

Collecting Better Female Fertility Data

Research is now underway to determine whether “better” female fertility EBVs can be calculated by BREEDPLAN. In particular, whether details from artificial insemination (AI) and embryo transfer (ET) programs could be utilised in the calculation of female fertility EBVs, plus whether additional EBVs to the current Days to Calving EBV should be calculated.

Breeders interested in assisting with this research are asked to submit the following female fertility information.

Why Should Female Fertility Information be Recorded?

Reproductive performance is a key determinant of profitability in a beef cattle enterprise. Consequently, selection for improved reproductive performance should be an important consideration for all beef cattle producers.

One major component influencing a beef enterprise’s reproductive performance is the fertility of the female herd. The job of a female in a beef producing herd is to conceive, preferably as early in the joining period as possible, carry a foetus during gestation, deliver a live calf and raise it until weaning, within every 12 month period of her breeding life. A female that does not do this is failing to do her job and eroding herd profitability.

While many producers manage the reproductive performance of their female herd using different management strategies, in particular the culling of females that fail to get in calf, research has shown that female fertility is influenced by the genetics of the breeding herd. Consequently, better female fertility EBVs will provide a useful tool that breeders can use to improve the genetics of their females for fertility, in association with their routine management and culling strategies.

What Female Fertility Information Should be Recorded?

All ‘events’ associated with the joining of their females from the start of the mating period in each breeding season through to when the subsequent calves are born should be recorded.

Broadly, the information to be collected should include:

1. Joining details of **all** females mated within the herd, including within natural, artificial insemination or embryo transfer programs.
2. Details of **all** females removed from the herd, particularly those present at joining that were no longer within the herd by the time of the subsequent calving.
3. Details of **all** calves (dead or alive) that are born as a result of these joinings.
4. Pregnancy test results for **all** females

Recording Details from Natural Joining Programs

- ❑ Record each natural joining event to which a female (cow or heifer) is exposed within the breeding season whether this was the successful joining or not. For situations where females are joined to several bulls in a mating season, record all joinings for the female, not just the first or successful joining.

- For each natural joining event within the breeding season, record the bull the female was joined to, the date she was joined ('bull in' date) and the date the bull was removed ('bull out' date). Knowing the end of the joining period is important.
 - The joining event code to be used when recording natural joining events is 'N' (Natural/Paddock mating).
- Record management group information to identify any cow/s within a joining group whose fertility may have been affected either prior to or during the joining program due to non-genetic factors. e.g. significantly different nutrition, sickness, injury. A maximum of three characters (letters and/or numbers) can be used to describe each management group.

Recording Details from Artificial Insemination Programs

- It is important that all 'events' associated with the artificial insemination program from the start of the mating period through to when the subsequent calves are born are recorded. This includes details of treatments in addition to the mating itself (eg. synchronisation).
- For each female, record the date and 'type' of each event within the artificial breeding program using the following event codes.

Z	Synchronisation program
M	Used to define the mating program period for programs that don't start with synchronisation. For example, if a mob of cows or heifers enter into a non synchronised mating program that involves artificial insemination followed by a back up bull then 'M' would be used to define the date the females initially came together for the program through to the date the back up bull was removed.
A	Artificial insemination after a fixed time from synchronisation
I	Artificial insemination on observed heat (whether synchronised or not)
N	Natural/Paddock Joining (in this case, where females have been joined naturally at the conclusion of an artificial breeding program)
H	Hand mating

When recording the date and 'type' of each event, note:

- The identification of the bull relevant to joining events A, I, N and H needs to be recorded. The event codes M and Z do not need bull details.
 - Only the joining event codes of M & N require a start and an end date. All other codes (i.e. A, I, H and Z) require only the date to be recorded for the day on which the event occurred.
- Record management group information to identify cows that have been managed together as part of the same artificial breeding program. A maximum of three characters (letters and/or numbers) can be used to describe each management group. A management group should also be used to identify any cow/s whose fertility may have been affected either prior to or during the artificial breeding program due to non-genetic factors. e.g. significantly different nutrition, sickness, injury.

Recording Details from Embryo Transfer Programs

- ❑ For donor females, record the date the female was flushed and the number of embryos that were collected.
- ❑ For recipient females, record the date of implantation for any females that are recorded with the Breed Society. A mating event code of E should be used. It is not necessary to record the details for recipient females that are not recorded with the Breed Society.

