

final report

Project code: B.GOA.0071

Prepared by: Ben Swain

BCS Agribusiness

Date published: March 2013

ISBN: 9781741919967

PUBLISHED BY
Meat & Livestock Australia Limited
Locked Bag 991
NORTH SYDNEY NSW 2059

Goat DNA collection summary

Meat & Livestock Australia acknowledges the matching funds provided by the Australian Government to support the research and development detailed in this publication.

This publication is published by Meat & Livestock Australia Limited ABN 39 081 678 364 (MLA). Care is taken to ensure the accuracy of the information contained in this publication. However MLA cannot accept responsibility for the accuracy or completeness of the information or opinions contained in the publication. You should make your own enquiries before making decisions concerning your interests. Reproduction in whole or in part of this publication is prohibited without prior written consent of MLA.

Introduction

Meat & Livestock Australia (MLA) has commissioned BCS Agribusiness to collect blood samples from goats located on two properties for the purpose of conducting a project with the following objectives:

1. To determine if polledness in Australian goats is caused by polled intersex syndrome (PIS), an independent mutation or a combination of both.
2. To identify a reliable DNA based diagnostic for polledness that can be used by breeders.
3. To search for differences in polled animals that explains production of intersex offspring. If successful, the objective is to develop a DNA test that will predict the risk of the intersex condition in offspring when breeding for polledness.
4. To perform a baseline genetic diversity survey of Australian rangeland goats.

The analysis required to meet the above objectives is being carried out under a separate contract between MLA and CSIRO Livestock Industries.

Table of Contents

1. Methodology	4
2. Property Details.....	4
Property 1	4
Property 2.....	5
3. Animal Details.....	6
Property 1	6
Property 2.....	6
4. Appendix	10
Property 1	10
Property 2.....	18

1. Methodology

Two populations of animals were sampled.

First, samples were obtained from male, female, polled and horned animals located at a Boer goat stud (Property 1) that segregate for the poll condition and has pedigree records available.

Secondly, a collection of animals including intersex animals, male, female, polled and horned animals were collected at a rangeland environment property (Property 2). No pedigree records were available for these animals.

Whole blood samples were collected and transported to CSIRO Livestock Industries.

2. Property Details

Property 1

“Yarrabee”
Goombungee QLD
Helen Darlington
Ph: 07 4696 5696
Email: helen@yarrabeeboergoats.com

Boer goat stud with approximately 100 breeding does. 13 poll breeding does were available for sampling, together with 5 poll kids, 1 poll wether and 1 poll buck. Numerous horn does, kids and bucks were also sampled. Several of these were related to the polled animals either as dams or siblings.

The breeder of these animals reported that the poll animals all share a common poll Saneen does in their pedigree.

Poll bucks are not joined to poll does in this stud. The owner said this was because of the reported problems of the intersex condition. However, it has never been tested. No intersex animals have been observed in this population.

Full pedigrees and coat colour were provided by the breeder.

In addition to blood samples being collected, rectal temperatures were recorded on all animals sampled and scrotal circumference were taken on the majority of the bucks. Whilst not a component of this trial, the collection of these traits were considered a worthy exercise that may result in useful information in the future.

Property 2

“Orana”
Ivanhoe NSW
John Vagg
Ph: 02 6995 1333
Mob: 0428 951 333

Large fully managed rangeland environment goat operation with approximately 3500 breeding does. The breeder suggested approximately 1000 of these does were poll. Large numbers of poll bucks were also observed.

In total 30 poll does, 31 horn does, 5 intersex animals and 5 poll bucks were sampled.

All animals share the same genetic base of the rangeland goat. The breeder has introduced Boer genetics into the herd at one point and this is clearly visible in the phenotype of many of the animals.

The breeder reports that the original poll animals were put together over a number of years by drafting them off mobs of bush goats that were harvested for sale. As management practices evolved, including the establishment of 100% fencing, these poll animals became the focus for the breeder.

Poll bucks are joined to poll does in this operation. As are horned bucks joined to poll does and vice versa. The breeder does not place any management control over joining.

The breeder is aware of the intersex condition but reports the incidence of it as rare. In fact, the breeder reports the incidence as no more common than was the case in the Merino operation that was previously ran on “Orana”.

3. Animal Details

Property 1

The animals sampled on “Yarrabee” were uniquely identified and pedigreed. Details on the animals sampled are included in Table 1. A photo of each animal is located in the Appendix.

Table 1: Animals Sampled on “Yarrabee”

Animal ID	Sire	Dam	Colour	Rectal Temperature	Scrotal Circumference
POLL ADULT DOES					
P824	P631	437	red	40.2	
P439	376	P126	standard	39.4	
P607	35	P439	standard	39.7	
P724	977	P439	standard	39.6	
P010	5337	P724	standard	39.3	
P934	5337	P439	standard	39.3	
P935	5337	P439	standard	35.7	
P621	7855	P477	ginger	39.5	
P713	988	P477	lt standard	36.4	
P949	4066	P713	standard	39.9	
P950	4066	P713	standard	39.9	
P947	988	P477	ginger	39.6	
P948	988	P477	ginger	38.8	
POLL KID DOES					
P108	9209	P607	standard	39.6	
P104	P815	620	lt standard	39.5	
POLL BUCKS					
P815	7924	P477	red/white	36.3	33.1
POLL KID BUCKS					
P101	P815	942	red	39.3	12.0
P102	P815	921	standard	40.0	13.8
POLL WETHERS					
P802	988	P621	ginger	38.3	

