Received: 1 October 2021 | Revised: 3 April 2022 | Accepted: 17 May 2022

DOI: 10.1002/hpja.618

REVIEW ARTICLE

Health Promotion Journal of Australia | Australian Health Promotion Association | WILEY

Procurement from local producers for food service in primary and secondary school settings: A scoping review

Claire Galloway[1,2] | Sue Devine[1] | Julie Parison[1] | Holley-Anne Jones[2]

[1]College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Queensland, Australia

[2]Public Health Services, Department of Health, Hobart, Tasmania, Australia

Correspondence
Claire Galloway, Tasmanian Department of Health, Hobart, TAS, Australia.
Email: claire.galloway@health.tas.gov.au

Handling editor: Helen Trevena

Abstract

Issue addressed: Australian school canteen guidelines do not broadly incentivise procuring food from local producers, despite evidence of this occurring abroad. This scoping review aims to investigate what is known about local food procurement for school foodservice.

Methods: A scoping review of peer-reviewed articles published since 2000 was undertaken using MEDLINE, CINAHL and Scopus.

Results: Twenty-one studies met the inclusion criteria. Local food was generally perceived as fresher and more nutritious. Small, positive impacts on fruit and vegetable intake have been demonstrated when food is procured locally. Challenges identified included concerns around food safety, varied availability, time spent coordinating food supply, lack of incentive from regional or national guidelines, inadequate kitchen facilities and budget constraints.

Conclusions: There is no universal definition or standard for procuring 'local food'. The main motivation for local food procurement was a sense of social responsibility, however there are barriers, including cost, facilities and food safety. Purchasing food locally holds potential to benefit the local economy but government funding and policy supporting local and small-scale producers is an important enabler.

So what?: Government support to build stakeholder capacity is important in establishing and maintaining these programmes and would be crucial in achieving change in Australian schools. Investigating feasibility of a national school lunch service would be beneficial, as these programmes may have merit not just in feeding children but also in supporting the local economy. Further research is warranted in this area.

KEYWORDS
food procurement, food service, local food, local procurement, meal service, school, school canteen

1 | INTRODUCTION

Consumption of local food is considered one of the fastest-growing food trends in high-income countries[1] and a sustainable behaviour that contributes to greater social connectedness in communities.[2] Identified benefits of a successful local food procurement strategy include reduction in waste, enhanced environmental sustainability, economic benefits and increased sense of community through direct supplier-consumer relationships.[3,4] Promotion of local food procurement may achieve progress towards the global Sustainable Development Goals, particularly goal two (end hunger, achieve food security and improved nutrition and promote sustainable agriculture).[5,6]

Globally, local food procurement policies are implemented in various settings, including hospitals,[7] workplaces[8] and notably in schools. In the United States of America (USA) and Canada, the national Farm to School Network provides resources and support to connect schools with local food producers.[9] While lessons may be drawn from local food procurement programmes in schools abroad, their application in the Australian context requires broader consideration. Many USA and Canadian schools provide a mandatory meal service for students, which differs greatly from the Australian system. Australian school food provision occurs primarily in the school canteen setting, where food can be purchased. Notably, a single item may be purchased, rather than a substantive meal. A study of canteen-purchasing practices in New South Wales found most children brought their recess snack and lunch from home, yet still utilised the school canteen, where discretionary foods and drinks were commonly purchased.[10] Guidelines and policies on canteen food provision are implemented on a state-by-state basis and in many states are not audited or enforced. As of June 2021, no Australian jurisdictions refer to local procurement in their school canteen guidelines or policies[11–15] with the exception of South Australia, where the healthy food and drink supply strategy advises that suppliers should be kept local wherever possible.[16]

Food provision in schools has the potential to impact nutritional wellbeing and support children to engage with their local food system.[17] National health data show that less than 1% of children (aged 18 and under) eat the recommended number of serves of vegetables. Less than 50 per cent eat the recommended serves of fruit.[18] Promoting fresh produce through local procurement holds potential to improve population nutritional status.

This scoping literature review aims to explore what is known about local food procurement policies and practices in primary and secondary school food service settings, where food service is defined as the provision of food and drink which contribute to a supportive school food environment.[19] The intention is to draw upon insights from high-income countries to establish broad lessons for Australia.

2 | METHODS

A scoping review of peer-reviewed articles published since 2000 was undertaken using the Joanna Briggs Institute Methodology for Scoping Reviews.[20] A scoping review was chosen as it is considered an ideal means for determining the scope of a body of literature, particularly when it is unclear how to pose a research question with sufficient specificity as to complete a systematic literature review.[21]

2.1 | Inclusion/exclusion criteria

2.1.1 | Participants

Articles were included if the subjects were in primary or secondary school. If the subject was a food supplier, food distributor or a food service staff member, the article was included if the research related to supply in primary or secondary school.

TABLE 1 Search terms used in march 2020

Database	MeSH term	Keywords
Medline	'Food supply' 'Schools' OR 'Food services''	'Local procurement' OR 'Food procurement'
CINAHL	'Schools' 'Menu planning' OR 'Food supply' OR 'Food services' OR ''Nutrition policy'	
Scopus		School 'Local AND food AND procurement' OR 'local AND food'

2.1.2 | Concept

Articles referring to food procurement from local producers for the purpose of supplying food service in the school setting were included. Due to the diversity of activities that take place under the umbrella term of 'Farm to School' in the USA, this is an important distinction. Articles referencing local food procurement for tasting samples only or educational farm visits were excluded.

2.1.3 | Context

Articles were included if published in English. To allow for comparison to the Australian context, only articles referring to high-income countries were included.

