Suppl. Table 1. Treatment abbreviations and description of management protocols for different crops in Indian mustard based cropping systems

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| Cropping system | Crop | Tillage | Crop establishment | Residue management |
| PB | ZT | CT | PB | ZT | CT | PB | ZT | CT |
| F-M | Mustard | One pass of permanent bed planter | One pass zero of till drill | 1-harrow, 5-cultivator, 3-leveller | Planted 2-rows on permanent beds at 18.75 × 15 cm spacing with planter | Sowing with Zero till drill at 45 × 15 cm spacing | Sowing with seed drill at 45 × 15 cm spacing | 30% retained | 30% retained | Removed |
| CB-M | Cluster bean | One pass of permanent bed planter | One pass of zero till drill | 1-harrow, 5-cultivator, 3-leveller | Planted 2-rows on permanent beds at 18.75 × 10 cm spacing with planter | Sowing with Zero till drill at 30 × 10 cm spacing | Sowing with seed drill at 30 × 10 cm spacing | 10% retained | 10% retained | Removed |
| GG-M | Green gram | One pass of permanent bed planter | One pass of zero till drill | 1-harrow, 5-cultivator, 3-leveller | Planted 2-rows on permanent beds at 18.75 × 10 cm spacing with planter | Sowing with Zero till drill at 30x10 cm spacing | Sowing with seed drill at 30 × 10 cm spacing | 100% retained | 100% retained | Removed |
| Mz-M | Maize | One pass of permanent bed planter | One pass of zero till drill | 1-harrow, 5-cultivator, 3-leveller | Planted single row on permanent beds 67.5 × 20 cm plant spacing with planter | Sowing with Zero till drill at 60 × 20 cm spacing | Sowing with seed drill at 60 × 20 cm spacing | 30% retained | 30% retained | Removed |
| PM-M | Pearl millet | One pass of permanent bed planter | One pass of zero till drill | 1-harrow, 5-cultivator, 3-leveller | Planted 2-rows on permanent beds at 18.75 × 10 cm spacing with planter | Sowing with Zero till drill at 30 × 10 cm spacing | Sowing with seed drill at 30 × 10 cm spacing | 30% retained | 30% retained | Removed |
| S-M | Sesame | One pass of permanent bed planter | One pass of zero till drill | 1-harrow, 5-cultivator, 3-leveller | Planted 2-rows on permanent beds at 18.75 × 10 cm spacing with planter | Sowing with Zero till drill at 30 × 10 cm spacing | Sowing with seed drill at 30 × 10 cm spacing | 20% retained | 20% retained | Removed |

 F-M: Fallow-Mustard, CB-M: Cluster bean-Mustard, GG-M: Green gram-Mustard, Mz-M: Maize-Mustard, PM-M: Pearl millet-Mustard, S-M: Sesame-Mustard, PB: Permanent bed, ZT: Zero tillage, CT: Conventional tillage