RED POLL Beef JOURNAL

WINTER 2013 VOLUME 69/NUMBER 1

Featuring...

ARPA National Show results, as well as a variety of articles to help you during the upcoming breeding season!

Scan this QR code on your Smartphone to learn more at www.americanredpolls.com

WIESE FARMS

Wiese Farms purchased their first Red Polls in 1927 and they have been a part of our lives and our farming and ranching success ever since. Red Polls have many fine qualities to contribute to the beef business.

Wiese Farms calve in November and December and will have heifers and bull calves to sell this summer sired by WFH SONNY LA648, WBH PAT SF007 and GS BELLRINGER. Consider visiting us anytime to see the fall calves on their dams.

Wiese Farms encourages all breeders to register their females and bulls kept for breeding, and transfer all they sell. We support Complete Herd Reporting to advance the quality of our herd and the breed, and encourage everyone to send in all carcass information that you are able to obtain.

Our Senior Herd Sire GS Bellringer pictured here at 28 months. His mature weight is 1900 pounds. He is a very correct bull and his offspring is adding quality to our herd. We will have heifers and bulls for sale from him this fall as well as from other breeding.

Bulls For Sale!

WBH VALIANT BR 130 is a 5.0 to 5.5 frame compact bull. He will produce calves that will grade and an early age. His sire is GS BELLRINGER pictured in this ad and out of a Shuter's Flame cow. Contact us for more information on performance and price for the 3 bulls pictured.

WBH MASTER SO133 is a high performing bull that will sire calves that wean big heavy calves. His weaning weight EPD is 29 and his yearling EPD is 40. We thought so much of this bull that we are using him this winter on 10 select cows. He will be trich tested to ship him to a new owner. All the bulls have had their shots and boosters and are ready to go to work.

WBH ACE BR141 will work as a heifer bull, but still sire calves that will gain well. He had a negative birth weight EPD of -2.1 but has a yearling EPD of 18. He too is out of GS BELLRINGER and a POWER POINT daughter. One of these 3 young bulls are sure to fit the bill for your next herd sire.

Wm. Wiese & Family
Bill and Angie Wiese & Brian and Jill Hiebert
12214 E. Parallel Road, Haven, KS 67543 • (620) 465-3865 or (620) 802-2169 • e-mail: wmhwiese@gmail.com

NINE WEST
RED POLLS
Maternal Traits
Carcass Quality
PROVEN EXCELLENCE
OAK CANYON

Wayne & Sue Fish
8899 US Highway 60, Bartlesville, OK 74003
918-331-8016 · waynefish@rocketmail.com
www.ninewestoakcanyon.com

Visit our website at:
www.ninewestoakcanyon.com
Evaluate the genetic power of our herdsires:
OC Osage Red Boy
Dominator OC 705
Semen available on both bulls

Yearling Bulls For Sale

Red, Inc. is an example of the bulls from our 2012 spring crop. He turned a year old on January 3, 2013. At that time his weight was 1028 pounds on a 1% of body weight growth ration and unlimited grass and hay. As a son of Dominator OC705, he is packaged to produce quality carcass offspring as evidenced by his ultrasound carcass numbers. Our bulls are bred and selected for gentleness, are halter trained, and come ready to go to work for you. Contact us for your bull power needs.

WDA (#/day)	Ribeye Area (in^2)	REA/100# (in^2/100#)	Backfat (in)	IMF (%)	Scrotal Cir (cm)
2.8	11.3	1.10	0.17	3.72	32

RED POLLS: The Tender Beef Family Breed

RED POLL Beef JOURNAL

The Red Poll Beef Journal is the official publication of the American Red Poll Association

Table of Contents

The endeavor and article (pages 15-18) does not reflect the views and opinions of the American Red Poll Association, some members of the ARPA Board of Directors, ARPA Staff or the Red Poll Beef Journal Editorial staff, nor do they imply endorsement of the techniques and philosophy by the article's authors. The intentional replication of traits should be evaluated thoroughly for its potential desirable attributes as well as unintended consequences for future generations.

ARPA Board of Directors

Red Poll Beef Journal is published three times yearly and is the property of the American Red Poll Association. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without permission of the publisher. The contents of ads and **editorial contributions are not necessarily the opinion of this publication** or the American Red Poll Association. **Red Poll Beef Journal hereby expressly limits its liability from any and all errors, misprints and/or all other inaccuracies in the advertisements and editorial content**, and said liability is thereby limited to a correction of the error in the issue of **Red Poll Beef Journal** which follows written notice by at least 30 days. In no case shall the space allowed for corrections exceed the original space of the error. **Red Poll Beef Journal** is sent free of charge to all members of the American Red Poll Association who have paid yearly service fees to the Association. Subscription rates are: 1 year - $25.00 per year. Checks should be made payable to the American Red Poll Association and sent to PO Box 847, Frankton, IN 46044.

2013 ARPA Fees

Normal Registrations

Under 12 months of age	$25
12-24 months of age	$30
Over 24 months of age	$40

Complete Herd Report

Annual Cow Enrollment	$10
Registration of CHR Calf	$10

(Complete herd must be enrolled at the beginning of the year)

Transfers - all registration types

Within one month of date of sale	$15
One to three month from date of sale	$18
Over three months from date of sale	$25

ARPA Committee Chairmen

Performance
Wayne Fish

Finance
John Rager

ALBC Liaison
Jo-Ellen Greene
Jeff Wilkins

World Tour
Meredith Mckee

By Laws
George Shaffer

Archives
Jeff Wilkins

Nomination
Linda Rager
George Shaffer

Chaplain
Mike Parks

National Meeting and Sale
Mike Mammelle
Hope Mammelle
Bill Jackson
Teresa Jackson

Junior Association
Linda Ziegler

National Show
Brent Raines
Mike Parks

Promotions and Membership
Jo-Ellen Greene

Grass Finished Initiative
Jeff Wilkins

From the President

Well, March is here. Some people in our association have started to calve and some are still a few months out. This year, I think, has been a huge challenge for a lot of cattle producers with the nation-wide drought. I feel for the producers down south where it was much worse than here in Minnesota. Although, Minnesota did have its challenges. I was able to emergency graze some CRP grass which after it comes out of CRP; I plan on leaving it as pasture. With this drought I'm sure some people didn't keep back as many animals as they normally would, or didn't keep any because of feed being scarce or expensive.

I am grateful for the chance to be President of the Red Poll Association and to be a breeder of this great breed. I feel every person in our association is important, whether you have one cow or 100 cows. I encourage anybody that is new or old to the breed to find out where the closest regional meeting is this summer or to attend the national meeting and sale will be held this fall in Sedalia, MO by either contacting the national office or a board member. The ARPJA meeting and National Preview Show are being held out in Burlington, North Carolina in June, with Wilkshire Farms (Dr. Jeff Wilkins) hosting. We love to meet new people that are interested in the breed, and we don't bite…too hard. The summer regional meetings are on weekends so make a small vacation out of it, see some new country that you normally wouldn't see, and get to know some people in our association. My wife and I never regretted going to our first one. It helped us get to have another "family" across the United States!

When I have gone to cattle meetings and been asked what Red Polls are. I let them know the background of the animal and what traits they bring to the table versus other breeds in a commercial-type setting; to a feeder-type setting, how is a Red Poll going to help; and to me, as a consumer, what can they do for me. With the help of five herds, a friend of mine and I are in the process of feeding out a small lot of 33 Red Poll cattle to be able to show some of the meat quality that Red Polls possess across a varying degree of breeding. Not that we are looking for the greatest animal breeding nor the poorest animal breeding, but the best breeding for this situation. We hope to detail the findings in a future issue of the journal.

While across much of the US is still in the grasp of Old Man Winter, we have to remind ourselves that spring is not far away. I hope and pray for lush, green grass in your pastures, cows calving unassisted (or if need be assisted, not on the Sunday that you need to be in church!), and another great year for our wonderful association of cattle.

- Mike Mammele, *President*

American Red Poll Association
Brian Shuter - Executive Secretary

PO Box 847, Frankton, IN 46044
(765) 425 - 4515 · brian@americanredpolls.com
www.americanredpolls.com

Indiana Red Poll Association

Officers

President — Gail Spegal
Vice-President — Joe Jackson
Secretary-Treasurer — Gordon E. Jackson

Directors

John Rager Bill Jackson
Jim Carl Mike Shuter
Bull Test: Gail Spegal
4-H Breed Rep: Jim Jackson
Open Breed Rep: Gordon E. Jackson
Indiana Livestock Association: Gail Spegal

Members

Donald Burton & Family (812) 546-5998
10782 E 450 N, Hope, IN 47246
Carl Swine Ent. Jim, Diane & Georgiana Carl
(260) 359-2764
2653 W 200 S, Huntington, IN 46750
Gerald Crafton & Family (317) 392-1090
Havenwood Farm
1546 E 375 N, Shelbyville, IN 46176
Jerry Hogue (765) 653-9308
3405 N. Co. Rd. 100 W, Greencastle, IN 46135
Bill & Teresa Jackson & Family (765) 238-1702
2131 N. Washington Rd., Greens Fork, IN 47345
Gordon E. Jackson & Family (765) 468-7779
14390 E Co. Rd. 350N, Parker City, IN 47368
Jim Jackson & Family (765) 586-0198
6372 N 100 W, Uniondale, IN 46791
Joe Jackson (260) 519-5286
4398 S 300 E, Warren, IN 46792
Carl W. Kestler & Family (812) 342-6177
8001 W. Nashville Rd., Columbus, IN 47201
J.D. & Katrina Miller (812) 249-2701
8152 E 100 S, Bowling Green, IN 47833
Thomas & Janet Moorman
7640 S America Rd. Wabash, IN 46992
Michael & Martha Parks (765) 794-4610
Parkstyle Cattle Co.
2334 N 425 E, Crawfordsville, IN 47933
John Rager (260) 982-6745
Hilltop Farm 6942 W 1000 N, Roann, IN 46974
Linda Rager (260) 839-5652
Broken Brick Farm
7382 E 750 S, South Whitley, IN 46787
Scot Roederer
109993 E. Coffey Dr., Columbus, IN 47203
Jack & Pam Scher (260) 356-8804
6370 N 300 W, Huntington, IN 46750
Mike & Family & Marilyn Shuter (765) 754-7370
Shuter Sunset Farms
7400 N 400 W, Frankton, IN 46044
Brian & Sarah Shuter (317) 345-5479
7078 N 400 W, Frankton, IN 46044
Gail Spegal & Family (317) 835-7617
6902 N 400 W, Fairland, IN 46126
Gregg, Megan & Cameron Spegal (317) 835-7617
6902 N 400 W, Fairland, IN 46126

Protocols for Synchronization of Estrus and Ovulation

By Beef Reproduction Task Force: S.K. Johnson, R.N. Funston, J.B. Hall, G.C. Lamb, J.W. Lauderdale, D.J. Patterson, and G.A. Perry

The potential for genetic improvement in beef herds in the US through advances in biotechnology has never been greater. Recent improvements in our understanding of methods of inducing and synchronizing estrus and ovulation in postpartum beef cows and replacement beef heifers creates the opportunity to significantly expand the use of artificial insemination in both purebred and commercial herds. Technology now exists to successfully inseminate beef cows at predetermined fixed times with pregnancy rates comparable to those achieved with heat detection.

