Supplementary Material

**TABLE S1 |** Fuel consumption per unit tillage area under different emission standards, tillage processes and engine rated power.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Emission standard | Tillage process | Engine rated power (kW) | Fuel consumption per unit tillage area ((kg-fuel)/km2) | | | |
| Minimum | Maximum | Mean value | Standard deviation |
| China 0 | Sowing | ＜37 | 1560.22 | 1943.78 | 1752.00 | 271.22 |
|  |  | 37-75 | 610.52 | 717.24 | 677.54 | 48.25 |
|  | Pesticide spraying | ＜37 | 44.51 | 47.95 | 46.23 | 2.44 |
| China II | Sowing | ＜37 | 414.90 | 793.83 | 552.92 | 165.78 |
|  |  | 37-75 | 905.08 | 1163.66 | 1023.48 | 117.14 |
|  | Tilling | 37-75 | 1645.68 | 2345.98 | 2032.27 | 289.15 |
|  | Return | 37-75 | 3281.97 | 3281.97 | 3281.97 |  |
|  | Plowing | 37-75 | 2288.13 | 2613.60 | 2450.86 | 230.14 |
|  |  | 75-130 | 2355.59 | 3351.45 | 2853.52 | 704.18 |
|  | Harvesting | 75-130 | 618.14 | 2162.44 | 979.77 | 586.48 |
| China III | Tilling | 75-130 | 998.37 | 3641.87 | 2155.44 | 1229.84 |
|  | Plowing | 75-130 | 1554.96 | 2388.91 | 1971.93 | 589.70 |
|  |  | ＞130 | 602.32 | 1423.68 | 1013.00 | 580.78 |
|  | Harvesting | 75-130 | 797.49 | 1507.35 | 1027.82 | 264.83 |