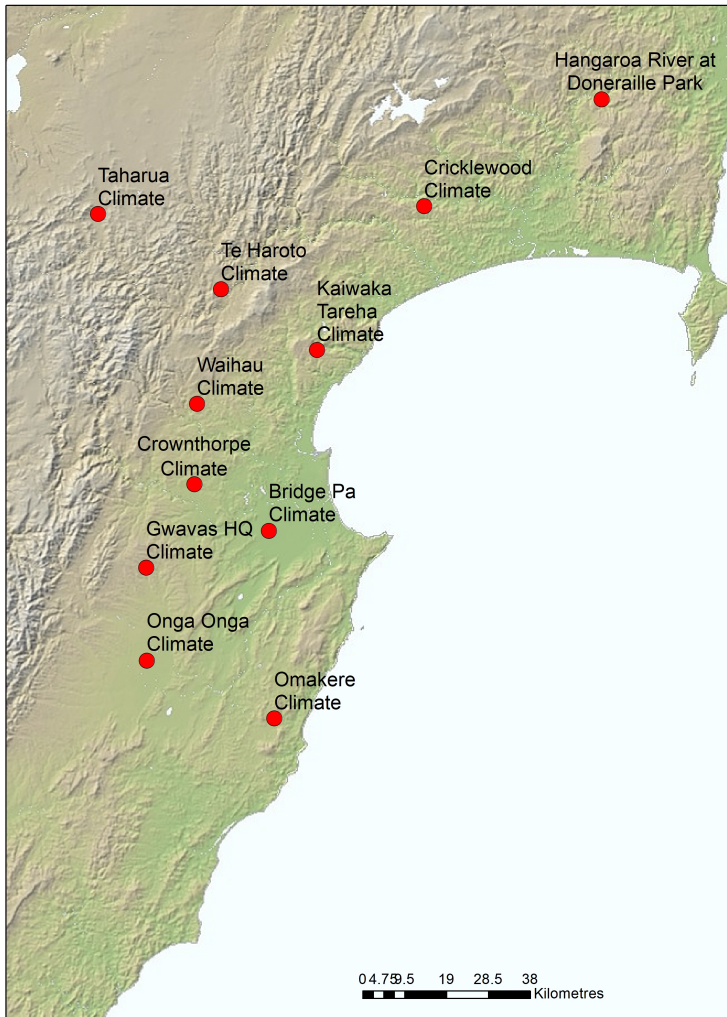


# Soil Moisture Report January 2025

Hawke's Bay Regional Council monitors soil moisture content at several climate stations within the region (see Figure 1). The soils monitored are those found at the climate stations and may be different from surrounding agricultural soils. However, this data is of use across the Bay as it provides a generic indication of regional trends.



**Figure 1: Location of climate stations with soil moisture sensors in Hawke's Bay**

## **Soil moisture measurement:**

Soil moisture data is collected by HBRC using Aquaflex soil moisture sensors at several climate stations in Hawke's Bay. The sensor is a long flexible tape (3m length) which is buried in the root zone on an angle from approximately 0mm down to 300mm soil depth. Units are % soil moisture content.

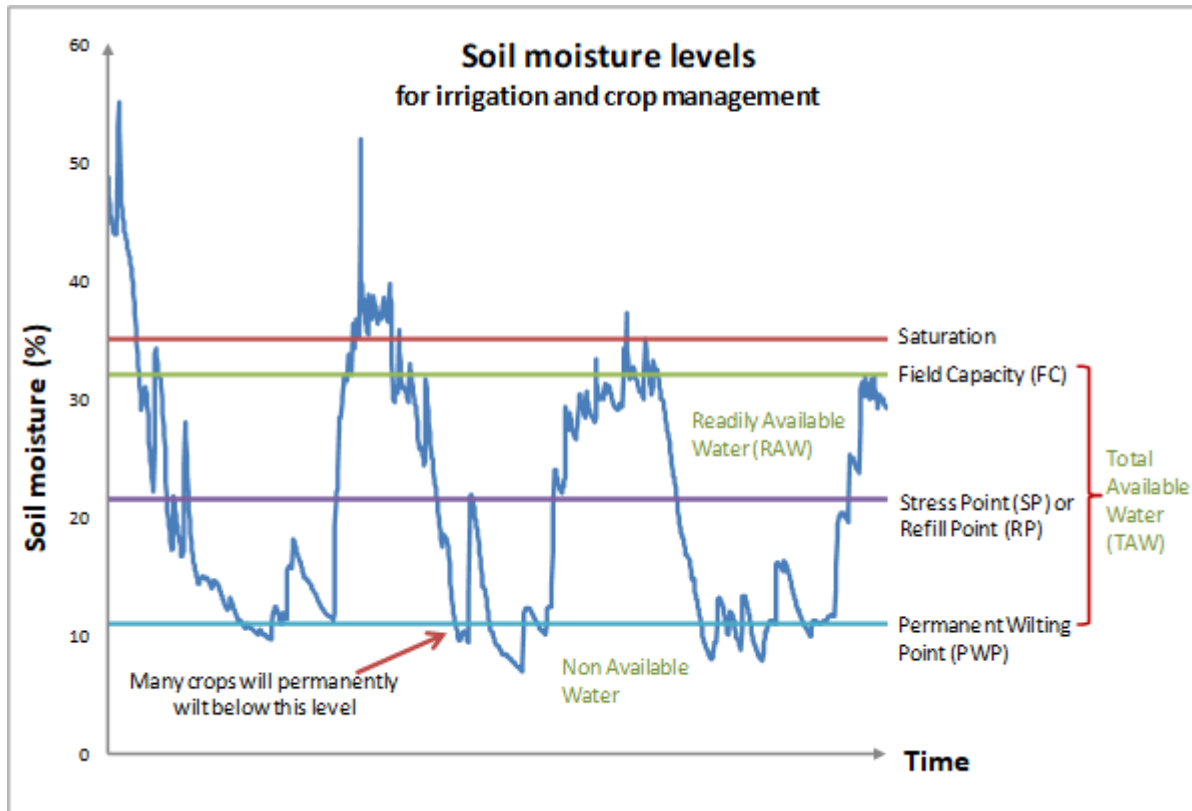
## **How do we use soil moisture data?**

Soil moisture information is particularly useful for assessing irrigation needs for a variety of crops. It is also used for analysis of long-term climate trends, measuring how often plant growth is restricted by soil moisture, and providing an indication for early intervention and drought management decisions. Soil moisture conditions can influence river flows, so when the soil moisture deficit is high, the soils absorb more water and this reduces the risk of flooding.

