GLANNA
MERINO AND POLL MERINO STUDS

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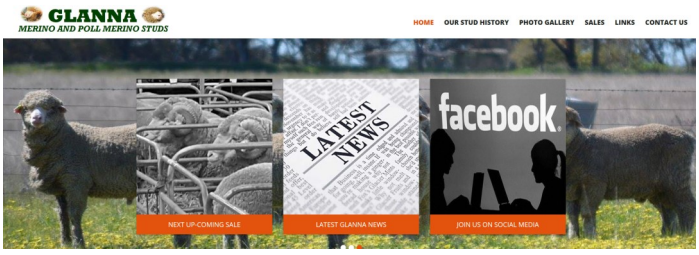
A Bit About Us.... The Glanna Flock was commenced in 1934 by the late Jack Rayner with Mudgee fine wool ewes and rams of Dalkeith blood. From 1943 to 1984 rams from Bocoble were used. In 1984 97 ewes from the Glanna flock were passed by official inspection for the registration of the stud and in 1985 a further 205 ewes were also passed. Glanna Stud has 450 registered horn stud ewes and in 2019, 100% of these were mated to Glanna bred Stud rams. Our Poll Merino Stud was founded on Glanna, Merryville Poll, Roxanna, and Kurretta Poll bloodlines. Glanna purchased 72 Poll Special Stud ewes to $610 a head at the dispersal of the Roseville Park Poll Stud at Dubbo in 1989. Our Poll Stud ewes now total 250 mated in 2019 and again 100% of these have been mated to Glanna bred rams in 2019.

Doing It Naturally.... Here at Glanna we are dedicated to breeding sheep that are *naturally* good-doing animals. Eg: Efficient converters of food into production). To this end we DO NOT use self-feeders with the aim to show that the Glanna blood sheep can do very well without being force fed. Many animals will do very well when given the added amount of feed that some studs are now using but when they are put into real-world commercial conditions they cannot maintain themselves, let alone raise offspring. Force feeding (eg. Self feeders, feed lotted etc) can cover up many doing ability flaws that as a supplier of seed stock genetics you cannot ignore. Studs have a responsibility to their clients to present their stock in real world condition as much as possible.

Balanced Breeding.... Glanna sheep are a great balance between carcase and wool quality. We will not push the boundaries of sheep size to far as to do so invites greater dependence on supplementary feeding. Glanna stud ewes range from 55kg to 85kg body weight at a condition score 2 to 3 without being over fed. Glanna regularly achieves 90% weaning percentages (of ewes MATED) without giving twin bearing ewes priority. We believe this has proved to increase our twinning rates as the surviving sheep are stronger in constitution and hence doing ability. Overseas Wool Processing Trials with Glanna blood wool produced outstanding results which can be attributed to a combination of genetic purity, and the genuine wool quality traits that we take into account in selection and breeding decisions. Many studs are using genetics from a very, very wide range of studs chasing the genetic 'hybrid vigor' to realise greater production figure results for use in ASBV's etc.
At Glanna we very occasionally use outside genetics in our stud usually with the aim to keep some genetic ranges and to restrict inbreeding. In 2019 the stud sires used are 100% Glanna Bred. Genetic purity is a *must* to produce quality processing wools.

Our Greatest Advertisement.... The greatest advertisement for our stud is the results our clients achieve. These are real world results in commercial operations and show the genetic prepotency of the Glanna bloodline. Clients have regularly won fleece competitions up and down the eastern seaboard and top wool sale results over and over again. Glanna clients also regularly record great returns from selling surplus stock with many clients recording up to 30% greater carcase yields than estimated when selling over the hook.

Keep Up-To-Date on Glanna.... Visit our website at www.glanna.com.au or follow us on facebook at https://www.facebook.com/Glannamerino/



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Glanna Mating Structures The Background…. Since before 1960 Glanna has been using 'special mating practices' in its breeding program which was basically:

1. using best woolled rams that were averaged developed over good average ewes that were not too good in wool quality.
2. Big framed rams with average developed good wool ewes
3. Plain long stapled and a little bolder crimping rams over more developed and shorter woolled ewes.

