

Experiment 2 - Data S2

Selma Cadot and Valentin Gfeller

2021-07-01

Experiment 2 - BX-feedbacks on maize in Q-Matte soil

To further test BX-feedbacks we conducted a second experiment with greenhouse-conditioned batches of 'Q-Matte' soil along with 'Changins' soil as a control (Table S1). The experimental design was fully randomized and full factorial (2 soils * 2 BX condition; BX+ or BX-) with 15 replicates (total of 60 experimental units; see Data S2). Two litre pots containing the differentially conditioned soils were seeded with B73 maize plants and grown under controlled conditions (day/night: 16 h/8 h; temperature: 26 °C/23 °C; light: 550 $\mu\text{mol m}^{-2}\text{s}^{-1}$; humidity: 50%) in a walk-in climate chamber. Plants received 100 ml fertilizer (0.2% [w/v] Plantactive Typ K (Hauert) supplemented with 1 ‰ [w/v] Sequestrene rapid (Maag)) at two, four and six weeks and were watered as needed and weekly randomized. The experiment was stopped at 9 weeks and 3 days of growth, measuring plant height and harvesting maize shoots, which were dried (80 °C for 72 h) and weighed on a microbalance.

Table 1: Number of replicates

	BX+	BX-
Changins	15	15
Q_Matte	15	15

Feedback experiment with maize (B73) grown on Changins (arable field) and Q-matte (grassland) soil (*soil* variable) conditioned with maize B73 (BX+ soil) and B73(*bx1*) (BX- soil) (*BX_condition* variable).

Maize growth (height and shoot dry weight)

Table 2: ANOVA on maize height and shoot dry weight (DW).
Model : response variable ~ BX condition * soil

	Sum Sq	Pr(>F)	Sum Sq	Pr(>F)
1	Height		DW	
BX_condition	0.00758	0.0561	0.04657	0.0937
soil	1.10135	0	5.09876	0
BX_condition:soil	0.01044	0.02591	0.06744	0.04488
Residuals	0.10952	NA	0.88038	NA

Table 3: T.test Maize on Changins soil

Parameter	mean in BX+	mean in BX-	p.value
Height	76.91	80.53	0.005925
Shoot DW	7.186	8.062	0.0156

Table 4: T.test Maize on Q-Matte soil

Parameter	mean in BX+	mean in BX-	p.value
Height	103.8	103	0.6455
Shoot DW	13.78	13.63	0.8295

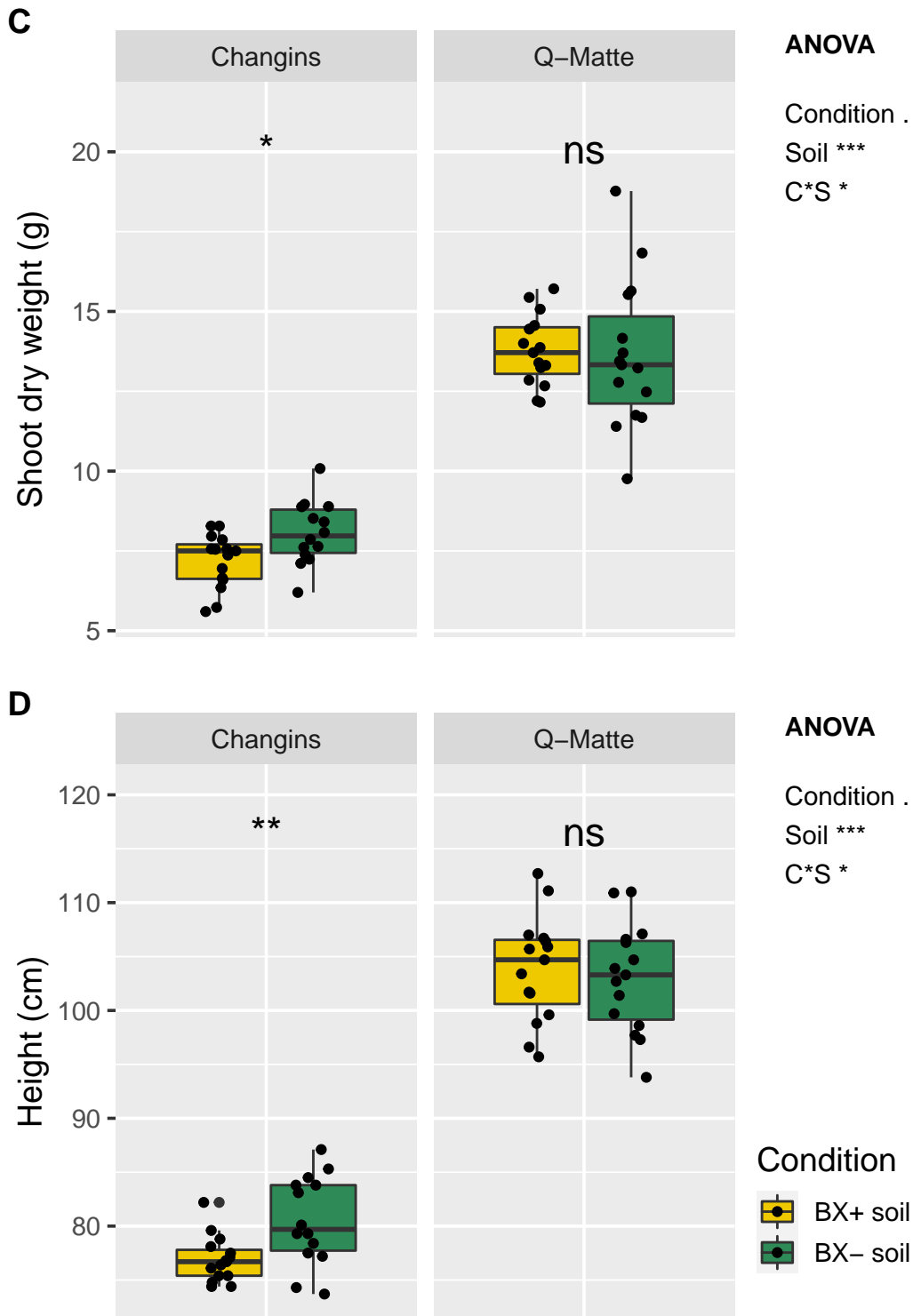


Figure 1 | BX-feedback on maize growth Maize plants were grown on ‘BX+’ and ‘BX-’ variants of Changins soil as a control and compared to Reckenholz (A,B, data S1) and in a separate experiment to Q-Matte soil (C,D). Shoot biomass (A, dry weight) and shoot height (B) was recorded after 10 weeks. The Q-matte experiment was harvested after 9 weeks and 3 days measuring shoot biomass (C, dry weight) and shoot height (D). The ANOVA results (model: ~ condition (C) * soil (S)) are reported next to the Figure and the pair-wise T-test results inside the panels (Significance code: $P < 0.001$ ***; $P < 0.01$ *, $P < 0.05$; not significant = ‘n.s.’).