Soil moisture is also useful for identifying when not to irrigate effluent, to avoid surface runoff into streams and excessive leaching losses below the root zone.

## Using soil moisture levels for irrigation and crop health purposes

In order to better understand soil water availability to plants, common terms are presented graphically in the following figure:



*(Please note that these levels are indicative only. The soil water storage ability will vary between sites due to the influence of the sites soil type, aspect and crop type.)*

### Field capacity (FC):

Field capacity is the water content of the soil after excess water has drained away (approximately two to three days after heavy rain). For irrigation purposes, the field capacity should not be exceeded so that wastage of water, energy and nutrients is avoided.

### Stress point (SP):

The point where the roots cannot extract water at the rate required, so the plant will be under stress. Stress point is also known as the refill point, and is approximately half way between Field Capacity and Permanent Wilting Point.

Successful irrigation means applying sufficient water to avoid a reduction in plant yield due to water stress, while not producing a saturated soil or wasting water through an excessive application. The aim of most irrigation is to keep soil water levels between field capacity and stress point.

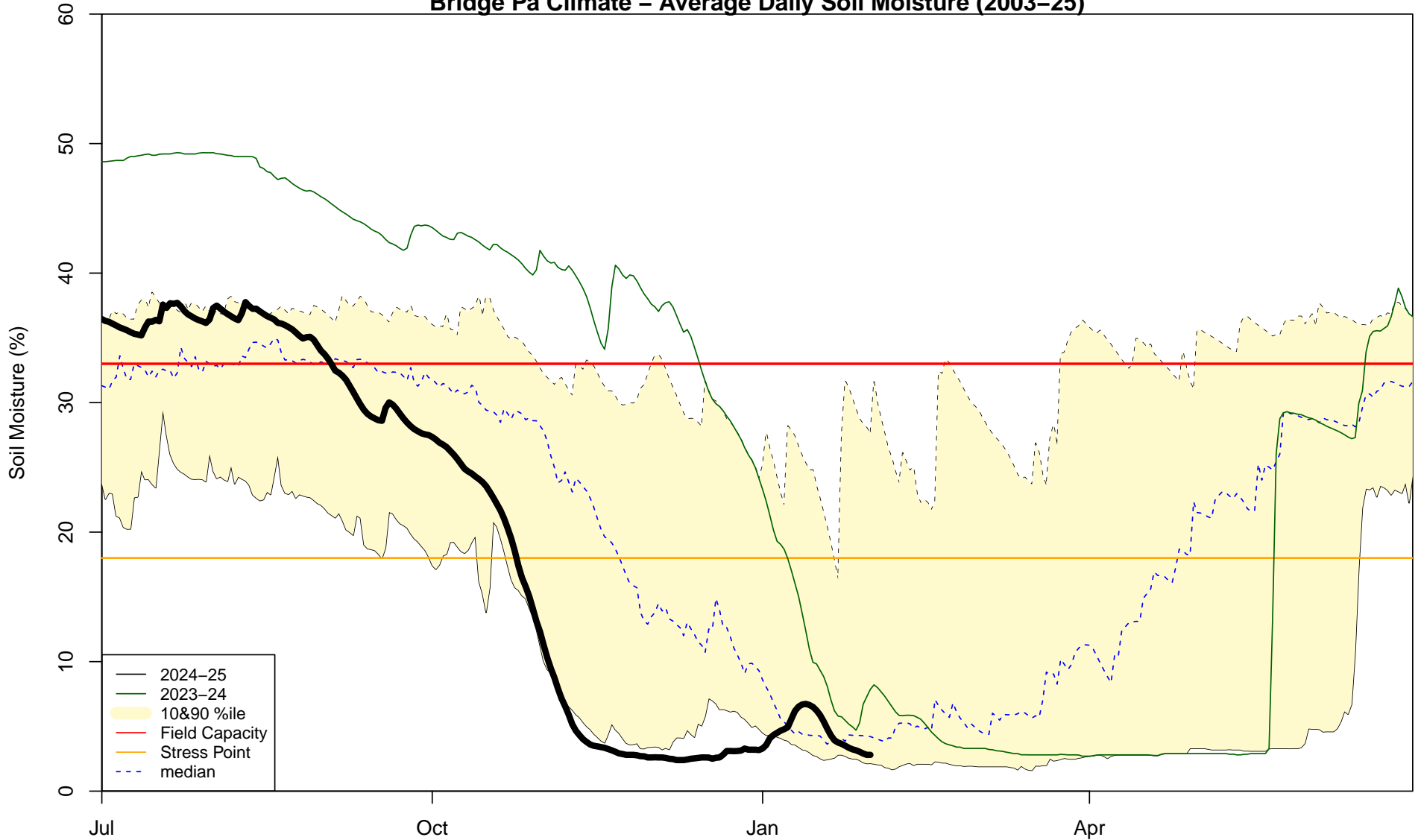
It is possible to calculate the number of days before stress point is reached and therefore irrigation rotations. Information on Understanding Soil Moisture, Scheduling Irrigation and Irrigation Efficiency Evaluations are located in our Environment Topics publications at <https://www.hbrc.govt.nz/>.

Live soil moisture data from these sites are available on our website at <https://www.hbrc.govt.nz/environment/climate/climate-monitoring/>.

Please note that the live graphs on our website are generated from raw data collected by Hawkes Bay Regional Councils automatic telemetry system, therefore is not quality audited. The data presented here is intended for general information purposes only. For further information please contact us at [climate@hbrc.govt.nz](mailto:climate@hbrc.govt.nz).

