Report for:

URPS

Assessment of Agricultural Productivity of Site Located at White Hut Rd, CLARE SA

Charles Kidd

Charles Kidd

INSIGHT AGRICULTURE

ABN: 39 887 144 633

Mob: 0417 336 458
E-mail: charles.kidd@ausknow.com

ABN: 39 887 144 633

EXECUTIVE SUMMARY:

This parcel of land located on White Hut Road Stanley Flat is comprised of 30 hectares of what was formerly broadacre farming land. It is however considered a difficult size at present due to the fact it is too small to support a broadacre enterprise in its own right (i.e. productively), and therefore must rely on other more effective enterprises that have the resources and equipment for land management available and is located in its vicinity. At present, a stand-alone broadacre enterprise in this region would require 600-700 hectares as a bare minimum.

The host farm for this parcel of land is located some 30 km away seriously impacting this allotment's economic viability (i/e productive enough to repay its own debt and interest payments) whilst operating broadacre enterprises. Given its current situation, it will continue to present a significant challenge for the owners who have to operate agricultural activities on it just to maintain the land in a responsible fashion.

Smaller enterprises requiring less land such as piggeries, poultry sheds, and feedlots could feasibly be carried out on this land but would likely be disqualified due to the noises and odours generated by such industries which are generally incompatible with urban areas. This is before issues associated with management of animal wastes and the water required for those enterprises have been addressed.

Other alternatives including grape vines, fruit trees, floriculture and beekeeping could potentially be undertaken on this land, but these enterprises generally face large capital requirements and the issue of obtaining sufficient irrigation water supply. Further, the use of crop protection products which are gradually becoming less tolerated by nearby residents have the potential to create unwanted friction at the urban interface.

Further these industries (floriculture, etc.) would only require a fraction of the land that is available at this site and so the problem of maintaining the remainder of the unused land remains, essentially meaning much of the land would remain in relatively unproductive use.

Finally, the land must be kept under some management regime so as not to fall into neglect and become a weed and pest haven or even a major fire hazard through overgrowth of trees, native shrubs and undergrowth. This will come at a significant ongoing cost to the owners.

In summary, due to the lands location and size it is unlikely to achieve a suitable benchmark of agricultural productivity in its own right. Although a spectrum of agricultural activities could conceivably be undertaken on this land, it is likely to remain something of a financial burden on its owners due to maintenance requirement to keep it free of pests and other hazards.

ABN: 39 887 144 633

FOREWORD

Determining the productivity of this land for agricultural purposes is the central objective of this report. While on face value that might appear to be a relatively simple task, it is in fact based on several factors. While the land or soil has some inherent agricultural productivity (i.e. can it grow plants or support grazing animals, etc,.) that are normally measured by the quality of the soil, its aspect and the climate it enjoys, there are various other things that will influence the actual productivity of a site or parcel of land.

First of all, there is the basic agricultural productivity benchmark, which assumes a starting position of purchasing a block of land, then determining how long it would take to repay the capital and interest via the use of the revenue raised from pursuing some form of agricultural production on it. In the past the assumption was a generation (~30 years) was required to complete this transaction using conventional agricultural activities (e.g., cropping, grazing, horticultural crops, etc.).

In broadacre enterprises (e.g. livestock grazing, grain production, etc.) this time period has now increased to nearly two generations (~ 50 – 60 years) given the dramatic increase in agricultural land prices in recent years, and this now has become the accepted norm. For more intensive industries (e.g. fruit growing, wine grapes, greenhouses, etc.) productivity is measured by the time taken to repay the debt incurred by the land as well as the plant and equipment required to make the enterprise functional. This too was typically measured as a generation, and unlike the broadacre example, this time frame may have extended a little past that point, but certainly not to the extent of the previous case.

Other factors which may come into play include those enterprises that require significant water supplies or emit odours and noises that are not compatible with neighbouring properties in proximity or are perceived to be a health hazard. Size of land blocks is important for what sort of industries could potentially take place on them in an effective/productive way. Moreover, there is also the responsibility of all landowners to manage the land to the extent it is not a haven for pests and weeds and that other hazards such as large bushfire fuel loads are not allowed to accumulate.

All these items should be considered when calculating what the true agricultural productivity of land is and which will be the guidelines under which this block of land on White Hut Road, Stanley Flat will be examined.

