Double-Action Herbicide Getting USDA Evaluation

An experimental chemical with an unusual double action against both broadleaf and grassy plants is being evaluated by the U.S. Department of Agriculture.

A commercially-developed herbicide, known by the code number 6706, is closely related to the older compound, pyrazon. But unlike pyrazon which causes growth inhibition, desiccation, and death of green foliage, 6706's first symptom is the development of white foliage in plants. This closely resembles the action of other herbicides that prevent greening in plants.

Studies show that 6706 acts herbicidally like pyrazon by direct inhibition of a step in photosynthesis. Though pyrazon and 6706 are equally phytotoxic in this reaction, the experimental chemical has an additional herbicidal advantage. It remains phytotoxic in treated plants whereas pyrazon is rapidly inactivated in most plant species.

Time of treatment appears to govern which mechanism is principally involved. When 6706 is applied preemergence, the plants come up —white or red depending on whether the plant can make red anthocyanin pigments—and grow as long as food reserves in the seeds hold out. Herbicidal action results from the lack of functional chloroplasts necessary to manufacture products of photosynthesis for continued growth.

In contrast, when 6706 is applied to established green plants, herbicidal action and growth control result from the direct inhibition of photosynthesis in the preformed functional chloroplasts. And should new leaf tissue develop on the treated green plant, the direct inhibition action is supplemented by the failure of these new leaves to develop green tissue. Thus, photosynthesis is prevented by two different mechanisms in the foliage developed before and after treatment.

New York State Highway Department has just purchased this group of 12 slope tractor-mowers from Slope Tractor, Inc., Harper, Kan. The tractor in the foreground is simulating mowing a slope of up to 30 degrees while operator and controls remain level.

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