2.1.4 | Types of articles included and excluded

Literature reviews were excluded but considered for relevance in the discussion and reviewed for individual articles eligible for inclusion. All other qualitative, quantitative and mixed-methods research was reviewed against inclusion criteria. Consistent with the Joanna Briggs Institute Methodology for Scoping Reviews,[20] critical appraisal of the research study design was not conducted.

2.2 | Search strategy

Searches of Medline, CINAHL and Scopus were undertaken in March 2020. Search terms were tested and finalised in Medline and modified to fit each database. Search terms are summarised in Table 1. Articles were screened by the lead author (CG). A further confirmatory screening of articles by second author (SD) was conducted against the inclusion criteria. PRISMA protocol was used to guide the systematic search process (Figure 1). Reference lists were reviewed for any additional eligible articles.

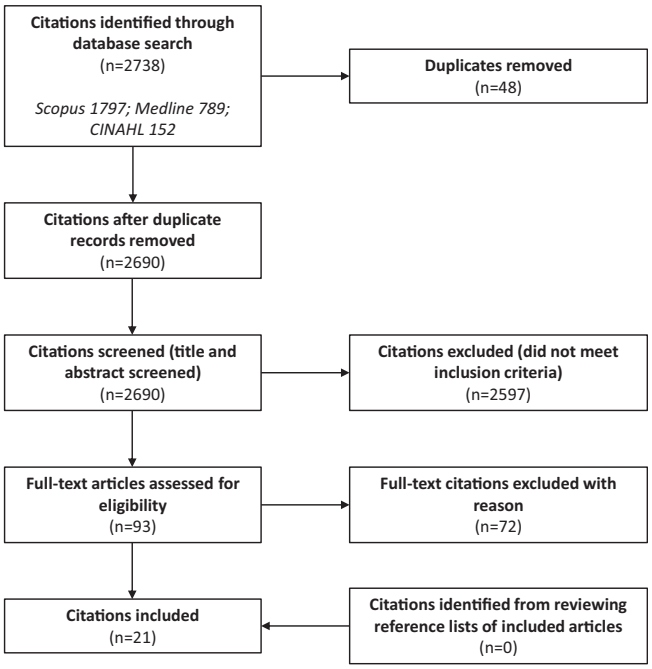

FIGURE 1 PRISMA flowchart of search strategy

2.3 | Data extraction

Data were extracted from reviewed articles by the lead author (CG). Data extracted from reviewed articles included country, programme name, aim of research, design, participants and data source and key findings (Table 2).

3 | RESULTS

The initial database search yielded 2,738 results. Duplicates were removed and a primary screen undertaken based on title and abstract. Following a full-text screen and application of the inclusion and exclusion criteria, 21 results remained (Figure 1). All articles were published between 2010 and 2019 inclusive, with eight published between 2010 and 2015 and 13 between 2016 and 2019. The majority of articles were observational study designs.

3.1 | Existing programmes

The majority of articles discussed local food procurement as an element of Farm to School programmes.[17,22–38] Farm to School programmes incorporate a range of activities to promote use of regional, state or local food products.[28] Most Farm to School programmes were located in the USA, except one located in Canada.[26] This was also the only instance where local food procurement was documented outside of a lunch service programme. Five articles cited the 2013 and/or 2015 Farm to School USA census as their main data source.[22–25,28] The Farm to School USA census has only been completed on these two occasions. Data collected in the census are detailed elsewhere.[39] These articles were the only ones using national-level data. The aims of the articles focusing on Farm to School programmes were diverse and are documented in Table 2.

Three articles focused on programmes other than Farm to School. This includes a review of the procurement of organic food in Berlin's school lunch programme[40] and reviews of the benefits and transaction costs of purchasing local foods (unrelated to the Farm to School programme) in Pennsylvania[41] and Illinois.[42]

3.2 | What is local food?

Not all papers defined what was considered 'local food'. Where there was a definition, this varied in specificity from '[food] picked yesterday'[38] to 'anything produced within a 400 mile radius'[28] to 'organic food that is produced [at a] smaller scale, processed and consumed in the vicinity, usually 50, 75 or 100 miles within the school district'.[41] The Farm to School census allowed respondents to self-define local food and within 100 miles geographic distance was a commonly chosen radius.[22] An article reviewing local organic food procurement in Berlin defined this as food that was produced in the federal state of Brandenburg.[40]

3.3 | Goals of local food procurement

Improving or promoting healthy eating or school meals was the most commonly mentioned goal of sourcing local food.[27,29,30,34,38] Other goals included combating childhood obesity,[42] supporting public

