

final report

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Maternal Lambing Traits

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ABSTRACT

Reproductive rates (ie. fertility and multiple birth rates) are rapidly improving within the sheep industry. The number of lambs weaned is a crucial profit driver and producers are placing more emphasis on the importance of lamb survival.

To date the impact that maternal traits have on subsequent production traits in the progeny is not clearly known. The lack of a standardised system for recording maternal traits has also been noted. This project has supplied a database that has been collated and standardised as much as is practical given the diversity of individual criteria. The database includes information from eight seed-stock producers who use LAMBPLAN or MGS, representing five breeds and two composite breeds that are used in the sheep wool and meat industry.

The data provides some information on the maternal ability of individual ewes and may be used to determine the impact maternal traits can have on important production traits such as lamb survival and growth rate. Additionally, the database will be used to provide an estimate of the heritability of maternal temperament in ewes.

EXECUTIVE SUMMARY

Reproductive rates (i.e. fertility and multiple birth rates) are rapidly improving within the sheep industry. The number of lambs weaned is a crucial profit driver and producers are placing more emphasis on the importance of lamb survival.

To date the impact that maternal traits have on subsequent production traits in the progeny is not clearly known. The lack of a standardised system for recording maternal traits has also been noted. This project has supplied a database that has been collated and standardised as much as is practical given the diversity of individual criteria. The database includes information from eight seed-stock producers representing five breeds and two composite breeds that are used in the sheep wool and meat industry.

The data provides some information on the maternal ability of individual ewes and may be used to determine the impact that maternal traits can have on important production traits in the offspring such as lamb survival and growth rate. Additionally, the database will be used to provide an estimate of the heritability of maternal behaviour in ewes.

Seed-stock producers supplied a diverse range of maternal traits they considered important to their system. Since there is no current standardised system for recording maternal traits the breeders have developed their own subjective recording systems through consultation with other breeders, researchers and from their own anecdotal experiences. Several breeders have been recording maternal traits for many years and other breeders have commenced recording traits only recently. All data has been supplied from breeders who are long term users of LAMBPLAN or MGS for breeding selection. Pedigree information is available on all animals within their studs and information on the animals in this database would also be recorded in the LAMBPLAN or MGS database, therefore providing reliable linkages between both databases for genetic analysis. A total of 7,370 individual ewe records have been recorded in this database. Information was supplied for the following traits: ewe flight distance, maternal score, vocal score, udder score, birth coat, lamb ease and TOBY (evasive to humans) scores.

Although the scope of this project was to collate and supply the database to LAMBPLAN, it should be noted that that comments derived from anecdotal evidence supplied by breeders might impact on the interpretation of maternal trait assessments. These comments are listed in the discussion section of the main report.

There appears to be a need within the sheep seed-stock industry for a standardised recording system for maternal traits. The variation in criteria for assessment, and breeders comments as shown in this report, indicates that factors such as climate, breed, paddock size, and assessment procedure all contribute to variation in maternal traits and therefore lamb survival. These factors would need to be taken into account when considering a standardised assessment procedure if it is shown after analysis, that maternal traits have a significant impact on production and heritability can be accurately estimated.

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1. BACKGROUND

Some breeders record maternal behavioural traits and/or ewe or lamb physical traits that impact on lamb survivability. There are several methods for scoring traits and a number of seedstock producers and researchers have recorded some form of scoring. Recorded data provides some information on the maternal ability of individual ewes and the data can be used to provide an accurate estimate of the heritability of maternal temperament in ewes. The impact of temperament will be assessed against important production traits such as lamb survival and growth rate.

2. OBJECTIVES

- (1) Liaise with sheep seed-stock producers and scientists for the purpose of sourcing data that is relevant to maternal temperament and production traits.
- (2) Obtain and collate data into a central dataset and to supply to LAMBPLAN for validation.

3. METHODOLOGY

Seedstock producers were contacted via email and direct contact to submit information that may be relevant to lamb survival. Data was submitted electronically by the breeder or inputted from lambing books supplied by the breeder. Data has been standardised as much as practical and includes full LAMPLAN identification ensuring that it is compatible with the LAMBPLAN database. All data has been supplied from breeders who are long term users of LAMBPLAN or MGS for breeding selection. Pedigree information is available on all animals within their studs and information on the animals in this database would also be recorded in the LAMBPLAN/MGS database, therefore providing reliable linkages between both databases for genetic analysis. After completion the data file was sent back to the breeder to confirm accuracy of data. Table 1 shows data that has been collated from the eight seedstock producers representing 5 breeds and 2 composite (maternal and terminal) breeds.

