Figure S1. GPS track from a combine harvester during a corn harvest in Wyoming (black). The mobile laboratory was located at the red marker, downwind of the field being harvested. Once the harvester moved further into the field and the direct plume was too dilute by the time it reached the mobile laboratory, the mobile laboratory was moved further into the field (blue marker) to finish the harvest.
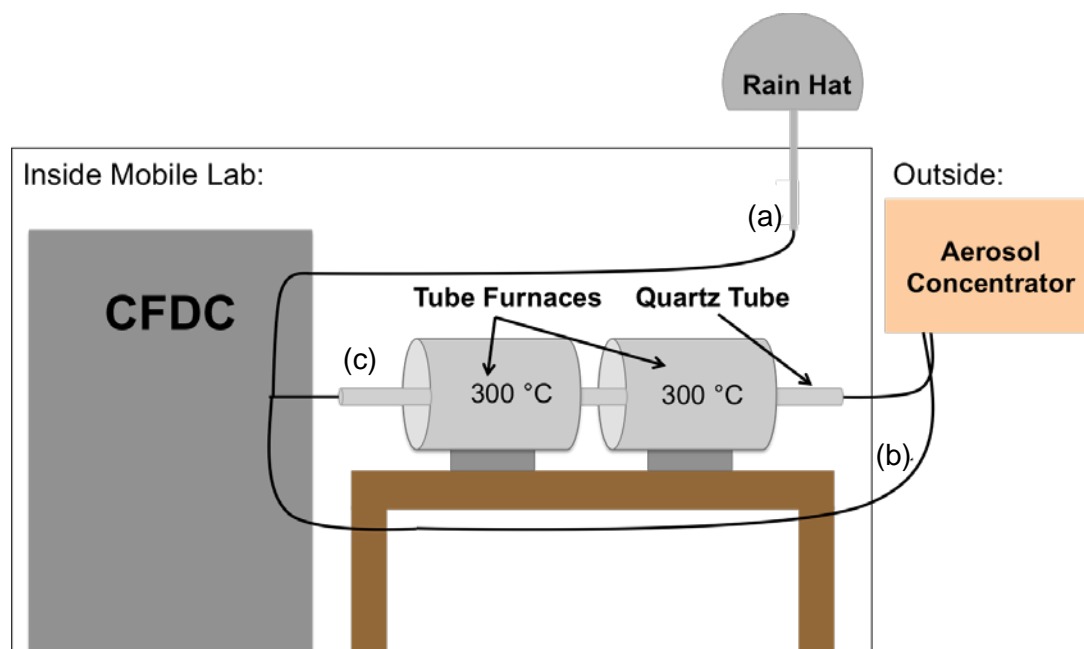
Figure S2. Schematic showing the various sampling configurations used during the study. Ambient sampling through a rain hat (a), concentrated aerosol sampling through an aerosol concentrator (b), and concentrated and heated sampling through an aerosol concentrator and heating tubes at 300 °C (c) are shown.
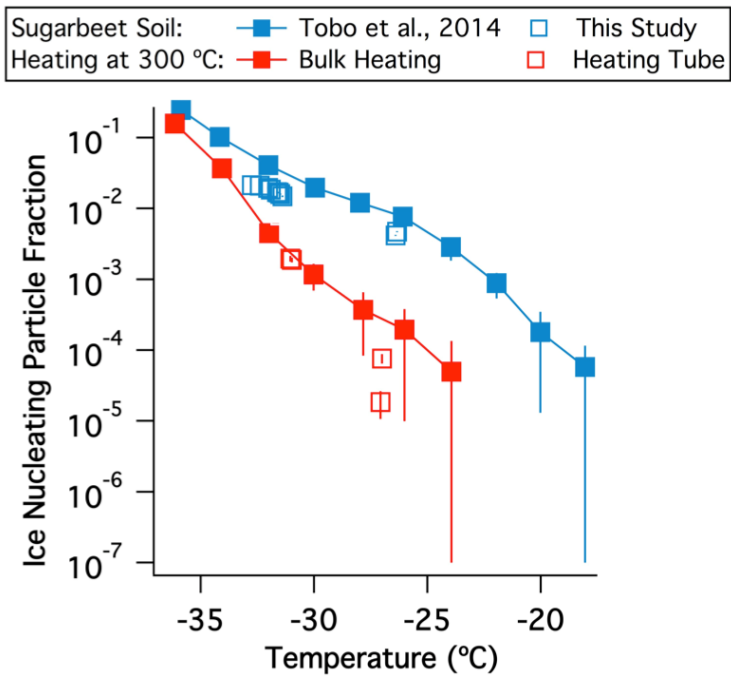
Figure S3. Ice nucleating particle fraction plotted against CFDC operating temperature for a laboratory generated sugar beet soil sample. Results from Tobo *et al.* (2014) are shown with solid square markers and results from this study are shown with open square markers.
