

APPENDIX E

Agricultural Sustainability Assessment

**SBScibus**

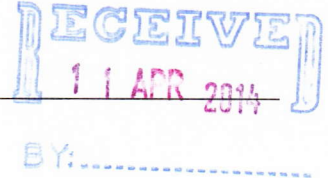
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Website: www.sbscibus.comEmail: nmoss@sbscibus.com.au6th April 2014**Report regarding agricultural activities and potential carrying capacity of "Schottlanders".**

My name is Dr Neil Moss BVSc PhD. Our business, SBScibus, provides strategic management advice to livestock production enterprises regionally and Australia wide. I provide nutrition, agronomic and production management advice to Mr Gerhard Baden for his Wagyu breeder and growing enterprise at "Schottlanders", Rose Valley, via Gerringong. I have worked with Mr Baden for over 3 years to improve productivity of his operation. This has involved providing advice on breeding strategies, pasture management, cropping, nutrition of cattle and disease prevention.

I have been asked to comment in more detail on the potential carrying capacity of the property with respect to its current and proposed use as a Wagyu breeding and growing enterprise.

The property is located at the head of Rose Valley and is made up of a mix of higher fertility lower flats country that border two rain-fed gullies. This rises gradually into some grassed sloping country that then becomes quite steep eventually rising some 150 metres up on to a higher plateau that is also highly fertile. The majority of the 80 hectare property (>90%) is cleared and can be described as pasture improved with either a predominantly kikuyu grass base or a mix of temperate pastures or double crop areas used for either specialty silage production (maize) or grazing and silage (winter cereal and rye pasture). In addition to these areas Mr Baden also has access to some neighbouring country (12 ha) that allows him to graze and some property across on the opposite side of the Princes Highway (7ha) that allows him to cut additional forage for hay or silage.

The lower part of the farm was previously used as a dairy and the soils are highly fertile. The sloped-ridge country is less fertile but still highly productive. The plateau area is also highly fertile with soil tests revealing very high soil potassium, moderate soil phosphorus and high soil carbon levels. Soil testing has also revealed that soil pH levels were quite acidic with rising aluminium levels, a feature quite characteristic of the region's soils. Mr Baden has actively addressed this with an extensive soil liming program which has lifted soil calcium levels, and increased soil pH and reduced soil Aluminium levels. The majority of the farm has now been limed.

The property is highly favoured by rainfall receiving between 1400 and 2000mm of rain each year. This is spread through most of the year with peak rainfall occurring between February and July. Early spring and mid summer tends to be the drier parts of the year but due to high fertility, favoured location and Mr Baden's agronomic and fodder conservation strategies he has successfully provided forage for all cattle over the last three years. Rainfall is supplemented with some irrigation on the higher part of the farm which is tactically used to assist with growth in silage and grazing crops during the drier parts of the year.

Despite the potential for high rainfall, the topography of the property and natural drainage of soils results in the impact of any flooding on low lying areas being transient and minor with natural drainage lines (via gullies) taking water away from the property quickly

The farm itself is characterised by a mix of pasture and soil types. The pasture base is predominantly kikuyu. This is a highly productive species capable of very high levels of growth over the warmer months from summer into late autumn. This is oversown each autumn with cereals and annual rye grass providing high levels of year round growth when soil moisture conditions are adequate. In most years, pastures will grow for 10-12 months of the year with occasional interruption with early late winter and mid-summer drought. In times of pasture excess, Mr Baden has all most necessary equipment for fodder conservation and is capable of making very high quality hays and silages as required.

Parts of the farm, (between 4 and 10 ha) have been cropped with maize for silage and this has been done annually for a number of years. Cereal and ryegrass crops also exceed requirements for consumption in spring and are conserved as silage or hay. Cropping has been carried out in the elevated parts of the farm with plans to rotate some of the lower parts of the farm through a maize cropping and pasture cycle. Maize yields of between 15 and 20 tonnes of dry matter per hectare could be produced providing ample opportunity to utilise any nutrient generated and stored on farm, as well as aiding in sustaining high stock carrying capacity. The farm is well set up with storage for any silage with concrete bunkers and Mr Baden has invested in appropriate capital for feed mixing and delivery. The modelling used below conservatively estimates a yield of only 12-15 tonnes of dry matter of maize in combination with 5-8 tonnes of dry matter of winter crop. Much higher yields are possible.

