G AUSTRALIAN DIETARY GUIDELINES THROUGH AN ENVIRONMENTAL LENS

G1 Background

The concept of sustainable dietary patterns is not new but it is a complex issue and there are many gaps in our understanding of what this may include within the Australian context. The 2003 edition of the dietary guidelines recognised an emerging interest in the environmental impact of our food choices. The evidence concerning the bi-directional relationship between food systems and environmental degradation has increased since then. Public consultation for the preparation of these Guidelines confirmed that many individuals and organisations are seeking information on the consequences of food choices on the environment to help inform people’s decisions on what to eat, and to assist professionals providing dietary advice.

In Australia, the Prime Minister’s Science, Engineering and Innovation Council’s 2010 report into food security has emphasised the need to balance the imperative of feeding a growing population and also maintaining environmental integrity. Environmental factors include inputs to the food system such as production, processing, distribution, preparation, consumption and waste, and outputs such as greenhouse gases, waste water, and packaging and food waste (see Figure G1). The environmental impact of food production depends on the particular environmental outcome examined and each can have a significant environmental impact, which can also alter the Australian food system, with implications for yield, quality and affordability.

Historically, dietary guidelines have been based on experimental evidence from nutritional science and epidemiology. The environmental implications of food choices involve new, often narrative evidence that is drawn from research in the areas of environmental, agricultural and economics. In some areas, measurement of the environmental impact of production and processing methods in the food industry is rudimentary, but food producers are working to provide quantitative estimates of the overall environmental impacts of some products, both individually and in aggregate.
G2 The nature and challenges of the evidence base

Assessing the relationship between the food system and its impact on the environment requires evidence from agricultural, environmental and economic disciplines, as well as research from primary and other industry bodies. Government reports are also useful, especially in areas with policy implications such as carbon accounting.

The complexity of the food system has challenged the development of standardised methodologies that are suitable to measure the environmental impacts involved in producing particular foods. Two methodologies — life cycle analysis (LCA) and input-output analysis — are increasingly used to critically analyse the environmental impacts of various processes in the food supply chain.

Total LCA considers the environmental impacts of all inputs to bring a product to the consumer, including the way it is used and the impact of disposing of packaging and waste. Some current analyses do not consider the process through to the consumer and disposal of waste. LCA methodologies are progressing, although a standardised approach to assessing the quality of studies is yet to be developed.

Input-output analysis was originally developed for economic analysis, but has been applied to environmental analysis since the late 1960s. It can be used to assess environmental indicators such as land disturbance, water and energy use, and total indicator intensities (the total amount of an indicator required to produce and deliver a value unit of a particular commodity).1044

Different methodological approaches limit the comparability of some findings. For example, variations in scope exist, according to the stages of the food system being considered. Some studies incorporate the environmental impact of manufacturing on-farm machinery and the production of all other on-farm inputs such as fertiliser, while others include only fertiliser production.

Much of the environmental impact evidence for foods is based on primary production and on-farm impacts, with less available information for aspects of the food supply chain such as processing, distribution, retail, consumption and disposal of waste. Therefore, the environmental impact of the life cycle of particular foods cannot be considered as only a characteristic of the food, but all the particular and local aspects of its...
production, movement, storage, preparation and ultimate fate. Environmental labelling of food products is growing overseas and labelling systems to enable shoppers to make an informed choice are being developed in Australia.

Whilst overseas studies are not always comparable to the Australian context, the body of Australian evidence is steadily growing, and the interest in this field may also serve to stimulate more research. Despite the above challenges, enough evidence exists to begin developing informed, pragmatic and guiding principles to reduce the environmental impact of the food system. These practical considerations can be easily aligned with the Australian Dietary Guidelines. Sources are provided for those wishing to consult the underlying evidence.

### G3 The Guidelines through an environmental lens

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<th>Guideline</th>
<th>Practical considerations and environmental benefits</th>
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| **Guideline 1** | To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.  
- Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly.  
- Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight.  

Avoid overconsumption of food and drinks, as this involves greater use of natural resources and puts more pressure on the environment, including disposal of waste food and packaging. |

| Guideline 2 | Enjoy a wide variety of nutritious foods from these five groups every day:  
- Plenty of vegetables, including different types and colours, and legumes/beans  
- Fruit  
- Grain(cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley  
- Lean meat and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans  
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under the age of 2 years).  

Within food groups, choosing a variety of nutritious foods may minimise environmental impact and promote biodiversity in food production. Choose a variety of seasonal and local fresh fruit and vegetables to reduce environmental impact. Fruit and vegetables do not need to be perfectly shaped nor unmarked to provide nutritional value.  

