

Goyder's Line

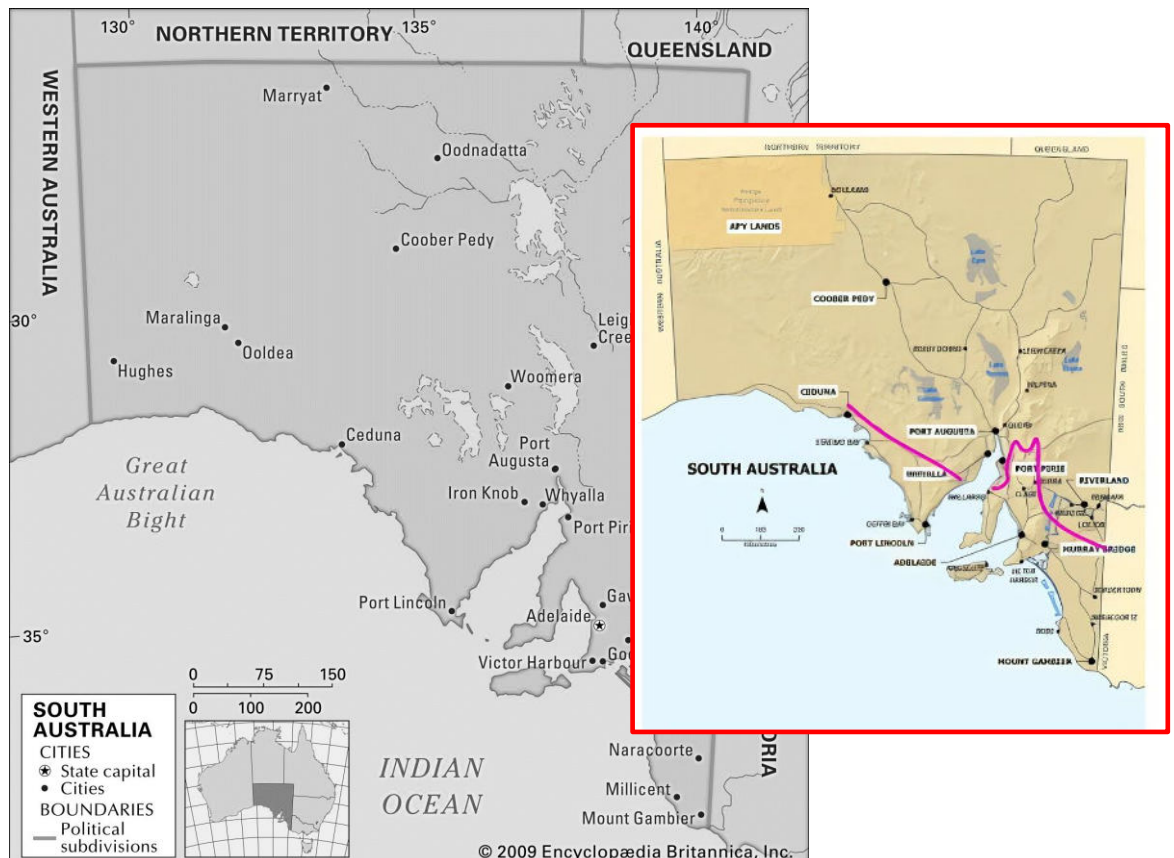
Learning intentions

- become familiar with where Goyder's Line is
- understand how Goyder's Line was developed
- understand the challenges of farming on Goyder's Line
- consider how climate change impacts farming in this region
- reflect on the relevance of Goyder's Line today

Background:

In the 1860s, Surveyor-General George Goyder was given the task to map the regions in South Australia that were suitable for cropping and create a line outside of which cropping was unreliable. This became known as Goyder's Line and is still referred to today, 160 years later.

1. Mark Goyder's Line on the map of South Australia provided. How far are you from Goyder's Line?



(image source: <https://cdn.britannica.com/55/129355-050-BECBEC5/South-Australia.jpg>)

2. How did Goyder work out the line? What information did he use to decide where the line should be?

Goyder used the type and amounts of native vegetation in an area to decide if there was adequate rainfall to support cropping or not.

3. Define these key terms (source: *dictionary.cambridge.org*):

- Surveyor – *a person whose occupation is to measure and describe the details of an area or buildings*
- Vegetation – *plants in general or plants found in a particular area*
- Rainfall – *the amount of rain that falls*
- Drought – *a long period when there is little or no rain*
- Arable – *land that is used for, or is suitable for, growing crops*
- climate change – *changes in the world's weather, in particular the fact that it is believed to be getting warmer as a result of human activity*

What is it like to farm near Goyder's Line? Watch this video: *Will climate change kill the Goyder Line, Australia's farming backbone?* <https://youtu.be/ua5V3knkY74?si=BuBB8MxNN9whs6e9>

4. In the video, they refer to the “10 inch isohyet”

a) How many millimetres is 10 inches of rainfall?

