

# ANGUS GENETICS

**GENOMICS: OLD, NOW AND NEW**

**TONYA AMEN**  
**GENETIC SERVICE DIRECTOR**  
**ANGUS GENETICS INC.**



## AAA BEEF IMPROVEMENT RECORDS

17.3 million pedigrees

22 million records

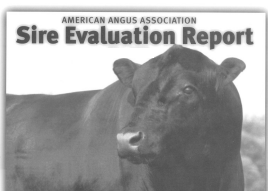
62 million EPDs



Fiscal 2012

Selection Tools

**ANGUS**  
 THE BUSINESS BREED



**AAA Login**

Member Code:

Remember Me ☐

Animal Search:

Member Search:

| Production |        |        |          |          |        |       |     |      |     | Maternal |       |     |     |       |     |     |     |     |     |
|------------|--------|--------|----------|----------|--------|-------|-----|------|-----|----------|-------|-----|-----|-------|-----|-----|-----|-----|-----|
| CED        | BV     | WW     | YW       | RADG     | YH     | SC    | Doc | HP   | CEM | MR       | MH    | MV  | MH  | MD    | MD  | MD  | MD  | MD  | MD  |
| Acc        | Acc    | Acc    | Acc      | Acc      | Acc    | Acc   | Acc | Acc  | Acc | Acc      | Acc   | Acc | Acc | Acc   | Acc | Acc | Acc | Acc | Acc |
| +14        | -1.4   | +54    | +99      | +11      | -1     | +1.73 | +21 | +4.3 | +13 | +23      | 10.37 | +28 | +3  | +4.87 |     |     |     |     |     |
| .97        | .99    | .98    | .97      | .81      | .97    | .97   | .94 | .98  | .92 | .94      | 7035  | .91 | .91 |       |     |     |     |     |     |
| Carcass    |        |        |          |          |        |       |     |      |     | SValues  |       |     |     |       |     |     |     |     |     |
| CW         | HE     | Fat    | Carc Grp | Uand Grp |        |       |     |      |     |          |       |     |     |       |     |     |     |     |     |
| Acc        | Acc    | Acc    | Acc      | Acc      |        |       |     |      |     |          |       |     |     |       |     |     |     |     |     |
| +21        | +.68   | -.06   | +.019    | .54      | 6.777  |       |     |      |     |          |       |     |     |       |     |     |     |     |     |
| .77        | .80    | .79    | .79      | 119      | 28739  |       |     |      |     |          |       |     |     |       |     |     |     |     |     |
|            |        |        |          |          |        |       |     |      |     |          |       |     |     |       |     |     |     |     |     |
| \$W        | \$F    | \$G    | \$Q      | \$Y      | \$B    |       |     |      |     |          |       |     |     |       |     |     |     |     |     |
| +42.72     | +36.68 | +27.16 | +29.14   | -1.98    | +56.04 |       |     |      |     |          |       |     |     |       |     |     |     |     |     |

## DNA TECHNOLOGY



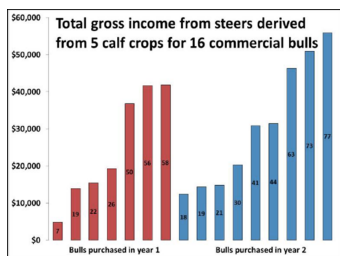
## CURRENT USES:

- **Simply Inherited Traits**
  - Coat Color
  - Defects
- **Parentage**
  - Now SNP-based
- **Performance Traits**
  - For the registered breeder
    - Pfizer HD50K
    - Igenity Profile
  - For the commercial producer
    - GeneMax™



## PARENTAGE

## SIRE ASSIGNMENT IN MULTI-SIRE PASTURES



Application of Genomic Information: The California Commercial Ranch Project  
Written by Alison Van Eenennaam, UC Davis