While many options exist for synchronization of estrus and ovulation, this short list of protocols was developed based on available research data and field use by the Beef Cattle Reproduction Leadership Team. This group is composed of representatives from the AI and pharmaceutical industries, veterinarians, and reproductive physiologists from the Beef Reproduction Task Force with active research programs in this area.

Selecting a synchronization protocol

Each producer should evaluate available resources and assess the cows or heifers intended for synchronization before selecting a protocol. Key considerations should include time and skill available for heat detection, body condition of the cows or heifers, days postpartum in cows, facilities, experience, and cost.

Amount of Heat Detection

The first step in selecting a synchronization protocol is to determine how much, if any, heat detection is feasible or desired. Some management systems make heat detection and the sorting of animals very simple and effective. In other cases, heat detection can be very difficult. Poor detection efficiency can result in a low AI pregnancy rate. The recommended protocols are divided into three groups based on amount of heat detection required; 1) heat detection for 7 to 8 days, 2) heat detection for 3 days followed by fixed-time AI of all remaining animals not previously detected in heat (clean-up timed AI) or 3) strict fixed-time AI.

Cow Factors

Any of the synchronization protocols are recommended for mature cows with a body condition score of 5 or greater that are 50 days or more since calving at the time of AI. Young, thin, and late calving cows are all less likely to have resumed their estrous cycles at the beginning of the breeding season. If a high percentage of cattle are in these categories, consideration should be given to protocols that include a progestin such as a CIDR. The progestin will induce some non-cycling cows to cycle and improve their chance of conceiving to AI. If cows are too thin or have calved too recently, the investment in synchronization of estrus may not be cost effective.

Heifer Factors

Age and weight are key factors that influence time of puberty in heifers. Heifers should attain 60% of their mature weight prior to breeding. Because selection pressure on growth has increased mature cow size, producers may tend to underestimate future mature size. Producers that score heifer reproductive tracts at 50 to 60 days prior to breeding have a true measure of physiological maturity and time to adjust rations prior to breeding. If 50% of heifers have a tract score of 3 or greater 50 to 60 days prior to breeding, estrous synchronization programs tend to be more successful. Protocols including a progestin such as MGA or CIDR will induce some prepubertal heifers to cycle.

Other

Length of the protocol, number of times handled, and the ability to successfully deliver treatments such as MGA are other factors that must be considered when choosing a synchronization protocol. Management system, feed resource flexibility, and facilities will play a role in which protocol works best in each particular environment. Success of any protocol is dependent on the proper administration and timing of treatments. For help, download the Estrus Synchronization Planner at http://iowabeefcenter.org/estrus_synch.html. The planner develops a calendar for application of protocols and can compare costs of up to three protocols.

Cost

If labor is available or can be hired, protocols using heat detection are generally lower cost than fixed-timed AI. Treatments, semen and number of handlings will contribute to cash costs of synchronization. Estimated savings from fewer bulls needed for natural service and increased returns from age and weight of AI sired calves should be considered. Producers that find AI most cost effective are those that capture additional returns from AI sired calves.

Which animals should I synchronize?

When starting an AI program for the first time, replacement heifers probably are the easiest group of animals to work with and first calf heifers the most difficult group to achieve success. Start simple and add more animals as you gain experience.

Products Used

Hormones common to many protocols are prostaglandin F_{2A} (PG), gonadotropin releasing hormone (GnRH) and progestins. They are available in the following commercial products. Follow label directions for dose and route of administration.

Type	Commercial Names
GnRH	Cystorelin®, Factrel®, Fertagyl®, OvaCyst®
PG	estroPLAN®, Estrumate®, In-Synch®, Lutalyse®, ProstaMate®
Progestin	MGA® (melengesterol acetate)
	CIDR® (progesterone)

Protocols

Heat Detection Protocols

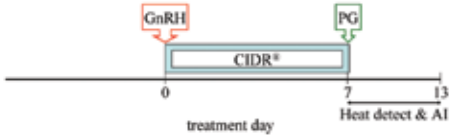
Animals in these protocols should be inseminated 6 to 12 hours after the first

observation of standing heat. During peak activity (48 to 72 hours after PG for most systems), heat detection for a total of three hours per day at three or more times would be a minimum and a total of 5 to 6 hours better.

Select Synch and Select Synch + CIDR® are protocols for use in cows. Including the CIDR is recommended when more cows are likely to be anestrus and/or when heat detection prior to PG is not feasible. With Select Synch, 5 to 20% of the animals may show heat 1.5 to 2 days before PG. Both protocols could be applied to the same group of cows, with CIDRs selectively placed in young, thin, and/or late calving cows.

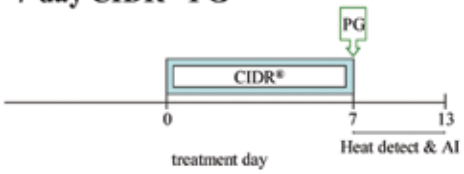
Select Synch

Select Synch + CIDR®



The 7-day CIDR®-PG protocol is recommended in heifers in contrast to the Select Synch + CIDR® protocol in cows. The difference is that heifers do not require the GnRH injection at the beginning of the treatment. Research has shown pregnancy rates from the CIDR®-PG protocol similar to those from the Select Synch + CIDR® protocol in heifers. Select Synch is not preferred for heifers because a wider range in responses to Select Synch has been reported in heifers perhaps due to inconsistent response to GnRH.

7-day CIDR®-PG



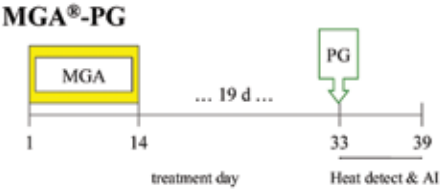
A new heat detection option is the PG 6-day CIDR® protocol. The protocol reduces treatment costs for any cows inseminated after the first PG. More days of heat detection are required and supplies of synchronization products would need to be on hand for all cows or readily available. This protocol could be used on cows or heifers.

PG 6-day CIDR®

Heat detect and AI days 0 to 3. Administer CIDR to non-responders and heat detect and AI days 9 to 12. Protocol may be used in heifers.

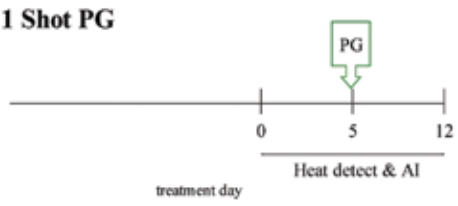
Feeding of MGA is specifically approved for estrus suppression in heifers only. The MGA-based protocol recommended for heifers is MGA®-PG. More advance planning is needed as this protocol begins with feeding MGA for 14 days starting 33 days before PG injection. If MGA can be delivered accurately on a daily basis; this is a very effective protocol in beef heifers. The original recommendation for the interval between the last feeding of MGA and PG injection was 17 days. Delaying this interval to 19 days improves synchrony of estrus.

MGA®-PG



A single injection of PG can be used on heifers. This protocol does not provide the degree of synchrony of others and the heat detection period is twice as long. Nevertheless, it is a low cost method that often works well for those just starting to use AI. It could be used on cows but because sorting and heat detection are more complex when the calf is present, other options should be strongly considered. Heifers that have not reached puberty or cows that have not initiated estrous cycles do not have a corpus luteum (CL) and will not respond to this treatment. Heifers observed in heat and inseminated before the time of PG injection do not require PG.

1 Shot PG

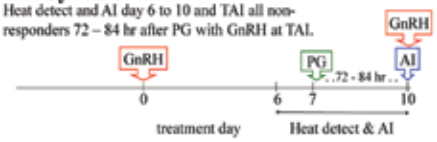


Heat Detection & Times AI (TAI) Protocols

Heat detection and timed AI protocols involve AI 6 to 12 hours after observed estrus for 3 days then timed AI of all non-responders 72 to 84 hours after PG with GnRH given at TAI. The amount of time spent on heat detection is reduced and early responders have a better chance of conceiving compared to a single fixed-timed AI. The same protocols recommended for heat detection are also recommended for the combination of heat detection and timed AI in cows. The success of these protocols is still dependent on good heat detection, particularly for early heats in the Select Synch protocol.

Select Synch & TAI

Heat detect and AI day 6 to 10 and TAI all non-responders 72 – 84 hr after PG with GnRH at TAI.



Select Synch + CIDR® & TAI

Heat detect and AI day 7 to 10 and TAI all non-responders 72 - 84 hr after PG with GnRH at TAI.

