The Food System of Alice Springs

By Felicity Forth, Cassandra Douglas Hill and Alex McClean
desertSMART COOLmob, Alice Springs

February 2014

The Northern Territory Government through the Department of Natural Resources, Environment, the Arts and Sport is the major sponsor of desertSMART COOlmob. This publication may not represent the views of the Northern Territory Government.

Contents

1. Introduction

Background

This report, funded under an Environment NT Grant, provides an initial overview of the Alice Springs food system. This includes where food is coming from, how it is distributed and where it ends up. To do this, this report follows the supply chain of food that is imported into Alice Springs from other regions in Australia and food that is produced locally. In doing so, this report identifies major barriers to acquiring food locally, information gaps and possible next steps.

This report was produced in conjunction with an online interactive Alice Springs Food Map that is available at: Food Map: http://foodmapalicesprings.org.au/

Rationale: Why study the Alice Springs food system

Alice Springs, almost 1500 km from the nearest urban centres of Adelaide and Darwin, relies almost exclusively on food transported from Adelaide via rail, truck and plane. With a local population of 28 500 and a regional population of 39 500 (The Northern Institute 2012), this represents a significant population almost entirely relying on a single road and rail link for their food needs.

The aim of this study is to examine the steps in the Alice Springs food supply chain to reveal:

- where locally produced food goes (production)
- where food consumed in Alice Springs comes from (retail, wholesale, food services)
- where food waste goes (waste)
- some of the barriers to linking food production with food supply, and re-using food waste in Alice Springs

Issues relating to Indigenous health, nutrition and food security are a significant part of the food story in Alice Springs. However, these are also highly complicated issues which have been thoroughly researched elsewhere by nutritionists, health workers and academics far more qualified to comment on these matters than desertSMART COOLmob is. Therefore, this report will not address issues of Indigenous health, nutrition and food security.

2. Methodology

A literature review regarding current food production and distribution in Alice Springs revealed that although there is some historical data, there is very little accurate current data on the food supply chain of Alice Springs. Hence, this study relies heavily on interviews with managers of businesses involved in the Alice Springs food system. Twenty four people involved in the Alice Springs food system were contacted and interviewed about their buying/selling and/or importing/exporting patterns and their management of waste food using two standard questionnaires (Appendix 1 and 2). A further six people were interviewed informally (Appendix 1). For the livestock and horticultural sector, much information was also drawn from interviews with local producers conducted on local ABC Radio. The sources of these interviews have been detailed in Appendix 1. Interviewees were quizzed as to whether they bought or sold local produce and, if not, what where the barriers to doing this. Information from these interviews was tabulated in order to draw conclusions.

Segments of the food system were characterised as:

- Production:
  - Horticultural (10 interviews)
  - Livestock (4 interviews)
- Supply:
  - Retailers (7 interviews)
  - Wholesalers (2 interviews)
  - Restaurants and Cafes (4 interviews)
- Waste (14 interviews)

Several interviews were conducted for each segment of the food supply systems, with attempts made to contact either key players in production, retail and wholesale components of the food systems and across a range of different types of restaurants in the restaurant component of the food system. It is important to note that as the components of the food supply system interact, often the background of one part of the supply chain was ascertained during interviews of the other parts of the supply chain. For instance, interviews with retailers and restaurants, provided information on wholesalers and producers, interviews with producers provided some information on retailers and wholesalers. To gain an overview on how the Alice Springs food system interacts with surrounding Indigenous communities, all wholesalers and major retailers were questioned as to how much they thought their business supplied to remote communities. A long time bush store manager was also interviewed as to how bush stores usually bought in their produce.

All survey recipients were also questioned about their habits regarding waste.

Limitations

This research is intended to form an initial scoping study into the food sector and is far from exhaustive. Limitations of time to undertake research and lack of data in key areas were significant. As a result, this report is intended to point to areas where further work and research could be undertaken, rather than conclusively audit the Alice Springs food system as it currently stands

3. Key Findings

Production

- Food produced commercially in the Alice Springs region includes: livestock, melons, grapes, lettuce and herbs, greens, pumpkins, mangoes and dates (DPIF Website 2013). Backyard production of vegetables and citrus is also common.
- Although there are exceptions, food production in the Alice Springs region appears to be in decline, with many horticultural businesses reducing production levels or up for sale.
- Most of the food that is produced in the Alice Springs region is transported directly to markets in southern Australia and/or overseas via truck.
- Reasons given by horticultural producers for most food being exported away from Alice Springs include the simplicity of just having a single external contractor, little contact between growers and local retailers such as Coles or Woolworths, insufficient size of the Alice Springs market to absorb the volumes of types of produce grown here (e.g. grapes) and the freight out of Alice Springs being relatively cheap.
- This is in keeping with global trends whereby the major retailers are increasingly controlling all stages of the food supply chain, leading to increasing distances between where food is produced and where it is sold and consumed (Spencer and Kneebone 2012).
- Locally raised livestock are transported directly to meat processors in the southern states or to Northern Australia for live export bypassing local food retailers. This is due to the lack of abattoirs in Central Australia.

Food retail, wholesale and food services

- The great majority of the food in sold in Alice Springs is sold via by the major supermarkets (Woolworths and Coles) and consists of food imported from outside of the region, with many of the store personnel surveyed not able to name any, or only a handful of, local foods sold in their stores.
- The major reasons sited for not stocking local food included: lack of availability, lack of reliable supply, local food not being registered to be sold (by the larger retailers and wholesalers), lack of proper certification of local produce, price, logistical difficulties, and their buying being externally controlled (in the case of the larger supermarkets and IGA).
- Local food that was reported as being stocked in Alice Springs food outlets included: lettuce, herbs and Asian greens, melons, grapes, mangoes, dates, and fruit and vegetables sourced from small scale operations. This list is unlikely to be exhaustive and likely to change significantly over time.
- There was a general confusion amongst respondents about the definition of local food. Many retailers considered locally processed food such as Du Yu Coffee and Territory Jerky as well as native bush foods that are not produced in the Central Australian region in the definition of local food.
- The food retailers, wholesalers and food services providers surveyed generally agreed that they would like to use more local produce; however, the actual use of local produce was generally low to non-existent.
- Retailers, wholesalers and food services providers interviewed stated that when they did sell local food they rarely labeled it as such, with both Coles and Woolworths having no actual signage for local food and using only *NT Grown* signage. Even the *NT Grown* signage was often not used for produce such as lettuce and herbs. It is likely that this lack of signage would decrease the incentive to stock local produce, as consumers cannot select for local produce if they don't actually know it is local.

