

# KANSAS Farmer

Beef Producer



## Extremism in cattle is major reproductive disease of our day

By R.P. "DOC" COOKE



**L**ATE in 1977 I was not long out of vet school and in the midst of pioneering a veterinary practice on the Highland Rim of middle Tennessee.

I had a few good days that were often followed by a stack of bad days. On a much too regular basis, I was called on to answer questions that I was unprepared to accurately address, even though I had completely focused my every waking hour on such topics for more than nine years of college and veterinary school.

I knew I needed help and information beyond the experience I was slowly accumulating the old-fashioned way. That's why I made the decision to drive to St. Louis and attend North America's largest "cow doctor" conference. Money was extremely short, but I took off and was ultimately rewarded a few days later when I brought home information and new ideas that helped me for many years afterward.

While I was at that meeting, I made every effort to mix with older, more experienced-looking veterinarians. One evening I sat down for a glass of Kool-Aid with a vet who was well-seasoned and later became my friend and mentor.

Dr. Jim Eischen is from Canadian County in central Oklahoma. He is surely one of the oldest veterinarians in the state, and he's processed, examined, doctored and consulted on more wheat-pasture calves, beef cows and dairy cattle than most veterinarians east of the Mississippi River have ever seen.

Eischen pays attention to the people and the animals, and I'd say he's never forgotten a lot. He helped me learn to get a real good

history from every producer who called with a problem. He taught me to look, smell, listen, think and then respond with some degree of caution.

"Pay attention to what the owner and the animal tell you, and you won't get hurt," he said to me on more than one occasion.

Eischen also told me to stay away from extremes. In that vein, he later made a profound statement about cattle breeding and genetics that I have never forgotten or seen disproven. He said if I were to put together 100 head of pregnant, sale-barn cows and calve them out, the result would be 40 or 50 good calves, 30 or so mediocre calves and 10 to 15 dinks.

He said if I cull hard on those cows and put the right bulls on them, the next year would be remarkable. He said the result would be 90% to 95% good calves.

Eischen also said you could spend a war pension and wear yourself totally out after that first year, and any more forward progress would be at a turtle's pace. He said 70% of the progress would be made in that first year, if I made the right selections and did wise culling.

It took 20 years for me to truly understand what all this meant, and I am not certain even Jim Eischen understood the genius of what he said.

I'll elaborate with my perceptions: To make high annual profits, cattle must stay healthy on the forage base available where they live. They can program themselves to adapt as long as the change is not too large. But the more cattle are programmed genetically for high production, which is a form of extremism, the less they are capable of adapting to their environment.

This has huge consequences for reproduction and health. Cows need to breed back in 90 days or less after calving to stay in timely reproduction. If they are late, they may have less than 70 days.

The most important trait of a highly profitable cow is longevity, and longevity requires high fertility and extremely good health. Further, a cow must be easy-keeping or she simply will not maximize profits by minimizing input costs.

Longer term, the question is how many years can she raise a good calf, breed back, winter cheaply and then repeat that cycle?

I believe a worthy goal is for cows to perform for 16 years and raise 14 calves, although I realize that is far, far below the national average.

Purchasing genetics to improve the herd is the standard these days, but it carries with it some problems. First, I say if more than 50% of your cows are getting it done as I described the profitable cow

above, it's doubtful purchased genetics will increase your black ink. If you buy genetics to bring home, buy from nearby and preferably obey the old saw that cattle should only be moved west and north. I'd add the cattle should ideally come from a harsher environment than yours.

Environmental principles and understanding are requirements for genetic progress. More local and the more moderate should be chief among the characteristics you seek. That fits with what Dr. Eischen started teaching me all those years ago. I hope you find it useful, too.

Cooke is a retired veterinarian who writes from his ranch at Sparta, Tenn.

### Animal Health Notebook



# At last, path to right cow type illuminated

## Of Bovine Ilk

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**T**HERE is an ongoing squabble in the beef industry about cow type, size and efficiency, one which seems to go on and on.

I doubt there's anyone who doesn't know this, but I think many who enter the fray get their attentions misdirected.

I've watched cattle over many years as I travel around the country, and it seems to me, on the average, they just keep getting poorer and hungrier. Meanwhile, the trends are well-documented that cattle keep getting bigger-framed and people keep selecting for more milk and muscle. My observations make sense to me because it has become clear to me people are primarily selecting cattle that perform well in the feedlot, which is a diet extremely high in energy. Energy in nature, on the other hand, is at a dearth most of the year. Hence, people have consistently selected unfit, poor-doing cattle for pasture conditions.