Table 1: Name of breeder, location of stud, breed, stud name, LAMBPLAN flock code and stud number.

Name	Location	Breed	Stud Name	LAMBPLAN flock code and stud number
1. J. Keillor	Vic	Coopworth Maternal Composites Terminal Composites	Cashmore Park Maternal Maximiser Heywood Advanced Breeders	15 0039 175007 23 5003
2. J. Marriott	Vic	Coopworth	Cashmore Park	15 0029
3. R. Mortimer	NSW	Merino	Centreplus	60 1250
4. B. Sandilands	WA	Merino	Billandri	60 0571

Name	Location	Breed	Stud Name	LAMBPLAN flock code and stud number
5. J. Skerritt	WA	Merino	Clonmany	50 4970
6. D. Gooding	WA	Poll Dorset	Denroy	16 3943
7. B. Fisher	SA	White Suffolk	Ashmore	23 0099
8. A. Wilson	NSW	Border Leicester	Wongajong	02 1090

4. MATERNAL TRAITS REPORTED

Breeders have supplied a diverse range of maternal traits they considered important to their system (Table 2). Since there is no current standardised system for recording maternal traits the breeders have developed their own subjective recording systems through consultation with other breeders, researchers and from their own anecdotal experiences. Several breeders have been recording maternal traits for many years and other breeders have commenced recording traits only recently. A total of 7,370 individual ewe records have been obtained and where breeders have recorded data over several years there are multiple records for individual ewes.

Table 2: Breeder, Maternal Trait, Number of years of data recorded, total number of records obtained.

Breeder	Maternal Trait	Years data recorded	No. of ewe records obtained (<i>and progeny</i>) *
J. Keillor	Flight Distance (meters) Vocal Score Birth Coat Score	1998 – 2004	2,250 (5,805 progeny)
J. Marriott	Flight Distance (meters)	2000 – 2004	445
R. Mortimer	Maternal Score TOBY (yes or no)	1999 – 2004	1,638
B. Sandilands	Maternal Score Flight Distance (meters) Birth Coat Score	2004	1,573 (2,201 progeny)
J. Skerritt	Maternal Score	2004	208 (254 progeny)
D. Gooding	Maternal Score	2004	266 (383 progeny)
B. Fisher	Maternal Score Milk Score	1993 – 2004	666
A. Wilson	Maternal Score Lamb Ease Score Flight Distance (meters)	2003 2003 2004	416 (<i>progeny</i>) 324

* Number of progeny shown where available

4.1 Criteria and Method of Scoring and Flight Distances

While several breeders recorded similar traits the criteria for assessment of scores and flight distances, and the method of collecting the score varied. Following are the various criteria supplied by the breeder, which were used to assess individual traits.

Flight Distances (estimated in meters):

J. Keillor:

Measured when tagging the lamb and is the average of how far the ewe moves around the lamb while it is being tagged. For example a ewe that comes into 3 meters and then out to 6 meters is an average of 4 meters. Meters are an estimated guess and have been stepped out to calibrate.

J. Marriott:

Estimated guess of meters the ewe moves away from the operator while lamb is being tagged.

Comment: ewes that go 100m or more usually returns when the lamb starts bleating.

B. Sandilands:

An estimate of the maximum distance the ewe has left the lamb while it is being tagged.

A. Wilson: (2004)

Recorded in meters (0, 1, 2, 5, 10, 20, 30, 50) which is the estimated distance the ewes moves away whilst the lamb is being tagged.

Comments: The routine is varied for ewe hoggets (13 months of age). Flight distance is often large, so always take ewe number with binoculars before approaching lamb. Ewes always come back, although usually assist by circling the ewes back (when flight distance large). Flighty ewes that go a long way always go to other ewes, so distance is a bit arbitrary in those cases. Flight distance also affected by other factors - age of lamb, proximity of other ewes (to run to).