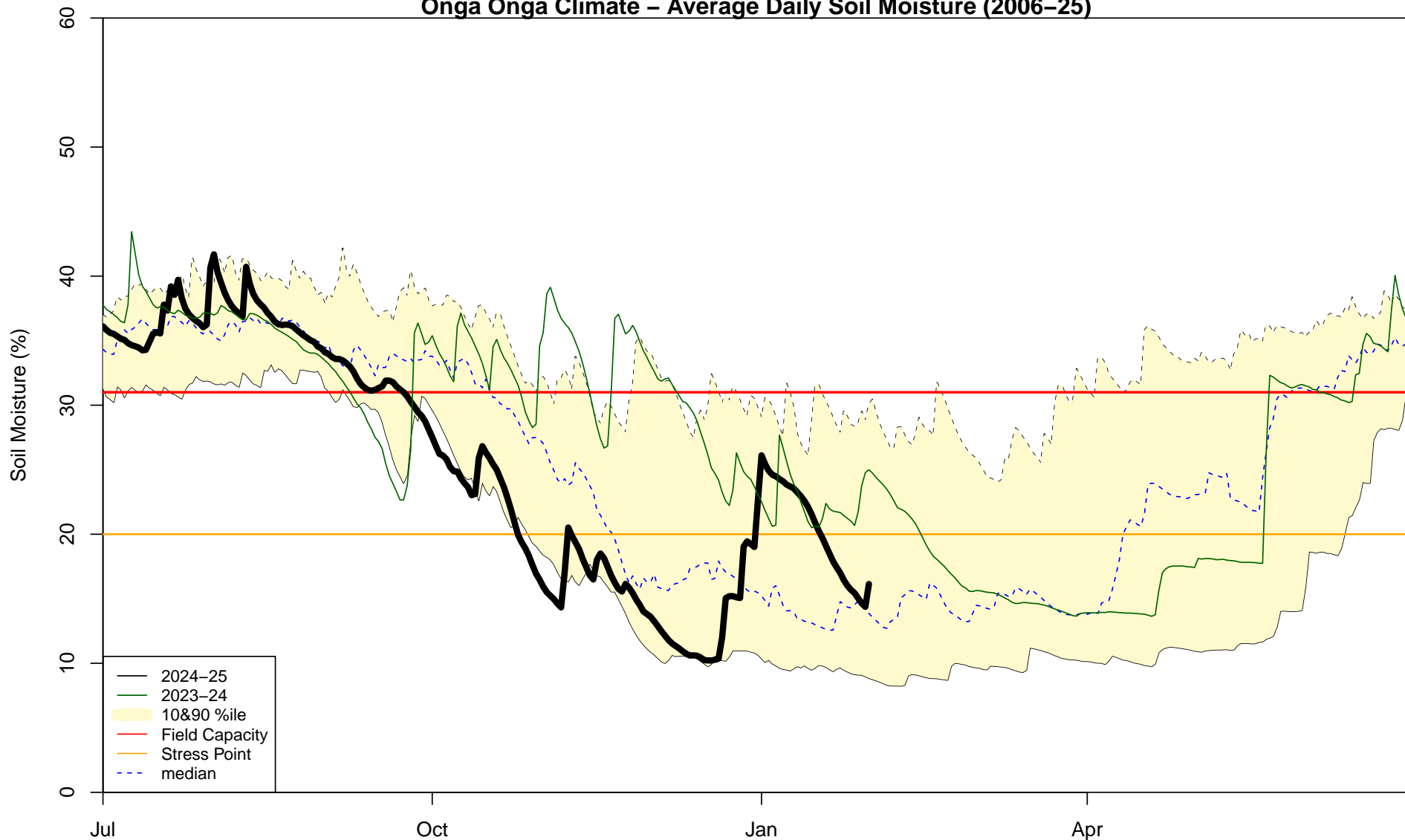
# Comparison of soil moisture levels over the last 10 or more years in Hawke's Bay

## Bridge Pa Climate – Average Daily Soil Moisture (2003–25)



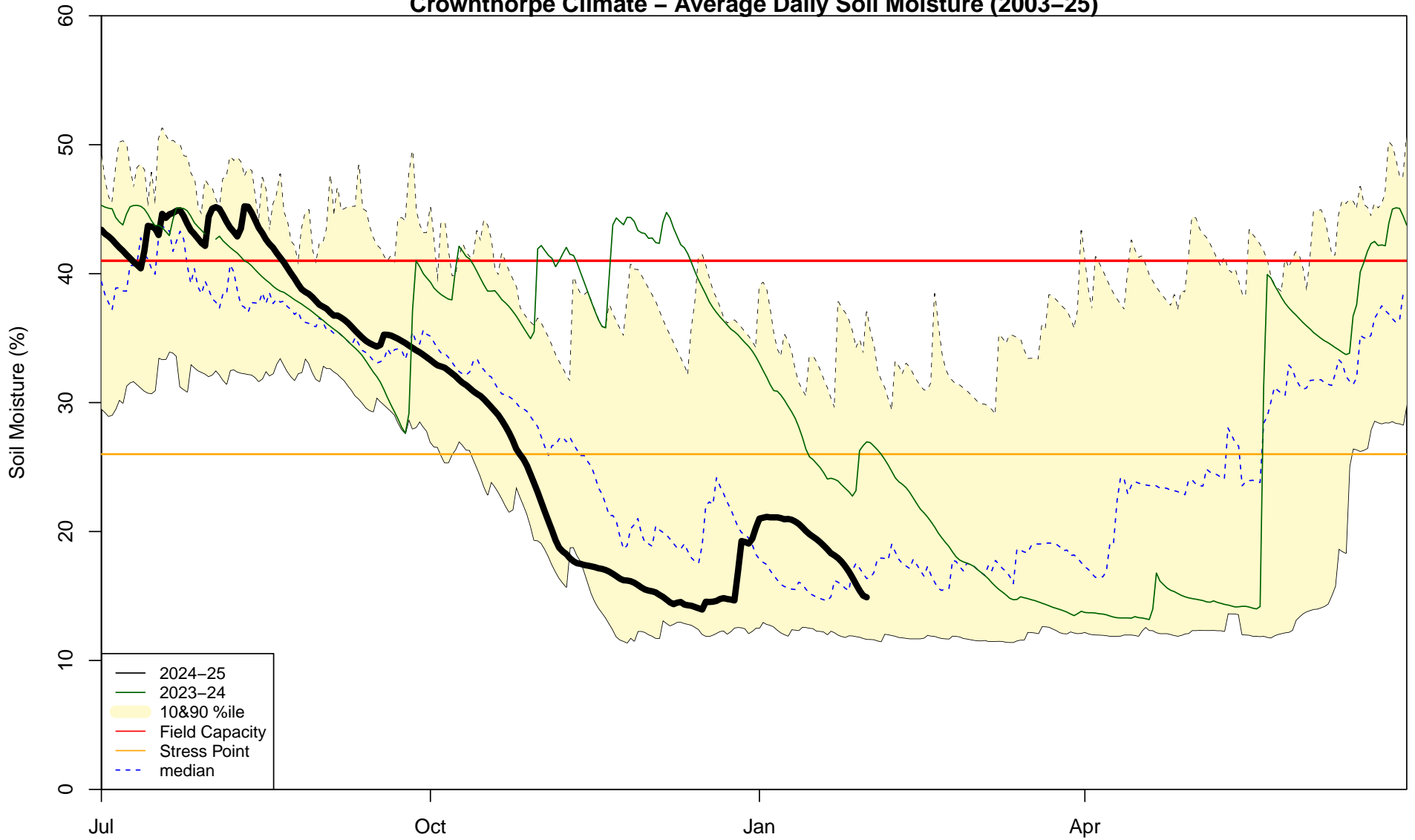
(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)

