

Oversigt over resultater fra projektet "Græsrodssystemer". Vi er ved at skrive en artikel om resultaterne, som bliver lagt op når den er færdig

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Fig. 1. Perennial ryegrass plant during the split-root process. The aboveground part is split into two sections of similar tiller count (A) and the roots are designated to each section (B). The two root sections are growing in two different pots (C, D).

Table 1. Split-root study treatments, to study transport of water and N between roots and tillers.

Illustrations		Treatments			
Pot pair	Pot	Irrigation	Enrichment	Pair type	Sampling time
	L	WW	labeled	main	1 & 2
	R	WW	unlabeled	main	1 & 2
	L	WW	labeled	main	1 & 2
	R	WS	unlabeled	main	1 & 2
	L	WW	unlabeled	control	1 & 2
	R	WW	unlabeled	control	1 & 2
	L	WW	unlabeled	control	1 & 2
	R	WS	unlabeled	control	1 & 2
	L	WW	labeled	split	2
	R	WS	unlabeled	split	2

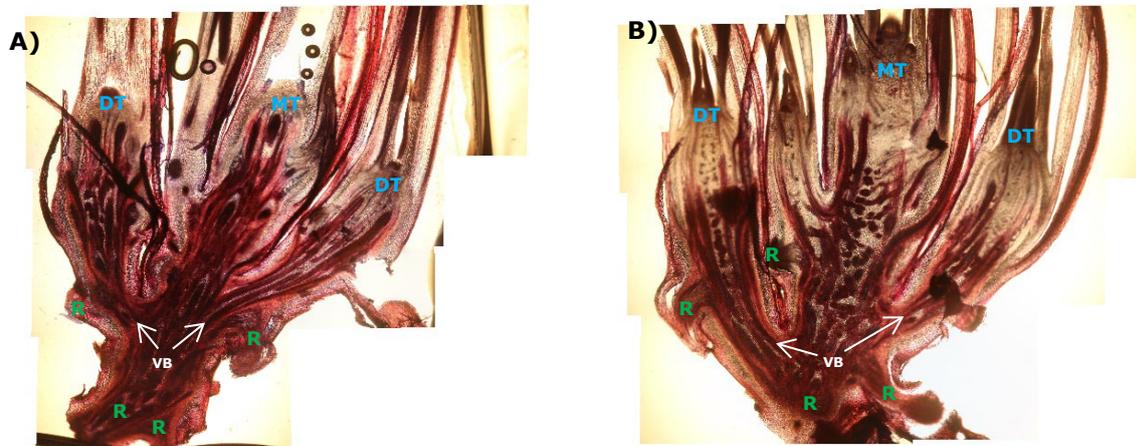


Fig. 2. Longitudinal section of the transition area between the roots and tillers of perennial ryegrass stained with FSA. The positions of the main tiller (MT), daughter tillers (DT), roots (R) and vascular bundles (VS) are indicated.

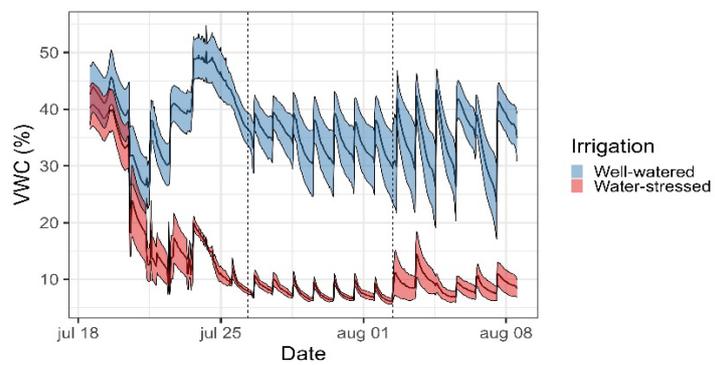


Fig. 3. Soil volumetric content (%) of the well-watered (WW) and water-stressed (WS) pots from the beginning of irrigation treatment to final sampling. Bold lines represent the daily average and lines around the average represent the standard error (n=4). Tracer injection and sampling date 1 are indicated as vertical dotted lines.

