Dairy computer conference

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separate units, he said, interfaced for total electronic management.

Milk conductivity units are being developed to automatically detect sub-clinical mastitis. These units work, explained Spahr, by measuring the ionic content of the milk, which is higher in an infected cow because the mastitis causes a breakdown in the cell wall, so that ions from the blood get into the milk.

Conductivity cells in each claw can detect, with a certain degree of accuracy, which quarter or quarters has a mastitis infection. Citing figures from Illinois research, Spahr said 83 percent of affected quarters were detected in one milking.

The advantage of this conductivity unit is that subclinical cases of mastitis are detected, providing information similar to the DHIA somatic cell reports, but on an every milking basis.

But there are still problems to be worked out and questions to be answered. For instance, a more discriminating system would be required for cows that are in later lactations — because older cows generally have an increase of conductivity in their milk.

"What do you want from this system?" asked Spahr about the milk conductivity unit. "Do you want to identify all the infected cows, with the risk of flagging some that aren't, or do you want to identify only those who are more seriously infected?"

Automatic estrus detection is another area experiencing incredible technological advances. Activity units, vaginal conductivity units, vaginal temperature monitoring, and ultrasonics may all be used for automatic estrus detection.

Hands-on sessions at the Penn State Dairy Computer Conference gave farmers experience with computers and dairy management software.

Keynote speaker at the Penn State Dairy Computer Conference was Dr. S.L. Spahr, professor of dairy science at the University of Illinois. Here he holds an electronic activity monitor that can be attached to a cow's leg.

Spahr described the Illinois tests on an electronic pedometer.The electronic activity unit, placed on the rear leg, front leg, and neck, is programed to indicate with LED lights the level of the cow's activity. "This technology looks real good, if we can just get it automated," said Spahr.

This, along with patterns of feeding, milk yield, vaginal conductivity, milk conductivity, and previous reproductive history, outlined Spahr, could all be analyzed to electronically determine probability of estrus.

And the ultimate application of technology in dairying could be the use of robotics for automatic teat cup attachment. Researchers in Japan and Germany are working on units that locate the udder with light beams and locate the teats with infrared sensors, and then attach the teat cups.

But to be of the most benefit to farmers, all of this technology — whether it's identification units, feeding computers, or automatic mastitis and estrus detection — must be linked in a total computerized management system on the dairy farm.

Feeding Computers, Software Considerations

While Dr. Spahr reviewed research on the latest innovations in dairy technology and looked toward the future, other conference speakers shared information immediately useful to the attending dairymen.

Dr. Larry Muller, who spoke about nutritional considerations with feeding computers, rein-

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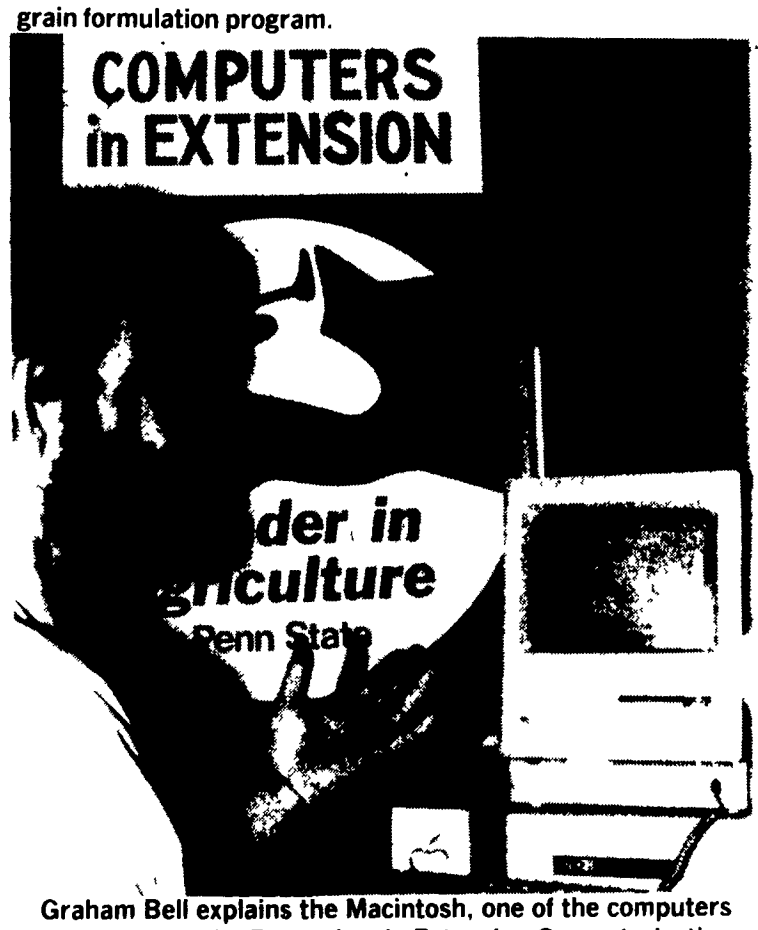
Dr. Larry Muller, Penn State professor of dairy science, conducted a hands-on session that demonstrated a least-cost grain formulation program.

Director of Technical Development, National DHIA, Phil Dukas (center) and Bill Heald, Penn State associate professor of dairy science extension (right), talk with Gettysburg dairyman Doyle Waybright. The Pennsylvania DHI program is in the process of computerization changes.



Graham Bell explains the Macintosh, one of the computers that are part of the Pennsylvania Extension Computerization Project. At least one microcomputer has been placed in each county extension office and will eventually be hooked into a statewide computer network for the Commonwealth's 67 counties.