- The retailers and restaurants such as Fresh in the Desert, Afghan Traders and Watertank Café that did label their food as local noted a clear consumer preference for local food.
- Some food services businesses catering to the tourist trade appeared to be more motivated to label their food as native rather than locally produced. For instance, restaurants were more likely to have barramundi from the top end denoted as local in their menu than locally produced lettuce or melons.
- The increasing consumer preference for local food is noted as a significant global and Australia wide trend and a backlash to the increasing globalisation of the food supply system (Spencer and Kneebone 2012).
- Some horticultural producers such as Territory Lettuce are successful in supplying local markets suggesting that successful local production for local markets is possible. Interestingly, Territory Lettuce doesn't experience the seasonality of many other crops.

Waste

- This study corroborated O'Leary's 2009 and 2010 studies by finding the great majority of Alice Springs' food waste, from both households and businesses alike ends up in landfill. With no commercial composting facilities available in Alice Springs, this waste enters the general waste stream.

Findings in relation to global and national trends

- These finding are in keeping with the Australia wide trends of a food marketplace dominated by the duopoly of Cole and Woolworths which in turn controls the retail food supply chain (Spencer and Kneebone 2012). This has lead to decreasing profit margin for producers, smaller producers being squeezed out of the market and increasing distances between where food is produced and where it is sold and consumed (Spencer and Kneebone 2012).

- The closure of abattoirs in Alice Springs and lack of abattoirs in the Northern Territory follows the nationwide trend of the progressive closure of small-scale abattoirs and the concentration of meat processing into a handful of mega-abattoirs across Australia since the late 1980s (Spencer and Kneebone 2012).

Context

Historical

Anecdotal histories suggest that up to the middle of last century Alice Springs produced a high proportion of food required by the region. Not only were there significant market gardens developed largely by the Afghani, Chinese, Italian and Greek migrants, but prior to refrigerated transport, the town produced its own meat, dairy, poultry and eggs (Chlanda 2012). There is also a long history of backyard food gardening in Alice Springs as demonstrated by the abundant and well established citrus, grape, fig, mulberry, and even stone-fruit trees within the older suburbs of Alice Springs (G. Miers pers. comm. 3/6/2013). Despite this trend for small-scale food gardening, many community gardens have failed over the years due to a cycle of short-term support and lack of sufficient community engagement **(**Warchivker 2009**).**

Overall, food production in Central Australia for the Central Australian market has declined with a few exceptions. Local market gardens that once produced significant qualities of fruit, vegetables and eggs in Alice Springs and surrounding local aboriginal communities such as Areyonga, Amoonguna, Papunya, Ali Curung and Yuendemu are now all defunct (Warchivker 2009). Numerous more recently established small horticultural projects on indigenous communities such as Wallace Rockhole and Finke have all failed or closed (Warchivker 2009). Even the Vietnamese market garden on Heffernan Road, that had a market stall until recent years, now only produces enough produce for its own restaurant (Chlanda 2012). Whilst Lange (2010) states that the systemic failure of community gardens and farms in central Australia is largely a result of the lack of consistent support and governance for such enterprises, this failure of small enterprise farming mirrors a wider trend across Australia where smaller holdings are becoming less competitive in an increasingly competitive marketplace (Spencer and Kneebone 2012).

Local Context

The 2011 census identified 28 186 people living with in the town area of Alice Springs and a total of 39 500 living in the Alice Spring region (The Northern Institute 2012). Whilst the town population was found to be just 19% Indigenous, 77% of 11 000 people living in the region outside Alice Springs are Indigenous (The Northern Institute 2012). Other significant ethnic groups living in Alice Springs include: Americans, Indians, Africans and Filipinos (The Northern Institute 2012). For the purposed of this study, the production section focuses businesses throughout the 551 403 square kilometres of the Alice Springs (or the Southern NT) region. This including pastoral properties and places like Ti Tree and Ali Curung. The consumption section of this report (retail, wholesale and food services) focuses primarily on the businesses within the Alice Springs Local Government Area.

Food waste is a significant national issue with a NSW Government survey finding around 38% of household waste is food (Love Food Hate Waste 2014). In Alice Springs, with no organic waste management program, the great majority of food waste ends up in landfill (R. O'Leary pers. comm. 8/11/2103). Methane production from rotting organic matter has been noted to be a considerable contributor to green house gas emissions (Love Food Hate Waste 2014).

Future Trends

In the long term, studies suggest food prices will trend upwards and agricultural production in arid regions will be seen as one part of the solution (Spencer and Kneebone 2012; Warchivker, 2009). There are currently 32 sites across central Australia that have been identified as suitable sites for horticultural development due to the presence of suitable soils and water resources (Warchivker 2009).

Increasing costs (particularly in utilities) have been noted as being a growing burden on small, local businesses. This is especially the case for producers who are off-grid and may rely on diesel generators for electricity (Spencer and Kneebone 2012). Increased global demand for meat, particularly in Asia, will likely expand market opportunities for the NT beef industry (Spencer and Kneebone 2012).

The Impacts of Climate Change

The Department of Environment predicts that increased temperatures over the coming century will result in a hotter dryer climate and may make the production of food in Central Australia more difficult and risky (DoE website 2014). The DoE also predicts that these increased temperatures will hit the NT cattle industry hard, potentially causing losses in beef production as high as 19.5 % by 2030 and 33.2 % by 2050 (DoE website 2014).

4. Results

Production

Alice Springs Region Economic Profile 2012(Northern Territory Government 2013) recorded 83 businesses classified as Agriculture, forestry or fishing in the Alice Springs Region that were worth a total of 64 million dollars annually to the regional economy. The gross majority of this value of this sector is in the beef industry (Northern Territory Government 2013).

Horticultural

The horticultural industry in Central Australia is based largely on grapes but also includes other crops such as melons, pumpkins, mangoes and dates (DPIF Website 2013) and fresh greens. With low annual rainfall, the industry depends entirely on underground water supplies and gains a competitive advantage by selling early maturing crops at premium prices (DPIF Website 2013).

Current horticultural operations near Alice Springs range from the moderately large-scale production of grapes and onions taking place at Rocky Hill (Undoolya Station), to the much smaller hydroponic systems at Territory Lettuce (Table 1). Further afield, although Ti Tree production has significantly declined in recent years, with many farms not in production and/or the market, some production of grapes and mangoes continues (G. Ride pers comm. 10/4/13). Further still, Desert Springs Farm at Ali Curung has contracted their operations this year (due to external issues); however, they are expecting a return to growing their usual annual 3 to 4000 tonne of pumpkins and melons next year (R. McLaughlin pers. comm. 6/11/2013). One small-scale date farm at Santa Teresa, Aridgold sells around 16 tonne of dates annually (Aridgold website 2013), and another date farm Desert Fruit expects to sell around 3 or 4 tonne with the new owners ramping up production for increased yields in future years (Ella McHenry pers. comm. 7/11/2013).

Discussions with farm managers revealed that very little of the produce coming from these horticultural operations directly supplies the local market, with many of the farms selling almost exclusively to wholesalers in Adelaide/ Mildura (Table 4). When questioned as to why this was the case, growers tended to say it was simpler to sell through external buyers - buyers that can take all of their product at a time. For instance, Richie Hayes stated that in season he is selling more than the Alice Springs market could consume, so it is simpler to sell the lot down south (R. Hayes pers comm. 10/10/2013). The cost of freight to the south was noted as being significantly cheaper than that of freight coming into town, and as such not a significant incentive to sell locally (R. Hayes pers comm. 10/10/2013).

