

Rural transformation: Cherry growing on the Guanzhong Plain, China and the Adelaide Hills, South Australia

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Abstract: This paper echoes a tradition in agricultural geography by focusing on a single crop: cherries. It illustrates how developments associated with globalisation and growing urban markets are re-shaping rural areas. The interplay between global and local is investigated in two different contexts. A Chinese example reflects transformations affecting the countryside following national economic reforms. Focusing on the hinterland of Xi'an, capital of Shaanxi Province, it examines farmers' responses to the changing socio-political context and the rising size and wealth of the local market. Individual initiatives backed by government support have spawned localised concentrations of cherry growing and increased horticultural production. Farm-based tourism is creating new relationships between farmers and consumers, with farms becoming more diversified and multifunctional. The second example is the Adelaide Hills, South Australia, where cherry growing is increasingly combined with direct sales to consumers and gastronomic tourism. The paper addresses contrasts and similarities between the two examples in the interplay between global and local, and a 'multifunctional transition' in farming. Concluding remarks include reference to new economic links forged between China and Australia through relaxations on cherry imports to China and new patterns of Chinese foreign direct investment into Australian cherry production. A research agenda for future research is suggested.

Keywords: cherries; agriculture; rural tourism; globalisation; multifunctional; China; Australia

1 Introduction

Agricultural geography has a long history of focusing on the distribution and nature of production of specific crops and livestock. Examples from 'classical' works in the field include seminal studies from the United States by J.F. Hart on tobacco (Hart and Chestang, 1996), cotton (Hart, 1977) and sheep (Hart, 1956), and by O.E. Baker on wheat (Baker, 1925) and his contributions to similar studies dealing with cattle, poultry, sheep and rice in the United States in 1918 (Visser and Hu, 1950). Other notable work by geographers examining the historical distribution of crops includes Meinig (1962) on the fluctuating margins of wheat

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cultivation in South Australia, Hill (2012) on rice in Malaya, and van Etten (2006) on maize in central America. Geographers have also contributed to studies on the distribution of tropical crops, e.g. cassava (Hohnholz, 1980; Carter and Jones, 1993), sorghum (Larsson, 1996), coconuts (Young, 1935; Ngowi and Stocking, 1989) and pineapples (Griffiths, 1961; Wee, 1970; Wilson, 1948). Focus on a single crop has not been a strong feature of Chinese agricultural geography (Liu and Long, 2011), though the changing distribution of grain production has been the subject of several enquiries (e.g. Terhung *et al.*, 1984; Minglun, 1997; see also Pray *et al.*, 2002 on Bt cotton).

These studies focused largely on where particular crops were produced and the physical characteristics of the producing regions. However, there have been new approaches to geographical studies of crops in which they have been examined within the broader context of the wider agri-food system. A good example is recent work on wheat as a farm crop, as a food and an industrial substance in various processed products (Atchison *et al.*, 2010; Head and Atchison, 2016), and studies of strawberry production in the United Kingdom (UK) (Calleja *et al.*, 2012) and Spain (Downward and Taylor, 2007; Evans, 2013), with its implications for water management and seasonal labour. In another example, research on grass and grass seed in New Zealand has shown how replacement of indigenous vegetation types by 'English grasses' can only be understood by considering the wider political economy of the process, as well as the cultural concept of land improvement (Pawson and Brooking, 2008; Brooking and Pawson, 2010). In the Chinese context, Yang and Chen (2011) have shown how Chinese rice production has changed its spatial distribution over time, moving further north in response to availability of labour and irrigation.

This paper seeks to address the wider context of the agri-food system, but specifically within the context of the study of a single crop, cherries, in which trends within two countries are both contrasted and compared. The opportunity for such a study is provided by consideration of the operation of two major aspects of ongoing change to the agri-food system, namely globalisation and urbanisation, but also within specific spatial contexts, one in China (the Guanzhong Plain in Shaanxi province) and one in Australia (the Adelaide Hills in South Australia) (see Table 1). It aims to show how globalisation and concerns to meet increased demand for food in China is forging new relations of investment and trade between the two countries with respect to the chosen focus of study, cherry production. In the conclusion these aims are translated into an agenda for future geographical research.

Worldwide rural transformation has been dominated by the ever-expanding influence of growing urban markets, contributing substantially to globalisation of agriculture. Through globalising processes, the world's major cities are increasingly supplied with food produced in distant locales, with ever more farmers becoming involved in producing for this global market (Robinson and Carson, 2015). Meanwhile, growing cities also exert more localised impacts on their immediate rural hinterlands. The major cities offer new and specialist markets for farm produce grown 'on their doorstep' in the peri-urban or rural-urban fringe (Zasada, 2011). Thus, there is an ever-evolving complex interplay between the global and the local being played out in rural areas, especially in these fringe areas, often leading to wholesale and rapid transformations of the countryside. This complexity is shaped by the extent of the local penetration by the global market, the potential of cities to consume produce from their adjacent hinterland, and a myriad of other factors affecting farmers' behav-

ious. These include the lure of alternative on- and off-farm income sources, and the ability to respond to policy changes and initiatives, which are generating a new phase of agricultural development on farms, said to be multifunctional because of the multiple roles now often being played by farms (Wilson, 2007; 2008).

Table 1 Background information for the case study areas

	Average temp (°C)		Sunshine hours (N)		Relative humidity (%)		Frost-free period (days)		Precipitation (mm)			
Guangzhou Plain ¹	14.6		1907.3		65		214.5		532.5			
Adelaide Hills	14.3		2513.6		58		320		453.2			
	J	F	M	A	M	Jn	Jl	A	S	O	N	D
Guangzhou Plain ¹ Temp (°C)	1.4	4.8	9.9	15.7	20.7	23.8	27.7	25.5	21.2	14.3	7.8	2.3
Guangzhou Plain ¹ Precip (mm)	4.0	1.9	20.0	84.5	50.5	91.4	18.2	58.4	92.1	59.8	30.1	1.6
Guangzhou Plain ¹ Sunshine hours (N)	135	139	148	205	216	132	268	218	130	120	66	130
Adelaide Hills Temp (°C)	18.5	19.0	17.0	14.0	11.0	9.0	8.0	9.0	10.5	12.5	14.5	17.0
Adelaide Hills Precip (mm)	26.7	22.0	35.3	56.7	89.9	116.2	139.7	119.3	102.1	64.5	37.6	36.7
Adelaide Hills Sunshine hours (N)	304	263	242	189	146	117	127	158	183	239	261	285

¹ Average for the administrative districts of Xi'an and Xianyang

Physical characteristics: The average altitude of the Guanzhong Plain is around 500 m. It is part of the Loess Plateau that extends across almost all of the provinces of Shaanxi and Shanxi and into parts of Gansu, Ningxia and Inner Mongolia. It is naturally very fertile but in parts substantially degraded by long-term cultivation. The soils are predominantly grey-yellow palaeosols, which are a reliable indicator of a cold-winter, warm-summer and arid climate.

Adelaide Hills has a mixture of sandy loams, loams and clay loams over clay subsoils. Soil depth is highly variable due to topography, which can range from steep slopes to undulating hills, resulting in shallow stony soils to the top of hills and deep peat-like clays at the bottom of hills. The Hills are located in the southern Mount Lofty Ranges, with a summit at 727 m, but mostly land is around or below 500 m. Rain is concentrated in the winter months, with cool winters and warm summers similar to a Mediterranean-type climate.

Socio-economic characteristics: The major cities on the Guanzhong Plain are Xi'an and Xianyang, with a combined population of 13.68 million. Per capita annual disposable income of urban households is 31,307 yuan (US\$4529) and for rural households 11,881 yuan (US\$1719).

The closest major city to the Adelaide Hills is the state capital Adelaide (population = 1.3 million plus a further 73,866 in the administrative districts of the Adelaide Hills and Mount Barker). Median annual household income in these two districts is US\$56,490.

Cherry prices for 'low-end' cherries in China were around TS\$2–3 per kg but could exceed US\$10 per kg for 'high-end' cherries. In the Adelaide Hills average sales are around US\$14.50 per kg or US\$6.5 per kg for pick-your-own.

Sources: https://www.meteoblue.com/en/weather/forecast/modelclimate/adelaide-hills_australia_7302628;
http://www.bom.gov.au/climate/averages/tables/cw_023801.shtml; Shaanxi Statistical Yearbook, 2017;
<https://www.producereport.com/article/2017-year-review-china%E2%80%99s-cherry-market>.

The paper addresses this concept of a multifunctional transition, “whereby agricultural stakeholders and society in general more readily value the total impacts of their land management decisions” (Fielke and Bardsley, 2015a, 233) or the role of farming in producing both commodity and non-commodity outputs (Robinson, 2018). The transition comprises the varying diversity, non-linearity, and spatial heterogeneity of modern agriculture (Wilson,

2007), generating commodity and non-commodity values of agricultural land use, and involves considering the variety of land-use impacts aside from purely economic interests (Amekawa *et al.*, 2010). The extent to which developments in farming in both study areas are multifunctional rather than just representing farm diversification is considered.

The prime focus herewith is the interplay between the global and the local in two very different contexts, making comparisons and contrasts between sweet cherry production in parts of China and Australia. Sweet cherries (*Prunus avium L.*) are chosen in part because of the increasingly important role they are playing in both the increasing importation of fruit to China, but also because recent Chinese investment has been targeting cherry-growing enterprises in Australia. Hence cherries represent a crop heavily affected by globalising trends in the agri-food sector, but often grown near to, and therefore affected by, major urban centres. They are also a traditional rural presence in many important regions of production, presenting a distinctive cultural dimension to their cultivation, dating as far back as 300BC when they were named after the Turkish town of Cerasus. In China, many species of cherry have long been cultivated for their edible fruit or as garden ornamentals (Lu and Boufford, 2003; Valder, 2003). The cherry also has spiritual meaning in parts of China through Buddhism, being associated with virginity and immortality, and myths have used cherries as symbols of both education and concealment. Global and urban forces are operating on a crop that is well established in both case study areas, but with some rapid changes occurring in recent decades.

The two areas were selected for study because they provide a useful combination of contrasts and similarities that enabled us to propose that we can learn more about rural development from juxtaposing their experiences. In relative terms both have a history of localised growing of cherries and other fruit, but neither area has been the major national producer for this crop. This is changing rapidly, especially in the Chinese case where the nature of rural transformation has been far more recent and dramatic (see Section 2.1 below). Both areas have been expanding tourist-related activities, linking farm-based enterprise to broader rural development. On a larger canvas, globalisation is providing scope for new patterns of investment and trade to which producers in the two areas are responding. Some of these developments directly link China to Australian cherry production through investment and exports.

The case studies discussed below were investigated by the authors as part of projects on development in the peri-urban fringe. In both cases this involved informal on-farm discussions and interviews in addition to use of secondary information about production. However, reliance was also placed on the authors' personal observations of the 'farming scene', which involved participant observation in farm-based tourism in both study areas, and in a major world heritage bid in the Australian case study. The main focus is on China where a total of 84 semi-structured interviews were conducted with members of farming families (40 men and 44 women) of whom 66 (78.6%) were active in the labour force (aged 25 to 60), 10 (11.9%) were aged over 60 and the remaining 8 (9.5%) were under 25. The sample was selected by a mixture of random sampling, snowballing and a purposive component as we deliberately sought out those farmers who had initiated the commercialisation of cherry growing and tourist-related activities (e.g. pick-your-own and farm restaurants). All interviewees had been resident in their village for at least 20 years. In Australia, we focused on

those cherry producers who were involved in tourism ($n = 24$), using information available on the internet and via personal observation. Our research in the Adelaide Hills is less advanced than that on the Guanzhong Plain, and hence interviews with growers and key stakeholders will not take place until the next phase of the project, using the internet data to construct our sampling frame.

