

From the Department of Dairy and Animal Science

This regular column from Penn State's Department of Dairy and Animal Science features the research findings, student opportunities, and reports on other important topics generated in the Department. Watch for notice when back issues of the column are archived on Lancaster Farming's Internet www.lancasterfarming.com home page.

(Continued from Page A1)

coming a regular contributor to Lancaster Farming.

Animal agriculture holds a special place in my heart because I grew up on a grain and livestock farm in central Illinois. I was quite active showing Angus cattle in 4-H and FFA and was on the Illinois 4-H livestock judging team. I attended the University of Illinois and received a B.S. degree in Agricultural Sciences in 1971. As an undergraduate, I was on the University of Illinois Meat Judging Team. I enrolled in graduate school at the University of Illi-

nois and received an M.S. degree in 1974, then went to the University of Minnesota to study how certain hormones regulate growth of meat animals.

In 1978, I received my Ph.D. and moved to Stanford University for a postdoctoral fellowship in the Department of Medicine. My objective was to become an endocrinologist (the science of studying hormones and their biological effects). I joined the faculty in the Department of Dairy and Animal Science at Penn State in 1979 and rose through the ranks, receiving the title of Distinguished Professor of Animal Nutrition in 1996.

I was actively involved in teaching growth biology and nutritional biochemistry courses to undergraduate and graduate students. The emphasis of my continuing research program is on developing new biotechnologies to increase productive efficiency of growing pigs. In the 1980s, we played a fundamental role in discovering that porcine somatotropin (pST) increased muscle growth and decreased fat in growing pigs. This discovery prompted several pharmaceutical companies to undertake efforts to commercialize the technology. Since then, my laboratory has focused on learning more about the biological mechanisms that explain how pST works.

During my travels throughout the Commonwealth, I have learned there is a real need for the faculty and staff in Dairy and Animal Science to inform you about the department, our mission and our teaching, research and extension programs and how they benefit you. I believe it is important that we in the department communicate effectively and in a

timely way with our stakeholders.

To foster this dialogue, I invite you to contact me to share your perspective about our programs. You are shareholders in the University, and we feel an obligation to seek your input as well as to share our insights and expertise with you. Our faculty members are committed to this philosophy and are enthusiastic about participating in this outreach activity.

Different faculty members have agreed to address a variety of exciting and timely topics on a regular basis. Articles in future issues of Lancaster Farming will cover all dairy and livestock species and will update you on our teaching programs, promising results of research, and useful and practical extension education information.

Periodically, I will write a column like this to inform you about important events, newsworthy items and issues that will impact animal agriculture. I want to discuss the future of animal agriculture in the 21st century and share my vision of how animal agriculture will need to change to thrive in the next century.

I hope you will find these articles helpful. If you have any questions or comments, please feel free to send me a letter sharing your opinion.

Write to: Terry D. Etherton, Head, Department of Dairy and Animal Science, 324 W.L. Henning Bldg., The Pennsylvania State University, University Park, PA 16802.

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Penn State Animal Science Professor Retires

UNIVERSITY PARK, (Centre Co.) —After 32 years as an educator, extension specialist and researcher, Dr. Lowell Wilson, professor of animal science in Penn State's College of Agricultural Sciences, is retiring from the Department of Dairy and Animal Science.

Wilson earned a bachelor's degree in agricultural education from the University of Wisconsin-Platteville in 1959. He earned a degree in animal breeding and statistics in 1962 and a doctorate in animal breeding and biochemistry in 1964, both from South Dakota State University. From 1964 to 1966, he was an extension beef specialist at Purdue University, where he was responsible for cow-calf systems. He also was responsible for initiating electronic record processing for Beef Cattle Improvement Associations in South Dakota and Indiana.

Wilson has been with Penn State since 1966. His primary research focused on beef cattle breeding and forage utilization, with emphasis on the interpretation and reporting of research results from Penn State and other institutions to producer groups and industry media. Since 1986, he has conducted specialized veal management research, including quality assurance and interpretation of public perceptions about veal production.

His recent research has included the handling and transportation of animals, public and producer perceptions of farm animal production practices, recycling of agricultural and other by-products as livestock feed, and effects of growth promotants on animal performance and carcass characteristics. He has published or co-authored more than 130 peer-reviewed scientific journal articles, more than 500 industry-oriented articles, and several monographs and book chapters.