PG 6-day CIDR® & TAI

Heat detect and AI days 0 to 3. Administer CIDR to non-responders and heat detect and AI days 9 to 12. TAI non-responders 72 - 84 hr after CIDR removal with GnRH at AI Protocol may be used in heifers.

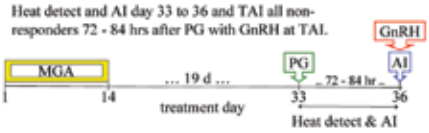
In heifers, the MGA®-PG protocol can be used combining heat detection and timed AI. A second protocol recommended for use in heifers is Select Synch + CIDR®. GnRH is recommended in this protocol as it adds little additional cost and heifers that do respond with a new follicular wave are more likely to conceive at the clean-up timed AI.

Select Synch + CIDR® & TAI

Heat detect and AI day 7 to 10 and TAI all non-responders 72 - 84 hr after PG with GnRH at TAI.

MGA®-PG & TAI

Heat detect and AI day 33 to 36 and TAI all non-responders 72 - 84 hrs after PG with GnRH at TAI.

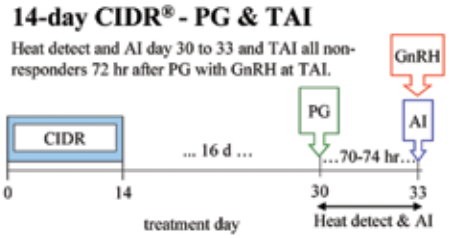


The third option for combination heat detection and TAI in heifers is 14-day CIDR® – PG. This protocol appears similar to MGA-PG but the interval between CIDR removal and PG is reduced to 16 days. This is because the progesterone in CIDR treated animals is cleared from

Continued on Page 8

Synch Protocols • Continued from Page 7

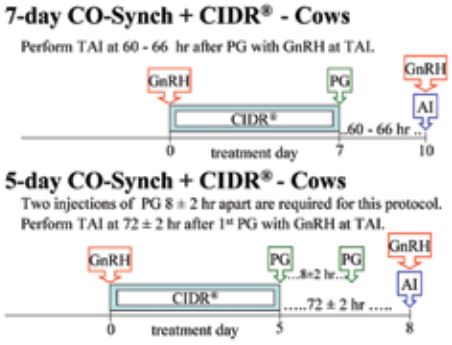
the body much faster than melegesterol acetate in MGA-treated animals.



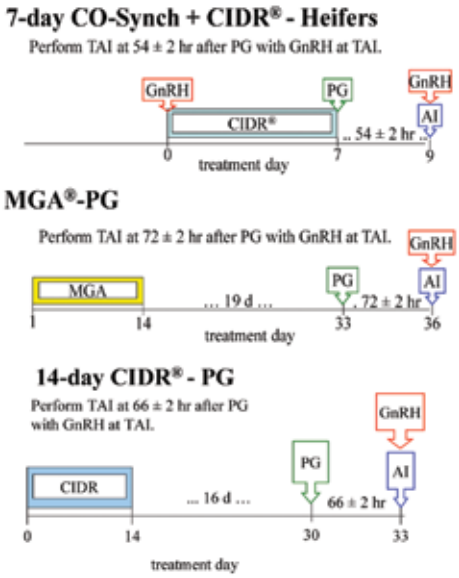
Fixed-Time AI Protocols

In fixed-time AI protocols, all animals are inseminated at a predetermined time. For cows, fixed-timed AI can produce similar pregnancy rates as protocols that require 5 to 7 days of heat detection. For heifers, pregnancy rates from current TAI protocols tend to be 5 to 10% lower than using heat detection alone (the exception may be the 14-day CIDR-PG). The times listed for fixed-time AI should be considered as the approximate average time of insemination. Synchronize no more females than can be inseminated in the given facilities in a 3 to 4 hour period.

The 7-day CO-Synch + CIDR® protocol is recommended for both cows and heifers. Cows should be inseminated between 60 and 66 hours after CIDR removal. Insemination time for heifers is recommended at 52 to 56 hours after CIDR removal. A shortened 5-day CO-Synch + CIDR® protocol is another option for cows. Two full doses of PG given 8 hours apart are critical for success in the shortened protocol.



MGA®-PG can be used with fixed-timed AI in heifers; however, pregnancy rate will likely be lower than with the CO-Synch + CIDR® protocol or 14-day CIDR®-PG. For many producers a CIDR-based protocol would be lower risk for fixed-timed AI than MGA®-PG as they are not reliant on accurate, daily MGA consumption and control of follicular growth should be better. The 14-day CIDR®-PG is the most recent fixed-timed AI protocol for heifers. It is 3 days shorter than MGA®-PG and requires one more handling than CO-Synch +CIDR®.



Concluding Comments

Considerable research and field data support the use of these protocols as described. Criteria for inclusion on this list include minimal animal handlings and minimal use of pharmaceutical products as well as effectiveness in both cycling and noncycling females (with the exception of 1-shot PG). Other protocols should only be considered in unique situations and with the advice of someone with extensive experience with synchronization protocols. Alterations of any protocol should be supported with sound research data.

Thank You to ARPA Endowment Fund Silent Auction Donors and Buyers

The 2012 National Red Poll Show and Meeting committee would like to thank the following donors and those who purchased donation at our national banquet. The proceeds go to the ARPA Endowment Fund.

Donors

Gail Spegal and Family
Edge Acres
Stonebrook Farms
Brent Raines
Jackson Farms
Dawn and Kendra Nunan

Buyers

Brent Raines
Kyle Young
Jeff Doll for Kade Parks
Dan Schmiesing
Becky Schmiesing
Dawn Nunan
Meredith McKee
Gregg Spegal
Gail Spegal
Scot Roederer
Seth Cook

Don't Forget!!!

Its never to early to start thinking about your consignments for the National Sale this fall in Sedalia, MO. Take a few minutes this summer to get high quality photos for the catalog and to help with an expanded advertising campaign planned for this event.
The date of the sale is still to be determined.

Using Estrous Synchronization and Artificial Insemination to Increase Profitability in Your Beef Herd

By Allen Bridges, Ron Lemenager, Patrick Gunn, and Matt Claeys
Department of Animal Sciences, Purdue University

By using estrous synchronization and artificial insemination (AI), you can improve reproductive efficiency and productivity—and profits—in your beef cow/calf operation.

Improving Reproductive Efficiency

Reproductive efficiency (pounds of calf weaned per cow exposed), dramatically affects profitability in a beef cow/calf operation. The reason is simple: producers market total pounds (number of calves x weight/calf), and this sets the stage for increasing profitability.

Each cow/calf producer should try to achieve three goals in relation to reproductive performance and efficiency of the cow herd.

• A 90% calf crop per cow exposed

If fewer than 90% of the cows exposed to breeding wean a calf each year (95% conception rate x 95% calf survival) profitability could be compromised.

• Each cow calving every 365 days

This is difficult to achieve, but critical for profitability. To meet this goal, cows must be cycling and must conceive by approximately 80 days after calving.

• A calving season 45 to 60 days in length

A short calving season improves calf crop uniformity, thus increasing weaning weights to a single weaning date, and improves the subsequent reproductive performance of the cows.

Many factors affect the reproductive efficiency of the cow herd. These include:

• Nutrition and body condition of cows and bulls

• Herd health and vaccination program

• Herd genetics, heifer selection and management

• Bull health and conducting yearly breeding soundness exams (BSE)

• Identification of pregnant and non-pregnant females after the breeding season

• Use of reproductive management tools to improve reproductive performance

By focusing on this last factor and using estrous synchronization and artificial insemination (AI), you can improve the reproductive efficiency and productivity of your cow herd.

Advantages of AI

By itself, artificial insemination offers numerous advantages over natural service. Some of these include:

• Use of genetically superior sires
  - Availability of proven genetics and proven performance sires
  - Quickest means to improve the genetic merit of the herd

• Facilitation of specific matings and crossbred mating programs
  - Targeted breedings to optimize breed composition
  - Maintained heterosis in crossbred systems or reduced inbreeding in purebred systems.

• Control of venereal diseases

• Value-added: desirable and marketable calves
  - Use of sires that have traits desirable for your operation and your market
  - Larger number of uniform calves

• Easier importation of foreign genetics

• Availability and use of proven calving ease sires
  - Major advantage when breeding heifers

Combining AI with Estrous Synchronization

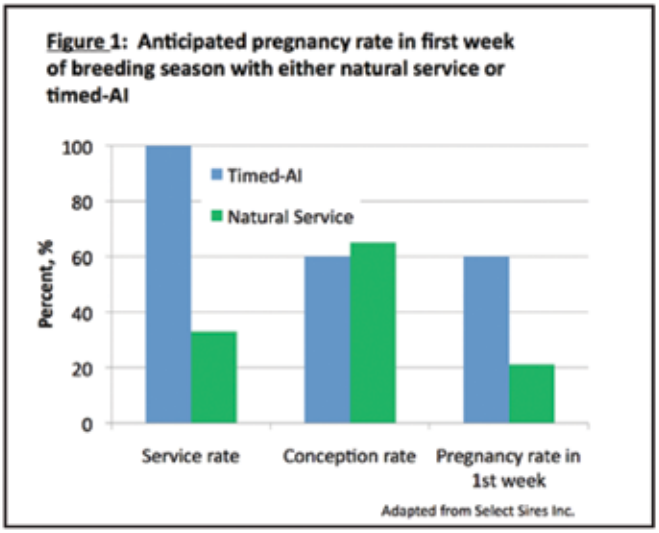
Although artificial insemination is a valuable reproductive management tool, combining AI with estrous synchronization offers additional economic and managerial advantages.

Three major advantages of using estrous synchronization are listed below.