Figure 1: Onions at Rocky Hill.

However, there are some producers that supply the local market. Territory Lettuce supplies hydroponically grown lettuce, herbs and Asian greens to the major fruit and vegetable wholesaler in Alice Springs (owned by the same owner) which in turn supplies major supermarkets and restaurants (M. McCusker, pers. comm. 3/6/2013). Red Centre Farm in Ti Tree sells approximately 50% of his annual crop to the local market, with the remainder being transported to markets in Adelaide (Brown 2013). Ritchie Hayes is trialing supplying some of his grapes to local supermarkets this season (pers. comm. 10/10/2013).

Figure 2: Territory Lettuce.

Interviews revealed the horticultural industry faces the challenges of transport, competition from interstate and overseas markets, accessing labour and decent quality water (G. Ride, pers. comm. 20/5/2013). Labour on many of the farms is imported from Mildura (R. Hayes pers comm. 10/10/2013; G. Ride pers. comm. 20/5/2013). Furthermore, expanding the horticultural industry would face the issues regarding land tenure, water availability and licensing, and native title (G. Ride pers comm. 20/5/2013). These issues, combined with the lack of government support, has resulted in many possible horticultural areas going largely undeveloped (Lange 2010).

Whilst there remains some very successful horticultural producers (namely producer at Ti Tree, Rocky Hill, Ali Curung and Territory Lettuce) these producers, with the exception of Territory Lettuce, sell almost exclusively to out of town wholesalers. For instance, Rocky Hill grapes travel to a wholesaler in Mildura where they are distributed to supermarket chains and may find themselves back in Alice Spring after a minimum of a 3000 km round trip. Territory Lettuce is an exception to this; their lettuce and herbs, which are grown hydroponically in Illparpa, supply local wholesalers and retailers (including major supermarkets) (M. McCusker pers comm. 3/6/2013). Interestingly, they are rarely actually labeled as local, so many consumers purchasing through the major supermarkets can buy these products without knowing they are locally grown.

Horticulture in Ti Tree has declined since the early 1990s when the table grapes were a 20 million dollar industry, with many vineyards currently not producing and several farms blocks up for sale (G. Ride pers. comm. 3/6/2013). Graham Ride (*ibid*) who surveyed the blocks at Ti Tree in the 1970s and has been involved in a water resources capacity ever since, suggests the reasons for this include: recent competition from imported grapes significantly reducing the profit margin and coupled with an outbreak of nematodes. Despite this, some Ti Tree farms are continuing to adapt to the new market conditions, as exemplified by Red Centre Farms and Territory Grapes recent increase in production (Carmen Brown, 30/10/2013, ABC Rural).

Table 1: Current major horticultural producers in the central Australian region

Farm name and location	Product	Sells locally to	Barriers to selling locally	Exports to	Production
Territory Lettuce ***Ilparpa*** ***Alice Springs***	Lettuce, herbs, Asian greens	Local supermarkets, restaurants and tourism businesses Territory Fruit and Vegetable.	NA – sells locally.	Darwin	120 000 lettuce at a time
Ti Tree Producers	grapes, melons,	Yes but minimal.	NA	Sydney Melbourne Adelaide SE Asia and Pacific	Industry in transition – with many farms not in production or up for sale.
Red Centre Farm **Ti Tree**	mangoes	50% of mango crop sold locally.	Not mentioned	Adelaide and beyond	Red Centre Farm 5000 trays of mangoes (2013) 1 container of mango wine annually.
Desert Springs **Desert Farm** **Ali Curung**	melons and pumpkins	No	Deals with external buyers. Not contacted by local retailers.	Brisbane, Sydney, Adelaide, and Darwin. No one from Alice Spring has contacted them.	Usually 3-4000 tonnes/ year of watermelon This year a lot less – due to less money to invest. 8 tonne melons 8 tonne pumpkin
Rocky Hill Grapes **Undoolya Station** **Alice Springs**	onions grapes	This year am trialing selling some locally	Too complicated. Market too small to take all the produce. Have other buyers.	East coast. Mildura via Adelaide and then on to east coast markets	Trial crop 50 acres of onion Est. 1500 tonnes 150 acres Last year nothing. 1000 pallets. 900 kg fruit.
Tamara Plantation Desert Fruit Company Santa Teresa	dates	Yes	Not mentioned	Adelaide	750 date palms Estimated 30 tonnes annually
Aridgold Farm Date Producers Santa Teresa	dates figs	Yes	NA	At markets and through private database to interstate buyers.	2000 Dates 1500 Figs 120 Trees @ 140 kg/tree

Expanding horticultural production

Although not strictly within the scope of this study, expanding horticultural production in the Alice Springs region faces a number of challenges. Whilst significant regions of suitable agricultural land have been identified, the scale of investment required to develop these lands in terms of gaining the right tenure, permissions and water licenses and providing basic infrastructure for the the sites, mean that many of these opportunities have gone unexplored (Lange 2011). Licenses are difficult to obtain, and with the processes to obtain licenses being unclear and taking many years complete, this has created a serious barrier to attracting investment in the agricultural sector (Lange 2011). Additional challenges faced by existing horticultural enterprises include: accessing labour, distances from major markets and the high cost of freight, small farm size, and water quality issues (Lange 2011).

Backyard and Small Scale Production

Alice Springs has a long history of backyard production of fruit and vegetables (especially citrus) and eggs (G. Miers pers. comm. 3/6/2013). Other small scale producers include the biodynamic garden at the Alice Springs Steiner School that once sold to the public through Afghan Traders and now sells to parents and Food for Alice (J. Cocking pers. comm. 13/2/2014). Several other schools have their own vegetable gardens including: Braitling, Bradshaw and Centralian Middle School (Ella McHenry pers comm. 10/11/13). The Alice Springs Community Garden established by the Arid Lands Environment Centre in 2011 has 35 plots of which 25 are in production as well as numerous fruit trees (J. Cocking pers. comm. 13/2/2014).

Figure 3: Small-scale produce for sale at Food For Alice stall, Todd Mall Markets.

Meat and Livestock

Currently, beef cattle are the major livestock trade in the Central Australian region (Department of Primary Industry and Fisheries (DPIF) 2013). The beef cattle industry is estimated to be worth approximately 30 -50 million dollars annually to central Australia (DPIF 2013). There is also a small fluctuating industry in harvesting wild camels (DPIF 2013).

