Az amerikai húsmarha-ágazat tendenciái, különös tekintettel az elmúlt 30 év genetikai változásaira

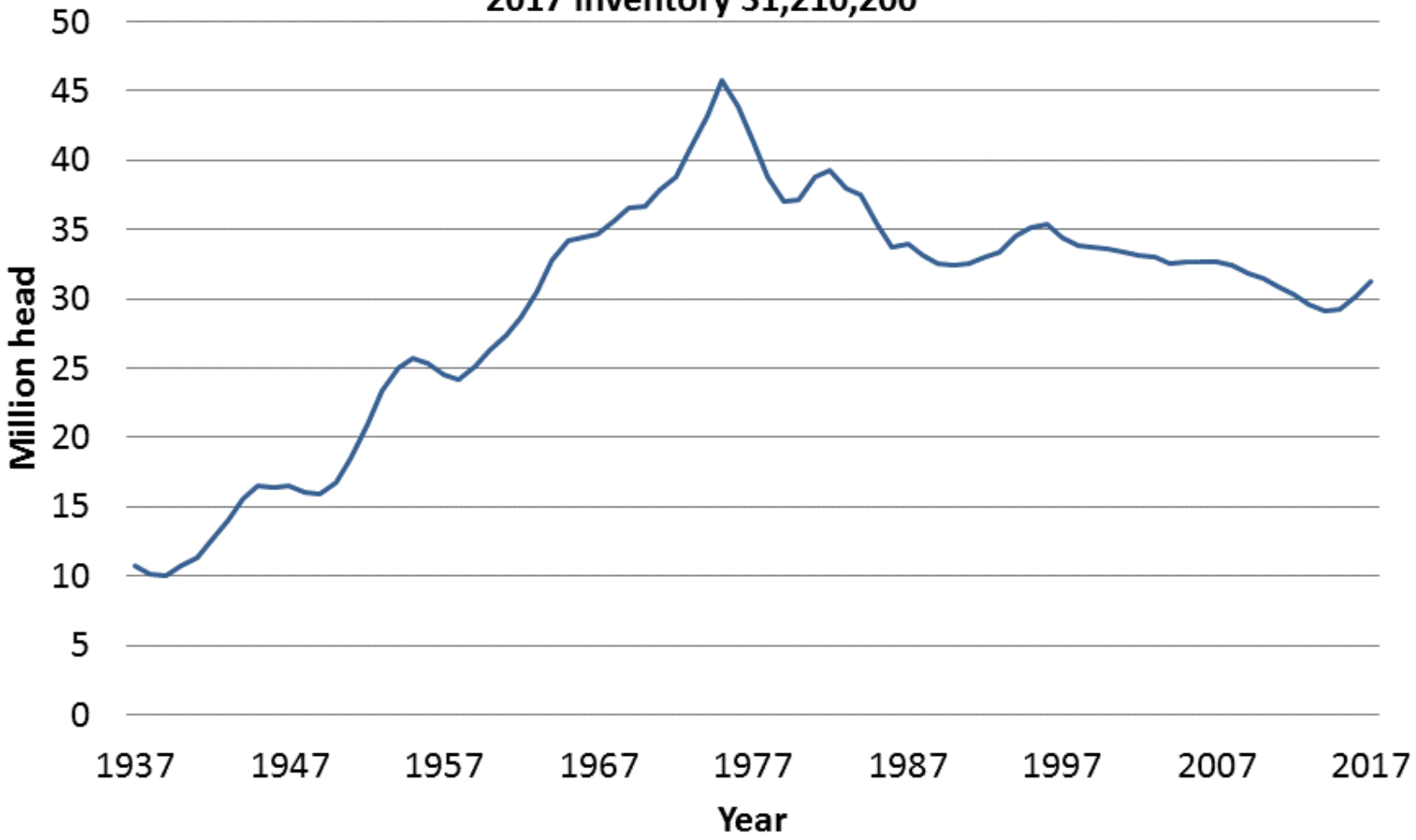
Debrecen, Hungary

August 2017

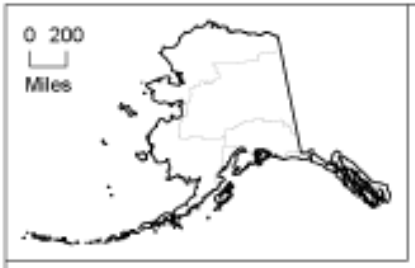
Dr. David Lalman, Professor and Extension Beef Cattle Specialist
Oklahoma State University


OKLAHOMA
STATE
UNIVERSITY

January 1 U.S. Beef Cow Inventory 1937-2017



USDA-NASS
1-31-2017

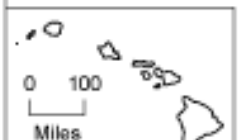


Beef Cows - Inventory: 2012

1 Dot = 2,500 Beef Cows

0 100
Miles

United States Total
28,956,553



12-M144
U.S. Department of Agriculture, National Agricultural Statistics Service
Data for Alaska and Hawaii are omitted from the map

2012 Census of Agricultu

It is important to learn from our past

40's and 50's
"Era of Insanity"

1953

Champion Angus Female Chicago International Exposition

60's
"Recognition of Need to Change"

1969

Grand Champion
Steer
Chicago
International
Exposition

70's and 80's
"Return to Insanity"


AMERICAN ROYAL LIVESTOCK SHOW 1981


FRONTIER
80th Anniversary
NATIONAL WESTERN

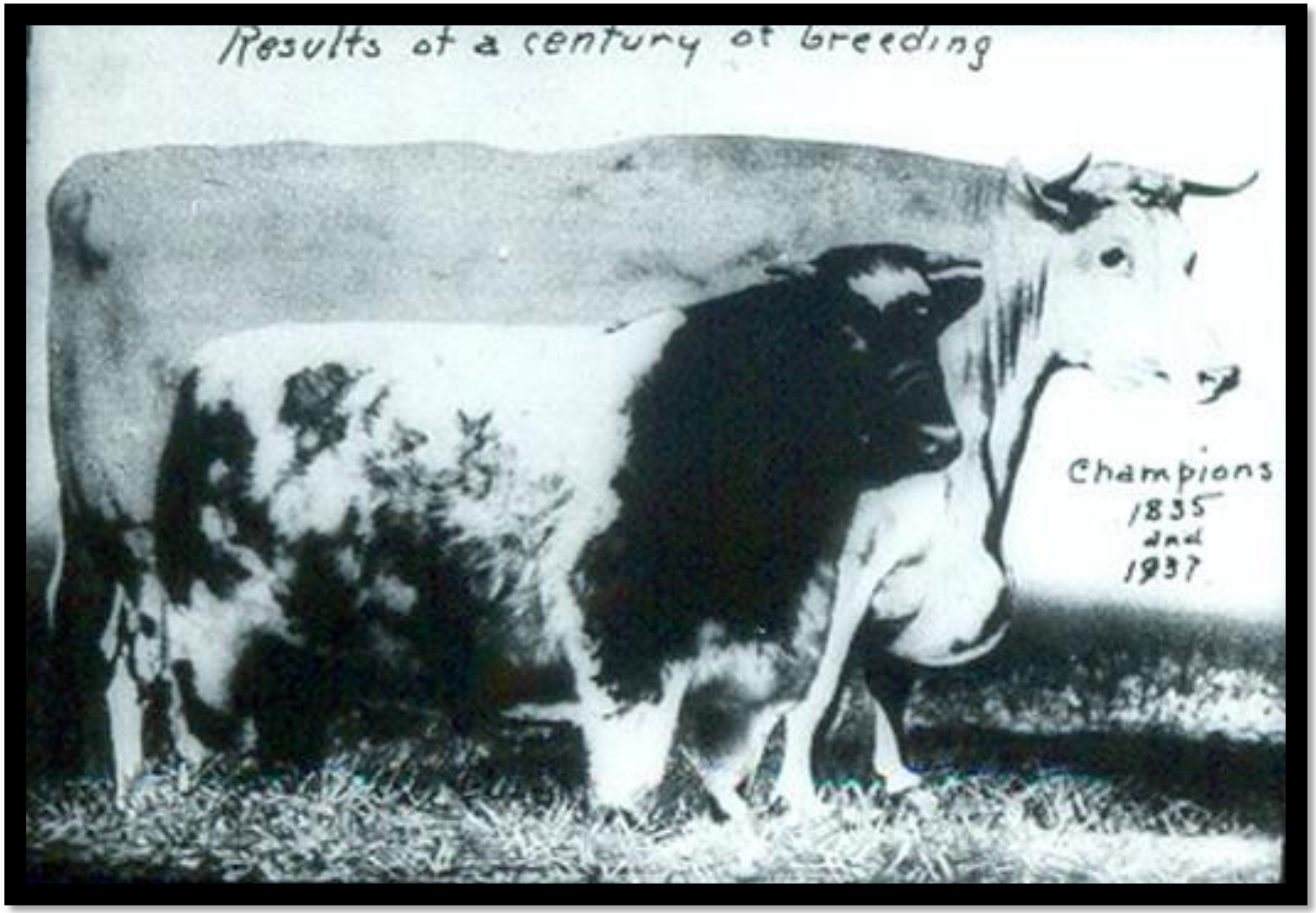
90's and 2000's "Back Again"