### Onga Onga Climate – Average Daily Soil Moisture (2006–25)



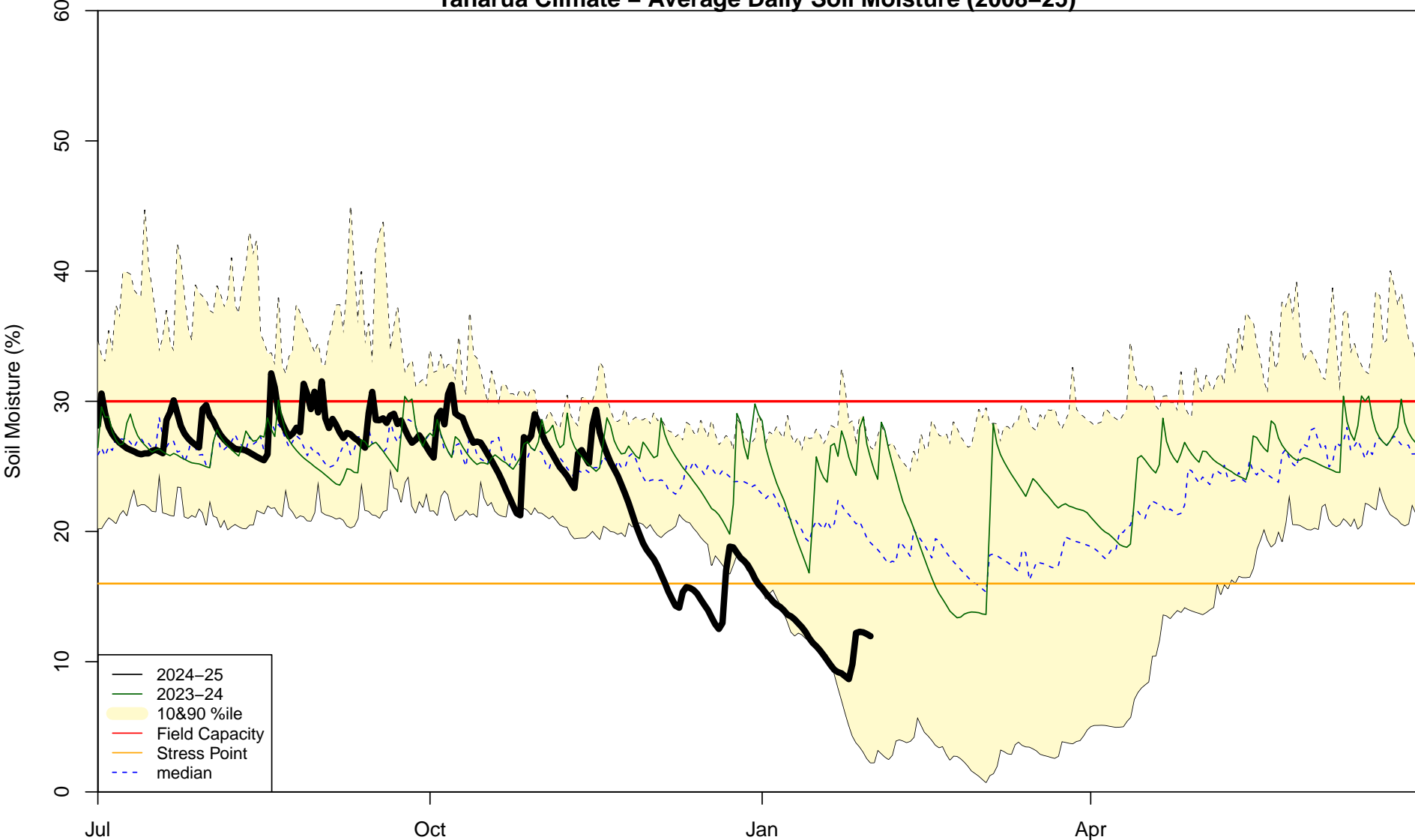
*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

