

Controlled-Release Chemicals May Aid In Reforestation

"Controlled-release" herbicides can accelerate the regrowth of forests. Herbicides can be effectively used in much smaller amounts than previously. The demand for wood products is projected to increase by 130 percent during the next 15 years.

These were the findings of three scientists of the University of Washington. Drs. R. M. Wilkins, G. G. Allan and Chetan S. Chopra, senior research associate in the Uni-

versity of Washington's College of Forest Resources, Seattle, reported their studies during the 163rd national meeting of the American Chemical Society in April.

According to Chopra, herbicides are "locked" into such substances as bark, crab shells, or lignin, which decompose slowly, releasing low levels of the herbicide to the soil over an extended and predictable period of time.

Substantially smaller amounts (a factor of 10 to 100) of herbicides are introduced into the environment by this method, compared to previous

ways of applying herbicides, he said. The herbicide is allowed to penetrate and link chemically to the bark. Therefore, the chemical cannot volatilize or be leached from the material.

"After one growing season, weed levels in a newly planted Washington State forest were down threefold and the growth of the treated conifer seedlings was twice that of untreated seedlings," Chopra told attending pesticide chemists.

"Controlled release combinations of bark/herbicide at specific application levels did not damage Douglas fir seedlings and yet had the capability of eradicating established and undesirable Western red alder seedlings whilst simultaneously inhibiting weed seed germination and growth for one entire growing season."

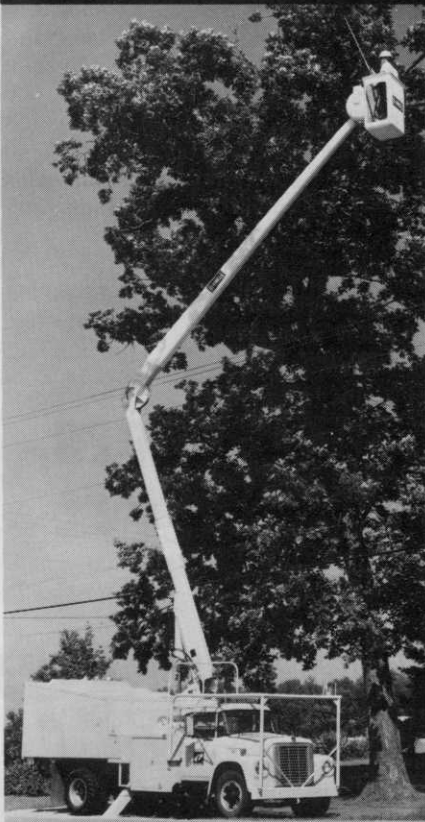
He pointed out that although there are more than 500 million acres of commercial forest lands in the U.S., one-fifth is currently covered with brush or small trees or inferior quality and could be made more productive by reforestation with conifers.

"One of the problems of such endeavors is provided by the rapid invasion of conifer plantations by fast-growing deciduous brush which in the Pacific Northwest is typified by Western red alder and vine maple. These deciduous plants, and their counterparts elsewhere regionally, tend to crowd and overshadow the conifers during their first five to ten years of growth and provide root competition for water and nutrients for many further years. The deleterious effect of this competition is further exemplified by the 50 percent loss in merchantable timber," he said.

The elimination of brush presents many problems, however. Wildlife that depends on brush for survival may be forced to forage more intensively on the tree crop. Commercially available herbicides are not clearly selective to brush. And herbicides may be ecologically undesirable. Water pollution problems may arise.

"To solve these and other forest pest management problems, new and more sophisticated methods of control will have to be developed and the approaches taken at the University of Washington are based upon the concept of controlled release pesticides," he said. "These materials are chemical or physical combinations of known and established pesticides with macromolecules such as bark, kraft lignin and crab shells, he said.

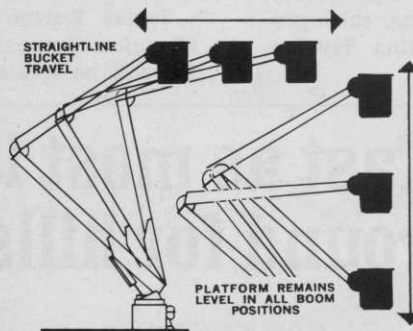
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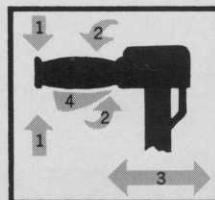
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