SHORTHORN SB® BEEF

FACT SHEET

Artificial Insemination.
Driving Genetic Gain for
Productivity and Profitability.

Fixed Time AI (FTAI) has become a breeding revolution, sweeping the worlds beef industries.

In Brazil alone, FTAI has contributed to a projected increase of approximately US$342 million to the countries economy. As a result of the increased genetic gain available to Brazilian beef producers, FTAI in Brazil has increased by 250% in the 4 years from 2008- 2011.

This stands testament to the value that FTAI represents to Australian Shorthorn breeders for both increased genetic gain and profitability.

The Shorthorn breed in 2013 had an AI registration rate of 12%, substantially lower than other British breeds. This contributes to lower genetic gain, decreased productivity and reduced profitability for Shorthorn breeders.
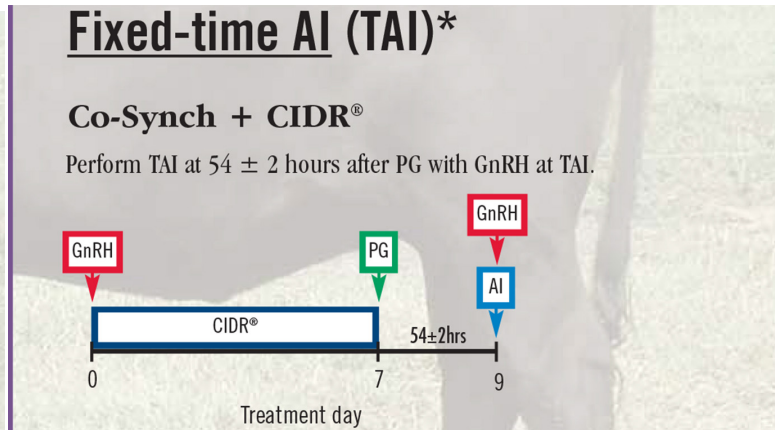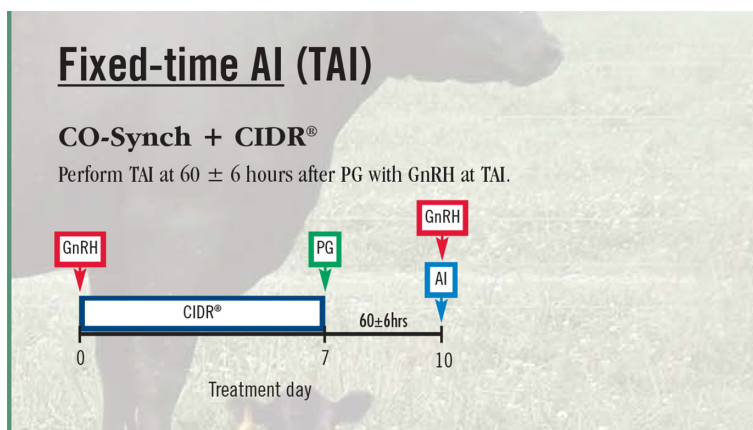
So what is FTAI and why does it offer so many benefits to Shorthorn breeders?

FTAI is a blanket mating AI program, utilising advanced hormonal treatment to remove the need for heat checking. This reduces the labour cost involved with conventional AI programs.

Synchronisation has many benefits; firstly cattle only need to be yarded 3 times. Secondly FTAI results in more AI calves being born to a herd compared to other methods. Thirdly Synchronisation concentrates calving into a tighter time period and lastly cows have the opportunity to calve earlier in the calving pattern, thus having more opportunity to stay in the herd.

Fixed time AI protocols for beef cows

Fixed time AI protocols for beef heifers

Fixed-time AI (TAI)

Co-Synch + CIDR®

Perform TAI at 60 ± 6 hours after PG with GnRH at TAI.

GnRH · CIDR® · PG · GnRH · AI · 60 ± 6hrs

Treatment day: 0 · 7 · 10

Fixed-time AI (TAI)*

Co-Synch + CIDR®

Perform TAI at 54 ± 2 hours after PG with GnRH at TAI.

GnRH · CIDR® · PG · GnRH · AI · 54 ± 2hrs

Treatment day: 0 · 7 · 9

Programs uses CIDR devices, GNRH (Gonabreed) and Prostaglandin to control the onset of oestrus.

Blanket mating by AI occurs at 60 – 66 hours (Cows) and 54 - 56 hours (Heifers) after the removal of the CIDR.

No heat checking is required and cows need only be yarded 3 times.

Profitability

Access to the best sires in the breed can lead to increases in maternal efficiency, extra weight gains and greater market compliance.

Higher Weaning Weights

AI can lead to a tighter calving pattern, with more calves born early in the calving season. This leads to increased weaning weights. For commercial breeders, ABS research has shown that FTAI sired calves can result in a $60 per head premium over calves sired by a $4,500 natural service bull.

Labour at calving time is also reduced as more calves are born early, meaning less time spent checking calving breeders. With more calves born early, females have longer between calving and joining which can also lead to increased fertility.

Heifer Management

For heifer management, FTAI allows breeders to use PROVEN calving ease sires that bend the growth curve, maximising both the number of live calves born as well as weaning weight from heifers first calves.

Selecting proven Shorthorn sires with positive Calving ease, negative Gestation length and below breed average Birthweight EBV's alllows breeders to minimise calving difficulties in heifers. Selecting Shorthorn sires with longer neck extension, smooth inlaid shoulders and reduced bone will further contribute to improved calving percentages. Research also shows that if a heifer calves in the first 3 weeks, she is 13% more likely to remain in the herd for life. Calving heifers in a tighter pattern will also assist breeders to manage heifers at calving time, whilst reducing the labour time needed to monitor calving.