I also have noticed my stocker-operator friends don't like the few remaining smaller calves from old types of American cattle because they're only interested in total weight gain; bone, muscle and fat are all the same to them. These big calves gain best when their bodies are growing most rapidly, which is mostly bone and muscle growth to support that large frame. This also is the biological time frame in which stocker operators are putting weight on calves.

Further, I know bigger cows frequently produce smaller calves unless they are heavily supplemented. Kris Ringwall at North Dakota State University showed this with a study he did of the university herd there. The needs of the cow were outweighing the needs of the calf, to my way of understanding. Dave Lalman at Oklahoma State University also has out-

lined these problems and the causes for about three years now.

### Sacrificing reproduction

Long-lived organisms, whether they be plant or animal, will always sacrifice reproduction when times are hard because their programming is to survive another year and reproduce later on. This is well-documented in white-tailed deer, coyotes, pecan trees and cotton plants, for example. The research I have seen says this is so for cattle, too. Reproduction and body weight gain are the last priorities.

Therefore, it also is clear to me that our industry has been selecting cattle that are too big and thus, unsound reproductively.

Then along comes Johann Zietsman with his explanations that use existing science to explain what the industry "gurus" have turned upside down for many years now, all in the name of satisfying the packing, feeding and stocker industries, all which want bigger cattle that put on lean tissue and bone more quickly because they gain direct rewards from that type of animal. In my writings I have many times noted these trends.

This has been a massive move away from cattle that could reach sexual maturity early and get fat on grass, which was the type of cattle our forefathers selected on rangeland. They were not dwarfs, incidentally. That was a show-ring invention.

Zietsman is the first person in modern times to offer realistic solutions for selecting efficient cattle, other than trying to capture efficiencies from the few old-type cattle still extant. He says the beef animal is too complex to try to measure every trait or even to measure one thing consistently. Therefore, we should set up a system that has the chance to be most profitable and find animals that can reproduce consistently under those conditions. On pages 6 and 7, you'll find another story about his methods to do that.

Because reproduction is one of the last functions to be fulfilled in long-lived organisms, beef animals that can repro-

duce under difficult conditions will be the most-suited animals.

When I saw Zietsman's explanation of relative intake, which is fundamentally Kleiber's law, it made clear all this — especially when he adds explanations of differences in appetite and differences in sexual maturity and long-bone growth and hormonal actions as implied by Jan Bonsma in his book "Livestock Production."

### Select for profitability

I'm sure you're aware there is a multi-million-dollar project examining cattle efficiency underway at multiple universities. Early in the game, I asked some of these folks if they were measuring anything besides hot rations. Fundamentally, they told me only one person is examining forage intake and efficiency, and only on a limited basis. Therefore, I fear the project will accomplish little in the end and the cow-calf operations of America will continue seeing spotty profitability until they learn the lessons Johann Zietsman is teaching.

Instead, beef producers continue arguing about frame size and breed and feed and even cow type, rather than how to select cattle that increase profitability.

Here's one last thought: The primary argument I've heard against using a different "type" of cattle than we have today is they might not produce the quality grades we need to please consumers. This is ridiculous on its face. First, I'll remind you we had to lower the quality grading system after we began using the big, lean continental breeds. Second, the type of cattle that seems to spring from a Zietsman-type selection system is the type of cattle that mature early and put on a lot of meat and also adequate fat. That's exactly what the beef industry needs, from top to bottom.

Don't miss The Grazier's Gazette this month. Check out Walt Davis' latest column at [BeefProducer.com](http://BeefProducer.com). Scroll down to the "Blogs" section.

# Method selects for highly reproductive cows

By ALAN NEWPORT



ZIETSMAN

**J**OHANN Zietsman from Zimbabwe redefined bull selection in the October 2013 and February 2014 issues of Beef Producer. Now he describes his system for selecting profitable cows.

It's a method that typically moves cows forward into the best calving window, as the cows themselves define it in that environment, and then scores them for fertility as second-calf heifers, based upon which ones return to heat cycling most quickly after calving.

