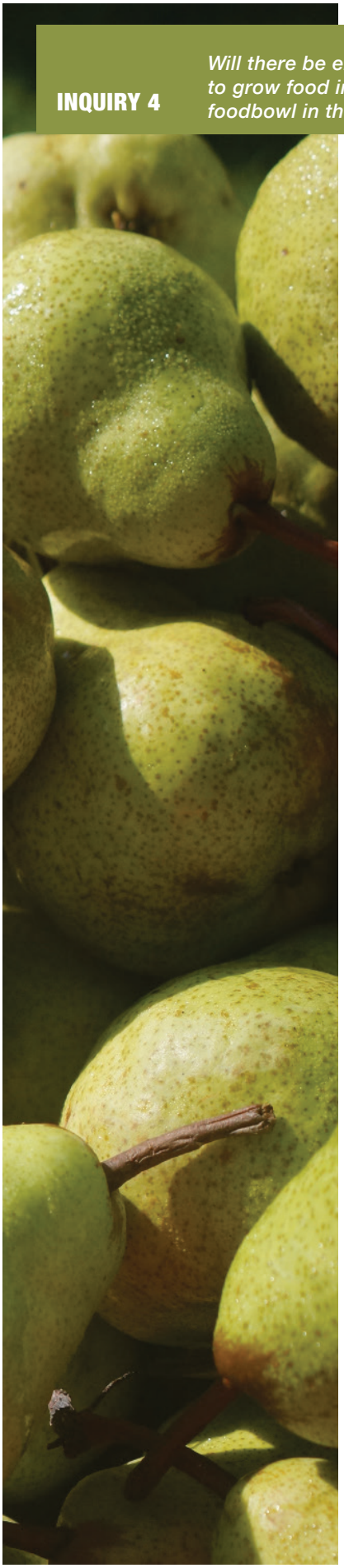
FOODPRINT MELBOURNE



INTRODUCTION

Agriculture relies on rainfall to water crops, provide grass as feed for livestock and to fill the rivers and dams that farmers use to irrigate crops. Victoria is in a region of the world known for its water scarcity (see figure 1 on data sheet 6). There is likely to be less water available to grow food in Victoria in future, due to climate change, the increasing demands of an ever-growing population using water in their homes, and the need to restore environmental river flows.

Only 5% of Victoria's agricultural land is irrigated by water stored on farms in dams, taken from river systems, held in weirs on rivers, stored in reservoirs, or recycled from water treatment plants. The use of technology is vital in providing a reliable water supply for food production. These small, irrigated regions make a significant contribution to Victoria's agricultural production.

ACTIVITIES

Use data sheet 6 to complete the following activities.

1. Using figure 1, describe the areas of the world that:
   - **a.** have little or no issue with water scarcity for agriculture
   - **b.** receive a scarcity of rainfall for agriculture (i.e. a physical scarcity).
2. Figure 2 includes a number of facts about water use needed to feed Melbourne's population.
   - **a.** Of these facts which most surprises you? Why?
   - **b.** Of these facts, which least surprises you? Why?
   - **c.** Livestock production is the greatest user of water in food production. True/false. Justify your answer using evidence.
   - **d.** Food production for Melbourne is water intensive. Outline how water is important in providing Melbourne's food supply.
3. Figure 3 shows the land uses within the inner foodbowl.
   - **a.** What percentage of land use in Melbourne's inner food bowl is the "water" category?
   - **b.** Most of the agricultural production within the inner foodbowl is on non-irrigated land. Use data from figure 3 to support this statement.
4. The Schreurs family (figure 4) on their new property are typical of vegetable farmers concerned about their source of water for food production.
   - **a.** Explain why a reliable water supply was seen as the top priority in establishing the new farm site.
   - **b.** Water licenses give farmers permission to access water from rivers or irrigation systems. These have been described as "blue gold" to vegetable growers. What is the importance of having a water license?
   - **c.** The dam constructed by the Schreurs family is very large (4 hectares). Why would the family build such a large dam when setting up the farm?
5. Using figure 5:
   - **a.** Calculate the amount of water used in livestock production. Is this amount greater or less than for vegetable growing?
   - **b.** Trees provide valuable fruits and nuts in our diet. Is a significant amount of water required in producing these foods?

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6. Lake Eppalock (figure 6c) is an example of stored water for food production. Go to *http://www.g-mwater.com.au/storages/history.asp?ContainerID=lakeeppalock* to see the water storage level over a number of years.

- **a.** Describe the trend in water storage levels 2014-2015.
- **b.** Explain the difference that can be seen in the 2016 graph.
- **c.** What impact did the 2016 storage level have on the 2017 storage level?
- **d.** This interactive graph allows you to compare different years. Select some different dates to see if the current trend in storage levels is usual.

7. Using figure 7, describe where the largest recycled water plants are located in Victoria? Are the areas near the recycled water plants important for agriculture? What type of production happens there?

8. Do the Shepparton and Swan Hill areas have access to recycled water? What does this mean for planning for the future, when it is likely that there will be more frequent and more severe droughts?

9. Werribee South farmers irrigate vegetable crops from the Werribee River (figure 6b), but recycled water is also accessed from the nearby Western Treatment Plant. Using figure 8a, describe the role that water treatment plants are likely to play in providing a reliable food supply by 2050.

10. Land at the Western Treatment Plant is being prepared for agricultural production. Using figure 8d, estimate the proportion of the Western Treatment Plant that will be converted to cropping, grazing and horticulture by 2025.

11. Using the data in figure 8a–d, suggest the importance of recycled water in the ability of Melbourne's foodbowl to feed a population of over 7 million in 2050. Consider population growth; pressure on land use; drought-proofing; producing, financing and storing recycled water; and changing peoples' attitudes.

EXTENSION ACTIVITY

1. Food production in the Riverina, NSW
Watch this footage: *https://www.youtube.com/watch?v=SZNTER1fE8c* (9.08 minutes)

- **a.** Describe the landscape of the Riverina.
- **b.** The river system is important to the success of this irrigation system. Describe the river and the structures along it that provide a reliable water supply.
- **c.** Outline how irrigation transformed the region from 1912 to 2012 as shown in this video.
- **d.** List the foods that are grown in the Riverina.
- **e.** List some of the foods that are processed within the region that provide employment.
- **f.** Which group is responsible for this scheme?
- **g.** Technological change has ensured the sustainability of the irrigation system. Name three technological developments outlined in the video.

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2. Tasmania is undertaking a major infrastructure scheme to open up areas of the state for irrigation. Read this article and complete the following questions.
http://www.abc.net.au/news/2015-07-25/forcett-irrigation-scheme-transforming-dry-farmland/6647088

- **a.** The South East Irrigation Scheme is bringing water for irrigators to which part of Tasmania?
- **b.** Outline the technology being used to get the water to this area.
- **c.** Large projects like this are inherently expensive. Outline the economic costs and identify who is paying for the development.
- **d.** How has irrigated water changed farm production in this area?
- **e.** Using one of the farmers featured in the article, explain the approach to this new system.
- **f.** Community concerns have been expressed about this massive infrastructure project. What is the basis of the concern?

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