1) More cows bred in the first week of the breeding season

This advantage is demonstrated in Figure 1, which depicts the predicted proportion of females bred in the first week of the breeding season with either natural service (using a bull) or with estrous synchronization and timed-AI. With natural service the number of cows in heat in one week determines the number of cows that can conceive in that week. The estrous cycle in a beef cow is approximately 21 days; therefore, in any given week approximately 33% of the cow herd would be in heat (7 days / 21 days) and have the opportunity to conceive. This assumes that all cows are having normal estrous cycles (cyclic). Several large studies across several states have clearly shown that often about 50% of cows are not cyclic when the breeding season starts, and will have their first heat sometime later in the season. Furthermore, the bull is not always successful in settling a cow. In fact, only about 65% of the cows serviced by the bull will conceive the first time. Since pregnancy rate is service rate x conception rate, the expected proportion of cows pregnant in one week of natural service is only 21% (33% service rate x 65% conception rate) in the best case scenario when all cows are having normal estrous cycles. If a proportion of the herd is not cyclic at the start of the breeding season, this number is reduced. For example, if 50% of the herd is not cyclic, then only 50% of the cows have the opportunity to show heat and conceive. In this scenario, pregnancy rate to natural service in the first week may be as low as 11% (21% x 50%). With estrous synchronization programs that use timed-AI, all cows are inseminated in one day without heat detection. In this case, the service rate with a timed-AI program is 100%.

With many of the timed-AI programs now available, conception rates to a single service averages 60%, regardless of whether cows are cyclic or not at the outset of the breeding season. Hence, preg-



nancy rate for the first week in a timed-AI program is 60% (100% service rate x 60% conception rate), which is far greater than the 21% that would conceive with natural service. The real advantage of getting more cows pregnant early in the breeding season is that more cows calve early in the calving season creating a more uniform calf crop, and older and heavier calves at weaning. It also allows cows more time between calving and the beginning of the next breeding season (i.e., more time to recover and return to estrus).

2) More uniform and heavier calves at weaning

Calves born earlier in the calving season will be older and heavier at weaning than calves born later in the calving season as age of calf at weaning is the single largest factor that affects weaning weight. The economic advantage of having calves born early in the calving season is presented in Figure 2. In this figure, the values of three calves are compared: an AI-sired calf born the first day of the calving season (Calf A); a natural-service sired calf born the 30th day of the calving season (Calf B); and a natural-service-sired calf born the 60th day of Using Estrous Synchronization and Artificial Insemination to the calving season (Calf C). Due to the ability to select improved genetics, the AI-sired calf (Calf A) was given a 0.2 lb/day advantage in weight gain. Overall, Calf A was worth $71 more than Calf B and $108 more than Calf C at weaning when an $8/cwt price slide was used. This demonstrates the value of AI sired calves as well as the value of having calves born early in the calving season.

3) Induced estrous cycles in cows and heifers not having normal estrous cycles

Not all females in a herd will be cycling at the start of the breeding season. Non-cycling females in the herd typically fall into one of the following categories: prepubertal heifers that have not obtained a target of 65% of their mature weight because of age or plane of nutrition; thin cows, especially first- and second-calf heifers that have a longer post-partum anestrous period; and late calving cows. A post-partum anestrous period of 40 to over 80 days is not uncommon. If females are not cycling, they will not ovulate and they cannot conceive even if they are with a bull. Research has demonstrated that it is not uncommon for over 50% of beef cows and 40% of beef heifers to be anestrous at the beginning of the breeding season. One advantage of using progesterone-based estrous synchronization programs (i.e., using melengestrol acetate or an intravaginal progesterone releasing insert-CIDR) is that these programs can stimulate ("jump start") some anestrous cows and pre-pubertal heifers into having estrous cycles. Therefore, these females have an increased probability of either conceiving to an AI mating, or start having estrous cycles sooner in the breeding season so they breed sooner to natural service sires. This can help meet the goal of having one calf every 365 days.

Several estrous synchronization protocols are available to beef producers who want to incorporate these technologies into their management system. Remember that the best pregnancy rates occur in cattle that are properly managed. At the initiation of the synchronization program, cows should be in good body condition (BCS 5-6; 1 = thin, 9 = obese) and should have calved at least 30 days prior to starting the synchronization protocol. Heifers should be properly developed and should have achieved at least 65% of their estimated mature body weight (BCS 5+ to 6-) prior to the start of the breeding season. Additionally, females should be handled appropriately during the estrous synchronization protocol to reduce stress. The variety of protocols available allows producers the flexibility to incorporate estrous synchronization and AI into their herds, as well as the opportunity to take advantage of both the genetic improvements and economic benefits that can be realized from these technologies.

Figure 2: Value of calves born at different times during the calving season.

	Calf A (AI sire)	Calf B (natural service sire)	Calf C (natural service sire)
Birth Wt (lbs)	90	90	90
ADG (lbs/day)	2.6	2.4	2.4
Age at Weaning (days)	225	195	165
Weaning Wt (lbs)	675	558	486
Calf Value ($/ lbs)	0.98	1.06	1.14
Total Value of Calf ($)	662	591	554
Difference in Value Compared to Calf A ($)	Reference	- $71	-$108

References and Additional Materials

Anderson, L. and P.Deaton. 2003. Economics of Estrus Synchronization and Artificial Insemination. NAAB Symposium. Available at: www.beefimprovement.org/proceedings.html

Bridges, A., S. Lake, R. Lemenager, and M. Claeys. 2008. Timed-AI in beef cows: What are your options? AS-575-W. www.extension.purdue.edu/extmedia/AS/AS_575_W.pdf

Bridges, A., S. Lake, R. Lemanager, and M. Claeys. 2008. Non-pregnant cows are non-productive cows. AS-586-W. www.extension.purdue.edu/extmedia/AS/AS_586_W.pdf

14th World Congress: Australia 2014

Dear American Red Poll Association,

It is my pleasure as Federal President of the Australian Red Poll Cattle Breeders to invite your members and friends to Australia from October 21 to November 11, 2014, for a Tour and Congress.

The committee of Jill Bockman, Ian Coghlan, Mark Harris, Murray Williams and I have put together a tour of Red Poll cattle across Australia interspersed with places and sights of interest within the various states of Australia. Distances between states and within regions means that costs are hard to manage especially with the current high value of the Australian dollar. What the world economy will be in 2014 is hard to predict but our aim has been to price the tour at a realistic figure.

Albury, on the Victoria/ New South Wales border, will be the venue for the Congress. This should involve a series of lectures around the theme, ' Making A Difference' and feature a general meeting followed by a delegates meeting. An agenda will be circulated before the Congress. There will be a Congress dinner to follow the meeting.

At the last Congress in the UK it was decided that an effort should be made by each country to assist younger Red Poll members to attend this World Congress Tour so we have sent letters proposing organizations to consider giving scholarships as a means to fulfilling this goal.

Our tour operator is Sunlover Tours, trading as AOT Pty Ltd. and the tour manager is Kim McNeill. Contact can be made via our webpage, redpoll.org.au. The blend of agricultural and tourist activities is designed to appeal to everyone and you will certainly see a lot of Australia. Post and pre tours can be arranged and I'm sure many of our members will be more than willing to see you again after the tour. The Australian Red Poll Cattle Breeders look forward to entertaining you on your visit to our country so please start to plan for your trip to Australia in our spring in 2014. The weather should be warm and the countryside at its best.

Kindest Regards,
Richard Daley
Australian Red Poll Cattle Breeders
Federal President

Membership 2012
TEXAS RED POLL ASSOCIATION

OFFICERS

President	George Norris
Vice President	Deniece Brown
Reporter	Sherry Thomas
Secretary/Treasurer	Louise Carpenter

DIRECTORS

Peggy Anderson • Pam Roberts • Andrew Harrington

MEMBERS

Sam & Peggy Anderson
(903) 396-7572 Kerens, TX

Carolyn Baxter (903) 396-2678
Kerens, TX

Ruben Beisert (713) 466-0281
8410 Achgill, Houston, TX 77040

F.E. Billings
(713) 666-2064
frankblaw@aol.com
1817 Stanford, Houston, TX 77006

Les & Deniece Brown
8648 E. Hwy 79, Milano, TX 76556

Arthur & Louise Carpenter
(512) 455-6105 • 8650 E. Hwy 79
Milano, TX 76556-6105

Charlie & Linda Davis
156 Private Rd. 857
Rochelle, TX 76872-3754

Steve DeLeon 108 Joe Davis Rd.
Van Alstyne, TX 75495

John D. Fleming (915) 429-6334
Box 1888, Mason, TX 76856

Andrew & Mary Jo Harrington
(325) 356-3018 1008 N. Barnes St.
Comanche, TX 76442
redpollc@msn.com

Leo Hopkins
(972) 563-8772
12441 CR 351, Terrell, TX 75161

Cathy & Nathan Melson
(903) 583-4951
3385 E Hwy 56
Dodd City, TX 75438-3929
sloanscreekfarm@juno.com

Nathan & Ellen Melson
3385 E. State Hwy 56, Dodd City, TX
75438

George & Lee Norris (979) 596-1317
1066 CR 420, Somerville, TX 77879

Ron, Pam, Richard & Ron Jr. Roberts
8646 E. Hwy 79, Milano, TX 76556

Darrell & Sherry Thomas
(972) 965-7707 cell
20041 FM 2755, Royse City, TX
75189
dwthomas77@yahoo.com

Gaylan Whatley (903) 479-4101
1844 Co Rd. 4310
Ben Wheeler, TX 75754

JUNIOR MEMBERS

Mary Brown – Red Poll Queen
8648 E Hwy 79, Milano, TX 76556

Jana Lee Thomas
20041 FM 2755
Royse City, TX 75189

Scholarship Program for World Congress Australia

The meeting of Red Poll organizations held during the 2011 World Congress in the UK agreed to the principal of providing assistance to younger Red Poll breeders to attend the next congress. This is a plan to build up across the world Red Poll family a network of younger breeders, with greater knowledge and experience better able to carry the breed forward.

Accordingly the Australian Organising Committee has worked into the tour a number of both subtle and specific educational components to meet the objective. The organizing committee is hoping that all of the major participating countries will provide a scholarship awardee.