2014
NATIONAL
ESTERN

What have we learned?

- Our producer's are willing to adapt. They can and they will create change
- Sometimes we go too far!

Cattle are Changing More Rapidly Today

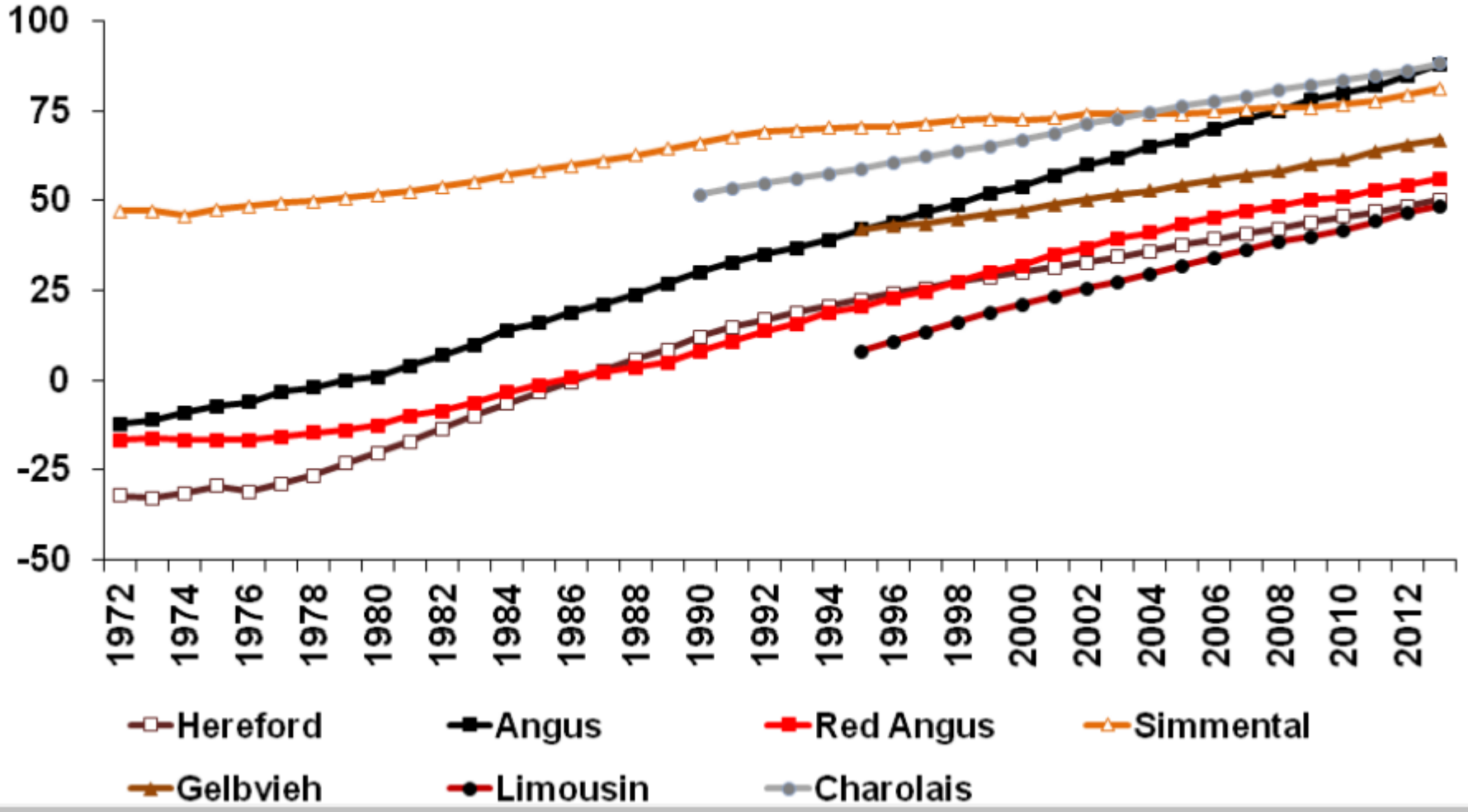


Post-weaning Perspective

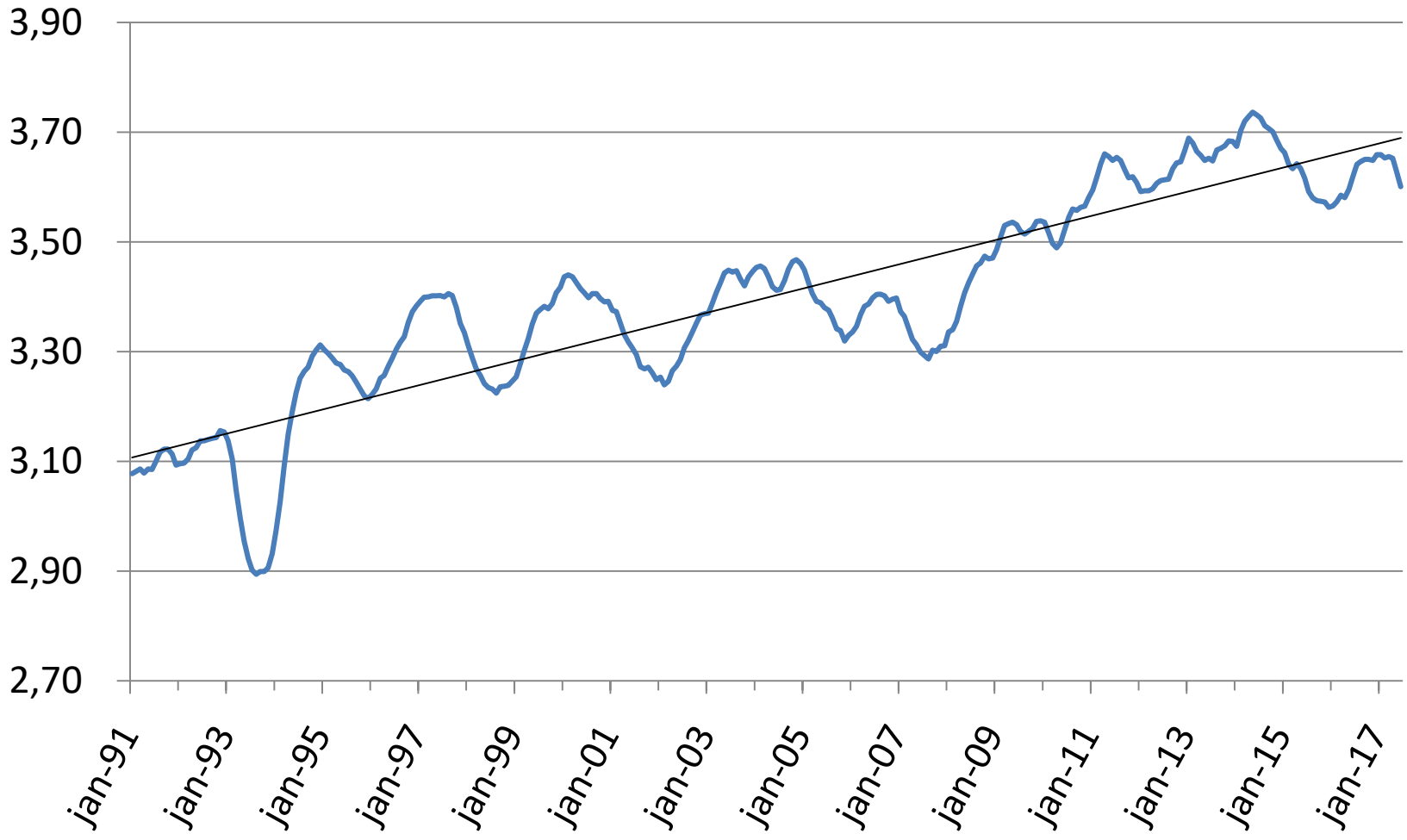
Today cattle have tremendous capacity for post-weaning growth and carcass weight

