

Source Of Corn Borer Resistance Found

Discovery of a built-in defense mechanism that protects corn from the European corn borer could drastically reduce the cost, labor and time required to breed superior resistance into new lines.

ARS entomologist J. A. Klun, working with Iowa State University scientists at Aukeny, may have found that mechanism. He discovered that borers set off a chain reaction with their first nibble causing enzymes in the leaf tissue to convert glucose, a plant sugar, to a compound Klun called DIMBOA (2, 4-dihydroxy-7-methoxy-11, 4-benzoxazin-3-one), which is distasteful to the pests.

Klun, ISU biochemist C. L. Tipton and ARS entomologist T. A. Brindley found that resistant lines of corn contain 10 times more DIMBOA in their leaves and other tissues than non-resistant varieties. Borers' preference for, or rejection of, various lines of corn was closely related to the plants' DIMBOA content. Tests so far have been made with about a dozen inbreds and 55 single-cross hybrids of dent corn.

DIMBOA had eluded scientists in earlier studies because it deteriorates rapidly, producing an end product, called MBOA, that is chemically inactive.

MBOA, however, is more easily measured than DIMBOA. Klun and his associates, upon determining that MBOA is directly related to the amount of DIMBOA in corn, devised an accurate, objective technique to determine plant resistance by measuring the amount of MBOA in dried corn tissue. This tech-

The Agriculture Committee of the influential National Planning Association, under the chairmanship of Lauren Soth, Editor of the editorial pages of the Des Moines Register and Tribune, completed a study of the food programs that recommended that direct food distribution be replaced by food stamps and moved out of the USDA. The gist of the NPA recommendation was that food stamps should be made available to all low-income people, and free to those with no income, at least in quantities to provide for minimum adequate diets.

Pennsylvania Landrace Swine Breeders' Association

State Show and Sale

SAT., MAR. 1, 1969

Show 10 A.M.

Sale 1 P.M.

Location:

Pa Farm Show Building
Small Arena, Harrisburg, Pa

40 Head Bred Gilts,
Open Gilts and Boars

A 50 lb. Purebred Landrace Gilt and a 200 lb. slaughter weight Barrow will be given away FREE sale day.

For Sale Catalog write

J D Blatt

R D #2, Annville, Pa 17003

Auct.—Jacob Gerberich
Judge—Dwight Younkin

nique could facilitate the screening of the many lines tested annually for borer resistance.

Klun's test will measure differences in resistance that affect plants at two critical stages in their growth. The initial threat comes from the season's first brood of borers by the time plants reach a height of 33 inches. This brood feeds mainly on the leaves which, in resistant varieties, have high concentrations of DIMBOA.

Later, when corn begins producing pollen, some formerly resistant lines become susceptible. Others continue to show resistance. At this stage of development, the second brood borers prefer the sheath and collar portions of the plants, and some varieties that resist the borers contain greater amounts of DIMBOA in sheath and collar tissue than those that

become susceptible. Scientists working on this problem have evidence that other resistance factors may also be operating at this time.

Plant scientists now plan to breed high DIMBOA content into varieties that are susceptible to either first or second-brood borer attacks. Fortunately, preliminary studies indicate that genetic traits governing high DIMBOA content are dominant over low-content traits.

Another potentially promising use of DIMBOA may be as a spray to protect susceptible lines of corn. In preliminary tests, borers abandoned plants that had been sprayed with DIMBOA solutions. As a natural constituent of corn, DIMBOA would not be expected to produce residue problems, although tests have yet to bear out this promise.

PUBLIC SALE

Complete Dispersal of Farm Machinery, Dairy and Household Goods

4 Miles From Elizabethtown. Take W. High Street from Square of E-town, Second Crossroad Past Newville Turn Left, 1st Hard Road Right, 1st Lane Left, 2 Miles East of 441 from Ebersoles Rendering Plant.

SATURDAY, FEB. 22, 1969

10:00 A.M.

19 Head of Holstein Grade Dairy Cattle

14 MILK COWS, 7 FRESHENING NEAR SALE TIME
3 BRED HEIFERS, 3 HEIFERS 9 MONTHS OLD

Pregnancy Checked, Home Raised, Charts Sale Day. 10 Years of South Eastern and Curtiss Breeding.

3 TRACTORS

H Farmall with 2 Way Hyd., Farmall C with Fast Hitch and Cultivators, Farmall A with Cultivators

2 Bottom 12 in. Trailer Plow on Rubber, Super Six Manure Loader and New Holland Circular Saw to Mount on H, Airplane Propeller to Mount on Saw Buck for Ventilating Tobacco, 2 Bottom 14 in. Mounted Plow, 7 ft. Mower for Fast Hitch, New Idea Side Delivery Rake and Tedder, No. 68 Baler N.H. with Thrower P.T.O. (Very Good), I.H.C. Hay Crusher, 3 High Rack Wagons 8x16 (Good), Cornplanter Mounted with Liquid or Dry Fertilizer, I.H.C. No. 64 Combine with Motor 7 ft. (O. K.).