2 Rural transformation

Before detailing the growth of cherry production on the Guanzhong Plain, it is important to note the significant context within which this has occurred, as this has provided a dramatic new context both for farming and wider economic development. Rural restructuring in China since 1978 has seen dramatic transformations occur across the countryside as government-backed programs have helped change the nature of production, introducing modern technology that has enabled farmers to respond to growing demands for more food production (F. Liu, 2016; Unger, 2016). There have been substantial modifications to land use and land cover (Long *et al.*, 2011; Yu *et al.*, 2012; Tang *et al.*, 2013; Zhao, 2013), including dramatic losses of farmland to urban development (Jiang *et al.*, 2013; Liu *et al.*, 2014; Deng *et al.*, 2015). Substitution of capital for labour has contributed to huge rural outmigration, with the attractive forces exerted by the rapidly expanding employment base of Chinese cities drawing migrants into the urban orbit (Qin and Liao, 2016; Zhang *et al.*, 2016). Yet, there are wide variations in the actual experience of this transformation across rural China and in the extent of urban expansion (Wei *et al.*, 2017), with Long and Liu (2016, p.387) noting that, “whilst rural income levels have improved in many regions, especially those close to large urban centers, urban-rural inequalities in income and uncoordinated urban-rural development have increased in more developed regions.” Hence, rural poverty remains a major issue (Liu *et al.*, 2017), and around the major cities there are concerns over losses of prime farmland to urban sprawl (Li *et al.*, 2015; Tu *et al.*, 2018).

Although the national macro-economic context has played the key role in the widespread changes to Chinese agriculture, increasingly rural China is also being integrated into global social and economic networks (Liu and Liu, 2016). This means that change for any one Chinese rural community represents a microcosm of local, regional, national and, increasingly, global influences (Y. Liu *et al.*, 2016). With China’s huge growing market-based economic development, the economic behaviour of former peasant households has shown a transition from survival rationality to economic rationality (Li and Fu, 2008). In effect, there has been the development of “new-type, professional farmers” (Tu and Long, 2017, p.1178) who have helped drive positive rural transformation through innovation in areas where agriculture has dramatically intensified. This has been referred to as comprising ‘bottom-up’ initiatives (Li *et al.*, 2016), a critical element in rural revival in some villages, though often aided by government.

Urban and global influences are especially prevalent in the hinterlands of the major cities. Here farmers have only survived against the encroaching tide of urban sprawl by intensifying production and responding to the food demands of the growing urban populace. From the 1980s onwards, some villages have developed manufacturing and processing industries in the form of substantial township and village enterprises (TVEs), absorbing surplus farm

labour and contributing to widespread land fragmentation (Tian, 2015; Guldin, 2018). The surviving farming communities have become interspersed amongst urban developments, with major new residential, industrial and service complexes occupying large swathes of former farmland.

This process has been recently referred to as ‘horizontal’ (Viganó, 2016) or the spread of vast metropolitan regions in which urban growth has produced new urban centres and sprawling urban-industrial landscapes, often far removed from the actual metropolitan centre. It has been fostered in China by the creation of massive new towns and concentrations of employment to enable modern forms of industrial and service activity to develop that maximise use of digital technology, software and hardware development, and e-commerce (Chen and Reese, 2015; Gervasi, 2015). This represents a new urban ecology, in which there is a redefining of relationships between open and built space, agriculture, water supply, forest and new urban forms (Zhang, 2018). Rather than a distinct rural-urban dichotomy, there is tremendous intermingling of land uses, with new inter-connections being created between the urban and the rural, the city and the farm, with a blurring of boundaries, border and flows. It resembles the so-called *desakota* landscapes observed by McGee (2009) across Southeast Asia and which are now receiving attention from researchers around China (Xie *et al.*, 2007; Chen *et al.*, 2017; Lin, 2018). It has been referred to by X. Liu *et al.* (2016) as semi-urbanisation, which they calculate accounted for around two-thirds of the urbanisation in Shaanxi Province from 2000 to 2010 (the same as the national average).

3 The case studies – Guanzhong Plain, Shaanxi Province

3.1 Cherry growing in China

Around 60% of Chinese sweet cherry cultivation is concentrated today in Shandong Province. Other growing areas include Dalian (northern China), Shaanxi and Sichuan. Common cultivars of cherries in the country include “Napoleon”, “Black Tartarian”, and “Bing”. Cherries are increasingly popular with Chinese consumers and are often given as gifts. The growing popularity of the fruit is reflected in the rise in both imports and domestic production. There was a marked increase in the latter from 1995, with national production quadrupling between 1995 and 2005 (Ing, 2005). In 2016 domestic production was just under 35,000 tonnes, making China the 18th largest producer in the world (Turkey is first with 445,556 tonnes) (World Atlas.com, 2017). Domestic sales have risen from 15,000 tonnes in 2010 to at least 120,000 tonnes projected in 2020, or around 2% of world consumption compared with 23% of the global imports of cherries (Sergeeva, 2017; Statista, 2018).

There has been a substantial growth in imports, with suppliers from the United States, Turkey and Chile, primarily via Hong Kong, Shanghai and Beijing. At 109,000 tonnes in 2016, China was the world’s largest importer of cherries with an average annual increase of +77.9% between 2007 and 2016 (Sergeeva, 2017). Cherries have become the most imported fruit in terms of value (\$793 million in 2016), so that they now enjoy a 16.2% share of Chinese mainland’s imported fruit market (Produce Report, 2017). Per capita consumption of cherries in China has expanded rapidly and is the world’s greatest growth rate, averaging 22.9% per annum from 2007 to 2016 (Sergeeva, 2017).

3.2 Cherry growing on the Guanzhong Plain

The case study is provided by the Guanzhong Plain, the hinterland and peri-urban fringe of Xi'an, population 8.7 million, capital of Shaanxi Province (Figure 1). It is the largest city of the northwest region and one of China's most important ancient capitals. The city's population has expanded by 6.5 million in the last 30 years following the national economic reforms commencing in late 1978. Just 30 km to the west is the city of Xianyang, with a population of over 5 million.



Figure 1 Shaanxi Province, China

There has not only been a rapid expansion of the urban envelope, but also major impacts on agriculture in the peri-urban fringe, including changes to agricultural practices and widespread adoption of new crops and associated technologies. For example, between 1988 and 2013, through urban sprawl and the farmland conversion program, Grain for Green, the cultivated land area in the Xi'an-Xianyang metropolitan area fell by 287,140 ha (Zhou, 2015). Meanwhile, Xi'an expanded its Gross Domestic Product (GDP) one hundred-fold from

5.758 billion yuan (US\$0.88 billion) in 1985 to 580.12 billion yuan (US\$88.9 billion) in 2015. “The combined annual GDP growth for Xi’an and Xianyang averaged 8.6% between 2000 and 2007 but rose to 13.6% between 2007 and 2012” (Jaros, 2016, 650). Since 2000 Greater Xi’an’s built-up area has doubled from 230 to 458 square kilometres. In part this reflects the creation in 2010 of the Xi’an-Xianyang New Area, with substantial investment from provincial government and various central government agencies. It is similar to Tianjin’s Binhai New Area and Chongqing’s Two Rivers New Area, and “has invested several billion yuan of start-up capital for infrastructure, made available enormous tracts of land, extended a sweeping array of preferential policies to investors, and kicked off several major investment projects in the zone” (Jaros, 2013).

Despite substantial loss of farmland to urban and industrial development, from 1985 to 2015 the value of the output from primary industry around Xi’an rose from 0.876 billion yuan (US\$0.13 billion) to 22.02 billion yuan (US\$3.37 billion), a 25-fold increase (*Xi’an Statistical Yearbook* 2017). In its peri-urban fringe there has been major agricultural diversification, especially into fruit and vegetables (Wang *et al.*, 2014). This has included increased production of cherries, a traditional crop in the region, but previously grown only on a small scale largely for domestic consumption. In 2013 the total yield of cherries around Xi’an was 0.25 billion tonnes, valued at 0.48 billion yuan (US\$0.07 billion), accounting for 80% of total yield in Shaanxi Province, and 50% by value. The total area under cherries in the city’s hinterland was 3866.67 ha, with Baqiao district recognised as the best planting area for the crop, covering 2333.33 ha, with a yield of 1.8 million tons (*Xi’an Statistical Yearbook* 2017; *Shaanxi Statistical Yearbook* 2017).

In the 1980s, agriculture in Xi’an-Xianyang’s peri-urban fringe was dominated by arable production. In the past 30 years, wheat, maize and other grain crops have continued to be the leading components of agricultural production in some parts of this fringe, but primarily in more distant areas less readily accessible to the city. Elsewhere, a much more diversified agricultural economy has emerged, in part a reflection of farmers’ responses to the growing demand from urban consumers. Moves to introduce different forms of production, especially after 2000, have promoted this diversification leading to declining grain production and substantial increases in the growing of vegetables and fruit, including apples, grapes, melons, strawberries, cherries, flowers and forest nursery gardens. There is high technology input, high productivity and high profit, with growers benefiting from rising urban market demand for fresh agricultural produce. Improved transport links to the city and the explosion of urban-based employment opportunities have also stimulated both out-migration and longer-distance daily commuting to work in the two cities (Chong *et al.*, 2016). This has contributed to ‘hollowing out’ of some villages in the peripheral areas of the city’s hinterland (Wu and Yie, 2016; Liu *et al.*, 2017).

The spread of cherry growing on the Guanzhong Plain was initially assisted in the mid-1990s by a United Nations Development Programme that targeted the diversification of fruit growing. The premise was that the introduction of fruit species, such as cherries, which tolerated the local ecological conditions (cold winters, hot summers, and relatively arid) could provide additional income for the agricultural population and supplement the substantial apple and pear orchards already in existence in some areas. New rootstock was introduced to supplement local cultivars of ‘Manao-cherry’ (*Prunus pseudocerasus*) and cultivars

imported to China in the mid-20th century from Europe (Faust *et al.*, 2011). Research was conducted by the Shaanxi Academy of Agricultural Sciences in Yangling and the Shaanxi Fruit Crops Research Center in Xi'an, focusing on the suitability of ecological conditions for cherry growing. As a result, several villages used this information to develop cherry growing. Similar government support and investment has promoted other horticultural developments on the Plain and elsewhere. For example, a 'Vegetable Basket Program' (*Cai Lan Zi Gong Cheng*) was initiated in 1988 to expand and geographically consolidate vegetable production to supply the rapidly growing urban population. "Local government's implementation of this directive included direct investment in infrastructure, such as wet markets, and the provision of subsidies to increase farmers' incentives to plant vegetables" (Michelson *et al.*, 2017, p.50). To limit undesirable environmental outcomes from more intensive production, maximum allowable levels of pesticide residues, antibiotics and heavy metals for fresh produce have been established.

