

**Table S1.** Effect of irrigation intervals, organic amendments, and/or inorganic fertilizers on soil properties.

| Treatment                   | Available N<br>(mg N kg <sup>-1</sup> ) | Available P<br>(mg P kg <sup>-1</sup> ) | Available K<br>(mg K kg <sup>-1</sup> ) | Soil pH         |
|-----------------------------|---|---|---|-----------------|
| <b>Irrigation</b>           |   |   |   |                 |
| I <sub>1</sub>              | 46.596 c ± 0.49                         | 5.484 c ± 0.18                          | 180.333 c ± 0.12                        | 8.127 a ± 1.01  |
| I <sub>2</sub>              | 51.221 a ± 0.58                         | 5.746 a ± 0.16                          | 186.917 a ± 1.44                        | 8.153 a ± 0.02  |
| I <sub>3</sub>              | 49.658 b ± 0.65                         | 5.620 b ± 0.13                          | 184.000 b ± 0.97                        | 8.171 a ± 0.02  |
| <b>Organic amendment</b>    |   |   |   |                 |
| No amendment                | 51.593 a ± 0.68                         | 6.059 a ± 0.13                          | 186.833 a ± 1.09                        | 8.144 a ± 0.02  |
| Compost                     | 49.385 b ± 0.48                         | 5.530 b ± 0.13                          | 182.500 b ± 1.51                        | 8.144 a ± 0.03  |
| Biochar                     | 46.496 c ± 0.5                          | 5.261 c ± 0.12                          | 181.917 b ± 0.89                        | 8.163 a ± 0.02  |
| <b>Inorganic fertilizer</b> |   |   |   |                 |
| No fertilizer               | 45.954 d ± 0.57                         | 4.477 d ± 0.11                          | 177.778 c ± 0.57                        | 8.319 a ± 0.03  |
| R <sub>1</sub>              | 47.886 c ± 0.49                         | 5.680 c ± 0.07                          | 183.333 b ± 0.8                         | 8.126 b ± 0.02  |
| R <sub>2</sub>              | 50.116 b ± 0.61                         | 6.059 b ± 0.08                          | 184.000 b ± 1.96                        | 8.098 bc ± 0.02 |
| R <sub>3</sub>              | 52.678 a ± 0.68                         | 6.250 a ± 0.09                          | 189.889 a ± 0.84                        | 8.059 c ± 0.01  |

I<sub>1</sub>, I<sub>2</sub>, and I<sub>3</sub> refer to well-watered, mild drought, and severe drought, respectively. R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> refer to 119-15.7-69, 179-23.5-99, and 238-31.4-138 kg NPK ha<sup>-1</sup>, respectively. Data are the mean ± SE (n = 6). The same letters in each column indicate insignificant differences according to the LSD test ( $p \leq 0.05$ ).

**Table S2.** The interaction effect of irrigation intervals, organic amendments, and inorganic fertilizers on soil properties.