Maternal Scores (Range 1 to 5 unless stated otherwise):

R. Mortimer:

Score 1 = Placid and protective of lamb (over riding instinct)
Score 2 = As above but more distracted by proceedings
Score 3 = Mothering and mob instincts begin to compete
Score 4 = Mob instinct over-rides mothering instinct
Score 5 = Mad (mental short circuit at human interaction)

Comment: The score is a combination of her stress and inclination to bolt without the lamb.

A. Sandilands:

Score 1 = Back with the lamb before I am back to the ute

Score 2 = Back with the lamb after I have reached the ute but before I have finished recording the details.

Score 3 = Not back with the lamb but I am reasonably confident they will re-unite. Vocalising or looking for lamb

Score 4 = Further away but hopeful

Score 5 = Over the hills and faraway

J. Skerritt:

Score 1 = Comes within touching distance for at least a few minutes, and is close enough that I can read the tag number of the leader tag. Hassles the dog, stomps feet etc

Score 2 = Stays within 5 meters and when the lamb is released comes to the lamb straight away.

Score 3 = May go backwards and forwards between the rest of the flock and the lamb. When the lamb is released comes out from the mob to get the lamb.

Score 4 = Runs away into the mob, and when the lamb is released stays in the mob but calls to the lamb. Will not leave the mob to collect the lamb. Will pick up the lamb when the mob is drifted back towards the lamb.

Score 5 = Hopeless, has either left the lamb somewhere and shows no interest when it calls, needs drifting back over the lamb and the mob needs to be held near the lamb for the mum to show an interest. Walks away from the lamb when the slightest sign of danger approaches, may walk off without the lamb when the mob is released.

D. Gooding:

Score 1 = Excellent mothering (ewe stayed right there while you tagged lamb).

Score 2 = Hesitant but comes back after lamb measurements are taken (within 10 metres).

Score 3 = Dam runs off more than 10 metres (but comes back to lamb after tagging done).

Score 4 = Dam runs off a long way and has to be brought back to lamb.

Score 5 = Problems dam runs off and we spend a long time getting her back with lamb. Baaing at every other lamb.

Comment:" With our Poll Dorsets we have not had any cases of runs off and not interested at all as it is only about 1 in 100 that may have this problem. Usually it is just a case of getting them back with the right lambs they run around baaaing at every lamb and being a bit confused. We really have very little problems with mothering. Ewes are usually brought in if they are having trouble controlling twins. These ewes and lambs are caught and put into mothering pens until they "can count", usually about 8 hours. Any ewe that has a hypothermic lamb is treated the same way, and any ewe with a difficult birth is brought home also. Ewes that steal others lambs, are brought home as well and locked away from others."

B. Fisher:

Score 1 - Very protective of lambs, licks lambs whilst being tagged and stands to let lambs drink while humans are close.

Score 2 -

Score 3 - Average mothering traits.

Score 4 -

Score 5 - Ewe won't mother lamb without being penned for several days.

Score 6 -

Note: Other breeder's maternal scores in this database ranged 1 = good to 5 = poor whereas B. Fisher's original scores were in the reverse (ie. 6 = good to 1 = poor). B. Fisher's scores for maternal and udder (see Page 8) have been standardised for this report by reversing them to ensure they are compatible with scores from other breeders in this database. Additionally the 1993 - 1995 scores range between 0 - 13 and have been standardised for comparison between years and are shown in Appendix 1. The scores for years 1996 - 2004 range between 1- 6 and have mostly been left as supplied by B. Fisher.

A. Wilson: (2003)

Score 1 = Close at tagging

Score 2 = Stays within 10 meters

Score 3 = Stays within 30 meters

Score 4 = Further away

Score 5 = Take off completely

Vocal Scores (range 1 – 5):

J. Keillor

Score 1 = No call/ quiet

Score 2 = Intermittent calls

Score 3 = Medium Calls

Score 4 =

Score 5 = Yelling its head off

4.2 Additional Ewe or Lamb Scores

The following scores while not a direct association with maternal ability, they have been included in the database as they have a potential impact on lamb survival due to a diminished capacity from either lamb or ewe and/or the breeder believes the trait important to either production or management.

