough" in the biological control of the gypsy moth.

Kaya reported "excellent results" against the elm spanworm . . . 95 to 100 per cent control after 14 days.

According to IMC, the effectiveness of Thuricide HPC in its newer

form is no longer in question. "We have reached the 100 per cent control mark in repeated laboratory tests. The primary direction of current and future development effort will be to achieve maximum control in large-scale commercial uses and to refine application techniques to insure even more economical and practical use," says an IMC spokesman.

Field tests were performed with ground application equipment, but IMC also carried out independent trials using aerial application tech-

niques to obtain needed data on how the product works under those conditions.

"IMC's aerial application test last summer produced "very good data for future work because foliage coverage was excellent," Dr. Rogoff said.

Dubois also was involved in a test at Whately, Mass., where he worked with Dr. William Becker of the University of Massachusetts. That study, confirming similar replicated trials, resulted in a 62 per cent reduction in defoliation.

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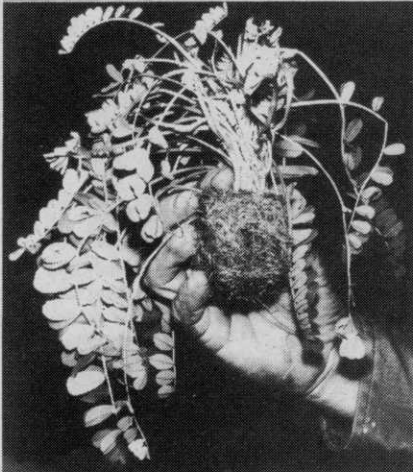
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Forest Ecologist Studies

Herbicides Residues

A professor of forest ecology at Penn State University has determined that herbicides applied to clay soils do a better job of controlling unwanted grasses and broad-leaf weeds than when applied to either sandy loam soils or clay loams.

Dr. Robert D. Shipman reports that this may be true because of the higher organic matter and microbial breakdown in the surface layers of sandy loams and clay loams of central Pennsylvania soils.

On soils where poverty grass, Kentucky bluegrass, and timothy are dominant, water movement and herbicide availability is more rapid throughout the entire soil profile on clay soils. However, surface runoff was also greater on the heavier clay soils, Shipman and his associates have demonstrated.

The persistence of residues and lateral movement of 11 soil-applied herbicides was influenced by degree of slope, rate of application, amount of rainfall, kind and extent of vegetation, and the herbicide's ease of dissolving in water.

In studies during the growing seasons of 1969 and 1970, the average distance that 9 herbicides moved through clay soil was 16 feet on an average slope of 7 percent. The longest distance moved was 35 feet on a 7 percent slope, which occurred with Tandex wettable powder. The least flow or drift occurred with a granular mixture of picloram and diuron which moved only 10 feet on a 13 percent slope.

The most effective herbicides for total control of vegetation were bromacil wettable powder, Tandex in granular form, Tandex in wettable powder, and picloram plus diuron mixture.

Eighteen months after application the herbicide bromacil—the most effective of all 11 weed killers tested—showed insignificant residues in clay. The other herbicides left only slight traces after 18 months.

In trials with seedling trees planted on treated plots, the clay soils showed the least herbicidal effect on Japanese larch and hybrid poplars. Both the larches and the poplars survived better on clay soils than on sandy loams and clay loams. Clay and clay loams showed better height growth than the loamy sand sites. Plots treated with diuron showed the best growth in height for both the larches and the poplars.