Cattle

Central Australian graziers sell between 40 000 and 140 000 head of cattle annually (Waybill Database 2013). Currently all livestock from the Central Australia region are trucked to meat processing plants in Adelaide and Victoria to be processed, or trucked to Darwin for live export, as there are no commercial meat processing plants in operations in Alice Springs or the Central Australian region (J. Willoughby pers. comm. 10/10/2013). The small scale abattoirs at Bond Springs Wanboden that processed meat for the local restaurant business closed due to staffing issues in mid 2013 and may reopen in the near future (R. Oakdon pers. comm. 25/10/2013). Rodger Oakdon (*Ibid*), who has worked in the meat processing business in central Australia for over 20 years, both at managing Wamboden and central Australia's primary meat wholesaler Alice Springs Prime Cuts recalls that as a manager of the Wamboden abattoirs 15 years ago it was going well . Likewise Oakdon (*Ibid*) recalls that before the Alice Springs abattoirs closed in the late 80s, it was "pumping out 700 head of cattle a day". This is supported by historical records which show that before the Alice Springs Abattoirs closed in 1988 due to fire, it employed over 100 workers (Australian Abattoirs 2013).

Barriers

There are no northern meat processing facilities in Australia, excluding those in coastal Queensland, and the need for an abattoir in northern Australia has long been recognised by industry and governments alike to ensure market diversity (ABARES 2012). ABARES (2012) notes factors which influence the establishment of a viable meat processing industry in northern Australia include: continuity of stock supply, distance from markets, labour shortages and the availability of suitable adjacent feedlot facilities. On a more local level, Rodger Oakdon (pers comm. 25/10/2013) suggests the major barriers to re-establishing a successful abattoir to service the central Australian market include: the significant start up cost of getting the abattoir plant up to standard; the boom and bust nature of cattle grazing in the desert due to extreme climate variability; and accessing a reliable workforce. Oakdon (*Ibid*) and Willoughby (*op. cit.)* both referred to the poor quality of the central Australian cattle meat in dry times requiring some time in a feedlot to get it to market standard, so any local abattoir would need to be attached to a feedlot if the meat was to compete with meat from southern meat works. Interestingly, Chris Materne (pers comm. 27 Oct 2013) from the pastoral Division of Department of Primary Industries and Fisheries (DPIF) refutes the necessity of cattle in dry years being finished off at a feedlot, noting that maintaining high quality meat in central Australia is possible during dry times if stations are appropriately stocked. Materne (*Ibid*) also noted central Australian meat is appropriate for premium organic and grass fed markets, yet this potential is untapped as yet.

Roger Oakdon (pers. comm. 25/ 10/2013) commented that small-scale feedlot at Bond Springs closed due to the high cost of grain. He also stated there is some political will to reestablish a meat works in central Australia and with an initial investment there is no reason why it couldn't be successful (*Ibid*).

Camels

There have been a number of attempts at developing a camel industry in Central Australia following the collapse of the live export camel industry (which shipped approximately 4 to 5000 camels per annum to the middle east) in 2003 (Brain Nov 14 2013). Currently, many pastoral stations in the southern NT are trucking camels to a meat processing plant in Caboolture in Southern Queensland with 2700 processed this year (*Ibid*). Between 2010 and 2013 around 150 000 camels in central Australia have been culled and a further 25 000 have been commercially harvested (10 000 for human consumption and 15 000 for pet meat) (Ninti One 2013). Attempts by Northern Game Meat to develop a mobile camel abattoir have received little government support (Brain *op. cit.*). Glen Edwards from the NT Department of Natural Resources said that mobile abattoirs will not work with camels due to the size of the animal making the challenges of meeting health standards too great (Brain *op. cit.*).

The Final Report of the Australian Feral Camel Management Project (Ninti One 2013) estimated the current feral camel populations to be at 300 000, down from an estimated 1 million in 2008. This report by Ninti One (2013) highlighted some of the key barriers to the commercial use of camel meat from central Australia including: the high cost of mustering and handling; lack of suitable infrastructure for harvesting, transport and processing and high cost of transport (to abattoirs in the southern states or for live export). This report also advocated strategic investment in processing facilities, farming for continuity of supply and possible pet-meating of camels as possible strategies to facilitate more commercial use of camel meat (Ninti One 2013).

Processing

There is a very small food processing industry in Alice Springs, this includes: Du Yu Coffee, Territory Jerky and the Goodman and Fielder Baking (which is also included in the wholesale section). All three of these businesses use ingredients imported from southern markets and overseas to make what many retailers and food services businesses classify as local food. Due to resource constraints, none of the food production businesses were contacted as part of this study; however, would be interesting to contact if undertaking further study.

Consumption - Retail

Overview

Initial surveys show that the great majority of food purchased in Alice Springs comes from one of the two major supermarkets; Coles and Woolworths (Table 2). Freight quantities are measured in either pallets or pans (container loads) with approximately 22 pallets per pan (Table 2). Table 2 demonstrates the domination by Coles and Woolworths with an estimated combined 92 container loads per week, compared to a combined 20 container loads per week for the remaining stores; the smaller local supermarkets or IGAs (Larapinta, Sadadeen, Flynn, East Side, North Side) and independent supermarkets (Piggly's, Heavitreee Gap). The vast majority of this food comes from Adelaide (and beyond) via train and truck (Table 2). Whilst the larger operations such as Woolworths, Coles and major wholesalers reported using almost exclusively train transport, the smaller retailers such as the IGAs, independent supermarkets and specialty shops tended to rely on truck transport (Table 2). The exception to this being that Woolworths sources some fresh fruit and vegetables from farms around Darwin and Coles sources its milk from Darwin (Table 2). Of the three butchers in Alice Springs (Charbray Meat, Shorty's Quality Meat and Milner Meat) all of their meat is transported by road as primals and butchered locally (Sam Nelson pers. comm. 31/10/2013). In contrast, the major supermarkets employ slicers not butchers, so meat is transported as boxed meat which is pre-butchered (Sam Nelson, pers. comm., 31/10/2013).

Whilst most stores did stock local food, such as lettuce, Asian greens and herbs from Territory Lettuce, discussions with managers revealed that local food was difficult to come by due to issues of lack of availability, reliable supply, food being appropriate quality to be certified for sale and food being purchased by external buying agents (Table 2) . Freight was noted as a significant cost by all retailers, yet the complications with trying to buy local seemed to outweigh the cost of freight (Table 2). Very few of the stores that had local produce actually labeled it as locally produced, with both Coles and Woolworths using just the *NT Grown* label, and both of them admitting that these signs were not always used (Table 2). Several retailer said this was due to simply not having the signs available, as well as the difficulty in 100% assuring that the food is entirely locally produced (Table 2).

Figure 4: Food For Alice stall at Todd Mall Markets

All retail outlets stated that they would like to have more locally sourced food. However, these issues of lack of reliable supply, ordering produce through external buyers and complications in getting food certified to sell were significant barriers to this (M. Ahmic pers. comm. 25/10/2013 P. Amos pers. comm. 25/10/2013). The production section of this report demonstrates this paucity of locally produced food; making locally produced food an anomaly amongst the great majority of imported food (Table 1).

