



Figure S1. Container (open cylinder) installation using a prototype cookie cutter saw blade cut created specifically for this project



Figure S2. Forage crops grown in containers in the field (left) and in pots in the greenhouse (right)

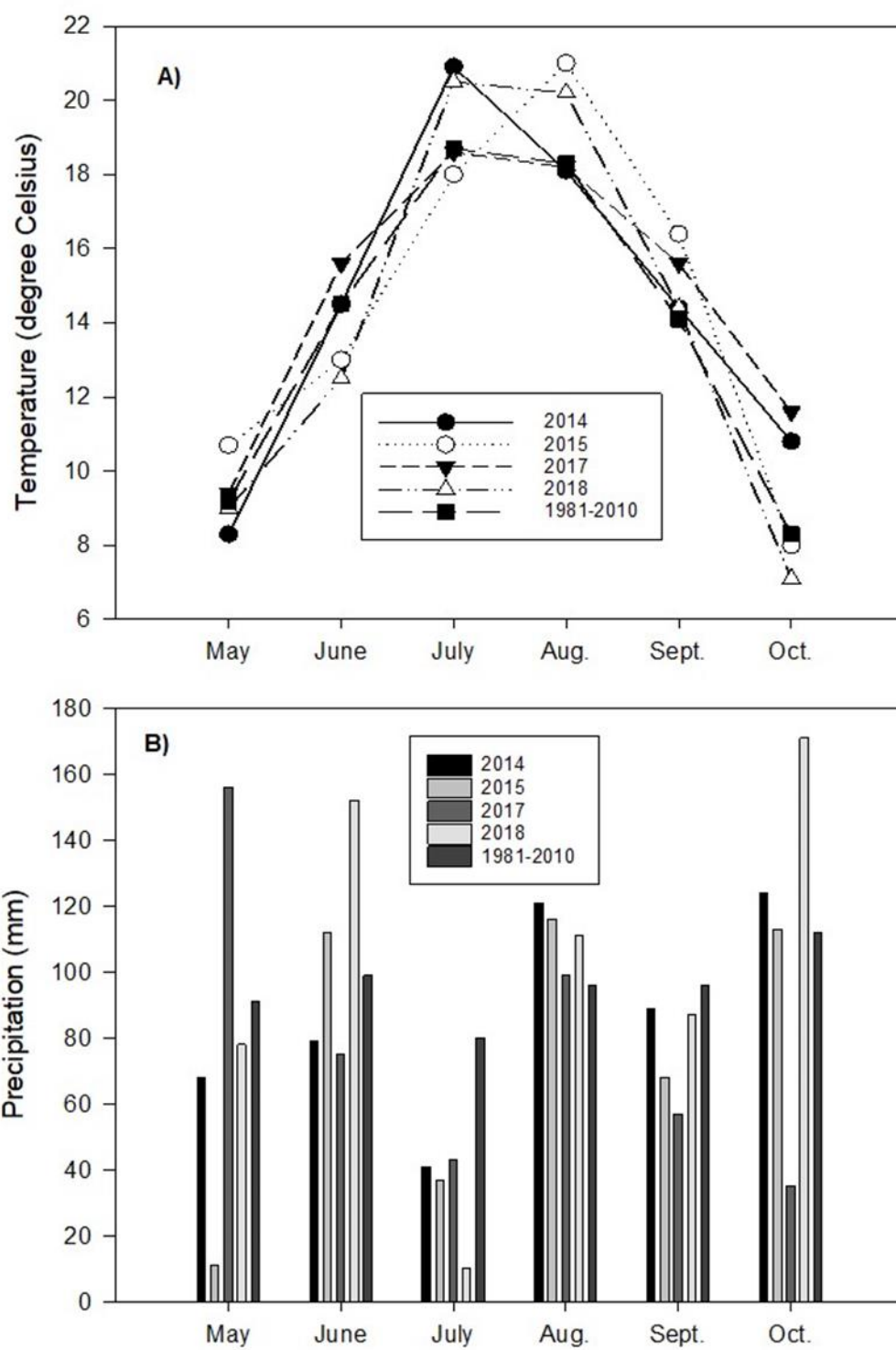


Figure S3. Monthly average temperature (A) and monthly total rainfall (B) during the study period

Appendix A diagram summarizing the key results

Two experiments were used to assess the contribution of forage shoot and root N to subsequent potato crop

Nitrogen accumulation by forage crops is underestimated when root contribution is not included :

- Averaged across forage types, depending on the experiment, recoverable roots biomass represented from 37% to 64% of total forage biomass
- Under the Experiment 1, averaged across forage types, ^{15}N recovery from labelled root only was 52% of the ^{15}N recovery from labelled shoot only (Fig. S4)
- Under the Experiment 2, ^{15}N recovery from labelled roots/unlabelled shoot was 62% of the ^{15}N recovery from labelled shoot/unlabelled roots (Fig. S4)

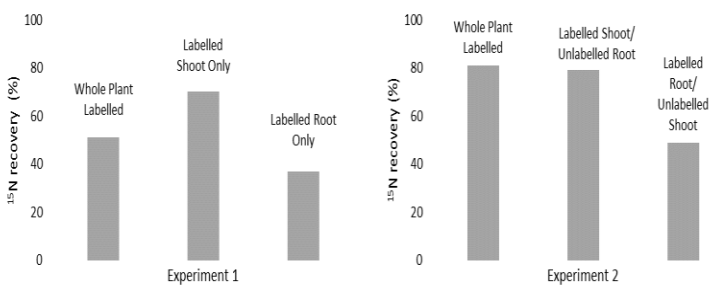


Figure S4. Total ^{15}N recovery from different labelled residues components in the following potato plant and in the soil at 0-30 cm depth. Values are average across forage types (tables 5 and 6).

Less than 5% of total ^{15}N recovery from residues was in the potato crop and thus the majority remained in the soil

Under the humid growing conditions found in eastern Canada, when crop forage residues were incorporated into the soil in fall prior to growing potatoes in the following spring, potato N requirement in the absence of N fertilizer was satisfied by N from the soil rather than from forage residues