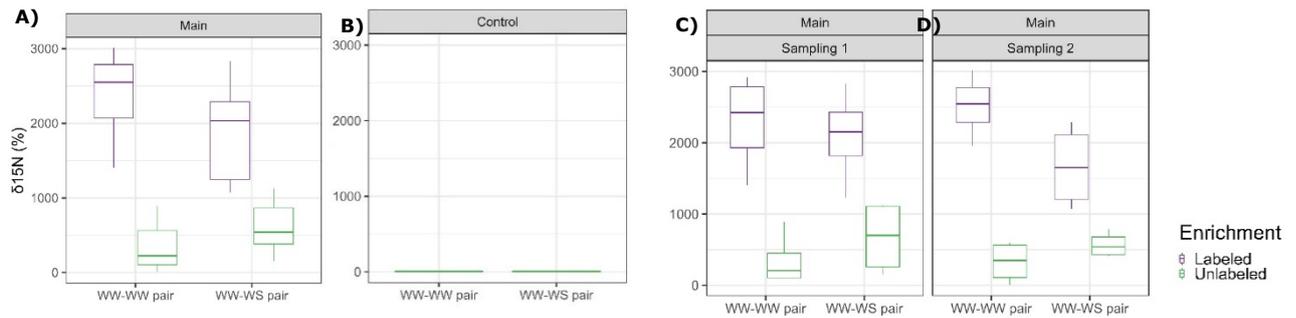


Fig. 4. Boxplots of tiller $\delta^{15}\text{N}$ (%) of the labeled (purple) and unlabeled (green) pots for the main and control pot pairs. Boxplots across both sampling dates (A-B) and for sampling date 1 (C) and 2 (D). Main pot pairs: $n=4 \pm \text{SE}$, control: $n=8 \pm \text{SE}$.

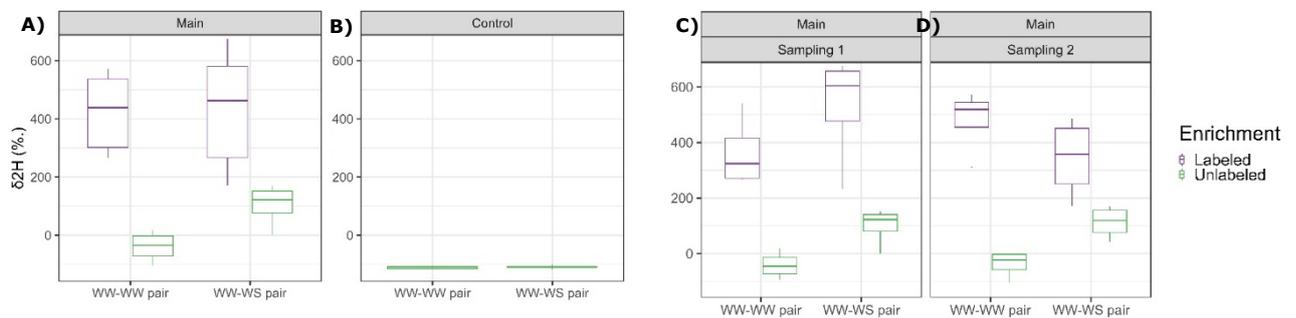


Fig. 5. Boxplots of tiller $\delta^2\text{H}$ (‰) of the labeled (purple) and unlabeled (green) pots for the main and control pot pairs. Boxplots across both sampling dates (A-B) and for sampling date 1 (C) and 2 (D). Main pot pairs: $n=4 \pm \text{SE}$, control: $n=8 \pm \text{SE}$.

Table 2.

Pot		Estimated marginal mean	SE	p.value of contrast
Enrichment	Type			
$\delta^{15}\text{N}$ (log)				
unlabeled	control	0.688	0.201	<.0001
unlabeled	main	5.747	0.217	
$\delta^2\text{H}$ (log)				
unlabeled	control	2.18	0.144	<.0001
unlabeled	main	4.78	0.147	

Table 3.

Pot pair		Estimate	SE	p.value of contrast
Irrigation	Type			
$\delta^{15}\text{N}$ (log)				
WW-WW	main	1.276	0.518	0.1766
WW-WS	main			
$\delta^2\text{H}$ (log)				
WW-WW	main	1.213	0.251	0.0010
WW-WS	main			