Figure 3. Relative genetic trends for yearling weight (lb) of the seven most highly used beef breeds (3a) and all breeds that submitted 2015 trends (3b) adjusted for birth year 2013 using the 2015 across-breed EPD adjustment factors.

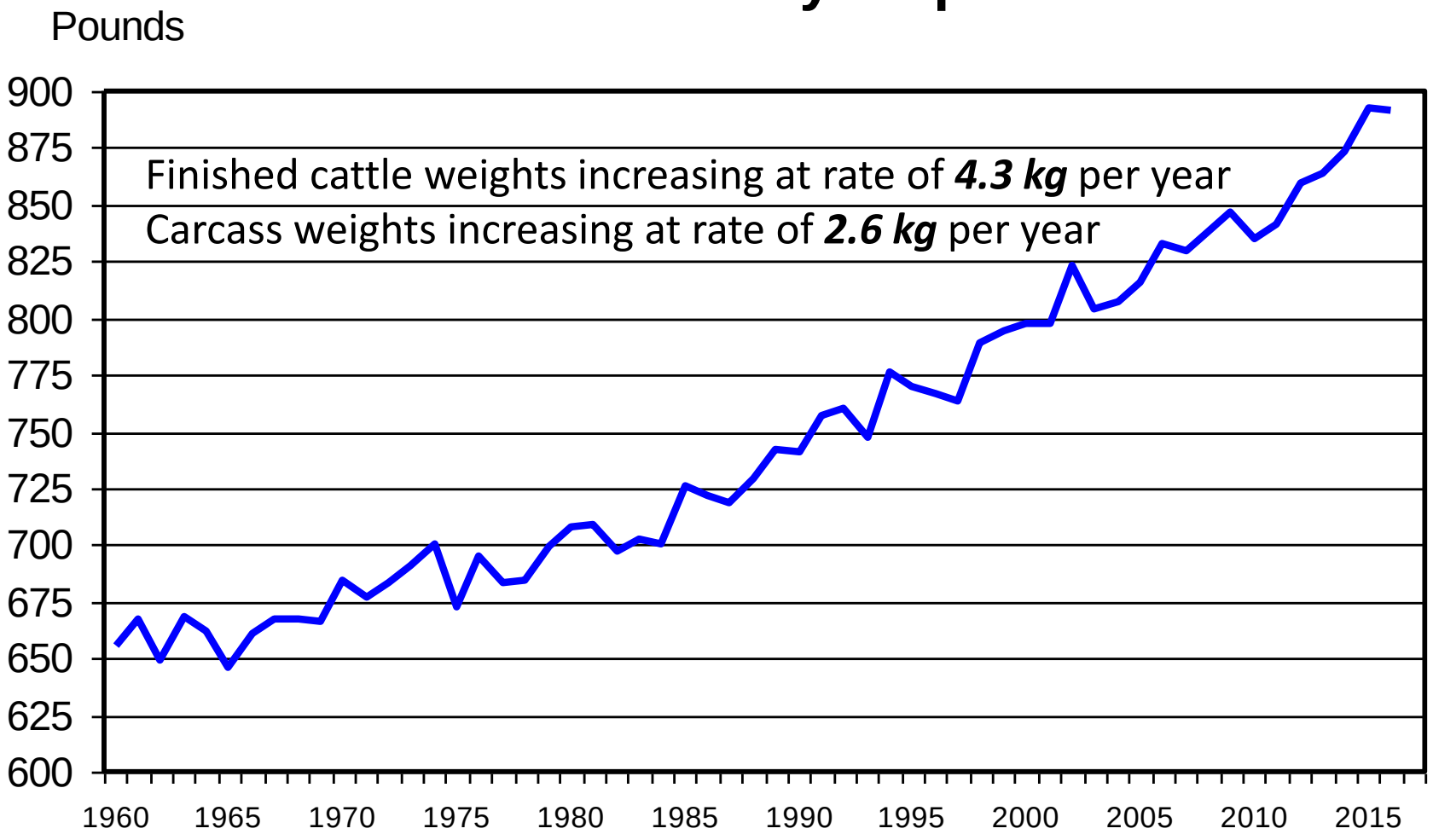
3a.



