# ABS HCR Initiative

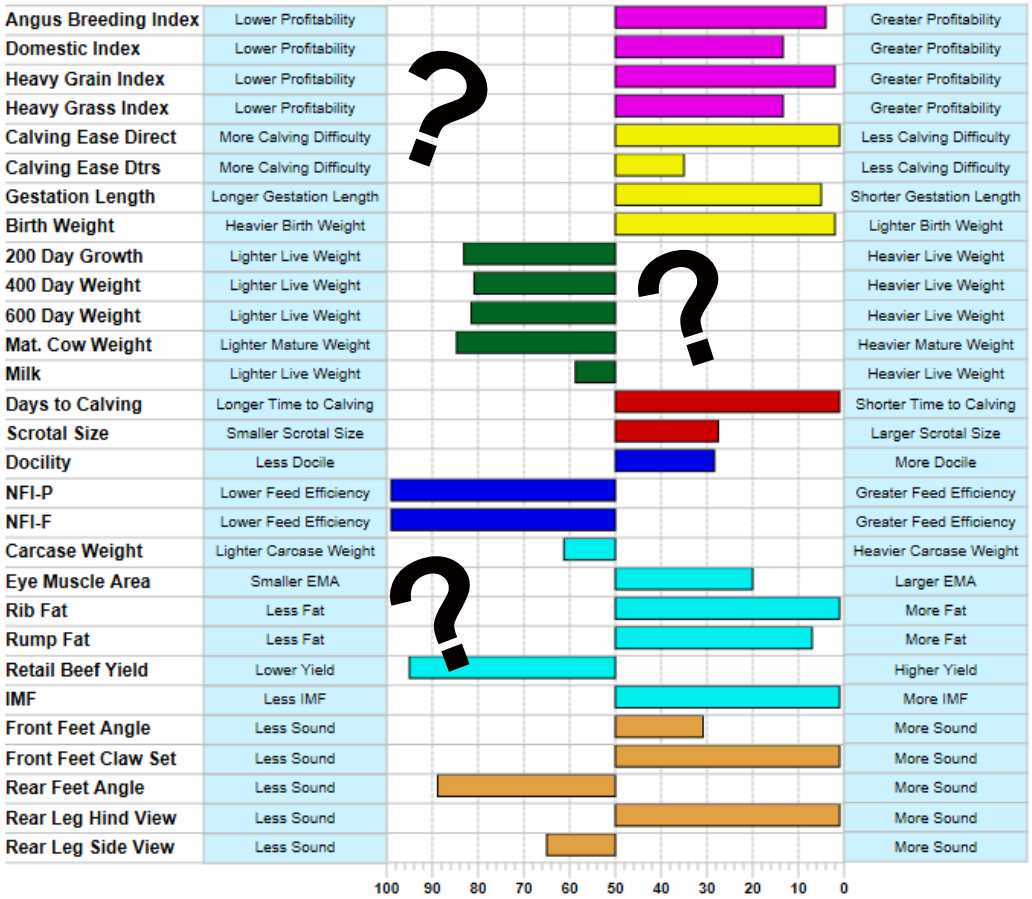
With Fletch Kelly, Beef Key Account Manager

Southern Australia Region

Profit From Genetic Progress

Beth Herges

# What's Important to a Beef Farmer's Breeding Program?




Sire: SUMMITCREST SCOTCH CAP 0B45 (IMP USA)
Sire: BOOROOMOOKA UNDERTAKEN U170 (AI)
Dam: BOOROOMOOKA REGALIA R133 (AI) (ET)
**Sire: BOOROOMOOKA UNDERTAKEN Y145**
Sire: B/R NEW DESIGN 036 (IMP USA)
Dam: BOOROOMOOKA UAAISE U101 (AI)
Dam: BOOROOMOOKA SPECIAL S15 (AI)

Sire: B/R NEW DESIGN 036 (IMP USA)
Sire: YTHANBRAE HENRY VIII U8 (AI) (ET)
Dam: G A R MAX 678
**Dam: LAWSONS HENRY VIII Y5 (AI)**
Sire: C A FUTURE DIRECTION 5321 (IMP USA)
Dam: YTHANBRAE DIRECTION T270 (AI)
Dam: YTHANBRAE Q256

# Dairy vs. Beef.....Are they *that* different?

| USDA PTAg 04/17 | | TPI +2426 | 320 Dtrs 96 Hrds | | |
|---|---|---|---|---|---|
| NM$ | 604 | | Prod. Life | +4.6 | 86% Rel. |
| Milk lbs | +626 | 96% Rel. | DPR | +0.2 | 84% Rel. |
| Fat lbs | +67 | 0.16% | Calv. Ease | 6.1 | 99% Rel. |
| Protein lbs | +42 | 0.08% | Cell Count | 2.87 | 93% Rel. |

| ABVg PRODUCTION 04/17 | | | 0 Dtrs 0 Hrds | | |
|---|---|---|---|---|---|
| BPI | 283 | 73% Rel. | ASI | 160 | 82% |
| HWI | 219 | 67% Rel. | Overall Type | 107 | |
| TWI | 293 | 72% Rel. | Mammary | 110 | |
| Milk lbs | +141 | | Calv. Ease | 102 | 95% Rel. |
| Protein kg | +18 | 0.27% | Dtr Fertility | 105 | 67% Rel. |
| Fat kg | +27 | 0.3% | Cell Count | 134 | 79% Rel. |
| Milking Speed | 100 | Temperament 102 | Likeability | 104 | 68% Rel. |

RWD® Bull Fertility Rank ★★★★ 1781 Observations

| HA 4/17 | | 0 Dtrs 0 Hrds | | 79 %Rel. |
|---|---|---|---|---|
| | | -2 -1 0 +1 +2 | | |
| Type | | | 1.85 | |
| Mammary | | | 1.36 | |
| Legs & Feet | | | 1.69 | |
| Stature | Short | | 1.16 | Tall |
| Strength | Frail | | 0.99 | Strong |
| Body Depth | Shallow | | 1.20 | Deep |
| Angularity | Tight | | 1.49 | Open |
| Rump Angle | High | | -1.50 | Sloped |
| Thurl Width | Narrow | | 1.05 | Wide |
| Rear Legs-Side Set | Straight | | 0.54 | Curved |
| Rear Legs-Rear View | Curved | | 1.91 | Straight |
| Foot Angle | Low | | 1.95 | Steep |
| Foot & Leg Score | Low | | 1.81 | High |
| Fore Udder Attach. | Weak | | 2.24 | Strong |
| Rear Udder Height | Low | | 2.68 | High |
| Rear Udder Width | Narrow | | 2.47 | Wide |
| Udder Cleft | Weak | | 0.08 | Strong |
| Udder Depth | Deep | | 1.01 | Shallow |
| Front Teat Place. | Wide | | 0.03 | Close |
| Rear Teat Place. | Wide | | -0.20 | Close |
| Teat Length | Short | | -0.28 | Long |