In late April 1991 Dr Jim Watts visited Glanna. Later that year he was employed as our Stud Technical Advisor. Dr Watts took skin tests off several Glanna rams which showed Very high SP Ratio and Follicle Density from our existing breeding with pure Glanna-Merryville genetics. Dr Watts was also very surprised about the existing use of the 'special mating practices' at Glanna after studying our old breeding records. Dr Watts's knowledge of skin biology backed up and clarified the breeding practices Glanna was using with the system evolving a little to show as the below:

1. Wool rams over average developed Frame ewes
2. Frame rams over average developed Wool ewes
3. Plainer loose skinned Wool rams over more developed ewes (some of these were very good woolled and some only average quality woolled)

Ron already at that time was classing some clients flocks and at that point they were basically mass mated. By the mid 1990's Ron was classing many flocks both locally and through many parts of NSW and Victoria in conjunction with Dennis Ekstedt (who at that time was with Landmark Victoria). Progressively more and more clients were using the 'special mating practices' and moving away from un-targeted mass mating's. In a couple of flocks in the late 1990's and early 2000's Ron started separating the Wool Type developed sheep (typically very crimpy and good length wool on a developed body) from the remainder of the developed sheep. This extra classification led to a greater increase in the number of very heavy cutting, quality woolled fine wool sheep in the flocks involved.

After seeing many flocks, before using Glanna genetics, in NSW, Victoria and later in QLD there has been some common traits or tendencies shown across a wide range of bloods and genetics.

1. The richer woolled plainer or average developed sheep were often smaller or narrow bodied with the worst of these being culled straight away.
2. The plainer, white woolled sheep were significantly light cutting and a huge number showed hairy breaches.
3. And also in some bloodlines there were large numbers of very short woolled, very tight skinned sheep with some showing hair sticking out of the backline.

We then used Glanna rams over each typed group usually in 3 or 4 different ewe groups with great results especially when using Glanna developed Wool-Frame rams over the plainest Flat skin ewes which often resulted in doubling the wool cut in the progeny in the first cross compared to their mothers.

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Glanna Breeding Types…. **The Progressive Breeding Strategy** is defined as segregating and then matching the different biological types with their complementary mate to produce a superior progeny. Below are the basic definitions of the different types of **what to aim for**.

Wools: Good length of body (not too narrow or short bodied), free in the skin over the hip region with no pin wrinkle. Good wool coverage. Wool is very good length, very bright with very good deep crimp definition and often a little bolder crimping than the average. They are usually lower in the micron than they appear or they are very pure in the test results. As generations go by, when classed correctly, the Wool type become very similar in size and robustness as the Frame and Developed sheep. Avoid woolly heads with no neck extension.

Rams Used Over the Wool Type: Frame type rams with average development.

Frames: Good length of body or longer (definitely not narrow or shorter bodied). The skin over the hip region will be a little flatter and not as loose as the Wools. The wool will often be a little finer crimping and a little whiter (raw wool colour) than the Wools. The fleece will be a bit more traditional in type especially in fine wool blood sheep. The relationship between crimp and micron will also tend to the more traditional relationship. The Frames are a robust sheep. As generations go by the wool on the Frame types becomes more closely related to the Wool type sheep.

Rams Used Over the Frame Type: Wool type rams. The Frame type ewes can carry a little development because the Wool type rams will have a good, loose skin.

Developed: Good length of body (can get shorter bodied if allowed too). Naturally deep bodied, broad backed, well covered, thick woolled down the sides and often with some degree of pin wrinkling on the hips although in the better ones they will still be loose in the skin. Very heavy ewes that are short in the staple over the hip region and with collaring around the back of the neck would be culled. In more advanced flocks these sheep can become very good quality woolled sheep and highly productive at the same time. Developed ewes tend to be finer crimping and in early stages are often higher in the micron but great ewes to breed productive progeny from.

Rams Used Over the Developed Type: Wool Type rams that are plainer. With good length of body, free in the skin over the hips, long stapled, well aligned, quality wool, preferably with a bolder crimping wool.

The developed sheep can also be split a further way by separating the good woolled ewes and lesser woolled ewes. This allows a more targeted mating.

The Trap: Like any other trait in sheep taking one aspect too far creates trouble.

