



MEGHANA
Pendurthi
Penn Vet Class of 2017

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Aquaponics drew Meghana Pendurthi into the world of One Health, directing her veterinary career toward improving the health of animals, humans, and the environment.

“One Health combines my interests of veterinary medicine and serving the greater good,” said Pendurthi, 25, whose long-term goal is to work on national policy and legislation. “Veterinarians have so many essential roles beyond providing care for pets.”

Now in her third year at Penn Vet, Pendurthi was one of five students to win Penn Vet’s Student Inspiration Award, earning \$25,000 for a project to advance the frontiers of veterinary medicine.

Pendurthi and her classmate, Ashley Cherry, are using the award to develop and install a commercial aquaponics system at the W.B. Saul High School of Agricultural Sciences in Philadelphia to teach students about sustainable agriculture in urban spaces.

Their Penn Aquaponics Project combines the farming of tilapia fish with hydroponics-based agriculture. The pair also co-founded the Penn Aquaponics Club, which hosts a series of lectures and wet labs about aquatic veterinary medicine.

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Growing up in Bethlehem, Pennsylvania, Pendurthi always had an affinity for animals.

“When I go back and look through elementary school yearbooks, I always said I wanted to be a veterinarian or marine biologist,” she said. Medicine also was an interest, cultivated by her father, a surgical oncologist.

Undergraduate school took her to the University of California, Berkeley, where she earned a degree in molecular environmental biology. Her senior thesis focused on using genetic markers to help solve an inbreeding puzzle in elephant populations.

While at Berkeley she also researched the dwarf cuttlefish, specifically camouflage and learning behaviors, as well as individual striping patterns in octopuses. The summer after graduation in 2012, she worked at

the Mystic Aquarium Seal Rescue Clinic in Connecticut, providing veterinary and husbandry care for seal pups.

She chose Penn Vet partly because of its location in Philadelphia, and also because of the School’s emphasis on One Health.

Pendurthi learned about aquaponics during AQUAVET, an aquatic medicine course in the summer of 2014, which Cherry also attended. “We talked a lot about the issue of food security with the growing human population,” Pendurthi said, adding, “There is increased demand for meat and dairy products, specifically lean protein sources like fish.”

Aquaponics combines aquaculture (fish farming) with hydroponics (growing plants with just water). The fish produce waste in the form of ammonia, and microbes convert it to usable nitrogen, which feed the plant bed system. Then the filtered water is cycled back to the fish tank.

“The aquaponics system reduces water usage, reduces the need for soil, and reduces the space needed to grow plants,” she said. “It is a cool model for urban, sustainable agriculture.”

Pendurthi and Cherry are working with the Saul students to set up an aquaponics system that includes a 500-gallon fish tank, which will support 64 feet of grow-bed space. The system can grow 25 heads of lettuce per week and 100 pounds of fish in eight months. The students will sell the products through a Community Supported Agriculture group.

Pendurthi ultimately wants to use her veterinary expertise to impact national legislation, perhaps on water quality or the use of aquaculture.

Last summer, she worked on poultry regulations for the state of Tennessee and participated in a USDA program about transboundary diseases. Pendurthi is also the liaison between Penn Vet students and the national American Veterinary Medical Association (AVMA), and serves on the student executive board.

These experiences, she hopes, will help pave the way to a career in Washington, D.C. “I am really interested in using legislation to drive animal, human, and environmental health,” she said.