Much of the broader expansion of fruit and vegetable production in the past two decades on the Plain was established through innovative planning in specific schemes that formed part of the China Western Development (CWD) strategy, launched in 2000 (Yeung and Jianfa, 2007; Qian and Xue, 2017). These included apple planting in Liquan county, vegetables and melons in Gaoling and Yanliang districts, grapes and kiwifruit in Zhouzhi and Huxian counties, and a modern agricultural technological demonstration zone in Yangling district.

A field survey undertaken by the authors in 2016 and 2017 in the sample villages in Xi'an's hinterland, including in a scenic area known as Cherry Grove (in White Deer Plain), revealed some farmers had made a wholesale shift from wheat to cherries, grapes and walnuts from 1990 onwards. In Duling Village, for example, this shift largely reflected local initiative, sparked by a single villager,

"In 1990, my home was too poor; we even couldn't afford tuition for my children. At that time, one of my cousins gave me a suggestion. He said maybe planting cherry trees would be a good way to increase income. He is a professor in Northwest A&F University, ... majored in vegetation science. I thought, just try it! What if I could succeed? Finally, I really made it! Cherry trees grow well, and then the other villagers were jealous, and followed me to plant cherry trees. But up to now, I still have the most cherry trees!" (male farmer, first commercial cherry grower in Duling Village, aged 70).

Initially, it was local native cherry varieties that were planted, but then, influenced by the effects of price, quality and transportation conditions, these were replaced by different ones of higher quality (e.g. 'Hongdeng', 'Meizi'), giving better yields, and more resistance to pests and diseases. They have also attracted higher sales prices reflecting their quality. Most sales are into the nearby markets of Xi'an-Xianyang, and indeed, most major Chinese cities continue to rely on such relatively local food production and retain a high self-sufficiency ratio despite growing food imports (Lang and Miao, 2013).

3.3 An emerging multifunctional countryside?

The switch from grain to fruit production is only one aspect of a 'new' countryside emerging on the Guanzhong Plain. Whilst the value of ecosystem services in Duling Village increased nearly eight-fold between 1985 and 2015, this is not the entire story as we can also consider

separately the changes relating to the growth of leisure/tourism, which rose by a factor of 40 (see Song *et al.*, 2017 for details of these calculations). This compares with a ten-fold increase to the agricultural production function.

In villages adopting cherries as part of the wholesale replacement of cereals from the early 1990s, several fruit growers established ‘tourist orchards’ attracting the residents of Xi’an to pick fruit and thereby boost agri-tourism. Pick-your-own schemes across Cherry Grove reflect the growth of rural tourism, with new farm-based restaurants and farm-gate sales outlets. This is part of what Verdini (2016, p.6) describes as “reshaping agricultural activities into a more service-oriented or quality-oriented manner”.

In May and June, about 60,000 tourists (mainly from Xi’an) come to Cherry Grove sight-seeing and picking cherries each weekend. At the edge of one of the main producing areas near Duling Village a government-sponsored tourist village, Bailucang, has been created as part of the CWD program in the 13th Five-year Plan of the China National Development and Reform Commission. The tourist village will cover 140 ha with a total investment of one billion yuan (US\$158 million) (Sangbe, 2018), and is intended as a “comprehensive tourist development centre” and tourist resort, with restaurants, entertainment (including an annual hot-air balloon festival first launched in April 2017), cultural performing arts, folk customs, and sports experience camp, all advertised as a “modern agricultural experience” for tourists. During the three-day May Day holiday in 2017, Bailucang scenic area received 1.02 million tourists (Shaanxi Tour, 2018). A key element is the village’s location along the Silk Road under the One Belt One Road initiative (Lim *et al.*, 2016). Bailucang is an example of heavy investment in tourism mega-projects (Jaros, 2016, p.651), but also reflecting central government’s designation of the Guanzhong Plain as a strategic area for the CWD program.

Rural tourism has become a rapidly growing phenomenon across the area, with farmers in some villages making additional income not only from pick-your-own schemes but also farmhouse-based restaurants and cafes as part of the Farmhouse Joy (*nong jia le*) Movement (Wu, 2016; Yang, 2012). This is the case for Duling Village, but expansion of on-farm restaurants is now occurring in other villages across the Guanzhong Plain, using local food as a major attraction for tourists, e.g., the newly-created Speciality Food Street (*Xiao chi*) in Yuanjia, north-west of Xi’an (Gao and Wu, 2017) where there are direct parallels with Duling through the development of family-run hotels (*Nong jia le*) and food from local farming family hotels (*Nong jia fan*).

Originally associated with the foodstuffs of ethnic majority Han Chinese farmers near major cities, Farmhouse Joy has been spread by various development projects and local initiatives, now also emerging in ethnic minority villages and in more remote locations. The Movement has marketed the restaurants as an opportunity for urban residents to consume ‘farmers’ foods’ (*nong jia cai*), thereby providing a link to rural authenticity. It is selling an opportunity for a return to rural roots for urbanites who can experience a small part of farm life in situ on or close to a working farm. This taps into a nostalgic view of rurality at odds with the commonly held view of many Chinese urbanites that rural is associated with hardship, deprivation and a lack of choice (Wu, 2014, p.159).

Farmhouse Joy is also part of the worldwide phenomenon of heritage tourism in which the urban middle class seeks out the presumed simplicity and authenticity of rural life, or

perhaps a past rurality, being recreated for their consumption. The focus on food has led to the term ‘gastronomic tourism’ being employed (Hall and Mitchell 2013). The original understanding of farmers’ foods in China was that it used vegetables produced with “seeds saved by farmers, grown by traditional organic methods, and then cooked and served as part of farmers’ traditional cuisines and eaten in a farmhouse or a farmhouse-like space” (Wu, 2014, p.161). Observations by the authors note that in the villages near Xi’an the focus has been primarily on offering traditional food dishes typical of that area, using produce sourced on-farm or locally produced. Verdini (2016) notes this is part of a gradual diversification of rural economic activities around many Chinese cities, especially related to tourism, leisure activities and the production of specific local food. It reflects a greater intermingling of land uses in the peri-urban fringe, as agricultural intensification occurs alongside the so-called ‘desakota’ landscape of urbanisation and industrialisation (McGee, 1991).

At first, farm households derived income from cherry production through direct sales by farmers themselves at urban markets. In addition to granting individual use rights to land, the government also relaxed restrictions on the private retail sector and all market centralisation for food items in China was abolished in 1993. Hence cherry farmers took advantage of the popularity of open-air retail markets for food (Hong, 2000). Whilst these direct sales continue, there has been a growth in sales to merchants who transport the produce from farms to local and distant cities, as well as more recent internet-based sales to merchants who have thrived since the government established the country’s first fresh produce wholesale market in 1984. A new sector of private intermediaries has emerged in recent years to aggregate production and reduce costs by connecting small farmers with supermarkets across China (Zhang and Donaldson, 2008). These intermediaries are playing a growing role in not only shaping the organisation of land, labour and production through contracts but also transforming supply chains (Michelson *et al.*, 2017). Some major supermarkets, like Walmart, are moving fresh produce procurement away from wholesale markets towards greater contractual-based procurement from farming communities.

More recent government measures to support improved marketing of produce include promoting farmer marketing cooperatives, through increasing their bargaining power and capacity to coordinate production and marketing (Deng *et al.*, 2010). Meanwhile, the Dragon-Head Companies Program has promoted agricultural industrialisation and vertical coordination between agri-industrial enterprises and farming communities (Zhang, 2012). For the last decade there have also been Direct Farm programs, encouraging contracts between large retail buyers, such as supermarkets, and farm communities. This is involving the full range of grocery retailers from the local to the supra-national. In some cases, other types of arrangement have emerged where intermediaries acquire greater control of land, labour and production to ensure security of supply. To date, this does not appear to have affected cherry producers on the Guanzhong Plain.

4 The case studies – The Adelaide Hills, South Australia

4.1 Cherry growing in Australia

The Australian cherry industry produced 18,584 tonnes of cherries in 2015/16 worth A\$164 million, from 485 producers on 2,845 ha. Around 20% of growers supply 80% of the pro-

duce. A\$76 million were obtained from exports, representing just 0.5% of the world's cherry exports, but 30% of the domestic crop (5,593 tonnes worth A\$76.1 million in 2015) was exported and plays a significant role in the markets of Hong Kong (accounting for over 35% of total cherry imports), Taiwan, Thailand, Singapore and mainland China (CGA Inc, 2018). Exports rose four-fold between 2010 and 2015, with 63% of exports going to China (including Hong Kong and Taiwan) (HIA, 2016, p.92–93). Trends suggest that cherry production will increase to 20,000 tonnes by 2020, with half of this exported.

Cherries have been cultivated in Australia since the arrival of European settlers from 1788, but large-scale commercial production of sweet cherries only dates to 1878, with plantings at Young in south-western New South Wales. This small town (population 7,170 in 2016) is now known as the 'Cherry Capital of Australia' and hosts an annual national cherry festival. However, cherries are grown in all states (see Table 2), but primarily in the most temperate areas of south-east Australia (Figure 2). Different varieties have been developed to enable the production season to be extended. Principal varieties include Empress, Merchant, Supreme, Ron's seedling, Chelan, Ulster, Van, Bing, Stella, Nordwunder, Lapins, Simone, Regina, Kordia and Sweetheart. A member-based organisation to represent the interests of its member states and orchardists nationally, Cherry Growers Australia (CGA), was established in the 1970s.

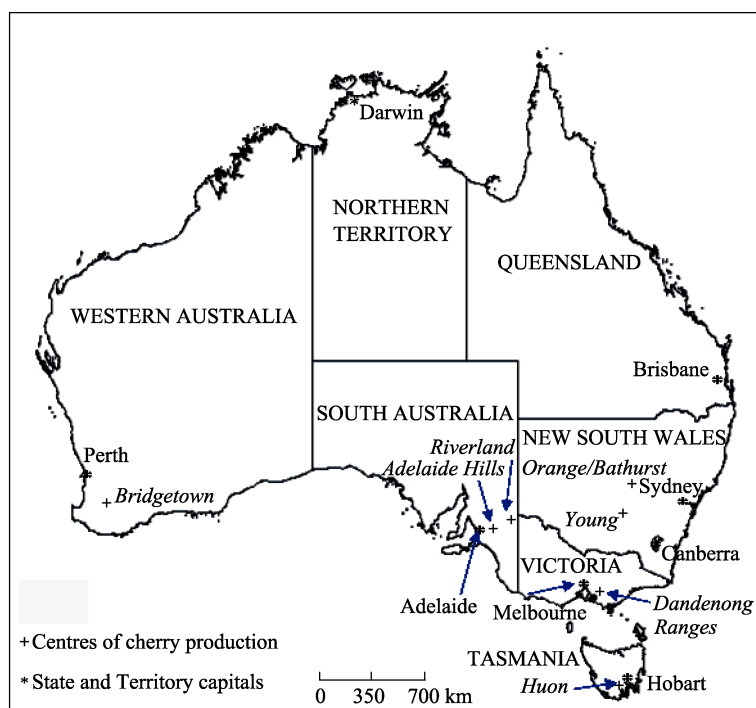


Figure 2 Cherry producing areas in Australia

Since November 1993 the Federal Government has placed a levy or charge on cherries to raise money to support innovation in production (overseen by a federal agency, Hort Innovation) and improve plant health. This has contributed to a National Cherry Development Program, established in 2013 to raise awareness of cherry R & D issues, build industry capacity, and from 2017–2021 a Cherry Strategic Investment Plan to help guide Hort Innovation's

oversight and management of investment programs for the cherry industry over this period, using levy money. It aims to provide the foundation for decision making in levy investments.

