



## The Case of the Invisible Vapor Barrier

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One mystery that has been puzzling horticulturalists and paving contractors for years is: How do you effectively protect asphalt paving from damaging weed break-through without endangering nearby ornamentals?

It's a serious problem, one that affects both new and repaving projects. Consider this all too familiar scene:

On the one hand, you have a landowner asking a contractor to renovate and repave an old parking lot. But the contractor is hesitant to apply traditional soil sterilants to control germinating weeds because they would damage or kill existing ornamentals nearby, some of them twenty years old or more and extremely valuable to the landowner.

On the other hand, the contrac-

tor — and the landowner — must consider the value of the new paving. How long will it last if the soil under it remains untreated?

It's the sort of thing that has people shaking their heads and flipping coins to decide which way to go.

But someone seems to have discovered the answer. There's a new herbicide called "CASORON®" weed and grass killer that effectively kills germinating seeds under asphalt paving . . . and yet does no harm to existing woody ornamentals when used as directed.

Casoron is dichlobenil herbicide manufactured and distributed by Thompson-Hayward Chemical Company of Kansas City, Kansas. When applied as a preemergence granular herbicide or as a spray it kills a wide range of shallow and deep-rooted annual and perennial weeds.

Included among these are many annuals, plus such perennial weeds as artemesia, Canada thistle, curly dock, fescue, leafy spurge, orchardgrass, quackgrass, Russian knapweed, timothy, wild artichoke, wild aster, wild carrot, yellow rocket, sheep sorrel and others.

Casoron formulations will not control woody growth such as small trees, brush and woody vines.

Why does it work safely next to ornamentals and other herbicides do not?

Traditional soil sterilants tend to be absorbed by a growing plant's root system and translocated to the leaves, where the "killing" action takes place. All root systems, including ornamentals, accept these chemicals, and the damaging effects are similar across the plant spectrum.

Casoron, however, works in a significantly different manner. It is a volatile chemical that quickly vaporizes after application. When applied uniformly under asphalt, this gas vapor is trapped beneath asphalt and extends down several inches into the base material.

This "vapor barrier" is the key factor. When plant tissues enter the vapor barrier, the terminal meri-

**Above left:** Unchecked weeds alongside this road invites more weeds, more pavement damage and more maintenance expense.



stematic tissue stops cellular division and elongation.

This vapor barrier is the key factor for the herbicide's success. In addition to being a powerful inhibitor of germination, it acts directly on the growing points and root tips, causing the terminal meristematic tissue to cease cellular division and elongation.

Therefore, when plant tissue enters the "vapor barrier," that part of the plant simply stops growing. New seeds within the treated area are killed immediately after germination, while plants growing outside the treated area refuse to enter it.

Obviously, this applies to ornamental root systems, as well. They stop growing toward the nearby treated area and protected asphalt paving. No harmful chemicals are translocated to the ornamentals.

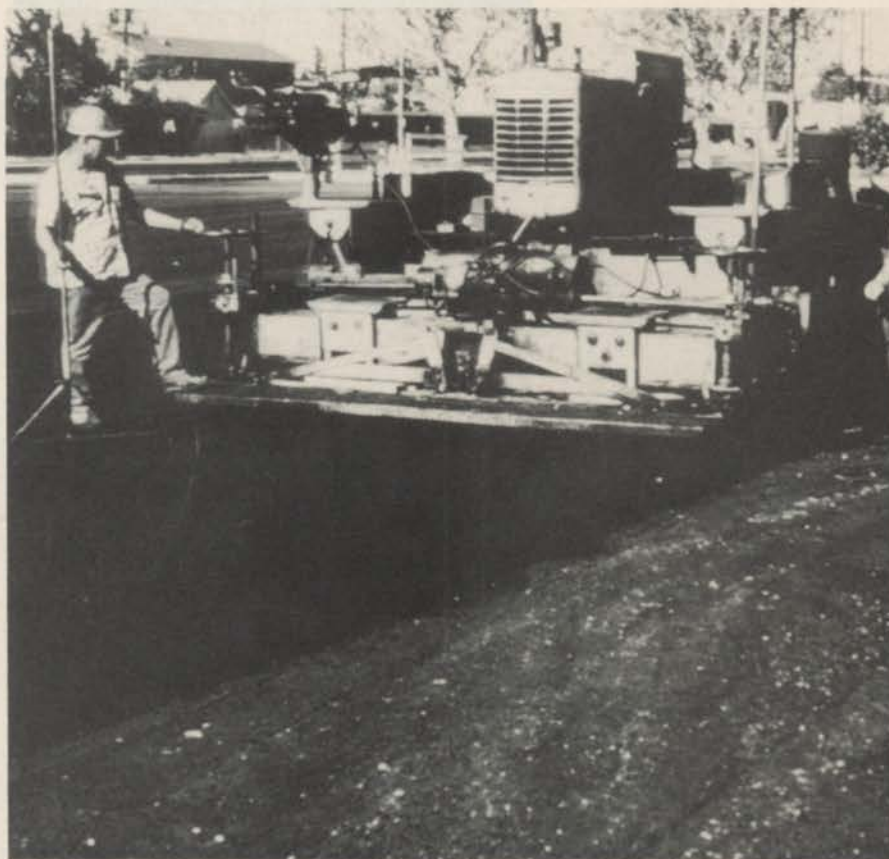
And the asphalt paving remains absolutely unaffected by damaging root systems or growing vegetation.