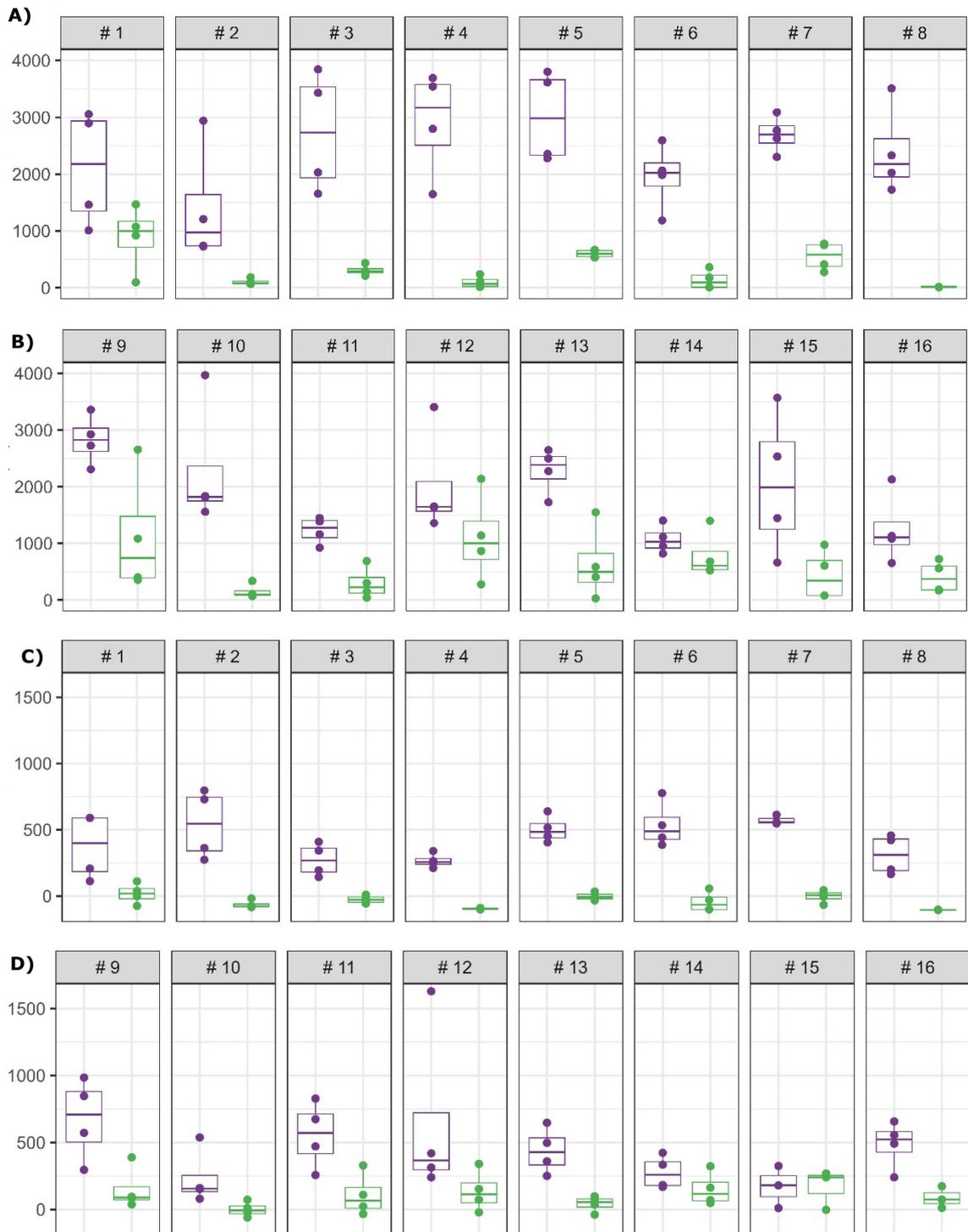


Fig. 6. Boxplots of $\delta^{15}\text{N}$ (%) (A,B) and $\delta^2\text{H}$ (‰) (C,D) for the labeled (purple) and unlabeled (green) pots of the main pot pairs (#). WW-WW pot pairs (A,C) WW-WS pot pairs (B,D). $n=4 \pm \text{SE}$.

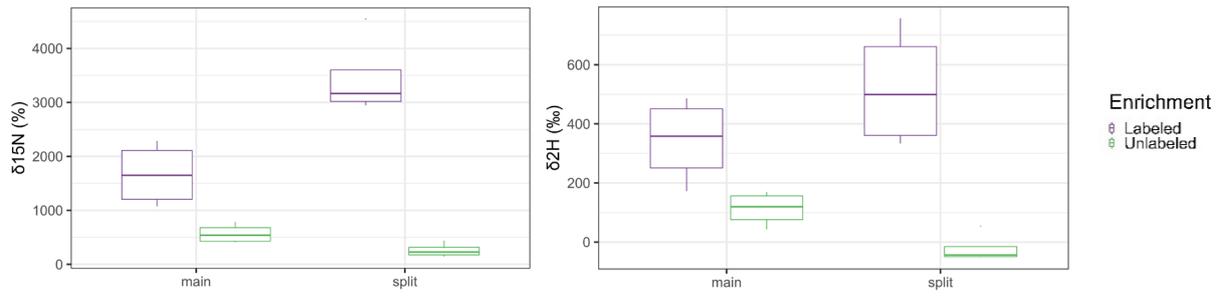


Fig. 7. Boxplots of $\delta^{15}\text{N}$ (%) (A) and $\delta^2\text{H}$ (‰) (B) of the labeled (purple) and unlabeled (green) pots for the main and split pot pairs at sampling date 2. $n=4 \pm \text{SE}$.

