Experiences with composites
North Australian Pastoral Company (NAPCO)

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Supplementary S3

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NAP began crossbreeding in 1982 by mating Brahman Bulls to our Shorthorn cow herd. By 1985, we were wondering what to do next, as loss of heterosis was a distinct possibility if mated F1 to F1 and so on to F2 etc.

The Clay Centre work offered a viable option to retain 70 to 72% heterosis if we constructed a 4 or 5 breed composite. We commenced, therefore, the development of a Composite, along the following lines. We call this our own Alexandria Composite.

Alexandria Composite

With our basis of F1 (Shorthorn x Brahman Cross), we introduced Belmont Red and Charolais Blood lines. Because of our environment, we were only able to introduce Charolais via Charbray Bulls. See Figure 1.

These breeds then introduced:

- Carcase yield
- Reduced fat cover
- Excellent temperament
- Improved environmental adaptation
- Improve fertility

We now have approximately 3,000 Alexandria Composites on the Barkly Tableland set up with three stud groups of 300 plus which supply bulls to the bull breeding group of 2,000 females. These bulls are sent to our breeding station after they have passed the selection program.

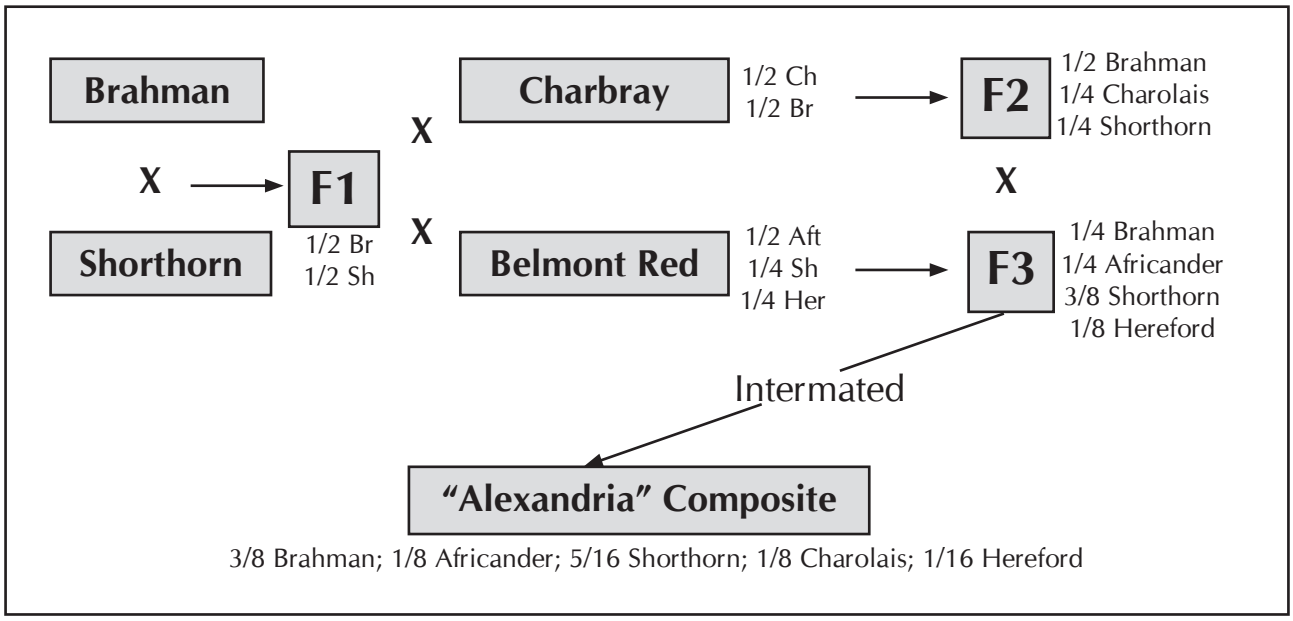

Figure 1. Alexandria Composite

A meat quality emphasis - the Kynuna Composite

During recent years, there have been a number of breeders who have begun to focus on composites that will fit the new MSA standards which are quite demanding. Red Angus, Tuli, Belmont Reds, Senapol, and outrider Brahman bulls are now being used extensively in the North to introduce better carcase characteristics into the herds. The introduction of bulls from CRC I trial work via A.I. is the way to move your program forward quickly.

NAP has also taken initiatives in this area, and began another composite in late 1995 based on the remnants of our Shorthorn Herd, F1 (Brahman/Shorthorn Cows), Tuli and Red Angus. The emphasis is on reducing *Bos indicus* content and enhancing meat quality to channel more cattle into the MSA grading system.

The same rules apply as discussed earlier, you put into the breeding plan the breed types that you perceive will give the results. Fortunately, we have been able to use sires with EBVs in this program whereas these cattle were not available in our first composite.

