


Adapting Angus Cattle to Subtropical Climates




John Arthington
University of Florida / IFAS
Range Cattle Research and Education Center, Ona

Overview

UF UNIVERSITY OF FLORIDA

- Typical commercial cow/calf herds are comprised of Brahman x British crossbreds.
- Significant percentage of herd sires are purchased outside Florida.
- Black Angus genetics are often imported from temperate regions.



Overview

UF UNIVERSITY OF FLORIDA

- There is considerable discussion among producers relative to the merits of bull acclimation.
 - Select from tropical/subtropical herds?
 - Yearlings imported and reared 1 year before first used as a 2-year-old.
 - Is it even a significant consideration in a winter breeding season?

Initial Research

UF UNIVERSITY OF FLORIDA

- 125 embryos were derived from local (adapted) or outside (non-adapted) sources (n = 250 total).
- Embryos were transferred into Brahman x British crossbred cows over three consecutive years.
- From these transfers, a total of 81 live calves were weaned.
- Heifers and bulls evaluated through sexual maturity.
- Bulls evaluated as sires on Braford cowherd.

Riley et al. 2011. J. Anim. Sci. 89:2265

Initial Research

UF UNIVERSITY OF FLORIDA

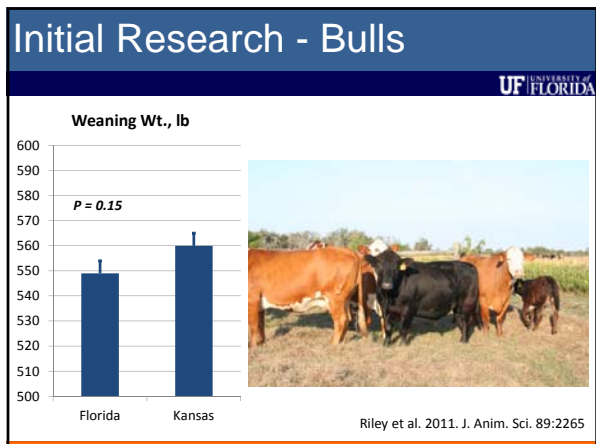
Item	Local (Florida)	Outside (Kansas)	SEM	P =
Average low, °C	38.55	38.41	0.11	0.36
Average high, °C	40.91	40.90	0.07	0.92
Range, °C	2.38	2.48	0.12	0.52
Hair coat score	2.81	2.44	0.33	0.44

Item	Bulls	Heifers	SEM	P =
Hair coat score	3.17	2.08	0.34	0.02

Initial Research

UF UNIVERSITY OF FLORIDA

Item	Local (Florida)	Outside (Kansas)	SEM	P =
n =	36	45	-----	-----
Birth weight, lb	61	63	1.7	0.39
Weaning weight, lb	478	505	11.2	0.09
205 d adjusted, lb	364	386	7.1	0.03
Weight/d of age, lb	1.79	1.87	0.02	0.03
Hip height, cm	105	109	0.8	< 0.01
Age at conception, d	550	454	17.2	0.02



Overview (5 years later)

In 2011 we noticed that many of the Kansas-sourced cows were already culled from the herd or placed into groups designated for culling. Most of the Florida-sourced cows remained in the herd. **WHY?**

Cow Age	n =
7	6
6	13
5	7

- ### Study Design
- Study was conducted over three consecutive years using cow/calf pairs.
 - Local Source; Florida Adapted Herd
 - Outside Source; Modern Seedstock Herd (Kansas)
 - Calves were fall-borne over a 90-d period.
 - Evaluations were conducted in March, April, May, and June of each year.

- ### Study Design
- Dependent variables included;
 - Cow and calf BW
 - Cow BCS
 - Cow hair coat score
 - Cow milk production (WSW; March only)
 - Data analyzed using the MIXED procedure of SAS with “source” in the model and animal(source x year) as random variable. Individual animal was the experimental unit.

Study Design

- Cow hair coat score based on scoring criteria established by Dr. Joe Cassidy, North Carolina State University, as follows;

Hair Shedding Score	Definition
5	Full winter coat
4	Coat exhibits initial shedding
3	Coat is halfway shed
2	Coat is mostly shed
1	Slick, short summer coat

