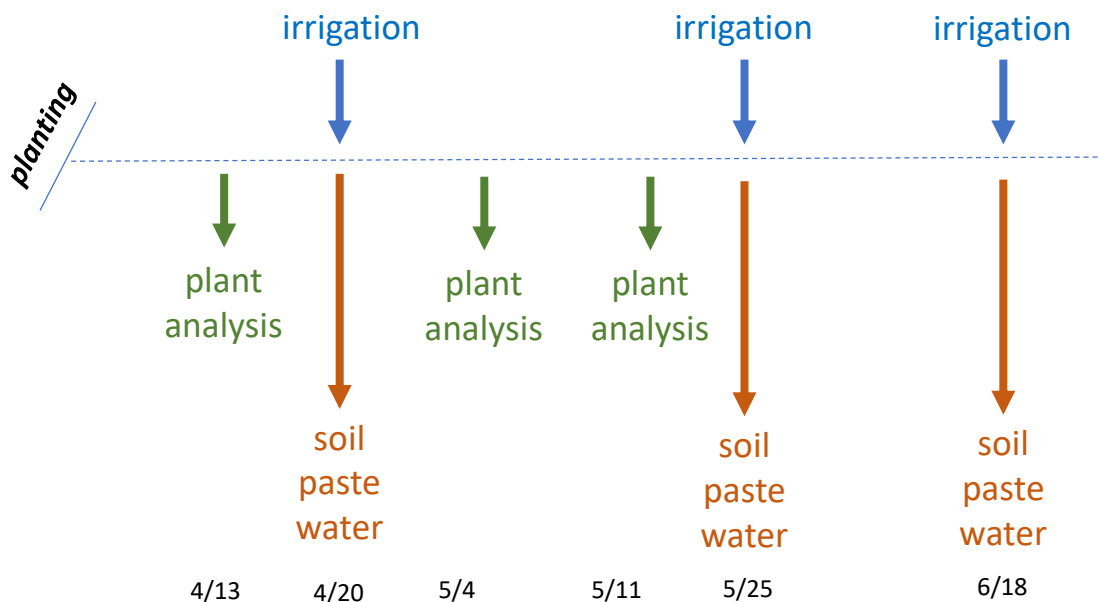
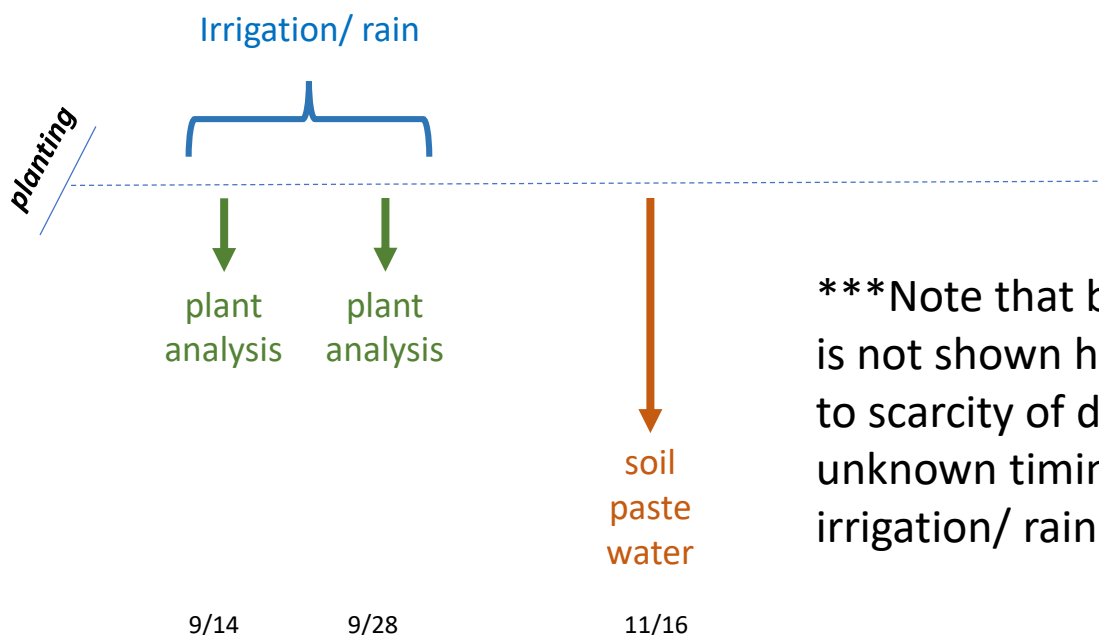