# REAL WORLD DATA
## BULL FERTILITY

**RWD™**

**ABS REAL WORLD DATA BULL FERTILITY** is reported using the star ranking system. This chart explains general guidelines of how producers can utilize RWD Bull Fertility to target the use of individual ABS bulls in meeting their herd breeding goals.

## It's the real thing.

ABS Real World Data® Bull Fertility is a tool for customers to best capture the genetic potential of ABS sires.

**ACCURATE** information gathered from a comprehensive, robust collection process

**RELEVANT** and **RELIABLE** data from dairy producers, for dairy producers

**TIMELY** reports providing access to the most current fertility rankings on ABS sires

Since December 2012, ABS has used RWD Bull Fertility rankings in place of SCR. Make fertility breeding decisions by applying years of research data from real **herds** like yours.

ABS Global's RWD Bull Fertility is a source for genetic improvement and reproductive solutions within the dairy herd. Contact your local ABS representative to learn more.

### Australian data

| | | | |
|---|---|---|---|
| HARRIS {4} | +3.68 | FRANSISCO | +1.71 |
| ELTON | +3.55 | MERRICK | +1.69 |
| PELLO | +3.11 | TAILOR | +1.54 |
| JOSUPER | +2.76 | THROTTLE | +1.53 |
| SPOCK | +2.72 | THEORY | +1.32 |
| TOPSY | +2.11 | CRUSH | +0.97 |

### ABS RWD BULL FERTILITY RANKINGS

★★★★★ **TOP 10%** 2-3% points above average fertility
★★★★ **20%**
★★★ **40%** Average fertility
★★ **20%**
★ **BOTTOM 10%** 2-3% points below average fertility

**ABS PREGNANCY KINGS:** 4 or 5 star ranking based on 1,000+ inseminations

### FEMALE FERTILITY SITUATION

| | EXAMPLES | RECOMMENDED USE: PREGNANCY KINGS | 5 STAR ★★★★★ | 4-STAR ★★★★ | 3-STAR ★★★ | 2-STAR ★★ | 1-STAR ★ |
|---|---|---|---|---|---|---|---|
| **HIGH or OPTIMAL FEMALE FERTILITY SITUATIONS** | · First or second service<br>· Natural heat | X | X | X | X | X | X |
| **HIGH & AVERAGE HEIFER FERTILITY SITUATIONS** | · First and second service heifers | X | X | X | X | X | X |
| **AVERAGE COW FERTILITY SITUATIONS** | · Second or greater service<br>· Synchronization program breeding | X | X | X | X | | |
| **LOW FEMALE FERTILITY SITUATIONS** | · Summer heat and humidity<br>· Timed Artificial Insemination (TAI)<br>· Later services<br>· Late lactation cows<br>· Older cows | X | X | X | | | |
| **SPECIAL MANAGEMENT SITUATIONS** | · Large **herds** where pregnancy is the over-riding breeding factor<br>· Large number of open cows and herd needs to get caught up<br>· Seasonal grazing<br>· Sustainability metrics imposed by market channels<br>· New, untested employees | X | X | X | | | |

Acquired directly from cooperating **herds** through dairy herd records software programs, data are comprised of more than 18 million inseminations and 14,000 dairy sires. Data analyses are completed in-house based on a proprietary ABS process which uses only confirmed pregnancy events to determine bull rankings. The ABS RWD model accounts for age of the cow, lactation number, stage of lactation, AI service number or times bred, management and environmental related differences, and herd-year-season effects.

Evaluations for proven and ABS Primetime™ bulls are based on breedings to lactating cows. The ABS Sexation® evaluation includes heifer breedings only.

# What About Beef?

- Australian Beef producers are among the most progressive, technology focussed farmers in the world
  - ✓ Global demand for Australian beef bulls
  - ✓ Globally renowned for producing high quality meat, and one of the top 4 global meat exporters
  - ✓ Closely monitored and supported by industry bodies such as MLA, Breed Societies

- Still fail to scientifically address one of the most fundamental issues that can ruin profitability in both seedstock AND commercial herds
- Poor pregnancy rate in breeding programs – Heat Detect (HD), Fixed Time AI (FTAI) or Embryo Transfer (ET)

# Conception Rates & Semen Fertility

# Semen Fertility – ~~What We Know~~

# Semen Fertility – What We *Think* We Know

- Semen is collected, and if it meets certain QC thresholds, it's fine to use in all forms of AI and ET programs
- Once semen is approved for AI, it will automatically result in a conception rate consistent with other bulls used in a program
- Semen that shows a high total motility (TM) score and sound overall rating will perform well in any type of program
- If semen performs well in a HD or ET program, it should perform well in a FTAI program as well

# Conception Rates & Semen Fertility

- Nutrition ✓ Condition ✓ AI tech ✓ Vaccinations ✓ Environment ✓
- Semen lab report ✓ ✓ ✓ ✓
- But why can we still get an average result?

*Perhaps the greatest challenge in male reproductive physiology today is a recognition of the limitations in accuracy and precision of laboratory sire fertility estimates*

– Mel DeJarnette

# Conception Rates & Semen Fertility

- Semen Fertility Estimates are limited to two primary functions:
  - ✓ Serve as a barometer to estimate the adequacy of the semen quality control program
  - ✓ Serve as the basis for predictions of the fertility potential of a given sire if used in the imminent future

- Key word – '*estimate'*

- Is there anything we can learn from the dairy industry in regards to sire fertility?
- Can we make this 'estimate' more accurate for beef sires?