Udder Score (Range 1 – 6):

B. Fischer

Score 1 = Very large udder

Score 2 =

Score 3 = Medium size udder

Score 4 =

Score 5 = Very small udder

Score 6 =

Birth Coat Score (Range 1 – 5):

J. Keillor

Score 1 = pink and hairless like a naked rat, thin skin

Score 2 =

Score 3 = average for the lamb drop

Score 4 =

Score 5 = strong long wool, thick skinned

B. Sandilands

Score 1 = no/very little hair

Score 2 = slight hair showing out

Score 3 = more hair showing

Score 4 = quite hairy

Score 5 = goatlike

Lamb Ease Scores (range 0 – 4):

A. Wilson

Score 0 = unobserved (2003)

Score 1 = 2003 - no assistance 2004 - unobserved and no assistance

Score 2 = some assistance

Score 3 = hard assistance

Score 4 = abnormal presentation

TOBY (yes or no):

R. Mortimer

This trait refers to animals that almost always (or always) burrow under animals in front of them when they are herded in the paddock or race. R. Mortimer believes that this trait was not evident in his stud until he purchased and used one sire in particular which resulted in over 80% of his daughters engaged in the practice, while almost no daughters from other sires exhibit this trait. Unfortunately it appears to have flowed on into future generations leading him to believe it is not only repeatable but also heritable. These animals seem to have received an overdose of the mob and hide instinct, which makes them extremely irritating to work with. These same animals do not appear to spook and leave their lambs, but rather engage in a sneaking procedure to try and disappear without your notice.

4.3 Procedure at assessment

Procedures at assessment are varied and may impact on variation between assessment scores of individual studs. To assist with data interpretation, breeders were asked to supply brief information on their procedure at assessment (Appendix 2) and their responses are shown in Tables 3 and 4.

Table 3: Procedures at assessment and size of lambing paddocks.

	How often assessed	Time of Day	Age lamb assessed	How are ewes identified	How many people do assessment	Area of lambing Paddocks
J. Keillor	Once per day	Daylight hours, usually AM	24 h (range 10 min to 30 h)	Size 3 Cattle tags, terminal composites have side sprays because they are more flighty	One – J. Keillor 95 % of the time	NA
J. Marriott	For AI ewes, most of the day. For natural mating, once a day.	Various	AI - within 2 -12 h. Natural 2 - 24 h Occasionally 48 h.	Necktag (they are brilliant)	Mostly one, sometimes two	Last 2 years 40 ha. Prior to that about 5 ha.
R. Mortimer	Once per day	NA	At age 5 or 6 days	NA	Drift lambing, walking to yards, mothering up, all done by one person R. Mortimer. Once mothered, the operation of recording is done by two people	Drift lamb around 7 paddocks of approx. 70 acres.
B. Sandilands	Once per day Some ET and AI mobs twice daily if time / workload permits	Usually morning to mid morning	Within 24 h	Ewes are identified by side brands sprayed on with spray cans in a V-machine	Mostly one person B. Sandilands although G. Sandilands is the alternate / back-up and they work together often enough to keep assessments consistent.	AI mobs: 5 paddocks of 8 Ha with about 90 ewes per paddock. We also tag lambs in larger paddocks but find it harder to tag all lambs in the bigger paddocks (up to 64 Ha).
J. Skerritt	Once a day, sometimes twice a day	either 6 am to 8 am (before work) or after work (5:30 pm to 11:30 pm)	Before 24 h, unless I asses that the lamb has been born in the last hour or two (I don't like tagging wet lambs - very unpleasant)	We use sheep coats to protect the wool, with numbers written on the coats. For ewes without coats a 10 cm number is branded on the wool on the backline to avoid the flank wool. I have a lambing book with the ewe ear tag numbers matched to their coat number.	Generally me and a casual if I am away.	8 to 12 acres. I have lambed in 20 acres paddocks, but there is too much walking involved. In the 20 acre paddocks I have used a vehicle to get within 50 m of the ewes, but I prefer to do it on foot so we are using the smaller paddocks now. It seems quicker that way.