Experimental Design

Barley



Beans



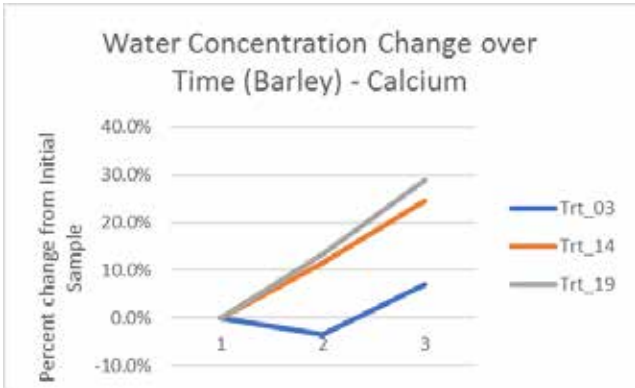
***Note that bean data is not shown here due to scarcity of data, and unknown timing of irrigation/ rain

Legend for Analysis

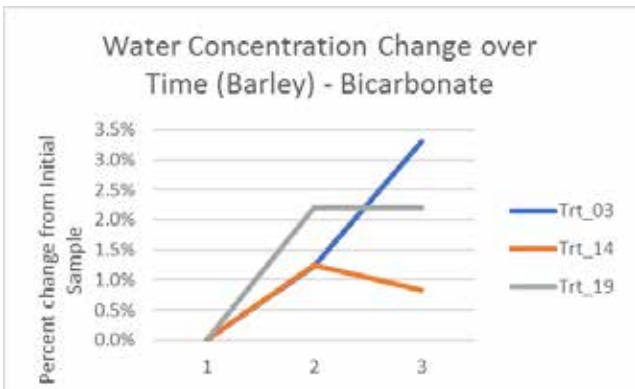
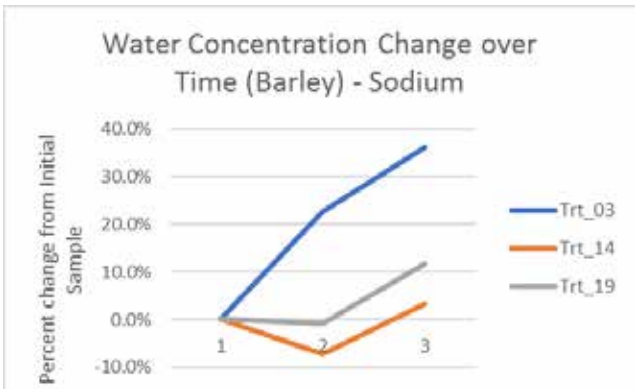
- Trt_03: Maximum H₂O
- Trt_14: Competitor #1
- Trt_19: Competitor #2

Analysis

How variable is ionic composition across water treatments?



- Water treatment Trt_03 appears to have a different profile from other treatments for Ca and Na

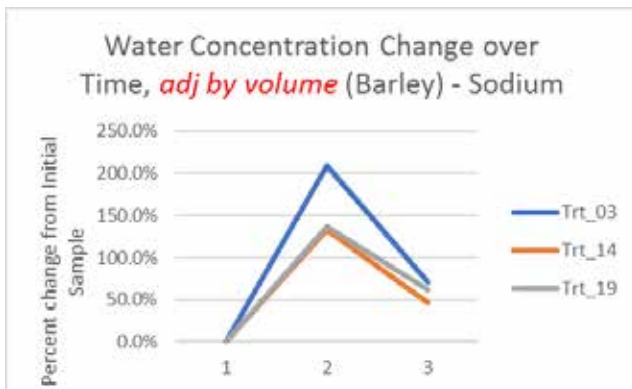
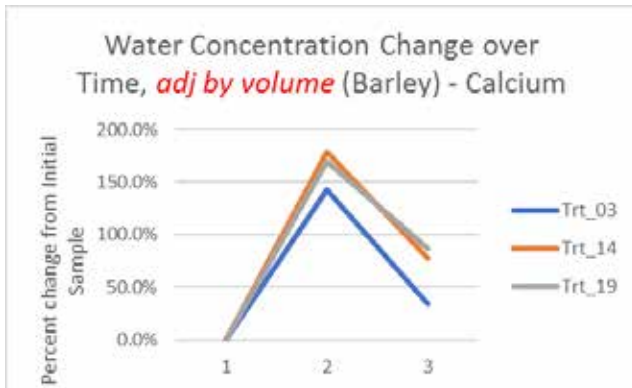


