PLANNING YOUR FARM FOR THE 1990's AND BEYOND
A CASE STUDY
E. H. KATER, "RED CLIFF", BOMBALA

INTRODUCTION

I would like to relate our experiences with the development of "Red Cliff" since I became manager 12 years ago.

"Red Cliff", as part of "Cambalong", has been in my wife's family for 150 years. It is considered very good Monaro grazing land and it is situated 16km northwest of Bombala on the Cambalong Creek. As in other areas the reduction of the size of land holdings and the increased cost of land have forced land holders in the southern Monaro to improve the productivity of their land.

DESCRIPTION OF FARMING OPERATION

The area of "Red Cliff" is 1417ha of which 526ha has been purchased in the past six years. We have a self replacing Merino flock shearing 5700 grown sheep and lambs, also a self replacing Hereford herd of 210 cows. Our income is mainly earned from wool, supplemented by sheep breeder sales and surplus cattle at autumn weaner and breeder sales. The quality and performance of our livestock is paramount. Some opportunity cropping of oats, barley and winter wheat, sown in autumn, gives us grain for on-farm storage drought reserves, with the surplus being sold as feed grains.

CLIMATE

Our average rainfall is 575mm (recorded over the past 77 years). The lowest rainfall was 333.5mm in 1982 and the highest was 1035mm in 1978. We have cool to mild temperatures. Bombala's hottest month is February with a mean maximum of 25°C. The coldest month is July with a mean minimum of -1.1°C. As "Red Cliff" is located on the treeless plain, temperatures are cooler and hotter than Bombala. Our lowest temperature in the last 12 years was -9.5°C in July 1987. It can get to 37°C on rare days.
(See Table 1 page 3.)

Table 1

BOMBALA FROST FREE PERIOD

Average and Extreme Dates of First and Last Occurrence of Minimum Temperature of 2.2°C and Mean Deviation from Average Dates.

STATION	BOMBALA
Mean frost free period (minimum screen temperature above 2.2°C)	104 days
Date of first temperature below 2.2°C	
Earliest	1st January
Average	13th March
Mean Deviation from average	24
Date of first temperature below 0°C	
Earliest	13th January
Average	7th April
Mean Deviation from average	25
Date of last temperature below 0°C	
Latest	14th December
Average	4th November
Mean Deviation from average	19

Winds are a feature of our climate with north west and west winds in the spring. These can cause rapid loss of moisture on the exposed treeless plain, eg 4" water loss from a .75ha dam in one day. In winter, west and southwest winds associated with southwest changes deposit snow on the Snowy mountains 90km to our west. They leave us in a rainshadow area with very high chill factor winds of up to -15 C.

TOPOGRAPHY

"Red Cliff" is undulating to hilly with flats along the Cambalong Creek at 700 metres above sea level rising to the higher back country on the tree line which is 840 meters above sea level. The land is broken by wide valleys 2.5km from ridge to ridge.

SOILS

One third of "Red Cliff" is east of the Cambalong Creek. This is red and black basalt, with black flats on each side of the creek. The remaining two thirds consist of podzolic complex type soils with basalt and iron stone intrusion, being, in the main, rock free and very arable when there is soil moisture. There is a shale rock base in the bottom of the gullies. Our soils are varied and this is explained by the recently discovered Cambalong metamorphic complex.

VEGETATION AND NATIVE GRASSES, LEGUMES AND TREES

Our country is open rolling grassland with very few native trees. These are confined to the west side tree line and include: Ribbon gum (E. viminalis), Red Box (E. polyanthemos) and Snow Gum (E. pauciflora). There would be not more than 200 native trees on "Red Cliff".

We have found fossilized trees 55 million years of age and it is believed many years ago the country was covered with Huon and Bunya pine.
We fare better in the native grass area, with the most prominant varieties being spear grass (Stipa variabilis), tussocky poa (Poa caespitosa) and a large range of Danthonia species. Also there is a good coverage of naturalised trefoil, clovers and herbages.

WEEDS

Saffron thistle (Carthamus lanatus) is our most common weed. We have learned to live it, spraying crops due for harvest and slashing just on the point of flowering for three years in a row is giving us 90% eradication.

Grey or Scotch thistle (Onopordum acanthium) can be a problem and is kept under control by spraying in the spring. If missed, we cut the seed heads off in the autumn, collecting them in bags for burning.