# ABS HCR Initiative

- Humble beginnings in February 2017 - simply started collecting conception rate data from a number of key clients through PTIC reports

- Became intrigued by how our bulls performed in FTAI programs Then HD, ET data began to flow in.... We became confused!

# ABS HCR – What Did We Find?

- Initial Findings
  - ✓ Some bulls very well suited to FTAI programs, and some not so well
  - ✓ Likewise for use in HD, TAI and ET programs
  - ✓ Range of ~42-81% for individual average sire conception rate (ACR) in FTAI programs

*While some bulls performed well in all programs, it became evident that for some bulls, an inverse relationship can be seen between FTAI Performance and ET, HD programs*

# ABS HCR – What Did We Find?

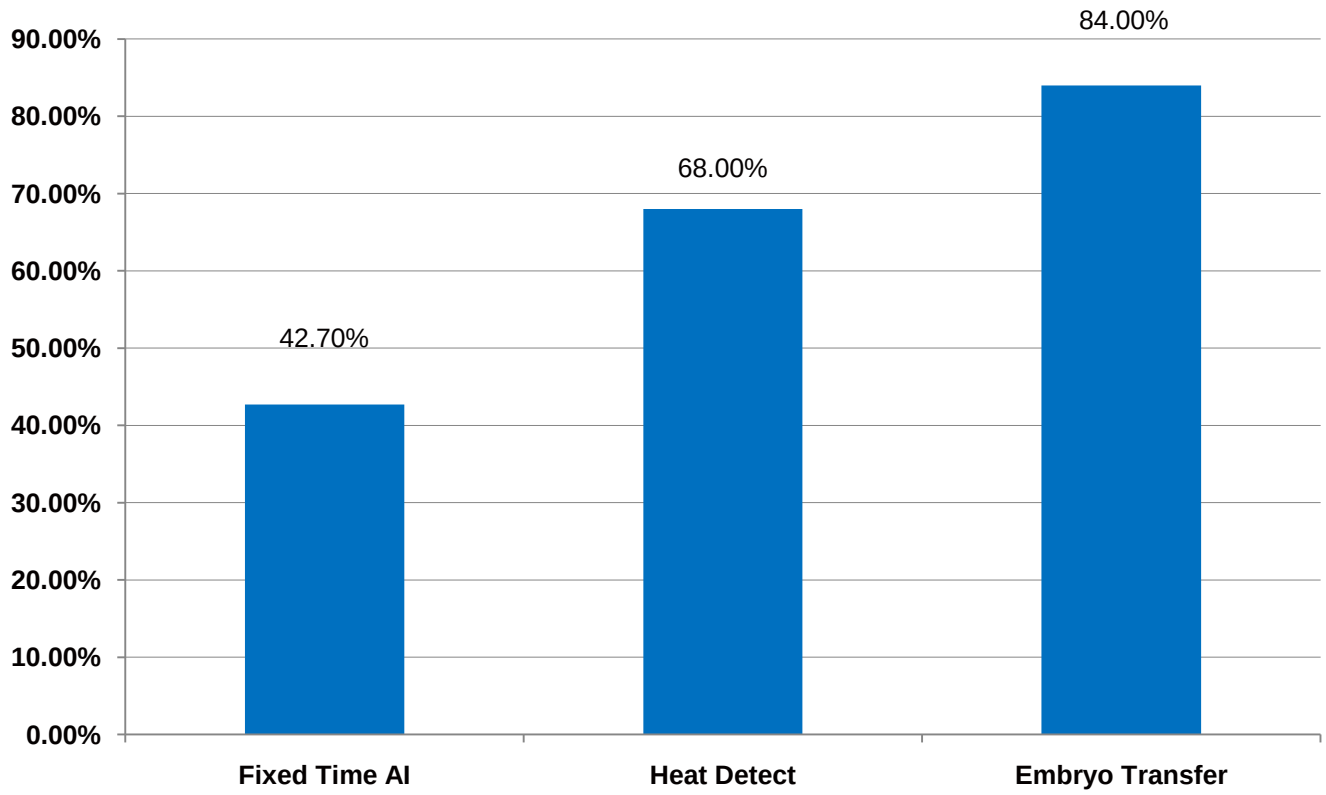



**Figure 1: Variations in conception rate seen in Sire "X" for Fixed Time AI, Heat Detection and Embryo Transfer Programs respectively.**