Cow BW and BCS

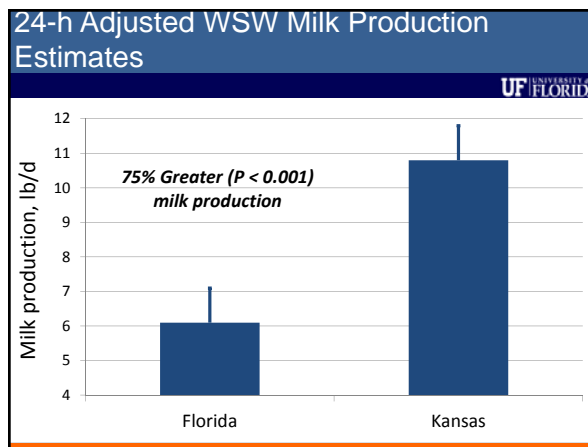
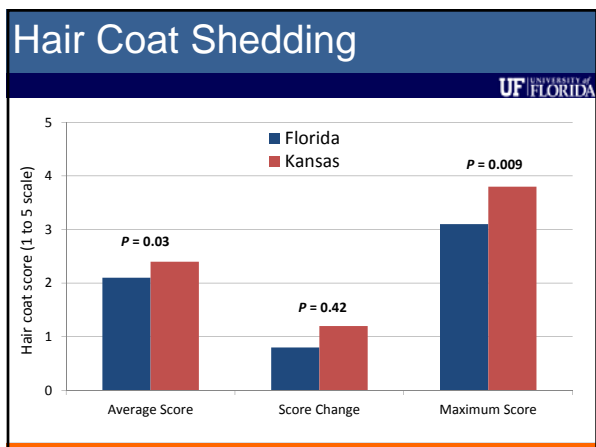
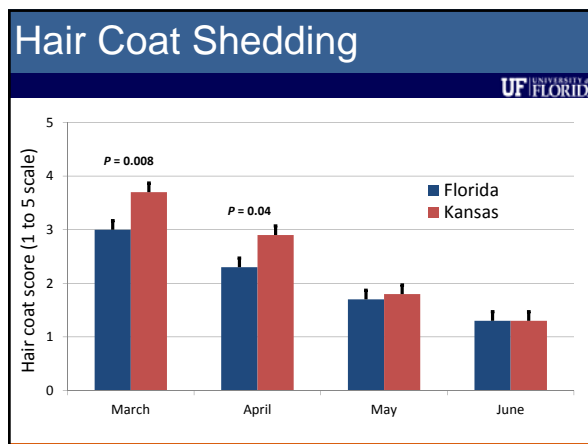
Item	Florida	Kansas	SEM	P =
n =	16	10	-----	-----
BW (lb, March)	904	915	16.8	0.64
BW (lb, June)	975	1,003	17.6	0.18
BCS (March) ¹	4.3	3.3	0.16	< 0.001
BCS (June) ¹	4.9	4.1	0.19	0.001

¹BCS; 1 to 9 scale

Calf BW, lb

Item	Florida	Kansas	SEM	P =
Calf (March) ¹	205	232	7.1	0.002
Calf (June) ¹	366	414	5.3	0.001
ADG ¹	1.70	1.90	0.059	0.005

¹Adjusted for calf sex




- ### Summary
- Calves from non-adapted, outside source Angus dams had greater pre-weaning BW gain.
 - Compared to local source, adapted Angus dams, outside source Angus dams;
 - Less BCS
 - Slower spring hair coat shedding
 - Greater milk production



Ona White Angus –Where did they come from?

UNIVERSITY OF FLORIDA


- The Ona White Angus is a distinct breed developed at the UF/IFAS Range Cattle Research and Education Center.
- A coloration anomaly that is not fully understood.
- Originally derived from a long-term cattle breeding project lead by Professor F.M. Peacock (Ona) involving the crossbreeding of Brahman, black Angus, and Charolais.



Ona White Angus –Where did they come from?

UNIVERSITY OF FLORIDA


- In the early 1990's this cowherd was bred to Simbrah bulls.
- In 1999, we began to breed to black Angus and Brangus.
- In 2002, we began to notice a small number of these cows giving birth to white haired calves with dark skin.
- Since this time, we have focused on increasing the numbers.



Ona White Angus –Where did they come from?


UNIVERSITY OF FLORIDA

- Originally, we focused on producing White Angus calves that were genetically 7/8 black Angus. This has not worked!
- To date, only one cow has produced a 7/8 black Angus calf. She has 3 daughters in the herd.
- Today, we are focusing on breeding white cows to white bulls – each are ¾ black Angus.




7/8 black Angus
ET daughter of the ABS sire Mandate
Two full siblings born from the same flushing that were black.

Foundation White Angus Cow (n = 22) + Purebred Black Angus Sire (A)




Results in:
1st Generation Ona White Angus > 75% Black Angus Genetics (50% proportion)




Increased Ona White Angus genetic diversity will come from ET of the Foundation White Cows

20 cow
X 6 flushes/yr
X 4 viable embryos/flush
X 50% result in Ona White Angus
X 40% live calves born
= 96 Ona White Angus heifer calves (year 1)

Ona White Angus Cows (n = 50) + Ona White Angus Bulls (n = 8)



Results in:
Ona White Angus > 75% Black Angus Genetics (90+ % proportion)



Currently, there are approx. 50 Ona White Angus Cows and 8 Bulls in the herd

50 cow
X 6 flushes/yr
X 4 viable embryos/flush
= 1,200 Ona White Angus embryos (year 1)

All Ona White Angus embryos and/or live calves could be available for worldwide marketing. After years 1 and 2, embryo and calf production limits are greatly increased depending on demand.

Ona White Angus – What are the advantages?