4.2 Cherry growing in the Adelaide Hills

The Australian case study is provided by the Adelaide Hills in the eastern hinterland of Adelaide, the state capital of South Australia with a population of 1.3 million (Figure 3). Settled from the late 1830s, the Hills have had longstanding specialist production of fruit and vegetables, including wine, apples, pears, cherries, strawberries, potatoes and brassicas. Traditionally, fruit and vegetables were grown in the Adelaide Hills for the nearby market of Adelaide (Ward, 1862). In the nineteenth century, women would travel on foot and by cart from local farms to sell produce in the city (Kuchel, 2015). Specialisation has grown over time, with an emphasis on apples, pears, grapes (for wine), cherries and strawberries. Cherries were amongst a range of European plants introduced to South Australia when it was founded by British settlers in 1836 (Stephens, 1839), including some in a Government Garden in Adelaide, created in 1837 (Kloot, 1985, 223). “Within a few years of the establishment of the colony of South Australia in 1836, the Adelaide Hills landscape had undergone significant changes.... Commercial market gardens, nurseries, vineyards, and orchards as well as the private gardens of colonists from all social strata of society occupied the fertile valleys and covered the hillsides” (Piddock *et al.*, 2009, p.65).

Table 2 Cherry growing in Australia, 2014

State	Growers	Area (ha)	Production (t)	Exported (%)
New South Wales	108	800	4407	25
Queensland	18	25	36	0
South Australia	118	590	2500	6
Tasmania	76	560	4000	63
Victoria	95	800	4500	24
Western Australia	70	70	500	0

Source: CGA, 2014.
NB. The total area under cherry production in Shaanxi Province in 2016 was 11,613 ha, with an average yield of 10.96 t per ha or a total output of 127,300 t (*Shaanxi Statistical Yearbook 2017*). The average yield in South Australia was 4.24 t per ha.

Around 1913 the Early Lyon variety of sweet cherries was planted at Marble Hill (15 km west of Lenswood) in the Adelaide Hills, the summer residence of the Governor of South Australia (Middlemiss, 2015, p.10). Reports of subsequent hail damage to the crop are a reminder of one of the natural hazards facing cherry growing in the area. In the early 1930s a large section of the Vice-Regal reserve at Marble Hill was subdivided for fruit (including cherries) and market gardening. Today a specialist pick-your-own cherries operation of the same name testifies to the continuity of cherry growing in the area, in this case with new plantings in 1993 (there are now 1800 trees there with the following varieties: Viola, Merchant, Stella, Summit, Bing, Van, Lapin, Simone and Morello [sour cherries]) (Marble Hill Cherries, 2018). Pasture, orchards and vineyards all became more plentiful in the Hills post-1945 as irrigation technology improved. Adelaide Hills orchardists developed the Black Douglas variety of cherry while the country’s main producer, the Young district of

New South Wales, concentrated on other varieties such as Empress and Ron (Santich, 2002, p.12).

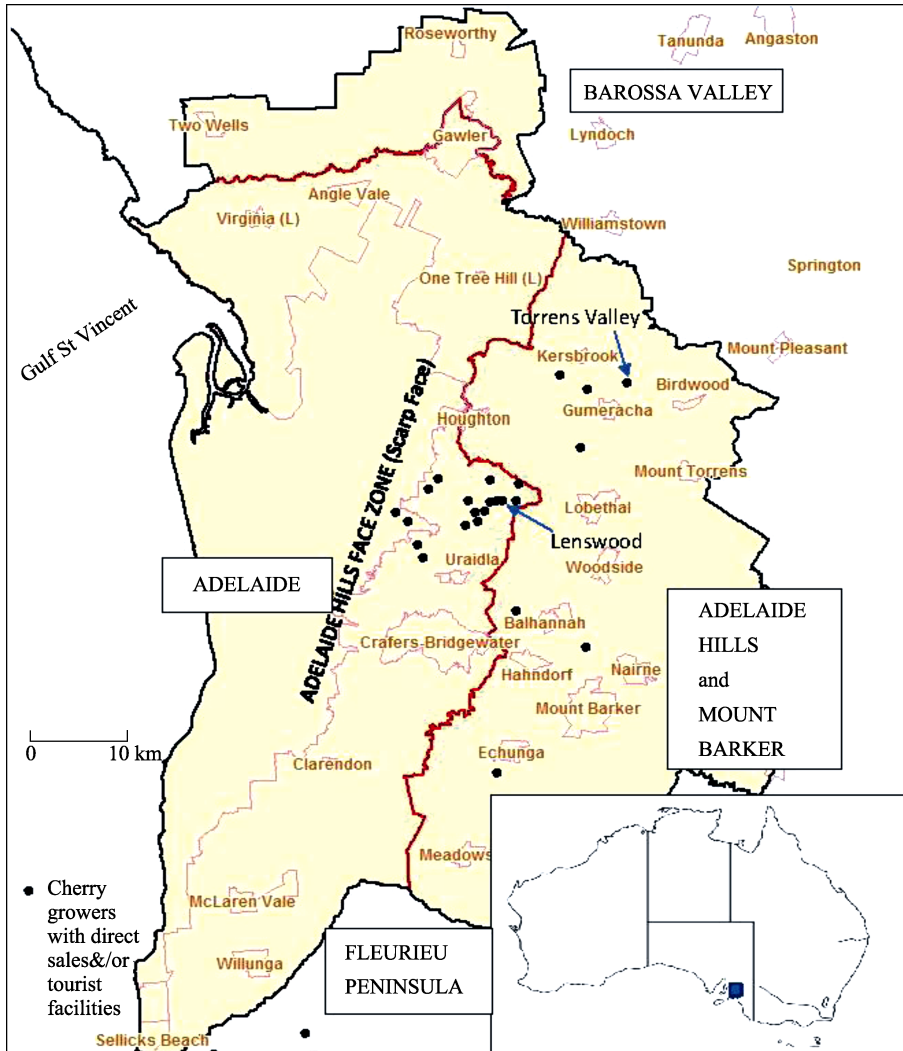


Figure 3 On-farm tourism and cherry growing, Adelaide Hills, South Australia Source of base map: .id the population experts

Because cherries could not out-compete apples and pears for returns on investment they tended to be grown on some of the poorer soils of the Hills, but a special system of tree management introduced in the 1970s dramatically increased yields, fruit quality and profitability. This was termed the Lenswood tie-down system, reliant on extensive tying of branches from vigorous rootstock to a horizontal orientation to induce cropping and manage vigour (Green, 2005). The Australian cherry breeding program was established in the Hills at Lenswood in the 1990s, as a joint project between the South Australian Research and Development Institute (SARDI) and the Australian cherry industry (Granger, 1997). The program launched new varieties, Sir Don and Sir Tom, around 2005 following earlier development of virus free cherry stocks at the Lenswood Horticulture Centre opened in 1963

(PIRSA, 2018).

There has been expansion of cherry production in recent years, primarily to take advantage of growing local and national markets. Today there are around 100 growers in the region producing 550 ha of cherries and an annual output between 2500 and 3500 tonnes, mainly from Stella and Lapin varieties (CGASA, 2018). One large producer, Torrens Valley Orchards, with 220 ha across six sites, accounts for two-fifths of the area under cherries in the Hills and leads exports from the region.

As shown in Table 2, there are relatively few exports from South Australia, though growers in the state sell to outlets in neighbouring states, notably Western Australia and New South Wales. South Australia accounts for 16% of the country’s production. In 2015 South Australia exported 325 tonnes of cherries, worth A\$2.2 million. In the year ending June 2016 the state produced 18,584 tonnes of cherries worth A\$164.2 million (HIA, 2016, 133–134).

4.3 An emerging multifunctional countryside?

Tourism makes a significant contribution to the local economy, with approximately one million people visiting the Adelaide Hills each year. For the Adelaide Hills and Mount Barker administrative districts combined this represented 435,275 overnight visits and 1,242,104 day-trips in 2015/16 (AHC, 2018; DCMB, 2018). There was a direct tourism expenditure of A\$110 m in 2015, rising by 37% to A\$151 m in 2016. Directly and indirectly tourism was estimated as contributing A\$260 m to the regional economy or 12.4% of gross regional product. It directly employs 1100 people (5.5% of regional employment) and indirectly employs 2800 people (14.3% of regional employment). However, only 5% of overnight stays are international tourists (EconSearch, 2012).

Some cherry growers have their produce graded and packed through a large cooperative packing house, but much of the marketing is still primarily handled by individual growers who include direct sales as part of their marketing strategy. Two retailers and one wholesaler control 70% of food sales in Australia (Richards *et al.*, 2013, 236), so they possess tremendous power. They demand high compliance standards regarding quality of produce, raising costs to growers who have limited ability to pass on costs to wholesalers or retailers. The smaller growers do not possess sufficient economies of scale to enter into commercial relations with the two dominant supermarket chains, and so there is a significant amount of production from smaller family operations or boutique orchards supplying local markets or utilising farm-gate sales to take advantage of rural tourism (Table 3). Out of a total of 118 producers 24 (20.3%) have facilities for tourists (Figure 3). In addition to the direct sales of cherries at the farm-gate, in 2014 there were also 53 wineries in the Hills that had a ‘cellar

Table 3 Cherry-based tourism in the Adelaide Hills

Activity	Number of outlets	Other activities at the 24 outlets	Number of outlets
Pick-your-own only	7	Sales of ice cream	7
Shed-door sales only	10	Sales of jams/pickles/fruit juices	8
Pick-your-own plus shed-door sales	7	Café/restaurant	3
Total	24	Sales of other fruit	8

Source: CGASA 2017.

door' outlet at which wine tastings were offered prior to purchase and/or where there was food available at a café or restaurant (RDA, 2014, p.24). Capital has flowed into this sector attracted by the steady growth of tourists and day-trippers seeking to participate in gastro-nomic tourism, as paralleled on the Guanzhong Plain in China.

Fielke and Bardsley (2015b) suggest that there may be a multifunctional future for South Australian agriculture, as opposed to a continuation of the productivist mode that has been dominant for over a century. This future may include a greater (re)connection between farmers and consumers through the growth of direct sales, as illustrated in the growth of cellar-door sales, farm-gate sales and farmers' markets. There are seven farmers' markets in Adelaide and its hinterland, where local farmers and growers sell their produce directly to the public. They help improve social ties and link rural and urban populations through a mutually rewarding exchange (Robinson and Hartenfeld, 2007). Farmers' markets offer an additional outlet for local fruit and vegetable producers as part of what might be termed 'alternative' food networks (Robinson, 2004, p.84–88). So, farmers' markets are directly related to the creation of a perception of local uniqueness and difference (Fielke and Bardsley, 2013). Labels, such as 'organic', 'biodynamic', 'local', 'homemade' or 'free range' are being used in the markets to attract premium prices (Stringer and Umberger 2008). The greater participation of farms in promoting tourism is part of this development, with the appearance of the landscape, and therefore environmental concerns, playing a part in presenting an attractive 'package' for tourists.

