



Vet Call

► by **Bob Larson**, Kansas State University

Research and innovation

Continual improvement should be the goal of every producer and researcher interested in beef cattle production. One often underappreciated area of innovation is the discovery of enhanced educational and delivery methods to increase the use of currently available management techniques and technologies that have been shown to optimize production.

Some of the greatest innovators I know would call themselves teachers, but I recognize that what they are doing is using their creativity to identify the roadblocks that hinder people from understanding and adopting techniques and knowledge that would enhance their lives, and then removing those limitations. Without effective teaching, continual improvement is not possible.

Forging ahead

In addition to increasing the feasibility and implementation of currently available technology through effective teaching, new techniques and technologies are on the drawing board for future use on all types of cattle operations. During my lifetime, I have witnessed innovations such as expected progeny differences (EPDs),

estrus-synchronization protocols, embryo transfer and sex-selected semen that provide producers great tools to improve the genetic merit of their herds that far exceed any tools available to earlier generations.

Increased understanding of soil, forages, grains, cover crops and nutritional needs of

cattle have enhanced our ability to optimize the conversion of sunlight to edible protein in the form of beef. Furthermore, advancements in diagnostic tests, greater understanding of biosecurity, as well as new vaccines, antibiotics, parasite control and other animal health products have provided valuable new tools for

veterinarians to positively impact cattle health.

Innovation is the result of creative people who see problems and limitations as opportunities for building something new. Innovation involves taking risks and being willing to fail. It is almost always a slow process that requires a great deal of

trial and error, as well as carefully planned research.



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A slow process

One reason innovation is a slow process is because biology and livestock production are complex, with many interacting components. Enhancement of one area may have unforeseen positive or negative effects on other components.

New techniques and products must be investigated under many environments and over time to discover what other factors influence how an innovation will perform and how changes in one aspect of cattle production affect other aspects.

Because innovations take time and are very expensive to rigorously investigate, careful allocation of resources to the areas of greatest opportunity for improvement is essential. Livestock producers have the best vantage point to identify those areas. The land-grant university and extension systems have served the United States very well as conduits between the needs of agriculture

producers and the research capabilities of universities.

Many of the greatest innovations in my lifetime have come from this system, and current research investigating enhanced genetic selection for production and health traits, improved efficiency of assisted reproduction technologies, facilities and animal handling based on better

understanding of cattle behavior, new diagnostic tests and methods to enhance disease detection capabilities, improve food safety, and methods to ensure and enrich the eating characteristics of beef products all promise to deliver valuable new innovations.

Innovators needed

The need for new people to enter the field

of agriculture research and innovation has never been greater. Young cattle producers who have a knowledge and appreciation of animal husbandry, as well as a desire to be involved in investigation and discovery should seriously consider a career in agriculture research. The more

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we learn about cattle from the cellular to the herd level, grazing and crop production ecosystems, and meat characteristics, the more we realize how much more there is to know.

Scientists continue to use better and more powerful computing and measuring technologies, but the overarching question for cattle researchers doesn't change. How do cattle eat grass and other feeds to grow, become pregnant, avoid and recover from disease, and serve an important and complex role in the earth's ecosystem?

The challenge to continually improve the efficiency and sustainability of cattle production is a daunting one. Any person who gets a thrill from discovering something new, who sees opportunities where others see problems, and who isn't discouraged by continually learning how limited their understanding of the world really is may have the makings of the next great cattle researcher and innovator.



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