Although conventional wisdom says reproductive traits are lowly heritable, Zietsman effectively makes the case that fertility, as he defines it, is highly heritable, and that is well proven by nature.

He says it is the type of cattle we have chosen that causes our problems. They are, by all selection pressures we put on them, late-maturing and resource-demanding. Although standard practices argue that increasing supplementation, decreasing stocking rate and improving parasite control will improve the body condition of almost any herd, Zietsman says body condition attained through feeding is neither heritable nor profitable.

Zietsman, who helped pioneer ultra-high-density grazing methods, always advocates cattle selected for range conditions with minimal supplementation.

Although he advocates using a 12-month maturity ranking in bulls as a percentage of their mature size, he says in heifers that is not an essential selection criterion because maturity rate will be reflected in 14- to 15-month conception.

He says to select effectively, we need to be able to identify the individual fertility of each cow. In turn, that will let us choose which cows from which we'll keep bulls and replacement heifers.



**FULL PACKAGE:** This Mashona bull demonstrates the "full package" Zietsman wants to see in bulls. It's the very heritable package that produces feminine cows.

First, you will demand all your first-calf heifers breed at 14 to 15 months. Ideally this would be done under planned grazing, including some high stock-density grazing.

Then you will re-breed them to calve as second-calf heifers in that favored time frame and rank them for fertility. Again, any that don't breed will have their genetics removed from the gene pool.

Fundamentally, we're looking for the young cows that return to estrus quickest within their contemporary group, in a given year. We need rankings so we can choose the most fertile heifer calves under our conditions.

The tool Zietsman recommends is an adjusted calving interval, which he calls adjusted inter-calving period (ICP). Without adjustment, calving interval really measures the effect of environment as much or more than it measures genetic material. But when second-calf heifers are ranked among their peers under similar conditions in the same year, you have a much more useful tool.

Zietsman says, "Corrected ICP in a contemporary group of these heifers will largely reflect genetic differences in body condition and hormonal balance, and as such will be a fair indicator of genetically determined fertility."

To create this index, Zietsman says to group the 3-year-olds into three or four groups to adjust for seasonal variations. He divides the individual ICP for each animal into the average for the time group she is in and assigns her a fertility score based upon that. (See story on fertility scoring on next page.)

## Eliminate environment

Even better is to move all calving into the ideal time frame for your area, Zietsman says. This virtually eliminates variations caused by nutritional issues and feeding. Then you are choosing almost entirely upon genetic reproductivity.

In his home country of Zimbabwe the calendar is opposite of our Northern Hemisphere conditions. There, Zietsman quotes multiple research studies favoring the rainy season and growing season of summer, or December-January, when the day length is longest and the forage quality is highest. In North America, this would be around the summer solstice of June 21.

In the U.S. the late nutritionist Dick Diven taught the same things about day length, forage quality and reproductivity. Hence, calving should be in summer to make equal the nutrition for all cows and give them the shortest biological/solar-influenced return to estrus.



If you are calving this much in synch with nature, there is a more effective tool than adjusted ICP, Zietsman says. He says when cows calve in very good condition in the ideal nutritional environment, some can start cycling 20 days after calving. Some could cycle several times before the bull is turned in, so this invalidates calving interval as a measuring tool.

Instead, you should use corrected postpartum anestrous period (corrected PPAP), which is an adjusted ranking of days from calving until first estrous cycle.

It is calculated similarly to Zietsman's "corrected ICP," except the cows are checked for heat after calving in order to record individual PPAP. Then this number is corrected for influence of calving date.

Zietsman says in well-managed herds PPAP becomes more important than ICP.

He adds if it is not feasible for you to use heat checking to record PPAP, an alternative would be to extend the second breeding season by introducing bulls immediately after calving commences until

the end of the breeding season and calculate fertility from those pregnancies.

Zietsman surmises: "A cow that has calved at 2 and 3 years on veld [pasture], with limited supplementation and with a top fertility score for corrected ICP and/or PPAP, must have high inherent body condition and a desirable hormonal balance.

"If mated to the appropriate bull, all her progeny, including males, will have a high inherent fertility. The first step in bull selection is to identify such cows and select young bulls from them."

