



Integrated Systems for the Humid Tropics (Humidtropics)

Humidtropics Striga Reduction Entry Point in West Kenya:

Field Protocol



International Centre of Insect Physiology and Ecology

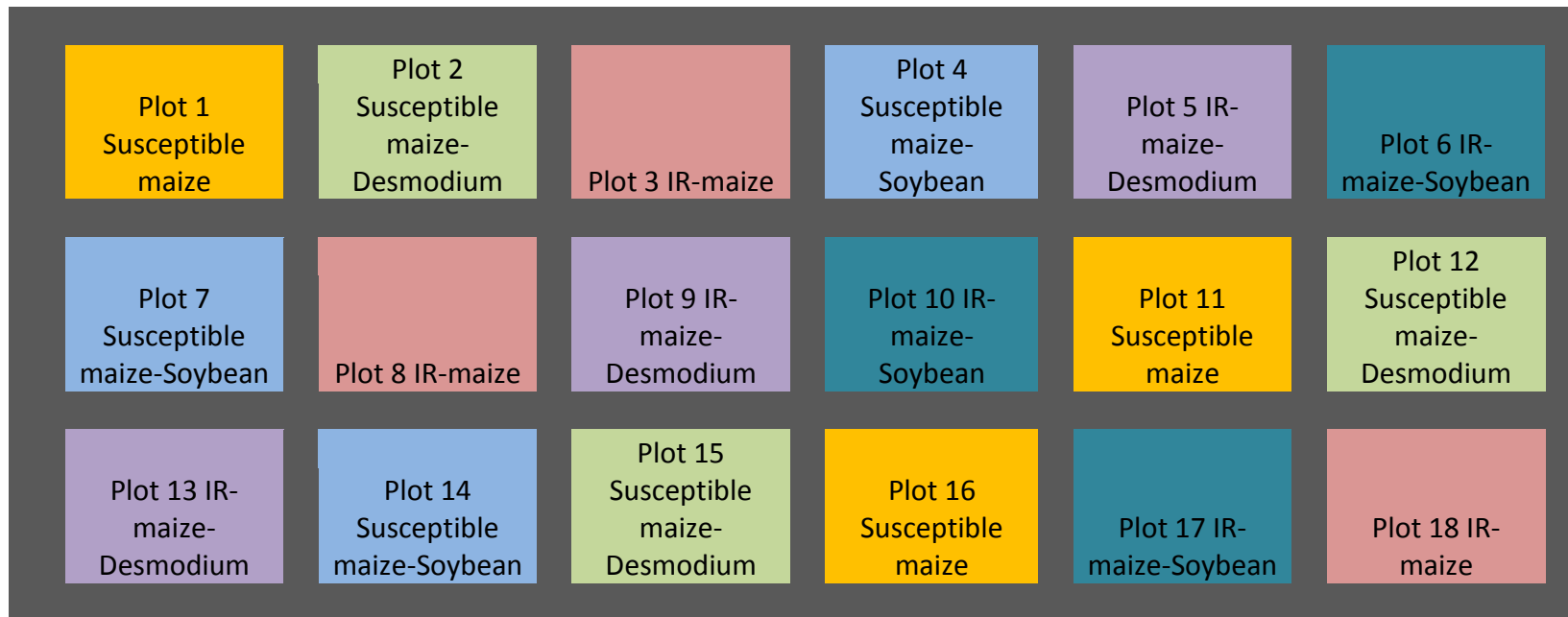
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This will comprise six treatments (IR-maize-Desmodium; Susceptible maize-Desmodium; IR-maize-Soybean; Susceptible maize-Soybean; IR-maize and Susceptible maize) in three replications

1. Identify Farm and Field. Identify sites where maize field is severely affected by the parasitic weed striga (*Striga hermonthica*). These farms should belong to farmers who have entire fields infested with striga and where infestation is contiguous between farms. Farmers will field test proven management technologies in small plots of 100 m² (9 m x 11 m, or twelve 11 m maize rows at 75 cm spacing). The inputs will consist of IR maize seed, striga-susceptible maize seed, Desmodium seed, soybean seed, DAP (18% DAP, 20% P at 50 kg per ha) and CAN (21.67% N at 25 kg ha).
2. Maize should be planted at the recommended spacing i.e. 75 x 30 cm, 3 seeds per hill then thinned to 1 plant per hill
3. Desmodium should be planted at the spacing of 0.75cm x drill. Maize should be planted at the recommended spacing above and Desmodium intercropped by inserting a row in between the lines of maize without sacrificing maize population in the plot. Using

a strong pointed stick, make a furrow 1-2 cm deep in the middle of the space between the rows of maize. One kilogram of Desmodium is enough to plant one acre of land. One line of Desmodium should be planted on both sides of the outer rows of maize plot at an inter-row spacing of 37.5 cm between the outermost maize row and the outer Desmodium row. Desmodium should be planted when there is enough moisture in the soil for good germination.

4. Soybean should be inoculated with Biofix inoculants (MEA product) at a rate of 10 g/kg seed using a two-step method. The inoculated seeds should be planted immediately in moist soil at a spacing of 0.75cm x drill, by drilling in open furrows of 2 cm deep in between the rows of maize.
5. Soil sampling. Collect a composite soil sample from 5 random points in each plot, including the centre of the plot to a depth of 15 cm. Then combine and mix the composite soil sample, retaining a 500 g sample for striga characterization and chemical analysis. Identify the sample by farmer's name, plot number and treatment.
6. Following seedling emergence, thin maize to the recommended spacing, note any gaps and replant as required. Follow normal farm practice including weeding twice, but be careful not to uproot the desmodium and soybean. Further instructions on striga assessment and crop harvesting will be provided later. When available, fill gaps in desmodium stands using transplanted seedlings.
7. Striga data. At the time of the second weeding, count emerged striga from 20 randomly selected maize plants from a radius of 15cm around each plant and record the data in the provided data sheets. This should be repeated at the silking stage of maize and at the physiological maturity of maize (when all the silks turn brown).
8. Harvest soybean and maize. Soybean will mature before the maize. Protocols for harvesting both soybean and maize will be provided later.
9. Survey farmer perceptions: At the physiological maturity of maize (when all the silks turn brown), conduct a field day at each site and ask farmers to fill in a short questionnaire (to be provided) on their perceptions on the technologies being demonstrated.