Maternal Lambing Traits

	How often assessed	Time of Day	Age lamb assessed	How are ewes identified	How many people do assessment	Area of lambing Paddocks
D. Gooding	During lambing, mobs are checked and tagged up to three times a day sometimes even more (especially when AI mobs are lambing).	Checked – early am Tagged and assessed - late am, early pm and late pm.	Lambs are tagged when they are dry, mostly around 3 h old some younger some a bit older.	All ewes are side branded with ref. number to identify them.	One	Lambing paddocks are approx. 90 acres varying from year to year as we rotate them. We have approx 100 ewes as maximum in one mob but can be less according to how mobs work out. They are not run as a big mob. These numbers vary as some ewes with problems are brought home.
B. Fisher	Numerous times daily e.g. 6 times.	Early morning and regularly all day, not much between 12 midnight and 6 am.	Soon after birth, within 6 h max. mostly soon after birth.	Ear tag number side branded on both sides.	The same person always takes measurements at lambing (that is me).	6 lambing paddocks ranging in size from a large house block size up to 2 1/2 acres.
A. Wilson		Mature: Travel round them twice a day (7 – 10 am and 3 –5 pm) and tag lambs that are dry or nearly so. Hoggets: only go around once a day in early afternoon.		Ewe number taken from large tag in her ear (numbered both sides) - digits about 1 inch high, which can be mostly read from first approach. In the odd case have to use binoculars to read tag number.	Only one operator and one routine for older ewes which obviously takes twice as long when twins.	Ewes are in large paddocks, about 100 – 130 acres.

Table 4: Procedures at lambing and additional breeder comments.

Breeder	Procedure at lambing and additional breeder comments:
J. Keillor	One person drives ute around, gets out catches lamb, assesses ewe flight and voice while holding the lamb during the lambing process, assesses lamb birth coat.
J. Marriott	We drive around the paddock, as this carries all the gear (scales etc) catch lambs, tag & record.
R. Mortimer	<p>On day 5 or 6 we walk the ewes and lambs into the yards and mother up by walking each ewe and lamb (s) into different yards. When this is complete we walk each into a small pen where the lamb is picked up and recorded etc. It is the behaviour of the ewe through this procedure we score (1 = good > 5 = poor). When this is complete we walk each into a small pen where the lamb is picked up and recorded etc. The mothered ewes and lambs are walked to a small pen where recording takes place. One reads ewe tag and picks up the lamb. The other tags and records data directly into computer. The person picking up the day seven lamb stands on tared of weighing platform. This weight goes directly into newly created pedigree.</p> <p>Data goes directly into a specially prepared program, with ped being picked up from mating records. A lamb grade is recorded, depending on health, style and type of lamb. Note are recorded on anything off normal with the lamb. e.g. HBC (& + or -)(hairy birth coat) black spots nose, inturned eye lashes, Brown tip ears, etc.</p>
B. Sandilands	One person drives to within 10 metres usually and catches lamb using shepherd's crook. During peak lambing of an AI drop two people may be involved but usually only one catching lambs and the other recording from the ute. Lambs are spraymarked on back of head to help identify those already tagged. Older (+ one week) lambs not tagged at birth are separated out and caught by dogs that tip the lambs up by putting their nose underneath the lamb. In this case Mothering assessment is a bit harder.

Breeder	Procedure at lambing and additional breeder comments:
J. Skerritt	<p>All ewes are pregnancy scanned for multiples, and twin-bearing ewes have a red stud tag added to their eartag for fast identification of twin bearing ewes. I have a lambing bucket, and an Allflex lambing crook, and sometime a dog. The ewes lamb in sire groups of between 20 and 80 ewes, depending on the size of the sire group. Generally the ewes are not being fed at lambing so are surviving on paddock feed. The paddocks are between 12 acres and 8 acres in size, and are spread around the house. Generally I walk from paddock to paddock. First I will spot the ewes that are separated from the mob, and go and catch their lambs, earmark, weigh and tag them. If a ewe has rejoined the mob with her new lamb I will hold the mob together with the dog and catch the lamb. In that case I mark the lamb with spray mark make and sure I see the lamb suckle before recording a dam for the lamb. Mostly because we have a 28 day joining we seldom get more than 3 or 4 lambs per paddock per day. We try not to synchronize the ewes by mating in February. Usually takes about 35 min for the 8 paddocks plus lamb tagging. I measure the distance the ewe moves away when I am tagging the lamb, and assess the time taken for her to find her lamb.</p>
D. Gooding	<p>Before lambing ewes are introduced to car being driven around and they don't seem to mind this after awhile and take no notice and don't even get up if they are laying down. Ewes that steal others lambs, are brought home and locked away from others. In the paddock is it really only me that ewes and lambs see with very occasionally my husband helping. We have no work men. In the early morning 1 person checks ewes in ute and notes which ewes have lambed and any problems that need attention. After one h, Then later lambs are tagged am and pm. We also check ewes before going to bed. We use a spot-light and check for mis-mothered lambs, foxes in paddock etc. The ewes have quickly got use to the spotlight and don't care less about it. We have found this final check for the night has paid off finding and killing foxes and often bringing in ewes that are battling to manage twins.</p>
B. Fisher	<p>1 person, sometimes 2 walk around lambing paddocks. They catch and tag lambs and weigh them and record data, mothering, milk etc. Put twins and triplets in weld mesh rings with their mother to stop mis-mothering.</p>
A. Wilson	<p>They are trained to be quiet to vehicles - mostly motor bike. I park the bike 20 metres away and approach with long crook and bucket of gear for tagging and weighing. Some lambs caught without disturbing the ewe, but others have to be chased a bit (mostly happens when lambs are a bit older - talking in hrs!). Lambs caught (all together if multiples – which is 60% of births) and held for tagging and weighing. Most ewes stay close to lambs, some push me away while others run off further. Record in field book lamb No, wt to 0.25 kg, Ewe no and flight distance.</p>

