**Supplementary Table S1.** Crop sequences used in the experiment since 2003.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| year | crops seasons | treatments (crop sequences) | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 2003 | *§fall-winter* | \*Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *†spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *‡summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2004 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2005 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2006 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2007 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2008 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2009 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2010 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2011 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2012 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |
| 2013 | *fall-winter* | Sunfl. | Sunfl. | Sunfl. | Sunfl. | Tritic. | Tritic. | Tritic. | Tritic. |
| *spring* | P. millet | F. sorgh. | Sunn h. | Fallow | P. millet | F. sorgh. | Sunn h. | Fallow |
| *summer* | -----------------------------------------------Soybean-------------------------------------------------- | | | | | | | |

*§* Fall-winter crops grown from second half of april and first half may to august/september;

*†* spring crops grown from september to second half of november;

*‡* soybean grown from seconf half of november and fist half december to april.

\* Sunfl. – Sunflower (*Helianthus annuus*); F. sorgh – Forage sorghum (*Sorghum bicolor*); Tritic – Triticale (X *Triticosecale* Wittmack); Sunn h. – Sunn hemp (*Crotalaria juncea*); Pearl millet (*Pennisetum glaucum*); Fallow was chiseling in 2003 and 2009.