The multifunctional combination of horticulture and tourism lies at the heart of a current bid for international recognition of the region. The Mount Lofty Ranges Working Agricultural Landscape UNESCO World Heritage bid spans the world-renowned food, wine and tourism regions of the Barossa Valley, Adelaide Hills, McLaren Vale and the Fleurieu Peninsula, all located within an hour's drive of Adelaide. The UNESCO bid has a core ambition to deliver real and lasting economic, cultural and environmental benefits to the region regardless of the outcome. Across the region covered by the bid, agriculture accounts for A\$1.4 billion of the Gross Regional Product (GRP) and 38% of the employment, compared with A\$203 million for tourism, with 7% of employment. Yet, the region is losing more than 1% of its agricultural land per annum to urban sprawl, and creating more small-holdings, which are less economic than larger farms and often operated part-time and/or for hobby purposes (Liu and Robinson, 2016). The increasing population numbers and housing demand in the Hills is placing further pressure on the agricultural production systems to remain viable, despite the high productivity of much of the land. If successful the bid could help reduce this high rate of loss of agricultural land to urban sprawl in the region (Salver and Johnston, 2016, p.4–5). World Heritage designation is intended to promote economic growth, and a more resilient development path (Johnston, 2014; Johnston *et al.*, 2014).

Essentially the bid seeks to convert conservation aims into economic gain for the region, using the value created by the UNESCO World Heritage global branding and public relations/marketing boost. Products from the area could gain a premium value-added component. The bid emphasizes the need to maintain the area's significance as a working, evolving 'cultural landscape' by managing and promoting its fundamental character as a viable agricultural region. The viability of agriculture and the towns and villages of the region would be supported through a flexible approach that allows farming to flourish, and the landscapes

to evolve and adapt over time. It is adopting the safe, attractive global World Heritage brand, whilst emphasising the region's 'clean and green' image. There is the potential to enhance access to luxury and premium markets around the world as well as increased tourism, especially farm-stay, eco-tourism, gastronomic tourism, agricultural tourism, and bed and breakfast/guest house accommodation. According to various economic modelling exercises a successful bid would yield over 3000 new jobs in the agriculture and tourism sectors, \$321 million increase in GRP and \$155 million increase in household income over the first ten years of designation (EconSearch, 2012).

There is also an additional aspect to the bid, namely an attempt to stress long-term continuity of occupancy, from the 60,000 years of Aboriginal presence to the near 200 years of European settlement. This is symbolised by support for the bid by three local Aboriginal groups (the Kurna people), with a local elder claiming, "We are putting our signature on this document so that we can walk this journey together. This becomes part of the healing of our community and helps us understand our place and where we belong" (MLRWHB, 2018).

The bid consortium's nomination for National Heritage listing was submitted to the Australian Government in February 2017 but was subsequently referred for reformulation and to gain greater support from State Government who have expressed concern about the potential conflict with possible future mineral resources development in the Hills. Also, part of the area covered by the bid is designated for new urban development and supporters of this fear that World Heritage status may restrict future urban expansion.

5 Cherry futures: New links between China and Australia

Cherry growing in the peri-urban fringes of both Xi'an and Adelaide illustrates multifaceted impacts of globalisation and urbanisation. Both areas have responded to increased local demand, which has boosted production, producers' incomes, creation of new markets, and revenue from tourism. So far, for both areas there has been limited participation in the rapidly developing global market, but this is starting to change. Globalisation is introducing new opportunities for trade in fresh cherries, and new international linkages are being created as a result, including between China and Australia.

Australia exported 806 tonnes of cherries to China in 2015/16 (CGA Inc, 2016), but Chinese and Australian business interests are striving to increase this, as illustrated by several recent developments. One of these is part of the growing amount of Chinese investment overseas in food-producing enterprises in a planned strategy to address national food security issues. Whilst most Chinese foreign direct investment (FDI) has focused on natural resources in Africa and Latin America (Cui and Jiang, 2018; Tuman and Shirali, 2017), growing focus is now directed at agriculture, sometimes emotively characterised as 'land grabs' (Brautigam, 2015; Carter and Harding, 2015). In Australia, Chinese FDI rose by 12% in 2016 to reach A\$15.4 billion, making Australia the second largest recipient of such investment (Ferguson *et al.*, 2017). Australia has actively sought this FDI from China, and two-thirds of the 55 Regional Development Australia (RDA) committees across the nation have developed a strategy to engage with China, with agriculture (including forestry and agribusiness), tourism, and education and training the most engaged industries (Huang and McMurray, 2016, p.iv).

The stock of Chinese overseas foreign direct investment (OFDI) (including from Hong Kong) in Australia accounted for A\$88 billion (5.9%) of the total FDI stock in Australia in 2016 (DFAT, 2018), though only 3% of China's total annual FDI in Australia is currently in agriculture (KPMG and University of Sydney, 2016). Nevertheless, by June 2016, Chinese investors had acquired 1.5 million hectares of Australia's agricultural land, accounting for 0.5% and 2.8% of Australia's agricultural land and foreign-owned agricultural land, respectively (ATO, 2016). Chinese investment in agribusiness grew from A\$375 million in 2015 to over A\$1.2 billion in 2016, of which A\$280 million went to Tasmania, Australia's southernmost state, largely comprising the purchase of five cherry enterprises. Chinese interests have also bought cherry farms in Young, New South Wales, the largest centre of cherry production in Australia (Smith, 2014).

Chinese President, Xi Jinping, visited Tasmania's capital, Hobart, in November 2014, signing major investment agreements and a landmark memorandum of understanding for a China-Tasmania fruit industry partnership program (Grinblat, 2016). Tasmanian cherries are the only ones that have direct market access into China (with the exception of Hong Kong) because the state has no fruit fly (*Sophophora*) and so meets Chinese import regulations. The China-Australia Free Trade Agreement (ChAFTA) concluded in 2016 reduced the tax costs for exporters from 13% to 7% and they will be removed completely by 2019 (DSG, 2015), further stimulating cherry exports from Australia to China. The Tasmanian cherry exporters use wholesaler Premium Australia Foods (2017), which exports a variety of Australian food products to China and has included Tasmanian cherries since the summer of 2015/16.

Huang and McMurray (2016) provide a specific example of these growing links between China and the cherry industry in Tasmania: "Reid Fruits, a cherry grower located in Hobart, has rapidly increased its cherry exports to China over the past two years and grown its business thanks to the opportunities offered by the ChAFTA and the new access to Chinese markets. The firm has been highly innovative in its marketing practices and in protecting its intellectual property (IP) in the Chinese market" (p.vi). Meanwhile a major Australian daily newspaper has commented: "Tasmania's famous cherry harvest is increasingly owned and consumed by China, with five of the last six orchards sold all bought by Chinese interests. A surge in Chinese investment over the past 24 months has left at least six Tasmanian cherry orchards in Chinese ownership, while at least four other local growers have entered into joint ventures with Chinese investors. The island state, with its combination of late-ripening cherries, timed perfectly for Chinese New Year and Spring Festival, and pest and disease-free status, allows air freight exports direct to mainland China. Exports of Tasmanian cherries virtually doubled last season to 2892 tonnes, worth an estimated \$52 million, while sales to China more than doubled" (*The Australian*, 5.12.2016).

So far there have been no exports of cherries to China by South Australian producers. However, this is set to change. In December 2017 an airfreight protocol for Australian produce under fumigation for export to China was agreed. This gives direct access to Chinese cities rather than being restricted to Hong Kong. In 2015 leading Adelaide Hills cherry producer Torrens Valley Orchards exported 100 tonnes of cherries to Welcome supermarkets in Hong Kong (@ A\$36 per 5 kg; US\$28). Their managing director referred to the protocol as "a game changer" and noted both the huge growth in the Chinese market and the premium

price commanded by Australian cherries there (Kuchel, 2018). South Australia is recognised domestically as being the only mainland state free of fruit fly, but that has not yet been ratified internationally. Once this recognition is granted it opens the way for further exports of a range of fruit and vegetables to China and other countries, further contributing to fulfilling Pritchard's (1999) prediction of Australia consolidating its role as a major supplier (or food supermarket) to Asia.

6 Future research directions

This paper has highlighted several important trends affecting agriculture in the peri-urban fringes of two major cities in China and Australia. It has focused on cherries as a crop whose importance has increased considerably in recent years in China, both in terms of domestic production and imports. This focus has enabled an exploration of certain major trends in rural development, including the transformation of the Chinese countryside involving the emergence of intensification in new areas of production, notably horticulture, helping to retain the vitality of some villages as they resist both urban sprawl and the loss of population to urban migration. It has also illustrated some of the potential for development of farm-based tourism as part of the 're-connection' between urban consumers and farmers. This may be evidence of the move towards a multifunctional countryside in which farmers are developing activities supporting a more broadly-based rural economy. However, this and several other aspects of the developments reported here need further research to produce better understanding of the processes involved.

Although the individual cherry growers in the hinterland of Xi'an do not possess such a long history of commercialisation as most of their counterparts in the Adelaide Hills, and are generally operating on a smaller scale, there are similarities in how they have sought to increase and maintain their incomes. The development of on-farm tourist activities directly parallels that seen in the Australian study area, while the diverse marketing strategies adopted also compare directly with those pursued in the Hills. The impacts of the adjacent urban market are evident in both cases, as is the search for new outlets via novel marketing strategies (e.g. in both cases to access distant urban markets). Responses to globalisation reflect two sides of the same coin: from China large-scale investment is being directed externally to ensure domestic demand is met (purchasing production units in Australia); larger Australian growers are looking to export to China. It is not only the pace and scale of change that distinguishes China but also the input from government, promoting adoption of modern methods and translating research directly into on-farm innovation in a fashion reminiscent of similar developments in the United Kingdom post-1945 (Robinson, 1988).

In both study areas cherry production has been part of a wider picture of rural development in the peri-urban fringe. In the case of the Adelaide Hills, cherries have been an important subordinate (A\$19.4 million produced in 2016/17) to apples (A\$59.6 million), wine (A\$23 million in 2014) and fast-expanding strawberries (A\$35.5) compared with pears (A\$6.2 million) and small quantities of vegetables (HIA, 2018). On the Guanzhong Plain cherries have been one of various horticultural crops that have featured in the transformation of agricultural development. In both areas diversification of farmers' incomes has featured cherries for pick-your-own as part of the varied attractions for tourists, with some additional

farm-based processing into jams, sauces and drinks. The local urban market has provided the prime rationale and support for development in both cases, but with wider markets increasingly being sought that can take advantage of global sourcing for foods.