Table 2: Results from the survey of retail food outlets in Alice Springs 2013

Name	Type of Store	Food comes from	Sells local produce	Labels it as local	Barriers to selling local	No. of containers per week	Food waste
Woolworths	Major Supermarket	Mostly from Adelaide via train. Some fruit from Darwin straight from the farm (in season) via truck.	Yes Local: Lettuce, herbs, Asian veg. Territory Jerky. NT (Darwin): watermelon, rock melon, mangoes, pineapple	No. Only NT grown.	Availability Reliability. Being registered. Sales externally managed.	Approx. 42	Fresh food, no farmer program locally so goes straight to tip. Pre-packaged food goes to Food Bank in Darwin.
Coles	Major Supermarket	Mostly from Adelaide via train.	Lettuce, herbs, s\Asian veg. Territory Jerky. NT: watermelon	No. Only NT grown.	Availability Reliability. Being registered. Sales externally managed.	Approx. 50	Fresh food – First Bite picks up 4 days a week (2- 30 boxes). The rest goes to the dump.
Northside IGA	IGA	From Adelaide via train. Milk from Darwin on Truck	Not much. Dates Locally ground coffee	No	Orders externally managed (IGA) and not much to choose from	18 pallets a week (> 1 pan)	To the tip
Eastside IGA	IGA	From Adelaide via train. Milk from Darwin on Truck	Not much. Dates Locally ground coffee	No	Orders externally managed (IGA) and not much to choose from	15 pallets a week (> 1 pan)	To the tip
Flynn IGA	IGA	Not interviewed – though as an IGA should be similar to East Side IGA (> 1pan)					
Larapinta IGA	IGA	Not interviewed – though as an IGA should be similar to East Side IGA					
Piggly's	Independent	Not interviewed					
Sadadeen	Independent	Not interviewed					
Heavitree Gap	Independent	Not interviewed					
Gillen	Independent	Not interviewed					
Fresh in the Desert	Premium Food	Adelaide Market via truck	Yes	Yes	Not much avail.	2 trucks per week	Tip
Afghan Traders	Health Food	Adelaide, Sydney, And Gold coast via truck	Yes	Sometimes	Not much avail.	Approx 1 truck per week	To their chickens
Milner Meat	Meat: beef, lamb, pork, chicken and fish	Adelaide via truck	When available yes	Yes – camel meat, No: mince	Not avail as Wamboden has closed	Approx 1 pan/ container load per week	Tip
Charbray Meat	As above	Not interviewed – should be similar to Milner Meat					
Shorty's Meat	As above	Not interviewed – should be similar to Milner Meat					

Waste

The great majority of the food waste from Alice Springs retailers ends up in the tip (Table 2). Whilst Woolworths send all of its fresh produce waste to the tip, it does send on some expired packaged goods to a Food Bank in Darwin and they have been in discussions regarding establishing a Food Bank in Alice Springs (M. Ahmic pers. comm. 25/10/13). In contrast, Coles donates some of its waste fresh food to charities via arrangement with First Bite, which collects from the store four times per week; everything in excess of this going to the tip (P. Amos pers. comm. 25/10/13). Other retailers interviewed reported sending all their waste to the tip, with the exception of Afghan Traders that reported they give their waste to their chickens (Table 2).

At present, there are no alternatives to dumping food waste at the tip, with no commercial composting or farmer waste program available in Alice Springs. Mohamed Ahmic from Woolworths (*Ibid*) did mentioned they have tried to initiate providing green waste to farmers in Alice Springs, but as yet have had no success. Both Coles and Woolworths have a strong environmental and ethical charters detailed in their websites (Woolworths Limited 2013, Coles 2013). For instance, *Woolworths Corporate Responsibility Report 2012* posted on the Woolworths Limited website (2013) states that by 2015 they aim to have no waste entering landfill where alternative arrangements are available. Coles, whilst detailing a number of recycling initiatives, does not mention food waste reduction on their website (Coles 2013). Given this, it appears that there is an imperative for Woolworths, if not Coles, to support food waste programs such as a commercial composting facility.

One major barrier to food outlets passing on out-of-date food is the liability issue involved in passing on old food (M. Ahmic pers comm. 25/10/2013, R. Blom pers. comm. 25/11/2013). Food outlets need an assurance that food passed on won't be used for human consumption due to this liability issue (M. Ahmic pers comm. 25/10/2013).

Consumption - Wholesale

There were seven major food wholesalers identified in Alice Springs that service local indigenous communities, large government facilities such as the jail and hospital, smaller retailers, mines and the café and the restaurant and tourism trade (Table 3). These range from: providers of dry good and refrigerated goods such as IGA/ Metcash and Smimac; wholesalers targeted at the food services industry such as PFD, fresh food wholesalers such as Alice Fruit and Vegetable Supplies and specialised food providers such as Prime Cuts (meat), Parmalat (milk) and Goodman Fielding (bread). Officially, Goodman Fielding is a food manufacturer (making its own bread); however, as it also acts as a wholesaler, we have included it in this data set.

It is interesting to note that of all the sectors interviewed the members of the wholesale sector were the most reluctant to be interviewed for this study. This is reflected in the low numbers of interviews conducted.

Of the two businesses surveyed in, very little or no local produce was sold (Table 3). The major barrier to selling locally produced food for the two wholesalers interviewed were the lack of locally available produce. Richard Blom (*op. cit.*) from IGA / Metcash added to this identifying the difficultly in local companies meeting local trading terms, the fact that they were a national company and the lack of reliable supply of local food. Although not interviewed for this study, it is known that the vegetable wholesaler Alice Fruit and Vegetable Supplies does sell locally produced produce from Territory Lettuce (as they are both owned by the same company).

Table 3: Results from the survey of wholesale food outlets in Alice Springs 2013

Name	Type of wholesaler	Food comes from	Sells food to	Sells local produce	Barriers to selling local food	No. of containers per week	Food waste
Independent Grocers Wholesale – Metcash	Dry goods, Refrigerated and Frozen goods	Adelaide via road and rail. Mostly road.	70% Indigenous communities 30% Alice Springs – Including IGAs, Hospital, Prison, Takeaways, Restaurants, Cafes, Food Services	No	National trading terms required, national company. Not the steady quantity available.	5-10	Give it to Salvos or otherwise to tip
Alice Springs Prime Cuts Meat Supplies	Meat, poultry, fish	Adelaide via truck	Indigenous communities,	When available sell local camel and mince	Not available now. No local abattoir. Would if it was available.	3	To tip.
Central Fruit and Vegetable Wholesalers.	Fruit and vegetable, Hayden Nicky 08 8952 2232 Ring 10 o'clock mon	Try in arvo	Declined interview	Yes – lettuce, herbs and Asian greens	Declined interview	NA	NA
PFD Food Services Propriety wholesalers.	Restaurant food (e.g. chips/ seafood) dairy	Declined interview					
Parmalat Australia –	Dairy wholesaler.	Declined interview					
Smimac PTY Ltd	Dry goods, Refrigerated and Frozen goods	Declined interview					
Goodman Fielding Baking	Fresh Bread	Bakes and sells bread to supermarkets and other retailers.					