Finishing Phase (Feedlot) Performance is Increasing

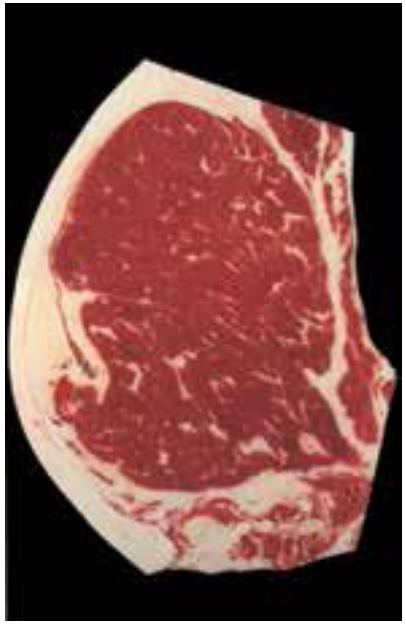


Steer Carcass Weight
Federally Inspected



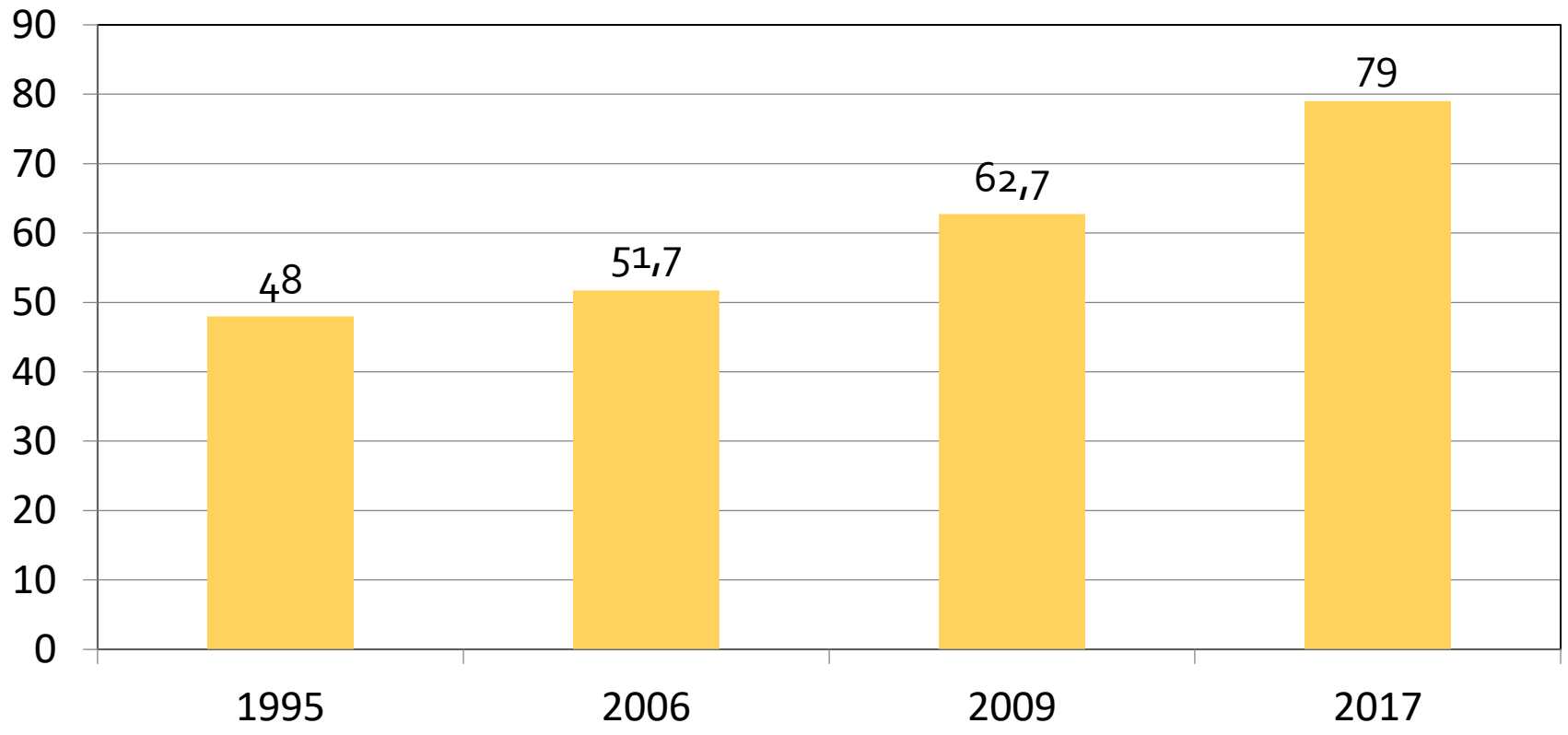
Post-Weaning Perspective

Cattle have tremendous capacity for marbling



Beef quality

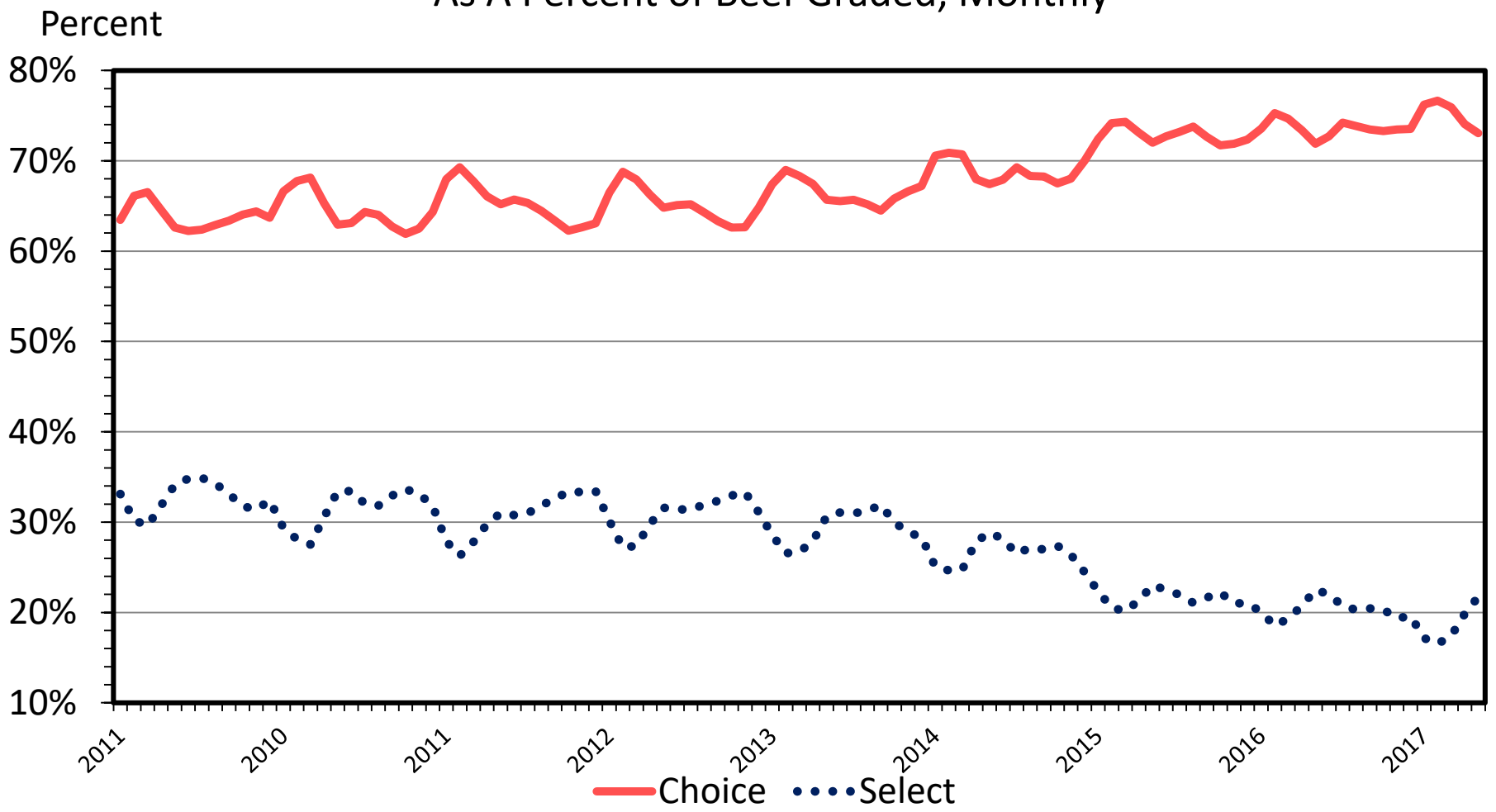
% Cattle Grading USDA Choice and Above



Livestock Marketing Information Center, 2016

BEEF GRADED CHOICE AND SELECT

As A Percent of Beef Graded, Monthly



Data Source: USDA-AMS, Compiled by LMIC

Livestock Marketing Information Center

M-S-25
07/28/17

Cow/Calf Enterprise

Profitability and Performance Data

- Kansas: Kansas Farm Management Association (KFMA)