ABN: 39 887 144 633

1. LAND SIZE ASSESSMENT

1.1 Agricultural enterprises that are carried out in Australia are like anywhere else, initially highly dependent on the amount of land that is available, which will then usually dictate what activities (enterprises) can take place on them. Successful production is determined by the scale or type of those possible activities and what potential revenue (income less operating costs) may be earned from each unit of land. This site at White Hut Road, Stanley Flat comprises approximately 30 ha (75 acres) and would be classified currently as suitable for dryland, broadacre farming.

1.2 As a stand-alone parcel of land this places it in what could be best described as a 'grey area' of agricultural productivity, in that it is too small to support effective broadacre enterprises (livestock grazing, grain growing, etc.) in its own right, and too large to support those activities that could be sustainably carried out on smaller parcels of land (3-7 ha). Some of these more intensive operations might include industries such as piggeries, feedlots and poultry enterprises or floriculture, bee-keeping, native grass seed production, etc.

1.3 Other enterprises that could potentially take place that are in keeping with the region include wine and fruit crops, although to utilise 30 ha would still require a significant amount of capital as well as access to a water license, neither of which seem to be readily available for this parcel of land at this point.

1.4 In the following sections are some discussions on the relative merits of various agricultural activities that could be undertaken on this property and whether any of them could meet the standard of being described as effective use of productive agricultural land.

Broadacre Farming Potential

1.5 Current activities that have taken place at this site over the past few years have included typical broadacre enterprises such as crop production and livestock grazing. However, this has only been possible as the owners have an existing broadacre property located some 30 km away. Consequently, even though these typical broadacre operations have been carried out at this site. It has not been to any truly productive extent. In fact, the larger property that has supported these activities, has been to their cost when taking into

ABN: 39 887 144 633

account the resources in time and equipment used, compared to the returns.

1.6 It has been a feature of recent years that some small parcels of land located in established farming areas have earned relatively high prices on the presumption that they will join with a larger hosting enterprise. However, even when located nearby or adjoining situations to these host farms, there are sometimes generational timelines (40-60 years) involved when repaying the interest and capital debt through the productive return on the land from agricultural enterprises. In this case with the host farm located so far away, it would be extremely challenging to get the land to the point where it could ever repay the debt owing and then provide a positive income if the current broadacre activities were to be continued.

1.7 Therefore, as a stand-alone property trying to support broadacre enterprises, this parcel of land would be unable to reach the economies of scale to make the cost of equipment and other working assets required for it to operate effectively a feasible proposition. Machinery and equipment for grain production is now at a scale that requires several thousand acres in the Mid North, while livestock grazing would require significant capital expenditure on livestock handling equipment, fencing, availability of water, as well as a significant amount of land and the capital cost of the livestock themselves.

1.8 Trying to repay debt, while also spending on capital equipment to operate typical broadacre ventures clearly demonstrates that this parcel of land is not of a viable size for broadacre agricultural enterprises of this type to be effectively carried out on it.

Intensive Farming Potential

1.9 Some intensive animal industries (sheep and cattle feedlots, piggeries, poultry sheds, etc.) can be carried out on relatively small blocks of land and technically speaking this could be viable on this site if only taking into consideration the amount of land in question. However, there are other issues that would preclude this from being successfully carried out at this site. Firstly, the issue of dealing with the management and disposal of animal wastes that are normally associated with enterprises of this type.

ABN: 39 887 144 633

1.10 These enterprises are required to have considerable infrastructure in the forms of settling ponds and other waste management facilities to handle the large volumes of material that develop from these enterprises.

1.11 Other issues with enterprises of this kind include the fact that they produce odours and noise, most of which is not particularly pleasant to be in the proximity of. Consequently, for reasons such as these, enterprises of this type are usually not permitted to be undertaken so close to the urban fringe for fear of significantly impacting upon the amenity of neighbouring residents.

1.12 Other alternatives to broadacre enterprises include more intensive ventures typically carried out on smaller parcels of land and encompassing industries which have traditionally been carried out in the Clare region such as wine-grape growing, or other horticultural fruit crops that are well adapted to the Mid North region.

