

Refill Value from VSW

The refill point for a field is the soil moisture value for the field at the time it requires irrigation. This value will be estimated at the beginning of the season for newly developed land but a better estimate will be obtained from crop appearance and daily water use values as the season progresses. Thus it will become necessary to adjust the refill values in the Probe software.

Typically the measured profile is to 1.3 m, with the crop extracting most water in the 0-70 cm zone. Hence it is often only necessary to change the refill point down to 70 cm. On soils low in clay content, crop water extraction may take place to greater depths.

A 1% change in volumetric soil water % (VSW %) is equivalent to a loss or gain of 1 mm of water over a depth of 10 cm.

A 1% change in **all** the VSW% values will alter the refill point 7 mm for the 0-70 cm total water content zone, and 13 mm over the whole profile (0-130 cm). This change may not be the same, however, for each depth layer. The "20cm" probe reading, for example, is the moisture value for the 0-25 cm layer and not the 15-25 cm. Thus a 1% change in VSW% at 20cm means a change in the refill point of $25 \times 1\% = 2.5$ mm. Similarly the "30cm" reading covers 10 cm (25-35 cm) and a 1% change is equivalent to 1.0 mm ($10 \times 1\% = 1$ mm). At "60cm" the reading covers 55-70 cm, and therefore a 1% change is equivalent to 1.5mm ($15 \times 1\% = 1.5$)

The following table of Changes in Refill Water Content summarises this information.

		Change in VSW%				
		1	1.5	2	2.5	3
Depth						
20		2.5	3.8	5.0	6.3	7.5
30		1.0	1.5	2.0	2.5	3.0
40		1.0	1.5	2.0	2.5	3.0
50		1.0	1.5	2.0	2.5	3.0
60		1.5	2.3	3.0	3.8	4.5
0-70 total		7.0	10.5	14.0	17.5	21.0
80		2.0	3.0	4.0	5.0	6.0
100		2.0	3.0	4.0	5.0	6.0
120		2.0	3.0	4.0	5.0	6.0
0-130 total		13.0	19.5	26.0	32.5	39.0

To change the refill values in the software, edit the VSW values on the Readings Screen, and then press <F5> to update.

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