Breeding too much on the Wool Type side (eg: Wool Type over Wool Type or even Wool Type over very good woolled Developed sheep) breeds narrow bodies, poor doing sheep that become more and more light cutting and lighter body weights.

Breeding too much Frame over Frame breeds lower Follicle Density sheep that are higher micron when they are older.

Breeding too much on the Developed side breeds shorter staple length, shorter bodies, higher microns, and can lead to hairy breeches and elsewhere.

The above definitions are of what more advanced types will look like. Every flock starts from varying points and different "goal posts" are used when splitting the ewes into type. For example a flocks Wool Type ewes early on may not be fantastic in wool quality but their skin characteristics dictate they need a Frame Type ram over them. Developed ewes early on may all be lesser wool types not requiring a Frame influence so they can be mated all together and not requiring the further split. Frame Types may be more on the Flat side and not overly big so they may require Wool Type rams that are also larger and more robust. By splitting the ewes into Types before purchasing rams it makes it significantly easier to target ram selection.

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Nourishment: Wool Ewes: The ideal type of nourishment (wax) in wool. This will be displayed as wool that is very bright, a slightly creamy white when young and as a bright, pearly white when older. When tested for scored colour these wools have tested a brighter white than thought possible.
Frame Ewes: Not as nourished as the Wool type but still a bright white colour but not quite as bright as the Wool type but still very good compared to industry standards.
Developed Ewes: These are as above when split into Wool type developed sheep and Frame type developed sheep. They are essentially the same but with more development . The Wool type developed sheep may show more wax on the tip as through the more extreme follicle density.

The Aim: After a few generations the difference in the types become less and less with the general aim being to have each sheep displaying the desired high quality wool with high fleece weights on a large robust body. The main differences will be the Frame ewes will be a little whiter in the wool and finer crimping. The Wool ewes will be very bright in the wool, bolder crimping and very soft handling. The Developed ewes will be the heaviest cutting with wool quality ranging between the Wool type and Frame type. But even at this stage the traps remain. Breeding like with like becomes almost immediately regressive.

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Genetic Prepotency.... What is genetic prepotency ?

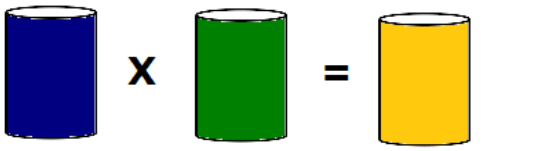
Imagine that the genetic makeup of the ram you buy is represented as a cup of drink.

In this case its blue drink. The ram is purely bred (within the stud) so it's a very concentrated blue.

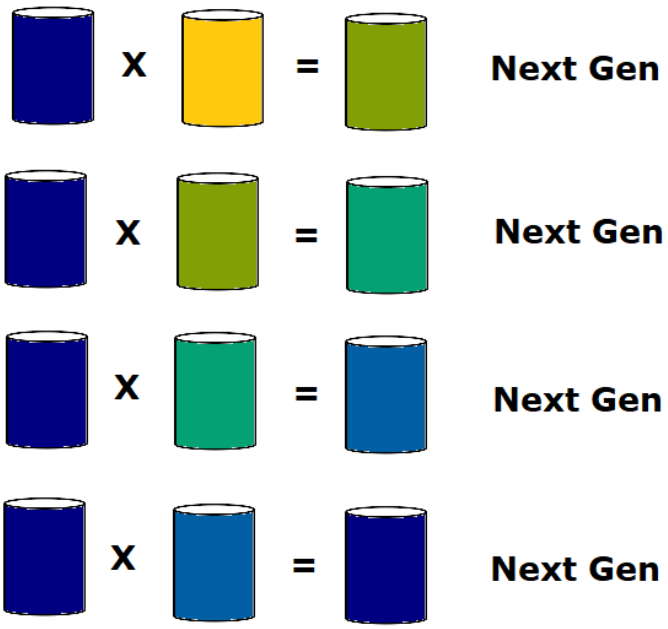
That ram is then put over your ewes in your flock.

The result is a mix of his genetics (blue drink) and your flocks (in this case we will use green drink).

The result is yellow drink. Now this is a good match and the result can be seen as a good cross from one set of genetics over another and some people are looking for the "yellow" type of result hence the comment you hear sometimes that their sheep click well with their flock and they continue with a 'fixed cross' sometimes sourcing from two different studs and continually trying to keep the 'yellow').



