

Figure S1. Diagram of the experiment plot layout in the field trial in 2020 with two garlic varieties Glenlarge (GL) and Southern Glen (SG). S denotes sulfur treatment and R denotes replicate.

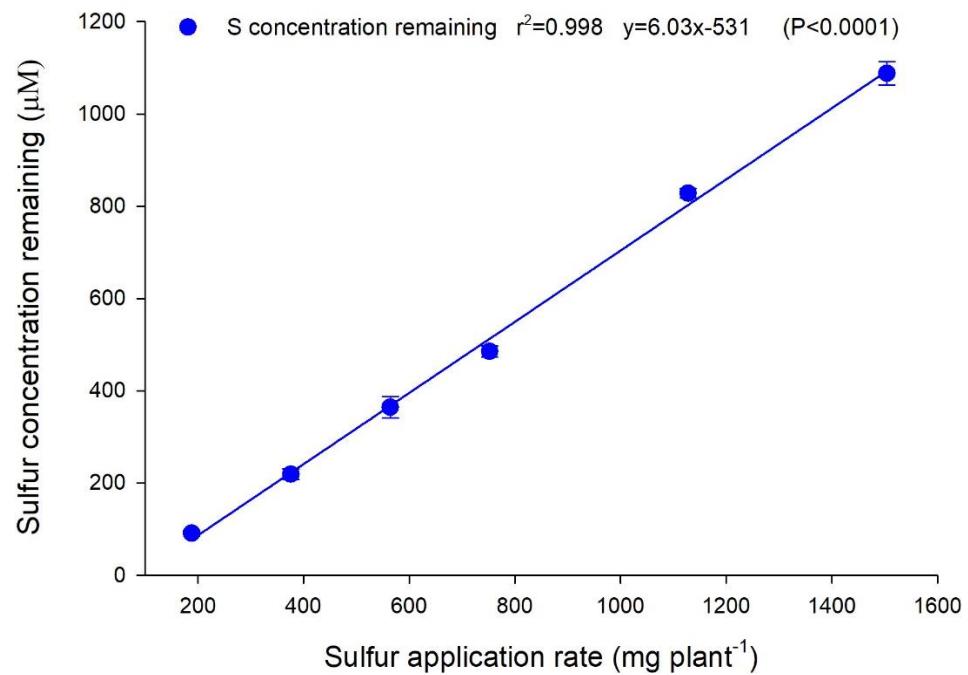


Figure S2 The relationship between S application rate (mg plant^{-1}) and sulfur concentration remaining (μM) in solution culture.

Table S1. Timing and amount of sulfur (kg ha^{-1}) applied as MgSO_4 in the field experiment.

S rate (kg ha^{-1})	$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ (kg ha^{-1})	Timing of application (days after planting)		
		10	30	60
0	0	0	0	0
25	609	609	0	0
50	1218	609	609	0
75	1826	609	609	609
100	2434	609	1218	609

150

3652

1218

1218

1218

Table S2. Aliquots of nutrient stock solutions applied to solution culture pots (containing 3 plants each) to meet plant growth demand in an experiment evaluating S rates.

Fertiliser	Stock solution concentration (g L ⁻¹)	Weekly (WK) aliquots of stock solution added to pots (ml)														
		WK 1	WK 2	WK 3	WK 4	WK 5	WK 6	WK 7	WK 8	WK 9	WK 10	WK 11	WK 12	WK 13	WK 14	WK 15
All pot applications																
(NH ₄) ₂ SO ₄	20.3	6	8	0	8	4	0	0	4	0	0	0	0	0	0	-
(NH ₄)NO ₃	230.3	12	16	0	5	8	8	0	4	0	4	0	0	0	0	-
Ca(NO ₃) ₂ .4H ₂ O	126.3	6	8	9	0	8	8	2	9	0	4	8	0	4	0	-
KNO ₃	133.8	6	8	5	0	4	5	0	2	0	4	0	0	0	0	-
KH ₂ PO ₄	74.3	6	8	4	0	4	5	9	4	0	8	0	0	0	0	5
MgCl ₂ .6H ₂ O	62.7	3	4	2	1	2	2	2	2	2	0	0	0	0	0	-
MgSO ₄ .7H ₂ O	57.2	8	12	0	8	4	-	-	4	4	8	4	3	0	-	-
CaCl ₂	2.1	12	16	9	0	5	2	2	0	0	0	0	0	0	-	-
CaCl ₂	4.3	0	0	0	-	-	-	-	2	-	4	-	-	-	-	-
Sodium-FeEDTA	2.45	4	4	4	-	4	4	8	4	-	6	4	8	-	4	-
H ₃ BO ₃	0.76	4	4	4	-	8	2	2	2	4	2	2	2	2	-	2
MnCl ₂ .4H ₂ O	0.43	4	4	4	-	4	4	2	2	2	2	2	4	6	2	2
Na ₂ MoO ₄ .2H ₂ O	0.01	4	4	4	-	12	-	2	2	2	-	2	2	4	-	2
ZnSO ₄ .7H ₂ O	1.06	4	6	2	4	4	-	2	2	2	2	2	2	-	-	-
CuSO ₄ .5H ₂ O	0.08	4	6	2	4	4	-	4	2	6	3	4	13	6	2	2
CoSO ₄ .7H ₂ O	0.68	4	6	-	2	1	-	2	-	2	-	2	-	2	-	-
NiSO ₄ .6H ₂ O	0.20	4	6	-	2	1	-	2	-	2	-	-	-	2	-	-

