

Researchers develop sulfur analysis method

COLLEGE PARK, Md. — Agricultural Experiment Station researchers have

developed a more accurate method of analyzing soils and other geological materials for sulfur, an element which — in its acid form — can seriously inhibit plant growth and damage building foundations.

The method, developed by graduate assistant Philip Snow and Delvin Fanning, an agronomy professor, centers on the use of a wafer-thin sample of sulfur-bearing material they devised to obtain more precise sulfur content readings with an x-ray spectrophotometer.

Although X-ray spectroscopy has been used in the past, results lacked the necessary precision in sulfur analyses because sulfur (the element) has many different forms and each form gives off a different X-ray response. The wafer sample contains only one form of

sulfur and thus circumvents this problem.

The need for more accurate methods of analyzing sulfur content has become critical in order to evaluate the acid-forming potential of sulfur-bearing materials such as those found in strip mine and tidal marsh reclamation sites as well as in acid rainfalls.

Acid rain results when sulfur and nitrogen oxides from electric power plants, smelters and automobiles are chemically changed into acids in the atmosphere. Acid rains adversely affect the productivity of soils; erode the protective waxes that cover plant leaves; change water quality in lakes and streams and have adverse effects on buildings and other structures.

In order to make the wafer, a sulfur-bearing sample is digested in

oxidizing acids that convert all of the sulfur in the sample into a single form — a sulfate — so that it will produce an accurate spectrographic reading. Copper is also added to prevent the sulfur from becoming gaseous and to make the sample uniform enough to provide a good analysis.

The sulfur residue from this digestive process is mixed with powdered cellulose, which serves as a binder holding the substance together so that it can be more easily formed into a pellet. The mixture is then freeze-dried, crushed and mixed again with a mortar and pestle and finally transferred to a die where it

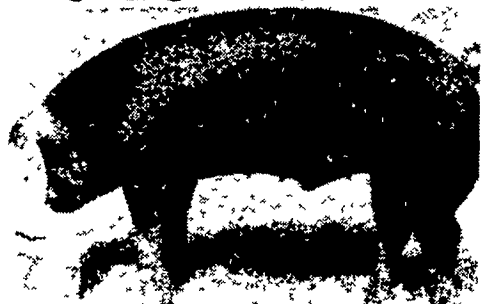
is pressed into a wafer the size of a quarter.

If kept in a dry place the wafer is virtually indestructible. It may be used over and over again and for the determination of other elements besides sulfur.

The two researchers feel that the method should enhance the ability of scientists to screen materials from landfills, mine reclamation sites and other sources.

It will enable them to determine how much sulfur is present and whether it will create a problem through the formation of acids and the release of heavy metals in the soil that would damage plant life.

HAPPY ACRES FARM BRED GILT & BOAR SALE



SATURDAY, DECEMBER 20
1:00 P.M.

Sale will be held at the Seneca Livestock Marketing Coop, 4 miles South of Waterloo, NY on NY Rt. 96.

Selling 40 head Purebred, Duroc & Yorkshire bred gilts, 15 head of Duroc & Yorkshire service boars. Bred gilts will carry services of the top indexing Duroc & York boars at the PA test station 1980. Also include daughters of the Supreme Champion York sow at the 1980 NY State Fair. These gilts will be bred to Supreme Champion boar of the 1980 NY State Fair.

Auctioneer—
Harry Bachman,
Annville, Pa.

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Wednesday, January 7
at 12:30 Sharp
**68 Registered & High Grade
Holsteins - 68
4 Reg. 64 Hi-grades.**

5 mules 5 sets harness & bridles Nov. Rolling Herd Average - 11929M 435F 3 6T

Herd consist of 36 mature cows, 10 bred heifers, 22 from 1 mo to 14 mo 6 cows fresh Aug, 3 Sept, 4 Oct., 2 Nov, 2 Dec, balance in all stages of lactation Interstate tested, shot for shipping fever, preg ex charts day of sale. A good producing herd, a few real good cows w/good udders.

