

INJECTS WATER INTO SEEDS TO SPEED GERMINATION

Introducing "The Seed Moisturizer"

By Harold Johnson, Editorial Director

Farmers and researchers who've seen it work are predicting a promising future for the just-introduced new "Seed Moisturizer" machine.

"It's the first and only one of its kind in the world," says Al Graves, co-inventor of the patented machine which, after five years of testing, is being marketed by Advanced Growth System's field office in Edmonton, Alb. The company, headquartered in Vancouver, B.C., is headed by J. H. Prefontaine, who teamed up with Graves to develop the Seed Moisturizer.

It uses vacuum to pull air out of seeds, and pressure to inject water into the heart of the kernel. Seed is moisturized in 100 bu. batches at the rate of 200 bu. per hr. The going rate is \$2.00 per bushel for custom moisturizing corn, cereals and other coarse grains, and 25 cents per lb. of alfalfa, clover and other small seeded crops.

"We recommend that seed be planted no sooner than 5 or 6 hours after treatment, and no later than 48 hours. If it rains and you can't get into the field to get treated seed planted within 48 hours, it can be dried down for safe keeping, then retreated," explains Dr. Brian Carpenter, marketing manager whose degrees are in agriculture and veterinary medicine.

"Seed swells up about 50% in volume after treatment. For example, if you bring in 10 bags of seed corn to be treated, you'll have a 15-bag load going home," according to Dr. Carpenter. "There's no problem in running swelled seed through a conventional planter or drill, except that you have to adjust the metering mechanism to compensate for the larger kernel size to end up with the desired plant population. Moisturized kernels come out of the machine soft, but not so soft that they get mushy and lose their integrity. With some crops, such as alfalfa, you'll want to reduce the normal seeding rate to allow for the fact that, with adequate soil moisture, a much higher percentage of moisturized seeds — including many hard kernels — will germinate and grow," Dr. Carpenter points out. "Moisturizing injects water into the seed to trigger faster germination and root emergence, but not enough water to sustain plant growth. If planted in powder dry soil, moisturized seed will lay there until moisture comes. When it does, it'll use it faster and much more efficiently than untreated seed since it has already begun to germinate."

Dr. Carpenter hopes to have upwards of 50 machines in the field in the U.S. and Canada next spring. "In locating them, we'll give top priority

to any potential dealer who can line up about 10,000 acres of wheat, corn, alfalfa, canola and other crops for custom moisturizing prior to planting," he told FARM SHOW.

Interested farmers and researchers from all corners of the world, including Russia, have bombarded Advance Growth Systems with inquiries since the company first publically introduced its new seed-moisturizing machine at the 1986 Western Canada Farm Show in Regina, Sask. "Three experimental machines were in the field last year. This year, we're field-testing 13 machines — 10 in Alberta, 2 in Saskatchewan and 1 in British Columbia," says Dr. Carpenter. "We expect to have machines working in Montana and Washington in the next few weeks.

"In addition to the farm market, we're getting a lot of interest from flour millers, brewers and other industries where the manufacturing process requires pre-soaking of seed kernels. We're also exploring the new machine's possible application to other areas of agriculture, including feeds for livestock," explains Dr. Carpenter.

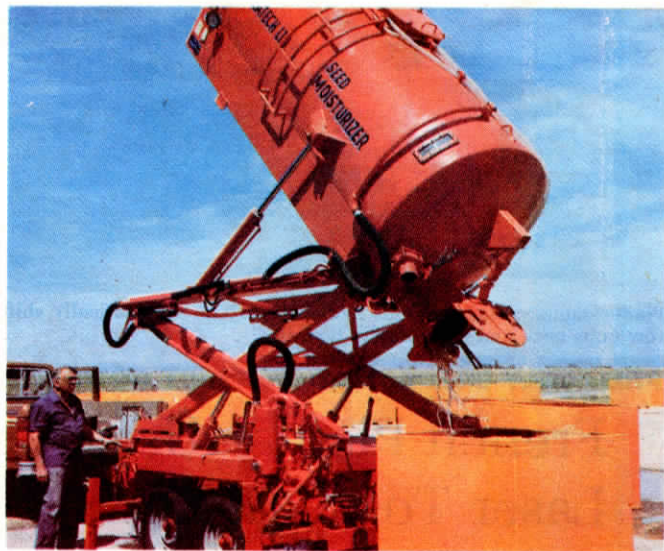
Initially, however, the company is focusing on the farm market where it feels the new machine has its biggest and best potential. "Our plan is to put machines in the field under a licensing agreement, rather than selling them outright. We want them in the hands of trained operators who will custom-treat seed for area farmer-customers," says Dr. Carpenter.