Should any person meeting scholarship guidelines, but not funded by their country of origin, wish to be included in the scholarship program they may apply to the organizers for inclusion. Participants who are assisted (be it wholly or in part) will be considered scholarship awardees and will be expected to be participants in all of the educational events. The organizing committee is also investigating possible sponsorships to help defray overall costs of the scholarship program.

The organizing committee will keep interested participants advised of all developments but hope members will commence their preparation for participating in this program.

Chris Raines Heifer Trophy

Presentation at the National ARPA Banquet November 2012

By Brent Raines

For over a century, Red Poll Breeders have gathered together to see who has the best the breed has to offer. First presenting cattle at the International Livestock Show in Chicago and now at the North American International Livestock Exposition in Louisville. Red Poll Cattle have been presented on the cattle industry's biggest stage.

Chris Raines understood competition and how it brings out the best in all of us. Best friends in the barn, but fierce competitors in the big arena.

The Raines Family contacted legendary livestock sculptor Glenn McCune of Willows, California to carve a memorial traveling award of Chris' favorite cow, SBF Faith. Mr. McCune, now well into his 80's, graciously agreed to do this outstanding rendition in solid walnut.

We proudly present this carving to the American Red Poll Association in memory of our beloved son as a testament to the dedication and hard work it takes to become a champion.

It is our sincere hope that all who accept it from this day forward will view it with the same adoration as we do. We hope that all your children and grandchildren will be able to experience the thrill of having your name associated with the word "champion".

As we prepare to welcome the fifth generation to your family farm, all of us at Stonebrook Farms wish you and yours safe travels and prosperity.

A Myostatin Variant in Red Poll Cattle and Its Commercial Potential

By: Wayne Fish, Mike Mammele, Kenny Lueken, John Lueken, John Droz and Marty Grabow

The phenotype (physical appearance) known as double muscling in cattle was first recorded by a British farmer in his stock records (Cully, 1807). This phenotype involves exaggerated muscle development, hence the term "double muscling". Despite the term, the phenotype has no association with the doubling of muscles, but rather an increase in the number of muscle fibers (hyperplasia) and enlargement of those fibers, or hypertrophy. (Note to Reader: See Table I for definitions of scientific terms used throughout this article). Additional external characteristics associated with the phenotype are pelvic inclination and the apparent higher attachment point of the tail. The double muscling phenotype has been found in humans, fish, dogs, and among beef cattle of European origin. The Belgian Blue breed first comes to mind when the term, double muscling, is mentioned. No written reports of double muscling in the Red Poll breed have been noted in the literature.

Traits Associated With Double Muscling

Substantial research over the years has been directed at delineating the physiological effects on animals expressing muscular hypertrophy. Some of these traits will only be touched on here, but are discussed in more detail in Billinge et al. (2005) and at www.southdevon-cattle.com. Extensive lists of references are given in these two reviews. Together, the various phenotypic traits of double muscled cattle could be categorized as "the good, the bad, and the ugly".

On the bad and ugly side, muscular hypertrophy in the cow is associated with higher instances of dystocia (calving difficulties) presumably because the high levels of muscling in the cow's pelvic region prevents pelvic distension. This is probably the principal negative attribute associated with double muscling. It also has been suggested that double muscled cattle show reduced fertility, are less able to carry to term, and embryos have a higher mortality rate.

During forced exercise, double muscled cattle show signs of fatigue faster than normal cattle. Additionally, the larger muscle mass results in greater heat production and a reduced tolerance for heat stress. The bone mass of double muscled cattle may be as much as 10% less than that of normal cattle because of shorter and finer long bones.

On the good side, advantages of muscular hypertrophy arise in the carcass characteristics of the animals. The carcasses of double muscled cattle dress out at 65 – 70 percent. This high yield results from a combination of increased muscle mass (~20% greater than normal), reduced body fat, and smaller bone mass (~10% less than normal). Because of their increased loin muscle size, double muscled cattle produce a higher proportion of the expensive cuts of meat than conventional cattle. The meat of double muscled animals is significantly more tender than that of normal animals as a result of its lower collagen and connective tissue content. Fat levels are reduced in double muscled animals which includes a lower intramuscular fat content (marbling). The fat composition is also changed in muscular hypertrophy; the fat is high in polyunsaturated fatty acids (~11% compared to ~5% for normal animals). The increased protein content, decreased fat content, and higher proportion of polyunsaturated fatty acids are all in line with current desirable standards of nutrition.

The Genetic Basis of Double Muscling

The genetic basis for muscular hypertrophy wasn't understood until the late 1990s when it was demonstrated that double muscling (again, more properly termed muscular hypertrophy) was the result of the expression of an inactive form

Continued on Page 16

Table I. Definitions of terms

Term	Definition
Allele	An alternative form of a gene (one member of a pair) that is located at a specific position on a specific chromosome
Autosome	Any chromosome that is not a sex chromosome
Heterozygous	Each of the two copies of a gene (alleles) code for a different form of the gene's product protein
Homozygous	Both copies of a gene are identical and code for the same form of a protein
Hyperplasia	Increase in the number of muscle fibers
Hypertrophy	Enlargement of a muscle fiber
Muscular hypertrophy	Scientific term for the lay term, "double muscling"
Myostatin	A protein in the body that negatively regulates muscle development
Null	Non-functioning
Phenotype or phenotypic	Visual appearance of a subject
Variant	A form of a gene that differs from the wild type, or normal, population
Wild type	The form of a gene that is present in the majority of a population; also termed "normal"

Myostatin Variant • Continued from Page 15

of the protein, myostatin (McPherron and Lee, 1997). Myostatin is a muscle growth regulator in developing fetal and adult skeletal muscle. It serves as a negative regulator of skeletal muscle mass. If the ability of myostatin to perform its negative regulatory function is destroyed by an event such as a gene mutation that results in production of an inactive form of myostatin, then muscle mass grows beyond that in a "normal" or "wild type" individual.

The discovery of the molecular cause of muscular hypertrophy led to a plethora of research directed at looking for mutation sites in the myostatin gene that would lead to this phenotype. As a result, six different genetic mutations have been demonstrated, each of which produces an inactive myostatin molecule and can lead to muscular hypertrophy. One of these variants, termed nt821 del 11, appears to have been the earliest mutation to occur in cattle and to have spread in different waves from ancestral northern European milk-purpose populations to most European breeds (Dunner et al., 2003). This ancestral mutation is an eleven base pair deletion from the gene. This deletion results in premature termination of the myostatin protein molecule during synthesis. Hence, a copy of the mutated myostatin gene cannot produce an active form of myostatin. Later disruptive mutations in the myostatin gene probably arose in individual breeds and have scarcely moved to other breeds (Dunner et al., 2003). In addition to the six disruptive mutations in the myostatin gene, at least a dozen mutations have been documented in which the mutation has no negative effect on myostatin's function.

Bovine somatic cells (any cell in the body except reproductive, i.e. germ, cells) possess 29 pairs of autosomes (any chromosome that is not a sex chromosome) plus one X and one Y chromosome (bulls) or two X chromosomes (cows). The myostatin gene is located on chromosome 2 in cattle, so each cell contains two copies of the myostatin gene. For full expression of the molecular hypertrophy phenotype to occur, there has to be a complete absence of functional myostatin protein. That means that the animal must be homozygous (both gene copies are the same) for the defective myostatin gene. It is when the animal is heterozygous (it has one normal copy and one defective copy of the gene) that intriguing possibilities arise for production of improved carcass animals.

Table II. Australian and Scottish studies of single copy nonfunctional myostatin on carcass quality of Angus crosses

Cattle Type (Genotype)	Carcass Weight (lbs)	Dressing (%)	Rib Eye Area (in^2)	Rib Fat (in)	IMF (%)	Shear Force (KPa)	Retail Beef Yield (5)	Hind Quarter Yield (%)
Scotland (wild type)	692.3	n.r.	17.2	n.r.	n.r.	24.14	n.r.	22.9
Scotland (nt821 heteroz)	730.6*	n.r.	18.4*	n.r.	n.r.	23.58	n.r.	23.2*
Australia A Light Muscle (wild type)	805.2	53.9	10.9a	0.72	4.0	n.r.	62.2a	n.r.
Australia A Heavy Muscle (wild type)	792.0	54.9	11.9b	0.62	4.1	n.r.	63.5a	n.r.
Australia A Heavy Muscle (nt821 heteroz)	794.2	56.0	13.2c	0.58	2.9	n.r.	67.0b	n.r.
Australian B (wild type)	620.4	57.3	9.2	0.26	2.7	n.r.	68.6a	n.r.
Australian B (nt821 heteroz)	638.0	59.6	9.5	0.19	1.8	n.r.	71.8b	n.r.

* Indicates a statistically significant difference from the wild type value
n.r. Not Reported
a,b,c Within a herd, values followed by different letters are statistically different

Traits of Cattle Heterozygous for a Nonfunctional Myostatin Gene

What about cattle that carry one normal myostatin gene and one defective gene, (i.e. they are heterozygous for the variant gene)? This situation turns out to be a potential "win – win" situation for the beef producer.

Extensive studies have shown that cows heterozygous for a variant myostatin gene (one normal gene copy and one defective gene copy) showed no differences in reproductive traits from homozygous normal cows (Arthur, 1995). Growth rates of heterozygous animals were similar to those of homozygous normal animals. A cow carrying one copy of the inactive myostatin gene will birth and raise a healthy calf exactly like a homozygous normal cow. Thus, the likelihood of dystocia is eliminated with the presence of one copy of the normal myostatin gene.

Principal advantages afforded to the commercial beef producer come through the superior carcass characteristics retained by heterozygous animals. Substantiation for this comes from three comprehensive studies: one from Australia (O'Rourke et al., 2009), one from Scotland (Gill et al., 2009), and one from the Meat Animal Research Center, Clay Center, NE (Wheeler et al., 2001).

