

Ram Choice

Choose a mO or mA ram

- ***If the increase litter size compared with present flock is modest i.e. 0.2 to 0.4 lambs***
- The number of triplets produced by the crossbred offspring will depend too on the performance of their dams and could vary from 10% at a litter size average of 1.75 to 20% at an average of 2.0
- Quadruplets and higher litter sizes will be absent/minimal.

Choose an mB ram

- ***If the desired increase in litter size is greater than 0.4 lambs***
- The actual increase will be due to a single gene and be approximately 0.4 to 0.5 lambs
- The gene carrying the mutation is on the X chromosome so all female offspring will carry the mutation
- The latter will mean that the crossbred performance will be relatively uniform but with a significant number of triplets and probably some quadruplets.

Choose an mC ram

- ***Only if you want a large increase in litter size and feel able to deal with significant numbers of multiple births!***
- These rams are still available
- Only half of the females will carry the mutation so the offspring will vary in performance
- Crossbreds carrying the mutation could produce large litters.

In Ram Choice also note the following.

- *The above indicates how rams in the Cambridge breed can be selected for crossbreeding on the basis of their potential prolificacy only.*
- *It has to be recognised that there is some variation within the groups and consequent overlaps in prolificacy performance*
- *There is no evidence at present that the mutations are linked to other important traits such as:*
 - colostrum and milk production*
 - growth and conformation*

DNA Genotyping of Cambridge Ewes

- DNA genotyping of ewes in the breed has revealed the presence of 3 mutations that effect ovulation rate
- The effect varies but all three are associated with the occurrence of large litters of 4 or more lambs.
- In contrast the ewes without a mutation produce a max of 3 lambs.
- Within each group there is still year to year and sheep to sheep variation (see table below)

Mutation	Mean Litter size	Profile of Litter Sizes (% of total)				
		1	2	3	4	5
<i>None</i>	2.2	9	60	31	0	0
<i>GDF9G7A</i>	2.4					
<i>BMP15</i>	3.0	5	3	41	25	6
<i>GDF9G8</i>	3.3	4	14	32	29	21

DNA Genotyping of Rams

- Rams are now being genotyped too to determine their prolificacy potential
- Rams are categorised into 4 groups corresponding to the mutations present as shown in the table below

Group	Mutation
m0	none
mA	GDF9G7A
m0	BMP15
mC	GDF9G8

- DNA testing helps the purchaser select the ram that best suits the objective of producing high performance crossbred ewes that are prolific but have a minimum number of large litters