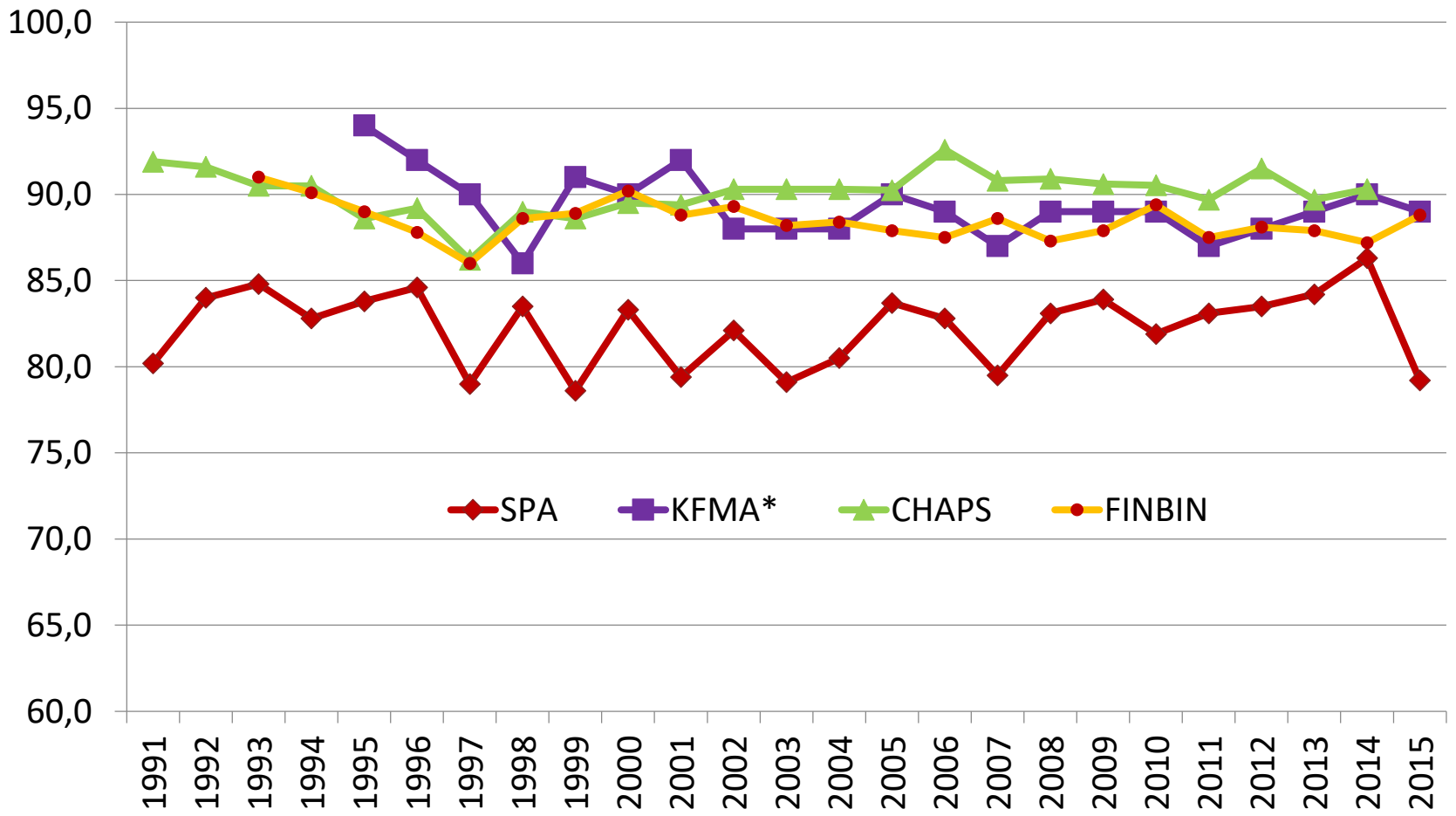
  Kevin Herbel
- North Dakota: Cow Herd Appraisal Performance Software (CHAPS)

  Dr. Kris Ringwall
- New Mexico, Oklahoma, Texas: Standardized Performance Analysis (SPA)

  Dr. Stan Bevers
- Upper Midwest (FINBIN), Center for Farm Financial Management, University of Minnesota

