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*Earth’s Future*

Supporting Information for

**Modeling Irrigation Efficiency Paradox from Farmers’ Behaviors**

Shiruo Hu1, Xinpeng Yu1, Jingrui Wang1, and Jianshi Zhao1

1 State Key Laboratory of Hydro-Science and Engineering, Department of Hydraulic Engineering, Tsinghua University, Beijing, China

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**Introduction**

This supporting information provides irrigation time series, irrigation management parameters, and annual CO2 concentration used for developing the crop growth model in the main article.

Table S1. Irrigation time series when irrigation efficiency equals 0.5.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Date | Wheat (mm) | Rice (mm) | Maize (mm) |
| 1 | 18-Apr | 165 | 120 | - |
| 2 | 20-Apr | - | - | 180 |
| 3 | 22-Apr | - | 120 | - |
| 4 | 25-Apr | - | - | 180 |
| 5 | 28-Apr | - | 105 | - |
| 6 | 30-Apr | 165 | - | - |
| 7 | 1-May | - | 90 | - |
| 8 | 5-May | - | 54 | - |
| 9 | 8-May | - | 54 | - |
| 10 | 11-May | - | 54 | - |
| 11 | 14-May | - | 54 | - |
| 12 | 17-May | - | 54 | - |
| 13 | 20-May | - | 54 | - |
| 14 | 25-May | - | 54 | - |
| 15 | 27-May | 240 | 54 | - |
| 16 | 30-May | - | 54 | - |
| 17 | 5-Jun | 210 | 90 | - |
| 18 | 10-Jun | - | 72 | - |
| 19 | 11-Jun | - | 90 | 180 |
| 20 | 20-Jun | - | 54 | - |
| 21 | 26-Jun | - | 120 | 210 |
| 22 | 29-Jun | 210 | 75 | - |
| 23 | 10-Jul | - | 54 | - |
| 24 | 14-Jul | - | 78 | 150 |
| 25 | 20-Jul | - | 78 | - |
| 26 | 25-Jul | - | 78 | 150 |
| 27 | 29-Jul | - | 54 | - |
| 28 | 5-Aug | - | 78 | - |
| 29 | 15-Aug | - | 78 | - |
|  |  | 990 | 1920 | 1050 |

Table S2. Irrigation and field management parameters for AquaCrop–OS.

|  |  |
| --- | --- |
| Irrigation scheduling method (0 = Rainfed; 1 = Soil moisture based; 2 = Fixed interval; 3 = Specified time series; 4 = Net calculation) | 3 |
| Irrigation application efficiency (%) | 50% |
| Soil surface wetted by irrigation (%) | 100 |
| Soil surface covered by mulches (Y or N) | N |
| Surface bunds present (Y or N) | N |
| Field conditions affect curve number (Y or N) | N |
| Management practices fully inhibit surface runoff (Y or N) | N |

Table S3. Annual CO2 concentration.

|  |  |
| --- | --- |
| **Year** | **CO2 (ppm)** |
| 2012 | 393.10 |
| 2013 | 397.30 |
| 2014 | 398.70 |
| 2015 | 401.00 |
| 2016 | 403.30 |
| 2017 | 407.00 |
| 2018 | 407.80 |