Computer Program Reduces Feed Costs
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"If we cut our expenses by one penny per cow per day, we can save $1,500 a year," said Sam Shotzberger, manager of Landhope Farm in Kennett Square, PA. Actually, Shotzberger has been able to save a lot more, thanks to the Production Medicine Services offered by the University of Pennsylvania's Center for Animal Health and Productivity at the Veterinary School's New Bolton Center campus.

"Fifty to 60 percent of the value of milk is in feed costs," said Drs. David Galligan and James Ferguson of the Section of Animal Health Economics and Nutrition. "And as the price of milk drops, keeping the feed costs in line becomes more critical." Dr. Galligan, Dr. Ferguson and other colleagues of the Center have developed a number of computer programs that help producers make better decisions. One program, DAIR YLP, written in Lotus 1-2-3, allows precise calculations of nutritional value of rations, calculations of the cost if ingredients are changed or substituted, and formulation of the most economical feeding program to meet the nutritional requirements of a herd. The program takes into consideration the lactation stage of the various production groups within the herd, allowing to feed for optimal economic production. The spreadsheet is interactive, thus the veterinarian can assess different feeding programs and calculate costs rapidly.

Since utilizing the Production Medicine Services, supervised by Dr. Ferguson, Shotzberger has reduced the feed costs on his 400 cow herd by about $1,600 a month, about 15 percent. Milk production has gone up and the cows are healthier. The Landhope herd is kept in large open barns in separate groups, divided according to production. Cows receive a total mixed ration formulated according to each group's needs. A large shed holds mounds of cottonseed, soy meal, distiller's grains. Silage is stored near-by in trenches and the barn is used to store the minerals and other ingredients. Seven different components make up the ration and the farm personal mixes 10 different rations daily for the various members of the herd. The farm uses approximately 20 tons of feed a month. Training the personnel to mix these rations properly is an important part of the successful implementation of the program. To that end, Dr. Ferguson has worked with Shotzberger and given brief presentations to the farm personnel on a routine basis. Various herd and management problems along with their potential solutions are discussed at these meetings.

At the farm of Steven L. Stoltzfus 40 cows are kept in an enclosed barn and a stanchion feeding system is used. The 14 draft horses are in stalls near-by. Stoltzfus, an Amish farmer, has been working with

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An animal can use first-cut hay which does not have that great a nutrient value. However, if soy meal is expensive, then it is in the ration formula and recommend that high quality hay be used. This kind of ration formulation requires that farmers change their habits. It used to be that hay was fed in reverse order of harvesting, meaning that the last cut hay was fed first. Now, Dr. Galligan recommends that the cuttings be stored separately so the hay can be accurately matched to the other feed ingredients to provide the proper nutrition for the least price.

Trace mineral mixes may be either custom formulated or selected from a bank of proprietary supplements on the basis of limited trace elements in the ration.

The spreadsheet allows individual calculations for the various components. "We can determine what kind of hay to feed if soy meal is high in price," said Dr. Galligan. "If soy meal is low in price, then it will make up a greater part of the ration and the farmer can use first-cutting hay which does not have that great a nutrient value. However, if soy meal is expensive, then it is in the ration formula and recommend that high quality hay be used."

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Ten years ago, there were few tissue culture areas in research facilities. Now, every facility that builds a building encourages them to investigate additional avenues from the USDA and NIH are calling for closer animal models, and are more economical. Useful, provide a cleaner and more precise result than animal models, and are more economical.

The success of alternatives can be measured by the increase in research facilities. Now, every facility that builds a building adds a tissue culture area. Techniques most commonly considered are cell, tissue and organ culture, computer modeling and the use of minimally invasive procedures that produce less stress, Dr. Goldberg noted. While more toxicological research is being conducted in vitro, the potential use of cell culture method in toxicological protocols and hazard assessment is only beginning to be used and evaluated, he said. Dr. Goldberg attributed the increase of alternative to public pressure from the animal protection movement. "We are finally responsible for encouraging the scientific understanding and development of alternatives," he said. But if the science hadn't been there, it never would have come about.

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Dr. Galligan and Ferguson and their colleagues are continually refining the program and the service forms. The computer is a powerful tool for analyzing systems and are making calculations as to whether it is advantageous to buy a three months' supply, versus a six weeks' supply when considering the interest the money could earn if invested alternatively. If all this sounds a bit farfetched coming from veterinarians, it really is not as the contemporary veterinarian has moved beyond being a mere healer. "We have to look at the total farm picture," said Galligan. "While disease prevention is an important part of herd health, management programs have been put together to reduce the cost. The veterinarian can take a look at the overall picture and then advise the client. By increasing the feed efficiency and advising the farmer about ration formulation, we can save him more money than through many traditional veterinary services..."