### Crownthorpe Climate – Average Daily Soil Moisture (2003–25)



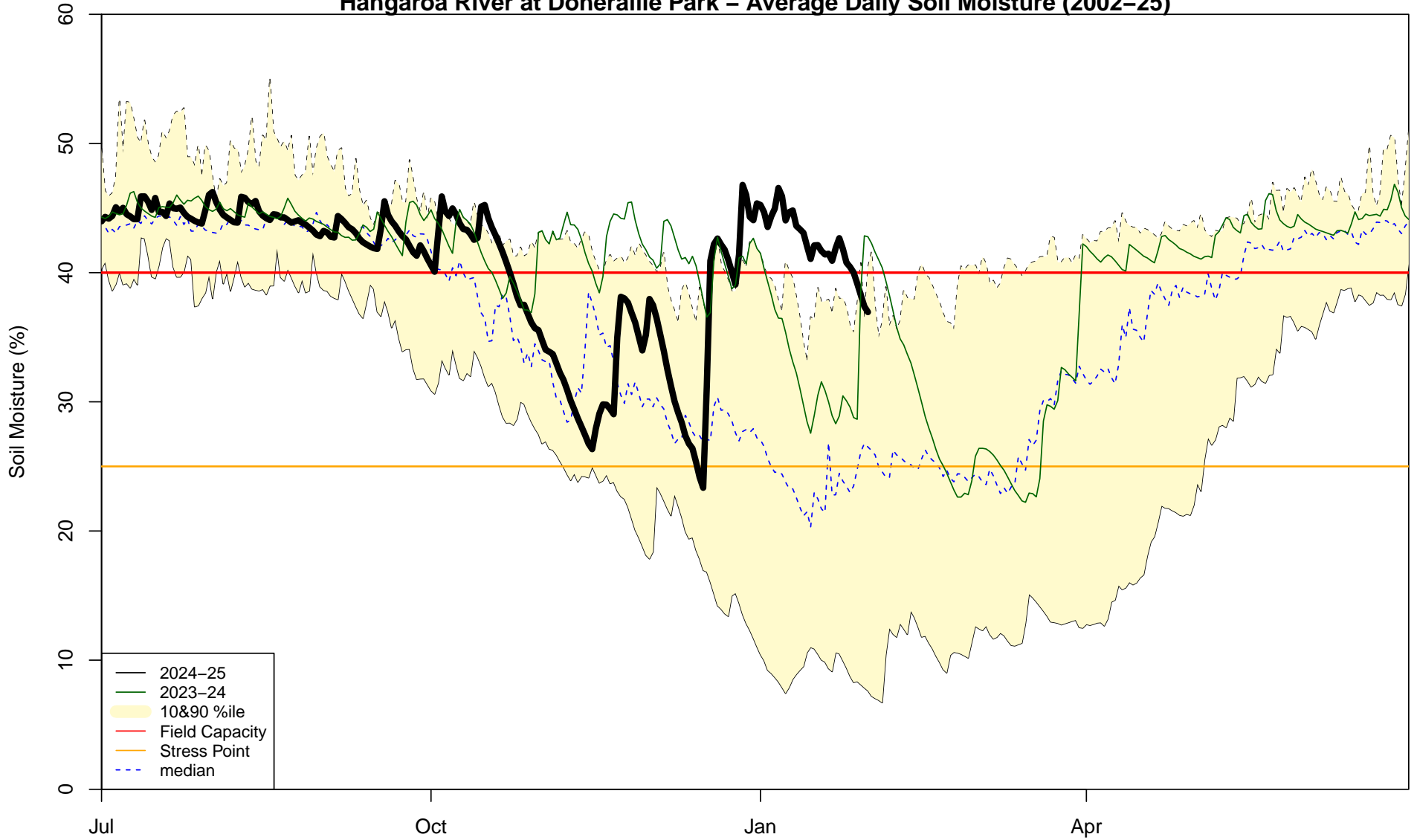
*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

Taharua Climate – Average Daily Soil Moisture (2008–25)



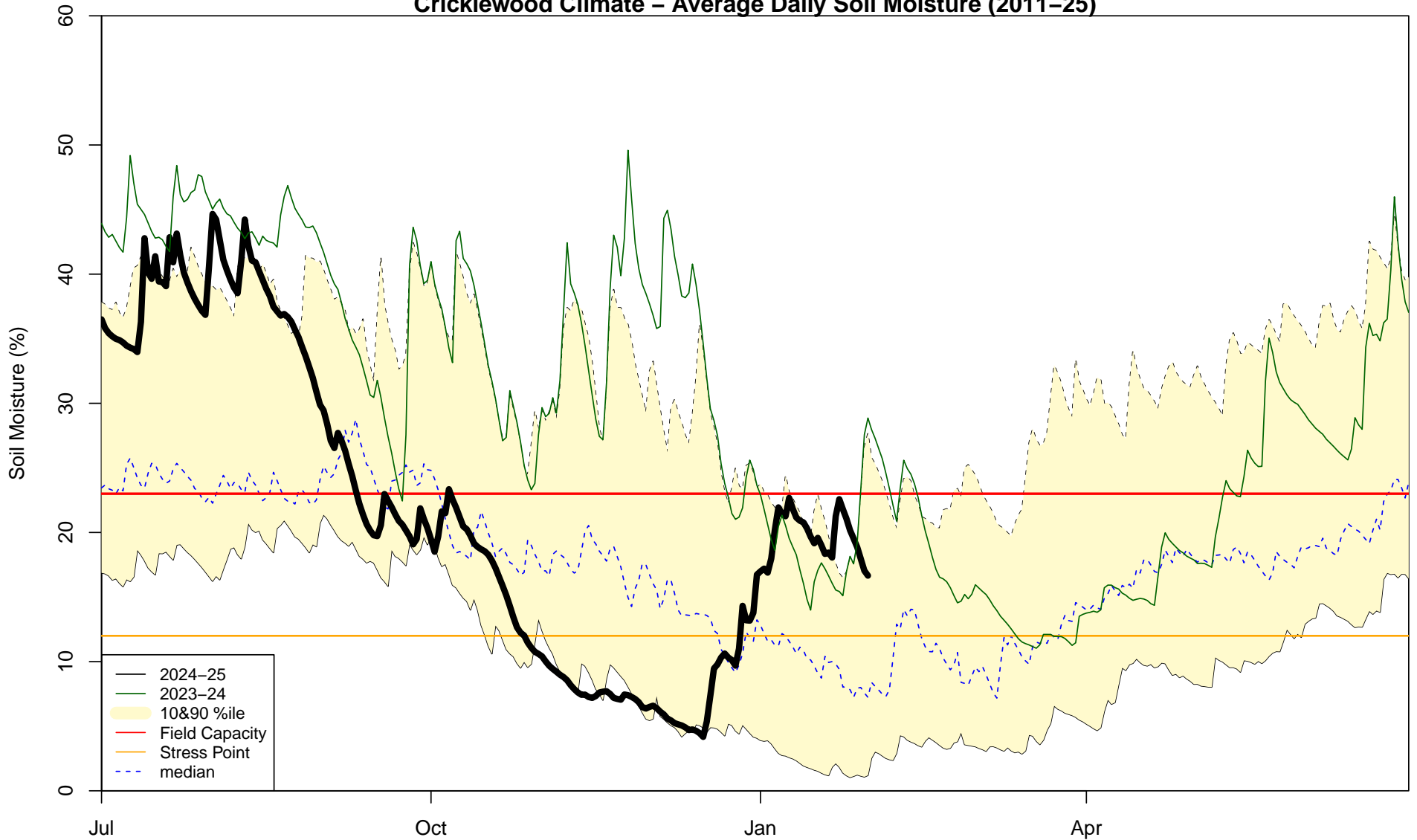
(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)

