

Mother and Baby Trials: A Novel Trial Design Being Tried Out in Malawi

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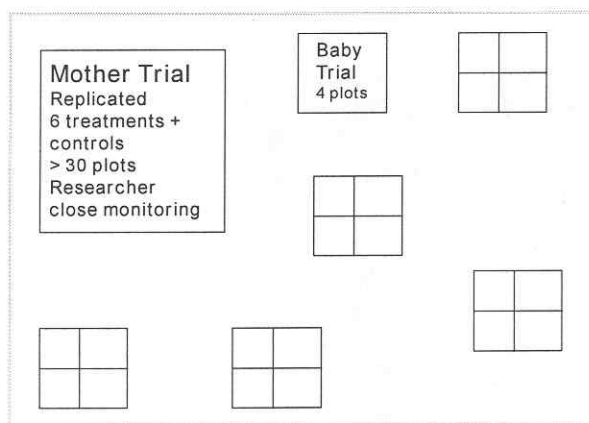


Figure 1. Design of farmer participatory methodology to evaluate soil fertility best bet technology options: mother trial plus 10 or more satellite baby trials.

Within site replicated "Mother Trials":

1. Mz + Fert [hybrid maize 37,000/ha fertilized with new recommendation, at most sites: 69 kg N ha, 20 kg P₂O₅]
2. Mz [control plots/unfertilized]
3. Mz rotation [maize phase of grain legume and mucuna rotations]
4. Mz PP [maize 37,000/ha + pigeonpea 37,000/ha]
5. Mz T [maize 37,000/ha + *Tephrosia volgii* relay intercrop green manure, 20 kg/ha seed broadcast at first weeding]
6. Gnut/PP [new groundnut variety 74,000/ha + pigeonpea 37,000/ha] or Soyabean/PP intercrop
7. Mucuna [Green manure phase of rotation with maize]

One farmer, one replicate "Baby trials":

1. Mz [farmer control, may include intercrop at low density]
2. Mz PP
3. Mz T
4. Gnut PP or Soyabean PP

doubled up with pigeonpea is my new basal fertilizer, I grow them before my maize crop and I get a strong crop: I only have to apply a small amount of urea as a side dress". The advantage of the mother +baby trial approach is that the farmers surveyed had all carried out baby trials, so were experienced judges of the technologies.

Keep your eyes open for a forthcoming Soil Fert Net working paper which is in preparation. It will present detailed information on two Malawi case studies of farmer participatory methods, including the mother +baby approach and a watershed longer-term approach (Figure 2).

Table 1. Farmer rating of technology traits across all sites for baby trials, where scale used for rating was Very Low = 1, Low = 2, High = 3, Very High = 4. Technologies were rated independently. Matrix rankings were also conducted, where farmers were asked to compare the four technologies.

Location, Technology	Weeding requirement	Seed availability	Contribution to food security	Contribution to cash sales	Estimated contribution to soil fertility	Matrix ranking (Male/Female farmers)
Mz	3.1	3.3	2.2	2.3	1.5	0.5/0.9
Mz PP	2.5	1.9	3.4	2.9	3.1	2.6/2.1
GPP*	2.2	1.7	3.3	3.4	3.1	2.1/2.1
Mz T	2.8	1.3	2.0	1.9	1.8	1.2/1.0
LSD	0.4	0.5	0.4	0.6	0.5	0.3/0.2

*GPP = groundnut/pigeonpea rotation technology for all locations except Bembeke where soyabean was the short duration grain legume substituted for groundnut, due to the high altitude.

In Malawi, ICRISAT is venturing into farmer participatory methodology with a mother +baby trial design. This approach is allowing farmers and researchers to test some Best Bet soil fertility technologies (doubling up on grain legumes, and combinations of small amounts of fertilizer with manure and pigeonpea or maize residues with fertilizer). This farmer participatory research is being carried out with national research partners at seven sites representing five of the major agroecozones in Malawi. Trials are of two types; within-site-replicated "mother trials" and one farmer, one replicate "baby trials" (Figure 1). This is a novel trial method being tested to enhance farmer participatory involvement in conventional on-farm research. It allows 200 farmers to assess a sub-set of the most promising technologies at multiple sites (satellite baby trials). In addition, it meets researcher objectives to conduct within-site replicated trials (mother trials) that test a wider range of technologies and research hypotheses (Figure 1).

Table 1 presents a quantitative assessment by farmers of some best bet technologies. Grain legume intensification technologies were a big hit with all farmers surveyed, across a wide range of agroecozones. As one farmer said recently "groundnuts

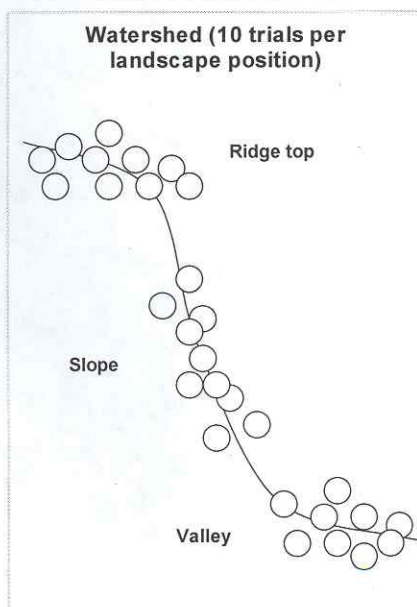
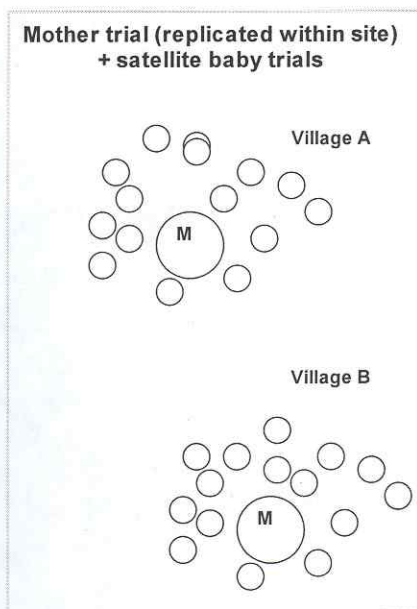


Figure 2. Mother and Baby trials, and a watershed approach.