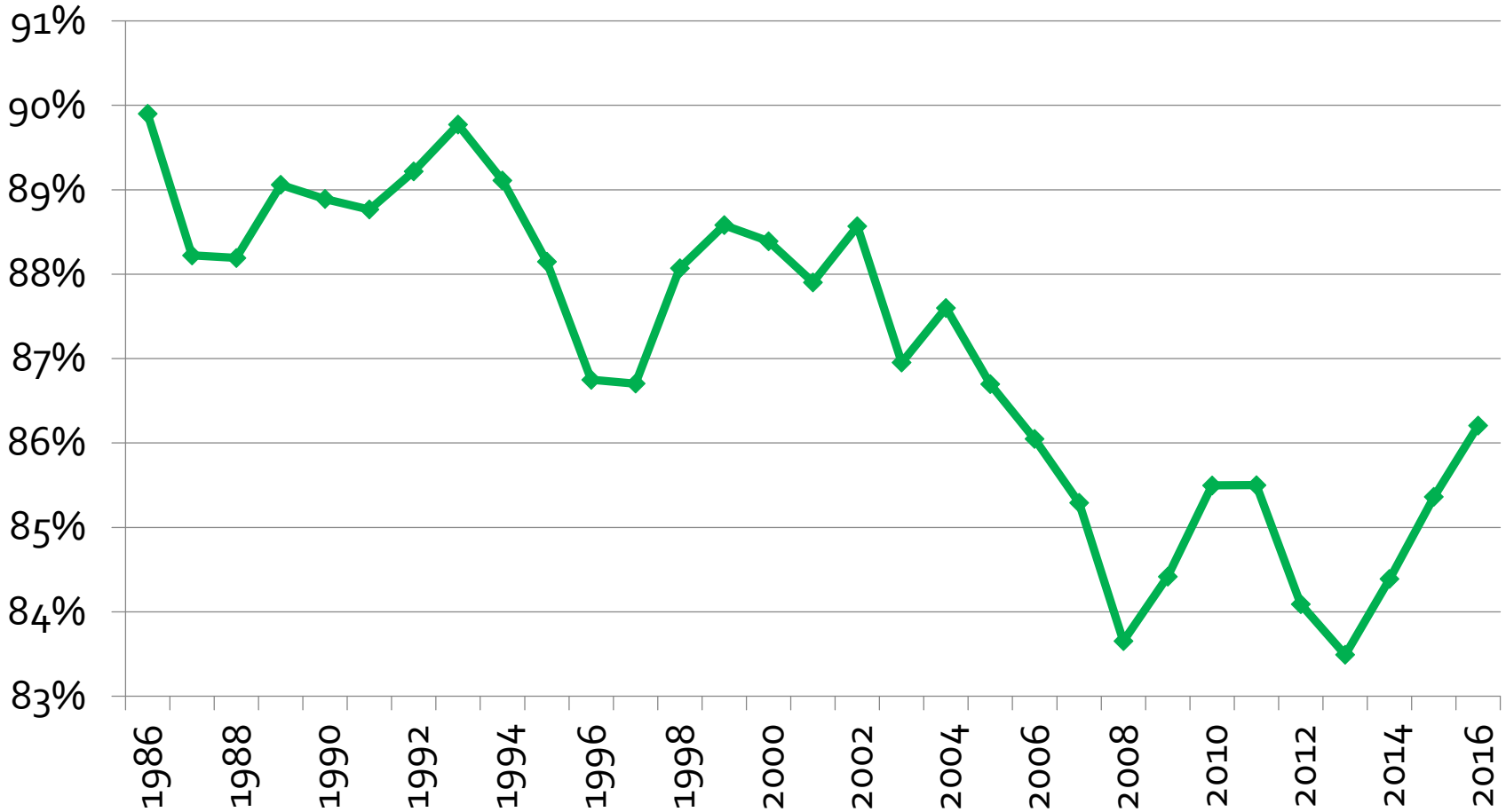
Reproduction

Weaning Rate in Commercial Cow/Calf Operations



Beef Calf Crop Percent

Estimated from USDA NASS Data

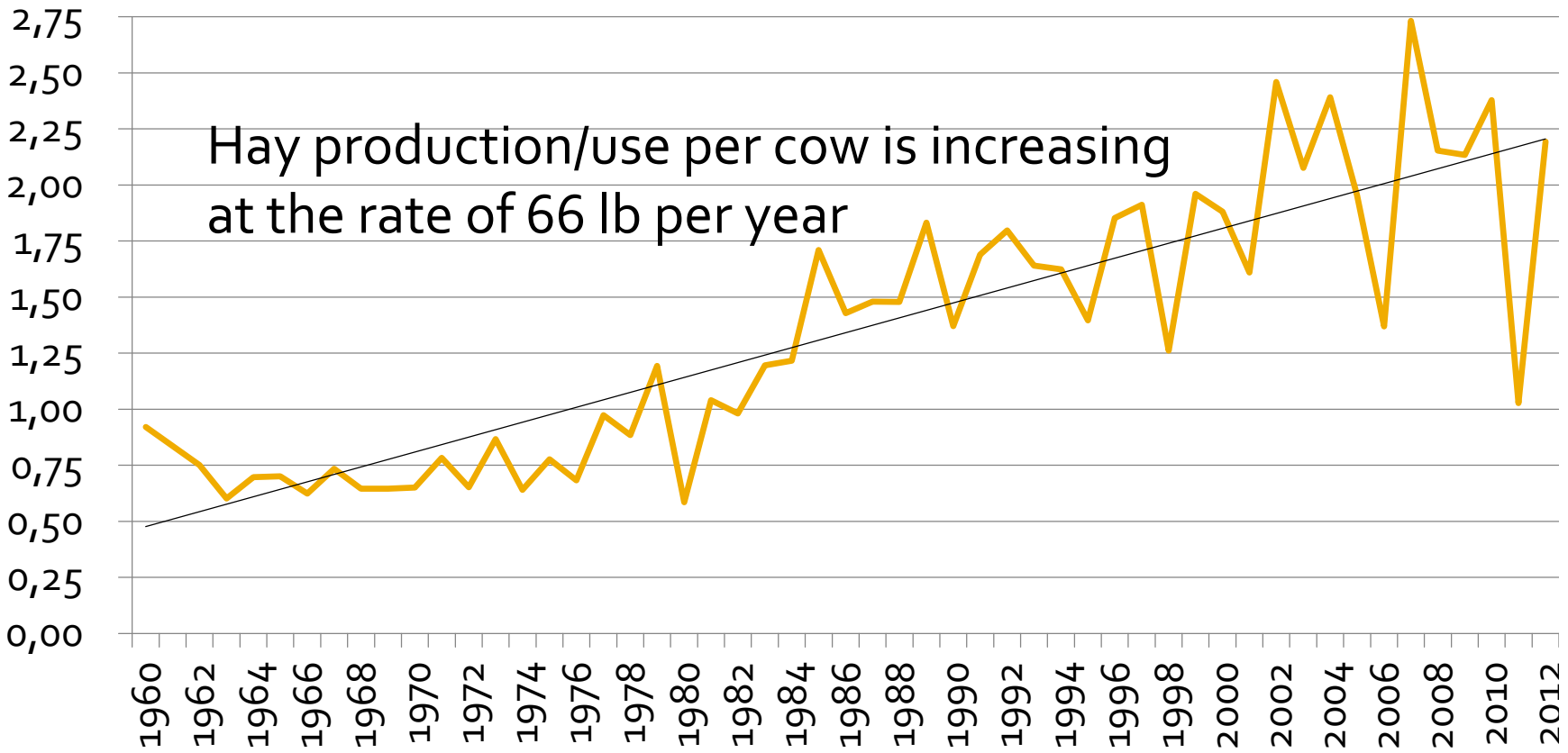


Source: Dr. Derrell Peel, Oklahoma State University

Reliance on Grazing vs Harvested Feed/Forage

Hay Production: Oklahoma

Tons Per Beef Cow



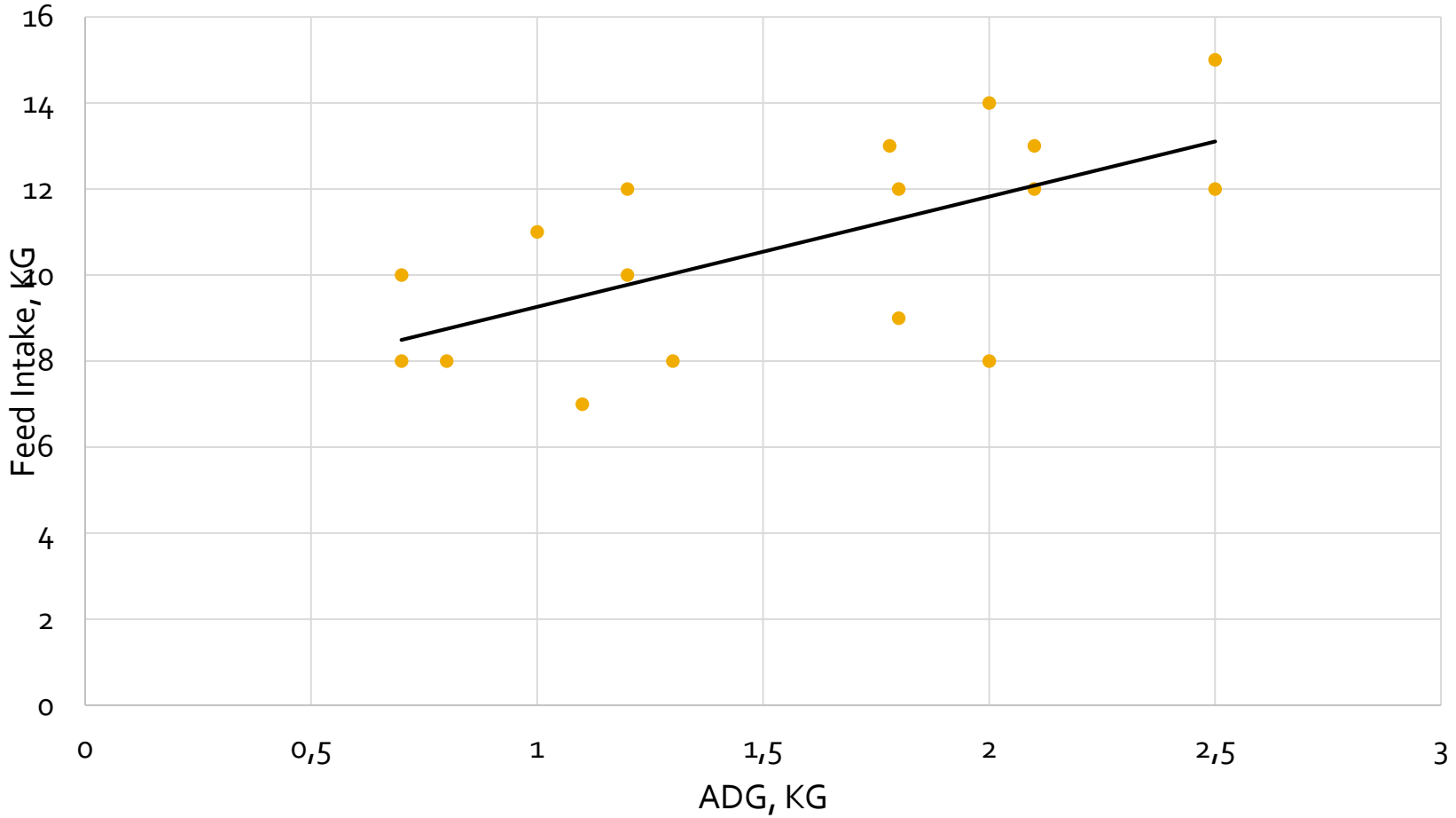
Summary

- When cattle producer's are provided effective science-based tools, THEY USE THEM
- Dramatic improvement in ***post-weaning performance***, ***total beef produced per cow***, and ***carcass quality***
- In the meantime, tools for cow herd efficiency and particularly for fertility have made little to no progress