5. MATERNAL CENTRAL PROGENY TEST

Maternal scores have been assessed for the Maternal Central Progeny Test project (MCPT LAMB.325). At lambing each year, the first cross ewe progeny from 91 sires represented in the MCPT were assessed at the Rutherglen, Cowra and Hamilton research sites (Table 5). Records have been collected for all lambs born at Rutherglen (2000 – 2004). Assessment of maternal traits commenced at Cowra and Hamilton in 2001 and 1999 respectively.

Table 5: Number of maternal score records available for lambs born (*and ewes lambed*), for each research site, dam birth year and year of assessment.

Dam birth year and site	Year of Assessment						
	1998	1999	2000	2001	2002	2003	2004
<u>Rutherglen</u>							
1998	-*	-	331 (247)**	396 (275)	479 (271)	-	-
1999	-	-	-	240 (192)	354 (236)	381 (242)	-
2000	-	-	-	-	324 (245)	381 (249)	455 (252)
<u>Cowra</u>							
1997	NA***	NA	NA	302 (178)	-	-	-
1998	-	NA	NA	675 (371)	321 (187)	-	-
1999	-	-	NA	550 (337)	581 (334)	244 (151)	-
<u>Hamilton</u>							
1997	NA	266 (178)	420 (288)	435 (279)	-	-	-
1998	-	102 (80)	212 (151)	252 (151)	219 (130)	-	-
1999	-	-	104 (86)	277 (185)	249 (147)	-	-

* No birth records for this year

**Number of records of ewes lambed in italics

NA*** Records not recorded

The following maternal score criteria were used at each research site:

Score 1 = Ewe stays with lamb

Score 2 = Stays within 10 meters

Score 3 = Stays within 30 meters

Score 4 = Ewe ran away but came back readily when operators moved away

Score 5 = Ewe ran away and was difficult to get back to the lamb

6. SUCCESS IN ACHIEVING OBJECTIVES

Database has been successfully collated, standardised and supplied to LAMBPLAN. The database includes information from eight seedstock producers representing 5 breeds and 2 composite breeds.

7. DISCUSSION

While the scope of this project was to collate and supply the database to LAMBPLAN, it is considered relevant to report on some anecdotal evidence and breeders comments on circumstances that may impact on the interpretation of maternal trait assessments.

In response to my e-mail requesting breeders to submit information, there were also several other breeders that contacted me to say that while they did not record maternal traits, they occasionally recorded information on ewe behaviour such as aggressively protective ewe or poor mothering ability. Additionally some of the breeders that supplied data were also keen to know other systems used by breeders to record maternal traits.

Care should be taken in interpretation of vocal scores as J. Keillor believes there are two types of ewes at tagging. The very quiet ewes that do not call much and stand very close while the lamb is being tagged. They are very attentive of their lamb and take no notice of the person tagging their lamb and can actually knock the person over. The other type of ewe will run around a lot and be very vocal and can be 50 meters away but are very good mothers. These observations indicate that vocal score or flight distance alone may not necessarily identify better mothering ability.