How It Works

There's nothing new about the concept of soaking seeds in water to speed germination. For more than 100 years, pre-soaking has "worked great" in laboratories but, until now, has remained slow, cumbersome and impractical for on-farm use. Other previous attempts to trigger germination in bulk lots of field crop seeds — including ultrasonics, magnetism, and coating seed with starch or other water-attracting materials — have been unsuccessful.

"Our machine uses vacuum and pressure to hydrate seeds internally, which is much different than simply soaking them in water," explains inventor Graves. "And, for the first time ever, seed can be moisturized in bulk and planted 5 or 6 hours later, using conventional planters and drills.

"When a seed kernel matures and fills out, cells inside shrink and leave air space around them. We pull this air out, allowing water, under pressure, to enter," explains Graves. "It looks good to me," says Dr. J. Derek Bewley, chairman of the Biology department at the University of



Seed is moisturized at the rate of 200 bu. per hour.

Guelph and an expert on seed moisturizing. His enthusiasm for the new Seed Moisturizer machine prompted him to serve on Advance Growth System's board of directors. "The technique this new machine uses to hydrate seed is based on sound scientific principles which, to my knowledge, haven't been previously exploited. I wouldn't go so far as to say they've reinvented the wheel, but they have put it on a very useful new machine. There are many questions to be answered, such as optimum temperature of the water injected into each crop, optimum fertilizer rates for moisturized seed, and optimum times for having seed treated."

Here's how farmer Denis Chabot, of Falher, Alb., who used one of the prototype machines this past year to treat about 700 acres of canola (rape), sizes it up: "We were awfully dry in this area at seeding time and had to plant unusually deep to get to moisture. The treated crop did get off to a much faster, more uniform start but we won't know until harvest if there will be a significant yield increase. There's a lot of local farmer interest in the new machine because of droughty conditions we've had the last couple years at seeding time. I plan to moisturize winter wheat I'll be seeding this fall. Limited trials in this area indicate that alfalfa and canola may be the best responding crops to moisturizing. I really feel the machine has a promising future, particularly in areas where drought is often a problem at seeding time."

After one year of limited testing, farmer Jerry Thacker, of Box Burdette, Alb., feels that "the jury's still out. I have high hopes for the new

machine. However, there are many unanswered questions and it's too early in the game to be giving it blanket endorsement," he points out.

Based on results he experienced last year with seed moisturizing, James Schellenberg, of Spruce Grove, Alb., feels that on some crops, such as alfalfa and canola, it improves germination to the extent that you can save enough on reduced seeding rates alone to more than cover treatment cost. He also feels moisturizing, with its ability to speed germination, could prove to be a big help in overcoming root rot problems in cereal grains which, in droughty areas, have to be seeded deep to get seed into moist soil.

Allen Dowell, of Spruce Grove, Alb., acquired one of the new machines last May. "We got it too late in the season to do much but we did custom treat some barley, alfalfa and canola. It's an exciting new machine and most area farmers are anxious to see what it can do under a wide range of crops and conditions. It's going to take a lot of leg work and research to get the ball rolling, however. We hope to have a full scale custom-treatment program ready to go for the 1987 planting season."

We'll keep you posted in FARM SHOW on latest new developments. Meanwhile, if you'd like more information direct from the manufacturer, including how to go about possibly getting a custom operated seed moisturizer machine into your community, contact: FARM SHOW Followup, Advance Growth Systems, 10808 209th St., Edmonton, Alb. T6E 2N0 (ph 403 447-3737).

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