
Supplementary data

This part is the results of relationship between V_{cmax25} and LWC for different treatments in 2013-2015.

Relationship between V_{cmax25} and LWC in maize

Photosynthesis is the basis of crop growth and development. V_{cmax25} can strongly reflect the photosynthetic capacity of plants. In this study, the relationship between V_{cmax25} and LWC were analyzed, we found there was a significant quadratic relationship between V_{cmax25} and LWC (Figures S1-3, Table S1). V_{cmax25} first increased with the increase of LWC, and decreased gradually with the increase of LWC once LWC reached a certain threshold. In 2013, when the LWC of D1–D6 treatments was 81.7%, 83.2%, 82.4%, 82.5%, 82.3%, and 83.1%, respectively, V_{cmax25} reached the maximum values of 49.5, 45.2, 45.7, 45.9, 46.2, and 45.7 $\mu\text{mol m}^{-2} \text{s}^{-1}$, respectively. When LWC was 67.2%, 66.5%, 65.7%, 67.0%, 67.1%, and 68.1% for treatments D1–D6, respectively, V_{cmax25} decreased to zero. In 2014, when the LWC of the D1–D6 treatments was 82.3%, 82.8%, 82.6%, 80.9%, 80.2%, and 80.7%, respectively, V_{cmax25} reached the maximum values of 41.8, 45.7, 43.4, 42.2, 41.5, and 38.8 $\mu\text{mol m}^{-2} \text{s}^{-1}$ respectively. When LWC of the D1–D6 treatments was 67.2%, 67.7%, 67.2%, 68.8%, 68.9%, and 65.9%, respectively, V_{cmax25} decreased to zero. In 2015, when the water content of the D1 and D2 treatments was 87.0% and 81.0%, respectively, V_{cmax25} reached the maximum values of 44.8 and 40.1 $\mu\text{mol m}^{-2} \text{s}^{-1}$, respectively. V_{cmax25} decreased to zero when the water content of the D1 and D2 treatments was 68.3% and 69.9%, respectively.

