Victor Cabrera, right, dairy specialist for New Mexico State University in Clovis, N.M., goes over a computer model with Gerry Greathouse, a dairy producer in Roswell.

NMSU specialist uses computer modeling to help dairy producers

■ The dairy industry in New Mexico has another resource available to help them fine tune their operations. Victor Cabrera will be working with many of the 170 dairies located in the state.

CLOVIS, N.M. – When Victor E. Cabrera considers the dairy industry in New Mexico, he sees more than cows, milking machinery and stacks of hay bales. He also envisions a dynamic system that can be computer-simulated to study ways to make it work as efficiently as possible.

Cabrera, a native of Peru, joined New Mexico State University's Cooperative Extension Service in March as a dairy specialist, researcher and assistant professor. He is based at the Agricultural Science Center at Clovis, but has statewide responsibilities.

Cabrera brings his extensive research background to the $1 billion-dollar-a-year dairy industry in New Mexico, which includes more than 170 dairies.

"I am looking forward to the challenge of working in the real world," Cabrera said. "I thought, here in the real world, my research is going to be much more applied."

Cabrera comes to New Mexico from the University of Miami in Florida, where he worked as a postdoctoral research associate. He developed farm simulation models that used optimization methods to evaluate climate forecasts, looking at various climate, price and government farm program scenarios.

Prior to that, Cabrera was a graduate teaching and research assistant at the University of Florida in graduate courses on farming systems research and Extension, and the economic analysis of small farm livelihood systems. He also researched seasonal climate impacts on cow-calf operations and nutrient flows from dairy operations and their environmental impacts.

Cabrera is wasting no time in getting involved in New Mexico's dairy industry. Already, he has met with several dairy producers and Sharon Lombardi, executive director of Dairy

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FYI

■ **To contact Victor Cabrera, dairy specialist, *New Mexico State University*, call 505-985-2292, ext. 127.**

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Producers of New Mexico, which involves about 80% of the state's dairies. He's working on a web site that would include information about events of interest to dairy producers, literature on current issues, training materials and prototype simulation models.

Information central

"Dairy farmers in New Mexico and West Texas are progressive and busy people," he said. "They or their managers have access to the Internet and they would like to have the information they need in just one place, from which they could retrieve it quickly and efficiently."

Cabrera is collecting data from cooperating dairies to develop computer simulation models based on New Mexico dairies that will be used to study how to optimize dairy practices.

"I am going to look at data that is common to all dairies and then represent any dairy by adjusting it," he said. "We can see what's happening in real time at a dairy and forecast what would happen in the whole dairy farm system when there is a change in any of its components."

The most common dairy producer feedback he's received is the need for more information and work on environmental concerns, which he plans to concentrate on in his modeling.

"Dairy farmers are required to comply with an ever-changing and not always well-defined set of regulations," Cabrera said. "Although compliance has strong economic implications, environmental concerns and problems cannot be solved with money alone. Creativity and sound science play an important role in identifying, testing, implementing and designing best management practices that goes beyond compliance and toward environmental stewardship."

'What-if' scenarios

Cabrera receives a good reception from dairy producers when he tells them about his computer modeling programs that will enable him to plug in different sets of "what-if" scenarios and produce simulated results.

"They are very enthusiastic about it and willing to work together," he said.

Cabrera earned a bachelor's degree and engineer in agronomy degree in 1993 from La Molina Agrarian University in Lima, Peru; a master's degree in agricultural education and communications in 1999 from the University of Florida; and a doctorate degree in interdisciplinary ecology in 2004 from the University of Florida. From 1998-2004, he was named Outstanding International Student at the University of Florida.

"Dairy farmers in New Mexico and West Texas are progressive and busy people. They or their managers have access to the Internet and they would like to have the information they need just one place, from which they could retrieve it quickly and efficiently."

Cabrera worked as a consultant from 1999-2001 for the Inter-American Development Bank in Lima, Peru, where he developed Extension programs and training for small farmers. He was a professor in the Agricultural Technical College at the Valle Grande Rural Institute in Cañete, Peru , from 1994-1997, and managed a small farm and dairy in Lurin, Peru, from 1993-1994. He has published and presented numerous papers and is a member of the American Society of Agricultural Engineers.

Long-term goals

Cabrera also has plans to collaborate with others on a project that will look at the possibility of using manure as an energy source; collaborate in a national study about air quality and Animal Feeding Operations; develop training sessions pertinent to his programs; prepare a report comparing Concentrated Animal Feeding Operation regulation rules in New Mexico with those in neighboring states; periodically monitor the economic significance of the dairy industry in New Mexico; and manage an information system of all dairy farms in the state. ■