

Animal Nutritionists Discuss New Research Data

NEW YORK, NY — The latest research data in animal nutrition and disease research were presented to several hundred scientists, nutritionists and feed industry representatives at the 37th Annual Pfizer Research Conference recently in Kansas City, Mo. A highlight of the conference was CBS anchorman Charles Kuralt.

Five university experts presented new research information. The speaker were: Dr. Steve Leeson, University of Guelph; Dr. James Pettigrew, Jr., University of Minnesota; Dr. George Fahey, Jr., University of Illinois; Dr. Elliot Block, McGill University; and Dr. Duane Ullrey, Michigan State University.

Their topics were, respectively: maximizing egg production by monitoring diet in poultry; the relationship of diet and reproductive performance in swine; factors affecting fiber digestion by ruminants; strategic deworming of dairy cattle; and how to determine nutritional requirements of zoo animals.

Feeding for egg production

The first conference speaker, poultry nutrition expert Dr. Steve Leeson, reported that to maximize egg production, today's producers must carefully monitor their birds' nutritional condition long before the egg-laying stage.

In Leeson's estimation, the key to successful egg production is "ensuring adequate availability of nutrients." He warns, "With modern strains of chickens and turkeys, such nutrients come from body reserves as well as feed."

For that reason, Leeson said rearing programs must be tailored to provide body reserves in proportion to the expected deficit between voluntary feed intake and egg mass output.

With broiler breeders, Leeson explained, the major cause of failure to reach peak production is inadequate supply of total nutrients from the feed and body reserves. With leghorn birds, stimulating feed intake during early egg production becomes critical. For breeder hens, nutritional programs must consider both egg production and composition of the egg in relation to successful incubation.

"Feeding for optimum egg production has become a little more complicated than simply formulating laying diets," Leeson concluded.

Hog diets and reproduction

Long-term effects of diet are also being studied in the swine industry. Dr. James Pettigrew, Jr., an expert in swine nutrition, unveiled a mathematical model that is being used to determine the connection between diet and reproductive performance.

The mathematical model of lactating sow metabolism estimates body weight and composition, milk yield and composition, and metabolite concentrations under various sets of conditions.

"This model is not intended for field use, but is a tool to help nutritionists understand the biological system and clarify questions to be addressed by animal studies," Pettigrew said.

"There is increasing evidence

that energy and protein nutrition of the sow during her first lactation may affect the interval between weaning and estrus after the first litter and the size of the second litter," Pettigrew said.

Research of this type is proving that common reproductive problems in commercial pork production may be related to improper nutrition.

Fiber digestion in cows

Like the mathematical model Pettigrew uses, new research methods also are helping answer questions in the area of ruminant nutrition. According to Dr. George Fahey Jr., ruminant researchers are attempting to identify and examine factors affecting fiber digestion by using new techniques that quantify plant fiber components.

"It is likely that several factors, acting in concert, may affect fiber digestibility," Fahey said. "It is also important to recognize that constraints to digestion are likely to involve differences in cell wall organization as well as differences in composition and structure of the individual cell wall components."

"This is why some researchers are now advocating a holistic approach to the study of plant cell-wall degradation," he explained. "The isolation of individual components of the cell wall can alter their nature and change the inhibitory effects."

Fahey identified several plant cell-wall characteristics that affect fiber digestion -- lignification of the cell wall, covalent bonding of phenolic acids to cell wall carbohydrates, the crystalline structure of the plant cellulose, a limited fibrolytic enzyme accessible space, the proportion of fiber that is resistant to ruminal digestion and the rate of digestion and pas-

sage of the potentially digestible fiber.

Deworming controls

Other ruminant research presented at the conference addressed the problem of parasites -- particularly in dairy cattle.

"Parasites cost the North American dairy industry an estimated \$350 million a year. Recent New England research shows 98 percent of dairy herds are subclinically infested," Dr. Elliot Block told conference attendees.

This costly and widespread problem can be controlled with the use of broad-spectrum anthelmintics. However, Block warned that the timing of deworming is extremely important.

"It appears that the most effective strategy is to deworm just prior to pasture turnout," Block said. "This reduces the number of new eggs deposited onto pastures. In 30 days, a second deworming will help eliminate new infections acquired from the pasture."