Waste

Although our research in wholesale was limited to the limited amount of interviews we obtained, other studies have noted there are little alternatives in Alice Springs to dumping food waste at the tip (O'Leary 2009). Both businesses surveyed said the great majority of their food waste ends up at the tip (Table 3). The manager of Independent Grocers/ Metcash suggested that efficient stock management practices such as discounting stock soon to be out of date can significantly reduce food waste quantity (R. Blom pers. comm. 7/11/2013). Blom (*Ibid*) also noted that it was illegal to sell or even donate out-of-date stock which results in good quality food being dumped. Rachel O'Leary (pers. comm. 8/11/2013) suggested that in the absence of commercial organic recycling/ composting facilities in Alice Springs, these practices are likely to continue. O'Leary (*Ibid*) also noted that large scale organic programs have become standard in many local government areas throughout Australia.

Food Services – Restaurants and Cafes

The *Alice Springs Region Economic Profile 2012* (2013) revealed that there are 50 accommodation and food services businesses in Alice Springs. Four popular restaurants that service both the local and the tourist markets were surveyed as to their food procurement and waste habits (Table 4). The restaurants/ cafés surveyed primarily used Alice Springs wholesalers for their food with some additional stock coming from Coles or Woolworths (Table 4). The use of local food in cafés and restaurants was largely either minimal or non-existent (Table 4). The exception to this being Watertank Café which; being attached to an edible garden centre, grows some of its own vegetables. Reasons for not using local produce stated by restaurant managers echoed the reasons stated by retailers and wholesalers; primarily that local food was either not available or not consistently available (Table 4). As most restaurants sourced their food from local retailers and/or wholesalers, their access to local food is determined by the buying habits for the retailers and wholesalers that supply them. Of all the sectors surveyed, restaurant managers did seemed the most willing to use local food, with several restaurants noting the consumer preference for local food and one restaurant identifying itself as being a specialist in native cuisine (Table 4). Two of the four restaurants (Red Ochre Grill and Red Dog Café) mentioned they had used local/ bush food ingredients in the past, but they were no longer available and hence no longer used (Table 4).

Although restaurants servicing the tourist trade were keen to label native food on their menu, most restaurants interviewed didn't label the local food they used on the menus at all (Table 4). Interestingly, the one item that was labeled as local on a menu (barramundi) isn't local at all. The major reasons given for not labeling menu items as local was that they could guarantee it would always be local (Table 4).

Table 4: Results from the survey of food services outlets in Alice Springs 2013

Name	Food from mostly	Local food on menu? Why/ Why not	Is it labeled as local	If not, why not	Waste
The Diplomat	AS food wholesalers	No. Not avail. Market just isn't there.	NA	NA	Tip
Watertank Café Edible Garden Centre	AS food wholesalers	Yes. Not available or inconsistent supply.	Sometimes	Can't guarantee it is local.	Compost it and give away our coffee grinds
Red Ochre Grill Aurora Hotels Group	AS food wholesalers	Not really, once had bush tomatoes. Noted as being a specialist in native cuisine. Price, not consistently available	Yes barramundi is (when its from Darwin)	NA	In the bin
Red Dog Café	AS Supermarkets AS Food wholesalers	Not much. Lettuce. Every now and then lemons, herbs and other citrus. Used to use saltbush in burgers and locally made chutney.	No – no consistent supply so can't Did use saltbush in the past, but it isn't available now.	Can't guarantee will always be local (for lettuce)	Used to give coffee grinds to community gardens, now just tip.

Waste

A recent study into commercial food waste in Alice Springs found that 20% of businesses had conducted some form of green waste re-use or composting, although the author suggested that recipients appeared to have overstated their participation in composting, and it is probably significantly lower (O'Leary 2012). Of our survey of four restaurants, two said they bin all their waste, one said they used to pass on to the community garden their coffee grinds and now just bin them, and another said they compost their food scraps and give away coffee grinds for gardens (Table 4). Once again, studies suggest that with no organic recycling facilities, it is probable that the great majority of the food waste from Alice Springs restaurants goes to landfill (O'Leary 2012).

Small scale and community based

There currently exists in Alice Springs a small but growing community of people and small businesses interested in local food.

Food for Alice has been running a small scale local market stall at the Todd Mall Markets (every second Sunday during 2013). It is essentially a small social enterprise that buys and sells local produce. Food for Alice was set up by interested community members 2010 and is currently backed by desertSMART COOLmob.

The Alice Springs Steiner School runs a school garden that produces food for sale at the school and through Food for Alice. Initially, the produce from this garden was sold through Afghan Traders also owned by the school. Once Afghan Traders was sold, the Steiner School ceased to sell produce through them.

The Australian Dance Academy imports fresh food from Adelaide markets for their students, with excess being sold at the Ballet School car park (at Diarama Village) on Saturday mornings. They are now starting to deliberately order large enough amounts to ensure consistency of stock and some higher value items (such as wood fired bread) at this market.

The Alice Market Garden was a market garden attached to a local Vietnamese restaurant that supplied local residents with local produce as well as produce from Top End through a stall at the Todd Mall Markets. They recently have stopped selling produce to concentrate their efforts on the supplying the restaurant.

5. Conclusions

The Alice Springs food system is characterized by the great majority of food being imported from distant markets. Furthermore, much of what local food is produced is exported to exterior markets and would only ever hit Alice Springs retail shelves after at least a 3000 km round journey.

This study found the major barriers to food outlets stocking local food are:

a) from the food producers side: finding it simpler or easier to go with external buyers for southern markets, lack of communication between major retailers/ wholesalers and growers, complications gaining grower numbers, certification and

b) from the food outlets side: the lack of availability or reliable availability of produce, buying being externally controlled, the hassle of dealing with individual producers, producers not having the right certification to sell through them.

From both sides it seemed simpler and easier to by pass the local markets and deal with large wholesalers / buyers from the southern states. These finding are in keeping with national and global trends of increasing distances between where food is produced and where it is sold and consumed (Spencer and Kneebone 2012).

Food production in Centralia Australia does appear to be in a lull, with many farms up for sale or producing reduced crops. Yet the existence of some successful farms such as Rocky Hill suggests that producing in central Australia can be profitable. This notion that horticulture in central Australia can be profitable is supported by several locally produced reports on the subject (Warchivker 2009, Lange 2011).

There are some exceptions to the trend of local producers struggling to supply local markets, such Territory Lettuce, major producers that do sell locally and a few very small-scale local enterprises such as *Food for Alice*. However, with the exception of the small-scale enterprises, none of the local produce that is sold locally is clearly labeled as locally produced. Without this labeling, food outlets have no way of gauging the value of "local" for the consumer.