J. Keillor also stated there are other breeds that don't seem to concentrate and cannot remember where they left their lambs and wander off in the wrong direction looking for their lambs. He believes the shed origin sheep from the Northern Hemisphere eg. Texel, Finn and East Friesian exhibit this trait and perhaps lambing in confined pens over the years has decreased their maternal ability. He believes the Coopworth breed is the best breed he has used in the last 10 years.

D. Gooding observed that some wild ewes quietened down very quickly after lambing. It seemed that other ewes, although by nature a bit wild, have a strong maternal instinct and will stay with the lamb even if their normal instinct without a lamb is flight. She also found that some ewes that were flighty out in the paddock and tending not to mother lambs properly, when brought into the shed and fed, quietened down considerably. D. Gooding questioned how or if this behaviour should be categorised.

D. Gooding also attempted to score the behaviour of ewes at pre-lambing crutching (ie. kicking, resistant to being crutched) in an effort to categorise ewes into poor or good temperament. However she felt it didn't correspond to how ewes react when their lambs were tagged as a ewe that may kick and play up when being shorn is not necessarily the one who will run from her lambs.

D. Gooding has observed a pattern for ewes that steal lambs just prior to lambing themselves. She records this information and she found that that a ewe that does this one year is likely to do it again the next year. She has culled ewes for stealing as it upsets other ewes too much. Similarly, the first cross daughters from one of the three? Poll Dorset sires evaluated in the

Rutherglen Maternal Progeny Test showed the same trait. Whilst the ewes that exhibited this trait showed excellent maternal ability, they provided a disruptive influence on the mothering ability of ewes that had lambed and often when their own lamb was born would abandon the “adopted” lamb.

I am not aware of this being a major issue in the lamb industry, but it appears that if the heritability of this trait is known it may be beneficial to incorporate it into a standardised scoring system. This may be particularly relevant with the increasing interest within the sheep industry to improve mothering traits, to ensure maternal ability is not “over-selected”.

There appears to be a need within the sheep seed-stock industry for an optimum standardised recording system for maternal traits. The variation in criteria for assessment and breeders comments as shown in this report indicates factors such as climate, breed, paddock size, and assessment procedure all contribute to variation in maternal traits and therefore lamb survival. These factors would need to be taken into account when considering a standardised assessment procedure.

8. ACKNOWLEDGMENTS

I would like to sincerely thank the participants in the Maternal Sire Progeny Test and the following seedstock producers J. Keillor, J. Marriot, R. Mortimer, B. Sandilands, D. Gooding, J. Skerritt, B. Fisher and A. Wilson for volunteering to submit their data for the purpose of this project.

9. ADMINISTRATIVE DETAILS

Budget					
Total Funds =	\$22,983	(GST exclusive)			
Daily rate =	N/A	Number of days = N/A			
Cash flow					
Payment date	Milestone	Fees	Expenses	Assets	Total
01/05/2004*	1	\$17,053	\$5,930**	\$0	\$22,983*
TOTAL					\$22,983
* on acceptance and approval of corresponding milestone, with tax invoice and copy of receipts attached					
** A maximum of \$3,000 (18 days at \$170 per day) will be allowed for casual data entry labour hire. Labour hire expenses will be paid on submission of tax invoices or receipts.					
<i>NB: any money uncommitted at the end of the Project must be returned to MLA</i>					

Appendix 1: B. Fisher original and standardised scores for 1993-1995

Maternal Score		Udder Score	
Original Score	Standardised	Original Score	Standardised
11 or greater	6	11 or greater	6
10	5	10	5
9	4	9	4
8	3	7 & 8	3
6 & 7	2	5 & 6	2
less than 5	1	less than 4	1

Appendix 2: Questions asked of breeders for procedure at lambing.

Breeders were asked to briefly describe their procedure at lambing, which included:

- How often are lambs/dams assessed (eg. daily, twice daily etc)?
- Approximate time/s of day assessed?
- Approximate age at which lambs/dams are assessed (eg within 24 hrs or 6 hours etc)?
- What exactly is done at lambing eg. one person drives/walk around paddock, catch lamb/s, tag lamb, record tag data and ewe distance flight and mothering ability, distance, birth coat etc anything else?
- How are ewes identified at lambing - necktag, side brand, ear tag etc?
- How many people take measurements at lambing?
- Approximate area of lambing paddocks?