—Advertisers Index—

Ackley Mfg. Co.	54
Allis-Chalmers	41
Ametek/Plymouth Plastics Div.	61
Applied Biochemists, Inc.	31
Arps Corp.	26
Asplundh Tree Expert Co.	24
John Bean Div., FMC Corp.	23
Bowie Industries, Inc.	25
Brillion Iron Works, Inc.	55
Brouwer Turf Equipment	45
Samuel Cabot, Inc.	42
Ross Daniels, Inc.	26
Diamond Shamrock Chemical Co.	5
Dow Chemical Co.	15, 53
E. I. duPont de Nemours Co., Inc.	9, 13
Elanco Products	3A, 3B
Eversman Mfg. Co.	29
Ford Motor Co., Tractor Div.	2nd cover
Geigy Agricultural Chemicals	17
Gordon Corp.	40
Herd Seeder Co., Inc.	44
Howard Rotavator Co.	46
H. D. Hudson Mfg. Co.	52
Hypro, Inc.	38
International Minerals & Chemicals Corp.	7
Jacklin Seed Co.	8
Jacobsen Mfg. Co.	33-36
Jari Corp.	48
King Brothers Industries	31
Lakes Supply Co.	49
LTVAC Service Technology	47
Lofts Chandlerlin Seed Co.	4th cover
Mallinckrodt Chemical Works	11
Merck & Co., Chemical Div.	27
Merion Bluegrass Association	60
Milwaukee Sewerage Commission	56
3M Company	60
Mobile Aerial Towers, Inc.	43
F. E. Myers & Bro. Co.	32
National Mower Co.	39
Niagara Chemical Div., FMC Corp.	18
Parco Div., National Foam	49
Pennwalt Corp.	28
Plants For You, Inc.	62
Rain Bird Sprinkler Mfg. Corp.	6
Rapid Gro Corp.	62
Rockland Chemical Co., Inc.	46
Roof Mfg. Co.	48
Smithco, Inc.	44
Spraying Systems Co.	58
Standard Mfg. Co.	37
Stanford Seed Co.	58
Stihl American, Inc.	3
Thompson-Hayward Chemical Co.	59
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GYPSY MOTH CATERPILLARS

ashed in on Northeastern states woodland areas to the tune of two million acres last year. That's twice the acreage defoliated in 1970, and more than six times the 1969 acreage. About one-quarter of the trees were stripped of from 70 to 100 percent of their leaves. The Department of Agriculture has a comprehensive five-year research and development program underway to bring Gypsy Moth under control. The program makes use of both biological and chemical controls.

WHAT DO YOU DO WITH A SANITARY LANDFILL WHEN IT IS FILLED?

Make parks and playgrounds says John J. Roark, director of transportation and project manager for the new Regional Solid Waste Systems Analysis Study and Plan of the North Central Texas Council of Governments. He envisions this idea so practical that he one-day foresees a combined waste Disposal and Parks Board in many U.S. cities.

RESPONSE to a questionnaire sent out by the Minnesota State Department of Agriculture showed that although 29 states have imposed some restriction on pesticide use only five have actually banned (completely outlawed without any qualifications) the use of any pesticide.

SYCAMORE TREES come the closest to being the ideal city tree. They grow to desired heights, tolerate air pollution, salt, bumps from cars and drought, resist diseases, insects, don't clog sewers or crack pavement and they provide shade and a source of beauty. This the conclusion of Frank S. Santamour, Jr., a research geneticist at the National Arboretum. He's been working to develop a super-city tree to withstand the urban life of the 20th Century.

INTERSTATE HIGHWAY SYSTEM costs have now soared to the \$76.3 billion mark. That's an increase of \$6.4 billion over the estimate of \$69.9 billion submitted to Congress in

1970. Using present figures, the 42,500 mile Interstate cost the taxpayer about \$1.8 million per mile. Approximately 76 percent of the System is now open to traffic and another 20 percent is under construction or engineering development. When completed, this coast-to-coast network is expected to carry more than 20 percent of all motor vehicle traffic in the U.S.

POLLUTION IN SIBERIA is what the Russians had when they used Kenon Lake near Chita, an Eastern Siberian town, as a coolant for the waters from the Chita Thermo-electric Power Station. The result was a temperature increase of about 10 degrees and an increase in aquatic weeds and grasses. The lake began to turn shallow. Mechanical methods of meeting the problem didn't work. Scientists turned to a biological approach. Vegetation eating fish—white amur and fathead—were let loose in the lake, eventually stopping the overgrowth.

AMERICAN INDUSTRIES withdraw more than 17 trillion gallons of water per year from ground and surface sources. Less than one-third are treated to remove pollutants before discharge into public waters.

EPA Registers Dow Herbicide For Texas Use

Tordon 225 Mixture herbicide has been registered by the Environmental Protection Agency for use in Texas to control range brush, according to Dow Chemical U.S.A.

The herbicide formulation is effective in the control of mesquite, a major Texas brush problem.