# ABS HCR – What Did We Find?

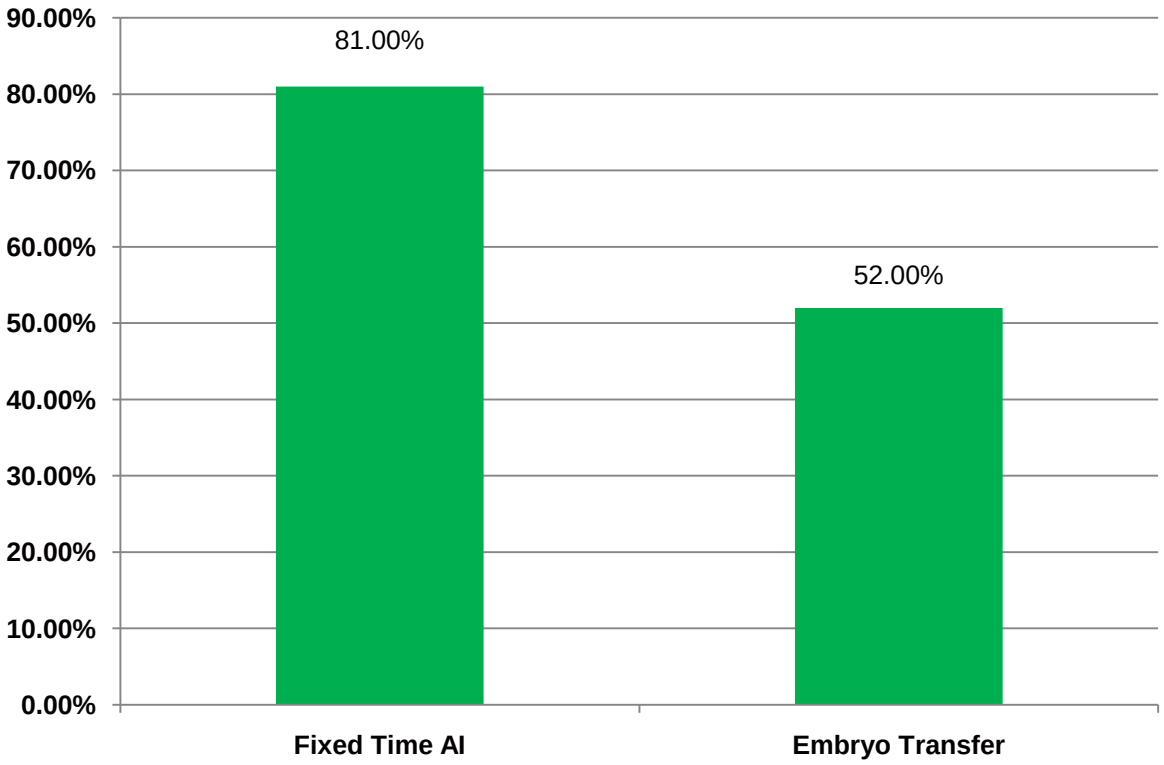



**Figure 2: Variations in conception rate seen in Sire "Y" for Fixed Time AI and Embryo Transfer Programs respectively.**

# ABS HCR – What Did We Find?

- Collected and analysed ~8000 individual pregnancy test results from around Australia over 3 years of joinings (2015-2017)
  - ✓ Data on all catalogued ABS domestic and US Angus Sires
  - ✓ Data on sires sold privately by studs
  - ✓ Data on sires from most other companies

# ABS HCR – What Did We Find?

- Three key findings from post-thaw microscopic and PT data analysis:

  - ✓ Semen with a high total motility score will likely be effective in HD and ET programs but may not be as effective in FTAI programs

  - ✓ Semen with an average motility score seems to perform well in FTAI programs, and not so well in some ET and HD programs

  - ✓ Semen test reports are great for demonstrating whether semen is adequate in terms of QC (motility, concentration, defects), however is limited in its ability to predict performance in a reproductive program

# Why Do We See This?

# Potential Explanations

- Energy supplied to sperm within the extension mixture is finite
- Therefore, semen with a higher active total motility (TM) may metabolise this energy source at a faster rate, or effectively "burn out" prior to fertilisation
- Fine for Heat Detect and Embryo Transfer – egg is ready ✓
- But for FTAI, ovulation may be delayed for several hours post AI
- Therefore semen with a lower TM rating may in fact "last the journey"