### Hangaroa River at Doneraille Park – Average Daily Soil Moisture (2002–25)



*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

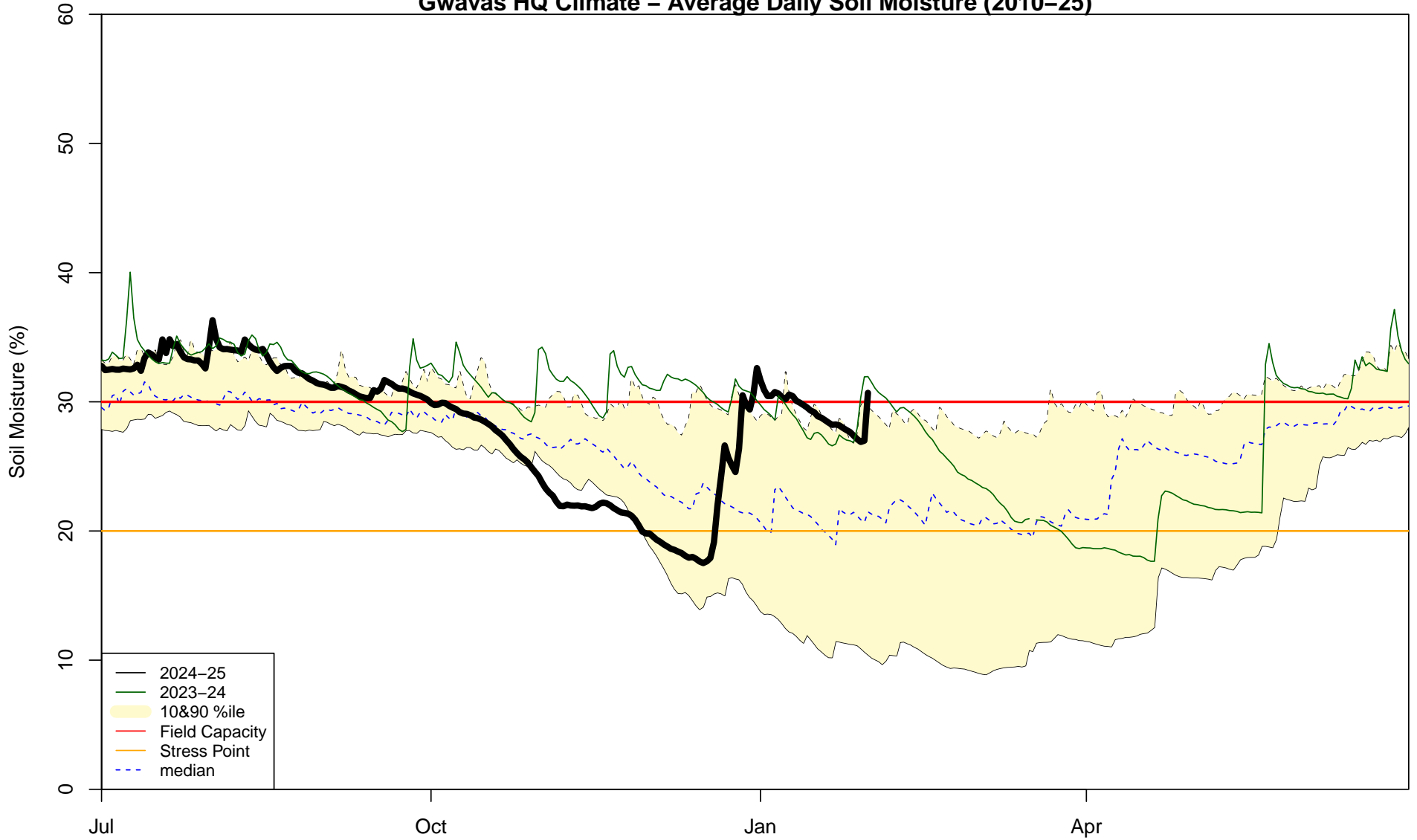
### Cricklewood Climate – Average Daily Soil Moisture (2011–25)