Hershey 2 Row Transplanter, Tobacco Hoers for A, 1 - 20 ft. Set Double Tobacco Ladders, 4 Sets of Tobacco Ladders, 1 Mounted on Wagon, 1 Baling Box, Lath, Shears, 1 Flat Bed Wagon, 1 Lime Fertilizer Drill, Grain and Bale Elevator, Wood Bros. Corn Picker, Blizzard Silo Filler, 13 Double Disc Ontario Drill, Grass Sprayer with 18 ft. Boom for C Tractor, N.H. Cylinder Cornsheller and Buch Sheller, New Idea Manure Spreader, I.H.C. 28 Disc, 2 Cultipackers, 8 and 10 ft.; 3 Section Spring Harrow, 1 Chisel Plow, Harvey Hammer Mill, 550 Gallon Water Tank on Trailer, Air Compressor, Air Tank, Metal Fence Posts, Bag Wagon, 2 Fence Controllers, Beam Scales.

14 Ton of Ear Corn

SP 11 Milker Pump, 3 Units 1 - 50 lb., 2 - 40 lb., 2 - 6 Can Milk Coolers, Pipeline (Vacuum), Milk Cans and Rack, Stainless Steel Double Tubs, Feed Cart, 4 Metal Feed Drums, Wheelbarrow, Vise (large), Full Line of Butchering Tools and Large Scalding Trough.

HOUSEHOLD GOODS

Copper Kettle, Apple Butter Stirrer, Sleigh Bells, Old Table Dough Tray, Wardrobe, 2 Iron Beds, 2 Bureaus, 2 Washstands, 1 Whirlpool Washer and Twin Tubs, 1 Porch Swing, 2 Tables, Crocks, Jugs and many other articles too numerous to mention.

TERMS BY

LLOYD L. KEENER

Kreider and Diller, Auctioneers

NOT RESPONSIBLE FOR ACCIDENTS DAY OF SALE
REFRESHMENTS BY GOOD WILL CLASS, STEVENS HILL
CHURCH OF THE BRETHREN

PUBLIC SALE BLACK & WHITE HOLSTEIN FARM

at Dairy Cow Sale Pavilion
along Rt. 230 Bypass directly across from the Comet Outdoor Theatre, just west of Lancaster.

FRIDAY, FEBRUARY 21, 1969

8:00 P.M.



40 Canadian Cows

Hand picked from the top herds in Canada by the Canadian Holstein Assoc.

20 Top Minnesota Cows

Fresh and right ready to fresh.

2 years credit terms. Credit can be arranged prior to sale.

CHARLES C. MYERS, Owner

PUBLIC SALE Of LIVESTOCK and FARM IMPLEMENTS

MONDAY, FEBRUARY 17, 1969

AT 11:00 A.M.

Located 3 miles North of Manheim, 1/2 mile off Route 72, near Elstonville, Lancaster County, Pa.

13 HEIFERS — 1 STOCK BULL

10 Bred Heifers; some fresh — others by spring, and 3 open Heifers. These are all out of good stock. Some with Pedigrees.

John Deere 520 Tractor, John Deere B Tractor, John Deere B with mounted saw, John Deere manure loader No. 45, Horn manure loader with blade, John Deere cultivator, John Deere 2 - 14 in. plow (3 pt.), John Deere corn planter (3 Pt.), John Deere spring harrow, John Deere cultipacker, John Deere baler, Oliver heavy duty disk-harrow, John Deere mower — 7 ft. trailer type, John Deere crimper, John Deere 15 disk grain drill, New Idea manure spreader, New Idea 1-row corn picker, 3 rubber tire wagons with 16 ft. beds, 3 wagons with 20 ft. tobacco ladders, tobacco planter with power lift, 20 ft. grain elevator on wheels, field sprayer, 7,000 tobacco laths, 2 Minnich tobacco presses, pot belly stove, corn sheller with motor, 40 ft. extension ladder, 1000-lb. platform scales.

1965 HALF-TON FORD TRUCK WITH RACK with 14,000 miles (like New); Cub Cadet Garden Tractor with plow, cultivator, and irrigation pump, 2 sleighs, 1 Market, 1 Square Back; 1 egg shell, 2-wheel rubber tire pony cart, 4-wheel rubber tire run-a-bout.

New DeLaval milker pump (3 units), 2 DeLaval milk-er units, piping for 24 cows, milk cans, can racks, 50 gallon electric water heater.

40 Ton Ear Corn
5 Sows with Pigs, Lots of Shoats, 2 Pony Mares with Foal, & 2 Studs — 1 Yearling

Lots of heavy lumber; 6x6x24 (fir), 8x10x20 (oak), 4x4x-12 (fir), & 2x6x16 (oak). Lots of pipe and connections locust posts, elect. fence posts, 2 elect. fences, Gould elect. water system, 12-hole 1 1/2 ton hog feeder, hog troughs, 2 rubber tire wheelbarrows, Lancaster power saw (like new), saw jacks, 20 ton jack, ground scoop, 1/2 in. elect. drill, 1/4 in. elect. drill, 20x20 tarp, lumber, chains, forks, shovels, tools of all kinds, complete line of butcher tools, slicer, kettle furnace and kettles.

G.E. refrigerator with freezer above, G.E. stove, with 2 ovens; kitchen table and 6 chairs, 3 bedroom suites, 3 chests, few old bureaus, cupboards, rugs, and many other items.

Sale to begin at 11 o'clock A.M. when terms and conditions will be made known by:

ERNEST WEAVER

Rufus Geib, Auctioneer

Lunch will be sold by the Mastersonville Fire Co.