BREEDPLAN Information for Profitable Beef Production

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ICAR 2012 CONFERENCE

INTERBULL

INTERNATIONAL BEEF RECORDING SCHEME

BREEDPLAN

The Data Which Breeders May Collect For BREEDPLAN Analysis Includes:

Bull in Date	Ultrasound
Birth Date	- Fat depth (rump)
Birth Weight	- Fat depth (rib)
Calving Ease	- Intermuscular Fat
Calf Weights from 150days to 600days+	Direct carcass measures
Scrotal Size	Net feed intake data
Docility Scores	Conformation scores
Flight time (from bail head to light beam)	DNA tests

BREEDPLAN® Input Data Systems

- Paper records by mail or fax (now used by a small minority of breeders).
- Electronically by BREEDPLAN spreadsheet.
- Batch submission of files from herd management systems which operate on handheld computers, laptops and desktops.
- Over the internet by building up a batch interactively and then transmitting the batch on completion of recording (Internet Solutions).
- Over the internet in real time (ILROnline).

Distribution of Recording Systems

- For large herd size (eg. Brahman with cows in range of 100- 1500) herd management systems are commonplace eg. 90% of data in electronic batch files.
- Breeds with smaller herd sizes (eg. Limousin) make more use of data entry over the internet.
- All electronic systems include data validation aimed at ensuring the majority of data goes on file at first submission.

BREEDPLAN Encourages Complete Recording to Underpin Accuracy of EBVs

- "Completeness of Performance" reports for individual herds.
- Star ranking for individual herds.

Star Performance Ratings

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BREEDPLAN® TRAITS

GROWTH	FERTILITY	CARCASS	OTHER
Birth weight	Scrotal size	Carcass weight	Net feed intake
Growth - Weaning	Days to calving	Fat depth - Rump	Docility
Growth - Yearling	Gestation length	Fat depth - Rib	Flight time
Growth - Final	Calving ease - direct	Retail beef yield	Shear force
Maternal (Milk)	Calving ease - daughter	Intramuscular fat	Conformation
Mature cow weight			

- Uses DNA tests to produce genomics-enhanced EBVs.
- BREEDPLAN Software maintained by Animal Genetics Breeding Unit (AGBU).
- Used by 45 beef breeds across 15 countries.
- Multi-country genetic evaluations in production for over two decades.

How can we measure the Profit that BREEDPLAN contributes to commercial Beef Production?