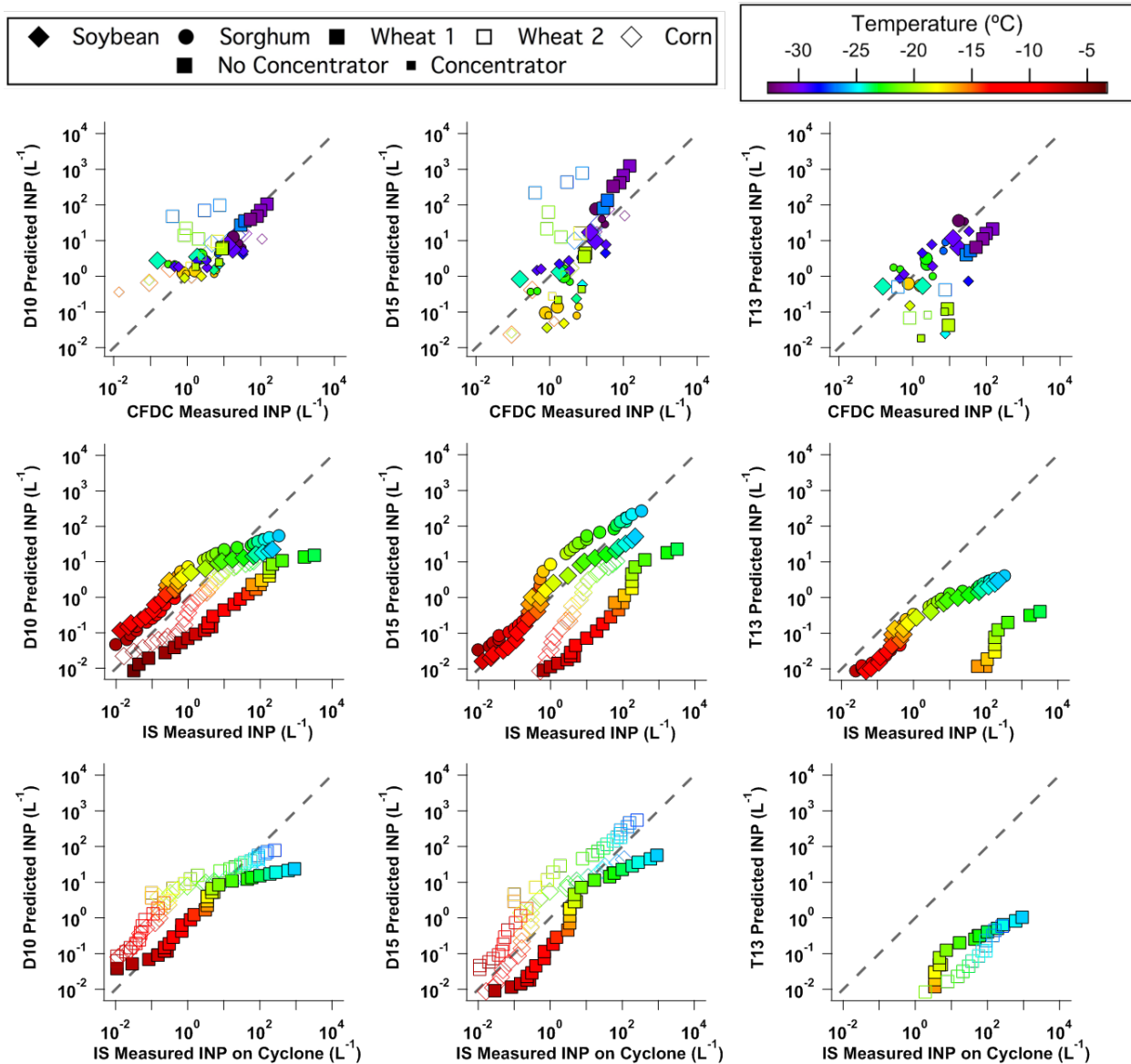
Figure S4. Same as Figure 8, but with color representing CFDC or IS operating temperature and the different symbols signify the different crops. INP number concentrations are predicted using three INP parameterizations, D10 (left), D15 (middle), and T13 (right), and are plotted against measured INP concentrations. The grey dashed line indicates a 1:1 line.