



Breeding Champions

Circling the show ring one more time, the senior FFA member's palms grow sweaty and her stomach flutters. As she looks at the two other calves in the champion drive lineup at her last stock show before graduation, her confidence begins to waver for the first time.

"Look at how that heifer is tracking," she thinks, "and that one has more body than I have ever seen."

The champion drive is a coveted position in any livestock show. It shows that your animal is the best of the show. This point in the long journey begins with breeding and selection of animals deemed superior. Artificial insemination has become an important part of the stock show industry and the success realized at the end of livestock shows.

"I think artificial insemination is a very useful tool," said Kristina Hettler, owner of Blessed Beyond Measure Cattle Company.

Hettler uses artificial insemination in all of her show cattle, and said she believes it is a safe and logical alternative to natural breeding. However, the cost has been a hindrance to timely breeding, as well as her desire to collect semen from her own bulls.

Enter Samuel Prien, Ph.D.

A graduate of Texas Tech University with a Ph.D. in Animal Science, Prien divides his time between the Department of Animal and Food Sciences and the Texas Tech University Health Sciences Center.

Prien has been working with a group of individuals from both campuses to develop a new method of semen collection and preservation.

Prien said the current method of semen collection on the ranch involves collecting the

semen and letting it hang in the nitrogen mist to freeze before lowering it into the nitrogen tank.

"That works very, very well as far as getting it frozen, but it does not guarantee the cells will survive the process," Prien said. "A lot of it has to do with you can't control the temperature in that mist of that nitrogen tank."

Prien said the more expensive, off-the-ranch method is called controlled rate freezing, which lowers the temperature of the semen at a very controlled rate to the temperature of liquid nitrogen. He said this method is very consistent, but not cost effective. Prien's research resulted in a new process.

"We found a way to mechanically duplicate what that electronic freezer does," Prien said.

"Hopefully you feed those parts of the world that aren't fed right now"

This new method involves turning valves on and off in a way that mimics the electronic freezer. Prien said ranchers may need the assistance of a veterinarian to perform the collection, but it can all be done on the ranch without the extra costs of hauling the bull, boarding him at the collection site, and feeding him during that time.

Prien said the results have shown to be slightly more effective as controlled rate freezing in cattle and at least equally as effective as controlled rate freezing in horses.

Hettler said she is preparing to collect semen from her bull for the first time and was happy to hear that someone is working to make it cheaper and easier to do so.

Hettler said she would have collected on him sooner if the process weren't so expensive because of the costs and stress associated with hauling him to and boarding him at a collection facility.

"It's beneficial to have him at home," Hettler said. "It's less stressful on him, and he's probably gonna perform better at home."

Prien said his goal is to develop a technique that can be performed whenever needed on the ranch and not risk injury, disease, or the feed bill at the collection facility.

"If we can change the way we practice, then we become more efficient," Prien said.

Prien said he hopes the impact of this project will be huge in an economy with ever-rising prices to aid in retaining America's independence for food.

"I would like to be at the forefront of that as far as what the technologies are doing to change the world and hopefully you feed those parts of the world that aren't fed right now," Prien said.

Prien's research has led to four approved patents with another under review for an even more efficient technique.

"The idea is to get it out and commercialize it, with the idea that you would get it in the hands of a lot of people," Prien said.

Hettler said she believes the more efficient semen

collection techniques will effect the entire artificial insemination process, ultimately benefitting individual herds and the industry as a whole.

Hettler said her goal is to continue building her herd and have show champions with her brand, and more efficient artificial insemination will help her to achieve that goal.

"If you save money on A, you can spend it on B," Hettler said. "Whether it be a new bloodline to bring in, or just the safety of the cattle."

The senior FFA member keeps her eye on the judge as he continues to observe the three heifers in the show ring. She can tell he has made his decision, but she cannot read his face. She watches him walk around the line one more time before picking up the microphone. She tries to listen to him as he talks through the cattle, but there is too much running through her mind.

"Come on, stand still," she whispers to her heifer, "we are almost done. You are looking great."

The judge puts down the microphone. He walks towards the lineup – she can't tell who he will select. In a final attempt to get his attention, she jacks up her heifer's head and scratches her loin to level her back. When she looks up he is right behind her heifer, reaching out to give her the long-anticipated slap of a champion. 🍷



Samuel Prien, Ph.D., has made strides in creating more practical methods of artificial insemination

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