



## Preserving the Future

Advances in the fields of animal medical and reproductive research are progressing at an unprecedented speed. One graduate student at Texas Tech University is doing her part to aid in this progress by attempting something that has never been done before in the field of equine reproduction.

Kate McArthur began her college career as an undergrad at the University of Arizona in Tucson, Arizona, where she majored in equine science. After her graduation in May of 2012, and with the help of her University of Arizona advisor, McArthur was accepted into the Department of Animal and Food Science's graduate studies program in the College of Agricultural Sciences and Natural Resources at Tech, under the supervision of professor Jane Bagley, who heads the equine program at the university.

McArthur has been involved in the equine industry since she was a young girl. She has grown up showing Quarter Horses in various events such as western pleasure and hunter under saddle. Just last year she qualified to compete at the American Quarter Horse Novice Championships, held annually in Las Vegas, Nevada.

Upon her move to Lubbock, McArthur chose to keep her graduate study in equine science, but with a focus in reproduction. Her other duties as a grad student include teaching the beginning horsemanship class as well as coaching the Texas Tech Equestrian team.

"The job of coaching the equestrian team kind of came with the position when I signed up," McArthur said. "It was pretty convenient because I was interested in reproduction and academically this opportunity was in equine reproduction and I also have the background to be qualified to coach the team."

The reproduction aspect of her studies has become the focal point for McArthur's research project, however.

"My project is an embryo cryopreservation project," McArthur said, as her eyes alighted with excitement as she outlined the details of her research. "I am collecting equine embryos and exposing them to this compound called iloprost and then freezing them to see if the iloprost has any protective qualities through cryopreservation."

Iloprost is a hormonal compound naturally produced in the uterus which aids in the hatching and implantation of an embryo. Research has been conducted in other species, such as pig and mice, where iloprost was used as a long-term protectant for the embryos during the cryopreservation stage of the experiment. It has also been used in humans to aid in the success of invitro fertilization. This is however, the first time the compound has been used in the preservation of equine embryos.

"My advisor and I knew we were going to do something with cryopreservation, but about half way through the semester my reproduction teacher, Dr. Prein, informed us of this compound and that they had been trying it in mice, and he thought it would be interesting to use in horses, because it has never been done before."

This compound has never been attempted for use in equine reproduction possibly due to the complex nature of the equine embryo.

"The horse embryo has different structural qualities than other species, so it is usually the last one they try stuff on," McArthur said.

So, what does the future hold for the young woman intrepid enough to attempt a project never done before? Like most college students, McArthur has her eyes set on ultimate prize – graduation and a career post college.

"I am hoping to be done in December of 2014, and after graduation I would like to find a teaching job somewhere because I really enjoy the teaching a lot."



*Tyler O'Neal*  
Pampa, Texas