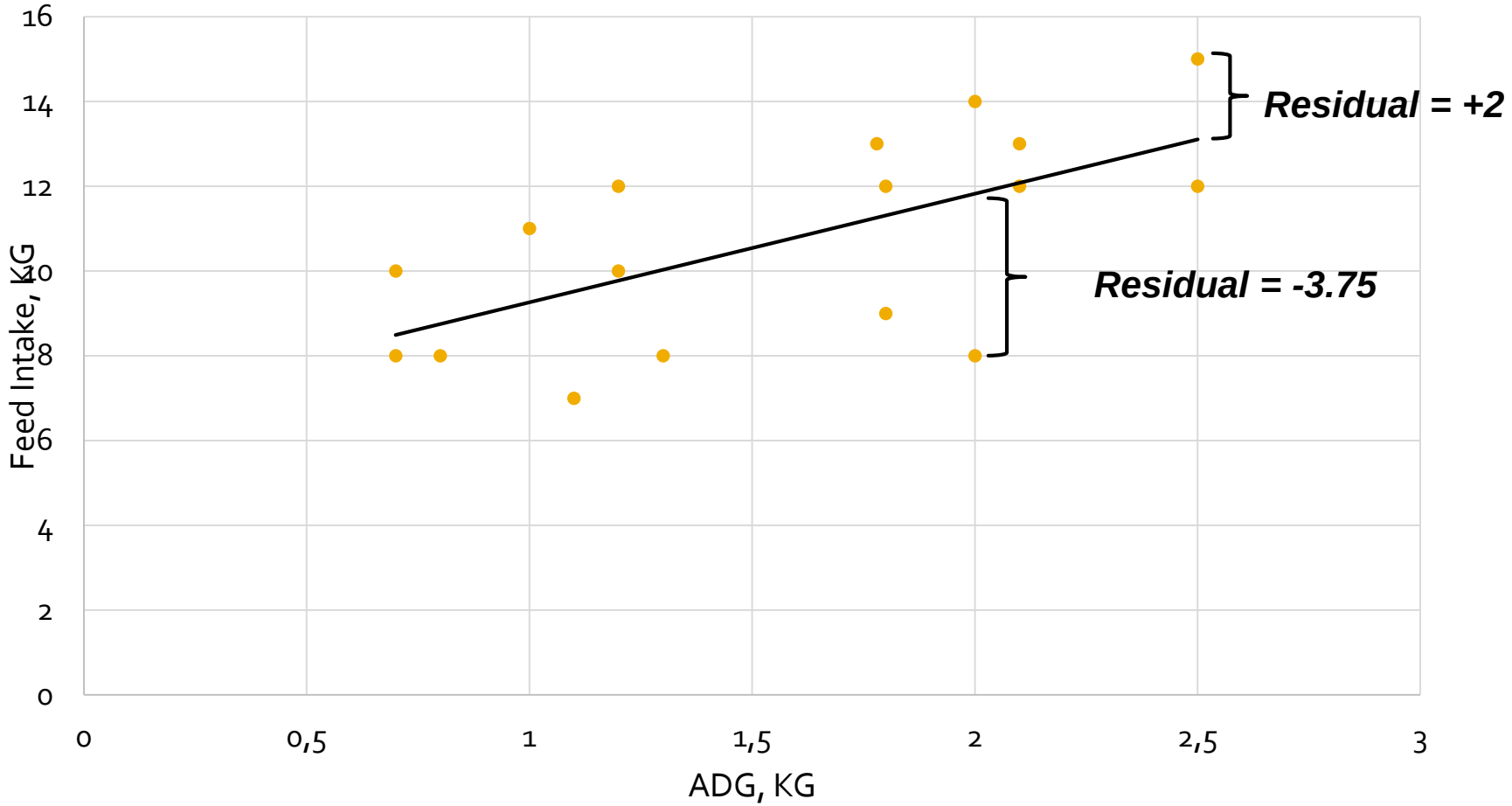
The Focus Will Once Again Shift: With Change Comes Opportunity

- Our current level of beef production can be sustained with
  - 20% lower feed inputs
  - 30% lower methane production
  - 17% lower N, P and K output
- Selection for feed intake and residual feed efficiency is now a reality
  - EPD's for feed intake and residual feed efficiency now available for Angus, Hereford, and Simmental

Residual Feed Intake



Residual Feed Intake



Specialized Equipment

GrowSafe

Insentec

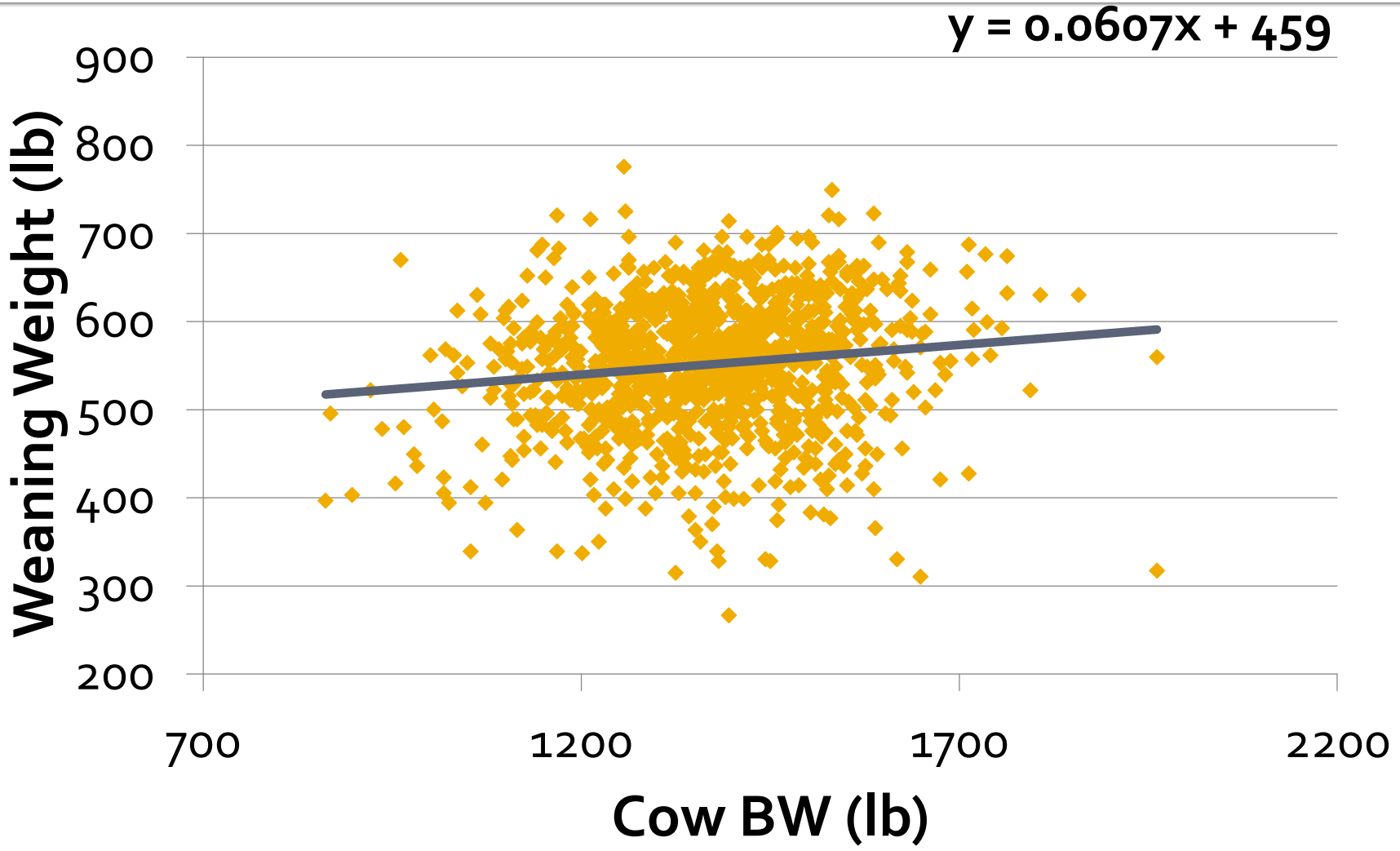
SmartFeed

How about the cow?

Do bigger cows
wean bigger calves
in a restricted environment
(commercial herds)?

If "yes", at what cost?