## Fertility score your 3-year-olds

**T**HIS chart shows an example of how Johann Zietsman calculates cow fertility scores.

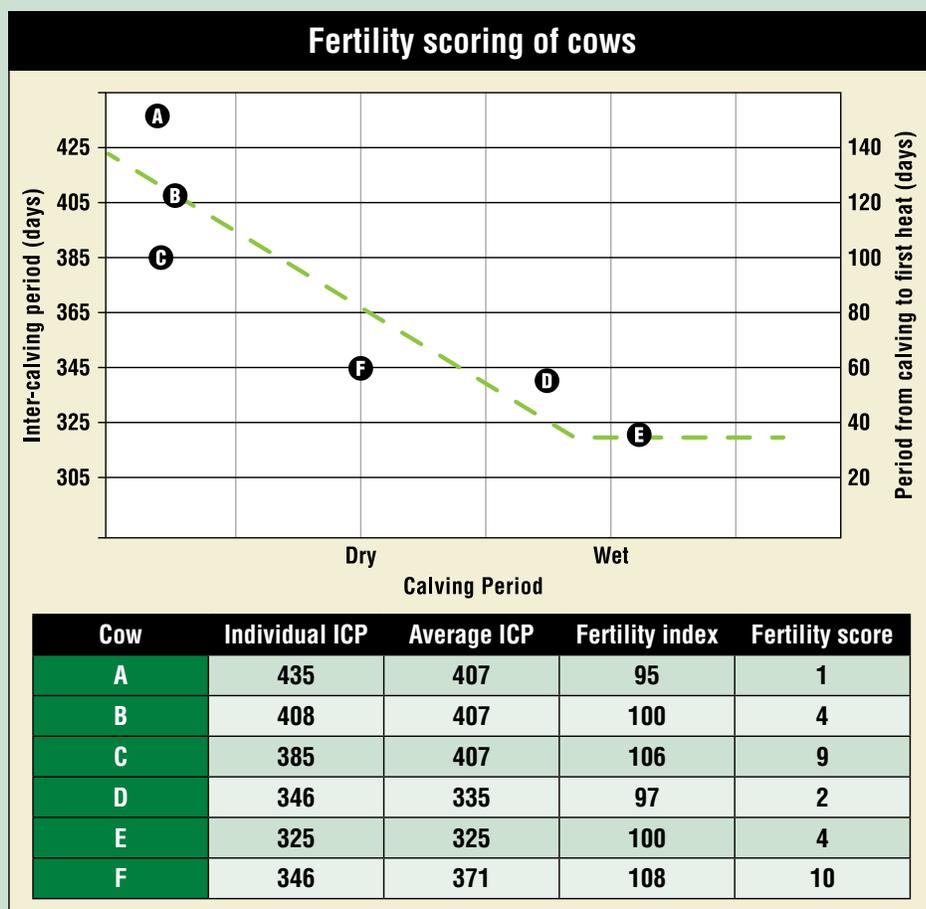
The line on the graph is essentially a regression curve representing the statistical decrease in anestrous period and possibly in calving interval as cows calve closer to the middle of the rainy season and, therefore, good nutrition. Zietsman says over a conventional 90-day calving season, this equates to a 60- to 70-day shorter inter-calving period for a cow calving at the end of the calving season as opposed to the beginning.

Conversely, the further a cow's calving time is from the ideal time in any environment, he says, the longer will be her calving interval, or her inter-calving period (ICP).

In this example, the cows labeled A, B and C are calving the furthest into the dry season and so have the longest average ICP of 407 days. Cow D is at a midpoint with an average ICP of 335. Cow E is in the best time frame to calve and therefore in the shortest average ICP of 325 days. Cow F has the second-longest ICP of 371 days.

Zietsman then divides each 3-year-old cow's individual ICP by the average for the time frame she calves in, relative to the regression curve, to get a fertility index. That number is in the third column. Mathematically this is not unlike adjusting weaning weights for age.

This is where it gets interesting. By correcting ICP we now see that Cow A,



even though she had the longest individual ICP, is a top performer in the environment in which she is calving. Cow E, which was calving in the best time of year and had the shortest individual ICP, was only at a midpoint in her reproductive index. Cow F, which calved with nearly the shortest ICP of the bunch, was actually a poor performer when

indexed against the regression curve for the ideal time in which she calved.

Zietsman then assigns a fertility score of 1 to 10 for each of these indexes to make sorting and selection a little easier.

*Description from the book "Man, Cattle and Veld," available online at [profitableranching.com](http://profitableranching.com).*