The Scotland study (Gill et al., 2009) examined 536 commercial Angus beef cattle and compared those heterozygous for the nt821 del 11 null myostatin gene with animals that were homozygous for the wild type myostatin gene. Heterozygous animals were found at a frequency of 4% of the sample population. It was found that the presence of the nt821 del 11 variant in a single copy significantly increased carcass weight, sirloin weight and hindquarter weight, but had no effect on the fat traits, including intramuscular

Photograph of subject animal at approximately one year of age. Note classic traits of muscular hypertrophy.

evaluated in the study. Carcass traits of heterozygous animals with one copy of the nt821 del 11 mutation were compared with their homozygous wild type counterparts. All animals in Herd A that were heterozygous for the nt821 del 11 variant were in the H muscle group. As shown in Table II, loin eye area and retail beef yield were significantly greater in the heterozygous animals while meat quality (IMF) was the same in both groups.

fat (Table II).

Two Australian beef herds were studied to evaluate associations between genotype and carcass quality (O'Rourke et al., 2009). One herd, Herd A, was established from an initial Angus x Hereford cross and subsequent matings with Angus bulls. Herd A was was further comprised of two distinct selection lines: one focused on high (H) and the other on low (L) muscling. The second herd, Herd B, was a commercial herd of Angus and Charolais origin. Heterozygotes were found in the first herd at a rate of 16% and in the second herd at a rate of 23%. A total of 803 animals were

The MARC study determined that tenderness and ease of meat fragmentation were significantly greater and the amount of connective tissue was reduced in animals homozygous or heterozygous for inactive myostatin when compared to that of homozygous normal animals (Wheeler et al., 2001). These results suggest that by using animals heterozygous for inactive myostatin, another dimension for tenderness can be incorporated into grass-finished beef.

Table III. Ultrasound carcass data for subject animal and contemporaries

Tattoo	Birth Date	Myostatin Variants	Weight	Rump Fat (in)	Rib Fat (in)	Ribeye Area (in^2)	REA per 100 lbs	IMF (%)
44	10/4/11	0	1065	0.12	0.09	15.8	1.48	2.31
45	10/13/11	1 - nt821	1115	0.21	0.11	15.8	1.42	1.60
F 1109	9/02/11	2 - nt821	1020	0.12	0.08	17.2	1.69	1.46
F 1201	1/03/12*	1 - nt821	1028	0.17	0.09	11.3	1.10	3.72

* Not a contemporary, but fed a similar growing ration. Included to further illustrate carcass properties of Red Poll heterozygotes for the nt821 del 11 variant of the myostatin gene. Carcass data for this animal were collected at 12 months of age.

Together, these three comprehensive studies unequivocally demonstrate the benefits to be gained with single copy inactive myostatin alleles incorporated into a commercial beef program. In fact, the Piedmontese breed has taken advantage of this and advertises Piedmontese cattle as "the myostatin breed" (www.piedmontese.org).

Evidence for the Existence of an Inactive Myostatin Gene in Fullblood Red Poll Cattle

On September 2, 2011, a fullblood seven year old Red Poll cow in Oklahoma mated to a fullblood Red Poll bull gave unassisted birth to an 81 pound bull calf that exhibited traits of having muscular hypertrophy. Two previous and one subsequent mating of the same sire and dam produced normal appearing heifers. The subject bull calf's adjusted 205 day weaning weight was 517 lbs and his yearling weight was 884 lbs. The subject animal is heavily muscled in the front (biceps femoris) and hind (gluteus medius) quarters and along the loin (longissimus thoracis) (Photo. 1). He was subsequently penned after weaning with two totally unrelated bull calves near his age, and they were fed a growing ration (~1% of body weight) together with unlimited grass or hay.

Tail hairs were collected from the double muscled animal and his contemporaries, his sire and dam, and selected animals with varying degrees of similar lineage to the subject animal. The samples were submitted to Igenity Labs (GeneSeek, Lincoln, NE) for analysis for possible myostatin gene variants. The subject animal was found to possess two copies of the nt821 del 11 myostatin gene while his sire and dam were each heterozygous for this variant. The subject animal's paternal grandsire tested homozygous for the wild type myostatin gene. This means that the variant gene of the subject animal's sire had to come via the sire's dam. The subject animal's paternal and maternal grand dams were very similarly bred on both their sire's and dam's lineages. Thus, it is likely that the myostatin variant in the subject animal's dam came through the maternal grand dam. Because both grand dams were deceased, we were unable to

Continued on Page 18

Myostatin Variant • Continued from Page 17

accurately trace the true lineage of the subject animal in more detail.

At 15 months of age, the carcass traits of the double muscled bull and his two contemporaries were compared by ultrasound and analysis by CUP Labs (CUP Labs, Walter & Associates, LLC, Ames, IA). Table III summarizes the results. As can be seen, the subject animal, tattoo F1109, demonstrated the carcass traits of hyper muscular animals as a result of possessing two copies of the myostatin gene that produce inactive myostatin. Breeding soundness examination of the subject animal indicated a high concentration of sperm in his semen with greater than 90% of the sperm viable.

This study also substantiates that the myostatin gene variant nt821 del 11 exists in other lines of fullblood Red Poll cattle. One of the contemporary bulls, tattoo 45, from a line of Red Polls in Indiana tested heterozygous for the nt821 del 11 variant (Table III). Additionally, a fullblood Red Poll heifer from a completely different line of Red Polls located in Texas exhibited the muscular hypertrophy trait.

Integration of the Myostatin Variant as well as Red Poll Maternal Genetics into Commercial Beef Production Systems

The existence of a Red Poll bull homozygous for non-functional myostatin and the unequivocal evidence of improved carcass quality in cattle heterozygous for myostatin gene variant nt821 del 11 lead to experimentation designed to test these attributes in a commercial beef production system. The use of a bull homozygous for the variant myostatin genes is the quickest and surest way to incorporate a single copy of the gene into all females in a herd. Two approaches are planned.

The first approach is to produce Red Poll x Salers F1 females that are heterozygous for non-functional myostatin and that are also heterozygous for desirable Red Poll maternal traits, such a docility, milking ability, and mothering ability. Furthermore, the hybrid vigor (heterosis) introduced from this cross will yield more durable females with greater production longevity. It is planned to AI Salers cows with semen from the double muscled Red Poll bull. The F1 females from this cross will then be terminally crossed with a quality meat breed bull such as South Devon or Piedmontese that is homozygous for non-functional myostatin. Fifty percent of the F2 animals from this second cross will be homozygous for non-functional myostatin and 50% will be heterozygous. Steers from the F1 generation will be heterozygous for nonfunctional myostatin. Thus, all offspring will produce high yielding, high quality carcasses and will be tested as described below.

The second production approach will be to AI composite cows (eg Salers x Red Poll or Salers x South Devon) to the subject Red Poll bull. Depending on the cows' genetics, all offspring will have at least one copy of the nonfunctional myostatin gene and should be superior carcass animals. F1 steers from the composite x Red Poll cross will be tested as described below.

In the second and third years, F1 steers from the Red Poll x Salers and the Red Poll x composite crosses will be fed out along with F1 animals from a Red Poll bull that is homozygous wild type for the myostatin gene. Feed efficiency and carcass data will be collected and analyzed. In the fourth and fifth years, steers from the South Devon or Piedmontese x F1 myostatin heterozygous Red Poll/Salers will be compared with the same cross using F1 females that are homozygous wild type. Again, feed efficiency and carcass quality will be compared between crosses. Together, these studies will: (1) demonstrate if a single nonfunctional myostatin gene will produce superior beef and (2) will demonstrate the desirable maternal traits of Red Poll cross females.

Conclusion

A variant of the myostatin gene that yields an inactive form of myostatin has been demonstrated to be present in the Red Poll breed. It is the variant, nt821 del 11, that is believed to be the ancestral form introduced into European cattle. Although its frequency of occurrence in Red Polls is not known at this time, it may be great enough to be a substantial factor in the superior carcass quality of Red Poll beef. The presence of this myostatin variant in the Red Poll breed offers another potential for the use of Red Poll genetics for improved carcass quality as well as desirable maternal traits in commercial beef production.

References

Arthur, P.F. (1995) Double muscling in cattle: a review. Aust. J. Agric. Res. 46, 1493-1515.

Bellinge, R.H.S., Liberles, D.A., Iaschi, S.P.A., O'Brien, P.A. and Tay, G.K. (2005) Myostatin and its implications on animal breeding: a review. Anim. Genet. 36, 1-6.

Cully, G. (1807) Observations in Livestock. G. Woodfall, London.

Dunner, S., Miranda, M.E., Amigues, Y., Cañón, J., Georges, M., Hanset, R., Williams, J. and Ménissier, F. (2003) Haplotype diversity of the myostatin gene among beef cattle breeds. Genet. Sci. Evol. 35, 103-118.

Gill, J.L., Bishop, S.C., McCorquodale, C., Williams, J.L. and Wiener, P. (2009) Associations between the 11-bp deletion in the myostatin gene and carcass quality in Angus-sired cattle. Anim. Genet. 40, 97-100.

McPherron, A. and Lee, S.-J. (1997) Double muscling in cattle due to mutations in the myostatin gene. Proc. Natl. Acad. Sci. USA. 94, 12457-12461.

O'Rourke, B.A., Dennis, J.A., Healy, P.J., McKiernan, W.A., Greenwood, P.L., Café, L.M., Perry, D., Walker, K.H., Marsh, I., Parnell, P.F. and Arthur, P.F. (2009) Quantitative analysis of performance, carcass and meat quality traits in cattle from two Australian beef herds in which a null myostatin allele is segregating. Anim. Prod. Sci. 49, 297-305.