TABLE 2 Summary of results

Author, year	Location	Name of programme	Study aim	Design	Participants/data source	Key findings
O'Hara JK, Benson MC. 2019[22]	USA	Farm to School	To estimate the responsiveness of local food sourcing by schools in response to changes in local agricultural production	Cross-sectional	National Farm to School census data, 2015	The probability of purchasing local foods by schools and the level of purchases schools make are modestly influenced by local agricultural sales
Motta V. 2019[23]	USA	Farm to School	To examine the impact of local food expenditures on school food service revenues and earnings	Cross-sectional	National Farm to School census data, 2013	There is a statistically significant negative impact between local milk expenditures and foodservice revenue and a non-significant negative impact between local non-milk expenditures and foodservice revenue. Revenues from both food sales and the federal government appear to not sufficiently cover all the costs incurred by foodservice operations in school districts
Fitzsimmons J, O'Hara JK. 2019[24]	USA	Farm to School	To examine whether the market channels SFAs use to procure local foods influence whether SFAs reported that school meals declined from Farm to School programming	Cross-sectional	National Farm to School census data, 2013 & 2015	Exclusively purchasing local foods from intermediaries decreases the probability that SFAs reduce local school meal costs and purchasing local foods exclusively from farmers did not statistically significantly reduce school meal costs. Purchasing local food from both farmers *and* intermediaries increases the probability that SFAs reduce school meal costs from Farm to School programmes
Christensen LO, Jablonski BBR, O'Hara JK. 2019[25]	USA	Farm to School	To estimate the relationship between school districts' local food expenditure per student and supply chain structure	Cross-sectional	National Farm to School census data, 2015	A significant negative relationship exists between the school district's non-milk local food expenditure per student and purchases directly from the farm and from non-traditional suppliers. Schools that purchase local food from traditional distributors are likely to have higher on-average expenditures per student compared with schools that purchase local food directly from farmers or non-traditional distributors
Powell LJ, Wittman H. 2018[26]	Canada: British Columbia	Farm to School	To understand the development of the Farm to School movement in British Columbia, where there is no school feeding programme	Mixed-methods	Farm to School participants in BC, inclusive of focus groups (n = 23)	In British Columbia, for farm to school to function in a manner supportive of regional food production, structural policy changes are needed at the provincial and/or national level. The lack of a comprehensive and universal provincial or national government-sponsored school lunch programme means that the way food is handled in schools in BC is diverse and inconsistent

TABLE 2 (Continued)

Author, year	Location	Name of programme	Study aim	Design	Participants/data source	Key findings
Kropp JD, Abarca-Orozco SJ, Israel GD, et al. 2018[27]	USA: Florida	Farm to School	To investigate the impacts of the Farm to School programme on selection and consumption of fruit and vegetables	Pre-post intervention	Six schools in Florida: three control & three intervention. A total of 11,262 meal observations across both	Students at the treatment schools (receiving locally procured foods in cafeteria meals) were found to consume an average of 37% more servings of vegetables between pre- and post-intervention and 11% more fruit post-intervention
Botkins ER, Roe BE. 2018[28]	USA	Farm to School	To analyse factors associated with Farm to School participation, the types of activities implemented and the challenges faced by participating schools	Cross-sectional	National Farm to School census data, 2013	Areas with more interest in local foods and with dedicated local food distribution infrastructure are more likely to participate in Farm to School programmes. The supply of local food with direct-to-retail sales is associated with the likelihood of Farm to School participation
Boling P, Blackburn E, Paine J, Smith R. 2018[29]	USA: Indiana	Farm to School	To identify the influences on district food service directors' decisions on where to purchase vegetables and fruit	Cross-sectional	Food service directors in the state of Indiana (n = 10)	All but two of the informants relied exclusively on regional or national distributors. Reasons for this included ensuring orders arrived on time and without shortfalls. Some food service directors (FSDs) worried about not having adequate kitchen help to clean and process raw produce, FSDs at larger districts were concerned that no one farmer could supply all their needs, noting there were no hubs or co-ops to consolidate suppliers of local produce
Thompson JJ, Brawner AJ, Kaila U. 2017[30]	USA: Georgia	Farm to School	To identify how operators of child nutrition programmes perceive food safety in the context of Farm to School; particularly in the procurement of local food, and at what consequence?	Ethnographic study	Child nutrition programme operators across the state of Georgia (n = 17)	There are perceptions of local produce as being riskier than industrial-scale food and the responsibility for farm safety appears to sit with the Farm to School programme officer. These individuals rarely have the training or expertise to effectively audit or assess farm practices
Feenstra G, Capps S, Levings KL. 2017[31]	USA: Yolo County, California	Farm to School	To build capacity of local growers in and around Yolo county to sell more products directly to school food service buyers	Research brief: mixed-methods study	School districts in Yolo Country (n = 5)	Schools in Yolo county purchased many of the same crops; most of which could be purchased locally. If local growers are interested in exploring sales with schools, these popular produce items could be the focus of future planning. Observational evidence suggests that supportive leadership, adequate funding, willing and enthusiastic food service staff and growers and marketing to children and families all need to be in place for successful local procurement to take place

(Continues)

TABLE 2 (Continued)

Author, year	Location	Name of programme	Study aim	Design	Participants/data source	Key findings
Lyson HC. 2016[32]	USA	Farm to School	A quantitative exploration of both federal legislation and state-level determinants on farm to school rates across the USA	Policy analysis	All federal- and state-level legislation on Farm to School programmes	Both internal and external determinants have an impact at the state level on farm to school rates. Regional effects and mean income per capita are key factors influencing farm to school rates. Although not statistically significant, state-level farm to school legislation and accessibility to food hubs also have a positive effect on farm to school rates
Yoder ABB, Foecke LL, Schoeller DA. 2015[33]	USA: Wisconsin	Farm to School	To examine characteristics potentially associated with school lunch fruit and vegetable waste, both overall and pre/post implementation of the Healthy, Hunger-Free Kids Act	Cross-sectional	11 schools across the state of Wisconsin	Where identified, locally-sourced items were wasted more than conventionally sourced items. Increasing prior Farm to School years decreased waste
Jones SJ, Childers C, Weaver AT, Ball J. 2015[34]	USA: South Carolina	Farm to School	To examine the impact of the first year of the Farm to School programme on children's consumption of fresh produce and the effects of the programme on families' food choices	Quasi-experimental	30 schools across the state of South Carolina	Students in schools participating in Farm to School consumed a (statistically insignificant) greater amount of vegetables than students in control schools. Children in schools participating in Farm to School were significantly more likely to taste a vegetable but ate significantly less fruit (accounted for when controlling for the provision of snacks during lunch)
Thompson OM, Twomey MP, Hemphill MA, et al. 2014[35]	USA: South Carolina	Farm to School	To examine the benefits and barriers of farm to school participation among small- or limited-resource farmers and to discuss food policy factors that contribute to the scalability of farm to school programmes in SC and nationwide	Cross-sectional	Small farms in the state of South Carolina (n = 18)	Appropriate state- and local-level agriculture infrastructure supports (e.g. food safety and good agriculture practice training, market-ready workshops, accessible value-add processing centres and contract-grow procurement options) should be put in place to support small- and limited-resource farmers to enter 'school markets'
Bateman J, Engel T, Meinen A. 2014[36]	USA: Wisconsin	Farm to School	To explore producer and distributor perceived opportunities and challenges when participating in Farm to School programmes	Cross-sectional	Food producers (n = 10) and distributors (n = 5) in the state of Wisconsin	Drivers for local food procurement as part of the Farm to School programme included motivation to improve the environment (from reduced transportation-related emission and possibly through organic food if it was available) and the opportunity to contribute to a healthy local economy. Barriers included a lack of kitchen facilities in schools for processing and preparing fresh food, seasonality, planning ahead to provide for the school, government involvement and meeting demand