Recording Female Disposal Information

- ❑ Record the date and reason for any female removed from the herd, particularly those present at the start of joining that are no longer within the herd by the time of the subsequent calving. The fate/disposal code information is used to determine whether females that have a joining record but no subsequent calf should be penalised for being “culled for infertility” or not penalised because they were culled for other reasons e.g. structure, performance etc. In the future, this information may also be used as part of the calculation of a Female Longevity EBV.

The codes to be used to record a female fate/disposal event are as follows:

Culled or sold

A	Cast for age
B	Sold surplus breeding female - but not code J or F
C	Calving incident
D	Disease (e.g. pesti, eye cancer, etc)
E	Eyes (pigment, hooding, etc)
F	Not in calf (i.e. failed preg test or did not calve)
G	Genetic condition (e.g. genetic carrier)
H	Horns
J	Cull unjoined heifer surplus to requirements
K	Coat Type
P	Poor performance (e.g. poor milking, low body condition, etc)
Q	Appearance (type, colour, markings, Society standards, etc)
R	Reproduction abnormality (eg freemartin, mal-formed uterus, pelvic area)
S	Structural problem (e.g. feet, legs, navel, etc)
T	Poor temperament
U	Udder or teat problems
V	Poor EBVs
W	Calved but failed to rear calf to weaning
X	Susceptible to parasites (ticks, buffalo fly, worms, etc)

Died or missing

C	Calving incident (e.g. dystocia, prolapsed)
D	Disease (e.g. pesti, bloat, 3 day, etc)
M	Missing assumed dead
X	Parasites (ticks, buffalo fly, worms, etc)
Y	Unknown cause
Z	Accident (e.g. injury, drowned, poisoned, etc)

Note: These disposal codes are specific to BREEDPLAN and are separate to the disposal information submitted routinely to your Breed Society. Disposal information submitted to your Breed Society can not be used in research into better female fertility EBVs, and likewise the disposal codes submitted to BREEDPLAN will not be utilised by your Breed Society.

Recording Pregnancy Test Results

- ❑ Where pregnancy test results are available, record the date and result of the test for each female joined.
 - Pregnancy test results should be reported as: N = Not pregnant, P = Pregnant, or between 3-20 = Number of weeks pregnant as advised by a qualified technician. Where the foetus is over 20 weeks old, a 'P' should be used.

Recording Calf Details

- ❑ All calves that are born in the herd need to be recorded with the Breed Society. Not recording all calves (including dead calves) with your Breed Society will compromise the use of the female fertility information.

Important Considerations When Recording Female Fertility Information

- ❑ Joining details for all cows in the recorded herd need to be collected in order to accurately reflect the cow fertility in the herd. Simply recording those cows that have a calf or those cows that remain on inventory in the next year is not adequate.
- ❑ Ensure that you record details for all heifers joined – not just the ones that calve or are added to inventory. Information on heifers is very important as many herds cull heifers that do not conceive in the first year of joining. The heifers that do not calve supply as much information to the analysis as those that do calve.
- ❑ Record the details of all joining events in which the female was involved even if you know the joining was unsuccessful. For situations where females are joined to several bulls in a mating season, record all joinings for each cow and heifer within the joining period, not just the first or successful joining.
- ❑ Accurately recording the fate/disposal codes of all females that leave the herd is extremely important. This fate/disposal code information is used to determine whether a female should be penalised for being “culled for infertility” or not penalised because she was culled for other reasons (eg. structure, performance etc.)
- ❑ Joining details for females that have been joined to multiple sire groups (rather than a single sire) should also be recorded. In this scenario, the sire ident that is specified should be the multiple sire ident, rather than the ident of the individual sire that resulted in the calf. Similarly, joining details for females mated to sires not recorded with the Breed Society (e.g. sires of another breed) should also be submitted.
- ❑ Herds with either a very wide calving spread (eg. cows joined all year around) or several calvings each year (eg. an autumn, winter and spring calving) may have

difficulty collecting good quality female fertility information. Herds in such situations should contact staff at BREEDPLAN for further advice.

Submitting Female Fertility Information

Similarly to other performance information, the female fertility information should be submitted directly to BREEDPLAN. Note that the joinings or fate/disposal information that is submitted to your Breed Society as part of your calf registrations or cow inventory will **not** be included in research into better female fertility EBVs.

