

## **‘Time is running out; Time for action’**

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Water for Food speaker says solutions are within reach.

LINCOLN—Dilip Kulkarni remembers the first global Water for Food Conference in Lincoln in 2009. “Another water conference” was his initial dismissive reaction.

As the fifth annual conference closed May 8, Kulkarni, of India’s Jain Irrigation Systems, praised the gatherings of experts from around the world for playing an important role in surfacing challenges and solutions to the problem of feeding a world expected to grow from 7 billion to 9 billion by 2050.

But “time is running out,” Kulkarni said. “It is now the time for action, we must take our research, our knowledge to the people. The solutions are within our reach.”

The conference was hosted by the University of Nebraska’s Robert B. Daugherty Water for Food Institute and the Bill & Melinda Gates Foundation and sponsored by Monsanto.

Kulkarni and others on a closing panel led by Water for Food Institute Executive Director Roberto Lenton said the problems are complex and differ around the world. Much of the challenge lies in convincing government leaders to take research seriously in crafting new laws and policies to help address the issue.

“Too often our policymakers are taking the issue of climate change and kicking it down the road,” said Mace Hack, state director of The Nature Conservancy in Nebraska.

Another wrinkle, cited by Sandy Zellmer, the Robert B. Daugherty professor of law at UNL’s College of Law, is that scientific and producer knowledge of water issues is outpacing the legal system’s grasp of them.

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Earlier Wednesday, livestock experts addressed livestock's often-misunderstood role in sustainable agriculture.

"Beef does use a heck of a lot of water and I'm not here to say it doesn't," said Jude Capper, a livestock sustainability consultant from Bozeman, Mont.

However, she said, anti-meat activists have painted an unfair picture using distorted statistics and scare tactics.

"We are bombarded every day with the message, 'if you care about the planet you shouldn't eat meat,'" she said.

In the United States, Capper said, improved beef production reduced the sector's water footprint 88 percent from 1977 to 2007. Further improvements can yield more progress, she said.

Bradley Ridoutt, of the Commonwealth Scientific and Industrial Research Organization in Australia, said any discussion of livestock's role has to consider its location and context. Livestock production in different parts of the world has different environmental impacts.

"Agriculture is not homogenous. It is very dangerous to make generalizations about the water footprint of broad production categories or regions," he said.

"What is the shape, the size, the form of a livestock sector in a sustainable food system?" Ridoutt asked. "There must be some limits," he acknowledged, but he rejected calls for moving away from meat consumption. Instead, Ridoutt said, policies must be based on research.

Globally, livestock accounts for 16 percent of the calories, 33 percent of the protein and 43 percent of the fat consumed by humans, said Mats Lannerstad of the International Livestock Research Institute and Stockholm Environmental Institute. Beyond that, he noted, livestock has many nonfood uses.

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Other sessions Wednesday covered the potential role for unmanned aerial vehicles, or drones, in agriculture and research. UNL scientists are working to make drones more reliable, safer and easier to use for researchers and producers alike. Potential uses include scouting fields for pests and disease, gathering water, air or leaf samples and monitoring other crop and environmental factors.

Moisture-sensing equipment and other information can improve water efficiency 20 percent or more, said M. Can Vuran, an assistant professor of computer science and engineering at UNL. However, only about 8 percent of producers use these tools. Vuran's team is developing wireless underground sensor networks to help producers manage irrigation more efficiently.