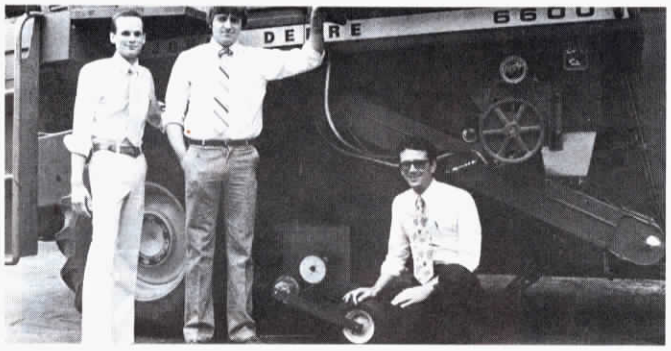


Iowa State University Ag Engineering students Steven Haverly, Donald Barnes and Brent Dorman developed the combine air seeder-planter.

ANOTHER USE FOR YOUR MACHINE

Students Turn Combine Into Huge Air Planter

Three Agricultural Engineering students at Iowa State University, Ames, have done what no major manufacturer has been able to do. They've turned a big, self-propelled combine into a king-size air planter for corn, soybeans and other crops to get double use out of the most expensive machine on the farm.

Steven Haverly, Donald Barnes and Brent Dorman set out to use both an existing combine and conventional planter components. First, they attached a bracket to the throat of the feederhouse to allow for 3 pt. hitch type mounting of the planter toolbar. Using the grain tank as seed hopper, they mounted a "Wil-Rich" air seeding system, which consists of a pair of soft rubber rollers, at the bottom of the tank. Seed falls into a chute beneath the rollers and is blown by fan through tubes to each opener.

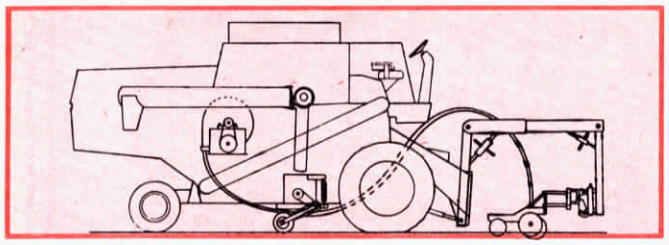
To obtain a positive ground drive for the planter metering unit, a spring-loaded drive wheel was located on the seed hopper. A combination of various size sprockets is used to obtain the desired planter rate. The drive wheel is lifted with a hydraulic cylinder. When the planter is raised, the drive wheel is also raised, stopping the flow of seed to the openers.

Spacing of rows was a problem because they could not run the combine wheels over the freshly planted seeds. The students offset the planter, lining one row up with the combine's centerline, three rows to one side and four rows to the other. Row markers were set one half row width shorter than normal and one of the planter units was driven down the mark in the field.

The biggest objection to using the combine for planting was the possibility of damaging the combine. The students point out that they were only risking the drive unit and not the all important threshing unit. The advantages — getting double use from combines, avoiding the cost of an expensive planter, and freeing up a tractor for seedbed preparation — far outweigh any disadvantages, they point out.

The combine planter was designed by the students as an entry in an Iowa State University ag engineering design contest. Other entries included: An automatic braking system for trailing farm wagons, which features a spring-loaded plunger that sets the brakes if the hitch breaks loose from the tractor; and a combine grain yield meter that mounts in the grain tank and gives on-the-go electronic readouts of grain yields. The designers say you'll eventually be able to take the readout from harvest and play it back through a planter to adjust planting rates on the go to the uniform yield level you want; and a steering limiter for tractors that automatically limits sharp turns at higher speeds to prevent tractor rollovers.

For more information on any of the projects, send a self-addressed stamped envelope to: FARM SHOW Followup, Dr. Wesley Buchele, 107 Davidson Hall, ISU, Ames, Iowa 50011 (ph 515 294-3917).



The combine grain tank serves as a giant seed hopper. A Wil-Rich air system carries seed to row units up front.

Photo courtesy Pennsylvania Farmer

John, Sr., and John Devinney, Jr., check out a field of alfalfa seeded through a crop sprayer in mid-spring. It was ready for full third cutting five months later.

SEED MIXED IN WITH LIQUID FERTILIZER

Promising New Way To Seed Alfalfa

It's being done successfully in Pennsylvania — spraying on alfalfa seed mixed right in with the liquid fertilizer and insecticide. The benefits claimed are money and time savings, and good weed control in direct seeding (no nurse crop) without an herbicide.

The system was developed by Martin Seed and Fertilizer, Coburn, Pa. According to Paul Martin, who does the actual spraying of alfalfa seed, approximately 1,250 acres have been spray-seeded for farmer customers. "Generally, the results have been very good," Martin told FARM SHOW.

John Divinney, a dairyman at nearby Spring Mills who has spray-seeded alfalfa, verifies that Martin's system works: "We have 25 acres that the Martins spray-seeded for us in two separate seedings, and this spring we're doing 20 acres more. The big benefits are savings in time and fuel. And spray-seeding does a better job — there are no skips in the broadcast stand. The alfalfa comes up like a mat and the weeds are just crowded out. We used no herbicide, yet had no weed problem even in the first year of the direct-seeded stand."

Martin says he sometimes also sprays grass seed along with the alfalfa, to provide a mixed hay, such as alfalfa-timothy. "Spray-seeding takes good equipment that most farmers themselves don't have," he adds. "We use a John Blue L-3000 piston pump on the sprayer, and fan nozzles with 3/16 in. openings. Most farmers in this area don't have drills to plant alfalfa with anyway."

A family operation, the Martins charge $4/acre to do the spraying. The alfalfa seed cost/acre runs $46.20 (15 lbs. at $3.08/lb.); fertilizer is $36.90 (600 lbs./acre of 3-10-10 at $6.15/cwt.); Furadan to control leafhopper and alfalfa weevil is $21 (2 qts. 4-L); for a total cost per acre of $108.

After spraying on the seed, a field is cultipacked to assure good soil-to-seed contact.

"I don't see any reason why the idea wouldn't work in other parts of the country where alfalfa is grown," says Martin.

For more information, contact: FARM SHOW Followup, Paul Martin, Martin Feed and Fertilizer, Coburn, Pa. 16832 (ph 814 349-8787).