"Single-dose treatment at improper times will not accomplish control," Block continued. "A one-time treatment at calving will eliminate gastrointestinal worms, but does not control pasture larvae. As soon as the cows return to pasture, new infections are acquired."

Block's research has shown that addressing the pasture parasite problem, with timely strategic deworming, is the most effective means of obtaining long-term parasite control.

Feeding wild animals in captivity

In addition to domestic animals, this year's Pfizer conference also reviewed nutrition research dealing with wild animals, as Dr. Duane Ullrey addressed the challenge of feeding wild animals in captivity.

"There are hundreds of animal species to consider representing millions of years of evolutionary adaptation to particular ecological niches," Ullrey said. "However, very little controlled research has been done on the dietary needs of wild animals."

Ullrey has found that diets for wild animals should be formulated by:

- 1) considering the animals' natural eating patterns in the wild;
- 2) recognizing the animals' unique physical characteristics;
- 3) reviewing the needs of similar species whose requirements are known;
- 4) evaluating the environmental features that influence energy and nutrient need.

"The space, shelter, temperature and humidity in the environment in which animals are confined will also influence their energy requirements. And food items growing in that environment will affect the need for supplemental food," Ullrey concluded.

Kuralt keynote

Printed Proceedings of the conference were presented to all in attendance. Included in the Proceedings is a review of research, conducted this past year, relating to each speaker's topic area.

In addition to the university speakers, the conference was highlighted by an address from Charles Kuralt. Kuralt, anchorman of CBS News' "Sunday Morning" and explorer/reporter for "On The Road" news segments, spoke about his 30-year career and travels throughout the United States.

Pfizer is a worldwide research-based company with businesses in health care, agriculture, specialty chemicals, materials science and consumer products. The company reported sales of approximately \$5.3 billion in 1988.

Greathouse Receives National Jersey Award

REYNOLDSBURG, OH — David Greathouse, Parkersburg, Ill., has been awarded The American Jersey Cattle Club's 1989 Young Jersey Dairyman Award. Greathouse is among seven winners from across the United States who have excelled in dairy farming and Jersey cattle breeding. They have also been very active in AJCC programs and Jersey functions. The winners will be honored at an awards breakfast June 17 at the AJCC-NAJ Annual Meeting in Cedar Rapids, Iowa.

From the time David Greathouse started with Jerseys, his

main objective has been to improve them. Greathouse's first rolling herd average was 7,827 lbs. milk and 366 lbs. fat. Today with 24 milking cows his rolling herd average is 13,418 lbs. milk, 596 lbs. fat and 516 lbs. protein.

Two cows partially responsible for the increase in production for Greathouse are Samson Sleeping Goldie and Maple Glen Top Brass Fun. "Goldie" has a projected actual record of 17,560 lbs. milk and 825 lbs. fat with a projected m.e. of 19,919. "Fun," calving as a yearling, has a projected actual record of 13,210 lbs. milk and 659 lbs. fat with an m.e. of 20,574.

Owens Receives National Jersey Award

REYNOLDSBURG, OH — Walter Owens, Frederic, Wis., has been awarded The American Jersey Cattle Club's 1989 Young Jersey Dairyman Award. Owens is among seven winners from across the United States who have excelled in dairy farming and Jersey cattle breeding. They have also been very active in AJCC programs and Jersey functions. The winners will be honored at an awards breakfast June 17 at the AJCC-NAJ Annual Meeting in Cedar Rapids, Iowa.

Owens Farm's 287-cow herd maintains a rolling herd average of 11,742 lbs. milk, 603 lbs. fat and 479 lbs. protein. One of the outstanding producers in the herd

has been O.F. Fascinator Charity. "Charity" has completed a best record of 5-6 305 17,070 4.5% 767 3.9% 657.

Owens and his family enjoy showing their Jerseys at local and national shows. Sunny Slope Designers Ladygirl, E-92%, has done well in the show ring. She has been Grand Champion at the Wisconsin State Junior Fair and placed as high as third in the All American Junior and Open shows.

Owens has been personally responsible for starting several other young farmers in the Jersey business. He has also been very active in promoting Jerseys and the dairy industry to 4-H youth, FFA and college students.

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