For the meat industry, the lack of functioning abattoir prevents locally grown cattle/camels being consumed locally. Whilst all people interviewed in regards to this were positive that such an industry could be viable in Alice Springs, the significant investment required to develop such a facility means that it is unlikely in the near future. As the NT Government is not currently planning on financially contributing to the development of a meat processing plant in Darwin (Australian Agricultural Company Limited Oct 2013), it is unlikely to do so for a smaller-scale one in Alice Springs.

Waste

It appears the great majority of food waste from food retailers, food wholesalers and households end up in at the tip. Whilst both major supermarkets have some arrangements for donating some edible food waste to charities, still much of this waste goes into the waste stream. At present, with no commercial composting or farmer waste program available in Alice Springs, retailers and wholesalers are left with few alternatives other than dumping food waste at the tip.

6. Recommendations and Opportunities

1) Given that a major factor identified in preventing locally produced food entering local food outlets was lack of communications between growers and sellers, the establishment of a role that liaises between local growers and retailers could work to redress this issue. M Ahmic (pers comm. 25/10/213) mentioned that Woolworths in Darwin employs a farm liaison officer to liaise between farms and supermarkets, which is why Alice Springs gets some produce straight from Top End farms.

   Recommendation: Take steps to improve communications between local growers and food outlets by, for example, establishing a local liaison officer between growers and retailers.

2) Very little of the locally grown produce was labeled as such in food outlets. By establishing a local food labeling scheme in Alice Springs – food outlets may get a greater sense of the value of local food to consumers – which in turn may encourage them to source more local food.

   Recommendation: Develop a local food labeling system and encourage adoption by all food retailers in town (particularly the supermarkets).

3) This study established that, whilst there was generalized support for the idea of local food, there was a general lack of understanding of the value of local food in terms of the economy, the environment and the taste of the food itself. Any labeling scheme should be launched with an *Eat Local* campaign that explains the value of eating local.

   Recommendation: Create an *Eat Local* campaign which includes a local labeling scheme (detailed above) and a public awareness campaign on the value of eating locally produced food.

4) This report revealed a horticultural industry in some degree of flux. Whilst many people that have studied the industry insist that horticulture can be viable in central Australia, there remains a significant lack of investment in this area, and no clear process to establish reasonable terms of investment. Further government support for establishing a viable horticultural industry is suggested.

   Recommendation: Government to simplify process for horticultural development and provide additional support for establishing a viable horticultural development.

5) This report was produced on a limited budget, did not have the resources to contact all of the suppliers or producers or experts in the field. Further research should be undertaken to develop a greater picture of what is happening in this field. This study should be open to all components of the food system and consider including facilitated sessions to capture all of this information and develop solutions.

   Recommendation: Conduct further research into the components of the Alice Springs food system to build on the findings of this report.

6) This report indicated that whilst larger food outlets were primarily using train freight, smaller food outlets and producers were primarily using much higher carbon emission truck freight. Further study to investigate the barriers to producers and smaller outlets using rail freight and possible flexible arrangements between these parties is suggested. An increased use of rail freight will have positive impact on carbon emissions, road and traffic conditions on the highway.

   Recommendations: Conduct further study into the freight transport systems servicing Alice Springs with as focus on reducing emissions associated with this transport (for example investigating the barriers to producers and smaller outlets using rail freight).

7) This research suggested that although the reestablishment of a local meat processing facility would require significant capital investment, and there are some other barriers to reestablishing a processing facility, these may not be as significant as initially suggested. Given the possible gains to the local economy if cattle could be processed and sold to the local market, it is recommended that the viability of reestablishing a local meat processing facility is further assessed.

   Recommendations: Conduct a feasibility study into the reestablishment of a local meat processing facility.

8) The Ninti One (2013) AFCMP report both identified the lack of suitable infrastructure for processing (and high cost of transport to abattoirs in the southern states) as some of the major barriers to the commercial use of camel meat from central Australia and advocated for the strategic investment in camel processing facilities as one step to remedy this (Ninti One 2013).

   Recommendations: Any feasibility study into the reestablishment of abattoirs in Central Australia (as detailed in Recommendation 8) should factor in the possibility of providing facilities for processing camel meat, either for pet meat or human consumption.

9) Given that there is no commercial compositing in Alice Springs and there is a growing trend towards the commercial composting of food waste across Australia (O'Leary 2010) there is an opportunity for Alice Springs to do this too. With Woolworths publicly stating that they aim for zero food waste by 2018 (if commercial composting facilities are available) (Woolworth Limited 2013) there is an imperative for both major supermarkets to support such initiatives.

   Recommendation: Investment should be made in development of a feasibility study of commercial food waste composting enterprise for Alice Springs including possible public-private partnership funding models to fund this.

10) Large not-for-profit sector agencies that specialise in food recovery (such as Oz Harvest, Second Bite and FoodBank) can assist to broker food recovery for local charities.

   Recommendation: Recent models of food recovery by Second Bite here in Alice Springs and by others in other Australian capitals, should be replicated in all Alice Springs supermarkets.

7. References

Aridgold Farm Date Producers, Oct 2013 @ http://aridgold.com/home.htm

Australia Abattoirs, Oct 2013, *History of Australian canneries, slaughterhouses, meathouses and abattoirs* @http://australianabattoirs.wordpress.com/category/australian-abattoirs/northern-territory/page/2/

Australian Agricultural Company Limited, Oct 2013@ http://www.aacont.com.au/

Carmen Brown, 30 Oct 2013, *Bumper Mango Crop expected in central Australia*, ABC Rural lhttp://www.abc.net.au/news/2013-10-30/ti-tree-mango-grower-expects-bumper-harvest/5048086

Coles website, Oct 2013, *Waste* @http://www.coles.com.au/helping-australia-grow/responsible-sourcing-and-sustainability/waste

Department of Environment, Feb 2014 @http://www.climatechange.gov.au/climate-change/climate-science/climate-change-impacts/northern-territory

Love Food Hate Waste website, Feb 2014 @http://www.lovefoodhatewaste.nsw.gov.au/love-food/research.aspx

Ninti One Limited (2013) *Managing the impacts of feral camels across remote Australia*

– final report of the Australian Feral Camel Management Project, McGregor M., Hart Q., Bubb A., and Davies R. editors. http://www.nintione.com.au/resource/ManagingImpactsFeralCamels_FinalReportAFCMP.pdf

Northern Territory Department of Natural Resources, the Environment and Sport (NRETAS), 2011, *Identification of Potential Land for Long-term Sustainable Food Production, Stage 1: Identification of Soil and Water Resources* Alice Springs, NT.