Wilson has taught undergraduate and graduate courses at Penn State and has designed and taught courses in the Pennsylvania Governor's School for the Agricultural Sciences. He was instrumental in establishing the Pennsylvania Beef Council, Pennsylvanians for the Responsible Use of Animals, the Pennsylvania Beef Expo, Pennsylvania Cattlemen's Association summer field days, and other educational activities.

He received awards from the American Forage and Grassland Council in 1975, American Society of Animal Science in 1973, the Northeastern Section of the American Dairy Science Association/American Society of Animal Science in 1993, the American Polled Hereford Association in 1974, and Gamma Sigma Delta in 1974.

Best Silage Bottom Line



2-Year Comparisons 1997-1998
Data as of November 25, 1998
Silage trials from Canada and the United States

| Pioneer® Brand Hybrid | Competitive Brand | Competitive Hybrid | # of Trials | Pioneer Tons/A 70% Mst. | Pioneer Tons/A Adv. 70% Mst. | Pioneer IVDC' | Pioneer IVDC' Adv. | Pioneer CMEF² Adv. | Pioneer dNDF³ Adv. | Pioneer Adj. Milk⁴ Adv. |
|-----------------------|-------------------|--------------------|-------------|-------------------------|------------------------------|---------------|--------------------|--------------------|--------------------|-------------------------|
| 3335 | Cargill | F657 | 45 | 28.24 | 7.3 | 73.1 | -5.0 | 1.4 | -6.4 | 2,825 |
| 3335 | Mycogen | TMF113 | 34 | 26.24 | 1.6 | 71.0 | 2.4 | 0.8 | 2.2 | 3,001 |
| 3335 | Mycogen | TMF114 | 6 | 25.41 | -0.1 | 70.1 | 7.8 | 1.2 | 4.5 | 6,572 |
| 33G26 | Cargill | 6208FQ | 6 | 27.42 | 4.1 | 69.3 | -2.2 | 0.8 | -0.4 | 1,888 |
| 33G26 | Cargill | 7301FQ | 10 | 26.77 | 2.3 | 68.0 | 0.0 | 0.6 | -0.8 | 1,519 |
| 33G26 | Mycogen | TMF113 | 12 | 26.12 | 1.5 | 69.6 | 4.2 | 1.1 | 2.8 | 4,155 |
| 33Y09 | Cargill | 7301FQ | 14 | 26.42 | 1.9 | 70.3 | -0.5 | 0.3 | -0.2 | 272 |
| 33Y09 | Cargill | F657 | 11 | 30.29 | 3.1 | 69.4 | -3.1 | 1.9 | -5.7 | 4,353 |
| 33Y09 | Gold. Harvest | H-2547 | 6 | 30.87 | 5.0 | 68.8 | 2.2 | 1.1 | 3.2 | 3,212 |
| 33Y09 | Mycogen | TMF113 | 14 | 24.76 | 1.0 | 69.0 | 4.1 | 0.9 | 3.0 | 3,885 |
| 33Y18 | Mycogen | TMF113 | 6 | 26.07 | 3.0 | 70.8 | 4.2 | 1.4 | 3.0 | 4,939 |
| 3437 | Agway | Ag657 | 12 | 27.84 | 2.3 | 70.9 | -1.9 | 0.2 | -1.6 | 248 |
| 3437 | Mycogen | TMF106 | 11 | 24.99 | 1.0 | 72.4 | 1.5 | 0.5 | 1.0 | 1,885 |
| 3523 | Cargill | 3309FQ | 18 | 28.74 | 4.5 | 70.3 | -1.7 | 0.8 | -1.0 | 882 |
| 3523 | Cargill | F657 | 46 | 29.04 | 6.4 | 71.6 | -4.6 | 1.3 | -5.9 | 2,700 |
| 3523 | Mycogen | TMF106 | 46 | 27.51 | 2.8 | 71.4 | -0.1 | 0.7 | 0.1 | 1,865 |
| 3523 | NK Brand | MAX21 | 7 | 27.62 | 3.8 | 72.8 | 1.7 | 1.1 | 2.5 | 2,579 |
| 36H36 | Cargill | 2411FQ | 6 | 26.71 | 5.3 | 73.2 | -1.4 | 1.3 | -0.7 | 2,711 |
| 36H36 | Cargill | 3309FQ | 8 | 30.54 | 3.4 | 75.5 | 2.5 | 1.2 | 2.4 | 3,492 |
| 36H36 | Cargill | F377 | 8 | 31.27 | 7.1 | 74.2 | -0.3 | 2.1 | -0.9 | 5,765 |
| 36H36 | Mycogen | TMF100 | 11 | 30.25 | 1.3 | 72.5 | 2.4 | 0.9 | 1.7 | 3,022 |
| 36H36 | Mycogen | TMF94 | 9 | 24.48 | 1.6 | 72.0 | 1.3 | 0.6 | 1.3 | 2,196 |
| 36K50 | Mycogen | TMF94 | 7 | 23.07 | 1.8 | 73.0 | 2.6 | 0.9 | 2.1 | 3,108 |
| 3752 | Mycogen | TMF94 | 19 | 23.76 | 1.1 | 74.3 | 2.7 | 0.9 | 0.9 | 3,080 |
| 37M81 | Cargill | 2411FQ | 11 | 21.07 | 3.5 | 74.3 | 0.8 | 1.0 | -0.8 | 2,469 |
| 37M81 | Cargill | 2827 | 6 | 22.73 | 0.6 | 71.6 | 1.2 | 0.3 | 1.3 | 1,641 |
| 37M81 | Cargill | 3309FQ | 7 | 24.64 | 3.0 | 73.1 | 2.2 | 1.1 | -0.3 | 3,633 |
| 37M81 | Cargill | 3677 | 12 | 23.08 | -0.5 | 74.6 | 1.5 | 0.1 | 1.7 | 1,705 |
| 37M81 | Cargill | 3711FQ | 14 | 25.26 | 0.4 | 73.6 | 1.4 | 0.4 | 0.6 | 1,814 |
| 37M81 | DeKalb | DK401 | 7 | 19.23 | -0.3 | 75.2 | 3.9 | 0.2 | 0.8 | 1,153 |
| 37M81 | DeKalb | DK446 | 8 | 22.88 | 1.8 | 74.4 | 2.9 | 1.0 | 2.3 | 3,499 |
| 37M81 | Mycogen | TMF100 | 13 | 26.57 | 1.2 | 73.4 | 4.3 | 1.1 | 0.5 | 4,755 |
| 37M81 | Mycogen | TMF106 | 22 | 28.12 | 0.7 | 75.4 | 5.5 | 1.3 | 0.3 | 6,453 |
| 37M81 | Mycogen | TMF94 | 88 | 23.58 | 0.9 | 73.6 | 1.6 | 0.6 | -0.5 | 2,499 |
| 37M81 | Mycogen | TMF99 | 27 | 24.14 | -0.5 | 74.8 | 4.5 | 0.9 | -0.8 | 4,631 |

