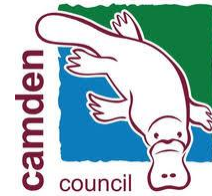




SCIENCE AND
INDUSTRY
ENDOWMENT
FUND



STEM Community Partnerships Program

Camden local scenario

Agriculture

Food is fundamental to our health and wellbeing. By 2050 the world's population is expected to reach over 9 billion people; to meet this demand food production must increase by 60 per cent¹. With population increase comes an increased demand for housing and this reduces the land available for agriculture. With this reduction in available land into the future, both the scale and picture of food production in Australia is likely to change.

Climate change and related extreme weather events will have a significant impact on agricultural production. Scientists are exploring climate analogues to help people understand what their local town will be like in the future. The idea is to compare climate predictions for one town to the current climate of another town. There is a general trend that climate trends are moving south. Under extreme predictions, it is suggested that by the end of the century Sydney will have a similar climate to Brisbane or Bundaberg today¹. In Australia, there is typically less than a month of non-perishable food in the supply chain at any given time, and less than a week for perishable food. Holding low reserve supplies makes food security in Australia vulnerable to extreme weather events² that may result from climate change.

Food produced in the Sydney Basin currently provides 20 per cent of the city's needs, but by 2031 that number is predicted to fall to only 6 per cent³. Urban expansion has already reduced egg production in the Camden area. This means more of the city's food will need to be imported from other areas. Innovation is required to meet the challenge of ensuring food security in both Australia and the rest of the world.

How your Council tackles the complexity of this issue will impacts you now and future generations.



Oran Park housing development – urban vs farming land

(Photo courtesy of ABC News³)

Your task

Your task is to use the information above, and resources provided below as a start to identify a local problem and design a STEM-focussed solution.

(Question, Design, Explore, Communicate)

Resources

CSIRO research

- Farming and food production: <https://www.csiro.au/en/about/people/business-units/agriculture-and-food>
- Food security and global farming: <https://www.csiro.au/en/Research/AF/Areas/Food-security>
- FutureFeed: <https://www.csiro.au/en/Research/AF/Areas/Food-security/FutureFeed>
- Agriculture and food: <http://www.csiro.au/en/Research/AF>

Reports

- Camden council demographic resources:
<https://economy.id.com.au/camden/value-of-agriculture>
- ²Climate projection analogues:
<https://www.climatechangeinaustralia.gov.au/en/climate-projections/climate-analogues/about-analogues/>
- Chief Scientist of Australia:
http://www.chiefscientist.gov.au/wp-content/uploads/FoodSecurity_web.pdf
- World Health Organisation:
http://www.who.int/foodsafety/areas_work/nutrition/en/
- ²Feeding a Hungry Nation
<https://www.climatecouncil.org.au/uploads/7579c324216d1e76e8a50095aac45d66.pdf>
- Hajkowicz, Stefan 2015, *Global megatrends : seven patterns of change shaping our future*, CSIRO Publishing, Victoria, Australia

Articles

- ³ABC News:
<https://www.abc.net.au/news/2018-03-13/sydney-farms-disappearing-due-to-urban-sprawl/9523428>
- Camden Advertiser:
<https://www.camdenadvertiser.com.au/story/5842536/world-class-agricultural-facility-to-be-built-in-menangle/#slide=1>
- CSIRO Blog post on innovation in agriculture:
<https://blog.csiro.au/agricultural-innovation-as-important-today-as-100-years-ago/>
- CSIRO blog article and Australian wheat yields:
<https://blog.csiro.au/changing-climate-stalled-australian-wheat-yields-study/>
- ABC News, Rising temperatures spark 'race to Tasmania' for winemakers escaping heat:
<http://www.abc.net.au/news/2016-06-05/rising-temperatures-spark-winemakers-move-to-tasmania/7371262>
- The Lancet, World Health Organisation, 19 November 2014, Comment: *Food safety must accompany food and nutrition security*:
http://www.who.int/foodsafety/areas_work/nutrition/Lancetfoodsafety_nov2014.pdf?ua=1