

Super slurper swells out all over

PEORIA, Ill. - Super slurper, the starch-based absorbent that swells as it jells hundreds of times its weight of water, is "swelling out all over."

Reports received at the U.S. Department of Agriculture laboratory from industrial and research resources indicate that production will have to continue increasing to keep pace with use and company expectations.

Planting uses alone could eventually account for more than 100 million pounds a

year of an absorbent that jells hundreds of times its weight of water, estimates William M. Doane, Northern Center research leader.

"Earlier reports pointed toward absorbent soft goods as the most promising application," says Doane, "but planting uses emerged as the leader this year."

Research sources report corn, soybean and milo sorghum yield increases ranging from 10 to 50 percent in seed coating field tests.

Several water-jelling absorbents, made by chemically grafting man-made acrylic compounds to cereal grain starch and hydrolyzing the combinations, were introduced as super slurpers, 1973-77, by Doane, M. Ollidene Weaver, George F. Fanta, Edward B. Bagley and other scientists at the Northern Center of Agricultural Research, a division of the U.S. Department of Agriculture, located in Illinois.

The super slurpers, absorbing 300 to 5,300 times their own weight of pure water in the laboratory, established new standards of absorbency and a name for the standards, the products and the industry. Henkel Corporation, formerly General Mills Chemicals, Minneapolis, is taking steps to trademark "Super Slurper."

Three companies produce the starch-based absorbent. Henkel licensed the first USDA patent application in August 1974; Super Absorbent Company, Lumberton, N.C., in March 1976, and Spenco Medical Corporation, Waco, Tex., in October 1977. A total of 45 companies or individuals have licenses on three USDA patents now.

"We have extensive seed coating technology," said Gilmore of Henkel Corporation. "It permits, adding thin coatings, which do not change seed size substantially, or pelletizing, which does increase seed dimensions significantly."

"We can coat seeds as small as guayule, as large as castor beans and as frail as peanuts." Guayule is a rubber-producing desert plant under development as a United States rubber crop.

Gilmore says seed coating research is continuing on vegetables and other crops including corn, sorghum, soybeans, sugar beets, guar and jojoba, a desert shrub that produces a liquid wax replacement for sperm whale oil.

Super slurper coatings "form a gel capsule of water around each seed," Gilmore says. "The amount of coating is extremely important in providing water uptake without drowning the seed."

"The coatings lead to an increase in stand from lower seeding rates, better emergence, more uniform and vigorous stands and higher yields." He says the coatings help especially in dry land planting, under irrigation, on low quality seed, and in double cropping, for example, soybeans in wheat.

He says other materials can be added to super slurper seed coverings to protect against disease and insects, break down seed coat impermeability, absorb toxic residues of herbicides and stimulate root growth or the germinating embryo. A test covering on cottonseed, for example, contained fungicide and embryo stimulant.

Slurper-coated corn "planted under moderate to severe moisture stress" produced 4,100 more plants an acre than "naked seed" produced and yielded 13 more bushels than the 123-bushel control yield in field tests by Dale E. Behmer of American Ag & Bio-Tech.

Behmer says coated soybeans broadcast in chemically killed sod "showed 7 to 28 percent stand improvements" over uncoated beans in Arkansas tests. Highest yield increase from coating soybeans was 18 bushels an acre.

Coating milo seed increased yields in a range of 17 to 49 percent on chemically killed sod in Behmer's Arkansas tests.

At least one step beyond planting coating seed is the possibility of sowing pregerminated seed in a super slurper gel. "The gel protects the exposed root from damage and facilitates planting," says Alan Taylor,

research assistant to James Motes in the Oklahoma State University Department of Horticulture.

Taylor says the gel-seeding technique offers "earlier emergence, better and more uniform stand and greater ability to withstand environmental stresses. It can be used on flower, tree or crop as well as on vegetable seed."

He says that 20 acres were planted with pregerminated vegetable seed this year. "Greenhouse growers will benefit in the future by sowing pregerminated seed," Taylor says.

"The significance to consumers may not be seen for several years. The question is will the technique be accepted by the vegetable industry and to what extent."

Florida nurserymen and other growers use super slurper to start and grow high value vegetables, foliage plants and ornamentals in trays, beds, pots and sandy fields where water is vital and expensive.

