

# Better insecticide sprayer sprays less

WOOSTER, Ohio — Applying insecticides with modern equipment — and only when and where needed — reduced the amount of chemicals applied to high-value row crops by about 50 percent.

T.L. Ladd, Agricultural Research Service research entomologist, used a sprayer turned on and off automatically by a photoelectric control. The intermittent sprayer was developed and tested by Agricultural Research Service agricultural engineer Donald L. Reichard.

It projects an infrared light beam across the plant row as the machine moves across the field. Plants interrupting the light beam automatically trigger the unit and get sprayed. When the light is not interrupted, no spray is applied.

Ladd and Reichard have been working with various intermittent sprayers and application systems for several years. For the first time they have used the photoelectrically controlled

population counts.

Ladd checked both spring- and summer-transplanted cabbages for signs of cabbage loopers and imported cabbage worms. When numbers reached a potentially damaging level, he applied an insecticide treatment.

The researchers, including Ohio Agricultural Research and Development Center entomologist Donald E. Simonent, are all stationed at the Center, Wooster, Ohio. They compared the amount of chemicals used by their system with a weekly insecticide application by a continuous spray system typically used in production of commercial fresh market cabbage.

"We used less than half as much insecticide on the summer planting with our system as we did with the weekly, continuous spray method," Ladd says. "When we used the intermittent sprayer weekly, regardless of the insect

population, we still used 40 percent less insecticide.

"The chemical amounts used clearly demonstrate the advantage of basing applications on population counts or other evidence of insect activity. Even with the continuous sprayer, when applications were based on population counts, 26 percent less insecticide was used compared to the weekly spray schedule," Ladd says.

Insect infestations in cabbage transplanted in the spring were so small and late that both the continuous and the intermittent treatments based on population evaluation used 75 percent less insecticide than the weekly, continuous spray treatment. The intermittent treatment, applied weekly, used 21 percent less insecticide than the continuous sprayer.

"No significant differences existed in the numbers of insects or in the quantity or quality of cabbages produced under any of the spray systems," he says. "All treated plots of summer cabbage yielded at least 50 percent more

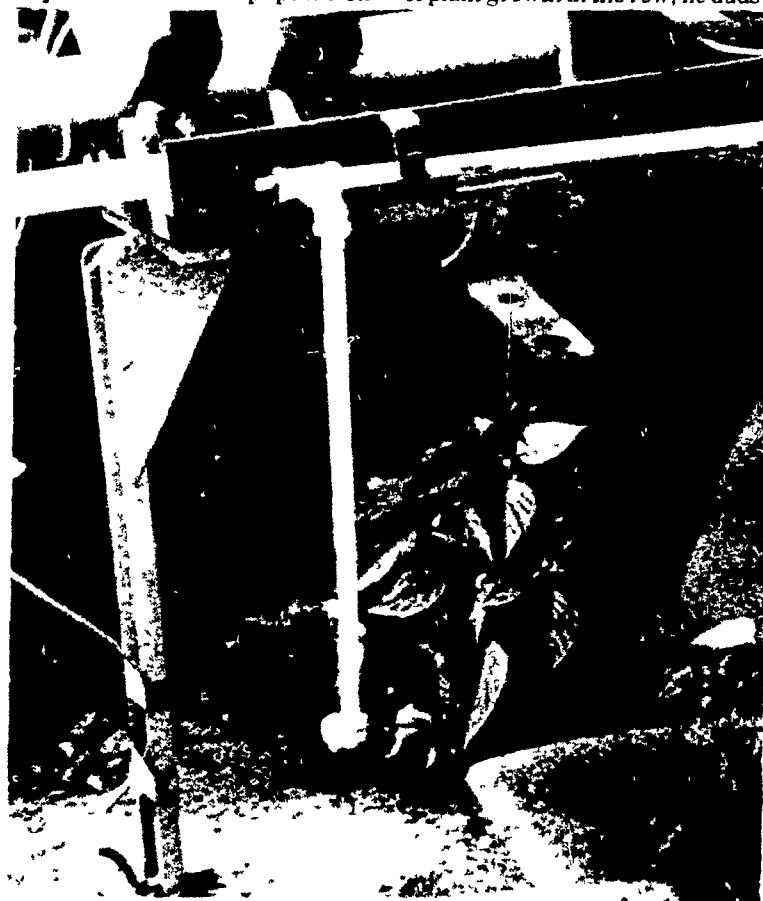
than untreated plots. In fact, for the fresh market, nearly all the untreated cabbages were unmarketable."