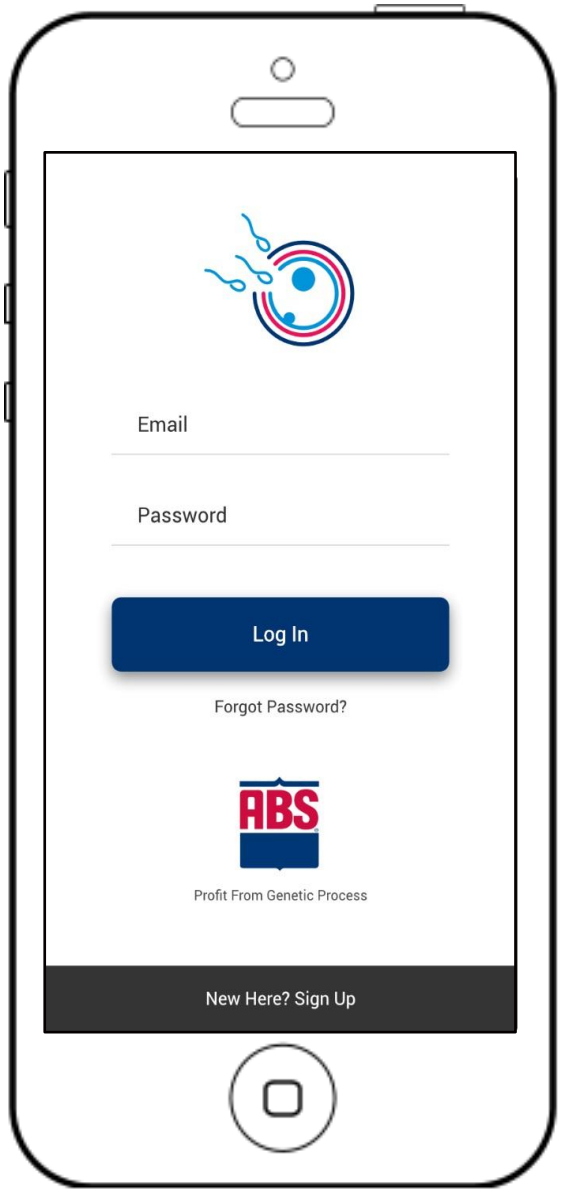
Profit From Genetic Progress

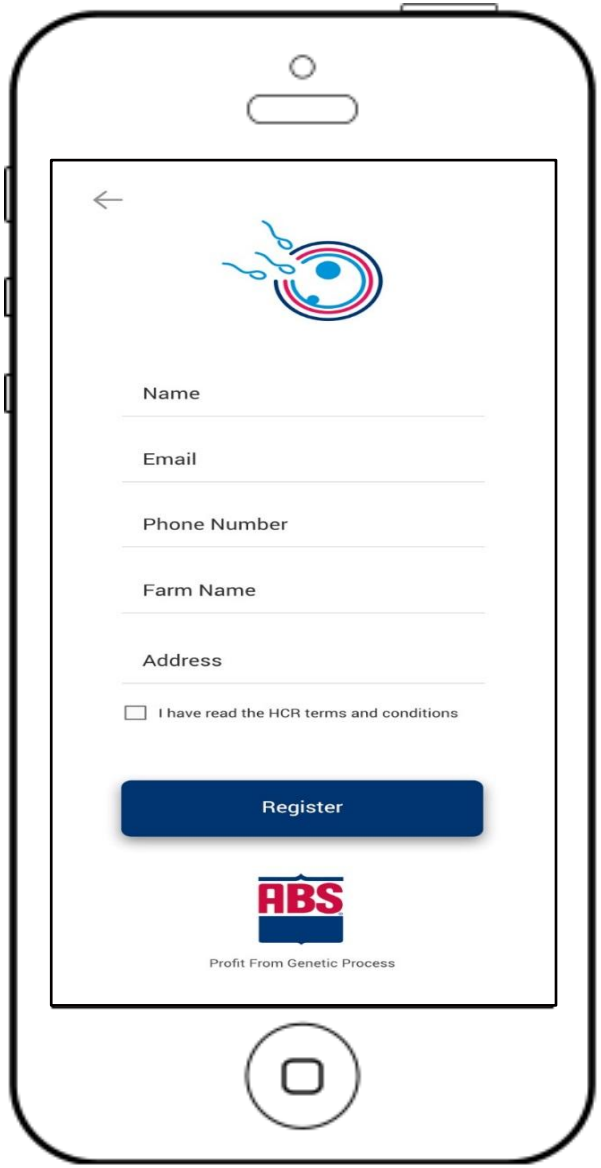
HCR

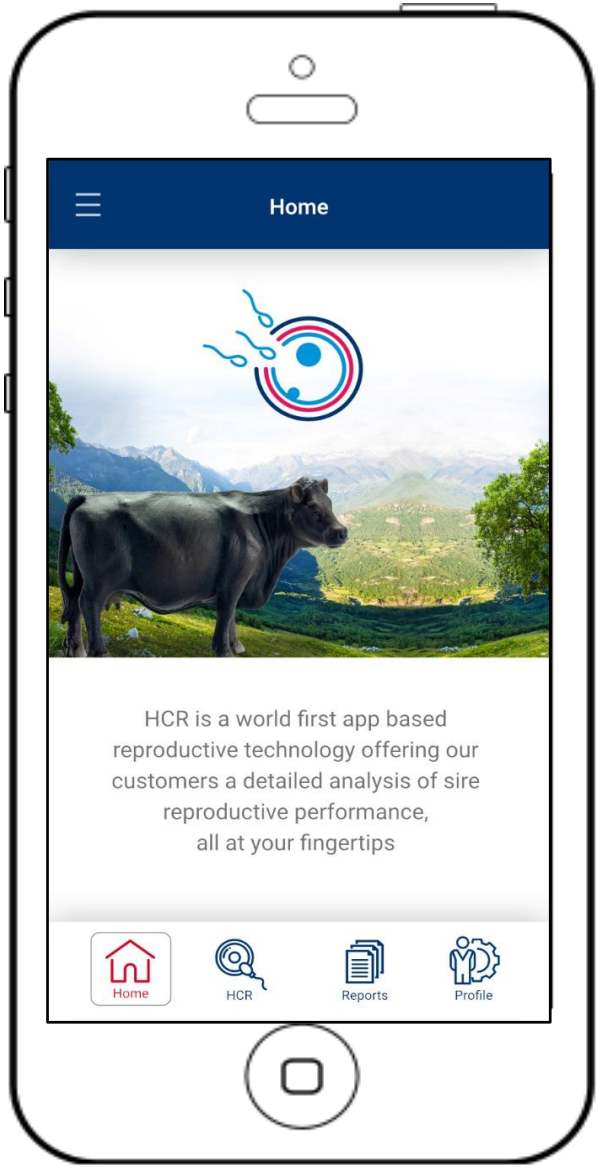
# The App!

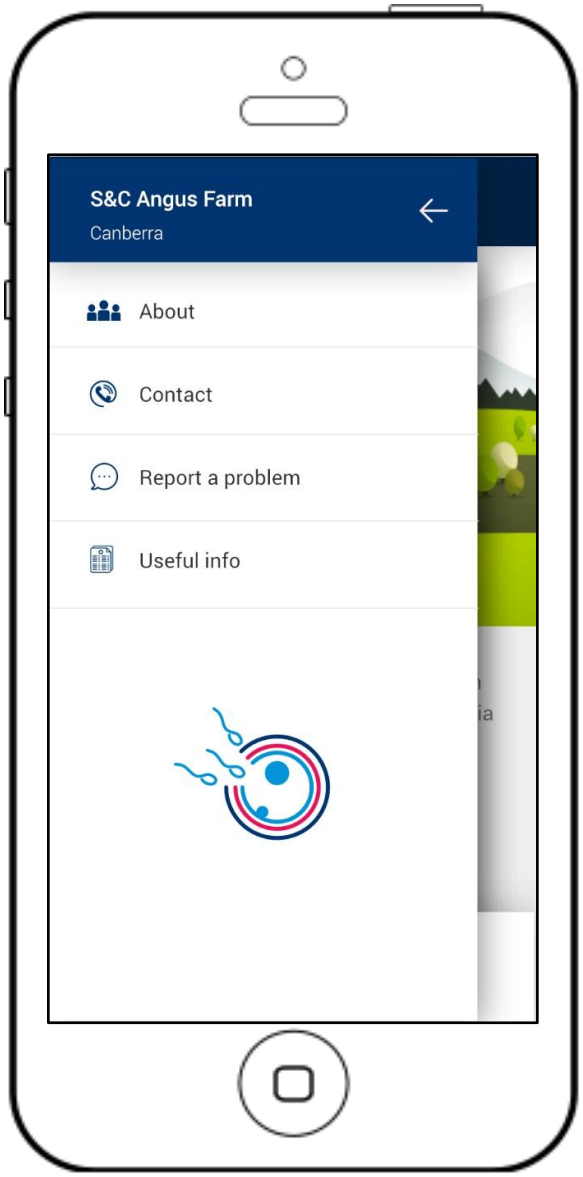
*The first of its kind- Domestically and Globally*

