**Table S1.** Global weed coverage (in % of surface) for the different treatments tested in field trials Cordoba-15-r and Cordoba-16-r, with alternate replacement intercropping. Mean comparisons were performed within each trial; different letters mean significant differences (Tukey test, p <0.05).

|  |  |  |
| --- | --- | --- |
|  | **Córdoba-15-r** | **Córdoba-16-r** |
| Faba bean 100% | 14.1 a | 23.1 abc |
| Faba bean / barley | 9.7 a | 18.4 ab |
| Faba bean /wheat | 9.6 a | 52.4 abcd |
| Faba bean / pea | 11.9 a | 50.4 bcd |
| Faba bean 50% | 42.5 a | 70.6 d |
| Barley 100% |  | 10.4 a |
| Wheat 100% |  | 52.4 cd |
| Pea 100% |  | 69.6 d |

**Table** **S2**. Relative density (D) of the botanical families of weeds for each of the treatments in the three field trials where addition intercropping was carried out: Córdoba-16-a (A), Córdoba-17-a (B) and Córdoba-18-a (C). No significant differences for Relative density (D) of any of the ten botanical families of weeds was detected for the different treatments tested (p > 0.05, ANOVA test).

**A**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Poáceas** | **Fabaceae** | **Quenopodiaceae** | **Cruciferae** | **Polygonaceae** | **Convolvulaceae** | **Asteraceae** |
| **F. bean** | 0.0  | 0.0 | 13.1 | 8.2 | 13.5 | 3.8 | 61.4 |
| **F. bean/barley** | 30.6  | 0.0 | 0.0 | 0.0 | 0.0 | 5.6 | 63.9 |
| **F. bean/pea** | 5.4  | 5.4 | 17.7 | 0.0 | 5.4 | 10.3 | 55.9 |
| **F. bean/wheat** | 11.1  | 0.0 | 7.1 | 0.0 | 0.0 | 0.0 | 81.7 |
| **F. beasn 50%** | 0.0  | 9.2 | 16.5 | 8.2 | 2.5 | 0.9 | 62.8 |
| **SD** | 14,7 | 6,5 | 14,6 | 8,4 | 13,1 | 8,1 | 21,4 |

**B**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | *Cyperaceae* | *Polygonaceae* | *Amarantaceae* | *Convolvulaceae* | *Fabaceae* | *Papaveraceae* |
| F. bean | 24.0 | 32.8 | 17.2 | 4.9 | 7.1 | 13.9 |
| F. bean 50% | 32.2 | 34.5 | 10.3 | 4.1 | 8.8 | 10.1 |
| F. bean/barley | 9.0 | 52.1 | 11.8 | 4.5 | 4.2 | 18.5 |
| F. bean/pea | 4.4 | 47.6 | 8.3 | 2.6 | 6.9 | 30.1 |
| F. bean/wheat | 17.6 | 37.7 | 11.2 | 1.9 | 10.0 | 21.6 |
| Barley | 34.8 | 34.0 | 4.9 | 7.0 | 15.3 | 4.0 |
| Pea | 25.0 | 33.0 | 14.9 | 2.4 | 11.1 | 13.7 |
| Wheat | 28.5 | 40.4 | 4.8 | 9.0 | 7.6 | 9.7 |
| SD | 19.3 | 23.7 | 12.4 | 5.9 | 11.9 | 14.6 |

**C**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Poaceae** | **Fabaceae** | **Cruciferae** | **Polygonaceae** | **Amarantaceae** | **Convolvulaceae** | **Papaveraceae** |
| **F. bean** | 82.7 | 0.3 | 4.9 | 7.7 | 1.7 | 0.7 | 2.0 |
| **F. bean 50%** | 84.2 | 0.5 | 5.0 | 3.8 | 5.0 | 0.7 | 0.8 |
| **F. bean/barley** | 87.2 | 1.5 | 2.5 | 1.3 | 2.0 | 4.9 | 0.6 |
| **F. bean/pea** | 83.4 | 0.1 | 6.1 | 5.8 | 2.1 | 1.9 | 0.5 |
| **F. bean/wheat** | 90.4 | 0.2 | 2.3 | 4.0 | 1.6 | 1.3 | 0.1 |
| **Barley** | 78.5 | 3.0 | 1.3 | 7.4 | 6.7 | 2.6 | 0.5 |
| **Pea** | 86.1 | 0.6 | 4.4 | 4.3 | 3.2 | 0.6 | 0.7 |
| **Wheat** | 68.6 | 1.1 | 9.3 | 10.4 | 3.4 | 2.3 | 4.8 |
| **SD** | 10.2 | 1.6 | 3.8 | 3.9 | 3.1 | 3.2 | 1.9 |