



# FLOWERDALE ESTATE ALPACAS

## Industry Future

### Evolving the Australian Alpaca

#### Introduction

The sustainability of the Australian alpaca industry depends on Australians adapting their alpacas to Australian conditions, irrespective of where they are situated in the country. That means alpacas in different weather and topographical areas will evolve differently. We must not allow the show industry to dictate what we breed, with no concern for where we live. Put simply, animal breeding is a combination of genetics and environment.

**History:** The Merino Industry An example of developing an animal to suit Australian conditions is the Merino sheep. In fact, we virtually developed a new breed in the process. The earliest form of the Merino came from Mesopotamia between the Tigris and Euphrates rivers, perhaps at the time of Moses. The direct forebears came into being with the Roman conquest, approximately two centuries before Christ. The Berbers took them to Spain in the twelfth century. Descriptions of the sheep with particular reference to its fleece are sprinkled through the pages of legend and history. The Australian Merino however is none of these. It is not Spanish; French, Tunisian, Algerian or Moroccan. It is Australian -- arguably the best and most successful product of any kind put together in this country. The merino industry in Australia was founded by John Macarthur, but Macarthur's sheep were constitutionally small and would never have made it to the end of the first week of a Riverina (southern NSW) drought. The ewes weighed approximately fifteen kilograms, not much more than the fleece of a top present day Riverina medium-woolled Merino sheep. Due to a lack of animal breeding knowledge by 1834, the year of Macarthur's death, the Merino had been so crossbred or mongrelized as to be unrecognizable. The theory was: the bigger the sheep, the heavier the fleece and the results were nothing short of disastrous. Sheep were worth six shillings each -- not for their wool, but for the tallow when the carcasses were boiled down to make soap [1].

If it were not for the Englishman Thomas Shaw and a migrant George Peppin the Merino would have vanished into obscurity. Shaw was a wool classer sent to Australia to see why the quality of wool exported to London had deteriorated. Peppin had country on the 'Old Man Plain' between Deniliquin and Hay (central southern NSW), 'the last resort for landless men' [1]. Selected simply because there was nowhere else to run the sheep, Peppin invited Shaw to class sheep for him and together they developed the forebears of the present day Merino sheep. Shaw classed for the Peppins for twenty years and his son Jonathon took over from him on his death. By this time the Peppins felt they had developed the type of sheep their country would grow, not sheep that would have to fight the country to survive. They introduced Rambouillet (French) and Negrette (German) blood rams to gain further improvement on the strains they developed. One of these rams named 'The Emperor' cut eleven and a quarter kilograms of unwashed wool. They also used two American rams of Vermont blood with great success. The Peppin name will survive the rigors of time in Australian agriculture through their sheep [1].

In 1830, William Furlonge arrived in Australia with seventy sheep from Saxony. Furlonge settled in Tasmania and these sheep became the backbone of the Tasmanian fine wool Merino industry. They also strongly influenced mainland flocks [2].

By the 1880s when the Peppin sheep were gaining popularity, other stud breeders wanted to copy their techniques and turned to America to import Vermont Merinos, unfortunately with no thought to the fact that, in the twenty years since Peppin imported his rams, the Vermont Merino had changed from plain bodied sheep to a sheep with a mass of body wrinkles. These new Vermont Merinos cut a heavy, greasy fleece, returning a low percentage of clean scoured wool.



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The demand for these sheep finally took off and the speed with which this change occurred in the Merino breed is a lesson to all stud breeders of how quickly widespread harm can be done to an industry if we mistakenly choose an undesirable trait in our selection programs.

Breeders thought the increased skin area due to the wrinkles would produce more clean scoured wool; in fact, the opposite occurred. The heavily yoked wrinkles attracted blowflies in the humid conditions, providing excellent breeding grounds for their maggots. The sheep also lacked constitution. In the drought of 1901-1903, nineteen million sheep died in Australia, as they were incompatible with the Australian climate. A large percentage of these were 'New' Vermont blood. It was about this time that more attention was given to constitution and the plain-bodied Australian Merino type was developed [2]. The Peppin Merino was the ancestor of what was to come: arguably the development of the finest renewable resource in the world. Australia depended for a long time on this wonderful animal, which has developed into a true icon. The Merino spread from the Riverina to all parts of Australia and developed their own peculiarities to suit the areas they were run in. We have Merinos as diverse as the super-fine, shedded Merino cutting two to three kilograms of eleven to twelve micron and small in frame, to the large South Australian Merino, cutting almost ten times the amount of wool and with a micron of up to twenty-four or twenty-five.

The Present - the Alpaca Industry The alpaca industry is in its infancy in this country and we must be ever mindful of the lessons learned by Merino breeders. It isn't sufficient to purchase an alpaca based on its show results. It has to have the conformation, constitution, and fleece qualities (correct staple and crimp definition, lack of medullation, brightness or lustre, density and handle) to suit the particular area of Australia the alpaca is being run in. As stated before, the Australian Merino industry has developed animals with specific fleece and conformation characteristics to suit the areas where they are run. Heavy rainfall, high altitude country requires smaller-framed, fine-wool merinos. The density of the fleece prevents moisture retention from heavy rain thus preventing fleece rot, lumpy wool and flystrike. The drier areas and plains country are more suited to larger-framed, stronger-wool Merinos. These animals live in harsh environments and have to travel long distances for food and water, so their fleeces must withstand incessant dust, sandstorms and sunlight. In the regions between these two extremes the medium wool merinos are found. They have the ability to cope with both extremes to a lesser degree [3].

