

# Computer shows success in hay marketing program

UNIVERSITY PARK — A revolutionary new instrument capable of

determining nutrient content of crops, backed by new hay marketing standards, should

make it possible to price hay on the basis of its feeding value, it was reported Monday during joint meetings of crop scientists in Detroit, Michigan.

Known as an "infrared spectro computer," the instrument was described by John S. Shenk of Penn State.

The computer scans forages and other crops within two minutes to determine nutrient content. The computer was developed at Penn State in cooperation with personnel of the U.S. Department of Agriculture's Regional Pasture Research Laboratory.

To test the technology, Shenk and associates collected forage samples at three hay markets in 1979 and ran the samples through the computer back at Penn State. Then last spring they mounted the computer into a mobile van and demonstrated the process at a hay market, at state fairs in Wisconsin and Michigan, and at Penn State's Ag Progress Days.

Response by farmers changed over five weeks of analyzing hay samples at the 1980 market, Shenk noted.

During the first two weeks, little attention was paid to the posted results beyond expressions of curiosity.

By the third week, farmers bringing hay from the same mow were finding the analyses to be repeatable. This built confidence in the method. Buyers began to study the analyses as well as hay for sale on trucks.

He said some farmers selling low quality hay began to refuse analysis and buyers showed little interest in purchasing their hay.

"During the fourth week, several sellers with high quality hay wanted us to continue the testing," he stated. "By the fifth week, more farmers were requesting that we continue the service."

Shenk said the infrared spectro computer does not give the buyer or the seller an advantage at the market but it does provide a basis for auctions to function most equitably.

"We demonstrated that the instrument could be used to analyze hay under marketing conditions without disrupting the sale in any way," he observed.

And he reported that truckloads of hay can be sampled and analyzed every two to five minutes. This makes it possible to post the hay analysis and grade on a truck before the sale.

"With proper educational programs directed toward both the seller and buyer of

hay, analysis and grading with this computer has a great potential for establishing an improved basis for hay marketing," he affirmed.

Hay sampling was found to be the major factor affecting the accuracy of this new method to analyze forage quality.

Shenk said the ultimate value of this new technique is for the farmer to use the

results back at his farm in making up nutritionally balanced rations.

Efficient feed formulation, he indicated, usually requires blending of hay or haylage, silage, brewers yeast, etc., into the most nutritious feedstuff.

The computer in a van can help the farmer decide on the best combination of feed ingredients.

## Fertilizer theory

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Most growers' soils were very low in calcium according to the ratio theory. But 92 percent of the Delaware corn leaf samples tested high in calcium.

These observations have led Liebhardt to conclude that there's no reason to have a particular ratio between these elements as long as they're present in adequate amounts.

Aside from the basic fallacy of the BCSR theory in terms of plant need, with the materials we have to work with — calcitic limestone, dolomitic limestone, and potash — it's very difficult from a physical standpoint to achieve the ratios called for, said the scientist.

"Suppose the ratio calls for 100 units of potassium. You have 50 and want to add 50 more. On our soils you would have to apply anywhere from five to 12 units of potassium just to raise the soil test one unit, because of the chemistry involved. The BCSR system ignores this factor," he said.

The concept is a philosophical way to look at soil fertility. It's appealing because it's so simple. But it's not based on field research, he said. Plants don't respond to nutrient concentration in this fashion. What happens to the nutrients depends on the soil and growing conditions, rather than on some arbitrary ratio between nutrients.

The concept does have possibilities if it is modified, he feels. "Our data suggest that our liming objective should be a pH of 6.0. This will be achieved with a calcium plus magnesium saturation of 75 percent,

which is what the original work in New Jersey suggested. Our work shows that wide variations in calcium and magnesium saturation levels do not affect the yield of either corn or soybeans, as long as the pH is not excessive."

Based on his findings, Liebhardt concluded, "Anybody who adds materials containing calcium or magnesium to balance up theoretical ratios to satisfy some predetermined level — at least on sandy, poorly buffered coastal plain soils like those in Delaware — is wasting their money."

Tinkering with ratios to get some ideal number not generated by research doesn't make sense. As long as the pH is right and basic nutrient levels are adequate, farmers ought to be able to get good yields," he concluded.

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\* This furniture in excellent condition.

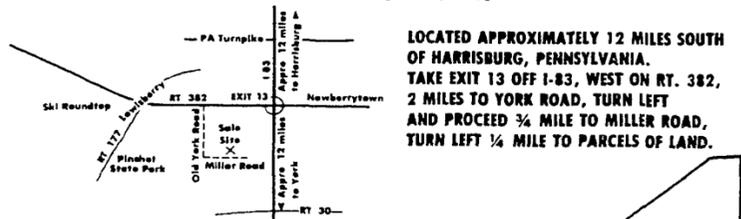
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## PUBLIC SALE

**SATURDAY, DECEMBER 13, 1980**

**AT 1:00 P.M.**

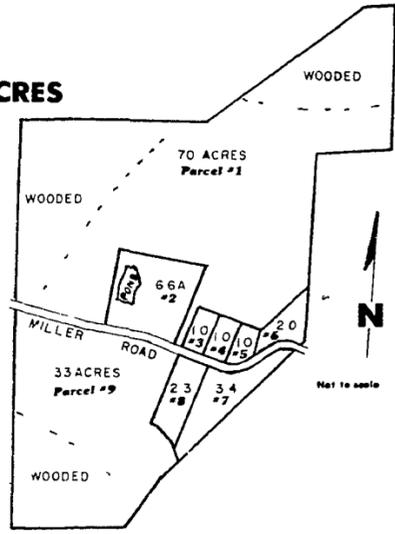


LOCATED APPROXIMATELY 12 MILES SOUTH OF HARRISBURG, PENNSYLVANIA. TAKE EXIT 13 OFF I-83, WEST ON RT. 382, 2 MILES TO YORK ROAD, TURN LEFT AND PROCEED 3/4 MILE TO MILLER ROAD, TURN LEFT 1/4 MILE TO PARCELS OF LAND.

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