help retain soil moisture. Farmers should then plant in these fields without removing this plant material. The continual build-up of plant debris would contribute to the establishment of a humus layer in the soil which would help retain soil fertility.

D. Availability of Rainfall

Rainfall in this area is near the minimal average level required for any type of agricultural production (annual average 347 mm). Aside from this low average, the amount of rains from one year to the next will vary significantly ranging from 200 mm to 460 mm. In addition, rains are very sporadic within a particular season, and long periods of no rain may occur between periods of abundant rainfall. Given this unpredictable rainfall pattern farming in this area is a high-risk venture. Missing one or two rains could mean the difference between a crop success or a crop failure. Periodically, during years of minimal rainfall, obtaining any kind of crop output is not feasible. During such years many farmers have little choice but to migrate. Thus, rainfall must be considered one of the most critical constraints to farm production in this area.

Compensating Strategies

1. Farmers plant their crops before the rains come to ensure that they take advantage of all the rain that falls. Unfortunately, sometimes they plant their crops too early, and the seeds don't germinate or pests eat the seeds, so replanting is often necessary.

2. Most farmers plant their crops within three days after a rainfall to take advantage of the soil moisture for plant germination. (This practice was followed in all the villages we surveyed).

3. Many farmers are presently planting early maturing varieties of millet, sorghum and sesame. These are recognized for their adaptive qualities during minimal rainfall years.

4. In the past, farmers used to make small depressions or catchment areas around each plant in their field so that water would accumulate around it. This is not commonly practiced nowadays.

Initially, farmers might resist this suggestion for several reasons: (1) Leaving plant debris in fields has been observed to be detrimental to the crop, because the plant debris will tend to absorb moisture and possibly nitrogen. (2) The plant debris may harbor insect pests. (3) Labor costs for weeding is higher than with clean fields. Experimentation is called for to determine if the long-term benefit to soil fertility of leaving plant debris on the fields, outweighs these short-term costs. This would be a good subject for on-farm trials.