SECTION 3

# Greenhouse Gas Emissions, Biodiversity and Food Packaging





# Greenhouse gas emissions, biodiversity and food packaging

This section groups three of the environmental impacts of the guiding principles together – greenhouse gas emissions and biodiversity.

## Defining the principles

### Greenhouse gas emissions

About a third of global greenhouse gas emissions are linked to food.[20] Greenhouse gas emissions can be attributed to the types of foods (e.g. fruits and vegetables and plant foods produce the lowest greenhouse gas emissions), but also to the processing, food transport (food miles) and food waste practices.[21] Therefore, multiple principles discussed in the SFP module are related to reducing greenhouse gas emissions. For example, lowering highly processed, packaged products and reducing food waste can have significant impacts on reducing greenhouse gas emissions.[21]

> Many of the principles in this SFP module contribute to reducing greenhouse gas emissions. Rather than addressing greenhouse gas emissions as a separate principle, these strategies are embedded throughout the module.

### Biodiversity

The guiding principles refer to preserving biodiversity, which includes biodiversity of crops, livestock and aquatic resources, with consideration of choosing foods that are not derived from overfishing or overhunting.[3]

## Biodiversity in ECEC services

In the ECEC context, supporting biodiversity applies to meal planning, food procurement and food education.

**Reflective questions**

**Service leadership team**

- *How do we weigh environmental factors, such as food miles, packaging and biodiversity in purchasing decisions? When cost, convenience and environmental impact conflict, how do we decide what takes priority?*

# Strategies to support biodiversity

The following strategies, together with common challenges and potential solutions, are designed to support biodiversity in ECEC services.

Refer overpage for details on challenges/considerations and potential solutions.

## Menu planning

Focus on whole cuts of meat, poultry and fish in place of highly processed meats (e.g., sausages, nuggets, deli meats).

Where possible, plan diverse menus where fruits, vegetables, grains and legumes are rotated – this can support diverse farming systems.

When making slices or muffins, recipes can be adapted by adding chia seeds, sunflower seeds, Greek yoghurt, wheat germ, oatmeal, grated or mashed vegetables or fruits. This can add nutritional bulk and variety.

## Food procurement

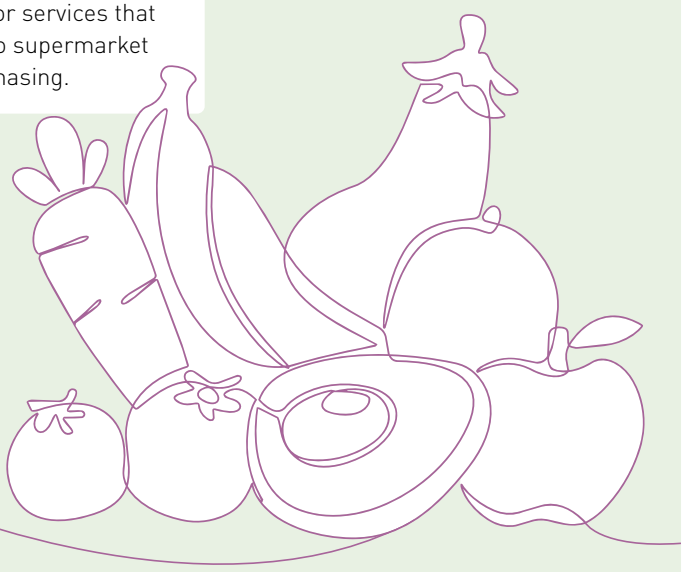
Focus on purchasing seasonal produce where available.

For fish, it is preferable to serve fish with a sustainability certification on the label such as the blue fish tick logo certified by the Marine Stewardship Council or the Aquaculture Stewardship Council (ASC) label for responsibly farmed seafood. In addition to a variety of suppliers, seafood with these labels are available in some supermarkets in Australia for services that are limited to supermarket purchasing.

## Food education

Garden projects and understanding different species of plant and animals can increase children's understanding of biodiversity.

Children's activities/experiences/learning activities can involve understanding where food comes from, gardening projects, stories and games about growing, seasons and caring for living things.



