

**Supplemental Table S2** The equations of SWC, SNC, cucumber yield.

	<b>The equations</b>
SWC	$\text{irri\_change} + \text{dayrain} - \text{runoff\_change} - \text{ET} - \text{day\_leach} - \text{SW\_change}$
SNC	$\text{Soil\_NO}_3\text{\_min} + \text{Soil\_NH}_4\text{\_min} + \text{Nfert} + \text{Deposition\_N\_daily} - \text{Crop\_Nup} - \text{day\_leachNO}_3 - \text{Soi\_N\_change}$
Yield	$\text{TDM} \cdot \text{HI} / (\text{n} \cdot \text{c}_{\text{DM}})$

irri = irrigation change, ET = evaporation, SW=soil water, Min = mineralization, Nup = N uptake, TDM = total dry matter, HI = harvest index, n = the plant population, c DM = dry matter content.