TABLE 2 (Continued)

Author, year	Location	Name of programme	Study aim	Design	Participants/data source	Key findings
Pinard CA, Smith TM, Carpenter LR, Chapman M, Balluff M, Yaroch AL. 2013[37]	USA: Nebraska	Farm to School	To assess the feasibility of, interest in and barriers to implementing Farm to School activities in Douglas County, Nebraska	Pre-post intervention	Food service directors (n = 7), local producers (n = 41 preassessment, 48 postassessment) in Douglas County, Nebraska	Food safety and distribution were primary concerns among food service directors. Food service directors reported they were willing to pay higher prices for local foods. Better infrastructure is needed to support sourcing from local producers
Izumi BT, Wynne Wright D, Hamm MW. 2010[38]	USA	Farm to School	To explore the motivations of farmers who participate in Farm to School programmes	Case study	Farmers (n = 7) recruited from seven Farm to School programmes	Farmers sold their products to schools for two primary reasons: to diversify their marketing strategies and to contribute to social benefits through direct action. School food service sales made up a very small percentage of total farm income, but farmers interviewed had no intention in discontinuing participation, as this was another avenue for farmers to diversify their incomes and an alternative market for surplus products, out-size or second-class products. Farmers felt that by introducing children to a wider range of fruits and vegetables, they could help to cultivate children's taste for nutritious foods and promote life-long healthy eating habits
Izumi BT, Alaimo K, Hamm MW. 2010[39]	USA	Farm to School	To explore the potential of farm to school programmes to both improve children's diets and provide farmers with viable market opportunities	Case study	School foodservice professionals (n = 7), farmers (n = 7) and food distributors (n = 4) recruited from seven Farm to School programmes	School food service professionals described three key motivators for buying local food: students like it, the price point and helping out local farmers. Students' preference for locally grown food was related to food quality, influence of school staff and relationships with farmers. Buying food directly from farmers and wholesalers was associated with lower prices and flexible specifications and the 'local feel'
Braun CL, Rombach M, Häring AM, Bitsch V. 2018[41]	Germany: Berlin-Brandenburg region	N/A	To investigate how the current procurement policy supports the local food sector, using vegetable value chains as an example	Case study	School caterers, wholesalers and organic vegetable farmers in the Berlin-Brandenburg region (n = 14)	Key factors influencing the use of local organic food (over organic food procured from other regions) included availability from the caterers' regular suppliers, price, quality and availability of pre-processed food (such as peeled and sliced potatoes). Reliability of delivery and flexibility from suppliers (including provision of last-minute deliveries) take priority over sourcing of local produce. Supply from local farmers was perceived to require more coordination

(Continues)

TABLE 2 (Continued)

Author, year	Location	Name of programme	Study aim	Design	Participants/data source	Key findings
Motta V, Sharma A. 2016[42]	USA: Pennsylvania	N/A	To examine the main benefits and transaction costs perceived by school food service directors in a northeastern state when purchasing local foods	Cross-sectional	Foodservice directors in the state of Pennsylvania (n = 11)	All food service directors identified benefits of purchasing local foods (including contributing to the local economy). All perceived that local food choices have health benefits and improved taste. There were three main criteria identified in relation to the transaction costs of purchasing foods locally: food cost, food safety and availability
Smith S, Wleklinski D, Roth SL, Tragoudas U. 2013[43]	USA: Illinois	N/A	To gain understanding of food service employees' perceptions of the benefits and obstacles and their attitudes to purchasing and serving local foods in their schools	Cross-sectional	Foodservice employees (n = 152) from a total of 60 schools in the state of Illinois	Purchasers from large- and medium-sized schools perceived 'ability to know product sources' as a greater benefit to procuring local food and perceived 'cost of food', 'adequate volume', 'reliable supply of food quantity', 'payment arrangement' and 'packing material' as greater obstacles compared with small schools

health and food literacy, preserving the environment, stimulating local economies[40] and building a sense of community.[30,34]

3.4 | Benefits (perceived or demonstrated) of local food procurement

Foodservice staff perceived benefits of purchasing locally grown items to include contributing to the local economy, providing fresher, tastier, more nutritious foods and achieving good public relations for their school.[36,38,41,42]