For these reasons, Casoron is an ideal herbicide for under-asphalt applications bordering ornamental landscaping: parking lots, road shoulders, recreation courts, sidewalks, bicycle paths and driveways. The manufacturer also reports widespread use in non-critical (i.e., non-ornamental) areas such as roadways, reservoir walls, airport runways and industrial areas.

The effectiveness of this relatively new herbicide in controlling weed growth under asphalt can be



Just ten hours after application of the herbicide, the paving contractor for the parking lot spread a 1/8 inch oil base to seal the soil and trap the herbicide vapor barrier.



The final asphalt course was applied to the Fresno parking lot a week after the Casoron application. The manufacturer's literature suggests that the herbicide is effective for three years or longer and there has been no sign of weed break-through to date on this job. The application date was August 1972.



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WEEDS TREES and TURF



judged by the following actual case histories:

- Casoron applied under 500,000 square feet of asphalt access roads on the Dominguez Channel in Torrance, Calif. To date, there has been no sign of road damage due to weed break-through.

- Applied to California State Highway road shoulders for Bermuda grass control prior to repaving. After 2 1/2 years, the area was repaved again with no need for additional weed control measures.

- Applied to a Los Angeles County Parks and Recreation Department basketball court prior to paving. After two years, the weed control was found to be excellent. Two breaks occurred on one edge of the treated area, but the pattern indicates a skip in the application, providing a good benchmark for the actual effectiveness of the treatment.

- Applied to a 70,000 square feet hospital parking lot in Delano, Calif. To date, there has been no sign of weed break-through.

The growing use of this herbicide under asphalt is an indicator in itself of the effectiveness and the economy of the herbicide. When properly applied under asphalt (at rates ranging from 20-24 pounds per acre for Casoron W-50 wettable powder), the cost is \$295.00 per acre not including application costs. . . . substantially less than other treatments.



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One reason for the overall economy is the simplicity and ease of application. As a wettable powder formulation, W-50 requires only 75 to 100 gallons of water per acre and minimal agitation.

This relatively small amount of water can be a big savings, particularly in arid regions where water must be hauled from a distant source with large equipment.

To get an idea of how the herbicide should be applied, let's take a look at an actual job and follow it through, step by step.

The job was a new seven-acre asphalt parking lot at Fresno City College in Fresno, Calif. The officials at the college and their architects specified a parking lot with islands of landscape vegetation coordinated with the campus landscape.

The contractor knew that the standard borate compounds were reliable but gave little or no safety to existing vegetation. Casoron was selected for the job.

The contractors, Western Exterminators, used W-50 wettable powder applied at the rate of 20 pounds of product in 100 gallons of water per acre.

Using a truck-mounted John Bean spray rig with 6 ft. hinged spray extensions, Western Exterminators was able to develop angular spray patterns along the parking lot curbs. This allowed the operators to keep the truck on the spray path for each pass up and down the parking lot.

Temperatures were extremely high (over 100°) on the day of the application and some concern was expressed about the volatility of the herbicide. But the contractors had planned carefully and the paving contractor was on hand the next morning, ten hours after application, to lay down a 1/8-inch oil base.

This oil base effectively sealed the herbicide application, trapping the vapor barrier until the final asphalt course was applied and rolled the following week.

This application was made in August, 1972 and there have been no signs of weed breakthrough since.

As with any other herbicide or soil sterilant, proper preparation and application are essential. With Casoron, the following steps should be observed:

- Prior to application, remove all small trees, brush and woody vines from the area to be treated. This can be accomplished by scalping the surface with a grader, blade, plow or disc. Re-compact the soil.

- Use calibrated application equipment to spread the herbicide uniformly over the entire area to be treated. Hand sprayers may be used to cover the hard-to-reach areas. Apply just prior to laying the asphalt course, or seal with a suitable oil base immediately after application.

- Do not mix Casoron formulations with asphalt primer or with the asphalt.

Specifics on the available CASORON formulations:

- G-10 is a granular formulation available in 8/16 mesh size and containing 10% active ingredient.

- G-4 is also a granular formulation available in either 8/16 or 16/30 mesh size and containing 4% active ingredient.

- W-50 is a wettable powder formulation for spraying. It contains 50% active ingredient.

With a product like this around, there's no reason for horticulturalists and paving contractors to do any more head-scratching when faced with the old question: Do we protect the paving . . . or the trees?



When the roots of an ornamental plant come into contact with the herbicide's vapor barrier, they simply stop growing in that direction, preventing damage to the asphalt covering. Since the roots will not systemically translocate or absorb the herbicide, no harm is done to the ornamental.