But if the flock owner wishes to keep using the genetics from the stud with the strong blue prepotency then over the next generations the below happens.



Until their flock has a strong resemblance to the studs.

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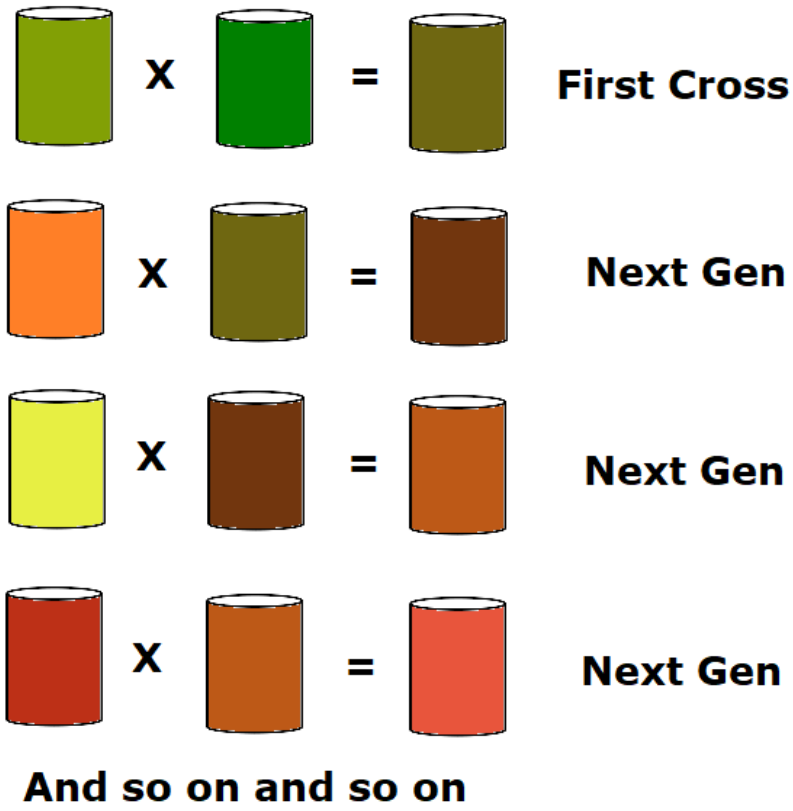
So what happens if the stud they are buying from, is themselves, using a lot of different genetics each year.



The flock owner can never reach a stable genetic base as the drink is being mixed up every generation.

So this all looks pretty but what does it mean in real life, in real life results. Genetic prepotency is about predictable results. Its about knowing what sort of lambs you will get on the ground from the cross and the predictable progression through the generations of sheep.

Now the one factor that is not shown here is genetic hybrid vigor. Heterosis, hybrid vigor, or outbreeding enhancement, is the improved or increased function of any biological quality in a hybrid offspring. An offspring is heterotic if its traits are enhanced as a result of mixing the genetic contributions of its parents. Successful hybrid vigor breeding systems are usually a 3 tier system, sourcing from 3 different types to continually produce the hybrid offspring but the key to these systems is having a source of genetics from a stable production population of ewes such as a pure "blue drink" source. If everyone in the system (merino flock) is using hybrid vigor, result predictability and genetic stability (related to detrimental defects (eg. Structural faults, black spots etc) is completely lost along with traceability. (eg. Where did these faults come from).

We believe there is also an undercurrent problem that occurs with this mixed breeding and that comes in the form of detrimental impacts on fibre quality. We are not talking about the standard wool quality traits often quoted such as micron etc but of the chemical and innate characteristics of the fibre. These qualities impact on the processing performance of the wool in the mills which is something we have taken out of wool processing trials. Wools sourced from a single genetic base

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Performed better than wools that had the same fibre qualities but were sourced from a more varied genetic base. The argument against worrying about these issues is that we don't get paid for these qualities so why worry about them. But we beg to differ. Glanna clients continually receive premiums over similar wool with similar measurements when selling their wool. Along with the fact that improved (or in this case reduced) processing efficiency effects the manufacturers ability to make money hence this will flow onto the price we receive at sales as an industry as a whole.