



Photo: Duckrabbit

Improved Agriculture and Aquaculture Cropping Systems

Problem

Current productivity of agriculture and aquaculture systems in the coastal zone is far below potential.

Background

Most polder farmers in medium salinity environments grow a single *aman* crop using tall, local varieties that can survive stagnant flooding, but are low-yielding (2 to 3.5 tons per hectare) and slow to mature. The *aman* crop is often followed by a late-planted, low-input and low-yielding (approximately 0.5 tons per hectare, but much less in some years) legume crop, and about 1 million hectares of land lies fallow during the dry season. Most fish and shrimp ponds produce much less than 1 tonne of aquatic produce per hectare per year.

Recommendation

There are tremendous opportunities to improve food security and livelihoods in the coastal zone with existing advances in crop and aquaculture technologies and available water resources across all lands and salinity regimes. Many well-tested, short duration, stress-tolerant rice varieties, and high-yielding, high-value *rabi* varieties are now available. Additionally, newly available aquaculture species that can be raised separately or together with shrimp enable more productive and less risky year-round polyculture. Based on the results of several years of on-farm demonstrations, CPWF recommends the following:

- In low salinity areas (much of Barisal division):
 - *Aus-aman-boro* (15-17 t/ha/yr)
 - *Aus-aman-rabi* (9-10 t/ha/yr rice plus 9 t/ha maize, 3.5 t/ha sunflower, or 38 t/ha watermelon)
- In moderate salinity areas (e.g., parts of Khulna district):
 - *Aus – aman* (8 t/ha)
 - *Aman – boro* (10 t/ha)
 - *Aman – rabi* (4-5 t/ha rice plus 7 t/ha maize, 2.5 t/ha sunflower)
- In high salinity areas:
 - Aquaculture-rice systems with brackish water shrimp and fish polyculture in the dry season and rice and freshwater fish and prawn in the wet season
 - Aquaculture-only system with brackish water shrimp and fish polyculture in the dry season and fish polyculture in the rainy season

For more information, please visit : www.waterandfood.org and www.wle.cgiar.org