Calf crop consistency

More calves born in a reduced time increases the uniformity of the calf crop. It also allows more calves to be born to fewer sires, increasing the consistency of performance across all traits.

Genetic Gain

At commercially viable semen prices, AI costs per calf compare extremely favourably to natural sire costs. When the increased benefits from AI are considered, AI can lead to a greater return on investment.

At the 2015 Shorthorn National Sale, as an example, AI sired bulls achieved an average return of $1,200 more per bull than natural sired bulls. Buyers pay more for genetically superior cattle. These returns well outweigh the cost of AI. Because breeders are able to access the best sires in the breed, they are able to dramatically increase their rates of genetic gain. These gains are accelerated as daughters from the best sires are joined again to the best sires in the breed.

2013	DM INDEX	EM INDEX	NM INDEX
TOP 5%	+47	+42	+57
AVERAGE	+32	+29	+40

As the above table shows, progeny from sires in the top 5% of the breed will contribute significantly greater returns than the average sires. This transmits directly into increased profits for breeders.

AI can make access to these breed leading sires commercially attractive.

Increased linkages between herds also creates greater accuracies from EBV's. This not only makes the performance of AI sires more reliable, but increases the reliability of EBV's in retained daughters. The combination of increased accuracies from AI sires and AI sired daughters, improves the consistency of performance from sires slected to be used in commercial herds.

Genetic Selection

AI allows breeders greater access to proven Shorthorn sires that are trait leaders for the most desirable traits for each herd.

This means breeders are more able to drive performance in the traits that are most suited to their production systems, using breed leading proven sires to achieve increased returns.

Maternal Efficiency
The use of AI can allow breeders to identify proven Shorthorn sires that can "bend the growth curve."
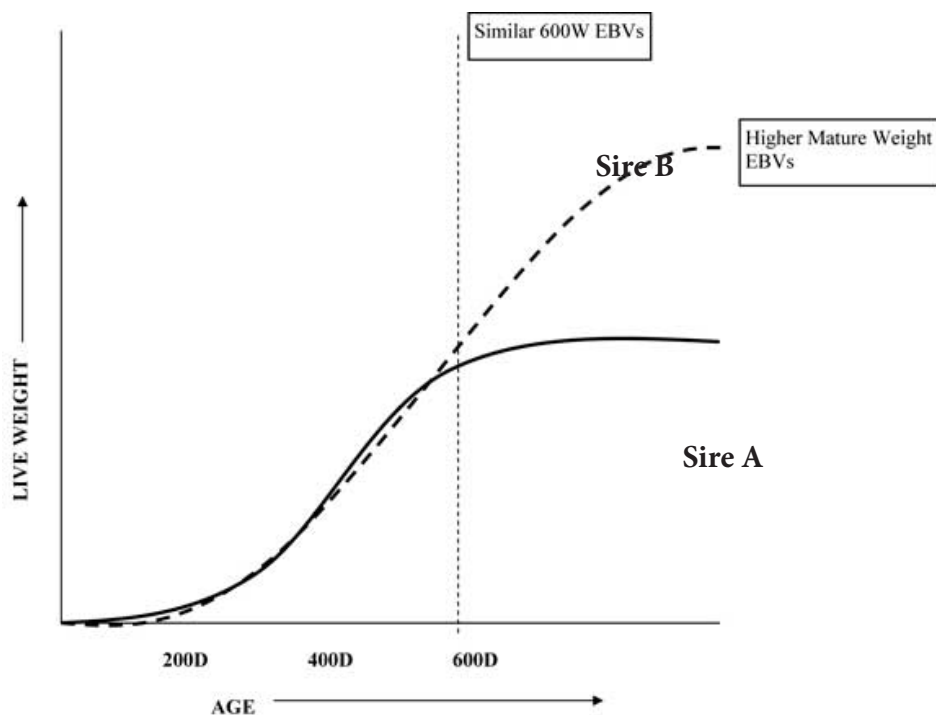
As the above graphs shows, both sires have similar weight gain to 600 days, however Sire A also has a moderate mature weight compared to sire B.

Bending the growth curve is vital for producers to increase maternal efficiency and maximise returns.
Put simply, progeny from sires that bend the growth curve have faster early growth with more moderate mature weights.

Hitting target markets.
Feed intake is influenced by weight, heavier animals usually consume more feed. Whilst this may be desirable for certain markets, most steers in Australia have reached slaughter weights by 600 days. Faster growing steers reach target weights sooner, however longer growth only contributes to fewer steers finished properly for the market. It also contributes to reduced market versatility in markets which require steers to finish at lighter weights, such as the domestic market.
Sire A will be suited to more markets than Sire B whilst still making target weights at the same age.

Increased maternal efficiency.
Retained daughters of Sire A will also be more efficient than the retained daughters from Sire B. As feed intake is influenced by weight, daughters from Sire A are likely to consume less feed for maintenance, allowing breeders to run more daughters from Sire A than daughters from Sire B.
Cows also consume energy first for growth, then lactation, then condition, then the onset of oestrus. Daughters from Sire A will require less energy for growth earlier, increasing their ability to raise a calf and return to calf easily.
Cattle that have fast early growth to target weights, then reach maturity sooner are substantially more efficient and productive than cattle that grow longer than target weights and into later maturing animals.
Later maturing animals often have increased birth weights, reducing calving ease, for no extra benefit to breeders.

AI, whether Fixed Time or Conventional, provides tremendous opportunities to Shorthorn breeders to improve genetic gain and increase performance, productivity and profitability, in both seed stock and commercial herds.
Given the current increases in market prices, their has never been a better time to invest in maximising the genetic potential of your herd.