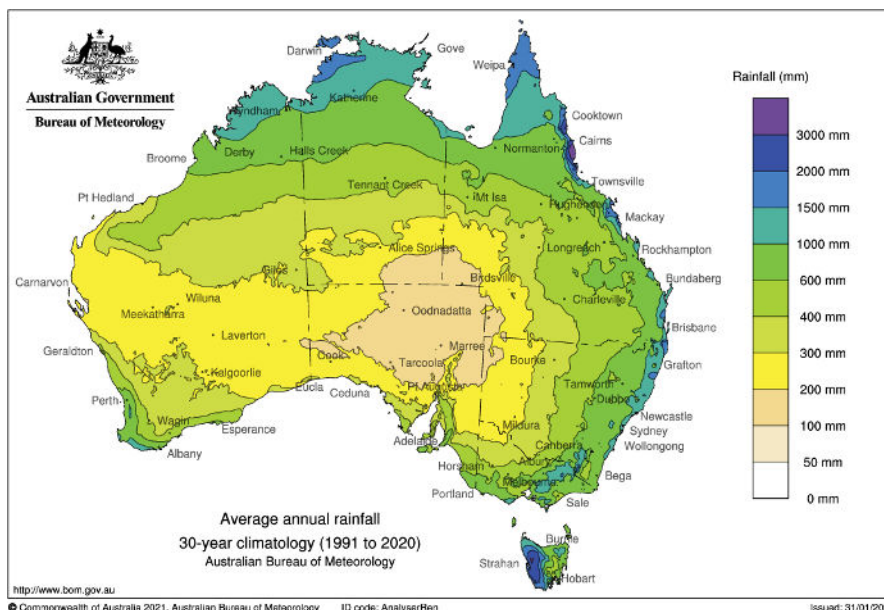
250mm

b) What is an *isohyet*?

a line on a map that connects places that have the same amount of rain (source: dictionary.cambridge.org)

c) How closely does Goyder's Line match the 10 inch isohyet?

Individual opinion – but remarkably close



The video mentions technology to help manage soil and soil moisture will be crucial in the future. Check out the resources about ag-tech at: [Cropping AgTech - PIRSA](#)

The **SA Drought Hub** provides support and resources for farmers such as those near Goyder's Line. Explore what is available at: [SA Drought Hub - Supporting SA farmers and regional communities](#) including the website *My Climate View* which can be used to forecast the climate changes that may happen in particular areas by 2050 [My Climate View](#) .

5. Imagine what it was like for George Goyder as he surveyed the South Australian agricultural regions in the 1860s. If he was doing this work today, what tools would he be able to use to help him?
Cars, theodolites, cameras, computers, satellite images including NDVI images, rainfall records, soil moisture probes, soil maps, farming records, soil tests, drones to conduct surveys, computer modelling, artificial intelligence
6. Goyder's Line does not mean that farms inside the line never experience crop failure. **Other than rainfall**, what factors can contribute to below average crop yields?
Human error, disease, pests, hail, frost, high temperatures, strong winds, weeds, poor soil nutrition, unsuitable soil type, non-wetting soils, waterlogging, toxic levels of nutrients like Boron, machinery issues eg blocked hoses in an air seeder, chemical residue or issues like Overwatch, erosion, plagues including rabbits, kangaroos, poor crop rotation planning, poor seed quality
7. What can farmers do to reduce their risk of below average crop yields?
Keep up to date with industry research, join farmer groups like Ag Bureau, attend industry updates like GRDC, keep accurate farm records, plan crop rotations carefully, work with an agronomist, maintain machinery, conduct soil and tissue tests, match crop types and varieties with the district and season's conditions, try new varieties, ensure crops are sowed at the optimum time, match fertiliser use to crop needs, monitor crops for pests, weeds and diseases, maintain fences, plan chemical applications carefully after completing a ChemCert course, use long-range weather forecasts to plan cropping programs, use yield maps and NDVI images to adjust cropping and fertiliser programs, use good quality grain, apply seed treatments, reduce rocks through stone-picking, reefinishing or rolling, improve soil organic matter.
8. *The Australian* newspaper wrote an extensive article about Goyder's Line which was summarised in the video you watched earlier.
 - a) Who do you think they wrote the article and made the video for?
General public, regional communities, farmers
 - b) Who are key stakeholders in the discussion around Goyder's Line?
Farmers, policy makers like politicians and industry groups like Grains Research and Development Corporation (GRDC), agriculture professionals like agronomists, researchers and plant breeders, Primary Industries and Regions SA (PIRSA), local councils, agribusinesses in the districts near Goyder's Line
 - c) Should we still be interested in Goyder's Line? Explain why or why not.
Individual opinion of students

Disclaimer: This curriculum resource is designed to support schools in delivering quality food and fibre content to students. It has been developed by Lead Ag Teacher Sue Pratt, AgCommunicators – a registered teacher with more than 30 years' experience in teaching agriculture and science. Prior to using this resource, teachers should conduct a risk assessment in line with their site's curriculum and safety guidelines and check all links are appropriate to the school's online policies. The risk assessment may include provision of specialised Personal Protective Equipment and review of the school's policies and procedures on chemical use