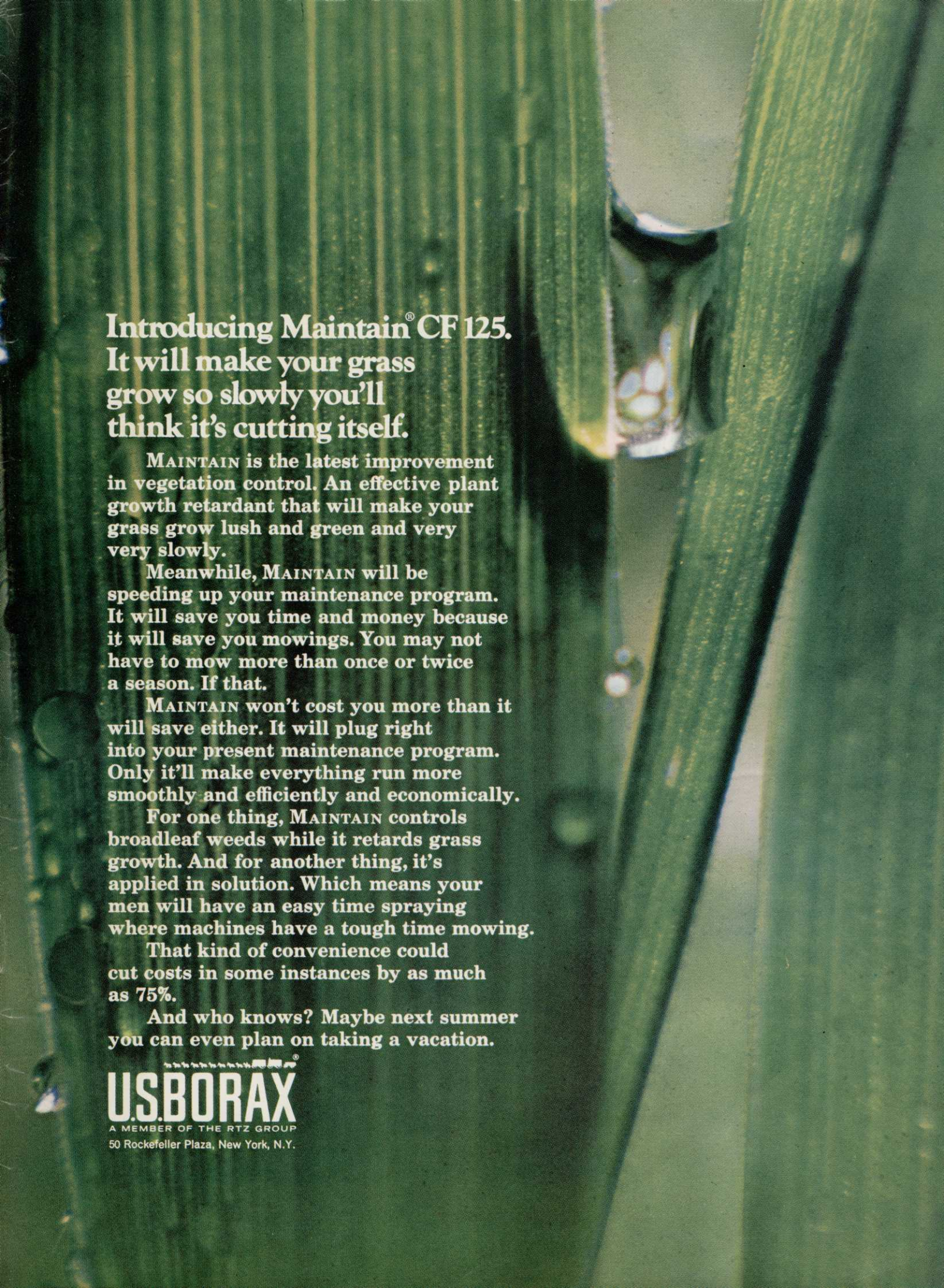
Tordon 225 Mixture herbicide has been studied in Texas for several years in experimental programs monitored by state and Federal agencies.

Brush experts say the product will give effective control of mesquite, a brush species which destroys the usefulness of millions of acres of range. Brush "polution" is a major economic problem in the Southwest.

Under the label granted by the Environmental Protection Agency, Tordon 225 Mixture herbicide will be applied only by applicators who have been trained in the use of the product and are thoroughly qualified. Applications and results will be monitored to assure that requirements are met and that no environmental problems are caused.



President Richard M. Nixon and James A. Sample, editor of WEEDS TREES and TURF, met in Chicago recently during the annual meeting of the American Agricultural Editors Association. Standing in the background is Joe Elliott, president of AAEE. At a reception in the President's honor, he expressed his optimism about agriculture and his recent appointment of a new Secretary of Agriculture.

A close-up photograph of a lawnmower blade cutting through a grass blade. The blade is positioned vertically on the right side of the frame, and the grass blade is on the left. The cutting action is captured in a way that shows the blade's edge and the resulting cut in the grass. The background is a soft-focus green, suggesting a lawn.

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