| | Chehalis | Woodburn | Jory | Coarse Sand |
|---|---|---|---|---|
| Bulk Density | 1.115 | 0.949 | 0.996 | 1.442 |
| Porosity | $100\left(1-\frac{1.115}{2.65}\right)$ 57.92 % | $100\left(1-\frac{0.949}{2.65}\right)$ 64.18 % | $100\left(1-\frac{0.996}{2.65}\right)$ 62.415 % | $100\left(1-\frac{1.442}{2.65}\right)$ 45.584 % |
| Mass of water at Saturation | $w = 100\left(\frac{wet-dry}{dry}\right)$ <br> $\frac{w}{100} = \frac{w-dry}{dry}$ $\frac{w \cdot dry}{100} = wet-dry$ <br> $\frac{w \cdot dry}{100} + dry = wet$ | | | |
| Textural class | Silt loam | Silt loam/ Silty clay loam | Silty clay loam | Sand |

Questions:

1. Jory, no. Very low water potential stops roots from accessing water
2. Chehalis. We want texture fine enough to retain water but not too fine
3. Jory, small pore spaces holds soil very tightly
4. Coarse sand, large pore spaces allows easy water movement
5. Chehalis, very fine particles patices water upwards

$D_b$ is bulk density, $m_d$ is the dry mass of soil, $v_{tot}$ is the total volume of soil.

$$\% PS = 100\left(1 - \frac{D_b}{D_p}\right)$$

% PS is porosity, $D_b$ is bulk density, $D_p$ is particle density.

$$\omega = 100\left(\frac{wet\ mass - dry\ mass}{dry\ mass}\right)$$

$\omega$ is gravimetric water content.

$$\theta = \omega * D_b$$

$\theta$ is volumetric water content.

**Volumetric water content over time**