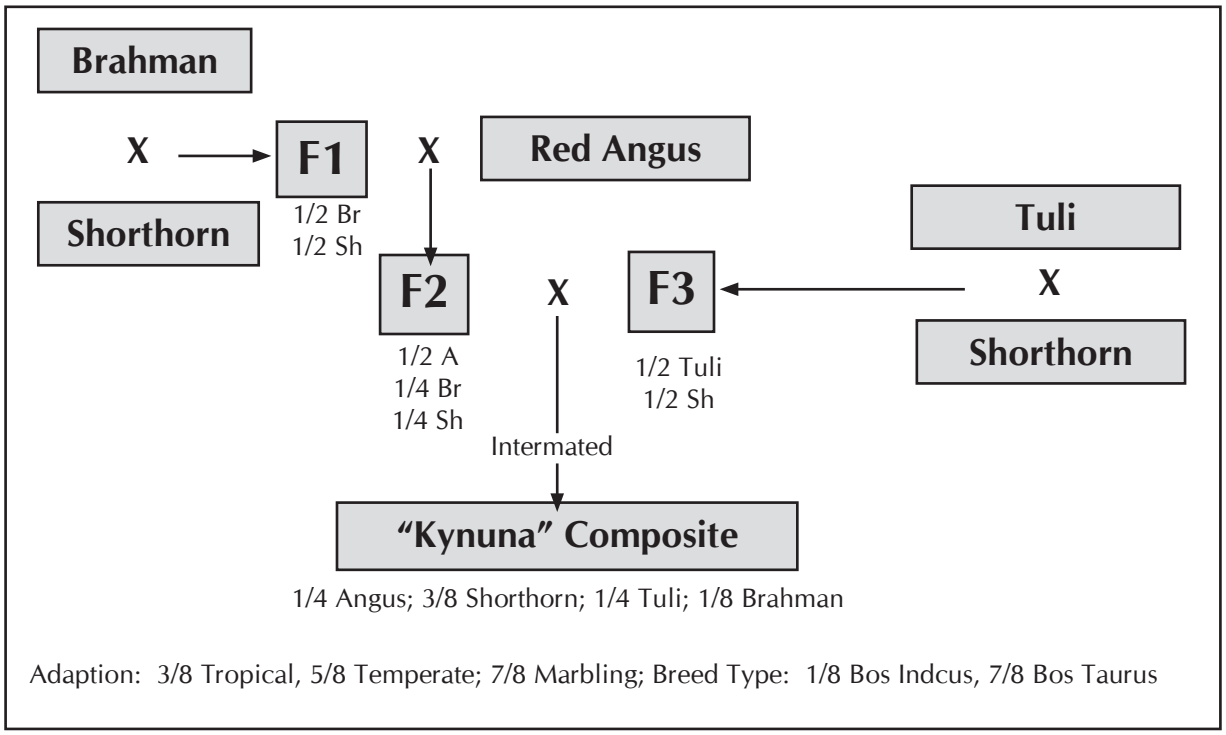

Figure 2. Kynuna Composite

Monitoring

We select and monitor our composites on these main traits:

1. Reproduction Rates
2. Growth - Pasture & Feedlot
3. Carcase Assessment - feedlot trials and chiller assessment.

Composites should be bred on the basis of "Form Following Function". Culling should be severe with maiden Heifers culled if they are not in calf or out of sync with your calving times. This process should continue throughout the life of your composite herds. With the bulls, we pay particular attention to sheath, testicle size, structure, feet and growth on grass. We now bring the bulls with the best ratios to our feedlot to assess growth, EMA, rib & rump fat, and marbling with the use of both the ALOKA and PIE ultrasound machines. All the cull bulls from the feed trial are killed and objectively measured.

General Comments

There are a number of breeders using the following combinations of breeds to produce composite in the south of Queensland.

1. Shorthorn - Tuli - Angus
2. Droughtmaster - South Devon - Tuli
3. Black Angus - Shorthorn - Belmont Red

These types of composite should maintain about 62 to 65% heterozygosity relevant to the F1. Researchers consider that in composite populations, a more rapid improvement of greater magnitude will occur as compared to crossbreeds as a result of selection.

We consider the Tuli to be a major asset for Northern Queensland breeding programs as it performed at about the same level as the Brahman in Heat Stress trials at Gatton College but is rated as having a Hereford/Angus Cross carcase by Clay Centre researchers. It is also classed as a *Bos taurus* (Sanga) by MSA.

Summary

Whilst establishing a composite breed requires great focus in the beginning, the gains at the end are substantial. The other important consideration is that if your composite doesn't deliver, you have the option to add a bit of this or that in whatever proportion you require.

Table 1.

Monitoring	
Males	**Females**
Growth Rates (ranked)	Growth Rates (ranked)
Conformation	Conformation
- Limbs	- Limbs
- Frame	- Frame
Gait	Gait
Temperament	Temperament
Testicle size	Umbilical fold
Prepuce type	Udder & Teats
Coat	Preg status
Serving capacity	Fertility
Select top 5% for studs	Select 85% to join
Next 17% to herd	Cull further 12% at preg testing
22% of Weaner Crop	Retail 73% of females