Wider aspects of the ‘cherry story’ to be investigated in future research include the need to focus more on farmer decision making. Some interviews with farmers have been conducted with cherry growers and other horticulturalists on the Guanzhong Plain (Song 2018; Song *et al.*, 2017). However, corresponding interviews need to be undertaken in the Adelaide Hills. This should be accompanied by further detailing of the associated tourist-related developments and farmer motivations for diversifying into this activity (in both case study areas). The role of farm-based tourism in the evolution of a multifunctional countryside also needs closer investigation. For example, Duarte Alonso and Northcote (2013) suggest key research questions about this emerging multifunctionality in Australian agriculture. The principal one is ‘to what extent are farmers involved in value-adding activities, for instance, by using a commercial kitchen to add value to their produce?’ But a key second one asks, ‘what are the main reasons, if any, for farmers not adding value to their products?’ In the Adelaide Hills will successful prosecution of the case for World Heritage status accelerate multifunctionality and, if so, how?

There is a need to develop better understanding of the role of rural tourism in the Chinese context, especially to examine the motives of the tourists. Are they simply part of a world-wide phenomenon in which urban residents seek some respite from the daily trials of urban life by seeking out tranquillity, heritage and the rural ‘other’ or are there certain distinctive Chinese characteristics related to the role the rural has played in the country’s development since 1949 (see Griffiths, 2012)? Can the Farmhouse Joy Movement be regarded as a counter to the widespread move towards corporate and industrial food production and distribution in the way that the Slow Food Movement (Clancy, 2017) has been in the West? In both countries will changing consumption patterns in favour of healthier diets have a direct influence on production, stimulating further production of fruit and vegetables and restricting applications of oil-based fertilisers, herbicides and pesticides?

In both countries there is a need to consider how farmers and rural communities in general are maintaining farmland in the face of urban sprawl. In the Chinese case a key focus should be on how the policy of maintaining a dynamic equilibrium of the total farmland plays out in specific localities across the Guanzhong Plain (Cheng *et al.*, 2017). Is agricultural intensification in certain villages holding the forces of urban sprawl at bay, given that the amount of agricultural land in Shaanxi Province may have fallen by as much as 25% since 1980? Similarly, are stronger planning controls around Australian cities proving effective in curtailing sprawl or are some of the dire predictions about loss of prime farmland coming true (Parsons, 2017)?

Finally, there are issues to be investigated relating to food security, especially the role of foreign ownership, global supply and land grabs. These are contentious issues, but the impacts of changing patterns of investment and trade need closer scrutiny. What will Chinese investment in Tasmanian cherry farms mean for local employment, sales of cherries locally as opposed to export, and what are the prospects for tighter regulation in Australia on foreign property ownership. Also, what will be the impacts on Chinese cherry producers in the face of increased competition from imported cherries?

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References

- Adelaide Hills Council (AHC), 2018. Adelaide Hills Council tourist visitor summary. <https://economy.id.com.au/adelaide-hills/tourism-visitor-summary> (accessed on 19.03.2018).
- Amekawa Y, Sseguya H, Onzere S *et al.*, 2010. Delineating the multifunctional role of agroecological practices: Toward sustainable livelihoods for smallholder farmers in developing countries. *Journal of Sustainable Agriculture*, 34(2): 202–228. doi: 10.1080/10440040903433079.
- Atchison J, Head L, Gates A, 2010. Wheat as food, wheat as industrial substance: Comparative geographies of transformation and mobility. *Geoforum*, 41(2): 236–246. doi: 10.1016/j.geoforum.2009.09.006.
- Australian Taxation Office (ATO), 2018. Register of Foreign Ownership of Agricultural Land—Report of registrations as at 30 June 2016. Retrieved 15/00, 2016. from <https://firb.gov.au/about/publication/register-of-foreign-ownership-of-agricultural-land/>.
- Baker O E, 1925. The potential supply of wheat. *Economic Geography*, 1(1): 15–52. doi: 10.2307/140096.
- Brautigam D, 2015. Will Africa Feed China? Oxford: Oxford University Press.
- Brooking T, Pawson E, 2010. Seeds of Empire: The Environmental Transformation of New Zealand. London and New York: IB Tauris.
- Carter C, Harding A, 2015. Land Grabs in Asia: What Role for the Law? Abingdon, Oxon and New York: Routledge.
- Carter S E, Jones P G, 1993. A model of the distribution of cassava in Africa. *Applied Geography*, 13(4): 353–371. doi: 10.1016/0143-6228(93)90037-2.
- Chen W, Reese S D, 2015. Networked China: Global Dynamics of Digital Media and Civic Engagement: New Agendas in Communication. London: Routledge.
- Chen Y, Wen Y, Li Z, 2017. From blueprint to action: The transformation of the planning paradigm for desakota in China. *Cities*, 60: 454–465. doi: 10.1016/j.cities.2016.04.010.
- Cherry Growers Australia (CGA) Inc., 2018. Market statistics. <https://www.cherrygrowers.org.au/market-statistics/>. (accessed on 18.03.2018).
- CGA Inc., 2014. Australian cherry industry information. Biosecurity Bill 2014 and related Bills Submission 5 - Attachment 1. file:///C:/Users/gmrstr/Downloads/sub05_CGA_attch1.pdf. (accessed on 31.03.2018).
- CGA Inc., 2016. Cherry Export Summary January 2016. Hobart: Cherry Growers Australia Inc.
- CGASA, 2017. Your guide to the growers. <http://www.cherriessa.com.au/wp-content/uploads/CHERRY-MAP-2017-FOR-WEB.pdf>. (accessed on 31.03.2018).
- Cheng Q, Jiang P, Cai L *et al.*, 2017. Delineation of a permanent basic farmland protection area around a city centre: Case study of Changzhou City, China. *Land Use Policy*, 60: 73–89. doi: 10.1016/j.landusepol.2016.10.014.
- Cherry Growers Association of South Australia (CGASA), 2018. Industry info. <http://www.cherriessa.com.au/industry-info/>. (accessed on 18.03.2018).
- Clancy M, 2017. Slow Tourism, Food and Cities: Pace and the Search for the “Good Life”. Abingdon (Oxon) and New York: Routledge.
- Cui L, Jiang F, 2018. State ownership effect on firms' FDI ownership decisions under institutional pressure: A study of Chinese outward-investing firms. In: A. Cuervo-Cazurra (ed.). *State-Owned Multinationals*. Cham, Switz.: Palgrave Macmillan, 111–144.

- Deng H, Huang J, Xu Z *et al.*, 2010. Policy support and emerging farmer professional cooperatives in rural China. *China Economic Review*, 21: 495–507. doi: 10.1016/j.chieco.2010.04.009.
- Deng X, Huang J, Rozelle S *et al.*, 2015. Impact of urbanization on cultivated land changes in China. *Land Use Policy*, 45: 1–7. doi: 10.1016/j.landusepol.2015.01.007.
- Department of Foreign Affairs and Trade (DFAT), Government of Australia, 2018. Australia and foreign investment. <http://dfat.gov.au/trade/topics/investment/Pages/which-countries-invest-in-australia.aspx>.
- Department of State Growth (DSG), 2015. *China engagement report*. Hobart: Tasmanian Government.
- District Council of Mount Barker (DCMB), 2018. District Council of Mount Barker tourist visitor summary. <https://economy.id.com.au/mount-barker/tourism-visitor-summary>. (accessed on 19.03.2018).
- Downward S R, Taylor R, 2007. An assessment of Spain's Programa AGUA and its implications for sustainable water management in the province of Almería, southeast Spain. *Journal of Environmental Management*, 82(2): 277–289. doi: 10.1016/j.jenvman.2005.12.015.
- Duarte A A, Northcote J, 2013. Investigating farmers' involvement in value-added activities: A preliminary study from Australia. *British Food Journal*, 115(10): 1407–1427. <https://www.emeraldinsight.com/doi/abs/10.1108/BFJ-04-2011-0104>.
- EconSearch, 2012. Economic impact projections for UNESCO World Heritage site listing of the Mount Lofty Ranges agrarian landscape: A report prepared for The Mount Lofty Ranges Working Group. Marryatville, SA: EconSearch.
- Evans N, 2013. Strawberry fields forever? Conflict over neo-productivist Spanish polytunnel technology in British agriculture. *Land Use Policy*, 35: 61–72. doi: 10.1016/j.landusepol.2013.04.019.
- Faust M, Deng X, Hrotkó K, 1998. Development project for cherry growing in Shaanxi Province of China PR. In: Ystaas J, Callesen O (eds.). *Proceedings of the Third International Cherry Symposium*, Acta Horticulturae, 468. Leiden: International Society for Horticultural Science, 763–769.
- Ferguson D, Barber V, Hendrischke H *et al.*, 2017. *Demystifying Chinese Investment in Australia*. Sydney: KPMG and Chinese Studies Centre, University of Sydney.
- Fielke S J, Bardsley D K, 2013. South Australian farmers' markets: Tools for enhancing the multifunctionality of Australian agriculture. *GeoJournal*, 78(5): 759–776. doi: 10.1007/s10708-012-9464-8.
- Fielke S J, Bardsley D K, 2015a. Regional agricultural governance in peri-urban and rural South Australia: Strategies to improve multifunctionality. *Sustainability Science*, 10(2): 231–243. doi: 10.1007/s11625-014-0272-6.
- Fielke S J, Bardsley D K, 2015b. A brief political history of South Australian agriculture. *Rural History*, 26(1): 101–125. doi: 10.1017/S095679331400017X.
- Gao J, Wu B, 2017. Revitalizing traditional villages through rural tourism: A case study of Yuanjia Village, Shaanxi Province, China. *Tourism Management*, 63: 223–233. doi: 10.1016/j.tourman.2017.04.003.
- Gervasi M, 2015. *East-Commerce: China E-Commerce and the Internet of Things*. Chichester, UK: John Wiley & Sons.
- Granger A R, 1997. Sweet cherry breeding in Australia. In: Ystaas J (ed.). *Proceedings of the III International Cherry Symposium*, Acta Horticulturae, 468. Ullensvang (Norway) and Aarslev (Denmark): International Society for Horticultural Science, 111–114.
- Green K, 2005. High density cherry systems in Australia. In: Lang G A (ed.). *Proceedings of the Fourth International Cherry Symposium*, 2011, Acta Horticulturae, 667. Leuven, Belgium: International Society for Horticultural Science, 319–324.
- Griffiths I L, 1961. Changes in the South African pineapple industry. *Geography*, 46(4): 360–363. <https://www.jstor.org/stable/40565550>.
- Griffiths M, 2012. *Consumers and Individuals in China: Standing out, Fitting in*. London: Routledge.
- Grinblat I, 2016. What's happening to cherries? <http://www.ausfoodnews.com.au/2016/12/21/report-whats-happening-to-cherries.html>. (accessed on 15.09.2017).
- Guldin G E, 2018. *What's a Peasant to Do? Village Becoming Town in Southern China*. London: Routledge.
- Hall C M, Mitchell R, 2013. Gastronomic tourism: Comparing food and wine tourism experiences. In: Novelli M