S Treatment applications MgSO ₄ .7H ₂ O																	
T2	216.5	2	2	4	4	2	-	-	2	1	1	1	1	-	-	-	-
T3	216.6	4	4	8	8	4	-	-	4	2	2	2	2	-	-	-	-
T4	216.6	6	6	12	12	6	-	-	6	3	3	3	3	-	-	-	-
T5	216.6	10	10	20	20	10	-	-	10	5	5	5	5	0	-	-	-
T6	216.6	14	14	28	28	14	-	-	14	7	7	7	7	0	-	-	-

Table S3. Soil and solution temperature measured in the glasshouse solution culture experiment and the field experiment conducted in Gatton in 2020. The data includes average daily temperatures expressed on a per week basis for the six-week period from 23 July 2020 to 2 September 2020.

Week	Glasshouse solution temperature (°C)			Field soil temperature (°C)		
	Mean	Maximum	Minimum	Mean	Maximum	Minimum
1	17.9	19.9	16.1	14.6	16.2	13.2
2	18.2	21.2	15.4	14.2	16.9	11.9
3	18.5	21.1	16.0	14.2	16.3	12.3
4	19.8	22.8	16.9	15.0	17.4	12.9
5	18.5	21.9	15.1	13.7	16.6	11.1
6	21.0	24.7	17.4	15.7	18.9	12.9

Table S4. Air temperature measured in the glasshouse experiment and the field experiment conducted in Gatton in 2020. The data includes average daily temperatures expressed on a per week basis for the twelve-week period from 01 May 2020 to 23 July 2020.

Week	Glasshouse air temperature (°C)		Field air temperature (°C)	
	Minimum	Maximum	Minimum	Maximum
1	10.4	29.4	12.2	24.4
2	12.2	29.8	13.8	26.0
3	13.1	28.0	7.9	24.1
4	11.1	25.6	8.6	21.4
5	10.7	27.1	7.7	23.4
6	10.4	27.0	6.0	24.3
7	13.0	26.0	5.9	24.1
8	9.8	23.2	8.7	20.6
9	8.2	24.0	8.3	22.6
10	8.3	24.4	8.3	22.1
11	10.1	23.6	8.5	20.4
12	8.6	23.4	5.0	22.4

Table S5. Effect of S application rate on S, N and C concentration and C:N ratio in the youngest fully expanded leaf of variety Glenlarge growing under field conditions at Gatton Research Facility in 2020.

S treatments (kg ha ⁻¹)	S (g kg ⁻¹) ^{NS}	N (g kg ⁻¹) ^{NS}	C (%) ^{NS}	C:N ^{NS}
0	5.48	45.5	44.0	9.8
25	5.72	45.5	43.7	9.7
50	5.58	45.6	44.3	9.6
75	5.76	46.0	43.8	9.5
100	5.54	45.9	44.0	9.6
150	5.37	46.5	43.9	9.3
Mean	5.58	45.8	43.9	9.6

^{NS} denotes no significant difference between S treatments (P>0.05)

Table S6. Sulfur, N and C concentration and C:N ratio in the youngest fully expanded leaf of garlic variety Glenlarge at different S application rates in solution culture.

S application rate (mg plant ⁻¹)	S (g kg ⁻¹) ^{NS}	N (g kg ⁻¹) ^{NS}	C% ^{NS}	C:N ^{NS}
188	6.05	59.9	45.1	7.5
376	5.95	59.8	45.0	7.5
564	5.93	58.9	45.0	7.6
752	6.20	60.4	45.0	7.5
1128	6.25	60.4	45.0	7.5
1504	6.04	60.4	45.0	7.5
Avg	6.07	60.0	45.0	7.5

^{NS} denotes no significant difference between S treatments (P>0.05)