**EARLY YEARS LEARNING FRAMEWORK**
**Outcome 2, Outcome 3, Outcome 4**

**NATIONAL QUALITY STANDARD**
**QA1, QA3**

**When implementing these strategies services should ensure they continue to meet the relevant food safety, food allergy and regulatory requirements.**

*See Section 5, page 74*

**TABLE 5:** *Strategies to support biodiversity and reduce antibiotic use*[3,21,36-38]

| Strategies | Challenges/considerations | Potential solutions |
|---|---|---|
| **Meal planning** | | |
| Focus on whole cuts of meat, poultry and fish in place of highly processed meats (e.g., sausages, nuggets, deli meats). | Higher costs of whole cuts of meats and whole foods in certain circumstances. | Add legumes to good quality meat to reduce costs and reliance on animal products for protein – e.g. instead of using 2kg of mince for a bolognese sauce, substitute half of the meat with 4 cans of brown lentils, or 2 cups of dry lentils (washed and checked for debris). |
| | | Opt for more affordable cuts of good quality meat (for example chicken thigh over chicken breast or good quality meat cuts suitable for slow cooking) to save on costs. |
| Plan diverse menus where fruits, vegetables, grains and legumes are rotated – this can support diverse farming systems. | Skills and time required for preparing meals from scratch. | Meals containing whole foods instead of highly processed options can include easy to prepare recipes such as stews and soups. |
| | | Batch cooking and freezing foods (with food safety measures in place) can save on time – e.g. lasagna or other bakes. |
| | | Cook training in meal planning and preparation. |
| | | The MMQ module supports planning menus from a variety of food sources. *See Menu and Meal Quality, Section 5, page 50* |
| | ⚠ **For regional/remote services** Due to limited availability/access issues there may be less choice for planning diverse, varied menus, especially with regards to fresh produce. | Buy produce when it is in season and abundant, then preserve any excess by freezing or making preserves. |
| When making slices or muffins, recipes can be adapted by adding chia seeds, sunflower seeds, greek yoghurt, wheat germ, oatmeal, grated or mashed vegetables or fruits. This can add nutritional bulk and variety. | | |

| Strategies | Challenges/considerations | Potential solutions |
|---|---|---|
| **Food procurement** | | |
| Focus on purchasing seasonal produce where available. | Limited availability in regional/remote areas. | Maintaining a store of options for whole foods, like frozen or tinned fruits and vegetables, is a feasible strategy to diversify menus.<br>*See Section 5, page 68* |
| For fish, it is preferable to serve fish with a sustainability certification on the label such as the blue fish tick logo certified by the Marine Stewardship Council or the Aquaculture Stewardship Council (ASC) label for responsibly farmed seafood. In addition to a variety of suppliers, seafood with these labels is available in some supermarkets in Australia for services that are limited to supermarket purchasing. | Availability – these products may not be available in all areas. | |
| | Existing food procurement contracts, for example only purchasing from one supermarket may limit the types of products that can be purchased. | Some products in major supermarkets can be sustainably sourced. |
| **Food education** | | |
| Garden projects and understanding different species of plant and animals can increase children's understanding of biodiversity. | Limited space for a garden. | *See Section 6, page 78*<br>*See Case study, page 106 of Food Education* |
| | Consider risks when planning gardening projects. | *See Section 6, page 84* |
| Children's activities/experiences/ learning activities can involve understanding where food comes from, gardening projects, stories and games about growing, seasons and caring for living things. | | *See Food Education, Section 3, page 63* |

# Food packaging – minimising plastics

## Defining the principle

Minimising the use of plastics and derivatives in food packaging is an important principle, as these can place higher demands on natural resources.[3,23]

## Principle and ECEC services

In ECEC, minimising plastic food packaging relates to food purchasing strategies and can be embedded into Food Education or centre policy and procedures or quality improvement plan. Choosing food without packaging or biodegradable/recyclable packaging can reduce plastic waste entering landfill and, in some cases, may also be cheaper.

## Strategies to reduce plastic packaging

The following strategies, together with common considerations, challenges and potential solutions, are designed to support your service with choosing food with minimal or no plastic packaging.

Refer overpage for details on challenges/considerations and potential solutions.