Number of calves:  
7-77

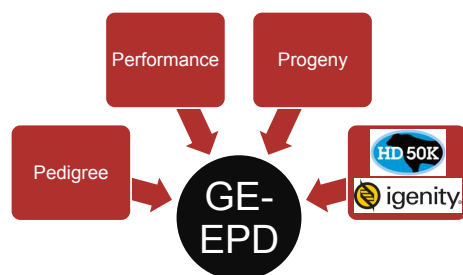
Gross revenue:  
\$4,881 to \$55,889

## FOR THE REGISTERED BREEDER

DNA TESTS FOR PERFORMANCE TRAITS



## GE-EPDs



## AMERICAN ANGUS ASSOCIATION®— THE BUSINESS BREED

3201 Frederick Avenue • St. Joseph, MO 64506 • (816) 383-5100 • Fax: (816) 233-3333

### Weekly NCE EPDs

Search Again | Home | Breed Association Codes | Defect Codes

G A R Predestined Reg: AAA #13395344 Bull

(AAEP-CAF-1517-1047)

Birth Date: 08/16/1999 Tattoo: 5699

Parentage: Blood type, Microsatellite, SNP

Genome: IG1, IG384, PF50

Breeder: 192004 - Gardiner Angus Ranch Inc, Ashland KS

Owner(s): 192004 - Gardiner Angus Ranch Inc, Ashland KS

IG1, IG384, PF50

### EPD Percentiles

| Production |      |     |     |      |     |     |     |      |     |      |      | Maternal |     |       |     | As of 09/28/2012 |     |
|------------|------|-----|-----|------|-----|-----|-----|------|-----|------|------|----------|-----|-------|-----|------------------|-----|
| CED        | BW   | WW  | YW  | RADG | YH  | SC  | Doc | HP   | CEM | Milk | MH   | MW       | ACC | ACC   | ACC | ACC              | ACC |
| ACC        | ACC  | ACC | ACC | ACC  | ACC | ACC | ACC | ACC  | ACC | ACC  | ACC  | ACC      | ACC | ACC   | ACC | ACC              | ACC |
| +4         | +3.9 | +50 | +95 | +0.1 | +0  | +37 | +12 | +8.9 | +9  | +29  | 1307 | +10      | +0  | +3.78 |     |                  |     |
| .81        | .58  | .97 | .96 | .82  | .87 | .97 | .95 | .82  | .82 | .84  | 6905 | .91      | .92 |       |     |                  |     |

| Carcass |       |      |       |          |          |
|---------|-------|------|-------|----------|----------|
| CW      | Marb  | RE   | Fat   | Carc Grp | Unad Grp |
| ACC     | ACC   | ACC  | ACC   | ACC      | ACC      |
| +33     | +1.28 | +0.3 | +0.42 | 149      | 7428     |
| .88     | .90   | .89  | .89   | 543      | 20641    |

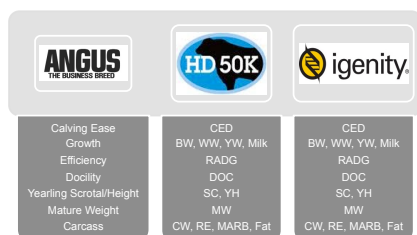
  

| Values |        |        |        |       |        |
|--------|--------|--------|--------|-------|--------|
| SW     | SE     | SG     | SOG    | SYG   | SB     |
| ACC    | ACC    | ACC    | ACC    | ACC   | ACC    |
| +39.91 | +35.87 | +43.96 | +41.25 | +2.71 | +83.91 |

EPDs are enhanced by genomic results generated by: igenity Pfizer

192004 BO 11091999 504288 12052000

## GE-EPDs



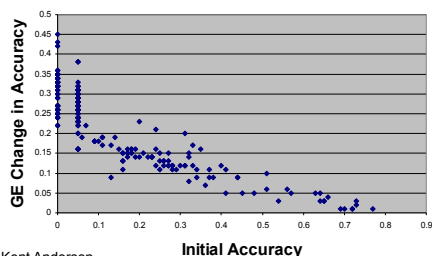
## GENETIC CORRELATIONS

|                                       | Igenity | Pfizer |                  | Igenity | Pfizer |
|---------------------------------------|---------|--------|------------------|---------|--------|
| Calving Ease Direct                   | .47     | .33    | Docility         | .29     | .60    |
| Birth Weight                          | .57     | .51    | Milk             | .24     | .32    |
| Weaning Weight                        | .45     | .52    | Mature Weight    | .53     | .58    |
| Yearling Weight                       | .34     | .64    | Carcass Weight   | .54     | .48    |
| Dry Matter Intake (component of RADG) | .45     | .65    | Carcass Marbling | .65     | .57    |
| Yearling Height                       | .38     | .63    | Carcass Rib      | .58     | .60    |
| Yearling Scrotal                      | .35     | .65    | Carcass Fat      | .50     | .56    |