Northern Territory Government fact sheet, 2002, *Table Grape Industry in Central Australia*: http://www.nt.gov.au/d/Content/File/p/Fruit/table_grape_industry_in_central_australia.pdf

The Northern Institute, Charles Darwin University, Nov 2012, *Alice According to You:*

A snapshot from the 2011 Census, Research Brief 201301, http://www.cdu.edu.au/sites/default/files/the-northern institute/Alice%20according%20to%20you_FINAL.pdf

Northern Territory Government, 2010, *Alice Springs Economic Profile Review 2010*,

ww.rdia.nt.gov.au/__data/assets/pdf_file/0003/108786/Alice_Springs_Economic_Profile_Review_2010.pdf

Northern Territory Government, 2013, *Alice Springs Region Economic Profile 2012, at a glance* @http://www.rdia.nt.gov.au/__data/assets/pdf_file/0011/152111/Alice_Springs_Economic_Profile_A4_FA.pdf

Northern Territory Department of Primary Industry, Forestry and Fisheries (NT DPIF), 2013, *Primary Industry in Central Australia* @ http://www.nt.gov.au/d/Primary_Industry/index.cfm?Header=Alice%20Springs

O'Leary, R., 2010, unpublished, *Business Waste in Alice Springs*, Masters Research, Charles Darwin University

O'Leary, R., 2009, unpublished, *Household Waste in Alice Springs*, Masters Research, Charles Darwin University

Spencer, S and Kneebone, M, 2012, *FOODmap: An analysis of the Australian food supply chain*, Department of Agriculture, Fisheries and Forestry, Canberra @ http://www.daff.gov.au/__data/assets/pdf_file/0015/2130045/foodmap-an-analysis-of-the-australian-food-supply-chain-30-july.pdf

Thompson, T, Martin, P, Mifsud, C & Foster, M, 2012, *Commodity outlook and financial performance of key agricultural industries in the northern Australia pastoral zone*, ABARES Conference paper 12.9, Canberra, June. @ http://s3.amazonaws.com/zanran_storage/adl.brs.gov.au/ContentPages/2557711505.pdf

Walker BW, Porter DJ, and Marsh I., 2012, *Fixing the Hole in Australia's Heartland: How Government needs to work in remote Australia*, Desert Knowledge Australia, Alice Springs http://www.desertknowledge.com.au/getattachment/Our-Programs/remoteFOCUS/Get-informed/remoteFOCUS_Compendium_August_2012.pdf.aspx

Waybill database, 21 Feb 2013, *Cattle Movement Statistics*, Alice Springs Region, Department of Primary Industry and Fishing, Northern Territory, @ http://www.nt.gov.au/d/Primary_Industry/Content/File/biosecurity/LivestockIdMovement/Waybill_STATS_LiveCattle_NTRegions_Istate_REGIONS_History_AliceSprings.pdf

Woolworth Limited, 2013, *Corporate Responsibility Report 2012*, http://woolworthslimited.com.au/CRReport/2012/waste-and-recycling.html

8. Appendices

Appendix 1: Sources of information/ interviews conducted for this study

Part of Food System	Organisation interviewed	Representative Interviewed	Questionaire completed	Date of Interview
Production - Horticultural	Centrefarm	Vin Lange	Yes	10/10/2103
	Desert Springs Desert Farm Ali Curung	Rachel McLaughlin, Owner	Yes	7/11/2013
	Red Centre Farm Ti Tree	John Crayford, Owner	No from 783 ABC radio website	NA
	Rocky Hill Grapes Undoolya Station Alice Springs	Richie Hayes Station Manager	Yes	10/10/2013
	Tamara Plantation Desert Fruit Company Santa Teresa	Ella McHenry co-owner Producers website	Yes	7/11/2013
	Territory Lettuce Ilparpa Alice Springs	Moe McCosker, Owner	No informal	3/06/2013 (with C. Douglas-Brown)
	Rocky Hill Table Grapes	Richie Hayes, Owner	Yes	9/10/2013
	Desert Springs Desert Farm Ali Curung	Rachel McLaughlin, Manager	Yes	6/11/2013
	Centrefarm	Vin Lange	Yes	10/10/2013
	Ti Tree Producers	Graham Ride	No informal	20/5/2013 With C. Douglas Brown
	Backyard Gardening	Geoff Miers	No informal	3/6/2013 (with C. Douglas-Brown)
Livestock	NT Cattlemen's Association	Jim Willoughby	Yes	10/10/2013
	Department of Primary Industry	Chris Materne, Pastoral	No informal	31/10/13

Part of Food System	Organisation interviewed	Representative Interviewed	Questionaire completed	Date of Interview
		Production Officer Department of Primary Industry and Fisheries Alice Springs		
	NA	Rodger Oakdon, former manager of Wamboden Abattoir	No Informal	25/10/13
	Milner Meat	Sam Nelson, Manager	Yes	31/10/13
Retail	Woolworths	Mohamed Ahmic Store Manager	Yes	25/10/13
	Coles	Peter Amos Store manager	Yes	25/10/13
	Afghan Traders	Marli Banks, Owner	Yes	12/10/13
	East Side IGA	Christine and Kumar Store Manager	Yes	5/11/13
	Fresh in the Desert	Mary Rodda, Manager	Yes	9/10/2103
	Milner Meat	Sam Nelson, Manager	Yes	31/10/13
	Hermannsburg Store	Ted Uzzel, store worker,	Informal	9/10/2103
Wholesale	Independent Grocers _ Metcash Food	Richard Blom Manager	Yes	7/11/13
	Primecuts	Rodger Oakdon, Owner	Yes	25/10/13
Restaurants/ Cafes	Red Dog Cafe	Kurt Brandso Café worker and manager's son	Yes	7/11/13
	Red Ochre Grill Aurora Hotel Group	Herman Lee, Manager	Yes	7/11/13
	The Diplomat	Anjelica Bazdaric, Manager	Yes	10/10/13
	Watertank Cafe	Lyn Wilkinson, Owner	Yes	12/10/13

Part of Food System	Organisation interviewed	Representative Interviewed	Questionaire completed	Date of Interview
Waste[1]	CDU – Masters in	Rachael O'Leary, CDU Master's Student	No - informal	8/10/13

[1] All the interviews of retailers, wholesalers and food services businesses also questioned as to waste habits. However, this was the only interview that dealt exclusively with waste.

Appendix 2: Survey for Food Producers

1. What do you produce?
2. How much do you produce annually?
3. Where does your produce go?
4. Do you supply any food to the local market?
5. If not why not?
6. If so, what proportion is sold locally?
7. Is the cost of freight significant?
8. Do you think this how it general works in CA?

9. What are your biggest challenges as an arid zone producer?

Appendix 3: Survey for wholesalers and retailers

1. In terms of container loads (pan) or pallets how much produce do you sell weekly?

2. Where do you get it from?

3. How is it transported to you?

4. Do you get any local food currently?

5. If so what local food do you get? Why? Why not?

6. Do you label it as local? Why / why not?

7. Would you buy food locally if it was available?

8. What barriers are there to getting food locally?

9. What about food waste? Does your food waste go simply to the tip or do you use other methods to dispose of it (such as composting)?

10. For wholesalers who do you supply