- No significant difference in bicarbonates across treatments

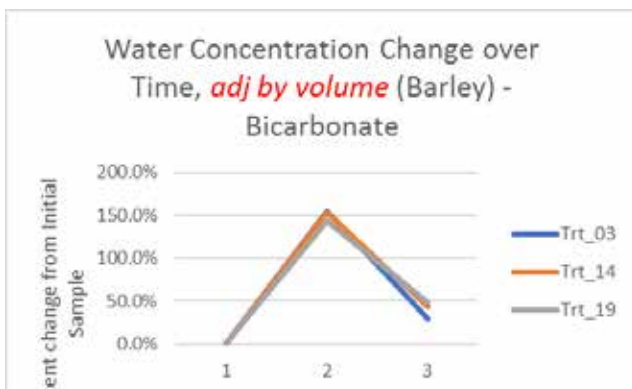
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Analysis

How variable was the *supply* of ions across water treatments?



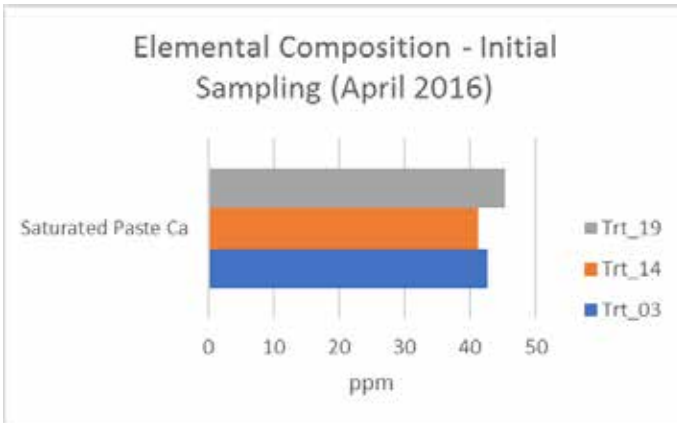
- Concentration of ions supplied does not differ dramatically across water treatments



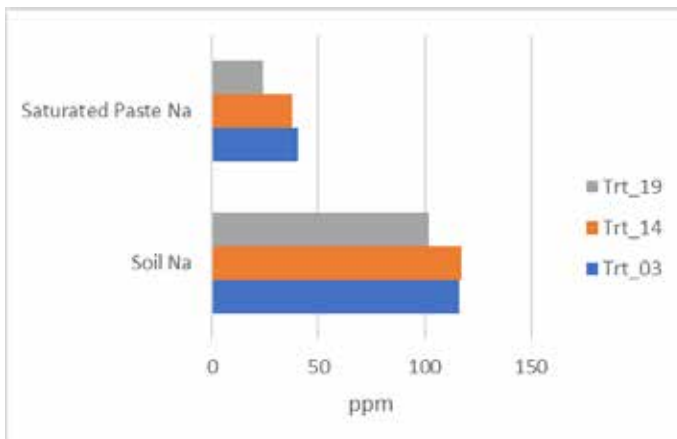
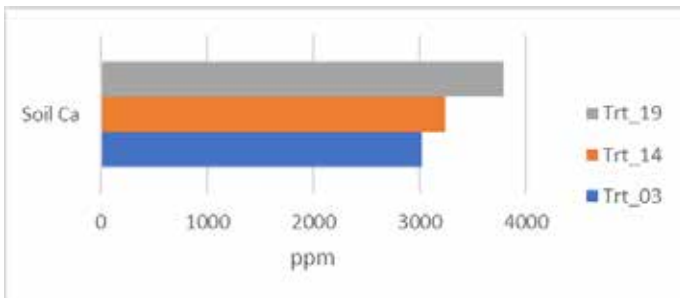
4/20 5/25 6/18

Analysis

Are soils across fields different in ionic composition?

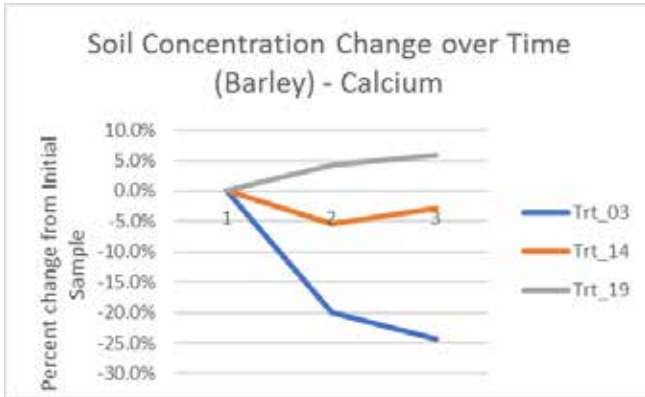


- Soil and paste elemental concentrations not identical, but not highly different