1.13 While these enterprises are well established in the Clare Valley, to start anew on this site would present some degree of difficulty. In the first instance the sheer weight of the capital cost to plant some hectares of vines is prohibitive as to establish a vineyard might involve anything up to $30,000 per hectare. After that there is the annual cost of vineyard maintenance ($13,000 - $18,000/ha) and 3-5 years before any commercial amounts of grapes are produced.

1.14 Additionally, there is the issue of providing water to irrigate the vines. Although Clare has a relatively high rainfall regime (approx. 600 mm/annum), like most regions in SA, its rainfall events tend to be very winter dominant with a relatively small proportion falling in the summertime when the grapes are actually producing their crop. Whilst dryland growing has been a feature in the past, this is restricted to very small parcels of grapes that are extremely high quality and therefore highly remunerated. Consequently, under that scenario the prices paid per tonne of grapes can compensate for the relatively low production.

1.15 However, those are traditional vineyards where this applies, which have been in production for many decades and are usually debt free and have established systems of management which could never apply to a new vineyard should it ever be established on this parcel of land. Instead, in the current era it would have to be an irrigated vineyard to have any chance

ABN: 39 887 144 633

of economic success which then creates the conundrum of where the water may come from and what its cost will be.

1.16 Traditionally vines have been mainly watered in the Clare region from ground water drawn from bores and wells utilising aquifers based on fractured rock systems that are common in this area. However, most of the suitable water (i.e. not too brackish) in these systems has been identified, and licenses and quotas that govern their use well established. Most of these ground water systems have been depleted over time and even if new bores were to be established that had reasonable quality water in them, it would be unlikely to be granted a licence due to the proximity of existing bores which might be adversely impacted by the new drilling.

1.17 Alternatively, there is an option to try and gain a quota from the Clare Valley Water Supply which comes from the Murray River via Morgan. However, this is expensive water with significant limitations on what can be accessed. It is questionable that wine-grapes could be profitably produced in Clare in a vineyard that carried little or no debt, using water from this supply. However, with a capital burden for the establishment and high running costs of a conventional vineyard, it would be virtually unachievable.

1.18 Other horticultural crops that can feasibly be grown in Clare include species such as olives, and there is a small disused olive grove on the existing site. There have been several attempts over the past 3 decades to establish an olive industry in the Clare Valley region, however a lack of access to sufficient water and remoteness from processing facilities has mitigated against this ever being a serious economic venture.

1.19 When Clare was settled it was a critical food supply area for the Copper mines at Burra and Moonta, and all manner of fruit trees were grown there (stone and pome fruit, cherries, etc.) and the produce sold to the mines. However, since that time (mid 1800's) other areas have since developed as fruit growing regions (Riverland, Adelaide Hills, etc.). Fruit grown in these districts is generally produced more efficiently and economically than in Clare. Consequently, establishment of new wine grape and fruit growing enterprises of these types is simply not an economic exercise in the Clare Valley region at present.

ABN: 39 887 144 633

Alternative Agricultural Enterprises

1.20 There are several other ventures that may be carried out on small parcels of land such as this including such things as the production of native vegetation for background foliage in floral displays. This is an enterprise which can be established on small parcels of land, is relatively low capital intensive and easy to maintain. It involves planting species of Australian native plants (e.g. *Callistemons, Grevillea's* and some *Eucalypt* spp. And then harvesting the vegetation off them for use by florists. Further these enterprises can function on smaller parcels of land (2-5ha).

1.21 Limitations include distance from the larger market of Adelaide with transport and preservation of quality becoming a significant issue.

1.22 Another possibility is the production of native grass seed such as that which is used along highways, roads and other public areas. This can be a productive exercise and would be well suited to the Clare region. However, it does take expertise to grow effectively and to keep the weeds from contaminating it and reducing its value. However, such a pursuit would not take up a significant amount of the area that is under consideration at this site (4-6 ha would be a relatively large native seed production site) and so would represent an under-utilisation of the land resource that is available, the remainder of which must still be managed/maintained.

1.23 A further enterprise that can be carried out on small parcels of land includes bee-keeping. This is a rapidly expanding industry in Australia due to the requirement for some horticultural (e.g. almonds) and broadacre crops (e.g. canola) that use the bees as a vector for effective pollination. Apart from the production of honey, crop growers will pay a fee to have bees on hand during the flowering period of their crops, and in some instances, this can account for potential yields losses of up to 30% if the bees are not present.

