

A shot of alcohol awakens dormant seed

BELTSVILLE, Md. — A dose of grain alcohol has proven to be a promising potion in USDA attempts to force dormant weed seeds to germinate — research that might some day drastically reduce the crop weed problem.

Using ethanol, a USDA weed scientist has forced several annual weedy grasses and a few broadleaf weeds to germinate before their time. Although ethanol has not been tested in field conditions, it has stimulated a wider range of weed seeds

than most other chemicals tested in the laboratory or the field, says R. B. Taylorson of USDA's Science and Education Administration.

The earth's reservoir of dormant seeds is the mainstay of the weed problems that plague farmers year after year.

"If most of these seeds could be forced to germinate at one time, they could be killed with herbicides before a crop was planted. And weed problems would be under control for many

years to come," says Taylorson.

Some weed seeds can remain dormant in soil as long as 100 years. Cultivated land usually contains about 10 million weed seeds per acre in the top six inches of soil. Some land may contain 100 million or more seeds.

Taylorson has had most success (100 percent germination) in forcing fall panicum—one of the principal weeds of corn and soybean acreage in the Northeast and Midwest.

Witchgrass, crabgrass, and barnyardgrass seeds responded at better than 50 percent germination, a rate Taylorson sees as the cutoff point for any seed eradication program to be cost effective.

Fall panicum and witchgrass germinated in complete darkness, but

crabgrass and barnyardgrass needed red irradiation to induce germination. Wild oat and johnsongrass have been impervious to ethanol and several other anesthetics Taylorson tested.

So far, broadleaf germination has been under 50 percent.

Getting seeds to germinate in the absence of light is most important to any future weed-seed eradication program, says Taylorson.

Many weed seeds require exposure to the red band of the spectrum which triggers a chemical called phytochrome to initiate the growth process. Those that do germinate each year are exposed to sunlight through cracks in the soil or are brought to the surface during cultivation. But the vast majority of weed seeds

rest in the darkness of the soil.

Taylorson attributes his good results with fall panicum to "hitting on the right set of conditions at the start." He expects that further experimentation will produce similar results in other grasses and broadleaf weeds.

The trick, he says, is to apply the right chemical in the correct dosage at the right time and temperature. Fall panicum probably responded best when incubated in the laboratory at 95° because it is a naturally late germinating grass, explained Taylorson.

There are several technical problems to be overcome before ethanol or other anesthetics could be tested in the field, he said. A method for keeping these highly volatile chemicals in

the soil for at least four hours would have to be developed.

And the three percent solution of ethanol that was workable in the lab translates to a costly 120 to 160 gallons of ethanol per acre.

Taylorson noticed that anesthetics stimulated seeds to germinate while studying how they affect the properties of seed membranes. Exactly how anesthetics affect membranes is still a question, but the fact that they do is probably what triggers germination, he said.

He noted that several USDA and state agricultural scientists are exploring other germination stimulants for practical weed-seed eradication methods.

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Red Lion FFA holds awards banquet

BY PATRICIA GREEK
Staff Correspondent
RED LION — The annual Parent-Member Banquet of the Red Lion FFA Chapter was held recently at the Red Lion Area Senior High School.

An Honorary Chapter Farmer Degree was presented to K. Loren McCleary. McCleary was awarded this honor for his support of the FFA Program. He has done much

to advance agriculture and the FFA in the community.

The coveted Star Greenhand Award went this year to Annette Walter, Airville. Annette maintains good grades in school. She has also participated in many FFA Livestock Shows and Judging Contests.

Following right along, the Chapter Star Farmer Award, presented to the Outstanding Senior went to Todd Grove. Grove carries

projects of Swine Breeding and Finishing, Field Corn and Soybeans. He is currently serving as the Chapter Chaplain and has participated in many county and state contests. Upon graduation, Grove plans to return to the home farm and expand his livestock and crops projects.

Abbe Johnson, Airville, was this year's recipient of the DeKalb Award. Selection for this award is based on Scholarship, Leadership, and Farming Program. Abbe is an honor roll student and currently President of the FFA Chapter. She has participated in both county and state Dairy Contests. Her farming program includes work experience as a DHIA Field Representative

and her own dairy cows. Abbe has also received recognition for her project programs on both the county and state level.

The Michael Spangler Memorial Award is given each year to the Outstanding Sophomore in memory of Michael Spangler who was active in FFA, school activities, and had a high scholastic average. This year's winner was Paul Garner. He is an Honor Roll student and has been very active in FFA. Garner also is a member of the school's Marching and Symphonic Bands.

The Chapter Quiz Contest winner was Aaron Crowl, Airville. This contest is based on the participant's knowledge of all aspects of the FFA.

Foundation Award Winners were: ag sales and service, Francine Lewis; ag mechanics, John Schott; beef production, Harry Sawmiller; crop production, David Warner; dairy production, Barb Kilgore; farm and home electrification, Tom Craig; and home improvement, Glen Daugherty.

Also, horse proficiency, Chris Rechar; fruit or vegetable production, Melvin Marks; placement in production, Robert Dehoff; poultry production, Mark Ebaugh; public speaking, Beth Holtzinger; soil and water management, Victor Spangler; and swine production, Jeff Grove.

Lancaster 4-H Beef club meets

The Lancaster County 4-H Beef Club held their April meeting in the basement of the Farm and Home Center.

Guest speaker for the evening was Carroll Howes. His topic was 4-H work and its rewards.

Special talent for the evening was Yvonne Eshelman, who played the piano.

After the meeting, ground beef from the banquet in February, was auctioned.

The next meeting will be held Wednesday, May 7. Reported by Michelle Dean.

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