The alpaca industry is ultimately a fleece industry and if we want to sustain it into the future we have to convince sceptical farmers that there is a financial return from alpacas. Without this, the industry has a short lifespan in agriculture and will go the way of the pet industry. Livestock have to have some built-in value beyond their cuteness and in this case it is an exquisite fleece that will have an increasing worldwide demand, provided the fibre produced is of high quality. We have to breed consistency of conformation and fleece, eliminate micron blowout, and reduce medullation or guardhair. Density of fleece and a finer micron can also be worked at, but they will come if we can improve the above three points. It is no good having an alpaca with a wonderful fleece and no frame or constitution to sustain it. Dead alpacas produce nothing. The reverse, unless we are developing a meat industry, is also of no value to us, as alpacas that put protein into body fat instead of fleece are of little value. At this point, we have to breed with all we have, but ultimately eliminate those animals that don't measure up. The AGE system will help us do this but I would hope that every breeder has their own AGE program. There are other characteristics not yet covered by AGE that are also important, those being fertility, temperament, ability to forage and thrive, and early maturity (females breed at twelve months of age). In fact, some aspects of our industry are holding us back, for example, the continued showing of an alpaca retards its ability to forage and survive without supplementation, a characteristic we can ill afford to lose in our tough environment. The ability to cull successfully can only come about when you have alpacas of similar type; you can then eliminate those animals that lack the fleece and conformation characteristics you are looking for. Thus you need to breed with like animals and this industry has got to the point where it must look at line breeding to get this consistency, as continual outcrossing makes it extremely difficult to move



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forward. For instance, the genetics of some of our best animals can be eliminated in ten years with outcrossing; however, with line breeding they can be retained to eternity. I am not talking about inbreeding. I am talking about line breeding with animals that, combined, have no more than fifty percent of one ancestor's blood.

The Future Line breeding is the system by which practically all lasting improvements in livestock have come about. To quote an American Hereford breeder J.H Lents who has written a practical book on line breeding, 'The ideal animal should possess those characteristics, which are economically important. These characteristics are structural correctness, soundness, longevity, fertility, and reproductive ability, uniformity, mothering ability, strength of constitution and efficiency of converting feed stuffs into the desired end product' [4]. J.H Lents should know as he has spent his life breeding Hereford cattle in a herd closed since 1881. His animals have been tested by vets for soundness and efficiency. They stand up against the best and do not display any deformities.

Line breeding is often put down as inbreeding but J.H Lents' explanation is the best I have heard. He says, 'Line breeding is a system of mating which concentrates the blood and influence of one or more ancestors to a level above that which would have existed had each of the ancestors names only appeared once in the pedigrees of their descendents. Line breeding never introduces more than fifty percent of the blood of any ancestor into a descendent, regardless of the number of times the ancestor's name may appear in the pedigree of that descendent. .. In order for an animal to create positive change in their descendents that particular animal must possess three things: breeding, quality and individuality' [4].

To begin line breeding you must have in your mind's eye the ideal animal you are looking for, and animals of exceptional quality to breed to. It is no good just selecting any animal willy-nilly. What makes the mind boggle about line breeding is the ability to produce an animal with forty percent plus blood of an ancestor that has been dead for fifty years. This is a way of protecting the qualities of outstanding individuals whose blood and influence would have been lost inside ten years with outcrossing.

We must look for alpacas that are adapting to Australian conditions i.e. those alpacas that are highly fertile, thrive and have the ability to maintain their body condition while rearing a substantial cria and producing a quality fleece. Peru is a wonderful country but it has different climatic conditions to Australia, and just because an animal performs well in Peru, it won't necessarily perform the same here. Peru is a volcanic land. The soil is high in trace elements. Australia on the other hand is one of oldest countries in the world and many of the trace elements have been leached from the soil. Over the last few hundred years sheep and cattle have adapted to our harsh environment, while alpacas have been here just over fifteen years.

Continually bringing in new imports and outcrossing makes the adaptation process more difficult. It is time we started to look at alpacas coming to Australia with a view to how they fit into our breeding programs. The areas alpacas are run in Peru are either very dry or the rains all come at the one time of the year. This enables the animals to carry more than twelve months' (even up to four years') wool without damaging the fleece or causing any harm to the animal. The climate is not as hot and the altitude is much higher. If animals were run like that in Australia, we would find the fleeces would become weather damaged from rain, sun and humidity. The animals themselves would also suffer, getting waterlogged in winter and flystruck in summer, and the constant heat could cause fertility problems, particularly in males (swollen testicles, low numbers of live sperm).

Many alpaca breeders throughout Australia have asked me whether they should be running alpacas in their area or should they move to a more suitable location. My answer is: alpacas can be run in most of Australia except perhaps the tropics. It is a case of understanding the environment you live in and adapting alpacas to suit those conditions.



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We must breed animals to produce as fine a fleece as the area we live in will allow, as the sheep industry can produce large quantities of wool twenty-three micron and above much more efficiently and cheaply. Our aim must be to breed adult alpacas twenty-five micron and below on their fourth fleece and beyond. This may take years to achieve but we must not lose sight of this aim. We need individual breeders who have the courage of their convictions to develop a uniquely Australian alpaca.

**My Vision** My vision for Australia is to produce a huacaya that is square bodied, strong boned, deep framed, medium sized, producing dense, soft-handling, bright, independently stapled, well-defined and tightly-crimped fleece, of twenty-three micron or less. The fleece will have little or no medullation or guard hair and will weigh five kilograms and above.

Suris will have much the same characteristics. The locking will be lustrous and individual, with as many locks as is possible to achieve across the body without losing density. Fleece weights will be similar to huacaya.

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Bill Robbins, marino sheep and alpaca breeder, author and senior alpaca judge in Australia

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