

# Bonsma Revisited

I came across an article this summer that I thought worth revisiting as I'm guessing only a handful of the current Luing breeders would ever see the original. The article was titled "Sad News from the Show-ring - The Bonsma Bombshell!" in the 1974 Luing Journal although it was actually written and published first in a beef magazine in Alberta.

I was intrigued by its inclusion in the Journal as Dr Jan Bonsma was not a name I had ever heard mentioned in Scotland. His work is better known among a certain segment of cattle breeders here in North America, probably as a result of numerous lecture tours he made during the 1960s and 1970s.

Jan Bonsma was born in South Africa in 1909 and became the research officer in charge of the Mara and Messina Research stations in the Northern Transvaal from 1937-1960. From 1955 until retirement in 1974 he was head of the Department of Animal Husbandry at the University of Pretoria and published over 180 articles during his career. He was also the creator of the "Bonsmara" cattle breed.

The goal of his breeding endeavours simply stated was "to produce as much good meat per unit area as possible without deterioration of the natural pastures". The breeding methodology he employed to pursue this goal he christened "selection for functional efficiency," a term that is widely known today. Bonsma was convinced that to

maximize functional efficiency you had to accurately measure, assess and compare the physical attributes of different animals. The title of one of his books "Man Must Measure" reflected that belief.

The cattle in South Africa in the 1930s were mainly *Bos indicus* (Brahman type) of the Sanga and Afrikaner breeds but several of the British breeds had been introduced to try and increase beef production often with disastrous results. In seeking answers to why some of the British breed cattle performed so poorly he embarked on the most comprehensive climatological and ecological experimentation on bovines in the world. Bonsma's research at Mara revealed much of what we know today about environmental adaption of cattle to different climatic regions.

He measured and compared the differences between individual's weight gain, body temperature, rates of respiration and pulse, tick counts, hide thickness, hair count per square centimetre as well as fertility, milk production, mortality and longevity. Body conformation was assessed by subjective evaluation based on careful observation. He personally performed 14 body measurements on over a thousand animals every three months over the duration of their lives. Taking these skeletal measurements, observing and running his hand over the hides of so many animals gave him an unrivalled ability to judge livestock.



It was suspected that the problem with the British cattle breeds might be their inability to digest the very low protein grass. Bonsma however was able to prove that the chronic malnutrition was caused by hyperthermia (the opposite of hypothermia) as these animals were not able to dissipate excessive metabolic heat. The cattle that couldn't cool their bodies sufficiently would spend their days panting in the shade or wading in water and didn't graze sufficiently as a result. He discovered that not all of the animals, even from within the same breed, suffered equally. Those with thicker hides and shorter hair were better able to adapt to the sub-Tropical environment.

What also emerged from Bonsma's extensive research project was a better understanding of the influence of the endocrine system on bovine physiology. Hormones released from the endocrine glands are the chemical messengers that control every aspect of animal function. Environmental factors ranging from feed quality to daylight length to soil PH can all impact the endocrine system. What Bonsma discovered was the animals with hormonally balanced endocrine systems were the best at dealing with environmental challenges and were the most functionally efficient in any given environment. Furthermore he recognized that these hormonally balanced animals all had the same phenotype. This is what has come to be known as the "Bonsma type" by those of us familiar with his work.

Learning to recognize this type was a revelation to me. Like generations of other Scottish cattle breeders I practiced stock judging in Young Farmers using the stock-judging bible "Know Your Farm Stock". I remember vividly the example it gave of the ideal





Ayrshires

dairy animal based on an Ayrshire cow. She was shown to have a “dairy wedge” when seen from the side — getting progressively deeper from her shoulder to udder. When looked at from above there was another wedge from a fine shoulder to the wide hook bones. These match perfectly Bonsma’s findings on the ideal, fertile female form of the bovine species. Conversely when we turned to the description of the ideal beef animal in that book it was based on the characteristics of a good prime steer with the impression given that these same characteristics were the selection criteria for beef breeding females.

Proof of the veracity of the Bonsma type is easy to see once you know what to look for. Every successful teenage cow I’ve ever owned or seen, regardless of breed, is of the Bonsma type. The “wee hairy coo” that has been the logo of the Luing Society since the beginning is clearly of the Bonsma type. It is often said that the successful teenage cows in your herd have proven they have the correct level of fertility, milk and performance for your environment. It should be added that this is a result of them being of the right type, hormonally balanced and functionally efficient.

### Creation of the Bonsmara breed

Dr Bonsma travelled to the King Ranch in Texas in 1936 to study the Santa Gertrudis breed which had been developed from a 5/8 Shorthorn and 3/8 Brahman base. South African Agricultural officials asked him to create a similar breed with a 5/8 British, 3/8 Afrikaner cross but Bonsma persuaded them instead to use a 5/8 Afrikaner, 3/8 British blood. This was based on his research that adaptability declined when the Bos Taurus component exceeded 50% in their African environment. Shorthorn, Hereford, Red Aberdeen Angus, Red Poll and Sussex cattle were all tested but the Shorthorns and Herefords proved most suitable. These two

breeds combined with the Afrikaner formed the basis of the Bonsmara breed which continues to flourish to this day.

Returning to the article that ran in the 1974 Journal, the purpose of which was to report on his critiquing of cattle seen on one of his North American tours. It made no difference if the animals he was shown were show ring champions or everyday commercial cattle. He could quickly assess their strengths and weaknesses and tell their past health and breeding history with an unerring accuracy that astounded their owners. There has likely never been anyone, before or since, that could “read” cattle like Bonsma.

A number of Bonsma’s statements quoted in the article are worth repeating as they are as relevant today as they were back then. On the topic of cattle size and its relationship to fertility “*You often find the cow that has the calf every year is the small or medium sized cow that looks like a cow.*” He warned that many of the highest gaining bulls have small genitalia and other characteristics that make them poor breeders “sub-fertile animals have tremendous growth potential hence the best performers have to be especially scrutinized”

Bonsma also highlighted the danger of raising breeding stock on too high a plane of nutrition “*These very hot rations, especially if they are used for more than 140 days can do irreparable damage to breeding stock by laying down excess fat. Fat is a major cause of infertility. One of the causing factors is the fact that this fat can absorb sex hormones and therefore*



Teenage Luing

*reduce the animals libido or desire to breed*”.

His comment on muscling reinforces my belief “*Clearly defined, rapid growing muscles are a male characteristic. Selecting for the same type of muscle growth in a female will result in poor fertility.*” I wonder what Bonsma would make of the extremely heavily muscled breeding females, characterized at the extreme end by Belgian Blue x Limousin cows, but also displayed to some degree in most breeds and crosses making up Britain’s beef herd today?

In conclusion I now realize that it made perfect sense for the Cadzow’s to run the “Bonsma Bombshell” article back in 1974. It was about a fellow breed-creator using a similar 5/8, 3/8 breeding methodology they had used in the creation of the Luing breed. They shared philosophies on selection and rearing practices, functional efficiency and the need for their breeds to be adapted to their respective environments as well as having a disdain for the frivolous fads and fashions of the show ring.

A number of Bonsma’s books have been republished and can be sourced via the internet. I strongly recommend them to any cattle breeder.

Iain Aitken



Bonsmara Cow