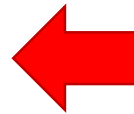
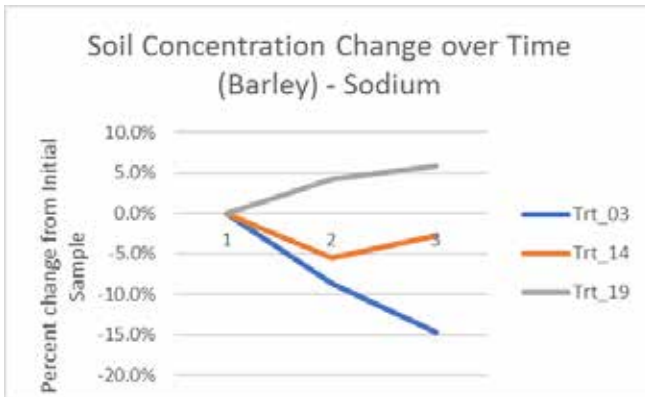
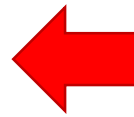


Analysis

How does concentration of soil bound ions differ across treatments?



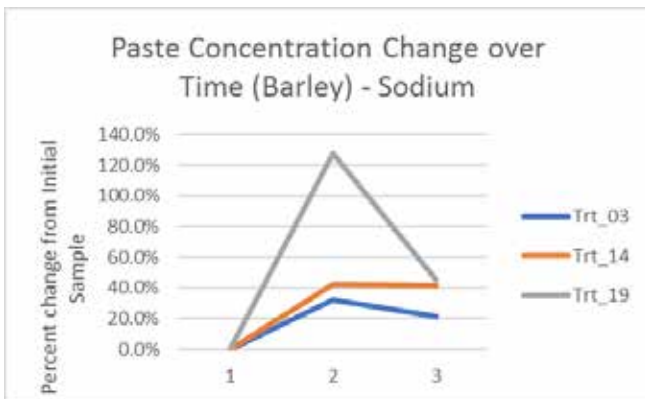
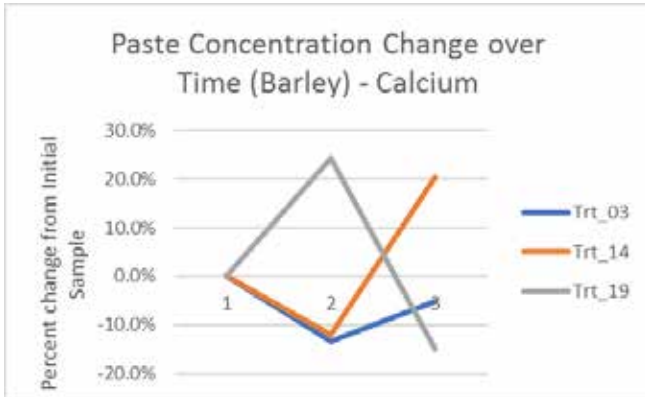
- Trend of decreasing soil-bound Ca and Na with Trt_03



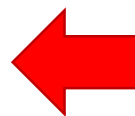
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Analysis

Does ion mobility/ availability differ across treatments?