The differences in the amount of insecticide used are largest while plants are small. After plants grow to fill in the entire row, the intermittent sprayer applies insecticide most of the time anyway, the same as the continuous sprayer, Ladd adds.

"It seems to me that photoelectrically-operated intermittent sprayers, used in conjunction with population

counts, could well reduce the amounts of pesticide needed to control pests in a number of situations, particularly where small transplants or newly emerging seedlings are subject to early or massive attack by insect pests or plant disease organisms," Ladd says.

The amount of chemical that can be saved depends on the crop, planting date, spacing within the row, pests of the crop, time of appearance of the pests, rapidly of population buildup, and the speed of plant growth in the row, he adds.



Three spray nozzles like this one are activated when a plant interrupts an infrared light beam. Photoelectric transmitter and receiver are mounted slightly in front of the nozzles.



USDA technician Charles R. Buriff tests the sprayer on young pepper plants at the research center at Wooster, Ohio. The insecticide is applied intermittently so that only the plants are sprayed.

## RALPH HALL DISPERSAL

Savocool Hills Rd. off Cobb St., Broton, Thompkins County, NY

WED. EVENING JUNE 2 at 7 P.M.

70 HEAD HIGH GRADE AND REGISTERED CATTLE  
19 JERSEY COWS, 12 REGISTERED, BALANCE ELIGIBLE  
2 Registered Guernsey cows, 17 Holsteins, about 1/2 Registered, DHIA Records, 30 head of young stock, Holsteins and Jerseys.

### FARM MACHINERY

AC D19 tractor, NH 315 baler, like new, NH 489 haybine, NH 56 rake, Oliver 575, 4x16 auto. reset plow, 16' Brillion sawtooth field cultivator and other full line of equipment.

Watch next week's paper for full listing.

MR. AND MRS. RALPH HALL

Owners  
607-898-3847

Howard W. Visscher  
Sales Manager and Auctioneer  
Nichols, NY  
607-699-7250

## Annual Heifer Sale

Located on the Robert Mullendore Farm, 10 miles south of Hagerstown, Md. on the Boonsboro-Williamsport Road (Route 68), 3 miles west of Boonsboro, Md. or 2 miles east off Sharpsburg Pike (Route 65) at Lappan Crossroads

FRIDAY EVENING, MAY 28  
at 7:00 P.M.

### 300 Head of Livestock 300

Consisting of from 200 to 300 head of Holstein heifers ranging started calves to some good close springing heifers. Also selling will be some beef type & Holstein steers to be sold before the Holstein heifers. These will be good quality cattle with all the necessary cattle being Bangs & T.B. tested within 30 days of sale.

P.B. Arabian Stallion #116166 - 8 yr old - beautiful grey.

Leister 9 ft. cattle body for 1 ton truck in mint condition.

Truck body & Stallion sell first.

Terms: Cash. Not responsible for accidents.

Sale Managed & Conducted By:  
ROBERT C. MULLENDORE

Phone 582-0546

Farm 582-2039

Clerk: C.L. Metz

Sale held in tent  
with Lunch available

## PUBLIC SALE

Having rented his farm, the undersigned will sell on farm located in Prince George Co., south of Upper Marlboro - (Directions from beltway - take exit 11A - Route 4 east off Route 95 to 301 south 3 miles to Route 382, left 3 1/2 miles to St. Thomas, Church Rd., left 1/2 mile - 1st barn on left

WEDNESDAY EVE., JUNE 2  
at 6:30 P.M.