1.24 These fees have increased recently due to the appearance of Varroa Mite in the Hunter region which has led to the destruction of hives in the immediate area as well as a moratorium on bees being moved outside of NSW. Consequently, this has led to a shortage

ABN: 39 887 144 633

of bees in some areas and a subsequent increase in demand for hives from elsewhere to fill the gap.

1.25 However, bees only require a small amount of land (1-2 ha) in which to overwinter and they also require the proximity of plants that they can use to feed on during this period. Usually, these winter feed resources are supplied by nearby gardens such those in the residential area and do not need to be grown on this site. Consequently, there would only be a small proportion of this land required to support a bee-keeping enterprise with the majority serving no other useful purpose in this particular venture.

ABN: 39 887 144 633

2 IMPACT OF AGRICULTURE on the URBAN INTERRFACE:

2.1 One of the issues with carrying out agricultural activities in the proximity of a residential setting is that concerned with the use of agricultural crop protectant products as well as the noise associated with the management and production of various horticultural and broadacre crops.

2.2 Over the past 2 decades there has been a shift in the expectations of residents and their exposure to agricultural activities. For various reasons people have become less tolerant of chemicals and crop protectants as they can perceive these to have an adverse effect on their health. This shift in mindset has occurred even though there has been significant work done in developing these crop protectants away from the old broad-spectrum chemicals, which were quite toxic, with some of the older products registered on the Poison schedule usually found in the S 6 or S 7 categories.

Schedule 5 **Caution** – Chemicals that are not likely to cause harm. They need suitable packaging with simple warnings and safety directions on the label.

Schedule 6 **Poison** – Chemicals with a moderate risk of causing harm. They need special packaging with a strong warning and safety directions on the label.

Schedule 7 **Dangerous poison** – Chemicals with a high risk of causing harm in low doses. They are only available to certain people who are able to handle them safely. There may be special rules for selling, using or storing these chemicals.

2.3 Currently, most pesticides have become very selective in that they precisely target some pests and have little or effect on other adjacent pests that maybe nearby, sometimes even those that are related in a species sense (e.g. Annual Ryegrass in cereal crops).
However, despite this there are still complaints from residents located in proximity to such operations who continue to voice concerns based on potential health impacts threatened, although many of these products have a similar toxicity level to something like table salt.

ABN: 39 887 144 633

2.4 Many growers go to considerable lengths to prevent these complaints arising by waiting till winds are in the right direction and the conditions are calm, or even withholding the treatments altogether, because of adverse conditions. This often results in diminished outcomes associated with the poor timing of their application but is the price they must pay in order to be able to operate close to the urban fringe.

2.5 For the other issue mentioned above (noise) the use of tractors and other heavy equipment working near suburban areas has also become a problem at times as some residents have become more sensitive to loud noises that are sometimes associated with agricultural activities. In particular the noise generated by working tractors can annoy some, and with the production of wine grapes often being harvested at night, this can cause further complaints about such enterprises being carried out in more sensitive areas.

2.6 Consequently, the changing expectations of urban residents means that limited agricultural activities will be carried out in the future which places a further inhibition on the effective productive capacity of the land in question.

ABN: 39 887 144 633

3 LAND MANAGEMENT PRACTICES:

3.1 As mentioned in previous sections the size of the subject parcel does not align with a typical broadacre agricultural enterprise or some of the more intensive enterprises. This next section will look to deal with the fate of some of these blocks of land which are isolated at the edge of the urban fringe and cannot be easily converted into effective/viable agricultural production.

3.2 I am not suggesting though this would be the fate of the land on White Hut Road under the current owners, but it may be something for councils to consider in the future from a risk management point of view when looking at the future use of blocks of land similar to this which are located on the residential fringe.

3.3 In some council areas closer to Adelaide there have been areas of land located in the peri-urban area where agricultural activity has ceased, but they are still too big to be managed like a garden where slashing and mowing of plant vegetation and grass routinely takes place. Therefore, they can at times tend to grow significant burden of weeds, as well as being a harbour for undesirable animal pests such as rabbits, foxes, deer, etc.