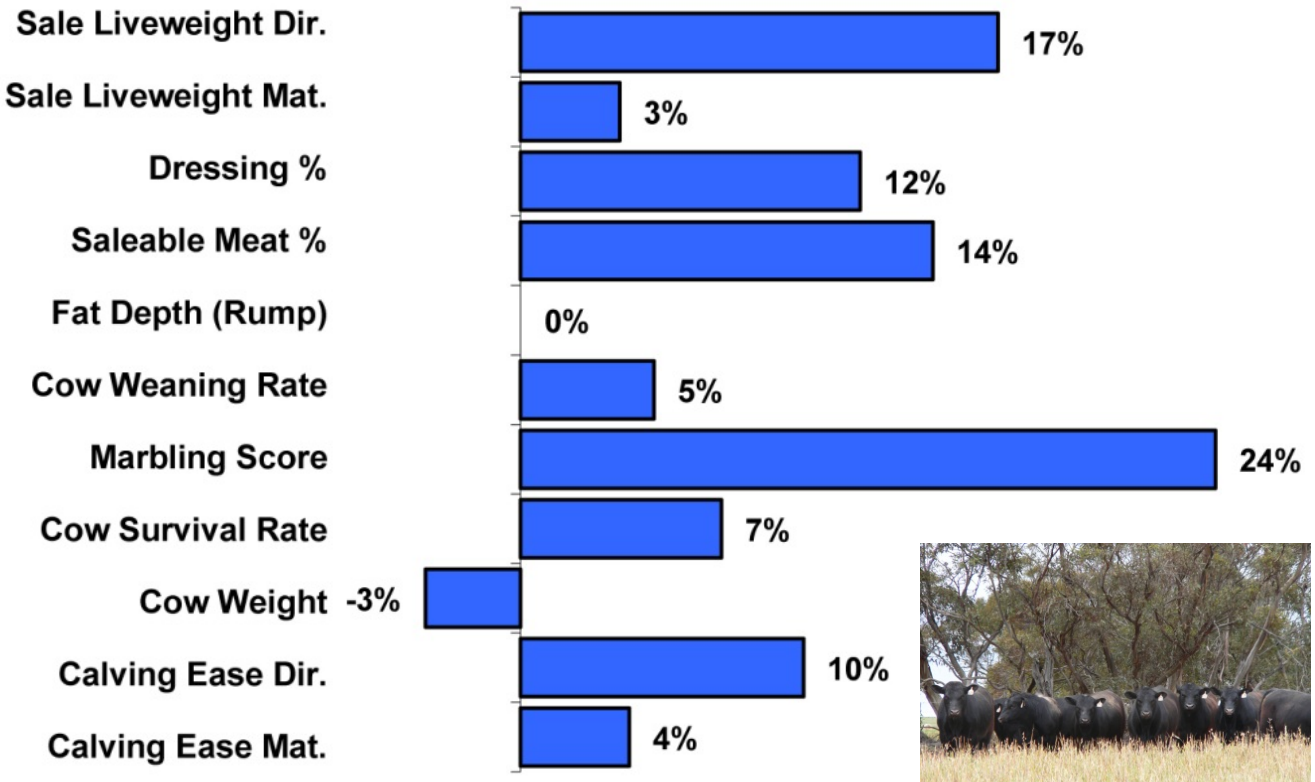


- BreedObject is a Selection index tool within the BREEDPLAN system.
- It weights EBVs for their contribution to particular production systems/market end points.
- Measures the rate of genetic progress in $ terms.
- Is used in benchmarking of herd performance.
- Is the economic platform for a mate selection tool called MateSel which aims to maximise genetic progress.

Case Study – Australian Angus Long Fed/CAAB Index

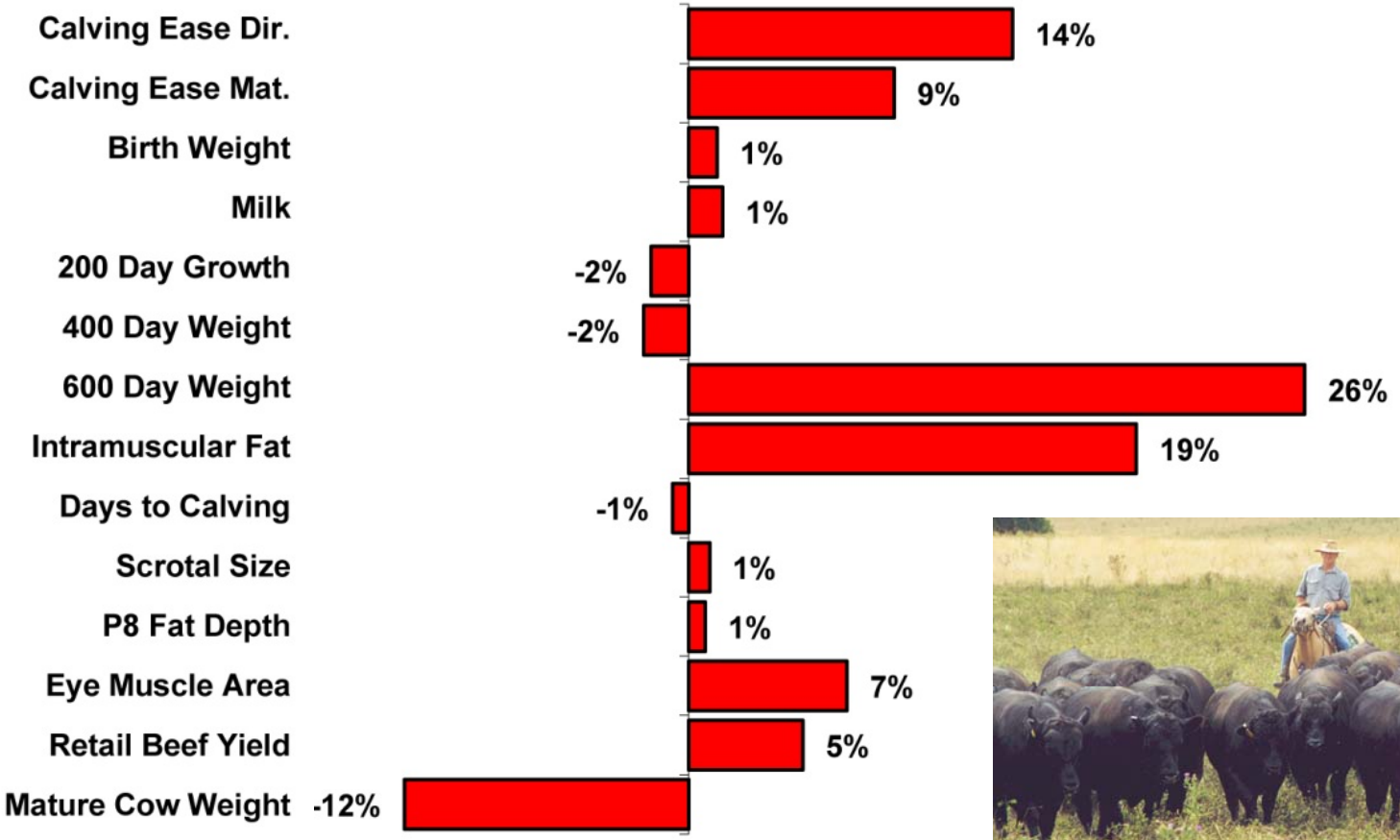
- Self replacing herd.
- Steers on pasture.
- Then 270 days on feed.
- Slaughtered at 740kg live(420kg carcase) at 26 mo age.
- High quality beef with 25mm P8 fat depth.