Animal ID	Sire	Dam	Colour	Rectal Temperature	Scrotal Circumference
POLL KID WETHERS					
P375	P815	507	lt standard	38.5	
HORN RELATED ADULT DOES					
942	4066	201	red/white	39.3	
506	376	21	lt standard	40.1	
921	4066	620	lt standard	39.1	
620	35	21	lt standard	39.2	
507	376	222	lt standard	39.6	
HORN RELATED KID DOES					
105	P815	507	lt standard	39.1	
103	9229	P935	standard	38.8	
111	9229	P621	red	39.0	
109	9209	P607	standard	36.7	
HORN RELATED KID BUCKS					
NIL					
HORN RELATED KID WETHERS					
367	P815	921	ginger	39.8	
385	8009	P713	red	39.3	
373	P815	507	ginger	38.6	
376	8924	P724	standard	38.5	
357	P815	942	red/white	35.3	
HORN UNRELATED ADULT DOES					
8903	3331	6509	standard	36.5	
819	1436	504	red	38.3	
820 ¹	988	3829	red	38.9	
811	1436	475	red	38.7	
5213	3303	248	standard	38.0	
508 ²	376	201	ginger	38.2	
1292	6559	7759	red	38.2	
6592	3917	46	standard	39.2	
8922	3331	3909	standard	38.3	
717	988	324	red/white	38.6	
7657	7924	1048	red	38.7	
8011	7924	4091	red/white	38.6	

Animal ID	Sire	Dam	Colour	Rectal Temperature	Scrotal Circumference
9280	53	7703	standard	38.6	
711	988	504	red	38.6	
716	988	324	red	38.7	
HORN UNRELATED KIDS					
114	8009	819	red	38.9	
1656	8924	9280	standard	38.9	
1642	733	8960	red	38.8	
1582	733	6401	red	38.1	
1648	733	8968	standard	38.4	
388	8009	811	red	31.3	
1597	733	7820	red/white	38.5	
1601	733	8011	red/white	39.2	14.3
1657	8924	9280	standard	39.4	
1634	8924	8933	standard	38.8	14.9
491	8009	717	red/white	38.3	
1644	8009	6405	red	39.2	
1591	9229	9270	standard	39.3	
HORN BUCKS					
8294	3331	5285	standard	38.9	31.6
8905	3331	6509	standard	39.6	31.9
9229	7703	6466	standard	40.1	28.9

Notes

¹ 820 is identified as 7820 on the ear tag.

² 508 may have been labeled as 503 on sample.

	Indicates animal also sampled
--	-------------------------------

Property 2

The animals sampled on “Orana” were **not** uniquely identified and pedigrees were not available. A coded, sequential number was assigned to each animal and sample matched. The sample identifications are included in Table 2. A photo of each animal is located in the Appendix.

Table 2: Animals Sampled on “Orana”

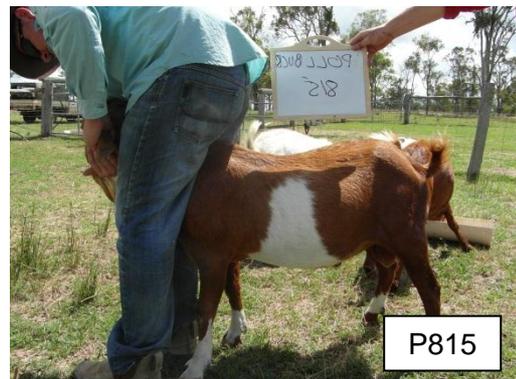
POLL DOES	HORN DOES	POLL BUCKS	INTERSEX
PD1	HD41	PB81	IS100
PD2	HD42	PB82	IS200
PD3	HD43	PB83	IS300
PD4	HD44	PB84	IS400
PD5	HD45	PB85	IS500 ¹
PD6	HD46		
PD7	HD47		
PD8	HD48		
PD8	HD48		
PD9	HD49		
PD10	HD50		
PD11	HD51		
PD12	HD52		
PD13	HD53		
PD14	HD54		
PD15	HD55		
PD16	HD56		
PD17	HD57		
PD18	HD58		
PD19	HD59		
PD20	HD60		
PD21	HD61		
PD22	HD62		
PD23	HD63		
PD24	HD64		
PD25	HD65		
PD26	HD66		
PD27	HD67		
PD28	HD68		
PD29	HD69		
PD30 ¹	HD70		
	HD71 ¹		

¹ Nasal Swab also taken

4. Appendix

Property 1







P101



P102



P802



P375



942



506



921



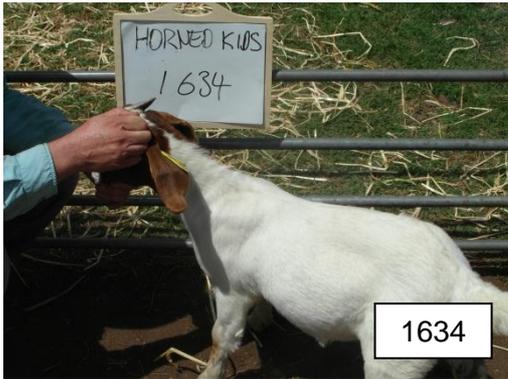
620













9229

Property 2



PD1



PD2



PD3



PD4



PD5



PD6

















PB82



PB83



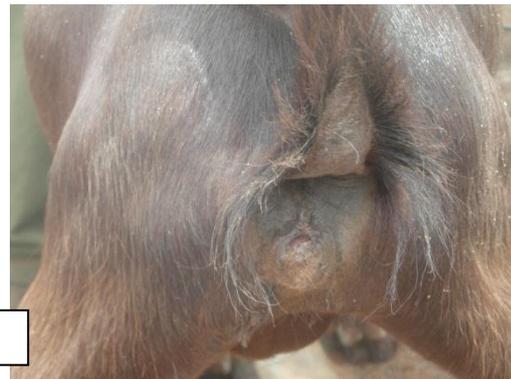
PB84



PB85



IS100



IS200





IS300



IS400



IS500