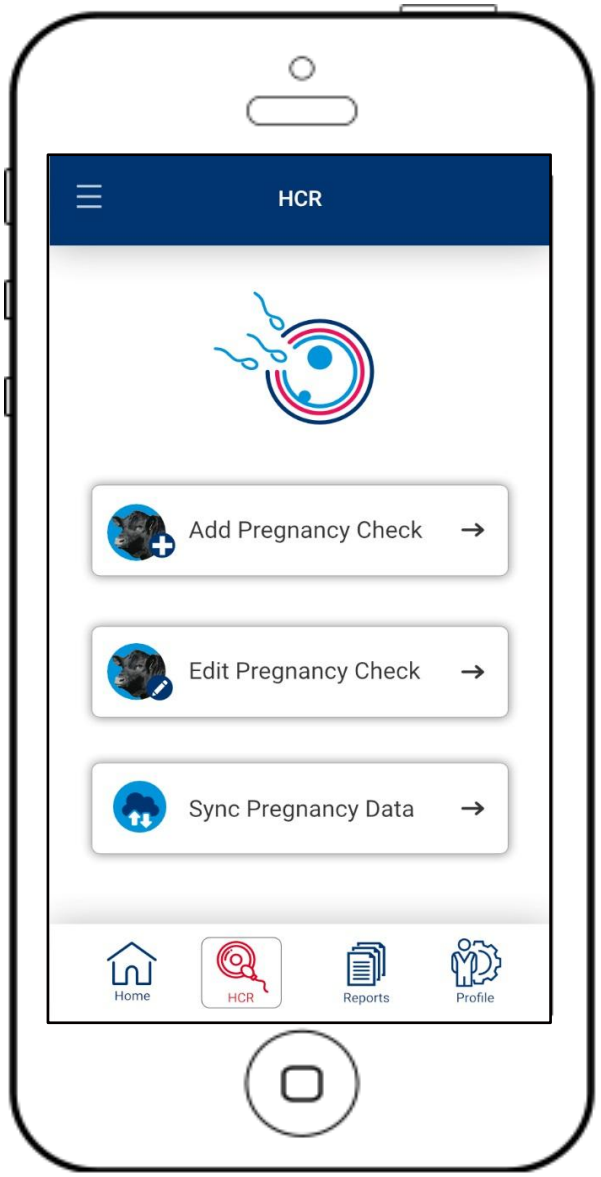
HCR
Initialising...

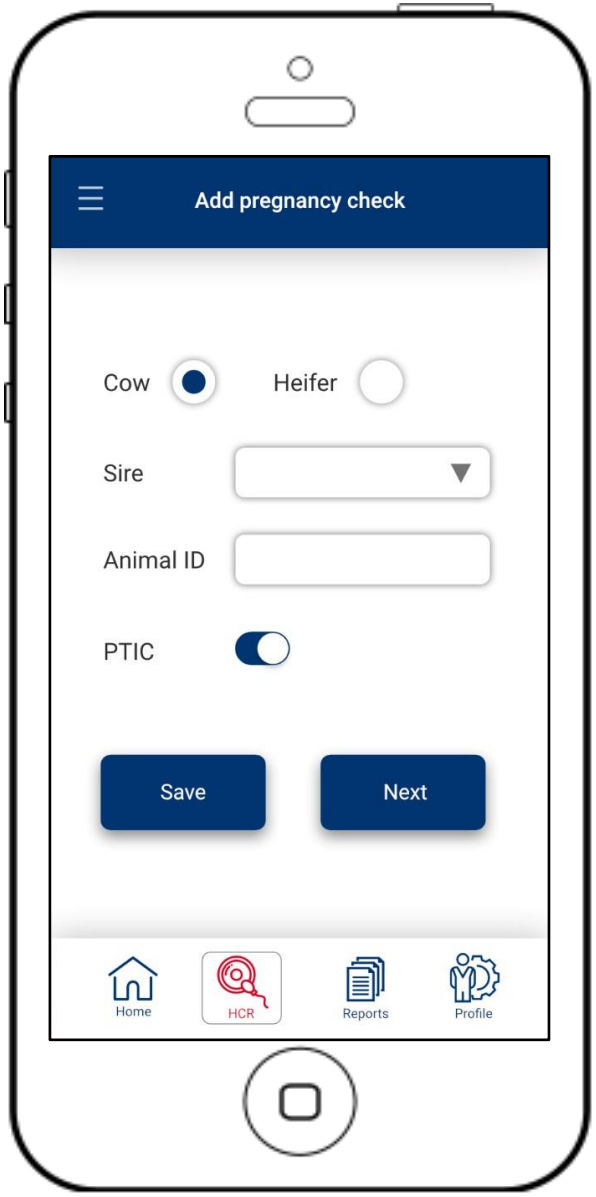

Email
Password
Log In
Forgot Password?
ABS
Profit From Genetic Process
New Here? Sign Up

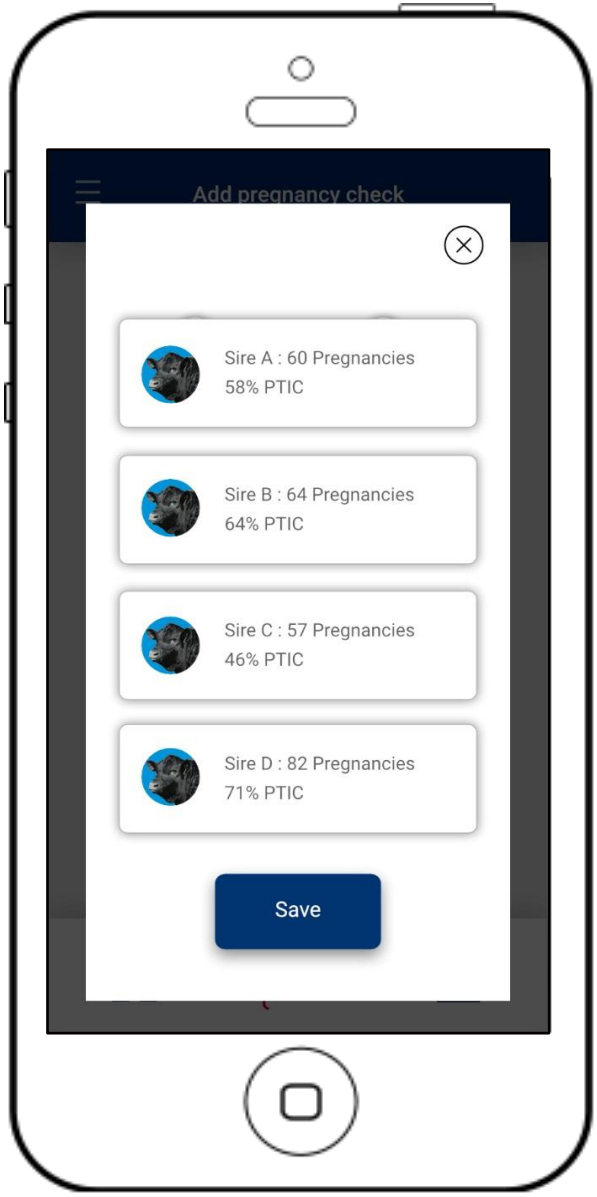

Name
Email
Phone Number
Farm Name
Address
I have read the HCR terms and conditions
Register
ABS
Profit From Genetic Process