This cropping, and feeding back of these conserved fodders greatly enhances the carrying capacity of the property and is supplemented further by import of some specially formulated pellet supplements and byproduct feeds stored in silos and specially constructed bunkers on site. This is fed out via a small mixing wagon in a number of small portable feeding troughs allowing Mr Baden to minimise any feed wastage. This capacity safely allows Mr Baden to increase stocking rate and manage drought risk. In addition to this, productive capacity is further enhanced by access to two neighbouring properties as previously mentioned, one which allows grazing; the other, on the other side of the Princess Highway that is used for specialist hay and silage property.

The majority of the property is very well drained, highly fertile and capable of very high levels of pasture production. **I would relate the pasture production potential of this property more to an intensive pasture based -dairy pasture production system rather than traditional beef system.** There are two neighbouring intensive pasture based dairy properties and the pasture productivity and management strategies for Mr Baden's farm are similar. This allows for Mr Baden to successfully run very high stocking rates of both breeding cows and growing and finishing stock.

Pasture management and growth on the farm is more characteristic of higher input dairy production systems rather than low input beef production systems. As such, pasture growth rates are relatively high year round, including through winter. Soil tests are regularly undertaken and an extensive liming program has been undertaken to improve soil pH, address soil aluminium levels and aid soil drainage. This will also assist in amelioration of sodium accumulation, which is minor and has occurred as an inevitable result of result of the properties location near the sea. Pasture growth can also be increased further with strategic use of nitrogen fertilisers and other agronomic strategies if required.

As such, the stocking rate has been dramatically lifted on property to now currently run approximately 70 breeder cattle with calves at foot, with plans to increase to 100-110 breeders. In addition, 180 younger stock of varying ages from weaning to 3 years of age are currently being carried for replacements or fattening. It is planned that home bred stock will be supplemented by purchase of store Wagyu cattle allowing turn off of approximately 100-110 head per year. This will increase the number of non breeding stock by an additional 37-40 head depending on age of purchase. This is demonstrated in the attached model which demonstrates both the plan for achieving the desired stocking rate as well demonstrating the fodder production potential of the property. Following the model process and after observing the activities and commitment of Mr Baden to his pasture program and live stock husbandry, it is my opinion that the number of stock units as set out in the model below can be safely sustained on "Schottlanders"

Regards,

Neil Moss BVSc, PhD



Disclaimer: This information is privileged between SBScibus and our clients. The advice pertains to your farm and the accuracy depends on advice received from the client and reasonable assumptions made by SBScibus. Our advice is often interdependent, that is often several aspects of management need to be changed for advice to be truly effective. This advice should not be extended or applied to other circumstances.

Fodder growth projection		"Schottlander"				
Top farm		8th April 2014			Annual fodder yield/ha	
			Area	(tonnes dry matter)	Annual fodder yield sector (tonnes dry matter)	
Kikuyu/ryegrass	high input			10	10	100
temperate pasture	high input			18	10	180
double crop	high input			9	20	180
Lower farm						0
Improved flats/slopes	high input			28	12	336
Steeper Hills	low input			10	6	60
Home grown fodder				75 ha		856
total		total				
Leases						
Top of hill				12	6	72
Across highway				7	8	56
total lease fodder				19		128
Total fodder available			total home grown fodder		984 tonnes dry matter	
Dry matter requirement			Cow replacement rate		15%	
Target kills per year		112				
Stock class		Stock units		Daily DM kg/unit	Annual DM tonnes/unit	DM needs for Group
Cow/calf units	Home bred	purchased	110	12	4.4	482
Bulls			3	10	3.7	11
Steers 10-24 months	50		70	8	2.9	204
Steers 24-36 months	50	0	50	11	4.0	199
Heifers 10-24 months replacement	25		25	8	2.9	72
Heifers 10-24 months beef	37	25	63	9	3.3	205
Note model assumes 90% live calves born per year			DM needs for herd		1173 tonnes DM	
total turn off per year		112.0		total home grown fodder required		221
DM= dry matter						953
Cow/calf unit= cow with calf at foot for 9 months of year, dry for 3 months of year				total home grown fodder available		984 tonnes DM
				total home grown fodder needs		953 tonnes DM
				home grown fodder excess		31 tonnes DM

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23rd February 2014

Short note regarding report: "Proposed abattoir with Cool Room and Amenities", compiled by Wendy Goodburn, Resource Management Officer

My name is Dr Neil Moss BVSc PhD. Our business, SBScibus, provides strategic management advice to livestock production enterprises regionally and Australia wide. I provide nutrition, agronomic and production management advice to Mr Gerhard Baden for his Wagyu breeder and growing enterprise at Rose Valley, via Gerringong. I have worked with Mr Baden for over 3 years to improve productivity of his operation. This has involved providing advice on breeding strategies, pasture management, cropping, nutrition of cattle and disease prevention.