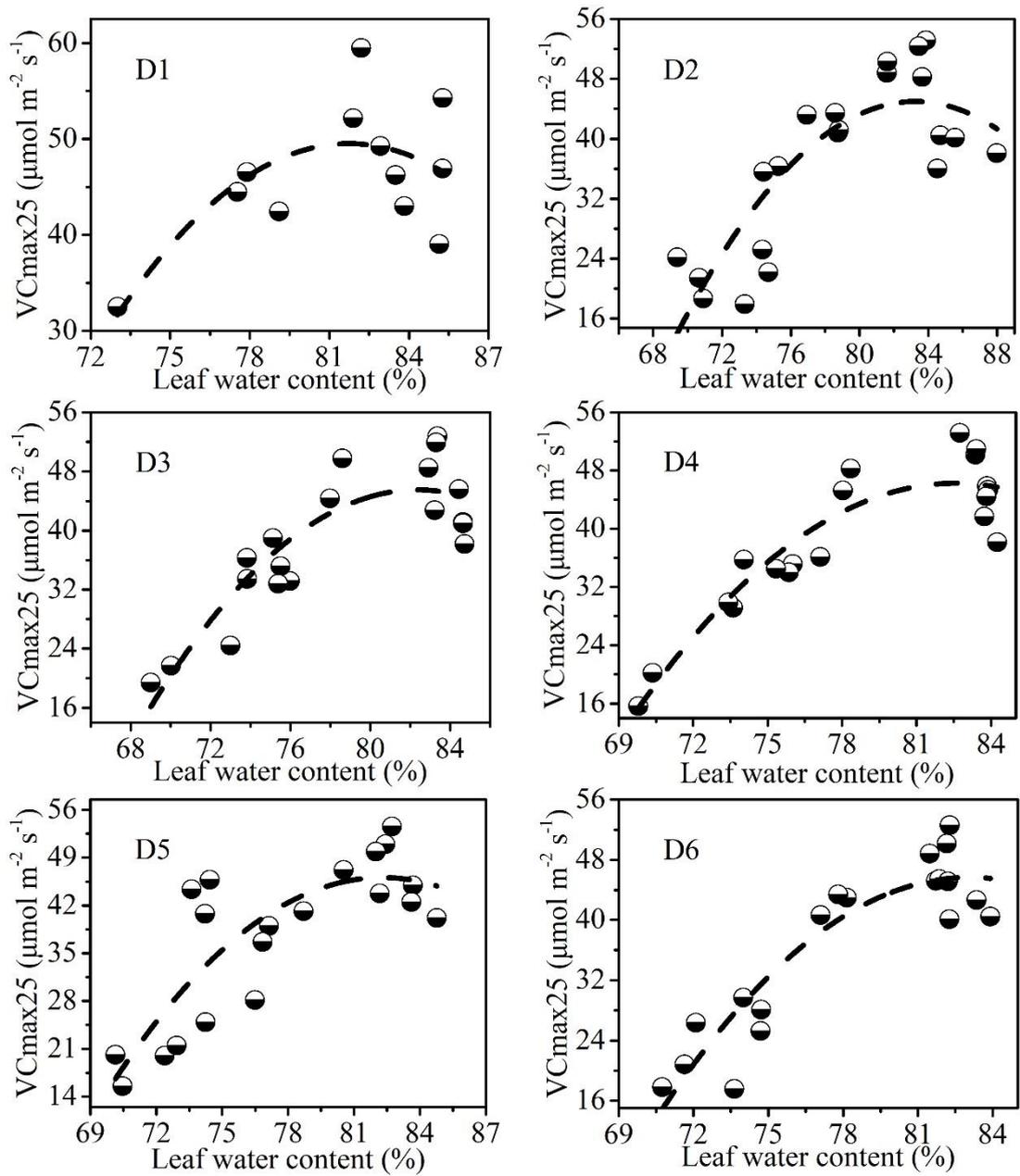


Figure S1. Relationship between LWC and V_{cmax25} for various treatments in 2013