¹IVDC = % *in vitro* whole plant digestibility (DM basis) estimate (deBoever, et al) predicted by NIRS Starch hydrolysis with enzymatic degradation of protein and cellulose, used to register silage hybrids in Europe

²Tons of CME (Com Meal Energy Equivalents)/Acre = Economic estimate using both Dry Matter Yield and Whole Plant Digestibility, represents the number of tons of ration corn meal needed to replace the corn silage energy from each acre. When 1 ton of corn meal costs \$100/ton, a 0.5 ton per acre Com Meal Energy Equivalent difference equates to \$50 per acre or \$125 per unit of seed corn (32,000 plants per acre)

³dNDF = Enzymatic estimate of % degradable NDF (fiber)(DM basis) in the whole plant sample predicted by NIRS

⁴Adjusted Milk = A "milk per acre" yield and quality index based on animal requirements of a 1350 lb. cow milking 90 lbs of milk at 3.8% fat. Animal requirements were estimated using MILK95 model published by University of Wisconsin (J. Prod. Ag. 6:231-235). Fiber inputs to MILK95 were adjusted by an enzyme-based *in vitro* digestibility procedure to account for the fact that not all fiber is degraded at same rate or extent by rumen bacteria

Caution should be used when making hybrid decisions based on single/limited plot comparisons. Be sure hybrid comparisons are of "similar" maturity for that area of adaptation. Pioneer research suggests a minimum of 20 side-by-side comparisons for valid yield and nutritional comparisons



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TECHNOLOGY THAT YIELDS.