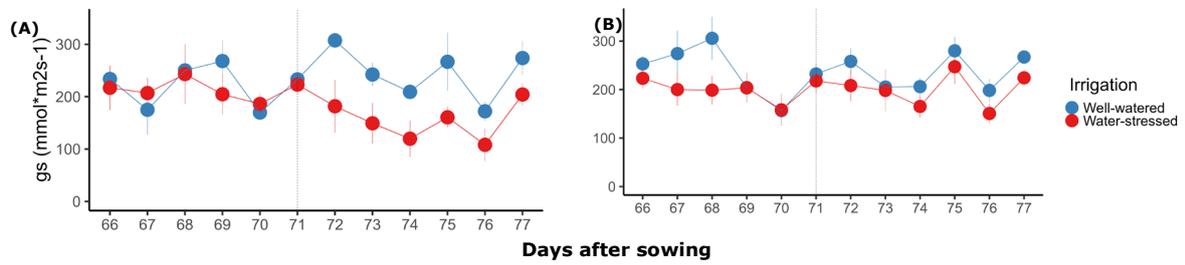
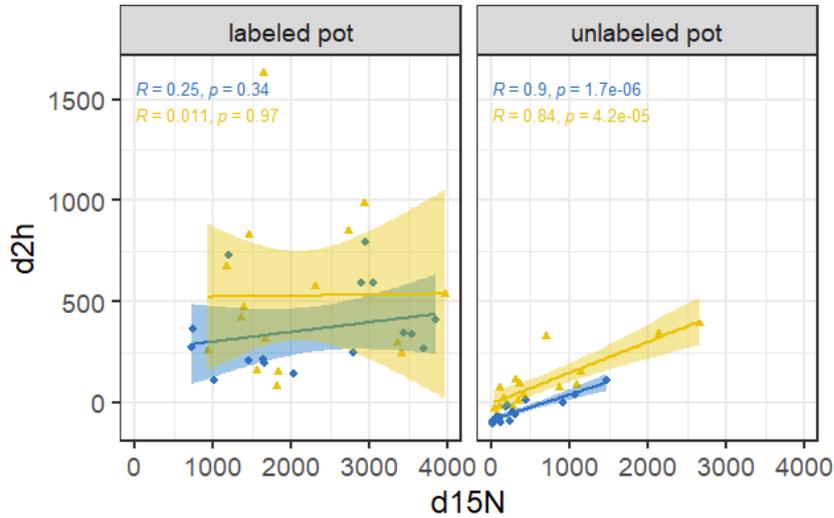


Fig. 8. Stomatal conductance (gs) of the well-watered (blue) and water-stressed (red) pots of the main and control pot pairs before and after pot separation. The dotted line represents the date of the pot separation.

Figure 9: Correlations between tracers at the tiller level (1 point= 1 tiller)

Main samples (i.e. excl. control and split pot pairs)

1st harvest



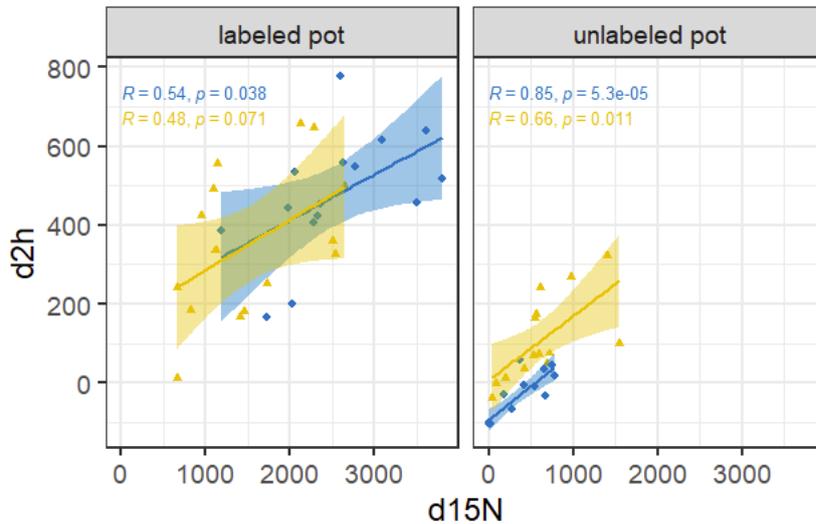
Legend

WW-WW pairs

WW-WS pairs

Very clear differences here between the labeled and unlabeled pot, but I don't know the explanation... I would expect to see a + correlation in the labeled pots too – could that be explained by high original tracer amount in the pot?

2nd harvest



Same here, however correlations in the labeled pot are stronger than the 1st harvest