Black thistle or spear thistle (Cirsium vulgare) grows on the more fertile soils and is lived with. Star thistle (Centaurea calcitrapa) we find mainly restricted to the creek banks and along roads. The unseasonal frosts and spot spraying hold this weed in check.

We have a very light infestation of serrated tussock (Nassella trichotoma) which is being aided in its persistence by seed carried on westerly winds. This is controlled by constant vigilance and year round spot spraying.

We have a policy of not over stocking. This, coupled with our severe climate with its lack of summer rain, helps to control our weeds with a minimum amount of sprays.

PASTURE AND FARM IMPROVEMENT

Pasture improvement originally was based on single superphosphate and subterranean clover spread by ground and aircraft. This resulted in increased soil fertility and an increase in weed problems.

To combat the weeds, strong Phalaris and Cocksfoot paddocks were conventionally sown down. This was very successful in weed control. It created a few management problems including Phalaris poisoning in sheep and the low feed value of cocksfoot. Having a reticulated water scheme and troughs in all paddocks was the most important item on the property when I took over the management 12 years ago.

THE FUTURE DEVELOPMENT OF THE RECENTLY ACQUIRED LAND

With the knowledge gained in the past, in my opinion, the order of development, starting with the most important, is:

1. **Water**

We were lucky enough to strike a good bore and pump water to a high point enabling us to place water points where we want.

2. **Fencing**

With topography and livestock breeding operation, we have to design our paddocks with livestock events in mind (hence the importance of water where you want it). For example lambing paddocks should have a northeastern to eastern aspect with fences on the leeward side of ridges which protect against the northwest, west, south and southwest winds. Country with a westerly aspect is good for growing sheep, wool and cattle; southerly aspects are useful in summer with the country staying fresher longer; northern and northwestern aspects can be warmer in winter and so will grow later into colder months.

3. **Shelter Trees**

These will be planted in the most appropriate sites with the water scheme allowing us to water them.

PASTURE FOR THE FUTURE

On arable land in a paddock with many aspects, we will plant phalaris mainly with some cocksfoot (on the exposed top, north and west ridges) and more temperate species including demeter fescue and some cocksfoot on the eastern, southern and bottom gully aspects. As phalaris is the least palatable of these grasses it will be eaten last and least leaving more cover on the wind exposed ridges. Legumes will be sown as needed. Subterranean clover is established over most of the more recently acquired country. Haifa white clover will be sown and on some smaller paddocks lucerne will be established in autumn under a cover crop of barley sown out of every second outlet of the grain box and all will be rolled with metal rollers. In lambing paddocks we will try and leave as many poa tussocks as possible while establishing introduced pasture among them. We spray to subdue native pasture or band spray and direct drill into the band to achieve a mixed native and introduced pasture. Pasture species are the same as those used on arable land. In the growing paddocks which are exposed to the west and south - the native pasture will be encouraged to grow. Eventually, due to subclover and the increase of fertility, weeds will become a problem. So a spraying and direct drill programme will have to be developed leaving as many natives as possible.

FODDER CROPS

As we have a rat's tail fescue (Vulpia spp.) problem in some areas we were advised by Stuart Burge (NSW Agriculture & Fisheries, Cooma) to plant a spring summer crop to break the seed setting of the rat's Tail Fescue. This is followed with pasture establishment in the following spring giving two killings of Vulpia seed. We planted Kentan Rape which

gave us much needed green summer feed for our weaners and was very successful in controlling Vulpia. Other crops have included blackbutt oats and winter wheat sown in the autumn or mid summer to break in new ground.

In my opinion, on the southern Monaro we have to be very flexible, in our fragile environment, in the approach to ploughing or spraying the soil and replacing existing native pastures with introduced species.

Livestock have to be performers with easy care coupled with high production. All new forms of livestock handling have to be looked at to cut down stress on livestock and man. These include: enclosed sheep yards forming part of the cover for the woolshed, giving economic use of capital spent on woolshed and allowing the operator to work under cover for the rest of the year; raised board on woolshed floor to increase wool handling efficiency; use of a round race in the cattle yards with shelter from wind and cover from rain. All add to productivity.

In closing I think one of the problems of the future is the disposal of used sheep dip. A simple workable method has to be designed to dispose of the chemical without contaminating the soil. Another problem is the possible advent of the Very Fast Train (V.F.T) which may cut our land in half presenting considerable management problems.

ACKNOWLEDGEMENT

I wish to thank Stuart Burge for his kind help in the preparation of this paper.