I have been asked to comment on aspects of the report generated by Wendy Goodburn and give improved background as to the farm and its carrying capacity.

The farm itself is characterised by a mix of pasture and soil types. The pasture base is predominantly kikuyu. This is a highly productive species capable of very high levels of growth over the warmer months. This is oversown each winter with cereals and rye grass providing high levels of year round growth when soil moisture conditions are adequate. In most years, pastures will grow for 10-12 months of the year with occasional interruption with early summer drought. Parts of the farm have been cropped with maize for silage and this has been done annually for a number of years. Cereal and rye crops also exceed requirements for consumption in spring and are conserved as silage or hay. This cropping, and feeding back of these fodders greatly enhances the carrying capacity of the property and is supplemented further by import of some specially formulated pellet supplements stored in silos on site. In addition to this, productive capacity is further enhanced by access to two neighbouring properties, one which allows grazing; the other, on the other side of the Princess highway that is used for specialist hay and silage property.

The majority of the property is very well drained, highly fertile and capable of very high levels of pasture production. The impact of any flooding on low lying areas is transient and minor with natural drainage lines taking water away from the property quickly. Pastures management and growth on the farm is more characteristic of higher input dairy production systems rather than low input beef production systems. As such, pasture growth rates are high year round, including through winter. Soil tests are regularly undertaken and an extensive liming program has been undertaken to improve soil pH and aid soil drainage. This will also assist in amelioration of sodium accumulation, which is minor and has occurred as an inevitable result of result of the properties location near the sea.

As such, the stocking rate has been dramatically lifted on property to now run approximately 65 breeder cattle, with plans to increase to 80 and 180 younger stock of varying ages to 3 years for replacements or fattening. Pasture is supplemented with in paddock feeding of pellets and forages through portable feed troughs. The location and management of the farm and its resultant high level of pasture production implies that higher input dairy stocking rates should be used as a stocking rate model rather than beef models. As such I believe the property would be capable of running a stocking rate of at least 4 breeders per hectare or equivalent and there is ample evidence that this is being sustainably achieved.

Extensive cropping is carried out in the elevated parts of the farm with plans to rotate some of the lower parts of the farm through a maize cropping and pasture cycle. Maize yields of between 15 and 20 tonnes of dry matter per hectare could be produced providing ample opportunity to utilise any nutrient generated and stored on farm, as well as greatly increasing potential carrying capacity. The farm is well set up with storage for this silage.

The carrying capacity of the farm would be better estimated by a more accurate survey of available paddock areas and back calculation using pasture and crop type and pasture and crop growth rates with supplementation strategies from both neighbouring properties and purchased concentrates overlaid on this. It is Mr Baden's plan to commission conduct this survey to allow this analysis. This would be backed by the reality of the current stocking rate situation under current management practices which is not reflected in the assessment provided by Ms Goodman. It is also suggested that more soil tests could be taken, particularly of the lower areas of the property that are in closer proximity to the proposed development site. These should then be interpreted by an expert in with experience in soil sodicity.

I can not comment on the issues of general effluent management and disposal except to say that there is the potential for dedicated cropping areas to be designated to allow safe reuse of manures generated by the facility if appropriately collected and stored, which are likely to be minimal in volume. Attention to safe management of any ruminant biological materials would need to be considered in line with appropriate legislative guidelines to prevent BSE transmission.

The region itself is not within the defined NSW Anthrax zone and this is a highly unlikely risk. Q fever risk would to staff would be addressed by normal OH and S practices to prevent Q fever prevention. Risk to neighbouring properties would be minimal and similar to those properties running and maintaining their own livestock.

Regards,

Neil Moss BVSc, PhD

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