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Welcome
Dr. Galligan for more than a year. He has a ration sheet and feeds each cow individually according to her production. The rations formulated for his farm save him about $400 to $500 a month. Dr. Galligan visits the farm periodically to check and to revise the feeding program and to discuss other herd related problems that might arise.

The interactive computer program has five subunits: 1. a nutrient requirement section; 2. a feed bank section that stores a list of all feed ingredients and their nutritive value; 3. a comparative evaluation section where the balances of available feed; 4. a feeding recipe section, which displays or prints grain mix, mineral mix, total mixed ration, or stanchion barn recommendations; and 5. an economic model that ranks feeds by a nutritional and benefits algorithm.

"We can select up to 12 fixed feed ingredients from a bank of up to 100 feeds," explained Dr. Galligan. "The basis of selection is farm availability and nutrient constraints. Selected variable ingredients are used to balance the ration for dry matter, moisture, crude protein, bypass protein, soluble protein, acid detergent fiber, and neutral detergent fiber. Calcium and phosphorus are balanced using a combination of mineral sources. 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 nutritive value. However, if soy meal is expensive, then it will be a part of 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 cost. If one kind of fiber is high priced, then another may be selected. Further, Dr. Ferguson and Dr. Galligan have encouraged farmers to buy feeds as a group.ショットバーガー purchases minerals and other feed ingredients jointly with other producers also enrolled in the Production Medicine Services, obtaining a bulk price. Stolz's and his neighbor too combine their orders to get a better purchase price. Stolz's has taken an additional step to reduce his feed costs, he has installed a diesel-driven roller mill which allows him to mix and prepare his grain mixes. He estimates that this equipment saves him an additional $280 a month.

Drs. Galligan and Ferguson and their colleagues are continually refining the program and the service formula is being evaluated. They are always aware of new alternatives and are making calculations as to whether it is advantageous to buy a three-month's 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 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 any conventional 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 on-line 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. And what is in 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 retain profitability."

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 ScanMagazine 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.

**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 Squires in medicine, Dr. Gert Nibauer in surgery. Dr. Tony Kuehn was reappointed assistant professor in surgery and Dr. Kevin Shangley 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 of ophthalmology.

At New Bolton Center, Dr. Eric Fullenwas was promoted to associate professor of surgery and Dr. David Galligan was promoted to associate professor of animal health economics. Dr. Corrine Sweeney was promoted to associate professor of medicine. The following were promoted to assistant professor: Dr. Sue McDonnell to research assistant professor in reproduction; Dr. Ben Martin to assistant professor of equine sports medicine. Dr. Patricia Sertich to assistant professor of reproduction. Dr. Ray Sweeney to assistant professor of medicine; Dr. Wendy Vaala to assistant professor of medicine/ neonatology.

Dr. Alan Ruggles has been appointed lecturer in surgery; Dr. Kim Olson has been appointed lecturer in anesthesia, and Dr. Jeff Rubin has been appointed lecturer in Field Service and Reproduction. Mary Lou Sash has been appointed Director of Nursing at New Bolton Center.