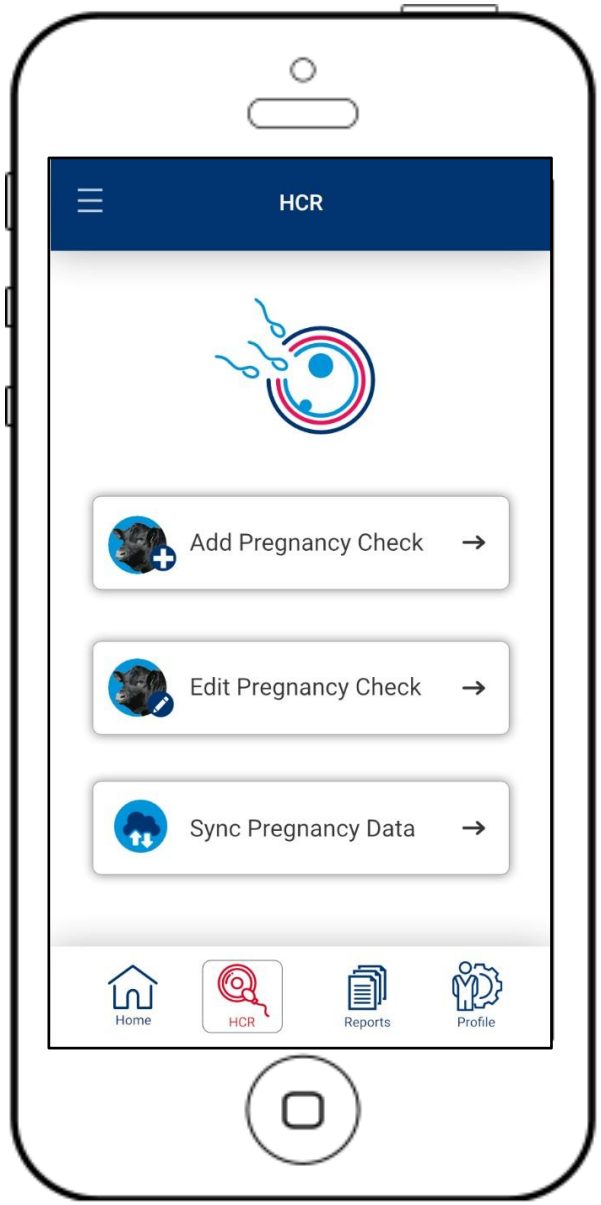

Home
HCR is a world first app based reproductive technology offering our customers a detailed analysis of sire reproductive performance, all at your fingertips
Home
HCR
Reports
Profile

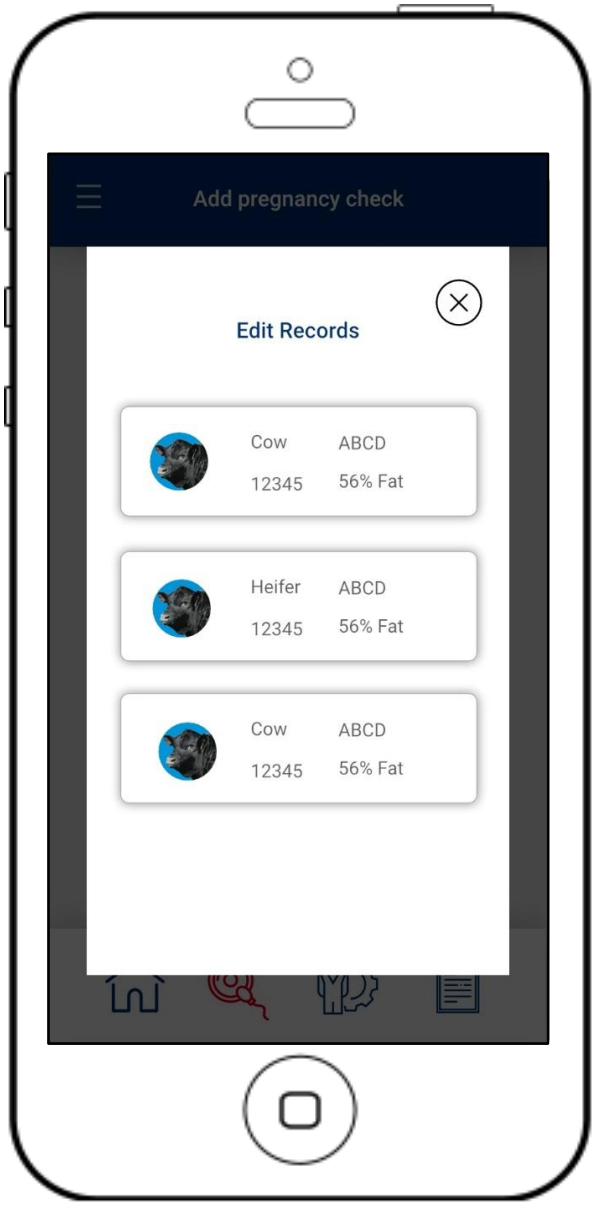

S&C Angus Farm
Canberra
About
Contact
Report a problem
Useful info


HCR
Add Pregnancy Check
Edit Pregnancy Check
Sync Pregnancy Data
Home
HCR
Reports
Profile


Add pregnancy check
Cow
Heifer
Sire
Animal ID
PTIC
Save
Next
Home
HCR
Reports
Profile


Add pregnancy check
Sire A : 60 Pregnancies
58% PTIC
Sire B : 64 Pregnancies
64% PTIC
Sire C : 57 Pregnancies
46% PTIC
Sire D : 82 Pregnancies
71% PTIC
Save


HCR
Add Pregnancy Check
Edit Pregnancy Check
Sync Pregnancy Data
Home
HCR
Reports
Profile