The members of the Center for Animal Health and Productivity have been spreading this word at bovine practitioner's meetings and now about 1,000 veterinarians use the program to advise their clients. It costs $100, this includes the spreadsheet, a tutorial and a user's manual as well as a year's subscription to the University's online bulletin board. Here users find out about updates and improved features of the program.

The program is also an important teaching tool for Penn's veterinary students, familiarizing them with feed rations and formulation of the most economic ration without sacrificing production yield.

What is the future? "We will be looking at the futures market to see if feed expenses can be reduced further," said Dr. Galligan. We are employing economic principles and models being used in industry and are applying them to agriculture to help the dairy farmer to remain profitable.

Dr. Galligan is an associate professor in animal health economics and holds an MBA degree from the Wharton School. Dr. Ferguson is an assistant professor in nutrition and is board certified in nutrition and reproduction. The ration formulation program was chosen by Cows Magazine as one of the five best applications of Lotus 123 for 1990. The research to develop the program was funded in part by the Pennsylvania Department of Agriculture.

Welcome
Each July VHUP and the Widener Hospital welcome new residents and interns. The new residents at New Bolton are: Dr. Julie Anderson (surgery), Dr. Tony Mogg (medicine), Dr. Pam Wilkins (medicine), Dr. Suad Terzich (poultry pathology). Dr. Rochen has been appointed lecturer in cardiology.

The new interns at VHUP are: Dr. Lynn E. Babbitt, V'91, Dr. Elizabeth Berger, M'N'91, Dr. Lori W. Cabell, TN'91, Dr. Lillian E. Duda, V'90, Dr. Monika Grist-Wenk, Zurich '89, Dr. Kir A. Hassinger, V'90, Dr. Richard Jan Haworth, Cambridge '91, Dr. Clare Knowler, Glasgow '91, Dr. Nancy Sander, OH '91, Dr. Elaine J. Tobias, V'91, Dr. Susan Westmoreland, V'91. The new VHUP residents are: Dr. Mark Jamba and Dr. Michelle Sabol-Jones, laboratory animal medicine; Dr. Jean Marie Swingle Greek, WI'90, Dr. Mary Wilkes, V'91, anesthesiology; Dr. Michael G. Conzemius, IA'90, orthopedic surgery; Dr. Richard A. Rockar, V'88, soft tissue surgery; Dr. Derek Hughes, Liverpool '90, emergency medicine; Dr. Joan Regan, V'99, radiology; Dr. Jamie Anderson, CA'89, Dr. Mark Elie, MF'85, Dr. Patricia G. Walters, V'90, medicine; Dr. Margaret L. Casals, Zurich '84, medical genetics.

Dr. Ray Boston, formerly at the University of Melbourne, Australia, has joined the Center for Animal Health and Productivity as professor of applied biomathematics. Dr. Daniel Brockman has been appointed lecturer in anesthesia, and Dr. Jeff Rubin has been appointed lecturer in Field Service and Reproduction. Mary Lou Shea has been appointed Director of Nursing at New Bolton Center.

Promotions and Appointments
Dr. Meryl Littman was promoted to associate professor of medicine; she is chief, Section of Medicine at VHUP. The following were promoted to assistant professors: Dr. Betsy Dayrell-Hart in neurology; Dr. Leslie King in medicine; Dr. Richard Siubre in medicine; Dr. Gert Niehauer in veterinary medicine.

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Dr. David Galligan was promoted to associate professor of animal health economics. Dr. Corinne Sweeney was promoted to associate professor of medicine. The following were promoted to assistant professors: Dr. Sue McDonnell to research assistant professor in surgery and Dr. Kevin Shalen was reappointed assistant professor in dermatology. Dr. Charles Pugh joined the radiology department in Philadelphia as assistant professor. Dr. Bennett Hershfield was appointed research assistant professor in ophthalmology.

At New Bolton Center, Dr. Eric Fullen was promoted to associate professor of surgery and Dr. Kevin Shalen was reappointed assistant professor in surgery. Dr. Kevin Shalen was reappointed assistant professor in surgery. Dr. Jeff Rubin has been appointed lecturer in Field Service and Reproduction. Mary Lou Shea has been appointed Director of Nursing at New Bolton Center.