- (ed.). *Niche Tourism: Contemporary Issues, Trends and Cases*. London: Routledge, 73–88.
- Hart J F, 1956. The changing distribution of sheep in Britain. *Economic Geography*, 32(3): 260–274. doi: 10.2307/142206.
- Hart J F, 1977. The demise of king cotton. *Annals of the Association of American Geographers*, 67(3): 307–322. doi: 10.1111/j.1467-8306_1977.tb01144x.
- Hart J F, Chestang E L, 1996. Turmoil in tobacco land. *Geographical Review*, 86(4): 550–572. doi: 10.2307/215932.
- Head L, Atchison J, 2016. *Ingrained: A Human Bio-geography of Wheat*. London: Routledge.
- Hill R D, 2012. *Rice in Malaya: A Study in Historical Geography*. Singapore: NUS Press.
- Hohnholz J H, 1980. Manioc cultivation in South-east Asia. An agricultural geographical survey. *Applied Geography and Development*, 16: 117–135.
- Hong T, 2000. Research on China vegetable production and procurement. *China Rural Economics*, 4: 15–26. (in Chinese)
- Horticulture Innovation Australia (HIA), 2016. *Australian Horticulture Statistics Handbook: Fruit, 2015–16*. Sydney: HIA.
- Huang X, McMurray A, 2016. *Regional Australia's Engagement with China in the Asian Century: Innovation, Integration and Impact*. Melbourne: RMIT University.
- Ing G, 2005. Where will sweet cherries be grown? In: Seris A, Burak M (eds.). *Proceedings of the Fifth International Cherry Symposium, Acta Horticulturae*, 795. Bursa, Turkey: International Society for Horticultural Science. Working Group on Cherry Production, 451–456.
- Jaros K A, 2013. Forging a metropolis: State-led urban development in Xi'an, China. *Centrepiece*, 28(1). https://wcfia.harvard.edu/publications/centerpiece/fall2013/feature_jaros.
- Jaros K A, 2016. Forging Greater Xi'an: The political logic of metropolitanization. *Modern China*, 42(6): 638–673. doi: 10.1177/0097700415616116.
- Jiang L, Deng X, Seto K C, 2013. The impact of urban expansion on agricultural land use intensity in China. *Land Use Policy*, 35: 33–39. doi: 10.1016/j.landusepol.2013.04.011.
- Johnston S, 2014. The case for World Heritage listing of the Mount Lofty Ranges agrarian landscape. *Historic Environment*, 26(2): 102–105. [https://search.informit.com.au/documentSummary;dn=952657737658196; res=IELHSS](https://search.informit.com.au/documentSummary;dn=952657737658196;res=IELHSS).
- Johnston S, Morison J, Stringer R *et al.*, 2012. *Exploring UNESCO World Heritage Site listing for the Mount Lofty Ranges agrarian landscape*. Adelaide: University of Adelaide.
- Kloot P M, 1985. Plant introductions to South Australia prior to 1840. *Journal of the Adelaide Botanic Gardens*, 7: 217–231.
- KPMG, University of Sydney, 2016. *Demistifying Chinese investment in Australia: The new normal, health, happiness, lifestyle and services*. Sydney: KPMG.com.au.
- Kuchel R, 2015. Lutheranism in South Australia: its origins and contributions to South Australian life. *South Australian Geographical Journal*, 113: 57–75. <https://search.informit.com.au/documentSummary;dn=67427546-1336214;res=IELAPA>.
- Kutchel A, 2018. Airfreight protocol passed, *Smart Farmer*, December 14th, p.14.
- Lang G, Miao B, 2013. Food security for China's cities. *International Planning Studies*, 18(1): 5–20. <https://rsa.tandfonline.com/doi/abs/10.1080/13563475.2013.750940>.
- Larsson H, 1996. Relationships between rainfall and sorghum, millet and sesame in the Kassala Province, Eastern Sudan. *Journal of Arid Environments*, 32(2): 211–223. doi: 10.1006/jare.1996.0018.
- Li H, Fu S, 2008. “The rational peasant” or “moral economy”: Review and new interpretation. *Social Sciences Review*, 23(5): 39–41. doi: 10.16745/j.cnki.cn62-1110/c.2008.05.057. (in Chinese)
- Li Y, Li Y, Westlund H *et al.*, 2015. Urban–rural transformation in relation to cultivated land conversion in China: Implications for optimizing land use and balanced regional development. *Land Use Policy*, 47: 218–224. doi: 10.1016/j.landusepol.2015.04.011.
- Li Y, Westlund H, Zheng X *et al.*, 2016. Bottom-up initiatives and revival in the face of rural decline: Case studies

- from China and Sweden. *Journal of Rural Studies*, 47: 506–513. doi: 10.1016/j.jrurstud.2016.07.004.
- Li Z-L, 1999. Deciduous fruit production in China. In: Papademetrio M, Herath E (eds.). *Deciduous Fruit Production in Asia and the Pacific*. Rome: Foreign Agriculture Organization (FAO), Chapter 5. Available at: <http://www.fao.org/docrep/004/ab985e/ab985e00.htm>. (accessed on 15.03.2017).
- Lim T W, Chan H H L, Tseng K H Y *et al.*, 2016. *China's One Belt One Road Initiative*. London: Imperial College Press.
- Lin G, 2018. Towards a Desakota extended metropolis? Growth and spatiality of new (peri)urbanism in Chinese metropolitan regions. In: Viganó P, Cavalieri C, Barceloni Corte M (eds.). *The Horizontal Metropolis: Between Urbanism and Urbanization*. Cham, Switzerland: Springer, 111–130.
- Liu F, Zhang Z, Shi L *et al.*, 2016. Urban expansion in China and its spatial-temporal differences over the past four decades. *Journal of Geographical Sciences*, 26(10): 1477–1496. doi: 10.1007/s11442-016-1339-3.
- Liu X, Cao G, Liu T *et al.*, 2016. Semi-urbanization and evolving patterns of urbanization in China: Insights from the 2000 to 2010 national censuses. *Journal of Geographical Sciences*, 26(11): 1626–1642. doi: 10.1007/s11442-016-1348-2.
- Liu Y, Fang F, Li Y, 2014. Key issues of land use in China and implications for policy making. *Land Use Policy*, 40: 6–12. doi: 10.1016/j.landusepol.2013.03.013.
- Liu Y, Liu J, Zhou Y, 2017. Spatio-temporal patterns of rural poverty in China and targeted poverty alleviation strategies. *Journal of Rural Studies*, 52: 66–75. doi: 10.1016/j.jrurstud.2017.04.002.
- Liu Y, Long H, 2011. Agricultural geography and rural development in China: Research progress and prospect. *Progress in Geography*, 30(4). doi: 10.11820/dlkxjz.2011.04.003. (in Chinese)
- Liu Y, Long H, Chen Y *et al.*, 2016. Progress of research on urban-rural transformation and rural development in China in the past decade and future prospects. *Journal of Geographical Sciences*, 26(8): 1117–1132. doi: 10.1007/s11442-016-1318-8.
- Liu Z, Robinson G M, 2016. Residential development in the peri-urban fringe: The example of Adelaide, South Australia. *Land Use Policy*, 57: 179–192. doi: 10.1016/j.landusepol.2016.05.026.
- Long H, Liu Y, 2016. Rural restructuring in China. *Journal of Rural Studies*, 47: 387–391. doi: 10.1016/j.jrurstud.2016.07.028.
- Long H, Zou J, Pykett J *et al.*, 2011. Analysis of rural transformation development in China since the turn of the new millennium. *Applied Geography*, 31(3): 1094–1105. doi: 10.1016/j.apgeog.2011.02.006.
- Lu L, Boufford D E, 2003. Rubus L. *Flora of China*, 9: 195–285.
- Marble Hill Cherries, 2018. <http://www.marblehillcherries.com/about/>. (accessed on 5.03.2018).
- McGee T, 2009. The spatiality of urbanization: The policy challenges of mega-urban and Desakota regions of Southeast Asia, *UNI-IAS Working Papers*, 161. doi: 10.1.1.548.2985.
- McGee T G, 1991. The emergence of desakota regions in Asia: expanding a hypothesis. In: Ginsburg N S, Koppel B, McGee T (eds.). *The Extended Metropolis: Settlement Transition in Asia*. Honolulu: University of Hawaii Press, 3–25.
- Meinig D W, 1962. *On the Margins of the Good Earth; The South Australian Wheat Frontier, 1869–1884*. London: John Murray.
- Michelson H, Boucher S, Cheng S *et al.*, 2017. Connecting supermarkets and farms: The role of intermediaries in Walmart China's fresh produce supply chains. *Renewable Agriculture and Food Systems*, 33(1): 47–59. doi: 10.1017/S174217051600051X.
- Middlemis C, 2015. View from the verandah: Marble Hill. *Australian Garden History*, 26(4): 8–12. <https://search.informit.com.au/documentSummary;dn=090709434500649;res=IELHSS>.
- Minglun L Q L, 1997. Trends and basic causes of the regional pattern of changes in China's grain production since the 1950s. *Progress in Geography*, 1. http://en.cnki.com.cn/Article_en/CJFDTotal-DLKJ701.005.htm. (in Chinese)
- Mount Lofty Ranges World Heritage Bid, 2018. Kaurna support. <http://www.mountloftyranges.org/>. (accessed on 12.03.2018).
- Ngowi J, Stocking M, 1989. Assessing land suitability and yield potential for coconuts in Tanzania. *Applied Ge-*

- ography*, 9(1): 21–33. doi: 10.1016/0143-6228(89)90003-9.
- Parsons S, 2017. Land value and the value of land: Understanding the determinants of land use transition in Melbourne's peri-urban region. Unpublished PhD thesis, School of Global Urban and Social Studies, College of Design and Social Context, RMIT University, Melbourne.
- Pawson E, Brooking T, 2008. Empires of grass: Towards an environmental history of New Zealand agriculture. *British Review of New Zealand Studies*, 17: 95–114. [https://search.informit.com.au/documentSummary; dn=779522706115425;res=IELIND](https://search.informit.com.au/documentSummary;dn=779522706115425;res=IELIND).
- Piddock S, Smith P, Pate F D, 2009. A changed landscape: Horticulture and gardening in the Adelaide Hills face zone, South Australia, 1836–1890. *Historical Archaeology*, 43(3): 65–81. doi: 10.1007/BF03376761.
- Pray C E, Huang J, Hu R, Rozelle S, 2002. Five years of Bt cotton in China: The benefits continue. *The Plant Journal*, 31(4), 423–430. doi: 10.1046/j.1365-313X.2002.01401x.
- Premium Australia Foods, 2017. Cherry exports to China. http://foodvaluechain.unimelb.edu.au/_data/assets/pdf_file/0004/2127973/Cherry-Export-to-China-short-version-30-June.docx.pdf. (accessed on 14.09.2017).
- Primary Industries and Regions South Australia (PIRSA), Government of South Australia, 2018. History of agriculture in SA: Lenswood Research Centre. http://www.pir.sa.gov.au/aghhistory/dept_of_agriculture_as_an_organisation/locations/Lenswood.
- Pritchard B, 1999. Australia as the supermarket to Asia? Governments, territory, and political economy in the Australian agri-food system. *Rural Sociology*, 64(2): 284–301. doi: 10.1111/j.1549-0831_1999.tb00019x.
- Produce Report, 2017. Cherries become king: China's 2016 imported fruit market in review. <http://www.producereport.com/article/cherries-become-king-china%E2%80%99s-2016-imported-fruit-market-review>. (accessed on 8.03.2018).
- Qian Z, Xue J, 2017. Small town urbanization in Western China: Villager resettlement and integration in Xi'an. *Land Use Policy*, 68: 152–159. doi: 10.1016/j.landusepol.2017.07.033.
- Qin H, Liao, T F, 2016. Labor out-migration and agricultural change in rural China: A systematic review and meta-analysis. *Journal of Rural Studies*, 47: 533–541. doi: 10.1016/j.jrurstud.2016.06.020.
- Regional Development Australia (RDA), Adelaide Hills, Fleurieu and Kangaroo Island, 2014. Sustainable food and wine project: Discussion Paper 7 – Tourism and hospitality value add. Strathalbyn, SA: RDA Adelaide Hills, Fleurieu and Kangaroo Island.
- Richards C, Bjorkhaug H, Lawrence G *et al.*, 2013. Retailer-driven agricultural restructuring: Australia, the UK and Norway in comparison. *Agriculture and Human Values*, 30(2): 235–245. doi: 10.1007/s10460-012-9408-4.
- Robinson G M, 1988. *Agricultural Change: Geographical Studies of British Agriculture*. Edinburgh: North British Publishing.
- Robinson G M, 2004. *Geographies of Agriculture: Globalisation, Restructuring and Sustainability*. Harlow, Essex: Pearson.
- Robinson G M, 2018. Globalization of agriculture. *Annual Review of Resource Economics*, 10. doi: 10.114/an-nurev-resource-100517-023303.
- Robinson G M, Carson D, 2015. *Handbook on the Globalization of Agriculture*. Cheltenham: Edward Elgar.
- Robinson J M, Hartenfeld J A, 2007. *The Farmers' Market Book: Growing Food, Cultivating Community*. Bloomington: Indiana University Press.
- Salver M, Johnson S, 2016. Pursuing World Heritage listing as a regional development tool. Paper presented to the Planning Institute of Australia's inaugural planning in Rural & Regional Australia Conference, Stanthorpe, Qld., 27 & 28 October.
- Sangbe, 2018. A group of pictures to understand the difference between the original white deer and the original. <http://www.sangbe.com/article/317007.html>. (accessed on 24.02.2018).
- Santich B, 2002. Regionalism and regionalisation in food in Australia. *Rural Society*, 12(1): 5–16. doi: 10.5172/rsj.12.1.5.
- Sergeeva A, 2017. Global cherry market: Rocketing consumption in China demand for imports. October 9th. <http://www.indexbox.co.uk/news/global-cherry-market-rocketing-consumption-in-china-demand-for-imports/>.

