

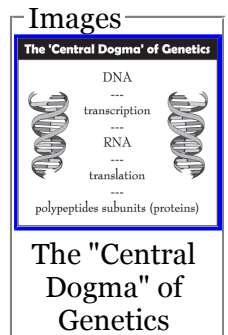
BeefTalk: Really, Tell Me More!

Our knowledge base is expanding exponentially and our ability to utilize the new knowledge is more demanding.

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As the fall semester ends, I get a chance to reflect on one of my principal joys of teaching - the engagement of the human mind. Having taught animal genetics and animal breeding this fall, a major challenge is to keep up with the flow of new information.



The challenge presented, deciphered, explained and comprehended is not an easy process. The outcome is not always accomplished, but the process is what we call learning.

This is real in the beef business today. Our knowledge base is expanding exponentially and our ability to utilize the new knowledge is more demanding.

Our genetic classes always start with a trip to the Augustinian Monastery and a look at Gregor Johann Mendel's work. In the mid-1800s, Mendel documented specific characteristics of the common garden pea and demonstrated unique outcomes when different types of peas were crossed.

Mendel's analysis was recorded and formed the basis of what was to become the science of genetics. Life became connected to a science and the tremendous variation that existed, not only across all types of life, but also within the many varieties or species that started to be unraveled.

The unraveling continues today. While we better understand the garden pea, the genome for cows, horses and dogs, as well as the human genome, is being unraveled.

Understanding deoxyribonucleic acid (DNA) allows a very basic understanding of how living systems operate. The genome is the DNA sequence of life.

Why do we spend so much time talking about DNA? DNA analysis is big business, evidenced by private companies that offer alternative evaluations for cattle.

These evaluations stem from the "central dogma." This gene expression was coined by Francis Crick a few years after he and James Watson revealed their model of the DNA helix.

If we study the central dogma, we come to appreciate that DNA, through the process of transcription, encodes ribonucleic acid (RNA). There are four types of RNA (mRNA, rRNA, tRNA and snRNA).

The most commonly discussed would be mRNA, which is involved in translation of the genetic code to produce protein. More correctly, these polypeptide subunits (proteins) are composed of amino acids that ultimately have secondary, tertiary and quaternary functional structures.

Most of what we see or interact with today somehow can be connected or linked to DNA. The many proteins or polypeptides are the workhorses in living systems and must be present or problems develop.

Newer beef cattle DNA tests effectively hunt or search for key DNA sequences that may enhance performance or

eliminate problem genes in the cattle genome. These tools, along with good selection practices that utilize expected progeny differences, will enhance a producer's understanding of cattle, and allow beef production to be tailored to respective markets. This may sound complicated, but it works.

Back to the students. The semester is ending and what they have learned is probably filed away for a while, at least during the break.

Now is a good time to quiz your students as they come home. You can see what it is they really learned.

Share in the joy of having invested in your children's education. See if the engagement of the human mind can outlive the classroom and be implemented in the world our children will inherit.

If ever there is a sad moment in the classroom, it is when a student says, "Mom or dad would never let me do that!" The concept of education implies change and change implies work.

No one can deny that the world will change. We can either wear out holding on to our old fence post or learn to steer in uncharted waters.

The world was never flat, so perhaps a better response when our children arrive home from school would be, "Really, tell me more!"

May you find all your ear tags.

Your comments are always welcome at <http://www.BeefTalk.com>.




For more information, contact the NDBCIA Office, 1041 State Ave., Dickinson, ND 58601, or go to <http://www.CHAPS2000.com> on the Internet.

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Attachments

	PDF - The "Central Dogma" of Genetics (bt121108.pdf - 28.72 Kb)			EPS - The "Central Dogma" of Genetics (bt121108.eps - 270.78 Kb)
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