Add pregnancy check
Edit Records
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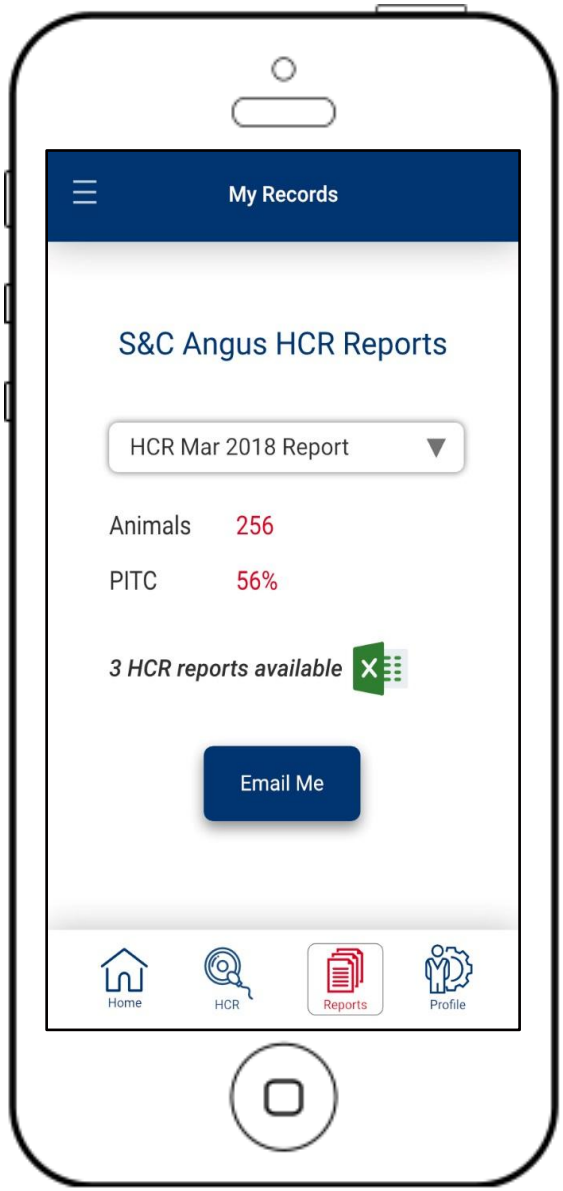
ABCD
12345
56% Fat
Heifer
ABCD
12345
56% Fat
Cow
ABCD
12345
56% Fat


My Records
S&C Angus HCR Reports
HCR Mar 2018 Report
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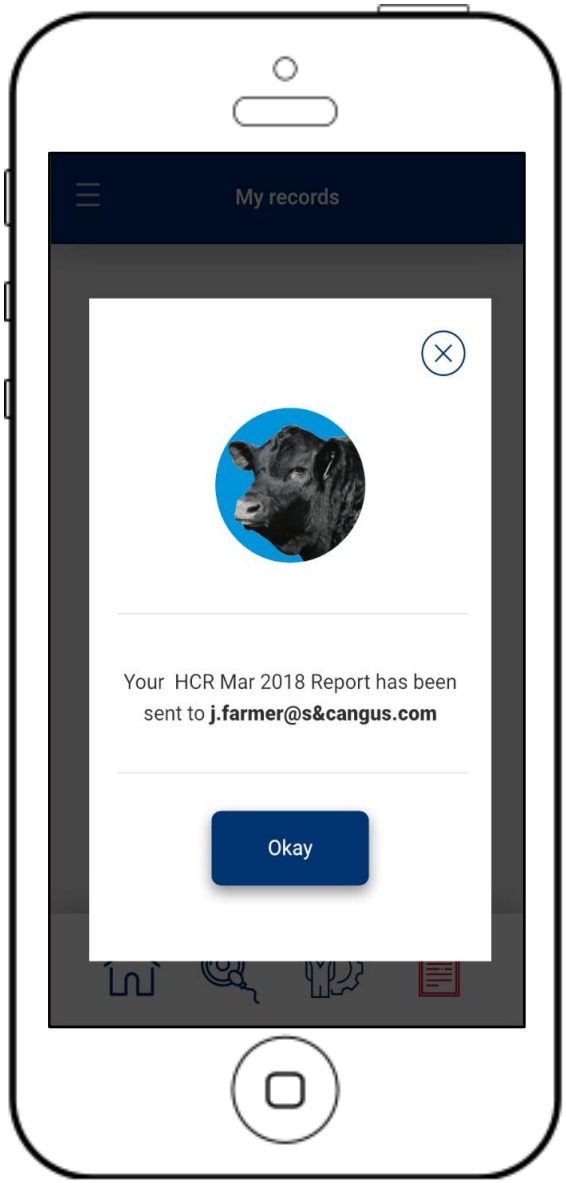
PITC 56%
3 HCR reports available
Email Me
Home
HCR
Reports
Profile


My records
Your HCR Mar 2018 Report has been sent to j.farmer@s&cangus.com
Okay

# Your HCR Report

Profit From Genetic Progress

## ABS HCR Report - Spring 2017

**Farm:** S&C Angus, Canberra

**Joined:** 21/11/17

| Sire ID | Sire | Number Joined | PTIC | Conception Rate | HCR Sire Average |
|---|---|---|---|---|---|
| 29AN2001 | A | 56 | 33 | 59.00% | 56.00% |
| 29AN2002 | B | 100 | 62 | 62.00% | 65.00% |
| 29AN2003 | C | 32 | 24 | 75.00% | 71.00% |
| 29AN2004 | D | 71 | 43 | 61.50% | 68% |
| | | 259 | 162 | 64.20% | |

# HCR – Into The Future

- A number of advancements in the pipeline
  - ✓ Regional reports – focussing on FTAI results in your specific region highlighting climate & drought
  - ✓ Comprehensive ET reports
  - ✓ Multi breed availability - Hereford, Wagyu, Simmental, Shorthorn, Charolais HCR reports available

- By 2020, goal to have over 100,000 PT results from ABS, private stud and other company AI sires

- Expand HCR program through our ABS Global business, with HCR data to monitor sire performance across multiple regions

# HCR – FTAI Class Toppers

# Summary

- Sire fertility is a key requisite for dairy farmers, so why not for beef as well?
- Shouldn’t we be striving for better breeding program outcomes?
- Some sires are well suited to FTAI, others more so for HD and ET programs

- The HCR app is good for ABS, but it’s even better for you - the producer
  - ✓ Knowledge is power and knowledge drives profit
  - ✓ Access to PT reports at your fingertips
  - ✓ Monitor your reproductive performance year in, year out
  - ✓ Make educated decisions around what bulls will work well in your breeding program from empirical data