### Tractor, Combine & Machinery

Ford 7700 diesel tractor w/air conditioned cab, W.F., load monitor, dual power, turbo charged, front & rear weights, only 208 hrs.; Massey Ferguson 300 combine w/#24 two row corn head & grain table, Int. 120 tandem axle silage wagon w/root, like new, Allis Chalmers 4 row no till corn planter w/gandy & fertilizer boxes, New Holland 352 portable grinder-mixer, good, Ford 3 pt 7 ft. mower, M.J. 81 cut ditioner; N.H. 256 rollabar side rake, 2 yr., Int. 46 baler; Int. 350 forage harvester w/1 row corn head & grass head, Int. 16-7 disc grain drill; Case 100 hopper blower, John Deere transport disc, J.D. 8 ft. fertilizer & lime spreader; Flemstoffe 3 pt. P.T.O. spreader, 3 pt. 8 row field sprayer, J&M gravity grain wagon, 3 pt. P.T.O. snow blower, Cyclone tractor seeder, 1 HP air compressor, 1 1/2 HP portable air compressor, Lincoln 225 amp portable welder, P.T.O. log splitter, Arreo 5 HP tiller; metal 4 hole calf creep feeder; few small items Ford F350 one ton farm truck w/dump body.

Northland 8 ft. tilt trailer

Terms: Cash - Not responsible for accidents.

### GLENN TWIGG

14700 St. Thomas Church Rd  
Upper Marlboro, Md. 20772  
Phone (301) 627-8272

Auctioneer: Robert C. Mullendore  
Boonsboro, Md.  
Clerk: C.L. Metz

Lunch Rights Reserved

## EQUIPMENT AUCTION

SATURDAY, MAY 29

9:00 A.M.

Equipment Inventory Reduction  
for Herman Panacek Inc.  
& others

Rt. 31 Ringoes, NJ

Well-maintained construction equipment in good working condition including International 1973 2 speed axel 18' Stake Dump, International TD-8-C Bulldozer with 4 way blade & power shaft, 1977 Inter. 1500A hydraulic backhoe-loader, 1978 Inter. 260A hydrostatic backhoe-loader, 1973 2 speed axel C-90 Flat body 20' GMC, 1977 GMC Sierra crew cab pickup, 1968 Inter. 2000 gal. water truck, Inter. 1965 model 1890 9' dump with 2 speed axel, 1972 Inter. model 1800 9' dump with 2 speed axel, Asplundh 16" Chopper, 12 ton trailer, Howard rototavor, Snapper 21" mowers, Yazoo 20" mower, 8 hp Giant lawn vacuum, Electric motor mixer, Backpack gas operated power blower, Valk snowplow with hitch & pump, John Deere 3 point hitch 3/14" bottoms, loader frame for 3500 backhoe, Wacker 4 hp walk-behind tamper, Hydraulic Danhauser Auger - augers 30", 24", 8", 6", Utility box trailer & more consignments still coming in

TERMS: Cash, certified funds, or bank letter of credit. For further information call 201-782-8392.

JOHN HEDGEPEETH, Auctioneer  
Ringoes, NJ  
201-782-8392

## USED STORAGE AND HOLDING TANKS

GAL. SIZE	DIA.	LENGTH	CONDITION	PRICE
(2) 25,000	10'8"	38'10"	Good for holding tank	\$2,250 <sup>00</sup>
5,000	6'	23'10"	Good, clean	\$800 <sup>00</sup>
3,000	5'4"	18'1"	Good	\$600 <sup>00</sup>
4,000	5'4"	24'	Clean	\$600 <sup>00</sup>
3,000	5'5"	17'6"	Good	\$450 <sup>00</sup>
(2) 2,000	5'4"	12'1"	Good	\$300 <sup>00</sup>
3,000	6'	14'6"	Heavy tank - on saddles	\$500 <sup>00</sup>

## BLUE BALL MACHINE WORKS

717-354-4478

Rt. 322 East, Blue Ball • Mon.-Fri. 7:30-5, Sat 7:30-11:30