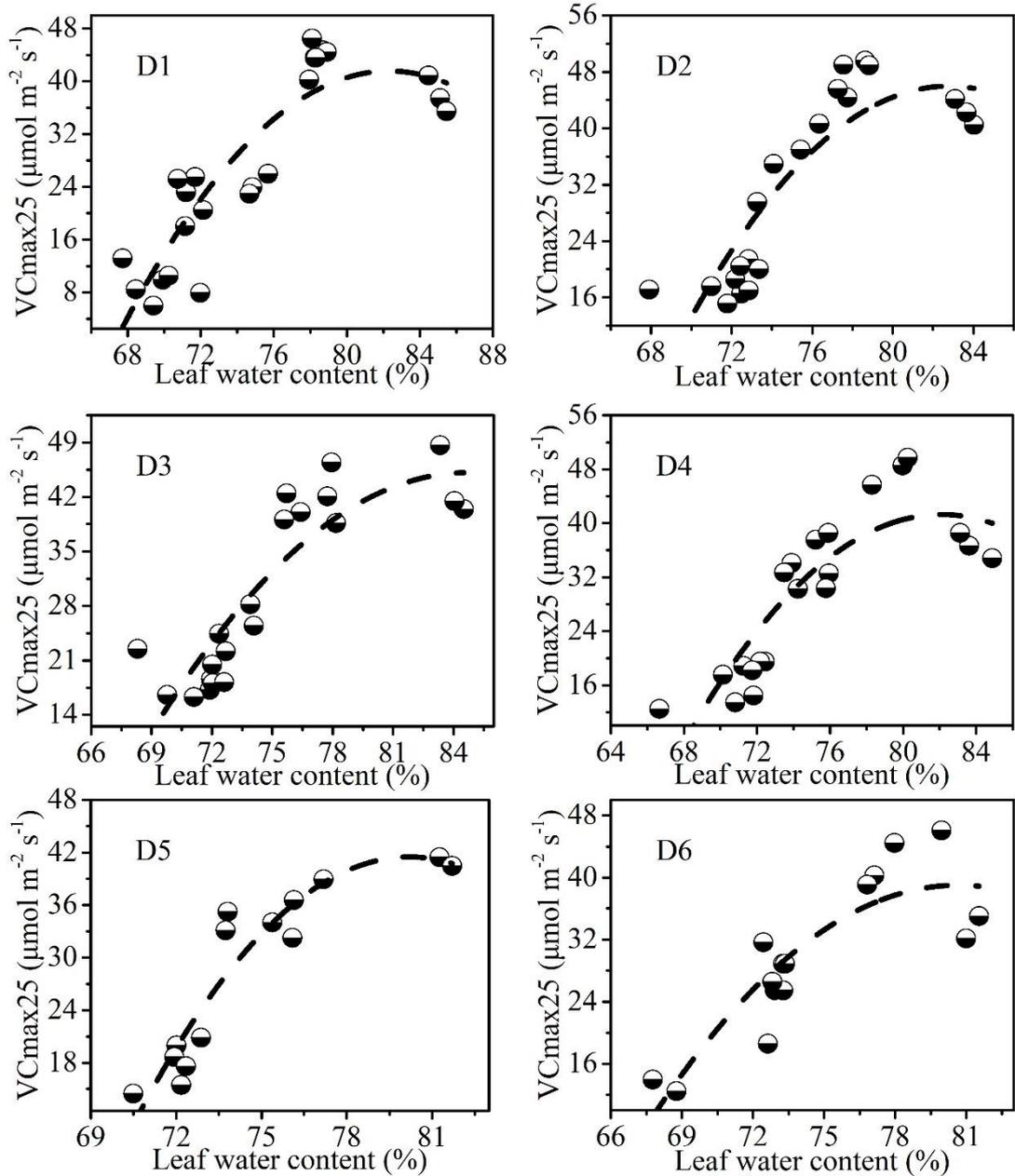


Figure S2. Relationship between LWC and V_{cmax25} for various treatments in 2014

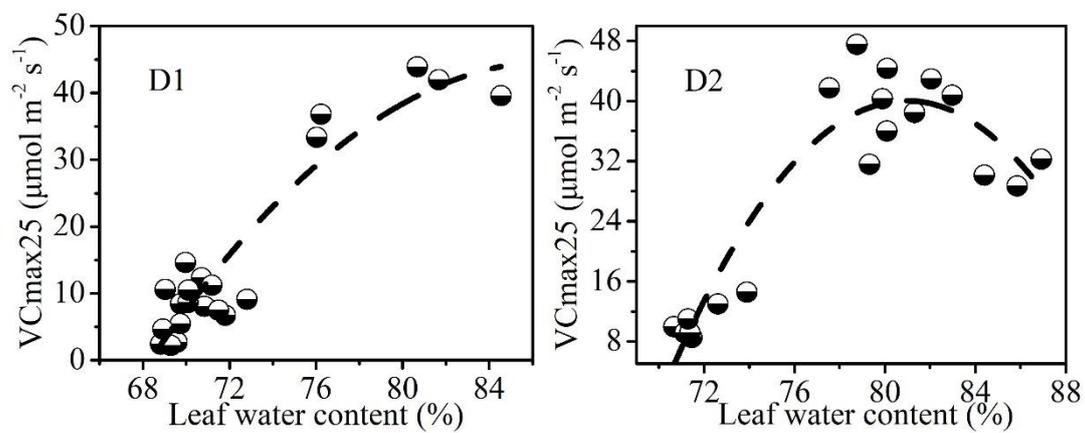


Figure S3. Relationship between LWC and V_{cmax25} for various treatments in 2015

Table S1. Regression equation between leaf water content and Vcmax25 during 2013- 2015

Treatments	Regression equation	R2
2013		
D1	$y = -0.23419 x^2 + 38.28476 x - 1515.11707$	0.466
D2	$y = -0.16195 x^2 + 26.95545 x - 1076.67194$	0.706***
D3	$y = -0.16433 x^2 + 27.07084 x - 1069.38874$	0.786***
D4	$y = -0.18936 x^2 + 31.26933 x - 1244.67105$	0.857***
D5	$y = -0.19941 x^2 + 32.81951 x - 1304.30349$	0.669***
D6	$y = -0.20281 x^2 + 33.69543 x - 1353.90237$	0.843***
2014		
D1	$y = -0.18224 x^2 + 30.00415 x - 1193.44963$	0.794***
D2	$y = -0.20057 x^2 + 33.20223 x - 1328.11044$	0.752***
D3	$y = -0.13549 x^2 + 22.95114 x - 926.83676$	0.768***
D4	$y = -0.16954 x^2 + 27.84205 x - 1101.77816$	0.754***
D5	$y = -0.32501 x^2 + 52.12879 x - 2048.75075$	0.882***
D6	$y = -0.17916 x^2 + 28.90666 x - 1126.96262$	0.772***
2015		
D1	$y = -0.1277 x^2 + 22.23192 x - 922.84757$	0.885***
D2	$y = -0.3315 x^2 + 53.68079 x - 2133.1242$	0.887***

*** means the leaf water content and Vcmax25 was significantly related at a 0.001 significant

level