Calf WW vs Cow BW



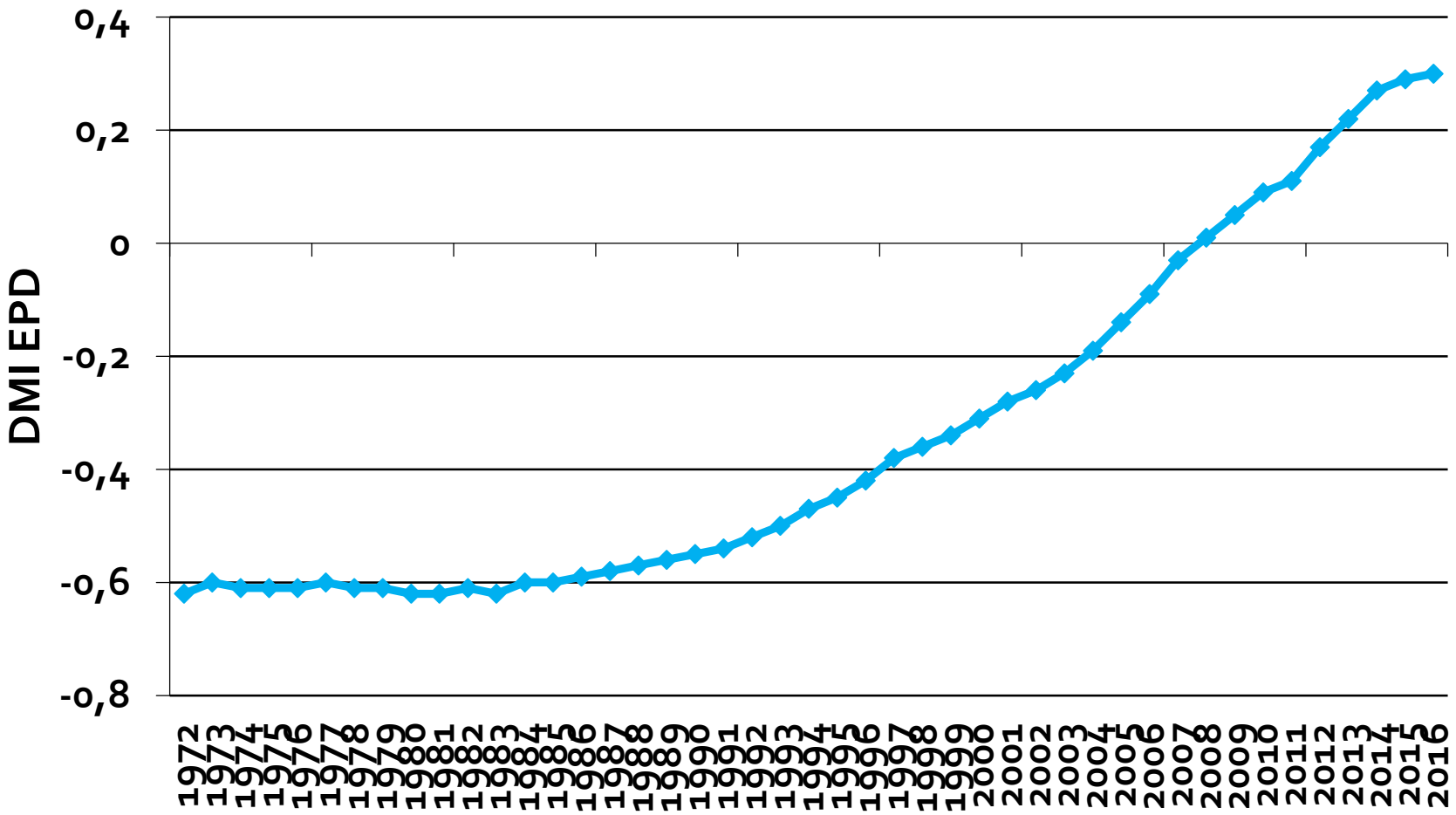
Cost of Added Cow Weight

Annual cost / 45 kg of additional cow BW = $42

(Doye and Lalman, 2011)

What happens to cow maintenance costs with aggressive selection for growth, gradual increases in cow size (primarily from increased visceral organ mass), and genetic potential for milk?

Genetic Trend For Dry Matter Intake Angus



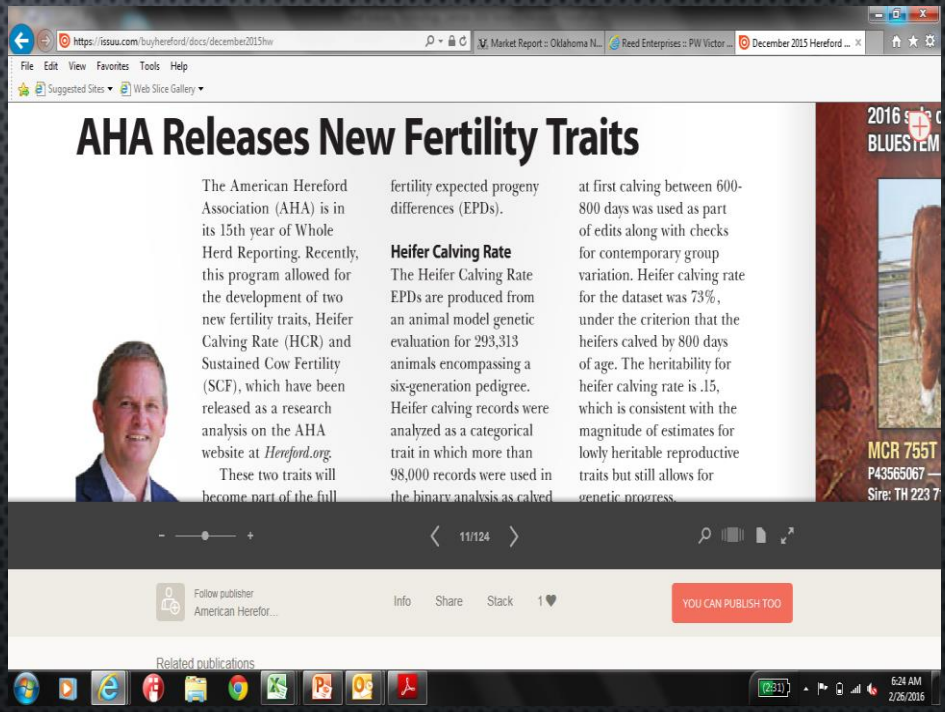
Video

The Focus Will Once Again Shift: With Change Comes Opportunity

- Genetics tools will finally be available to make meaningful improvement in fertility
  - Genomic discoveries developing now
  - Hereford, Red Angus, Angus and Charolais working hard to roll out new fertility EPD's this fall

SUSTAINED COW FERTILITY (SCF)

The Sustained Cow Fertility (SCF) results, reported in percentage units, are oriented such that larger breeding values reflect sires whose daughters calve annually for more years.



AHA Releases New Fertility Traits

The American Hereford Association (AHA) is in its 15th year of Whole Herd Reporting. Recently, this program allowed for the development of two new fertility traits, Heifer Calving Rate (HCR) and Sustained Cow Fertility (SCF), which have been released as a research analysis on the AHA website at *Hereford.org*.

These two traits will become part of the full fertility expected progeny differences (EPDs).

Heifer Calving Rate

The Heifer Calving Rate EPDs are produced from an animal model genetic evaluation for 293,313 animals encompassing a six-generation pedigree. Heifer calving records were analyzed as a categorical trait in which more than 98,000 records were used in the binary analysis as calved at first calving between 600-800 days was used as part of edits along with checks for contemporary group variation. Heifer calving rate for the dataset was 73%, under the criterion that the heifers calved by 800 days of age. The heritability for heifer calving rate is .15, which is consistent with the magnitude of estimates for lowly heritable reproductive traits but still allows for genetic progress.

SUSTAINED COW FERTILITY (SCF)

Both bulls have 200 plus daughters in production

One bull SCF = 170
One bull SCF = 57

Summary

- In the U.S., we have excellent/enough
  - Growth
  - Milk
  - Mature cow size
  - Carcass weight
  - Marbling
- The new frontiers are
  - Reducing cow/calf phase cost
  - Cow annual feed energy consumption…true cow efficiency
  - Progress in fertility of the U.S. cow herd begins this fall

Opportunities for Hungary Cattle Industry

- You can't manage (or select for) what you do not measure
  - Cow costs
  - Feed consumption/efficiency (cow phase and post-weaning)
- Organize to initiate feed efficiency selection
- Organize / explore fertility EBV's
- Importance of all of these will be magnified in "post" or "reduced" subsidy era

Photo Courtesy of Oklahoma State University