Long Fed/CAAB Index – Profit Drivers

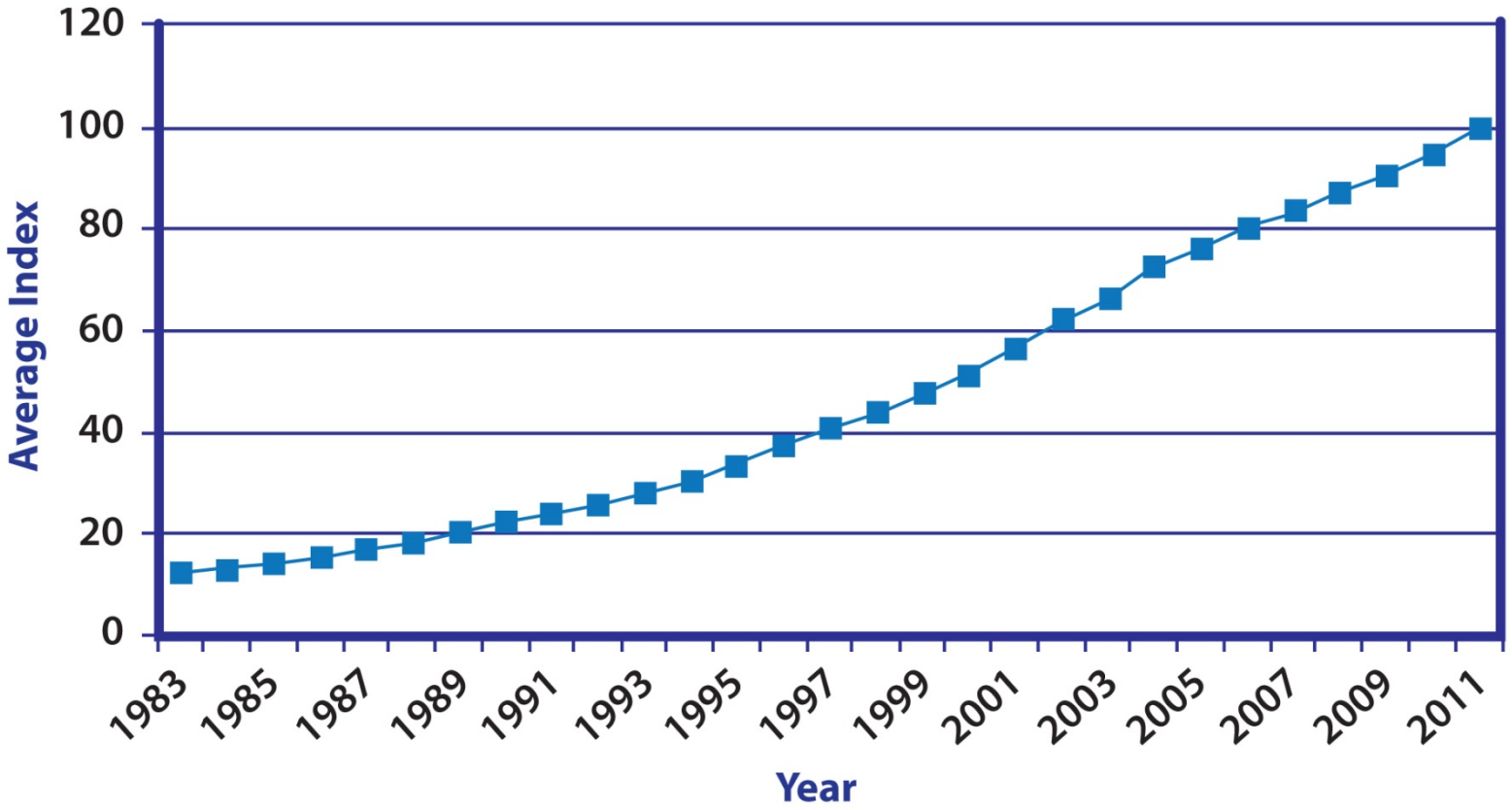


Case Study – Australian Angus Long Fed/CAAB Index

Long Fed/CAAB Index – EBV Weightings



Graph of Genetic Trend in Long Fed/CAAB index – Angus Australia



The average index has increased by $75 per cow mated output per year in the last 20 years

