



Bob Freer

Bob is well known to Hereford breeders around the world from his role of director of technical services of Taurus Technology, the Australian Hereford/Poll Hereford joint R&D enterprise.

Over the last 20 years Bob has guided the technical direction of the Hereford breed in Australia and managed the combined Australian/New Zealand Hereford genetic evaluation program.

Now enjoying semi-retirement he still provides technical support to a number of key industry projects including the World Hereford Genetic Linkage project that he will now introduce.

TOWARDS GLOBAL EVALUATION OF THE HEREFORD BREED

This paper introduces the key-note topic of Global Evaluation of the Hereford Breed and outlines the first step of the project - the **World Hereford Genetic Linkage Project**.

The outcomes of the linkage project, the options available for global evaluation, and the practical considerations of global evaluation will be presented by my colleagues Dr Kath Donoghue, Dr Hans Graser and Dr David Johnston from the Animal Genetics & Breeding Unit (AGBU), at the University of New England, Armidale, Australia.

The World Hereford Linkage Project

The purpose of the linkage project is to progress the World Hereford Council's objective of being able to compare the performance of Hereford cattle around the world on an equal basis.

The first step of global evaluation is to establish sound genetic links between the major Hereford populations around the world, namely Australasia, North America, South America and the United Kingdom..

Unfortunately, outbreak of Foot & Mouth disease in Argentina and the UK during the inception of the project excluded those regions however secondary links have since been established in the UK but are not reported in this project review.

In the project, links have been established by comparing the performance of link-sire progeny groups generated from reciprocal matings of North American and Australian sires in both continents.

These links will progress the development of across-country adjustment factors, and identify any Gene by Environment interactions (GXE) that might affect the ranking of sires across continents. This knowledge then leads to the comparison of North American Hereford EPDs with Australasian EBVs on a statistically sound basis

Eight link sires were used in the project, four from each continent, with the aim of producing 30 progeny per sire on each side of the water – a total of 480 progeny for evaluation.

The project was never intended to be a sire or country-of-origin comparison and no particular sire selection criteria was laid down other than the sires be unrelated, be recorded in the genetic evaluation program of their country of origin, and of course be eligible for semen export to the reciprocal countries; the project is indebted to the owners of the link sires for making semen available.

The link sires were....

Australia

North America

Heatherdale Opium U178	(P)	Jet Domino L617	(H)
Injemira Advance U118	(H)	Feltons Endurance 745	(P)
Mount Difficult Unsworth	(P)	Remitall Governor 236G	(P)
Yarram Hotshot P028	(H)	MHF X160 Reform 77H	(H)
Wolbull Canon – reserve sire			

Progeny of the link sires were generated by artificial insemination (AI) of purebred Hereford cows from commercial herds. These co-operator herds carried out the AI program, reared the calves as contemporary groups and recorded on-farm performance measures to yearling age.

A total of effective 608 progeny were generated (207 Australia – 408 Nth America)

Such co-operation places an added demand on the herd's resources and management expertise, but the prevalence of extreme drought conditions across both continents during the cow-calf stage of the project made the job so much harder, and I am grateful to each of the management teams listed below for their commitment and effort under extremely trying circumstances.

Australia

Branga Plains Pastoral Company, Walcha
 Yalgoo Partnership, Walcha
 W.S.Shugg (Keswick), Walcha
 Parraweena Pastoral Company, Willow Tree

North America

Olsen Ranch, Nebraska
 Copper Creek Ranch, Princeton
 Hanson Ranch, Alberta

On each co-operator herd, progeny were calved and reared as a single contemporary group and measured for the following traits...

- birth weight
- weaning and yearling weight (200, 400 and 600 days)
- ultrasound/carcase fat depth, eye muscle area and intramuscular fat %
- Insulin-like Growth Factor (IGF-1) – Australia only
- feedlot performance/net feed intake (NFI) – Australia, steers only

The results provided to the conference are preliminary as final results will not be available until North American yearling and carcass data is included around mid-year, whilst maternal results will not be available until heifer progeny have weaned progeny themselves - analysis of the results has been provided by scientists at AGBU

Life is always full of challenges and the Linkage Project was no exception. Unexpected challenges to the outcome of the project, any one of which would have been a significant event by itself included...

- outbreak of Foot & Mouth disease in two participant countries, with semen under quarantine for up to 12 months requiring modification of the project plan
- severe drought conditions during the cow-calf stage requiring intensive management and hand feeding of stock for 12 months on some co-operator herds.
- extreme heat conditions (around 40°C) during the feedlot finishing stage testing the endurance of the stock
- outbreak of BSE in North America that added a further dimension of stress to co-operator herds

That the project succeeded is testimony to the dedication of the co-operator herds, the assistance of Landmark and Cargill Australia, the technical support from AGBU and ABRI, the expertise of Tulimba Feedlot, and the financial support of Meat & Livestock Australia, the Australian Hereford Society and the Australian Poll Hereford Society.

The commitment and assistance of the above groups and individuals is gratefully acknowledged.

Where to from here ?

The preliminary work has been done and the stage set for the Hereford breed to lead the world in genetic evaluation – by providing its members the opportunity to objectively compare and access the best genetics for their needs regardless of where those genetics originate.

The outcome of the genetic linkage project and the options available to progress global evaluation will be considered by World Hereford Council delegates at their meeting next Sunday and an appropriate action plan developed.