S. Northcutt, AAA/AGI

## RESIDUAL AVERAGE DAILY GAIN (RADG)

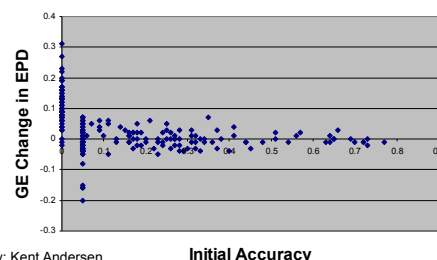
RADG - HD 50K Enhanced Accuracy



Courtesy: Kent Andersen, PAG

## RESIDUAL AVERAGE DAILY GAIN (RADG)

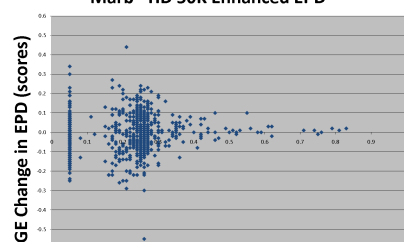
RADG - HD 50K Enhanced EPD



Courtesy: Kent Andersen, PAG

## CHANGE IN MARBLING EPD WITH HD 50K

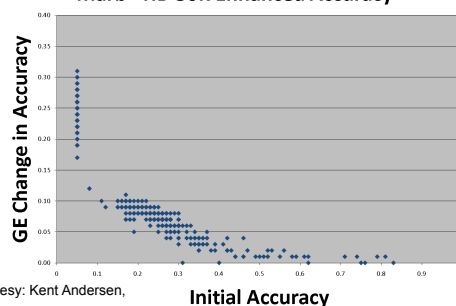
Marb - HD 50K Enhanced EPD



Courtesy: Kent Andersen, PAG

## CHANGE IN MARBLING ACC

Marb - HD 50K Enhanced Accuracy



Courtesy: Kent Andersen, PAG

## HD50K ACCURACY AND PROGENY EQUIVALENTS

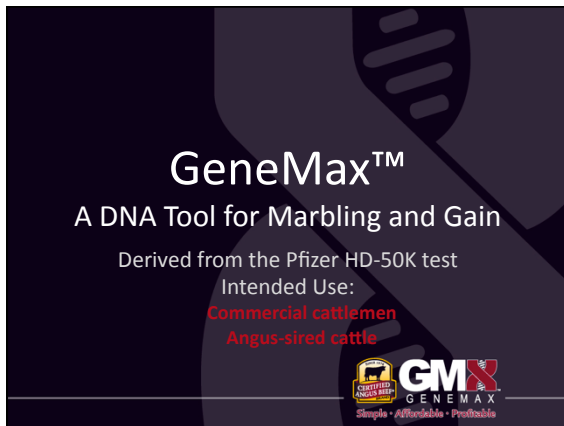
|                   | AVG 50K Change in ACC from 0.05 | Progeny Equivalent |
|-------------------|---------------------------------|--------------------|
| BW                | .25                             | 8                  |
| WW                | .23                             | 16                 |
| YW <sup>2</sup>   | .27                             | 20                 |
| RADG <sup>3</sup> | .27                             | 13                 |
| Milk              | .15                             | 13                 |
| CW                | .17                             | 7                  |
| MARB <sup>4</sup> | .24                             | 12                 |
| RE <sup>4</sup>   | .23                             | 9                  |
| FAT <sup>4</sup>  | .23                             | 11                 |

2 – ADG  
3 – DMI  
4 – carcass progeny, not scanned progeny equivalent closer to 30-40

# FOR COMMERCIAL PRODUCERS

SOMETHING NEW!





**GeneMax™**  
A DNA Tool for Marbling and Gain

Derived from the Pfizer HD-50K test  
Intended Use:  
Commercial cattlemen  
Angus-sired cattle

 **GMX**  
GENEMAX  
Simple • Affordable • Profitable