

Plant Management

The discussion group dealing with plant management practices for SRI emphasized that as experience is gained with these methods under various conditions, it becomes more important that there be a number of *options* that users have with regard to plant management, rather than to prescribe fixed practices. Examples and questions discussed were:

- **Age of seedlings:** What are the merits of 5-day vs. 8-day vs. 12-day vs. 15-day seedlings? The only large-scale evaluation of seedling age with respect to yield done under on-farm conditions found a slightly negative correlation over the range of 5 to 15 days, but given the greater difficulty and possibly more time involved in transplanting very young seedlings, it was not clear that there was any economic benefit to compensate for the possible agronomic benefit.
- **Spacing:** How can one know whether 25x25 cm spacing is optimal to begin with SRI, or possibly some wider or narrower spacing? The 25x25 cm recommendation is a general one, based on experience in Madagascar. But with more knowledge of soils and their response to SRI management, especially if we can assess soils better in microbiological terms, one should be able to suggest a spacing closer to the optimum for that particular field — and variety. Another area for research is how this optimum may change over time, under what kinds of conditions, or according to what kinds of indicators.
- **Seedlings per hill:** While the logic of planting 1 per hill is clear, we know that sometimes **2 per hill** can give better yields, because this gives more fertile tillers per m². When is it advisable to plant 2? This is something that can be rather easily evaluated by farmers who can vary the number of seedlings per hill within their fields and then assess the results.
- **Weeding:** Since weeding requires labor that usually has significant **opportunity costs**, it would be good to have more precise data on the likely **net benefits** of additional weeding beyond the minimum of 2

weeding usually needed to reduce weed competition sufficiently. A number of analyses have indicated that additional weeding is very cost-effective,¹ but we do not have enough systematic data to be able to advise farmers on what would be the likely net returns from doing a third or a fourth or a fifth weeding before the canopy closes too much for further weeding. The benefits of weeding, it should be stressed with farmers, include **soil aeration** as much **the elimination of weeds** and the **incorporation of weed biomass** into the soil.

Actually, the best answers to these questions will usually be very site-specific. Users should be encouraged to do some experimentation on their own fields with one or more of these variables on their own fields. For example, a farmer may think that he only has enough labor time to weed his field twice. But it would be a worthwhile investment of a little additional time and effort for him or her to do a third weeding along one edge of his field (e.g., four rows), and then a fourth weeding on half of that (i.e., two rows). From such a simple experiment, he or she should be able to see whether there is enough resulting increase in grain production from plants in these test rows that additional weeding would be economically profitable. Similar tests can easily be done on any field for seedling age, spacing, and number of seedlings per hill.

¹This includes the national agricultural research systems (NARS) of India, Bangladesh, Nepal and Pakistan, and the international agricultural research centers IRRI, CIMMYT, IWMI and ICRISAT, plus some individual members, including Cornell University (CIIFAD). The consortium was represented at the Sanya conference by its coordinator, Dr. Raj Gupta.