

reading the graphs and using

CROPX DATA

part 1

What is VWC?

Volumetric Water Content (VWC) is a measure of the amount of water in a soil, as a percentage of the total volume. We use it to understand the water that is available to the plant and that the plant needs.

The graphs in the app use it as the moisture scale on the x-axis.

For example, if the moisture reads at 25% VWC, it means that 25% of the soil volume is filled with water.



An example of a CropX moisture graph with the management zone, field capacity, and refill points labeled.

The Management Zone

The **management zone** is the recommend range to keep the moisture content of the soil, and gives context to the moisture movements you see.

It is calculated as the area between the **field capacity** and the **refill point** of the soil, which is halfway between the **field capacity** and the **wilting point**.

Field Capacity (FC) is generally the ideal amount of water the soil should hold, where there is the most water availability for a plant.

The Wilting Point (WP) is the point at which plants can no longer extract the water from the soil.

The Refill Point (RP) is 50% between the Field Capacity and Wilting Point.

The goal is to keep the soil as near to the field capacity as possible, without going too low and stressing the plants.

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Using the Management Zone to irrigate better

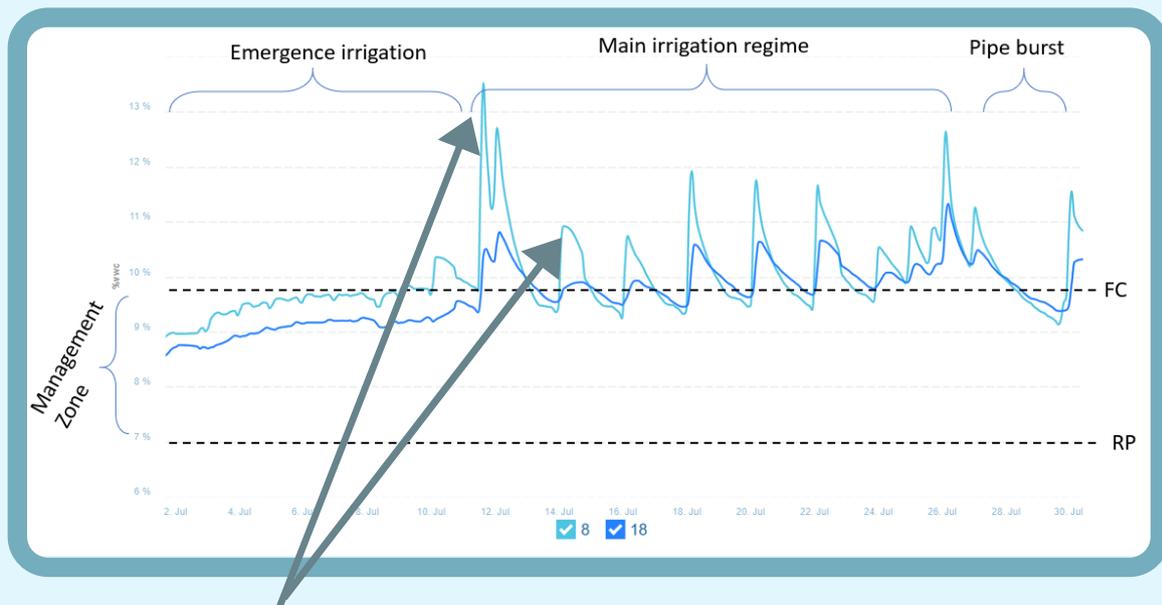
We recommend keeping the soil moisture **within the management zone**. This zone has the best combination of moisture and ventilation which is essential for the roots.

If the moisture levels are going too high above the management zone, it means there is a wastage of water, since the plants cannot take it up and it runs off. Staying above field capacity for a long time also means there will not be enough ventilation, which is important for the roots.

The Management Zone

is bounded by the field capacity at the top and the refill point at the bottom.

If the moisture levels are below the management zone, it means the plants will most likely be stressed, as they are not receiving enough water. The moisture levels will be nearing the wilting point.



Peaks show moisture movements. You can monitor how the water is moving through the soil by observing how the graph moves – both raising up in response to the moisture event (i.e, rain, irrigation) and how it's going down (how quickly, and are the roots able to take it up).

How does soil type affect VWC?

Each soil type holds water differently due to different particle size and distribution.

For example a clay soil which has many small particles with a large surface area will hold more water than a sandy soil (made of larger particles with less surface area).

However, the larger surface area will also increase the surface tension forces and make it more difficult for plants to extract and use the available water.

The holding capacity and usable water, and therefore the management zone, will vary by soil type.