### Food procurement

- Where possible, purchase food in bulk to reduce packaging – this can also reduce food costs.
- Request minimal packaging when ordering online from a supermarket.
- Where possible, opt for wholesale produce packaged in boxes.
- Purchasing meat from a butcher can reduce food packaging.
- When purchasing from supermarkets, opt out of plastic bags for vegetables and fruit.



### Food education

- Explore where food comes from and how it is packaged, how some packaging can help protect food and reduce spoilage. Compare different types of packaging and learn about reusing/recycling.
- Where plastic packaging is unavoidable e.g. strawberry punnets – recycle packaging for learning activities.
- Recycle locally if available.
- Explore together with the children different ways to store/carry food. Look at plastic alternatives for packaging.

**EARLY YEARS LEARNING FRAMEWORK**
**Outcome 2, Outcome 3, Outcome 4**

**NATIONAL QUALITY STANDARD**
**QA1, QA3**

**When implementing these strategies services should ensure they continue to meet the relevant food safety, food allergy and regulatory requirements.**

*See Section 5, page 74*

**TABLE 6:** *Strategies to reduce plastic packaging in ECEC*[31,34]

| Strategies | Challenges/considerations | Potential solutions |
|---|---|---|
| **Food procurement** | | |
| Where possible, purchase food in bulk to reduce packaging – this can also reduce food costs. | Storage space | Use stackable containers with clear labelling to maximise available space. |
| | | Focus on high use or shelf stable items for bulk purchasing (e.g., legumes, rice, oats, tinned food). |
| | | Training/support can include support on safely handling bulk food purchases. |
| | ⚠ **For regional/remote services** Power supply issues may make it risky to buy bulk cold/frozen items. | Develop contingency plans for power interruptions, including consideration of backup power sources (e.g. generators) where appropriate. Monitor freezer temperatures and follow food safety guidance after outages. |
| Where possible, opt for wholesale produce packaged in boxes. | ⚠ **For regional/remote services** Supplier availability may limit packaging reduction options. | |
| When purchasing from supermarkets, opt out of plastic bags for vegetables and fruit. | | |
| Request minimal packaging when ordering online from a supermarket. | | |
| Purchasing meat from a butcher can reduce food packaging. | | |
| **Food education** | | |
| Explore where food comes from and how it is packaged, how some packaging can help protect food and reduce spoilage. Compare different types of packaging and learn about reusing/recycling. | | |
| Where plastic packaging is unavoidable e.g. strawberry punnets – recycle packaging for learning activities. | | |
| Recycle locally if available. | | |
| Explore together with the children different ways to store/carry food. Look at plastic alternatives for packaging. | Plastic wrap may be commonly used to protect prepared foods and items in fridges. | Plastic alternatives for packaging can include compostable vegetable bags, silicone wraps, vegan wraps as an alternative to beeswax wraps, recyclable containers and serving dishes. In the tropics in Australia, banana leaves make wonderful food covers. |
| | | Sturdy reusable containers in a range of sizes with lids can be used instead of plastic wrap. |

CASE STUDY

# In the food forest...

*A space for learning about sustainable food choices and a love of Boodja (Country)*

| | |
|---|---|
| **SERVICE** | Nature's Atelier |
| **SERVICE TYPE** | Long day care |
| **MEAL PROVISION MODEL** | Mixed model – morning and afternoon tea provided on-site, lunch provided from home |
| **BUSINESS MODEL** | Private, for-profit |
| **AGE RANGE** | 6 months to 5 years (up to 12 years with the OSHC service) |
| **NUMBER OF APPROVED PLACES** | 100 |
| **NUMBER OF STAFF** | 45 |
| **REMOTENESS AREA CLASSIFICATION** | Inner regional |

**LOCATION**

Vasse, WA





## Background

Nature's Atelier is located in Vasse in WA's Southwest region. It is a long day care centre with a philosophy based on Nature Play, the Reggio Emilia and Pickler approaches, which provides a rich learning environment for the children who attend.

As the centre is located on 16 hectares of land, there is ample space for growing fruits and vegetables at the service. This has led to the creation of the centre's Food Forest, and harvests are plentiful enough to supply some of the fresh produce to feed the children. They hope that in the future they will be able to expand the Food Forest and be able to provide all produce on-site for the centre.