Kropp et al. reported a small positive impact of local food procurement on fruit and vegetable consumption.[27] Intake of vegetables increased by approximately 37 per cent and intake of fruit by approximately 11 per cent on average following implementation of local food sourcing for lunch programmes. The reason for this increase was not investigated.[27] Jones et al. similarly reported an increase in fruit and vegetable consumption in schools that procured food locally, along with reports from parents that children were more willing to try new foods at home.[34] Izumi et al. reported an anecdotal increase in fruit and vegetable consumption when local produce was served at lunch with the observed reasoning that children preferred it.[38]

Producers perceived a number of benefits of selling direct to local schools, including educating children about food systems, increasing access to nutritious, locally grown foods, diversifying revenue streams, building community relationships, protecting the environment and having a place to sell their 'seconds'.[17,35,37,38] Distributors viewed local food procurement as an opportunity to create jobs within their local economy and to stimulate development.[17] Distributors also appreciated the reduced transportation costs.[17]

3.5 | Enablers of local food procurement

Increase in local agricultural production, local food distribution infrastructure and local direct-to-consumer sales increase the probability that a school will purchase food locally.[22,28] USA Farm to School census data indicated that the number of students had a positive impact on local food expenditures by schools; however, the reason for this was unclear.[22]

Distributors have been observed to be more likely to supply local food when they perceive a demand for it and consider this to give them an edge over their competitors.[17] Distributors willing to be flexible and adapt to customers' needs contribute positively to the success of local food procurement.[17]

3.6 | Barriers to local food procurement for school food service

Food safety concerns were identified by foodservice staff as one of the main barriers to sourcing food locally.[17,26,29,41] Small-scale farmers in the USA identified government safety regulations would be a barrier to selling to schools.[35] Foodservice or school staff had concerns around reliability

of local procurement, particularly the perception that availability of food would be inconsistent; required quantities could not be met or that quality would be suboptimal.[26,29,40–42] Consistent with this concern, farmers identified that guaranteeing a specific quantity of a product on a specific date was a challenge.[35] Relationship building between buyers and growers was often challenging,[31] yet building good relationships between producers and foodservice staff was critical to smooth operations.[17] Instances of excellent producer–foodservice staff relationships have been documented, but it was also acknowledged that the workload in coordinating provision of local food was difficult to sustain.[37,38] Logistically, procuring food locally was generally perceived as time-consuming.[26,37,41] Sourcing food from large-scale distributors could save on time and energy, but the produce origin was often unclear, even if local food was available.[26,31] In some areas, there were no hubs or co-ops to consolidate local suppliers, meaning more coordination was required when one farmer could not meet all supply needs.[29] A cooperative distribution model can ensure consistent product and supply.[17]

Braun et al. identified a lack of incentive for the use of locally procured organic food in Germany's procurement guidelines as a barrier, a factor compounded by an often-limited budget for sourcing food.[40] Budget constraints and/or increased cost of local food were commonly identified barriers to sourcing foods locally.[23,28,40–42] In some instances, this resulted in schools serving nutritionally inferior food items to maximise revenue.[23] Higher expense of locally procured food included higher delivery fees from local farmers.[41] Producers felt they were unlikely to see increased income due to foodservice staff operating under tight budgets,[17] which is ultimately a barrier to them playing key roles in school food.[37] Many schools have inadequate facilities or space to store fresh food, or resources to train staff to prepare meals from scratch.[17,26,29,38,42] Locally procured food is generally not available in a pre-purchased or 'lightly processed' form (e.g. pre-peeled and chopped potatoes), which may incentivise instead the purchase of non-local alternatives.[38,40] Where lightly processed local produce is available, it tends to be more expensive,[38] so was generally not considered a suitable alternative to raw, unprocessed produce.

3.7 | Economic impacts of local food procurement

It is understood that schools purchasing local foods may benefit the local economy, but this is hard to measure.[26] On average in the USA, school districts incurred negative foodservice profits when foodservice expenditures (food costs, staffing, equipment) were taken into account.[23] One study used Farm to School census data to demonstrate a statistically significant negative impact between local milk expenditures and food service revenue, indicating sourcing milk locally financially disadvantaged schools. There was a negative impact between local non-milk expenditures and foodservice revenue, but this was statistically insignificant.[23] The same study found a positive impact between local milk and local non-milk expenditures and the foodservice revenue received from the federal government, but only the non-milk expenditure was significant.[23] This trend indicates the importance of government investment in ensuring local food procurement is viable.

4 | DISCUSSION

This literature review aimed to explore what is known about local food procurement policies and practices in primary and secondary school food service. Articles included in this review demonstrate increasing interest in local food procurement for food service in schools over the last 20 years. Five definitions of 'local food' were identified in the results.[22,28,38,40,41] In most cases, key considerations in definitions created by individuals, schools or regions are geographical distances and personal relationships found between various stages of the supply chain.[43] A challenge lies in creating a uniform or universal definition. While a definition would provide a standard or a goal to strive for, there are issues of equity in assuming all schools or school districts will have quality, affordable produce available within close proximity.[28] An alternative may be a series of local food procurement models that could be adopted dependent on the geographic location and other factors. Further research into the merits of developing a series of Australian procurement models may be warranted.