Wheeler, T.L., Shackelford, S.D., Casas, E., Cundiff, L.V. and Koohmaraie, M. (2001) The effects of piedmontese inheritance and myostatin genotype on the palatability of longissimus thoracis, gluteus medius, semimembranosus, and biceps femoris. J. Anim. Sci. 79, 3069-3074.

www.piedmontese.org
www.southdevon-cattle.com.au/myostatin.htm

2012 National Red Poll Show Results

November 2012 Louisville, KY

Grand Champion Overall Bull
JF Wrangler
Exhibited by Jackson Farms, Greens Fork IN

Grand Champion Overall Female
M.B. Laddys Rose
Exhibited by Jessica McCall, Crestwood, KY

Reserve Champion Overall Bull
JM Luke
Exhibited by Jeffrey McCall, Crestwood, KY

Reserve Champion Overall Female
Shuters Melissa
Exhibited by Garrett Lowes, Anderson, IN

Grand Champion Junior Red Poll Show
M.B. Laddys Rose
Exhibited by Jessica McCall, Crestwood, KY

Reserve Champ. Junior Red Poll Show
Shuters Melissa
Exhibited by Garrett Lowes, Anderson, IN

2012 National Red Poll Open Show Results

Calf Champion
R and R Miss Frances
Owned by LJ Roederer, Guston, KY

Reserve Calf Champion
JF Sassy
Owned by Jackson Farms, Greens Fork, IN

Senior Calf Champion
JF TJ, Owned by Kenra
and Alex Nunan, Madison, IN

Reserve Senior Calf Champion
Shuters Daisy Mae, Owned by
Garrett Lowes, Anderson, IN

Intermediate Champion
M.B. Laddys Rose
Owned by Jessica McCall, Crestwood, KY

Reserve Intermediate Champion
JM Rosie
Owned by Jeffrey McCall, Crestwood, KY

Junior Champion
Shuters Melissa
Owned by Garrett Lowes, Anderson, IN

Reserve Junior Champion
JF Amanda
Owned by Adam Miller, Finchville, KY

Senior Champion
JF Lacey Owned by Lindsey Lackson,
Uniondale, IN

Reserve Senior Champion
JF Margie
Owned by Megan Jackson, Uniondale, IN

Cow/Calf Champion
Owned by Stonebrook Farms

Premier Breeder &
Premier Exhibitor
Jackson Farms, Uniondale, IN

2012 National Red Poll Open Show Results

Calf Champion
JM Luke
Owned by Jeffrey McCall, Crestwook, KY

Reserve Calf Champion
Shuters Marshall Owned by Shuter
Sunset Farms, Frankton, IN

Intermediate Champion
JF Wrangler Owned by
Jackson Farms, Greens Fork, IN

Reserve Intermediate Champion
MFF 2J11,
Owned by Adam Miller, Finchville, KY

Junior Champion
JF Ace
Owned by Jackson Farms, Greens Fork, IN

Reserve Junior Champion
AR Max Owned by Sean Morris,
French Village, MO

Photos courtesy of Teresa Jackson

2012 National Red Poll Junior Show Results

A special thanks to the Scott family for providing the winners with jackets.

Calf Champion
JF TJ, Owned by Kenra
and Alex Nunan, Madison, IN

Reserve Calf Champion
R and R Miss Frances
Owned by LJ Roederer, Guston, KY

Intermediate Champion
M.B. Laddys Rose
Owned by Jessica McCall, Crestwood, KY

Reserve Intermediate Champion
Parkstyle Rky Rosie
Owned by LJ Roederer, Guston, KY

Junior Champion
Shuters Melissa
Owned by Garrett Lowes, Anderson, IN

Reserve Junior Champion
JF Amanda
Owned by Adam Miller, Finchville, KY

Senior Champion
JF Lacey Owned by Lindsey Lackson,
Uniondale, IN

Reserve Senior Champion
JF Margie
Owned by Megan Jackson, Uniondale, IN

Best Bred & Owned
JM Rosie
Owned by Jeffrey McCall, Crestwood, KY

Notes from the Red Poll Queen

Hello everyone! It's Lindsey Jackson, the 2012-2013 American Red Poll National Queen. I have had a great time this past year as National Queen, meeting up with old friends and making new ones along the way!

The Junior Show in Alexandria was a blast. Thank you so much to the Shuter's, Lowes' and everyone else who helped out with that. Also the NAILE was great as always. I enjoyed catching up with everyone and meeting new Association members!

This year has come and gone so fast, I can't believe it and it's been a great one at that! The year ahead of us should be another great one too. I'm so looking forward to the Junior Show in Greensboro, N.C. and I hope to see everyone there! Come on—it's North Carolina—so bring your friends. The more the merrier! Who knows after all the fun they'd have with us they might want to join, and we love getting new Juniors! Tell them about all our activities from photo contests to new logo designs, and we'll show North Carolina how fun the other states can be!

See you soon,
Lindsey Jackson

Red Poll Jr. Association Update

President's Message
By Kendra Nunan

Hey all you Junior out there! I hope your winters are going well and you've had some time to play in the snow! Earlier this month I got to go sledding on campus with some friends and it was tons of fun! I am currently a sophomore at Purdue University studying Elementary Education. I am a faithful Paint Crew member and attend every home basketball game and do everything possible to make it on T.V. I am also involved in Campus Crusade for Christ and have been blessed with many great opportunities on campus.

One of these awesome opportunities is the chance to study abroad in Tanzania, Africa this coming May. I get to teach in an elementary school for three weeks and even go on a safari! In my research that I've done in preparation for the trip I learned that cows are very important to Tanzanian life. So much so that farmers' cows are included in the census each year. I'm sure I will have plenty of stories to tell when I see you all in North Carolina in June for the Preview Show!

Speaking of which, I hope you guys are looking forward to this show as much as I am! I'm excited to see some Carolina countryside and make some great memories on the road trip! I wish you all the best of luck finishing out the semester and hopefully I'll see you in June!

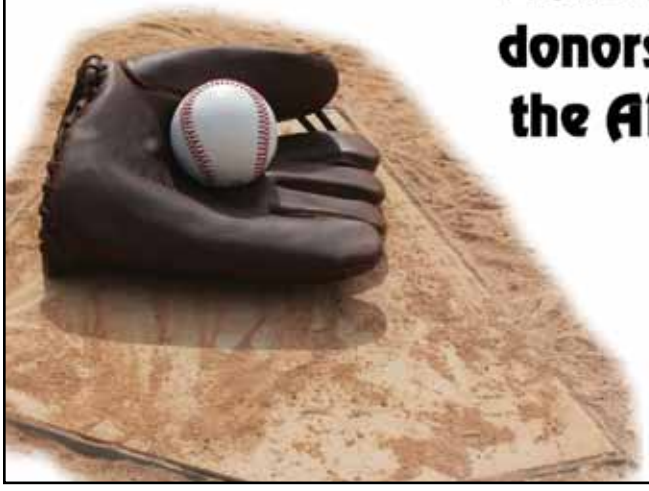
Raffle a Huge Success

The AJRPA members sold 688 raffle tickets and raised $900. The winner of the 32" flat screen TV was Randall Townley of Cleveland, GA. Mr. Townley is a Simmental breeder that bought his ticket the day of the raffle from Megan Spegal, Fairland, IN. The TV was donated to the juniors by the Scott family of Kansas in memory of Steve Scott. Megan Spegal was also the top ticket seller and won a home music system. Cameron Spegal of Fairland, IN, was the second high ticket seller and won a CD boombox. Matt Young of Shelbyville, KY was the third highest ticket seller and won Mr. Popper's Penquins DVD.

The juniors thank everyone who supported them by purchasing raffle tickets.

Are you going to be caught napping?

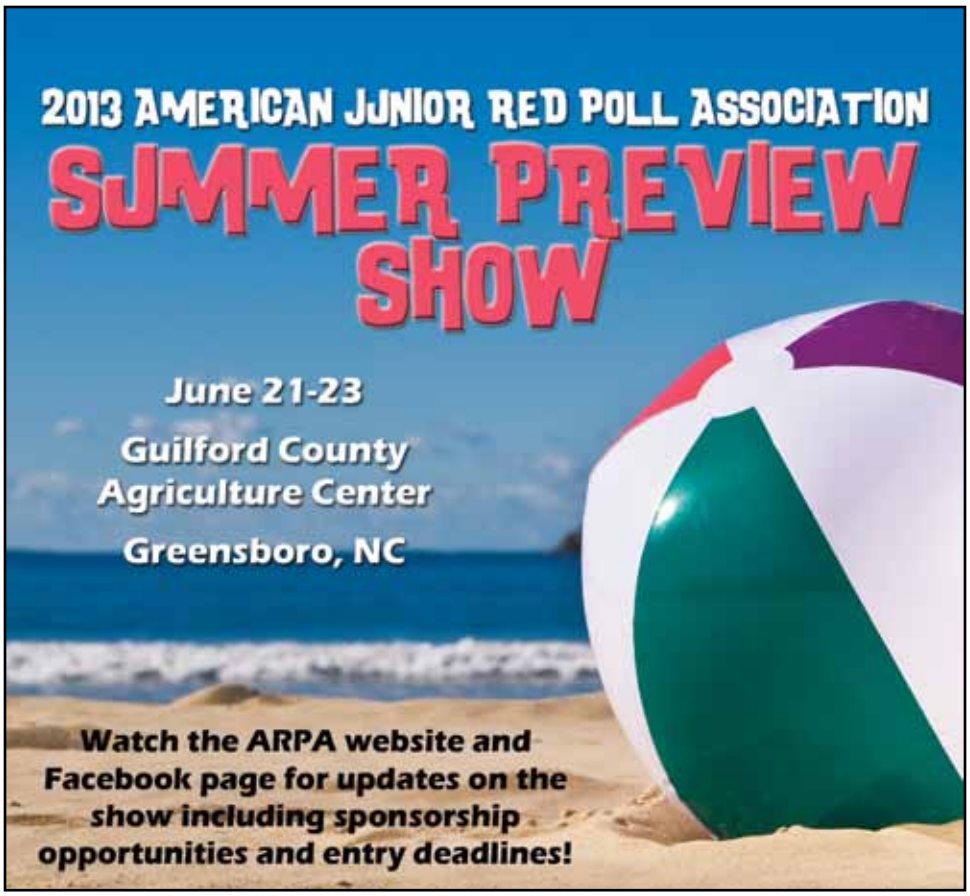
Or are you going to step up to the plate and donate?



