

Compensating Strategies

1. Rotation patterns and intercropping strategies followed by farmers help slow down the rate of fertility loss to some extent. This is especially true when nitrogen-fixing crops like cow peas (luuba) are planted in association with other crops.
2. Farmers presently practice a form of minimum tillage agriculture which minimally disturbs the top soil. Such hand-hoe planting techniques are the most appropriate for maintaining soil fertility given the soils these farmers are planting on.
3. Farmers will allow their fields to go fallow when the soils become exhausted. These fields will revert back to the natural vegetation and quite often a stand of Acacia senegal will reestablish itself. These Acacias help exhausted soils recover through their nitrogen fixing properties while at the same time farmers gain revenue from the gum they produce. Some farmers even plant Acacia senegal seeds to help establish a stand.

Recommendations

1. Soil scientists should determine and recommend to farmers a proper rotation and intercropping system which will help maintain soil fertility. Along these lines, the optimal length of cultivation and fallow periods should be specified.
2. Experiments should be carried out which measure the effects of intercropping Acacia senegal (hashaab) or other legumes like cow peas (luuba) with other crops. One possible intercropping strategy to consider would be to plant hashaab trees during the fourth or fifth year that a piece of land is cultivated with sesame and cow peas. (Farmers in a village called Umm Hijliij already use this cropping strategy.) Scientists could determine what the proper spacing pattern should be between trees to allow for intercropping of cash crops like sesame. Such a strategy would allow farmers to gain income from their fields almost continuously with no detrimental consequences.
3. The current minimum tillage techniques farmers employ should be encouraged to continue. Minimal top-soil disturbance helps retain soil fertility longer in this region due to the structure of the soil.
4. As stated earlier, farmers should be encouraged to continue leaving cut bushes, weeds and crop residue lying on their fields prior to planting. In addition to cutting down on wind erosion, such plant debris could serve as a mulch which would