*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

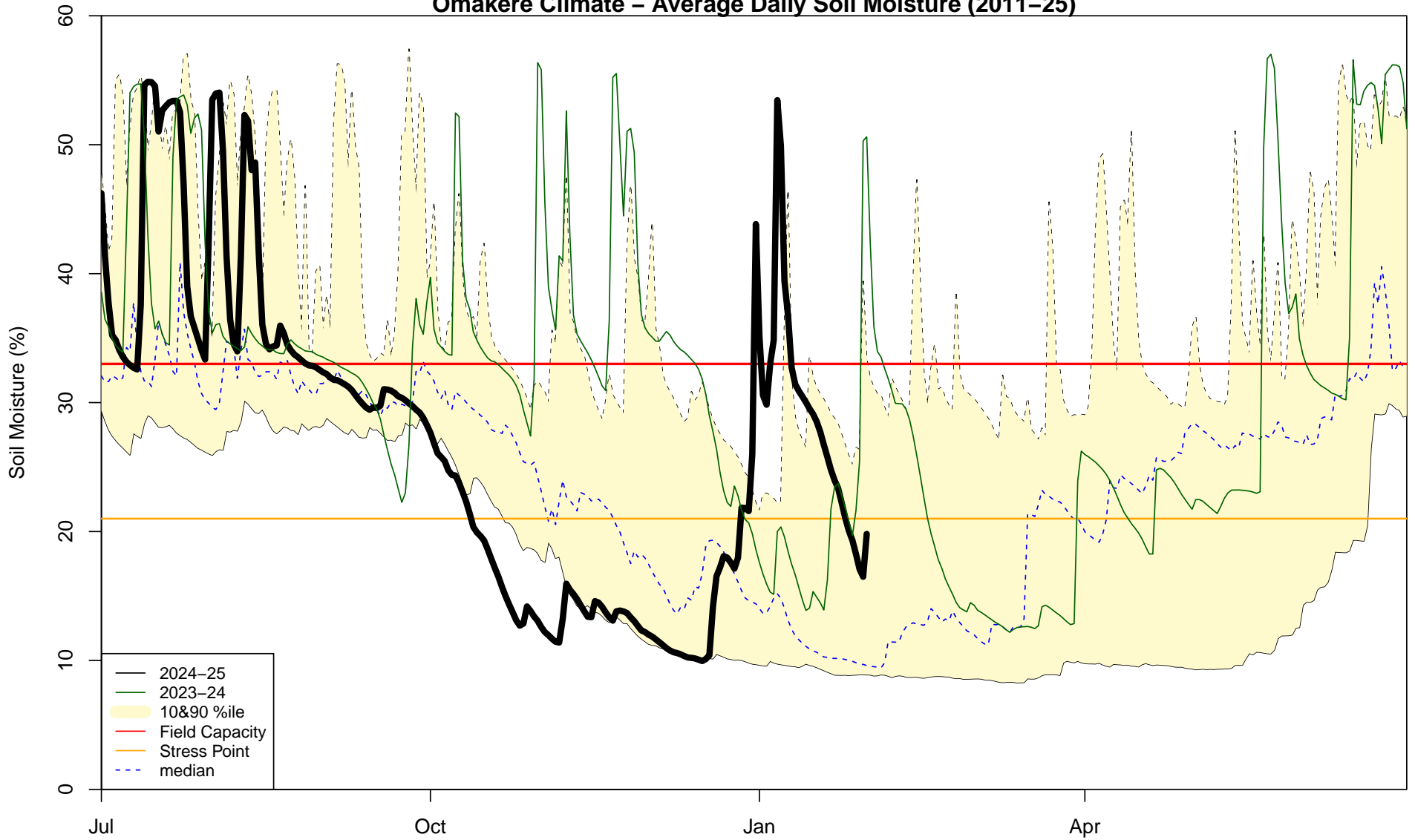


### Gwavas HQ Climate – Average Daily Soil Moisture (2010–25)



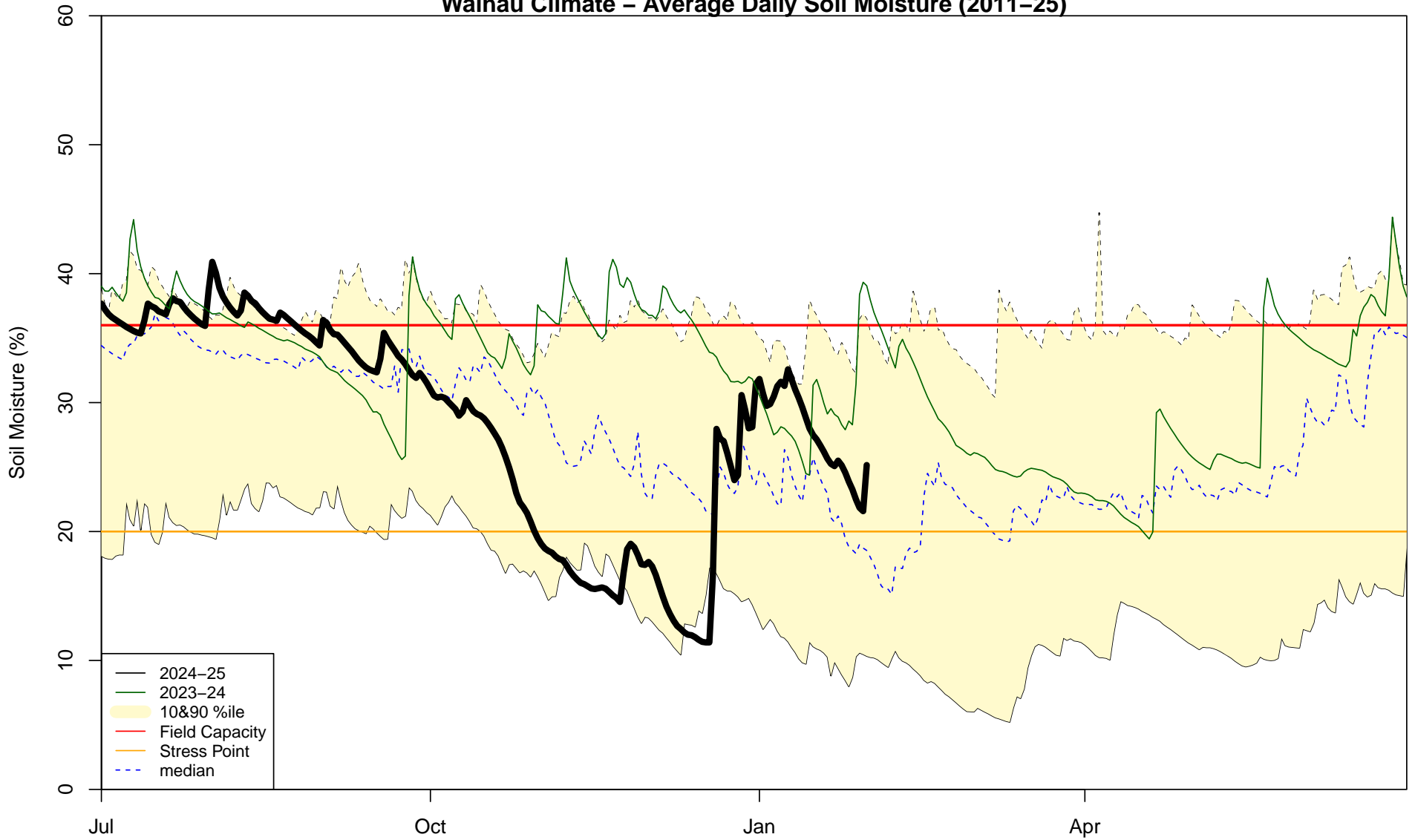
*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