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BreedObject

List of Breeds in the UK and their BreedObject Indexes is:

Breed	Index 1	Index 2
Angus	Angus Terminal Index	Angus Self Replacing Index
British Blue	British Blue Carcase Yield Index	British Blue Pedigree Breeding Index
Charolais	BCCS Terminal Index	BCCS Self Replacing Index
Hereford	Hereford Terminal Index	Hereford Self Replacing Index
Shorthorn	Shorthorn Terminal Index	Shorthorn Self Replacing Index
Simmental	Simmental Terminal Production Index	Simmental Self Replacing Index
South Devon	South Devon Quality Beef Index	South Devon Suckler Replacement Index

TakeStock – Benchmarking a Herd's Progress

- Evaluates the genetic progress of a herd for each particular Selection Index.
- Benchmarks the progress of the herd against the breed.
- Identifies Key Performance Indicators (KPIs) that explain significant differences in the rate of genetic progress between herds.

TakeStock™

TakeStock – Case Study

Wirruna Poll Hereford Herd

- In Southern NSW Australia
- Performance recorded since 1960's, over 9000 animals recorded on BREEDPLAN
  - Based on supermarket index:
  - Steers finished on grass or grain (50-70 days)
  - 450 kg live (250kg carcase, 12mm P8 fat depth
  - Daughters retained for breeding

WIRRUNA
poll herefords

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TakeStock

Summary TakeStock Report - Wirruna

Period 1 - 2002 to 2006 Period 2 - 2006 to 2010

		Herd	Breed Average
Average Index value in Period 2	Males (bulls & steers)	$68.88	$57.95
	Females	$68.15	$57.87
	Steers	$58.40	$46.81
Average Index value of parents in Period 2	Sires	$80.52	$64.68
	Dams	$55.34	$50.59
Average Index value in Period 2		$68.53	$57.90
Average Index value in Period 1		$49.69	$50.13
Average genetic progress in Period 2 (pa)		$5.44	$2.17
Average genetic progress in Period 1 (pa)		$3.68	$1.91
Average number of progeny per year in Period 2		440	94

TakeStock™

Wirruna – Genetic Trend for the Supermarket index

TakeStock®

Key Variables - Wirruna

Period 1 - 2002 to 2006 Period 2 - 2006 to 2010

	Herd	Breed Average	Percentile Band
Average genetic progress in Period 1	$3.68	$1.91	10
Average genetic progress in Period 2	$5.44	$2.17	5
Average Index value in Period 2	$68.53	$57.90	10
Key Performance Indicators			
Selection differential of sires	$27.51	$12.85	5
Selection differential of dams	$2.79	-$1.16	10
Sire:dam mating correlation	0.31	0.03	5
Average age of all sires used (years)	4.0	4.6	30



TakeStock

Quantifying Benefits of Wirruna's Genetics to Beef Industry

- Sells 150 bulls per year.
- On average each bull produces 120 progeny.
- 18,000 calves produced per year from natural service.
- 420 calves per year in Australia from Wirruna semen.

Estimate average Hereford female has Index Value of +$30.

Economic contribution of Wirruna to Australia's natural herd:

18,420 x (88-30)/2 = $534,180 pa

International Semen Sales from Wirruna Daffy

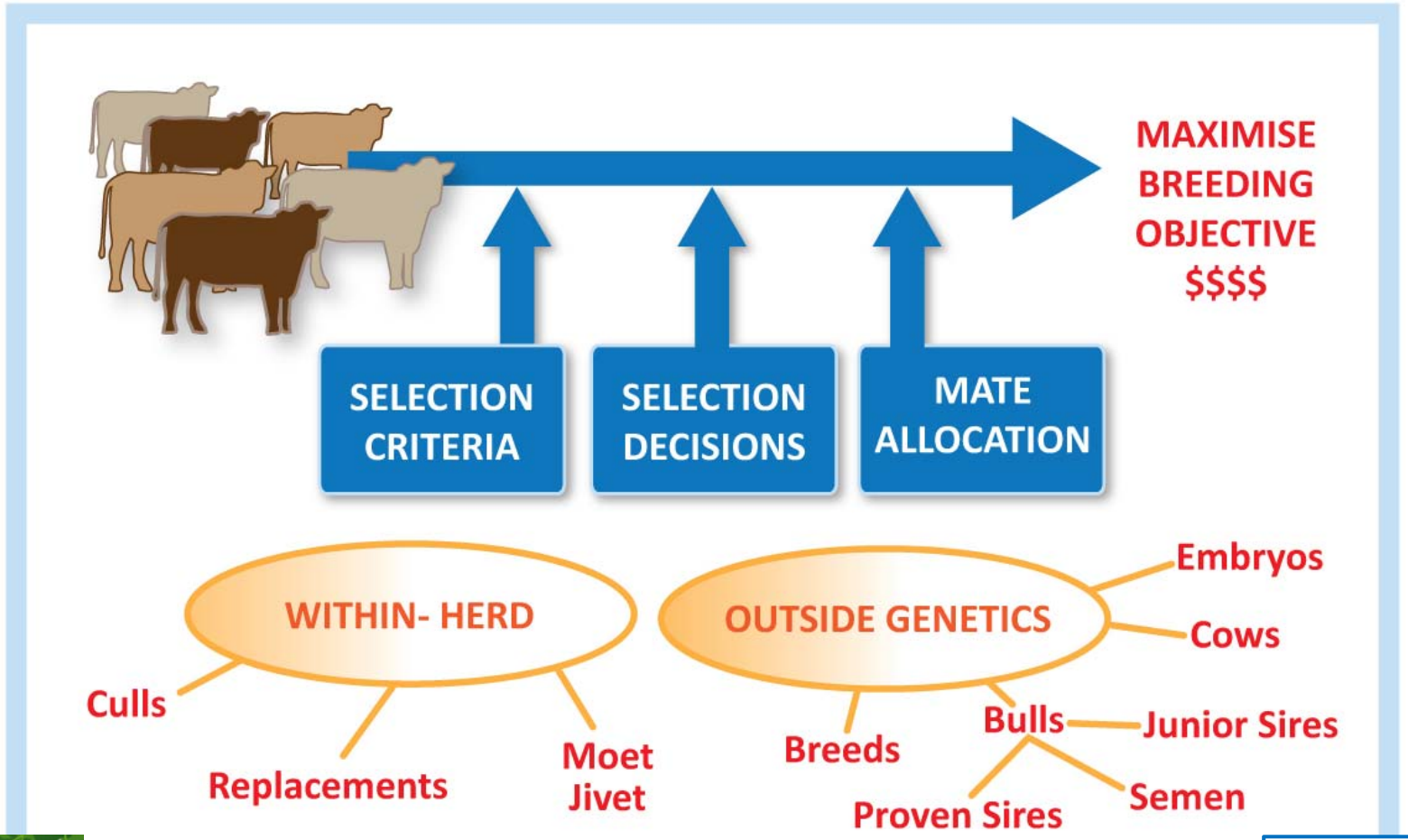
Estimated International Value of Wirruna Daffy's Semen

- **15,000 Straws Collected**
  Say 6,750 Calves

  Estimated increase in International Beef Production

  6,750 x 58/2 = $195,750

Mate Selection to Maximise Profit - How it Works



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MateSel

Mate Selection Products

- Total Genetic Resource management (TGRM) developed by Prof. Brian Kinghorn and has been used for about ten years.
- TGRM applied to beef, pigs, sheep and dairy industries.
- TGRM used by Wirruna for last 7 years.
- MateSel is a new mate Selection system also written by Prof. Kinghorn and to be rolled out in 2012 for beef breeding by ABRI.

MateSel Versions

- **WEB VERSION**
  - ✓ Integrated with BREEDPLAN
  - ✓ Breeders access easy-to-use web screens
  - ✓ Candidate females flexible and can be based on inventory, age groups, last calving, registration status
  - ✓ Candidate males drawn from herd bulls, AI lists, semen catalogues
  - ✓ Level of inbreeding nominated

- **CONSULTANT VERSION**
  - ✓ Entails direct consultation focused on individual breeding objectives, management constraints, corrective mating, graphical analysis in real time

In Summary

- Selection index technology allows seedstock breeders to focus on breeding to maximise profits for commercial clients.
- The Angus breed in Australia has increased the commercial value of its genetics by $75 per cow mated per year in 20 years.
- The Wirruna Hereford Seedstock herd is increasing the profitability of beef production in Australia by over $500,000 pa with a spin off outside Australia through semen sales
- MateSel will assist seedstock breeders to maximise genetic progress for particular production systems thus increasing potential $ benefits to commercial herds.