Students participating in school breakfast and lunch programmes in the USA have been found to consume more than half of their daily energy intake in the school environment.[23] While this model differs significantly to the Australian school canteen, there is merit in the provision of national universal school lunches, with benefits extending beyond the health of the individual. The most recent Farm to School census identified that operations reach 23 million students in the USA and result in purchases of nearly $800 million in local foods from farmers, a factor that has been projected to lead to over $1 billion in local economic activity.[23] Similar to Australia, Canada has a number of inconsistent school food-related policies and programmes without a national lunch service.[26] Despite the absence of national lunch service, regions are generally provided with funding to provide some level of food service to students. Powell & Wittman discuss this situation in British Columbia, where the provincial government provided $52 million to feed children in schools and an additional $1.2 million to schools with higher numbers of vulnerable students. Despite this funding, they discuss the need for structural policy changes, namely the establishment of a universal provincial or national government-sponsored school lunch programme, in order to support regional food production and promote fruit and vegetable consumption in school-aged children.[26] Adopting a universal lunch programme would provide optimal opportunity to increase local food procurement in schools, but even in the absence of this, Canada indicates there is potential to invest more funding into school food. Canada's challenges indicate that when more money is invested in school food, there is likely value in developing accompanying policy to ensure local producers are favoured.

Exciting work is underway in New Zealand's two-year pilot of the Free and Healthy School Lunches programme.[44] While schools engaged in this pilot were allowed to choose from a range of suppliers (there do not appear to have been local procurement standards implemented), results indicate there are challenges in implementing local food procurement practices in the absence of universal school lunches. The findings of the Free and Healthy School Lunches pilot

evaluation, anticipated in late 2021, will provide insights regarding the feasibility of universal school meals as a means to promoting local food procurement in Australia. Discussion around local food procurement seems intertwined with school lunch programmes to the degree that it is not possible to discuss one without the other. To consider how schools in Australia can be supported to sustainably procure food from local producers, we must first consider how this can become feasible without a lunch service, or whether the establishment of a lunch service has merit not just in feeding children but in supporting the local economy. It would be apt to consider, should government funding be provided for a national school lunch programme in Australia, if conditions should be placed on expenditure to ensure benefit to the local economy. An example of this is the Brazilian National School Food Programme, where the government stipulates that at least 30 per cent of funding provided must be used to purchase food from small-scale, local 'family farms'.[45] Regardless of the funding model in place, adequate funding is crucial to successfully establish universal school lunches or local food procurement in the traditional school canteen setting.

Many barriers, enablers and economic impacts of procuring local food for school food service have been identified within the reviewed articles and provide key implications for future development of programmes and policies within an Australian context. Perhaps the most common enabler or motivation for participating in local food procurement is a sense of social responsibility. Local food procurement is generally undertaken with the perception that it serves individual and societal level benefits, but there are barriers to overcome to achieve this benefit. There are issues faced at the economic, human resource or risk-management level that may deter individuals in school environments from undertaking local food procurement in the first place. Addressing these barriers is essential in ensuring local food procurement is not just undertaken by schools, but that it becomes a sustainable and mutually beneficial practice. Interviews with foodservice directors found that most viewed local produce as being less dependable, more work and more problematic than the same produce purchased through large distributors.[30] Foodservice staff generally perceived locally procured food as more expensive, more resource-intensive to store and prepare due to a lack of any level of processing (such as washing, peeling or cutting) prior to it reaching the school; and that there was increased risk in regards to food safety and quality.[17,26,29,40–42] The greater time commitment required to coordinate the provision of food to a school or school district is logical, as a single farm would generally not be able to meet all supply needs of the school. This demonstrates the key role that co-operatives play within local communities, as they can consolidate produce to supply to schools and other businesses; bearing in mind that one study indicated that purchasing exclusively from a local distributor or co-operative was unlikely to reduce the cost per meal.[24] More widespread and targeted education on when locally grown crops are in season and cheapest, including ideas on how they can be incorporated into menus would be beneficial in Australia.[31]

Government funding and in-kind support is important in ensuring school-based local food procurement programmes can become and remain financially viable, and in many instances so that they can be established in the first place.[17,23–26,28,31–34,37,42] Farm to School census data demonstrated that while there is a negative impact between local produce expenditures and food service profit, this is countered by a positive impact between local produce expenditures and revenue received from the government.[23] A common barrier to implementing sustainable local food procurement practices was budget constraints, with increased cost or lack of available funds mentioned in five articles included in this review.[23,28,40–42] Funding to support local food procurement may permit schools to afford local food without requesting discounts that drastically decrease revenue for local producers.[17,37] Adequate funding or in-kind support would likely allow for adequate equipment and facilities for food preparation, along with further education to promote a skilled workforce.[17,26,29,38,42]

4.1 | Limitations

The variable application of the term 'local food procurement' creates challenges when conducting research in this field, but may not strictly be considered a limitation of the research. Five definitions were identified in the results of this review. The variable conception of this term formed part of the rationale towards undertaking a broad, scoping literature review, but also caused difficulty in creation and refinement of search terms and likely resulted in relevant research being missed.

The decision to limit inclusion criteria to high-income countries was to ensure a high degree of relevance to the Australian school setting, but it would be remiss to not acknowledge the breadth of research that has been undertaken in regards to the local procurement of food for the Brazilian National School Food Programme.[46] Lessons gained from programmes implemented in low to middle-income countries could also have relevance in the Australian context and future research that includes literature from low to middle-income countries could be beneficial.

While a key aim of this review was to explore local food procurement policy, the identified literature contained limited information relating specifically to policy. More focused exploration of local food procurement policy is required.

5 | CONCLUSION

Local food procurement in schools is a concept that commonly refers to a close geographical distance and/or personal relationship found between the various stages of the food supply chain. A sense of social responsibility generally drives local food procurement, and the longevity and scope of the Farm to School programme in the USA indicates unquestionable benefit. There are, however, issues faced at the economic, human resource or risk-management level that may deter individuals in school environments from undertaking local food procurement. Addressing these barriers is essential in ensuring that local food procurement is not just undertaken by schools, but that it becomes a sustainable and mutually beneficial practice. Government funding and in-kind support is important in ensuring school-based

local food procurement programmes can become and remain financially viable, and in many instances so they can be established in the first place.