James J. Quinn, Industrial Services International vice president for agriculture, says the absorbent cuts water use 90 percent on bedding plants and seed trays, cuts misting time on foliage plants and shortens the usual 4 to 5 weeks between potting plants and marketing them by about a week because the plants develop faster in slurper-treated soil.

Quinn says farmers, greenhouse operators, nurserymen, condominium owners, landscapers and bare-root shippers use the absorbent in areas ranging from mini trays to acreages for all kinds of plant growing. "The only exception is hydroponics," he says.

Musser Forests, Indiana, Pa., uses and markets super slurper as Water Gel for root coatings. "We think this is just the product we have been looking for to reduce losses in bare root trees," reports Fred Musser, Jr.

He estimates that Musser Forests coated the roots of 2.5 million trees for shipping in 1979. Large orders are not root coated now because water held on the roots adds to the transportation cost.

"We feel that super slurper will retain moisture around roots of plants during shipment better than other materials we have tried," Musser says. "It also appears to increase the survival rate of bare root plants for field planting in hot, dry weather."

This year's experience gave an example, Musser says. The nursery completed its own plantings late—in the hot, dry weather of June. By the middle of September, 85 to 90 percent of the root-coated seedlings were growing. Survival rate of untreated seedlings was zero.

Tips on catching the big one

LANCASTER — A lively minnow will attract the attention of a passing fish far better than a lethargic one. To make your minnows livelier, clip off the tail fins. The "clipped" minnows have to work much harder to maintain equilibrium, thus are more active.

Some fish smell so fishy when you clean them that the odor lingers on your hands and in the sink. You can neutralize the odor by washing hands and sink in a mixture of tomato and lemon juices.

Covers for your reel and rod handle can be purchased, or you can make your

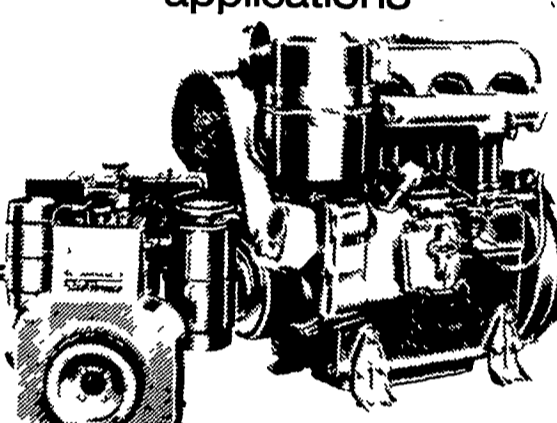
own at far less expense. Just slip a plastic bag over reel and rod handle, and secure the opening with a wire bag sealer.

It doesn't count much to set a hook with all your might if you don't first reel all the slack out of your line. For each foot of slack you need one foot of movement in your rod tip.

So, for best hook-setting efficiency reach your rod tip toward the fish as far as possible, reel all the slack out of your line, then give it to him.

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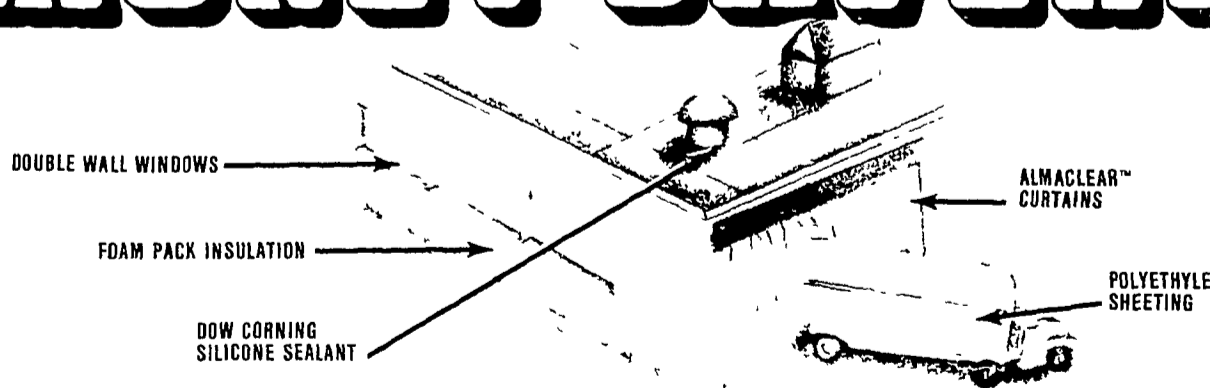
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