## What did you want to do?

To empower children to be sustainability leaders:

- They wanted to be able to connect them to the environment through practices embedded into the daily flow of the service.
- To show children the lifecycles of plants and animals.
- To teach children about where food comes from, seasonality, when food is ripe and about the abundance and variety of foods available.
- To give children a natural sensory experience.
- To build an understanding in children of respect for plants and nature.

## What did you do?

- Nature play and connection to Boodja (Country) have always been a big part of the philosophy at Nature's Atelier.
- This includes the native landscape, and intentional food gardens.
- They started small with a small patch of garden.
- In 2019 they established a bigger garden with raised beds.
- In 2021, for their annual community celebration, they planted the first seeds of the Food Forest, along with the childcare community. This has been part of the rehabilitation of the whole area.

## How did you go about starting the Food Forest?

- They consulted a permaculturalist who provided:
  - A guide on what and when to plant, according to the Noongar seasons.
  - A plan to gradually rehabilitate the soil using continual cover crops.
- Children chose what to plant according to this guide.
- Children were also involved in starting seedlings from seeds.
- They have now employed a full-time gardener who looks after the Food Forest and gardens. The gardener also spends part of the week mentoring the children on looking after the food forest and 'children's garden', where children can plant and tend their own vegetables and herbs.
- The centre chefs liaise with the gardener to help decide what to plant, or adapt recipes according to what is in season.

## The difference it has made

The Food Forest has provided a rich learning environment for a myriad of experiences:

- Sensory.
- Physical play.
- Growing food.
- Harvesting food.
- Respecting nature.
- Learning about lifecycles and how everything is connected.
- This includes the lifecycle of their food scraps when making compost.
- By composting both the paper towels and food scraps we are also able to greatly reduce the centre's landfill contribution.
- Learning about the abundance and variety of foods available.
- Children are able to identify a range of fruits and vegetables.
- Children learn respect for living things.
- Children develop a growing understanding of their connection to the world around them, with caring for Boodja at the heart of activities.
- The connection with living things is very calming and regulating for the children, and the Food Forest gives them space to experience this.
- The Food Forest also gives children opportunities to show they are competent and capable.

## Top tips

- Before you start a garden at your service, have a deep understanding of:
  - Why you are adding this space into your service.
  - What impacts it will have on child development.
  - What impact it will have on helping them to become responsible members of the community.
- Consult with experienced people who can help you make it a success.
- Have lots of staff and parent involvement to establish and maintain the addition to your centre.
- Address common "barriers" with creative solutions. For example, we found that children were disrupting the growth of plants by digging around them. Solution: We addressed the issue by providing an intentional "digging" patch so the children could explore digging without hurting the new plants.
- "Have passionate people to push it forward and keep it on track".
  - Having a staff member or a family member at the centre who can be a mentor in the space will make it much more successful.
- A Food Forest needs maintenance – make sure you are set up well to care for it over a long period of time.
- Building your own Food Forest and gardens doesn't have to cost a lot. To save some money you can:
  - Plant directly into the ground.
  - Build garden beds from recycled materials.
  - Source cheap/free materials from families, second-hand stores, online community marketplaces and/or "tip shops".
  - Create your own compost to fertilise the soil.
  - Grow from seed rather than seedlings.
  - This also provides a richer learning experience for the children as they are able to see the whole lifecycle of the plants.
- Harvest seeds to save for the next season.
- Vegetables grow faster than fruit trees, so this is a good place to start.
- Grants can help with costs.
- Embed the Food Forest, its maintenance, activities, etc into your programs to ensure it has real meaning for the staff and children.
- It doesn't have to be complicated – start with things that staff are comfortable with and are achievable, and build up over time.

**What Nature's Atelier mainly hopes to achieve with the Food Forest, as well as other initiatives in the centre, is to:**

- **Reduce harm to the environment while actively working to improve it.**
- **Provide rich learning experiences for children.**
- **Help children understand what it takes to grow food and think about their own patterns of consumption.**
- **Help children learn about connection to and respect for the land.**

**These are all things the staff model for children through the experiences provided at Nature's Atelier. They hope that the centre can provide children with skills and knowledge that they can take through their lives and become the environmental stewards our planet needs.**