6 | IMPLICATIONS FOR RESEARCH

There appears to be a lack of interventional studies in this space. These would provide an opportunity to examine the impact of local food procurement on a range of outcomes. A theme in the literature is the absence of a uniform definition of local food procurement, with five definitions identified in this literature review.[22,28,38,40,41] A systematic review undertaken with the intention of proposing a global definition and/or a series of models of what it means to procure food locally would have value in policy setting, funding and improving research focus for these programmes into the future. Issues of equity require careful consideration as not all schools or school districts have access to quality, affordable produce within close proximity. Investigating feasibility of a national school lunch service would be beneficial. The literature indicates that school lunch service and local food procurement are intertwined to the degree that it is not possible to discuss one without the other. These programmes may have merit not just in feeding children but also in supporting the local economy, but require further research.

7 | IMPLICATIONS FOR PRACTICE

An intention of this review was to gain broad lessons that can be applied to the Australian context. The literature has indicated that sustainable local food procurement is most successful when there is a universal lunch programme and adequate funding. Funding allows for not just the provision of food, but a skilled workforce and access to well-equipped facilities. Barriers to local food procurement occur at the economic, human resource and risk-management level. Awareness of these barriers and enablers may help in the successful implementation of local food procurement programmes and policies in Australia.

It is not within the scope of this review to provide specific recommendations for changes to practice. A systematic review is warranted to provide substantive recommendations as to a course of action relative to local food procurement in Australian schools.

ACKNOWLEDGEMENTS

Open access publishing facilitated by James Cook University, as part of the Wiley - James Cook University agreement via the Council of Australian University Librarians.

FUNDING INFORMATION

This study has been undertaken as Masters coursework and has not received funding.

CONFLICT OF INTEREST

No conflict of interest is declared.

ORCID

Claire Galloway https://orcid.org/0000-0002-0949-8998
Sue Devine https://orcid.org/0000-0001-6687-6003
Julie Parison https://orcid.org/0000-0002-3534-7675
Holley-Anne Jones https://orcid.org/0000-0003-3835-5950

REFERENCES

1. Godrich S, Kent K, Murray S, Auckland S, Lo J, Blekkenhorst L, et al. Australian consumer perceptions of regionally grown fruits and vegetables: importance, enablers and barriers. Int J Environ Res Public Health. 2019;17:63.
2. Malak-Rawlikowska A, Majewski E, Was A, Borgen SO, Csillag P, Donati M, et al. Measuring the economic, environmental and social sustainability of short food supply chains. Sustainability. 2019;11:4004.
3. Buck M. A guide to developing a sustainable food purchasing policy. Oregon: Food Alliance; 2007.
4. Nichols Applied Management Inc. The economic impact of local food procurement by institutions. Alberta: Nichols Applied Management Inc; 2017.
5. United Nations. Sustainable Development Goal 2: United Nations [cited 2020 Mar 1]. Available from: https://sustainabledevelopment.un.org/sdg2
6. Hawkes C, Walton S, Haddad L, Fanzo J. 42 policies and actions to orient food systems towards healthier diets for all. London: Centre for Food Policy, University of London; 2020.
7. Thatcher J, Sharp L. Measuring the local economic impact of National Health Service procurement in the UK: an evaluation of the Cornwall food Programme and LM3. Local Environ. 2008;13(3):253–70.
8. Ross N, Anderson M, Goldberg J, Rogers B. Increasing purchases of locally grown produce through worksite sales: an ecological model. J Nutr Educ. 2000;32(6):304–13.
9. National Farm to School Network. About Farm to School. USA: National Farm to School Network; 2020 [cited 2020 Feb 8]. Available from: http://www.farmtoschool.org/about/what-is-farm-to-school
10. Finch M, Sutherland R, Harrison M, Collins C. Canteen purchasing practices of year 1-6 primary school children and association with SES and weight status. Aust New Zealand J Public Health. 2007;30(3):247–51.
11. Queensland Government. Smart choices: healthy food and drink supply strategy for Queensland schools. Queensland: Queensland Government; 2020.
12. Department of Health. Guidelines for healthy food and drinks supplied in school canteens. Canberra: Commonwealth of Australia; 2014.
13. Healthy Kids Association. New South Wales healthy school canteen strategy. New South Wales: Healthy Kids Association. [cited 2020 Mar 1]. Available from: https://healthy-kids.com.au/school-canteens/canteen-guidelines/nsw-healthy-school-canteen-strategy/
14. Northern Territory Department of Education. School nutrition and healthy eating. Northern Territory: Northern Territory Government; 2019 [cited 2020 Mar 1]. Available from: https://education.nt.gov.au/policies/health-of-students/school-nutrition-and-healthy-eating
15. Western Australia Department of Education. Healthy food and drink. Western Australia: Government of Western Australia; [cited 2020 Mar 1]. Available from: http://det.wa.edu.au/healthyfoodanddrink/detcms/portal/
16. Government of South Australia. Right bite: healthy food and drink supply strategy for South Australian schools and preschools. South Australia: Government of South Australia; 2008.
17. Bateman J, Engel T, Meinen A. Understanding Wisconsin producer and distributor perceptions to inform farm to school programs and policies. J Hunger Environ Nutr. 2014;9(1):48–63.