2013 AJRPA Summer Preview Show donors needed. Support the future of the ARPA today before you are old, gray and its too late.

Send your donation to Brian at ARPA and designate it for the 2013 Summer Preview Show.

No amount is too large or too small, we need and will use it all.



2013 AJRPA Officers

Kendra Nunan, President
Garrett Lowes, Vice-President
Tyocia Ziegler, Sec-Treas
Megan Spegal, Outreach Coor.

Attention Juniors!

Your help is needed in selecting the new AJRPA logo! Please make sure you submit your vote to Lynda Ziegler by May 1st.

Voting can be done on the Junior Facebook page, by texting Lynda at 812-344-3241, or emailing farmnp@yahoo.com.

The winner will be announced at the Summer Preview Show in North Carolina!

RED POLL Beef JOURNAL
Fall-Winter 2010 VOLUME 67/NUMBER 1

McClurkin 60-524-0728

Sire: McClurkin 60 Dam: McClurkin 21 Molly 524

For Sale: Cows, Heifers, & Bulls

"Strength, feminity, good udder, poise and grace—all of the attributes that we look for in a great brood cow". The above cow is a sample of the McClurkin Diamond M Farms herd. The cow, now owned by D. L. & Zeta Seaton of Tahlequah, OK, is a product of the excellent stock of Red Poll Cattle available for purchase from Diamond M Farms.

Photo courtesy of Wayne Fish, Bartlesville, OK.

Blue Ridge Red Poll Association

President. . . . . Clarence Durhan - Vice President. . . . . Jimmy Morrison
Sec-Treas.: Mrs. Barbara Morrison, e-mail apollomfarm@embarqmail.com
3230 Woolwine Hwy., Stuart, VA 24171 • (276) 694-4297
Directors: Jeff Wilkins, Liz McClure

Lin & Angie Andrew
343 Moon Lindley Rd.
Snow Camp, NC 27349
(919) 663-2937
(336) 269-0207
linchpfarm@yahoo.com

Elizabeth Biggs & Nelson Hoy
Berriedale Farms
10245 Cowpasture River Rd.
South Williamsville, VA 24487
(540) 925-4400
berriedalefarms@gmail.com

Clarence & Ruby Durham
470 Andrew Store Rd.
Pittsboro, NC 27312
(919) 933-2969

Michael & Jo-Ellen Greene
USN (Ret)
PO Box 165
Thompson, PA 18465
(570) 727-2321

Helen Legg
PO Box 8, Shaffer Rd.
Mt. Lookout, WV 26678
(304) 872-1475

William "Bunny" &
Elizabeth McClure
2517 Cat Creek Rd.
Franklin, NC 28734
(828) 524-3608
3251WEMC@frontier.com

Jimmy & Barbara Morrison
3230 Woolwine Hwy.
Stuart, VA 24171
(276) 694-4297

J.L. Morrison
3193 Woolwine Hwy
Stuart, VA 24171

Jim & Deb Naylor
1674 Evans Mill Rd.
Dillwyn, VA 23936
(434) 983-5383

Otis & Dot Saunders
6672 Kerr Chapel Rd.
Elon, NC 27244
(336) 421-3535

Galen & Katherine Smith
520 Beulah Church Rd.
Kingsport, TN 37663
(423) 279-0320
MajorGalen@aol.com

Lou and Fey Stang
3442 W. Midland Tr.
Lexington, VA 24450
(540) 463-4028

Robert Vincent
1930 Shutterlee Mill Rd.
Staunton, VA 24401
(540) 886-3339

Wilkshire – Jeff D. Wilkins
2100 Wilkins Rd.
Burlington, NC 27217
(336) 538-0888

Mike and Patrice Buck
219 Bethany Schoolhouse Rd.
Saluda, SC 29138
(864) 445-7399

Leo & Alice Tolia
Rose Hill Farm
1709 Dillons Mill Rd.
Boones Mill VA 24085
(540) 334-7052
l.tolia@sitestar.net

Deborah Kaye & Tom Brady
1126 Upper Thomas Branch Rd, Marshall, NC 28753
828-649-9690
deb.kaye108@gmail.com
www.mulberrygapfarm.com

See everyone at the Junior Summer Preview Show in Greensboro, NC!

Western States Red Poll Association

President: Kim Scott • Vice President: James Campbell • Secretary: Mike Mammele • Treasurer: Wes Bayless
Directors: Mike Mammele, Sue Fish, Ron Lake, Kenny Leuken

Family of Red Poll Breeders

Arrow Rock Farm (417) 788-2624
Rick & Debbie Sappington
Walnut Grove, MO

Wes Bayless (417) 473-6040
Niangua, MO

Case Family Farm (620) 762-0411
Matt Case, Columbus, KS

James & Ledina Campbell
(417) 638-5000, Granby, MO

John & Vickie Droz
(918) 333-6403, Bartlesville, OK

Elk Creek Farms (417) 962-5398
Charlie & Laurie Wilford, Elk Creek, MO

G&S Red Polls (970) 871-6930
George Shaffer & Family
Steamboat Springs, CO

Willy & Amber Gardner
(573) 782-3536, Russellville, MO

HHH Red Polls, Bryan & Carie Hurford
(620) 331-1028, Independence, KS

Brian & Jill Hiebert
(316) 661-2636, Mt. Hope, KS

Hillside Farms & Cattle
Mike & Hope Mammele
(320) 752-4467, Dawson, MN

K&S Red Poll Farm (636) 528-7277
Sharon Creech, Wright City, MO

Lazy "S" Farm (620) 674-8446
Lorrie Scott Family, Columbus, KS

Leeper Land & Cattle
Andrew & Kala Leeper, Leon, IA

Thomas & Anna LePage
(573) 782-3578, Russellville, MO

John Lueken (660) 867-3337
Hatfield, MO

Ken & Carol Lueken
(660) 867-3337, Hatfield, MO

McMarshall Farms (309) 248-7005
Jim & Muriel McKee, Washburn, IL

M.J. Meyer Inc. (308) 254-5424
Marvin Meyer, Sidney, NE

Morgan Farms (816) 517-7608
Mike & Jan Morgan, Oak Grove, MO

Nine West Oak Canyon (918) 337-8031
Wayne & Sue Fish, Bartlesville, OK

Pamdens Red Polls (580) 874-2320
Dennis & Pam Schoenhals, Kremlin, OK

R&D Farm (417) 452-2026
Ron & Donna Lake, Mt. Vernon, MO

Redbud Lane Farm (573) 496-3516
Todd & Bonnie Linhardt & Family
Jefferson City, MO

John & Denise Reinert
(417) 744-2537, Billings, MO

Neal & Shirley Scott
(620) 396-8310, Weir, KS

Sidewayz Cattle Co. (620) 762-0575
Kim Scott, Columbus, KS

Silvers Farm (660) 679-3940
Michael R. Silvers, Butler, MO

Stieber's Red Polls (405) 258-1029
Jackie & Janna Stieber, Wellston, OK

Jake & Beverly Voth
(580) 874-2314, Kremlin, OK

Wiese Farms (620) 465-3865
Bill & Angie Wiese & Family, Haven, KS

Ryan Linhardt & Family
(573) 392-3104, Olean, MO

Supporting Members

Backes Farm
Tom & Carol Backes & Family
(573) 477-3521, St. Thomas, MO

Terry Barnes (641) 344-9951
Lamoni, IA

Centerfield Farm (402) 761-3116
Merle & Leona Ebers, Seward, NE

Diamond Arrow River Ranch
Steve & Pam Reed, Thedford, NE
(308) 645-2719

Earliene Harmon (580) 267-3563
Deer Creek, OK

Becky & Chris Perdue (620) 762-6064
Columbus, KS

Marilyn Raines (913) 884-8229
Spring Hill, KS

Gretchen Robbins
(918) 335-1539, Bartlesville, OK

Future Red Poll Breeders

Dylan Gardner, Russelville, MO

Emma Gardner, Russelville, MO

William Gardner, Russelville, MO

Shelby Goben, Jefferson City, MO

Ashley Lacen, Columbus, KS

Alicia LePage, Russellville, MO

Ella Mae Linhardt, Olean, MO

Brooke Richey, Columbus, KS

Tyler Richey, Columbus, KS

Ashlynn Robbins, Bartlesville, OK

Ty Schoenhals, Kremlin, OK

Trev Schoenhals, Kremlin, OK

Evan Scott, Weir, KS

Zack Scott, Weir, KS

Raley Shaffer, Steamboat Springs, CO

Sam Shaffer, Steamboat Springs, CO

Index of Advertisers

Esquire Land and Cattle Co.

2009 National Grand Champion

30+ years of breeding develops the best in:
1) Milk Production
2) Growth on Grass
3) Fertility
4) Calving EASE
5) Correctness

Sire: Esquire Rolex (National Champ)
Dam: Esquire's Dis (Dam's Sire is GS Discovery)

Esquire's Navigator

Esquire's R. Mandy
Full Sister to Navigator

Show Heifers
&
Cow Prospects for Sale

Esquire's R. Lady

For Sale: ***100 Cows Heifers Young Bulls***

New Herdsires:
Esquire's Silver Chip (National Sr. Champion Bull)
Hilltop T Will (High Selling Bull at the National Sale)
Esquire's Xcalaber (2010 National Sr. Champ)
Parkstyle Gibraltar (2010 National Res Gr Champ)

Phil Wyrick
11001 Alexander Rd., Mabelvale, AR 72103
(501) 847-2797 • (501) 517-2534 cell
www.esquirelandandcattle.com

American Red Poll Association

Official Publication of the
American Red Poll Association
PO Box 847, Frankton, IN 46044
Phone: 765-425-4515

PRSRT STD
U.S. Postage
PAID
Permit 966
Dayton, OH

Red Polls — Ready to Move the Industry!
The World's Oldest National Organization for Red Poll Cattle • Founded 1883