

Figure S1. Distribution of precipitation and air temperature during the summer maize growing season in 2016 and 2017. Histogram and line represent each precipitation event and mean air temperature in both growing seasons, respectively.



Figure S2. Planting pattern in experimental plots (cm).

Table S1.Details of each treatments in 2016 and 2017

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Treat. | Soil surface mulching material | Color | Component materials | Design use time |
| PF | Polyethylene film | Transparent | Polyethylene | - |
| TDF | Degradable film | Transparent | PBAT, PLA, inorganic filler | 60 days |
| BDF | Degradable film | Black | PBAT, PLA, inorganic filler | 90 days |
| CK | Non-mulching | - | - | - |

CK means no mulching, PF means plastic film mulching, TDF means transparent degradable plastic film mulching, and BDF means black degradable plastic film mulching.