18. Australian Institute of Health and Welfare. Australia's health 2018. Canberra: AIHW; 2018.
19. Department of Education Victoria. Canteens, healthy eating and other food services. Melbourne: Victorian Government; 2021 [cited 2022 Mar 13]. Available from: https://www.education.vic.gov.au/pal/canteens-and-healthy-eating/policy
20. The Joanna Briggs Institute. Joanna Briggs Institute Reviewers' Manual: 2015 edition/Supplement. South Australia: The Joanna Briggs Institute; 2015.
21. Munn Z, Peters MDJ, Stern C, Catalin T, McArthur A, Aromataris E. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC Med Res Methodol. 2018;18(143):143.
22. O'Hara JK, Benson MC. The impact of local agricultural production on farm to school expenditures. Renew Agric Food Syst. 2019;34(3):216–25.
23. Motta V. The impact of local food expenditure on school foodservice revenues. J Sch Health. 2019;89(9):722–9.
24. Fitzsimmons J, O'Hara JK. Market Channel procurement strategy and school meal costs in farm-to-school programs. Agric Resour Econ Rev. 2019;48(3):388–413.
25. Christensen LO, Jablonski BBR, O'Hara JK. School districts and their local food supply chains. Renew Agric Food Syst. 2019;34(3):207–15.
26. Powell LJ, Wittman H. Farm to school in British Columbia: mobilizing food literacy for food sovereignty. Agric Hum Values. 2018;35(1):193–206.
27. Kropp JD, Abarca-Orozco SJ, Israel GD, Diehl DC, Galindo-Gonzalez S, Headrick LB, et al. A plate waste evaluation of the farm to school program. J Nutr Educ Behav. 2018;50(4):332–9.e1.
28. Botkins ER, Roe BE. Understanding participation in farm to school programs: results integrating school and supply-side factors. Food Policy. 2018;74:126–37.
29. Boling P, Blackburn E, Paine J, Smith R. Farm-to-School in Indiana: the local politics of feeding children. J Hunger Environ Nutr. 2018;13(3):385–95.
30. Thompson JJ, Brawner AJ, Kaila U. "You can't manage with your heart": risk and responsibility in farm to school food safety. Agric Hum Values. 2017;34(3):683–99.
31. Feenstra G, Capps S, Levings KL, James E, Laurie M, Maniti M, et al. Getting the farm to the school: increasing direct, local procurement in Yolo County schools. Calif Agric. 2017;71(3):125–9.
32. Lyson HC. National policy and state dynamics: a state-level analysis of the factors influencing the prevalence of farm to school programs in the United States. Food Policy. 2016;63:23–35.
33. Yoder ABB, Foecke LL, Schoeller DA. Factors affecting fruit and vegetable school lunch waste in Wisconsin elementary schools participating in farm to school programmes. Public Health Nutr. 2015;18(15):2855–63.
34. Jones SJ, Childers C, Weaver AT, Ball J. SC farm-to-school programs encourages children to consume vegetables. J Hunger Environ Nutr. 2015;10(4):511–25.
35. Thompson OM, Twomey MP, Hemphill MA, Keene K, Seibert N, Harrison DJ, et al. Farm to school program participation: an emerging market for small or limited-resource farmers? J Hunger Environ Nutr. 2014;9(1):33–47.
36. Pinard CA, Smith TM, Carpenter LR, Chapman M, Balluff M, Yaroch AL. Stakeholders' interest in and challenges to implementing farm-to-school programs, Douglas County, Nebraska, 2010-2011. Prev Chronic Dis. 2013;10:E210.
37. Izumi BT, Wynne Wright D, Hamm MW. Market diversification and social benefits: motivations of farmers participating in farm to school programs. J Rural Stud. 2010;26(4):374–82.
38. Izumi BT, Alaimo K, Hamm MW. Farm-to-school programs: perspectives of school food service professionals. J Nutr Educ Behav. 2010;42(2):83–91.
39. USDA. About the Census. Washington, DC: United States Department of Agriculture; [cited 2020 Aug 18]. Available from: https://farmtoschoolcensus.fns.usda.gov/about
40. Braun CL, Rombach M, Häring AM, Bitsch V. A local gap in sustainable food procurement: organic vegetables in Berlin's school meals. Sustainability. 2018;10(11):4245.
41. Motta V, Sharma A. Benefits and transaction costs of purchasing local foods in school districts. Int J Hosp Manage. 2016;55:81–7.
42. Smith S, Wleklinski D, Roth SL, Tragoudas U. Does school size affect interest for purchasing local foods in the Midwest? Child. 2013;9(2):150–6.
43. Lehtinen U. Sustainability and local food procurement: a case study of Finnish public catering. Br Food J. 2012;114(8):1053–71.
44. Ministry of Education. Free and Healthy School Lunches. New Zealand: New Zealand Government; 2020 [cited 2020 May 28]. Available from: https://www.education.govt.nz/our-work/overall-strategies-and-policies/wellbeing-in-education/free-and-healthy-school-lunches/-:~:text=Free%20and%20healthy%20school%20lunches,by%20the%20beginning%20of%202021
45. Rockett FC, Corrêa RDS, Pires GC, Machado LS, Hoerlle FS, De Souza CPM, et al. Family farming and school meals in Rio Grande do Sul, Brazil. Cienc Rural. 2019;49(2).
46. Machado PMO, Schmitz BAS, Gonzalez-Chica DA, Corso ACT, Vasconcelos FAG, Gabriel CG. Purchase of products directly from family farms for the National School Feeding Program (PNAE): cross-sectional study with the universe of Brazilian municipalities. Cienc. 2018;23(12):4153–64.

How to cite this article: Galloway C, Devine S, Parison J, Jones H-A. Procurement from local producers for food service in primary and secondary school settings: A scoping review. Health Promot J Austral. 2022. https://doi.org/10.1002/hpja.618