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## ROLE OF VETERINARIANS

*Today's vets serve their traditional animal health duties and take on expanding global responsibilities*

BY SALLY SILVERMAN

**While** the idyllic practice style of James Herriot may still fuel the passion of many veterinarians and vet students, the role of the profession is expanding.

Today, in addition to the traditional roles of protecting animal health, veterinarians are major players in food production practices and are influencing global food policy. This idea – that vets play a role in feeding the world safely – is fairly new.

But there are challenges with this new role, including a broad understanding of food production paradigms, water and arable land scarcity, global warming and political strife.

### A Growing Need for Increased, Safe Production

When large animal veterinary education began, explains Penn Vet's Dr. James Ferguson, V'81, professor of clinical nutrition and chief, Animal Production Systems, the goal was to eradicate diseases to protect food supply. In the late 1800s, veterinarians served the health care needs of individual animals and of the herd, which remained the focus as recently as the 1980s.

However, as the agricultural landscape evolved, opportunities for veterinarians to play a more expansive role in food animal production increased.

"Agriculture in this country has changed dramatically," said Dr. Alan Kelly, The Gilbert S. Kahn Dean Emeritus of the Vet School. "As the emphasis on cheap food has grown and the value of the individual animals has declined, farms have consolidated and their numbers decreased. With the pressure for cheaper food the paradigm shifts to the broader aspects of producing animals humanely, at the lowest possible cost and in the most environmentally sensitive way."

To achieve these goals, veterinarians are an integral resource in designing models to help producers. With their training in comparative medicine, said Dr. Kelly, vets have a broad view of disease in humans, livestock, wildlife and the environment.

### Discovering the Answers

In 1986, Penn Vet opened its Center for Animal Health and Productivity, which focuses on the physical and economic health of the animal population and marries disciplines such as clinical nutrition, reproduction, health economics and computer science with conventional veterinary specialties.

One way the Center has had an impact is through an increased understanding of animal nutrition. Here, faculty members develop ration programs to promote economic and environmental efficiency. Because production of milk, for example, is directly related to the feed quality, an increase in efficiency can yield a need for fewer cows. Often, wealth is measured by the number of animals an individual owns; the mindset must be shifted to recognize wealth in terms of production capabilities, not numbers.

"Because animal production is very complicated and nuanced," said Dr. Dave Galligan, V'81, director of the Center for Animal Health and Productivity and professor of Animal Health Economics, "part of our role in influencing global food production is to give the producers the tools to make the right decisions."

### Students Shaping the Curriculum in order to Help the World

According to the World Health Organization, starvation kills more people than HIV/AIDS, tuberculosis and malaria combined. In developing nations, those with rising incomes are looking toward animal proteins to increase the nutritional value of their diets. Complicating matters are endemic infectious diseases of livestock in many of these nations, which reduces animal health and production. These must be controlled before capital is invested in systems.

In addition, the Food and Agricultural Organization of the United Nations projects the need for a 70 percent increase in food production by 2050 in order to meet the demands for animal protein with little appreciable increase in arable land.

"[A]mong veterinary students in the US there is a ground swell of interest in these dynamics founded in the knowledge that the profession can play an essential role in alleviating poverty and hunger, helping poor nations enter world markets and in bio-security for the United States," said Dr. Kelly, who serves as chair of the National Academies of Science study on Workforce Needs in Veterinary Medicine.

"It is, in fact, the students who are pacing us," said Dr. Ferguson. "They are taking on a broader vision of how they can play a role in solving the issue of hunger."

And so it only makes sense that students' education is expanded.

"They need to know nutrition and all parameters of health, as well as the business of the farm," said Dr. Kelly.

The curriculum at Penn Vet has evolved and now offers courses on animal health economics, dairy production medicine and developing systemic approaches to herd health. A Veterinary Public Health Course, spearheaded by Dr. Kelly, has moved from a bacterial, biological emphasis to emphasize responsibility for production with minimal environmental impact.

Combined degrees give students broader access to the tools vets need to shape global food policy. The VMD/MBA, for example, combines the role of veterinary practice economics as well as the economic impacts of veterinary medicine.

Comparison study is also featured. For the past two years, under the leadership of Dr. Zhengxia Dou, associate professor, Animal Production Systems, a group of students has traveled to China, visiting dairies and exchanging ideas. (See Spring 2010 *Bellwether*.)

## Setting the Pace for Evolving Roles

Penn Vet has positioned itself at the forefront of this changing role and faculty, students and staff are focused on animal health as well as finding ways to increase animal production economically, safely and efficiently.

"Penn has always been unique in terms of looking at new dimensions of veterinary medicine in which to evolve," said Dr. Galligan. "We were the first school to focus on animal health economics and the first school with a nutrition program focusing on animal production rather than disease. What makes us unique is our broad perspective of what the problems are."

Dr. Ferguson envisions an educational program that is unique among veterinary schools, where 20 percent of graduates work in global food policy.

"We are early in this," Dr. Ferguson said. "We might be unique in the concept of food production and its impact on human health and animal health and the impact on the environment."

"Veterinary medicine keeps trying to push into public health and everybody is surprised all the time," said Joan C. Hendricks, V'79, The Gilbert S. Kahn Dean of Veterinary Medicine. "But veterinary voices need to be heard in the public sector. We have a unique and broad education that is good for the world." 🍷

*This summer, Penn Vet students traveled to China with faculty and staff from the Center for Animal Health and Productivity to broaden their education. After time in China, several stayed abroad, expanding their understanding of agricultural practices in different cultures.*

### Molly Harrington, V'13

I worked with WorldVets in Cambodia on board the USNS Mercy Hospital Ship. Under direction of US Army veterinarians, we provided humanitarian and civic assistance alongside medical, dental and engineering teams. Our primary focus was on public health, food safety and security and animal medicine.

The Pacific Partnership fosters cooperative relationships between national governments, international organizations, non-governmental organizations and partner militaries and began after the 2004 Asia tsunami. Since then, the partnership travels for four months each year visiting countries in Southeast Asia.

It was incredibly rewarding to be a part of an international team. The scope of impact was visible both at the leadership level and at the village level where water buffalo still predominantly worked in the fields. Our veterinary team focused on villages because animals are critical to their survival in terms of both for food and labor. The Cambodian veterinarians were receptive to teaching us about their practices and welcomed us to engage within their communities. I experienced an eye-opening aspect of veterinary medicine that will help shape my career.



Penn Vet students Molly Harrington (pictured left), Kathryn Bach and Anna Smith (pictured right) spent their summers expanding on their veterinary education.

### Kathryn Bach, V'13 and Anna Smith, V'13

When the two-week group trip ended we stayed in China, spending the remainder of our summer at Huaxia Dairy Farm, a large facility milking 3,000 cows with almost as many young heifers. While there, we focused on a different area of the production process each week, from mastitis to feed management to reproduction.

The challenges to efficient production were apparent. One example of the input we offered was on the health of dairy calves. We worked to improve colostrum management, helping farmers understand that healthy calves make healthy cows, and healthy cows produce more milk. We also helped Huaxia understand that quality feedstuffs were just as important as a well balanced ration formulation. We worked with dairy managers and growers to find a better harvesting plan that would not compromise nutrient value while increasing milk production and improving economic value of the feedstuffs.

This was a great opportunity culturally and to cement some of our knowledge of vet-related topics, dairy management and production. It was also a lesson in how agriculture is intertwined with culture, politics and people.

*For more international summers experienced by Penn Vet students, visit [www.vet.upenn.edu](http://www.vet.upenn.edu).*