



Multiple Sire Litters

What is a Multiple-Sire litter?

A multiple-sire litter is where pups within a single litter have different sires. Multiple-sire litters may be intentional or may be unintentional.

How does this happen?

Each puppy can only have one mother and one father. But it is possible to have pups in the same litter with different fathers due to the nature of the canine reproductive cycle.

During each reproductive cycle, a normal bitch (female) will ovulate a number of eggs. These eggs travel from the ovary down the fallopian tube and into the uterus, maturing as they go.

If the bitch is mated, sperm from the male dog travels along the reproductive tract from the vagina through the cervix into the uterus to meet the egg. Fertilisation occurs when a single sperm from a male unites with a single matured egg from the female.

If sperm is present from more than one male at the time of fertilisation, it is possible that different eggs are fertilised by sperm from different males.

Is this natural?

In free-ranging canids, it is not uncommon for a bitch to be mated by more than one male during a season (heat cycle).

Changes seen during the first stage of the reproductive season, the pro-oestrus period, act to alert any males in the area of a bitch's changed reproductive status. Although the males will be highly interested, generally at this stage the bitch will not allow a male to mate her.

As she moves into the most fertile period in the cycle – *oestrus* – the bitch's behaviour will change, and she will become increasingly receptive to males and matings will occur.

During this receptive period, the same male may mate the bitch a number of times, or different males may mate the bitch. Therefore, viable sperm from more than one male can be present in her reproductive tract as the matured eggs are ready to be fertilised.

Multiple Sire litters in controlled breeding systems

In controlled breeding systems, a human oversees the selection of animals that are to be mated together.

Generally, there is a specific goal or outcome in mind, and the breeder selects breeding animals that display desirable traits or behaviours in the hope that they can produce offspring that also have these desired characteristics.

When a breeding female is in oestrus, her access to males is restricted – either to prevent a pregnancy altogether or to limit breeding opportunities to a single sire.

Accidental Multiple Sire litters

Accidental multiple sire litters may occur if a breeder is not sufficiently vigilant. Potential scenarios for this include:

- » The breeder does not detect that their bitch is in season and she continues to be housed with males
- » The breeder incorrectly identifies the end of the bitch's season and turns her back out with other males whilst she is still fertile
- » The breeder has insufficiently secure housing, and a determined male dog gains access to the bitch after she has already been mated to the preferred sire

Generally, the breeder in these scenarios will only know the litter may have multiple sires if they witness the accidental mating, or they have an unplanned pregnancy where the bitch has had access to more than one male.



Intentional Multiple Sire litters

There may be occasion where a breeder considers to deliberately use more than one sire. The most common reasons for using more than one sire are:

- » The fertility of one of the sires is in question – maybe the sire of choice is older and has reduced fertility, or the breeder is relying on frozen semen technology, and the semen has had poor quality post-thaw previously.
- » The breeder would like to try multiple breeding combinations but does not want to produce large numbers of puppies or have lots of litters.
- » The breeder would like to assess how different sires or 'lines' interact with a particular bitch or bloodline to advise future breeding plans
- » The bitch is reaching retirement age from breeding, and the breeder would like to ensure she does not 'miss' falling pregnant.
- » As a strategy to provide increased genetic diversity within their breeding program without having lots of litters

How are the sires of each puppy determined?

When multiple sires are used during a single oestrus, there is no guarantee that there will be pups from each sire in any resulting litter. This is especially true if one of the reasons for using this technique is to compensate for a male with questionable fertility.

Although many breeders will tell you that they see differences between puppies whilst raising the litter, the only definitive way to determine parentage is via DNA profiling.

DNA samples are collected from each pup, usually via a simple cheek swab. Specific DNA sequences or 'markers' from each pup's DNA are then compared to the corresponding DNA sequences found in samples from their mother and each of the potential sires. This allows individual sires to be 'ruled in' or 'ruled out' and parentage determined for each pup.

Does Dogs Australia allow the registration of Multiple Sire litters?

Yes – multiple sired litters are allowed from frozen semen, fresh semen, natural matings, or any combination of these.

The [Dogs Australia Regulations \(Part 6\)](#) state:

6.8 Multiple Sire Litters - Intentional or Unintentional Multiple Sired Litters

6.8.1 Any breeder who has either intentionally or unintentionally used multiple sires over a bitch must, when applying to register the resultant litter, provide DNA Test results undertaken by an authorised collector and submit the following documents together with the appropriate Service Certificates and Application for Registration.

- a. DNA Test certificate in respect of each of the multiple sires used;*
- b. DNA Test certificate in respect of the Dam of the litter;*
- c. DNA Test certificates in respect of each puppy in the litter which are all required to be tested at the same time;*
- d. A certificate given by a Veterinary Surgeon providing an interpretation of the results of the DNA Tests as to the correct parentage of the litter.*

6.8.2 Registration of the litter concerned will be processed based on the results provided in the Veterinary Certificate.

6.8.3 All costs associated with obtaining the certificates required are to be borne by the breeder of the litter.

Dogs Australia Regulations Feb 2023

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Things to consider prior to undertaking a Multiple Sire breeding

Multiple Sire Litters can be costly. There may be multiple Stud Fees to pay and additional DNA testing costs prior to registration. Having said that, the costs are still probably less than the costs associated with breeding and raising multiple litters.

It is important that the owners of each Stud Dog are aware that you plan to use more than one sire in the mating as their regular Stud Agreements will most likely have been written for single sire matings.

As with any breeding that uses an 'external' sire (one that you do not own), you need to have an agreement with the Stud Dog's Owner(s) in writing, prior to the mating taking place.

This agreement should cover what happens in regards to Stud Fees, or repeat mating agreements should the bitch not conceive to that particular sire, or where no litter eventuates.