UNIVERSITY OF FLORIDA

- In collaboration with researchers from Cornell University we determined that the Ona White Angus have > 80% sweating rates when compared to black Angus cattle reared in the same environment (ASABE. 2008. 51(6):2167).
- This adaptive response results in cooler body temperatures during periods of high heat load.
- Collectively, the Ona White Angus cattle spend less time seeking shade and more time grazing than black Angus cattle.

Ona White Angus

UNIVERSITY OF FLORIDA


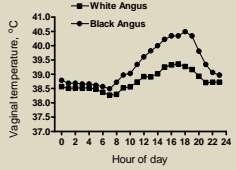




Figure 2. Influence of hair coat color on vaginal temperature of pre-weaned Angus heifer calves.

Hour of day	White Angus Vaginal Temp (°C)	Black Angus Vaginal Temp (°C)
0	38.5	38.5
2	38.5	38.5
4	38.5	38.5
6	38.5	38.5
8	38.5	38.5
10	38.5	38.5
12	38.5	38.5
14	38.5	38.5
16	38.5	38.5
18	38.5	38.5
20	38.5	38.5
22	38.5	38.5
24	38.5	38.5

Ona White Angus

UF UNIVERSITY OF FLORIDA

Forage Intake and Grazing Characteristics



Ona White Angus

UF UNIVERSITY OF FLORIDA

Forage Intake and Grazing Characteristics

Item	Hair Coat Color		SEM	P =
	White	Black		
Forage DMI, % BW ¹	1.27	1.49	0.115	0.15
Time spent in shade ²	45.2	52.6	1.65	< 0.01

¹Voluntary intake of ground grass hay in a fully shaded individual feeding facility.
²Percent of time spent in shaded area over a 12 h summer day (07:00 to 19:00)

Ona White Angus – Why are we selling the herd?

UF UNIVERSITY OF FLORIDA

- The genetic diversity of the Ona White Angus is limited.
- This can be enhanced/improved by an aggressive embryo transfer program focused at mating our Foundation cows (50% black Angus) with multiple black Angus sires.
- But, this is expensive
- In addition, it is a natural expectation for the University to develop technologies and transfer them to the private sector for commercialization.
- As a breed, the Ona White Angus has the potential to provide significant value to the beef cattle production systems in warm climates.

Ona White Angus


UF UNIVERSITY OF FLORIDA



Foundation Heifer

Ona White Angus


UF UNIVERSITY OF FLORIDA



Foundation Cow with Ona White Angus Calf

Ona White Angus

UF UNIVERSITY OF FLORIDA



Ona White Angus Heifer (2 years of age)

Ona White Angus



Ona White Angus Heifer (7/8 black Angus)

This slide features a blue header with the text "Ona White Angus" and the University of Florida logo. The image shows a white heifer with a yellow ear tag in the foreground, with a black cow partially visible behind it in a field.

Ona White Angus



Ona White Angus Bull (3/4 black Angus)

This slide features a blue header with the text "Ona White Angus" and the University of Florida logo. The image shows a light-colored bull standing in a grassy field, with another cow visible in the background.

Ona White Angus



Ona White Angus Bull (returning from test)

This slide features a blue header with the text "Ona White Angus" and the University of Florida logo. The image shows a white bull and a black bull standing together in a dry, yellowish field.

Ona White Angus



Ona White Angus Heifers (weaned yearlings)

This slide features a blue header with the text "Ona White Angus" and the University of Florida logo. The image shows three white heifers standing in a green field.

Ona White Angus



Ona White Angus Bulls (Yearlings)

This slide features a blue header with the text "Ona White Angus" and the University of Florida logo. The image shows several white bulls standing in a green field.

Ona White Angus



Ona White Angus Heifer (2-year old)

This slide features a blue header with the text "Ona White Angus" and the University of Florida logo. The image shows a white heifer standing in a green field.

Ona White Angus



Ona White Angus Heifer (unweaned; 6 mo)

Ona White Angus Sale



- Sale Date: January 21, 2016 at 10 AM EST
- Cattle will be sold as a single group. No cattle, embryos or semen will be retained. Minimum reserve; \$700,000.
- Auction will be available on site or via internet. Buyers must be registered with Producers Cattle Auction before the sale:
 - www.Producerscattleauctions.com
 - 251-633-9306
 - Contact: Todd Clemons, Okeechobee Livestock Mkt.

Ona White Angus Sale



- At buyers discretion, the cattle can remain at the UF/IFAS Range Cattle Research and Education Center through a negotiated management/research contract.
- Prior to the sale, the cattle may be viewed on;
 - October 22
 - November 20
 - December 8
- Information updates are provided as they become available at <http://rcrec-ona.ifas.ufl.edu/>

Ona White Angus Sale



Audy Spell
Advanced Reproductive Associates

AND

Todd Clemons
Okeechobee Livestock Mkt.

Thank you for your attention



John Arthington
University of Florida / IFAS
Range Cattle Research and Education Center, Ona