### Omakere Climate – Average Daily Soil Moisture (2011–25)



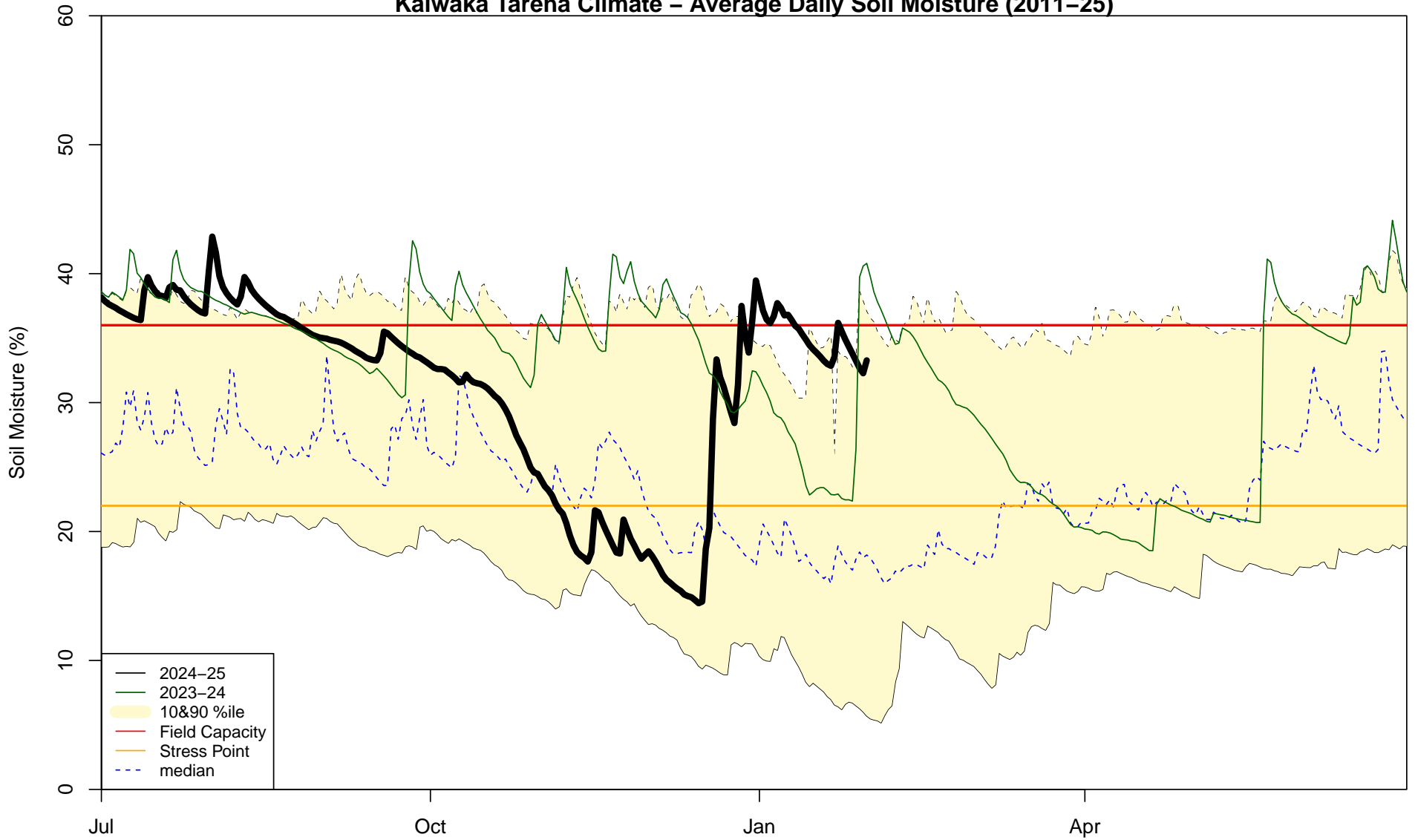
*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

### Waihou Climate – Average Daily Soil Moisture (2011–25)



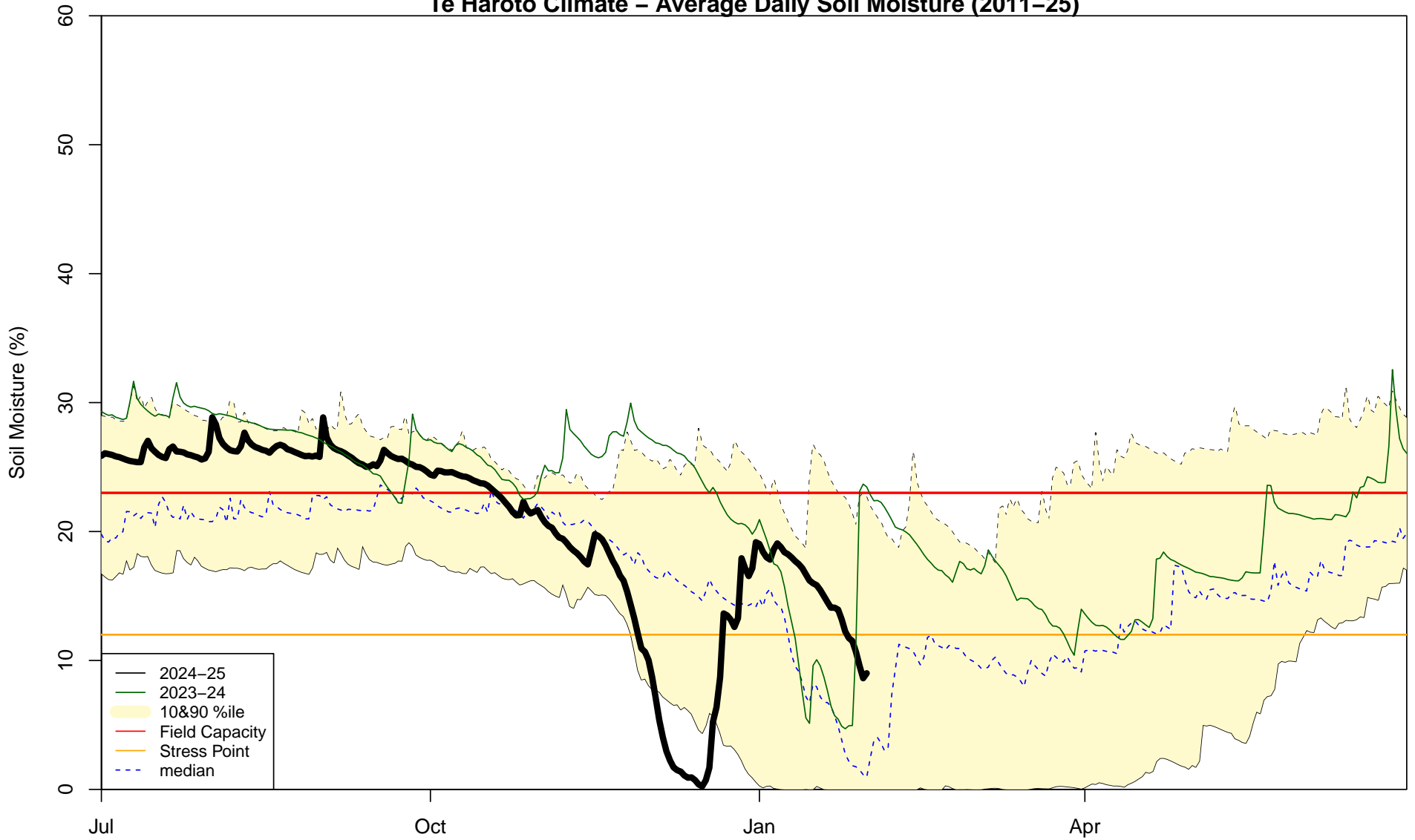
*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

### Kaiwaka Tareha Climate – Average Daily Soil Moisture (2011–25)



*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*

### Te Haroto Climate – Average Daily Soil Moisture (2011–25)



*(Disclaimer: Field capacities at each site vary according to soil type and conditions. All field capacities are estimates only, and are based on patterns in historical data from each site.)*