- (accessed on 24.02.2018).
- Shaanxi Tour, 2018. Bailuyuan · Bailucang becomes popular scenic area. http://en.sxtour.com/content/details88_1486.html. (accessed on 05.03.2018).
- Smith L, 2014. Chinese investors buy into Australia's cherry capital. ABC Rural. <http://www.abc.net.au/news/rural/2014-10-06/chinese-cherry-farm-buyers-0610/5791884>. (accessed on 15.09.2017).
- Song B, 2018. The influence of agricultural transformation on ecosystem services [D]. Xi'an: Shaanxi Normal University. (in Chinese)
- Song B, Robinson G M, Zhou Z, 2017. Agricultural transformation and ecosystem services: A case study from Shaanxi Province, China. *Habitat International*, 69: 114–125. doi: 10.1016/j.habitatint.2017.09.008.
- Statista, 2018. Retail sales volume of fresh cherries in China from 2010 to 2018 (in thousand metric tons), <https://www.statista.com/statistics/692939/china-total-sales-volume-of-cherries/>. (accessed on 8.03.2018).
- Stephens J, 1839. The Land of Promise. London: Smith, Elder & Co.
- Stringer R, Umberger W, 2008. Food miles, food chains and food producers: Consumer choices in local markets. Adelaide: University of Adelaide.
- Tang Q, Bennett S J, Xu Y *et al.*, 2013. Agricultural practices and sustainable livelihoods: Rural transformation within the Loess Plateau, China. *Applied Geography*, 41: 15–23. doi: 10.1016/j.apgeog.2013.03.007.
- Terjung W H, Ji H Y, Hayes J T *et al.*, 1984. Actual and potential yield for rainfed and irrigated maize in China. *International Journal of Biometeorology*, 28(2): 115–135. doi: 10.1007/BF02191724.
- Thornsbury S, Woods M, 2007. Background information on the Chinese fruit sector. Staff Papers, Department of Agricultural Economics, Michigan State University, No. 2007–03.
- Tian L, 2015. Land use dynamics driven by rural industrialization and land finance in the peri-urban areas of China: The examples of Jiangyin and Shunde. *Land Use Policy*, 45: 117–127. doi: 10.1016/j.landusepol.2015.01.006.
- Tu S, Long H, 2017. Rural restructuring in China: Theory, approaches and research prospect. *Journal of Geographical Sciences*, 27(10): 1169–1184. doi: 10.1007/s11442-017-1429-x.
- Tu S, Long H, Zhang Y *et al.*, 2018. Rural restructuring at village level under rapid urbanization in metropolitan suburbs of China and its implications for innovations in land use policy. *Habitat International*, 77: 143–152.
- Tuman J P, Shirali M, 2017. The political economy of Chinese foreign direct investment in developing areas. *Foreign Policy Analysis*, 13(1): 154–167. doi: 10.1111/fpa.12092.
- Unger J, 2016. The Transformation of Rural China. New York: Routledge.
- Valder P, 1999. The Garden Pants of China. London: Weidenfeld & Nicolson, Cassell & Co.
- van Etten J, 2006. Molding maize: the shaping of a crop diversity landscape in the western highlands of Guatemala. *Journal of Historical Geography*, 32(4): 689–711. doi: 10.1016/j.jhg.2005.12.002.
- Verdini G, 2016. The rural fringe in China: Existing conflicts and prospective urban-rural synergies. In: Verdini G, Wang Y, Zhang X (eds.). Urban China's Rural Fringe: Actors, Dimensions and Management Challenges. Abingdon (Oxon) and New York: Routledge, 1–16.
- Viganò P, Cavalieri C, Barcelloni Corte M, 2018. The Horizontal Metropolis between Urbanism and Urbanization. Cham, Switzerland: Springer, 205–214.
- Visher S S, Hu C Y, 1950. Oliver Edwin Baker, 1883–1949. *Annals of the Association of American Geographers*, 40(4): 328–334. doi: 10.1080/00045605009352033.
- Wang G, Liu Y, Li Y *et al.*, 2015. Dynamic trends and driving forces of land use intensification of cultivated land in China. *Journal of Geographical Sciences*, 25(1): 45–57. doi: 10.1007/s11442-015-1152-4.
- Wang Y, Zhou Z X, Guo Z Z, 2014. Impact of the urban agricultural landscape fragmentation on ecosystem services: A case study of Xi'an City. *Geographical Research*, 33(6): 1097–1105. http://en.cnki.com.cn/Article_en/CJFDTotat-DLYJ201406011.htm. (in Chinese)
- Ward E, 1862. Vineyards and orchards of South Australia: A descriptive tour. Adelaide: Advertiser & Chronicle.
- Wee Y C, 1970. The development of pineapple cultivation in West Malaysia. *Journal of Tropical Geography*, 30: 68–75. <https://www.cabdirect.org/cabdirect/abstract/19711801230>.
- Wei Y D, Li H, Yue W, 2017. Urban land expansion and regional inequality in transitional China. *Landscape and*

- Urban Planning*, 163: 17–31. doi: 10.1016/j.landurbplan.2017.02.019.
- Wilson G A, 2007. Multifunctional Agriculture: A Transition Theory Perspective. Wallingford, Oxon & Cambridge, MA: CABI.
- Wilson G A, 2008. Global multifunctional agriculture: Transitional convergence between North and South or zero-sum game? *International Journal of Agricultural Sustainability*, 6(1): 3–21. doi: 10.3763/ijas.2007.0317.
- Wilson J N, 1948. Pineapple industry of Hawaii. *Economic Geography*, 24(4): 251–262.
- World Atlas.com, 2017. Where do cherries grow? <https://www.worldatlas.com/articles/the-world-leaders-in-cherry-production.html>. (accessed on 17.12.2017).
- Wu X, 2016. Local foods and meanings in contemporary China: The case of Southwest Hubei. In: I Banerjee-Dube (ed.), *Cooking Cultures: Convergent Histories of Food and Feeling*. Delhi: Cambridge University Press, 139–157.
- Xie Y, Batty M, Zhao K, 2007. Simulating emergent urban form using agent-based modeling: Desakota in the Suzhou-Wuxian region in China. *Annals of the Association of American Geographers*, 97(3): 477–495. doi: 10.1111/j.1467-8306.2007.0055x.
- Yang L, 2012. Impacts and challenges in agritourism development in Yunnan, China. *Tourism Planning & Development*, 9(4): 369–381. doi: 10.1080/21568316.2012.726257.
- Yang W J, Chen W J, 2011. Studies on the spatial distribution changes of China's rice production and its influencing factors. *Economic Geography*, 12: 25. http://en.cnki.com.cn/Article_en/CJFDTOTAL-JJDL201112025.htm. (in Chinese)
- Yeung Y M, Jianfa S, 2007. Developing China's West: A Critical Path to Balanced National Development. Hong Kong: Chinese University Press.
- Young E, 1934. Coconuts from Ceylon. *Journal of Geography*, 33(1): 29–36.
- Yu B, Liu F, You L, 2012. Dynamic agricultural supply response under economic transformation: A case study of Henan, China. *American Journal of Agricultural Economics*, 94(2): 370–376. doi: 10.1093/ajae/aar114.
- Zasada I, 2011. Multifunctional peri-urban agriculture: A review of societal demands and the provision of goods and services by farming. *Land Use Policy*, 28(4): 639–648. doi: 10.1016/j.landusepol.2011.01.008.
- Zeng B, Ryan C, 2012. Assisting the poor in China through tourism development: A review of research. *Tourism Management*, 33(2): 239–248. doi: 10.1016/j.tourman.2011.08.014.
- Zhang Q, 2018. Elements in Desakota. In: Viganò P, Cavalieri C, Barcelloni Corte M (eds.). *The Horizontal Metropolis between Urbanism and Urbanization*. Cham, Switzerland: Springer, 205–214.
- Zhang Q, Sun Z, Wu F *et al.*, 2016. Understanding rural restructuring in China: The impact of changes in labor and capital productivity on domestic agricultural production and trade. *Journal of Rural Studies*, 47: 552–562. doi: 10.1016/j.jrurstud.2016.05.001.
- Zhang Q F, 2012. The political economy of contract farming in China's agrarian transition. *Journal of Agrarian Change*, 12: 460–483. doi: 10.1111/j.1471-0366.2012.00352x.
- Zhang Q F, Donaldson J A, 2008. The rise of agrarian capitalism with Chinese characteristics: Agricultural modernization, agribusiness and collective land rights. *China Journal*, 60(July): 25–47. doi: 10.1086/tcj.60.20647987.
- Zhao Y, 2013. China's Disappearing Countryside: Towards Sustainable Land Governance for the Poor. Farnham, UK & Burlington, VT: Ashgate.
- Zhou Z X, 2015. Impact of the agricultural landscape change on ecosystem services in the process of rapid urbanization region: A case study of Xi'an metropolitan zone. *Arid Land Geography*, 38(5): 1004–1013. doi: 10.13826/j.cnki.cn65-1103/x.2015.05.015. (in Chinese)