

Irriset is a free-to-use online tool developed by NIWA and PerrinAg to future proof irrigation under a changing climate. The development of Irriset was jointly funded by MBIE's Irrigation Insight Endeavour Research and MPI's Future-proofing irrigation under climate change SLMACC (Sustainable Land Management and Climate Change) programmes.

Projections of New Zealand's future climate predict a drier east for both islands and a drier north of North Island. These are important primary sector production regions. Increasingly, irrigation and water storage are presented as options to mitigate and adapt to climate change impacts on the primary sector. Irriset examines the viability of these options for irrigation.

Irriset is a nationally applicable strategy tool that can be used to assess irrigation practices under current and climate change conditions. Irriset helps farmers to understand the economic viability and environmental efficiency of various irrigation strategies and prioritize their irrigation investments. Irriset explores strategic questions such as:

- How would climate change impact my current irrigation capabilities? What do I need to be prepared for with respect to demand and supply?
- Is my irrigation restricted because of infrastructure's capacity to irrigate optimally while avoiding dry soil conditions and limiting drainage?
- Are my irrigation supplies a barrier to improve irrigation practices? Do I need to enhance my supply with an additional source such as storage?

An example of outputs from Irriset applied to a dairy farm in central North Island



Irriset quantifies the challenges to irrigation demand, availability and security under current and climate change for a range of irrigation scheduling practices, such as supply-based *just-in-case*, demand-based *just-in-time*, and supply and weather-forecast based *justified*.

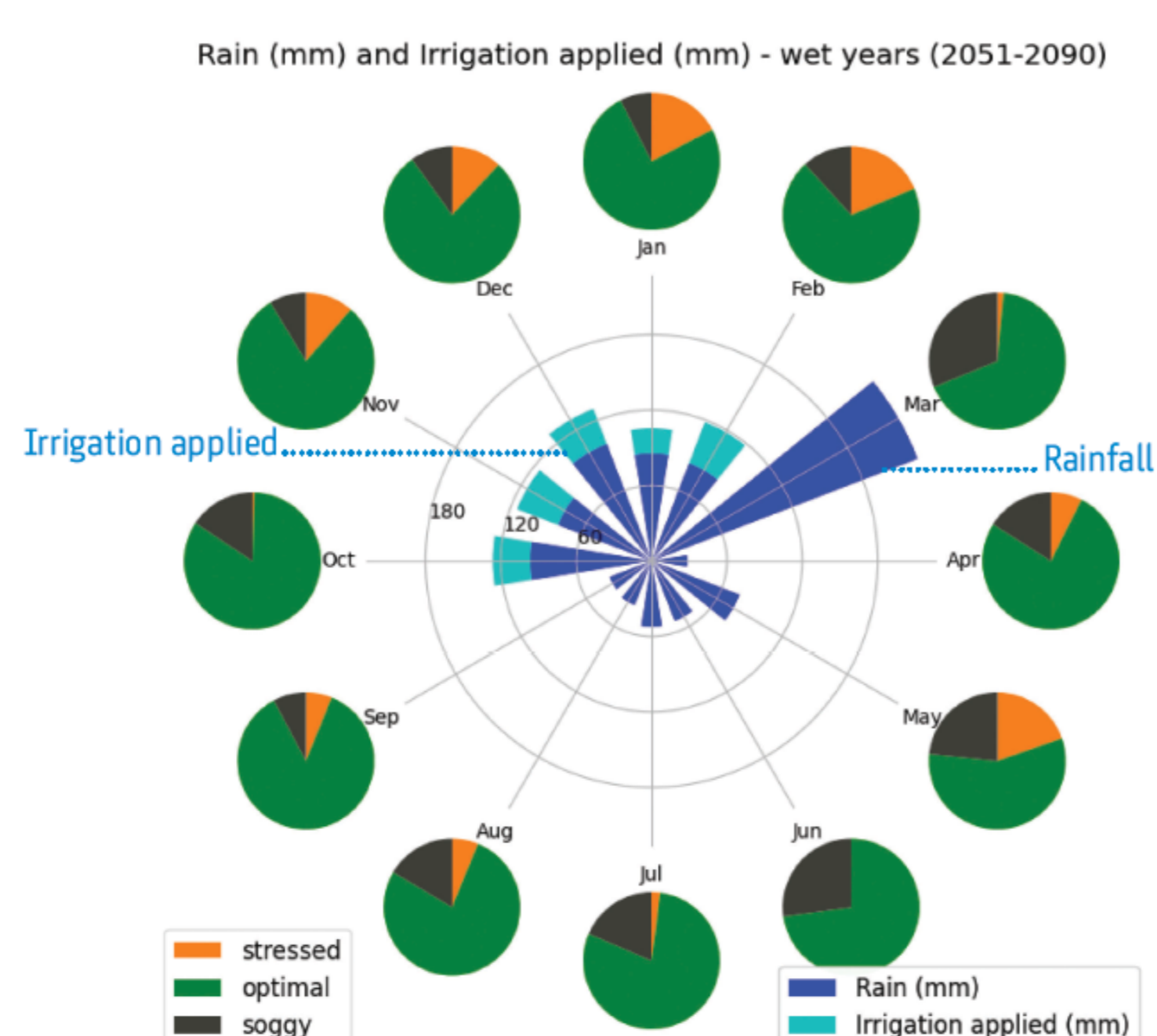
Applied at farm scale, Irriset accounts for farm-specific soil and climatic conditions, irrigation infrastructure capacity and capability (*how much irrigation could be applied, and how often*), irrigation supply availability, irrigation scheduling method(s) and stocking rate. Using a water balance model (Srinivasan et al., 2021), Irriset estimates irrigation demand, and based on supply and infrastructure limitations, the duration of time soil moisture could be held at optimal pasture production conditions.

How to interpret the plot

Soil water conditions that support pasture growth

- Stressed – too dry <50% PAW
- Soggy – too wet >100% PAW
- Optimal for growth 50-100% plant available water (PAW)

All input (rainfall) and output (irrigation, drainage, pasture growth and net economic value) variables are summarised on a monthly basis by year type (wet/average/dry), for each climate period (1972-2020, 2021-2050 and 2051-2090).



Srinivasan, M.S., R. Measures, C. Muller, M. Neal, C. Rajanayaka, U. Shankar, G. Elley. 2021. Comparing the water use metrics of just-in-case, just-in-time and justified irrigation strategies using a scenario-based tool. *Agricultural Water Management* 258 (2021) 107221. DOI: [10.1016/j.agwat.2021.107221](https://doi.org/10.1016/j.agwat.2021.107221)

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For more information on Irriset and other irrigation tools, <https://irrigationinsight.co.nz>
To access Irriset, send an email to irrigationinsight@niwa.co.nz

More Info

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