| Irrigation     | Amendment    | Inorganic NPK rate | Available N (mg N kg <sup>-1</sup> ) | Available P (mg P kg <sup>-1</sup> ) | Available K (mg K kg <sup>-1</sup> ) | Soil pH         |
|----------------|--------------|--------------------|--------------------------------------|--------------------------------------|--------------------------------------|-----------------|
| I <sub>1</sub> | No amendment | No fertilizer      | 45.2 t ± 0.12                        | 5.12 mn ± 0.07                       | 178 jk ± 1.73                        | 8.15 e-h ± 0.09 |
|                |              | R <sub>1</sub>     | 46.8 q ± 0.46                        | 5.85 hij ± 0.03                      | 185 d-h ± 2.89                       | 8.12 e-h ± 0.07 |
|                |              | R <sub>2</sub>     | 49.2 lm ± 0.12                       | 6.85 a ± 0.03                        | 187 d-g ± 1.15                       | 8.09 e-h ± 0.05 |
|                |              | R <sub>3</sub>     | 52.2 g ± 0.11                        | 6.90 a ± 0.03                        | 189 b-e ± 2.31                       | 8.07 fgh ± 0.04 |
|                | Compost      | No fertilizer      | 43.8 u ± 0.16                        | 4.41 p ± 0.13                        | 178 jk ± 0.58                        | 8.25 c-f ± 0.03 |
|                |              | R <sub>1</sub>     | 46.0 r ± 0.04                        | 5.30 lm ± 0.17                       | 183 e-j ± 1.73                       | 8.06 gh ± 0.03  |
|                |              | R <sub>2</sub>     | 47.2 op ± 0.13                       | 5.88 g-j ± 0.05                      | 158 m ± 1.73                         | 8.20 d-g ± 0.12 |
|                |              | R <sub>3</sub>     | 49.1 m ± 0.06                        | 5.96 f-i ± 0.03                      | 187 d-g ± 1.15                       | 7.97 h ± 0.02   |
|                | Biochar      | No fertilizer      | 41.2 x ± 0.11                        | 3.49 q ± 0.17                        | 172 l ± 0.58                         | 8.45 a ± 0.03   |
|                |              | R <sub>1</sub>     | 43.2 v ± 0.12                        | 4.96 no ± 0.03                       | 179 ijk ± 2.31                       | 8.09 e-h ± 0.05 |
|                |              | R <sub>2</sub>     | 47.0 pq ± 0                          | 5.44 kl ± 0.02                       | 182 f-k ± 1.15                       | 8.05 gh ± 0.03  |
|                |              | R <sub>3</sub>     | 48.3 n ± 0.17                        | 5.65 jk ± 0.03                       | 186 d-g ± 0.58                       | 8.03 gh ± 0.02  |
| I <sub>2</sub> | No amendment | No fertilizer      | 50.1 ij ± 0.08                       | 5.44 kl ± 0.25                       | 181 g-k ± 0.58                       | 8.37 abc ± 0.14 |
|                |              | R <sub>1</sub>     | 51.2 h ± 0.13                        | 6.12 d-g ± 0.07                      | 188 c-f ± 1.73                       | 8.14 e-h ± 0.08 |
|                |              | R <sub>2</sub>     | 55.3 c ± 0.15                        | 6.45 bc ± 0.03                       | 193 abc ± 1.73                       | 8.12 e-h ± 0.07 |
|                |              | R <sub>3</sub>     | 59.0 a ± 0.03                        | 6.85 a ± 0.03                        | 195 a ± 2.89                         | 8.04 gh ± 0.02  |
|                | Compost      | No fertilizer      | 48.9 m ± 0.36                        | 4.24 p ± 0.06                        | 182 f-k ± 0.58                       | 8.41 abc ± 0.01 |
|                |              | R <sub>1</sub>     | 50.1 ij ± 0.07                       | 5.85 hij ± 0.03                      | 186 d-g ± 0.58                       | 8.08 e-h ± 0.05 |
|                |              | R <sub>2</sub>     | 52.8 f ± 0.03                        | 6.13 d-g ± 0.08                      | 189 b-e ± 2.31                       | 8.03 gh ± 0.02  |
|                |              | R <sub>3</sub>     | 54.2 d ± 0.12                        | 6.32 cd ± 0.18                       | 193 abc ± 1.73                       | 8.10 e-h ± 0.06 |
|                | Biochar      | No fertilizer      | 45.7 rs ± 0.03                       | 4.22 p ± 0.03                        | 177 k ± 1.15                         | 8.26 b-e ± 0.01 |
|                |              | R <sub>1</sub>     | 47.5 o ± 0.01                        | 5.63 jk ± 0.02                       | 183 e-j ± 1.73                       | 8.11 e-h ± 0.01 |
|                |              | R <sub>2</sub>     | 49.5 kl ± 0.01                       | 5.79 hij ± 0.05                      | 187 d-g ± 1.15                       | 8.08 e-h ± 0.05 |
|                |              | R <sub>3</sub>     | 50.2 ij ± 0.1                        | 5.91 ghi ± 0.01                      | 189 b-e ± 2.31                       | 8.09 e-h ± 0.05 |
| I <sub>3</sub> | No amendment | No fertilizer      | 48.4 n ± 0.24                        | 4.26 p ± 0.03                        | 177 k ± 0.58                         | 8.20 d-g ± 0.06 |
|                |              | R <sub>1</sub>     | 50.4 i ± 0.21                        | 6.01 e-h ± 0.01                      | 185 d-h ± 2.89                       | 8.18 efg ± 0.02 |
|                |              | R <sub>2</sub>     | 53.5 e ± 0.01                        | 6.23 cde ± 0.02                      | 190 a-d ± 2.89                       | 8.13 e-h ± 0.02 |
|                |              | R <sub>3</sub>     | 57.9 b ± 0.03                        | 6.63 b ± 0.02                        | 194 ab ± 2                           | 8.11 e-h ± 0.06 |
|                | Compost      | No fertilizer      | 47.6 o ± 0.17                        | 4.31 p ± 0.02                        | 177 k ± 0.58                         | 8.36 a-d ± 0.03 |
|                |              | R <sub>1</sub>     | 49.8 jk ± 0.05                       | 5.77 hij ± 0.04                      | 181 g-k ± 0.58                       | 8.20 d-g ± 0.06 |
|                |              | R <sub>2</sub>     | 51.0 h ± 0.03                        | 6.02 e-h ± 0.01                      | 186 d-g ± 0.58                       | 8.05 gh ± 0.03  |
|                |              | R <sub>3</sub>     | 52.1 g ± 0.08                        | 6.17 def ± 0.04                      | 190 a-d ± 2.89                       | 8.02 gh ± 0.01  |
|                | Biochar      | No fertilizer      | 42.6 w ± 0.04                        | 4.81 o ± 0.01                        | 178 jk ± 0.58                        | 8.42 ab ± 0.01  |
|                |              | R <sub>1</sub>     | 46.0 r ± 0.05                        | 5.63 jk ± 0.02                       | 180 h-k ± 2.89                       | 8.15 e-h ± 0.03 |
|                |              | R <sub>2</sub>     | 45.5 st ± 0.01                       | 5.74 ij ± 0.02                       | 184 d-i ± 2.31                       | 8.13 e-h ± 0.02 |
|                |              | R <sub>3</sub>     | 51.2 h ± 0.12                        | 5.86 hij ± 0.03                      | 186 d-g ± 0.58                       | 8.10 e-h ± 0.06 |

I<sub>1</sub>, I<sub>2</sub>, and I<sub>3</sub> refer to well-watered, mild drought, and severe drought, respectively. R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> refer to 119-15.7-69, 179-23.5-99, and 238-31.4-138 kg NPK ha<sup>-1</sup>, respectively. Data are the mean ± SE (n = 6). The same letters in each column indicate insignificant differences according to the LSD test ( $p \leq 0.05$ ).