3.4 In the Clare region there are already significant blocks of land of various size close to the residential areas which have been affected by their inability to be utilised within normal agricultural production. Consequently, some of them have tended after a while to be overtaken by weeds such as Cape Tulip and Artichoke Thistles which have no productive value in terms of grazing by livestock (Cape Tulip is actually toxic to animals). Once weeds of this type are established in these areas, they are very difficult and expensive to control and can put significant invasive pressure on adjacent areas which then becomes an unwanted burden for those landowners which are affected.

3.5 Another pest which is not often commented on, but which is becoming more prevalent is that of unmanaged tree growth, where the invasive behaviour of some native *Eucalypt* spp. can completely take over land areas to the exclusion of all else. This creates a situation of a monocrop which is not only something of a biodiversity desert but is also a significant bushfire threat.

ABN: 39 887 144 633

3.6 What close-packed tree stands create is the advent of the crown fire which has become more common in recent decades due to unmanaged land and overgrown parks creating areas where these fires can be initiated.

3.7 Instigation of a crown fire is something which can occur frequently due mainly to the incidence of dry summer lightning storms starting fires in dried out vegetation areas. They can be started often without anyone being immediately aware of it, and once started is very difficult to control as there is no known equipment or strategies that can contain or control a crown fire once commenced.

3.8 Theoretically the only way to stop a crown fire is to wait until it burns into a grassed area where the current suite of equipment and strategies are capable of controlling fires once they are in this category of area. There is also the possibility of using the 'back-burn' strategy to control a crown fire, but this often involves starting a crown fire in front of the oncoming fire-front when the wind is in a favourable direction, this does not occur often and as can be imagined comes with its own hazards.

3.9 What has occurred in some peri-urban areas is fire hazards have developed some of these sensitive areas. The outcome of the Canberra fires of 2003 is an example where the majority of damage occurred in suburban areas located adjacent to a pine plantation. Once the crown fire commenced in the trees it was then swept onto the residential area where the radiant heat creates its own winds and up drafts creating an uncontrollable effect.

3.10 Therefore, it will be in the interest of councils in the future when considering blocks of land of this size or similar that are located close to urban areas, that there are still suitable land management practices or agricultural production taking place. This will ensure these types of hazards are minimised and that the amenity and the assets of those within the proximity of the land continue to be protected.

ABN: 39 887 144 633

APPENDIX 1

CHARLES KIDD

QUALIFICATIONS:

Dip. App. Sci. (Agric.)
Grad. Cert. App. Sci. (Agric.)
Master App. Sci. (Agric)

PROFESSIONAL ROLES:

- 1980-1991 Research Officer, Agricultural Research Institute, NSW Agric. Weeds Unit
- 1992-1994 Research Agronomist, Contract Trials Company (ARMS) SA
- 1995-2006 Manager, IAMA/Landmark R & D Group
- 2007 - Agricultural Education and Training, AusKnowledge NetWork
- 2007 – 2019 Product complaints officer for all Landmark broadacre and horticultural crops
- 2008 - External scientific reviewer APVMA
- 2015 – Expert witness/consultant for various Adelaide Hills and adjacent environs local government administrations and residents

RELEVANT EXPERIENCE:

From 1980 until 2009 I undertook or was involved in multiple experiments/trials which were conducted to investigate all issues (protection and nutrition) relating to production of broadacre and horticultural crops. These trials were carried out in all agricultural production areas over Australia including Tasmania.

Involvement in the National Dryland Salinity project overseen by Land and Water Australia which ran from 1993 – 2004.

From 2007 – 2019 I was the principal contact for product complaints for the rural merchant Landmark. This involved resolving many crop production issues from all across Australia including interactions with crop protection products, climate and soil types.

In 2009 I developed a training course for commercial advisors in the fields of broadacre and horticultural agronomy as well as livestock production. Since then, I have trained participants each year on how to give commercial advice to farmers and agricultural producers on how to manage their crop or livestock production enterprises successfully. These participants come from all over Australia including Tasmania and cover all the major forms of agricultural activities that take place in this country

Since 2015 I have acted as an expert witness or consultant for both a number of Adelaide Hill's councils as well as residents. These have included issues around zoning, classification of land, issues surrounding various agricultural activities carried out in those areas and the agricultural capacity of various areas of land in the Hills region.