

Inputs (from farmer)

Farm coordinates

Crop type

Planting date

Total growing days

4 stages of crop growth dates

Filtered data (SM, RZSM, ET, PET, and P) from global data for the farm with a reasonable radius (radius is calculated based on farm's size and data resolution)

Processing

Farm record (ΔSM , $\Delta RZSM$, 8 d ET, 8 d PET, and 8 d P)
[2010-2020]

8 d P, ΔSM , and $\Delta RZSM$

ΔSM and $\Delta RZSM$ conversion to depth based on the date. For past years all depth is 500 mm. Observed NI with and without ΔSM

RF to predict future ΔSM , $\Delta RZSM$, ET, and PET

Outputs

Locate farm

Show 4 stages of crop growth dates

Calculate NI

Theoretical daily breakdown of NI

3-week timeseries of P, ET, and PET