There are two different methods available to submit the joining details and fate/disposal information to BREEDPLAN:

- ❑ Herds that use BREEDPLAN compatible herd recording software packages (eg. HerdMASTER, Stockbook, CattleLink) should be able to extract the joining details from their computer program and submit the details to BREEDPLAN electronically. Herds that require assistance either entering the joining details of their herd into their software program or extracting the joinings and fate/disposal information for BREEDPLAN, should contact their software supplier.
- ❑ A Microsoft Excel template is available for herds not using a BREEDPLAN compatible herd recording software package. The template can be accessed from the Technical area on the BREEDPLAN website or by contacting staff at BREEDPLAN.

Note: There is no paper form available for the submission of female fertility information to BREEDPLAN. Herds that are unable to submit information electronically are advised to contact staff at BREEDPLAN to discuss alternative methods of submission.

For more information regarding the collection or submission of female fertility information, please contact staff at BREEDPLAN.

EXAMPLE OF FEMALE FERTILITY INFORMATION

	Cow Ident	Event 1 Date	Event Code	Sire Ident	Man Grp	Bull Out Date	Event 2 Date	Event Code	Sire Ident	Man Grp	Bull Out Date	Event 3 Date	Event Code	Sire Ident	Man Grp	Bull Out Date	Flush Date	No of Embryos	Preg Test Result	Date Tested	Disposal Date	Disposal Code
A.	ABCA163	01062007	N	ABCU034	1	15072007	15072007	N	ABCZ021		18082007								P	15092007		
	ABCA156	01062007	N	ABCU034	1	15072007	15072007	N	ABCZ021		18082007								N	15092007	01122007	F
	ABCA182	01062007	N	ABCU034	1	15072007	15072007	N	ABCZ021		18082007								P	15092007		
B.	ABCA142	01062007	Z		A2		12062007	I	ABCZ021			16062007	N	ABAW123		01082007			10	01092007		
	ABCA154	01062007	Z		A2		14062007	I	XYZ101			16062007	N	ABAW123		01082007			10	01092007		
	ABCA180	01062007	Z		A2		13062007	I	ABCZ021			16062007	N	ABAW123		01082007			4	01092007		
C.	ABCA185	21052007	Z		2		01062007	A	UUUA001			02062007	N	XYZA002	SIC	16072007			N	30102007	01122007	D
	ABCA211	21052007	Z		2		01062007	A	UUUA001			02062007	N	XYZA002		16072007			P	30102007		
	ABCA221	21052007	Z		2		01062007	A	UUUA001			02062007	N	XYZA002		16072007			P	30102007		
D.	ABCA187	01062007	M		A3	30082007	04062007	I	ABCZ021			15072007	N	ABCX222		30082007			P	10112007		
	ABCA174	01062007	M		A3	30082007	05062007	I	ABCZ021			15072007	N	ABCX222		30082007			P	10112007		
	ABCT354	01062007	M		B2	30082007	06062007	Z				15072007	N	ABCX222		30082007			P	10112007		
	ABCU385	01062007	M		B2	30082007	06062007	Z				12062007	I	ABCX222		30082007						
	ABCU385	15072007	N			30082007													P	10112007		
E.	ABCV456																02052007	5				
	ABCV456	03052007	E		K9		20052007	N	ABCZ001		12072007								N	10112007		
	ABCV452	03052007	E		K9		20052007	N	ABCZ001		12072007								P	10112007		
	DEFW127	03052007	E		K9		20052007	N	ABCZ001		12072007								P	10112007		

- A. Example of a natural mating program, where the females were single joined to two different bulls. Preg test results and disposal codes are also included.
- B. Example of a synchronised AI program, followed by AI on observed heat and then a backup bull. Note that you can use different AI semen within the same AI program.
- C. Example of a synchronised AI program, followed by AI at a fixed time after synchronisation and then a backup bull.
- D. Example of an AI program utilising an initial period of insemination on observed heat (natural) followed by synchronisation of remaining females with insemination on observed heat and then a backup bull. Note that an animal's involvement in an AI program needs to be recorded even if she isn't inseminated e.g. Cow ABCT354
- E. Example of an ovum flush and registered cows ET implants