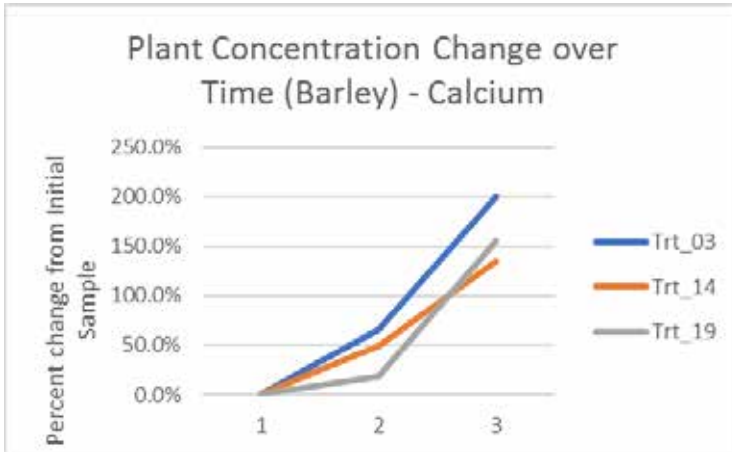


- Possible enhancement in bicarbonate mobility with Trt_03 and Trt_19

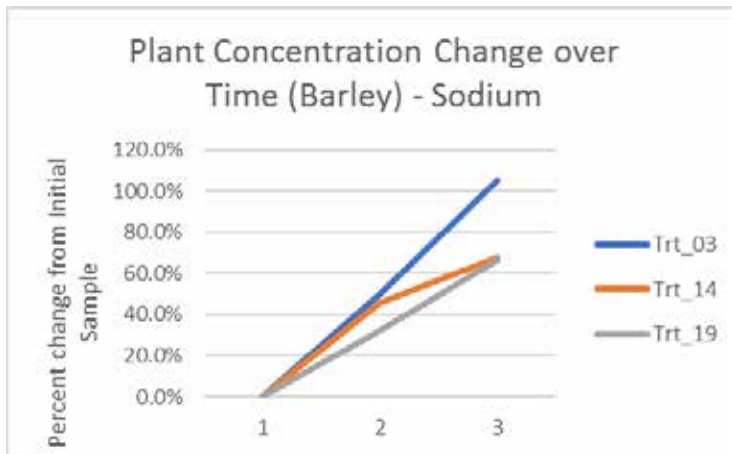


Analysis

Is mineral uptake by plants different across treatments?



- Trt_03 could promote uptake of Ca and Na
- Note that biomass measurements are required to obtain better estimate



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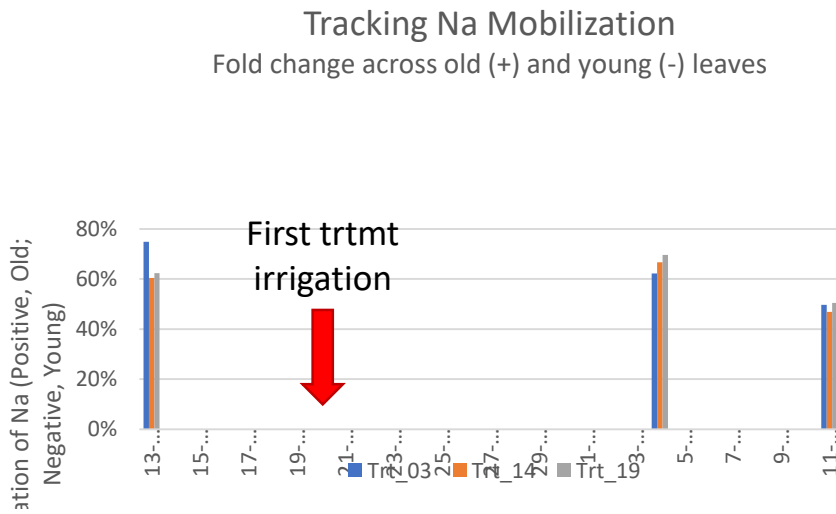
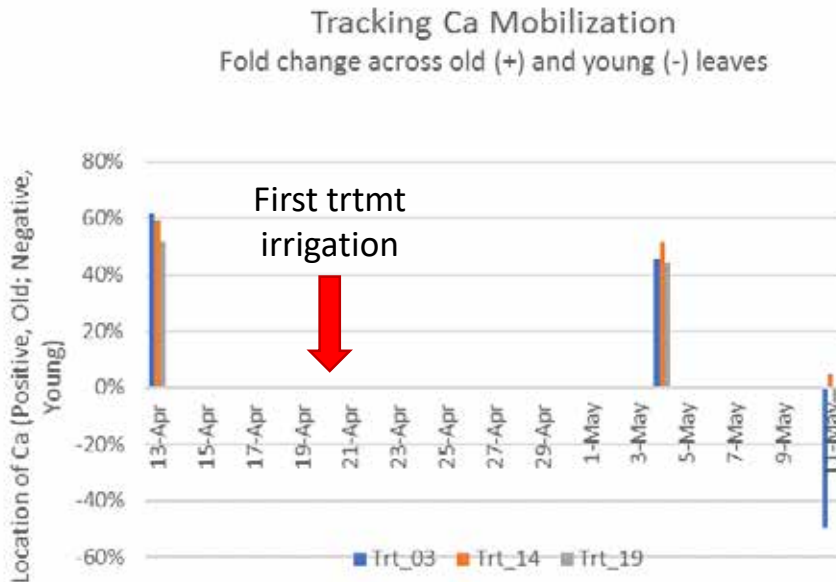
5/11



- Note that a single irrigation (treatment) was applied during window of sap sample collection

Analysis

Does availability of ions within plant differ across treatments?



- Ca concentration in young tissue significantly increases with Trt_03

Conclusions

- *Only using trends (and not compartmentation approach as outlined below), Trt_03 appears to enhance the mobility of cations and anions from soil.*
- *In the case of Trt_03, more Ca and Na appears to be available (taken up) by plant roots*
- *Trt_03 and Trt_19 may yield a significant improvement in bicarbonate mobility*

Desired Experimental Setup