Sample selling No 2 reg Kingstead Shine dau 2 yrs 7 mos. 333 day 15,200M 587F 3 9T No. 45 Reg E Z Acres Burkgov B Acclaim da 2 yrs 6 mo 341 da 12,686M 439F 3.5T. No 14 grade - proj for 16,269M 619F No 42 grade - proj for 16,120M 628F No 38 grade - proj for 16,322M 530F A Heatherstone Lucky Typeblazer herd sire dams rec. 5 yr 1 mo 305 da 19,067M 804F 4 2T 6 yr 1 mo 330 da 19,265M 773F 4 0T

Machinery

M.M.U.B special gas tractor 65 hp real nice; McCormick PTO corn binder w/loader good condition; Frick 28" thrashing machine; Massey Harris grain drill, J.D grain binder, Brillion 10' cultpacker, Oliver 2 bottom 12" plow, McCormick #7 silage cutter, Fav-O-rite grain bin; AC 28 disc harrow, Husky wagon w/flat beds, 2 fore carts; side dresser attach for McCormick cultivator; silage cart & feed cart, DeLaval milker unit w/sterling pulsation; DeLaval teat cup washer; 40 milk cans; double washer vat, SS strainer, 2 extra milker pails

Neighbors Equipment

2-wheel braking cart, 2 Myers pump jacks, cement mixer; silage distributor; 2 power take off shafts; extra heavy 18" tablesaw, pitcher pump, napsack sprayer & other small items not listed

Terms - Cash or Good Check
Sale under cover

Lunch available

Owners

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FRIDAY, JANUARY 9

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At the Farm • Beavertown, Pa.

**260 head of SCOTCH & IRISH
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• **New Bloodlines on Each Sale**
YORKSHIRE — LANDRACE

Born and raised on our farms from our parent imported stock

100 * **BRED GILTS** - most of which carry Scotch or Foreign Blood Litters.

50 * **YORKSHIRE** - Many carry Scotch litters

50 * **LANDRACE** - All carry Scotch or Foreign Blood Litters.

50 * **BOARS**

30 * **YORKSHIRE** - New Scotch Bloodlines as well as Irish and American Bloodlines

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100 * **Commercial Open Gilts** - Mostly Irish & Scotch blood. Scan-O-Probe Loin Eye & Back fat figures. Production tested - Certified Meat Proven & Show Ring Champion Stock.

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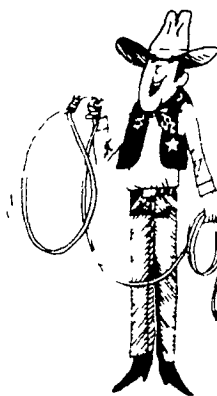
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Dan Baker, Lafette, Ind., Auctioneer

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FARMERSVILLE AUCTION TUES., DEC. 16, 1980

5:30 P.M.

In Farmersville, 3 mi. east of Brownstown, Lanc. Co., Pa.

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Consignments being accepted for our Annual New Years Day Antique Sale.

PUBLIC AUCTION OF LARGE POTATO EQUIPMENT

on
SATURDAY, DECEMBER 20, 1980
At 10:00 A.M. Sharp

J & B Potato & Grain Farms, Inc., and Briggs Brothers, Perrineville Rd., Hightstown, N.J.

Directions: Exit 8 NJTP - E. on #33 - R at Hights Farm Equip. - at Dead End make L - R 1st Road to Dead End - L at Dead End - 2nd driveway on L. Off Allentown-Hightstown Rd. - turn E. 4 1/2 mi. on Perrineville Rd. to Farm.

TRUCKS

1967 GMC w/transfer case & 16' Ziggy Pot Body, 1960 GMC w/transfer case & 14' Dahlman Pot Body, 1957 GMC w/14' Dahlman Pot Body, 1949 GMC w/14' Dahlman Pot Body, 1968 Chev w/14' Dahlman Pot Body
- 12' Haines pot conveyor, Union Camp automatic 50# pot bagger, Boggs #6 pot grade, Dilts-Wetzel pot cutter, Haines pot seed treater, 8' Draper chain pot conveyor, 15' Draper chain pot conveyor 7' pot or snow bucket, A/C No Till planter w/ten planter units (like new), MF 13' disk harrow, Brillion 15 transport packer, 15' 3 section packers 12' Gandy for disk harrow, Tox-o-wik 350 bu model #370 grain dryer, 6' woods rotary mower 7 J D sickle bar mower IHC 4 bottom rollover plow 8' Grove scraper 1000 gal water tank Two 5' wheel lines (Irrigation) All the above equipment is in excellent condition The sellers or auctioneer are not responsible for any theft injury or accident of any kind on sale premises Also many other pieces of equipment not listed
Terms CASH

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