

Table S1. Irrigation levels and total water supply (irrigation + precipitation, TWS) applied in the field experiment. The irrigation levels were defined in relation to the common irrigation practice of the local farmer (100 %). The irrigation levels were planned as 80 %, 90 % and 120 %, respectively, but were affected by technical gun sprinkler properties, resulting in high spatial and temporal variances. Standard deviations calculated from 7-minute GPS based speed and location gun sprinkler data are shown plot wise for each irrigation level and event. The actual irrigation levels were assessed using the ratio of each irrigation level compared to the common irrigation level of the farmer (100 %) by dividing the actual irrigation level by the actual 100 % irrigation level.

date (days after planting)	irrigation level (mm)			
	80%	90%	100%	120%
June 17, 2021 (63)	21.2 ± 2.6	21.7 ± 3.2	24.2 ± 1.9	30.5 ± 4.1
June 20, 2021 (66)	21.7 ± 2.5	18.7 ± 3.3	21.1 ± 2.1	23.9 ± 5.9
June 24, 2021 (70)	19.7 ± 1.0	22.4 ± 4.2	24.7 ± 7.5	27.9 ± 3.2
July 19, 2021 (95)	16.6 ± 1.0	24.6 ± 4.1	28.2 ± 4.0	26.3 ± 6.7
July 29, 2021 (105)	19.2 ± 2.8	19.2 ± 1.5	20.9 ± 2.2	25.7 ± 0.3
total irrigation level	98.4	106.7	119.2	134.4
ratio of the farmer's common irrigation (%)	82.6	89.5	100.0	112.7
total water supply	353.5	361.8	374.3	389.5