Varying the types of grain foods you eat may reduce their overall environmental impact.  

Choose protein sources that have a lower environmental impact, such as pork, poultry, eggs, tofu, tempeh, nuts and seeds, and legumes/beans. Choose fish and other seafood from stable stocks.  

Consuming quantities in line with the Australian Dietary Guideline for this food group, and consuming a mixture of milk, cheese and yoghurts, rather than rely on any one food, will help minimise the environmental burden associated with consumption of foods from this group.  

And drink plenty of water  

Drink tap water rather than bottled water to decrease production and disposal of plastic bottles. |

| Guideline 3 | Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.  
- Limit intake of foods containing saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips and crisps and other savoury snacks.  
- Replace high fat foods which contain  

Avoiding foods produced with high levels of added sugar, salt or fats such as packaged snacks, confectionery and many sugar-sweetened drinks can benefit health and reduce the environmental impacts associated with their production. |
predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado.

- Low fat diets are not suitable for children under the age of 2 years.

b. Limit intake of foods and drinks containing added salt.
   - Read food labels to choose lower sodium options among similar foods.
   - Do not add salt to foods in cooking or at the table.

c. Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.

d. If you choose to drink alcohol, limit intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.

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### Guideline 4

**Encourage, support and promote breastfeeding**

Breastfeeding does not put any demands on environmental resources.

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### Guideline 5

**Care for your food; prepare and store it safely**

Appropriate storage of food helps avoid food and packaging waste.

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### G4 Practical tips

1. **Buy and consume foods and drinks that are consistent with the Australian Dietary Guidelines**

   Eating a diet that follows the Australian Dietary Guidelines is sensible from both a health and environmental perspective.

2. **Consider what you buy: avoid overbuying and overconsumption of food**

   This minimises unnecessary use and degradation of natural resources and avoids disposal of excessive waste.

3. **Minimise wastage**

   Buy only what you need, check use by dates regularly.

4. **Consider how you buy, store, prepare and dispose of food**

   Minimise impact by reducing shopping trips by car, only refrigerating those foods which require refrigeration, eating raw food when appropriate, incorporating left-over food into subsequent meals and introducing home composting for disposal of food waste.

5. **Consider the packaging of food**

   Packaging can protect and preserve food and help minimise food waste, but excessive packaging can have a detrimental environmental impact, particularly when production involves high input of resources and the packaging is not disposed of appropriately. Look for recycling symbols on packaging labels and use environmentally beneficial waste disposal schemes, such as kerbside recycling.
G5 Key references

Key references for this information are provided below by food groups, and a complete list of reference materials is provided at the end of the document.

Vegetables

Overall the limited evidence suggests that vegetable production creates a comparatively low environmental burden compared to other food groups, see reference 1045 regarding emissions. Water use is covered by references 1046-1053.

Fruit

Little Australian information is available on the environmental impact of fruit, with the available benchmarking studies focusing on water use, aiming to provide growers with best practice water use efficiency. Limited information is available for greenhouse gas emissions and none on impact on biodiversity. No specific evidence is available on environmental impacts over the life cycle of processed fruit products such as juices, canned or frozen fruits. Reference 1054 considers greenhouse gas emissions for the fruit and vegetable growing industry, land disturbance and water use. There is a small amount of evidence on water efficiency, see references 1046,1055,1056.

Grains foods

Environmental impacts of grain foods vary, depending particularly on irrigation. See references 1057,1058 regarding life cycle analyses, most focusing on the primary production process. Reference 1059 covers gas emissions. Water use is considered by references 1054,1057,1058. Biodiversity and rice is considered in reference 1060.

Lean meat, poultry and fish

Most evidence on the environmental impact associated with meat is based on the primary production stage, with several studies funded by Meat and Livestock Australia. In relation to gas emissions, see also references 1059,1061-1064. In relation to water use, studies of the impact of meat production and other protein alternatives on water use provide broad-ranging and inconclusive results such as 1054,1062,1063,1065. Biodiversity is considered in the reference 1066, covering meat, fish and also plant-based protein sources. Reference 1067 covers fish stocks.

Dairy foods

Most evidence focuses on the primary production stage 1066,1068-1070. Gas emissions are considered by references 1069,1071-1073. Water use is covered by references 1069,1074-1077 while 1066 discusses the overall impact.

Discretionary choices

By definition, discretionary foods are not necessary for a nutritionally balanced diet. The energy and water required to transform basic food ingredients into discretionary foods is therefore additional use of environmental resources to what is used in the primary production of the basic foods.

However limited studies are available, see references 1078-1086. With only limited information and diverse products, any interpretations and conclusions need to be considered with caution at this stage.