Integrated straw management in Bangladesh

Dr. Md. Israil Hossain
Agricultural Engineer & Former Director General
Bangladesh Wheat and Maize Research Institute, Dinajpur

Crop Residue Management in South Asia:

Advancing Subregional Cooperation for Sustainable, Climate-smart and Integrated Management of Crop Residues

15 September 2022

Crop residue burning in Bangladesh

- Traditionally, the farmers know that **incorporating crop residue is good for the soil.**
- **Open-field burning of rice straw is not widely practiced** as a major part of the plant is cut manually and carried to the home yard or nearby plot for threshing.
- A **few farmers are considering the option of straw burning** with the increased use of combine harvesters
- Farmers choose **to burn long type of straw, such as creeper vegetables and bad quality rice, wheat straw, dry maize residue** which cannot be used as animal feed or domestic fuel.
- *Aman* rice residue in low lying area is prone to residue burning. In 2020-21, total **grain production 47.22 million tons and 73.36 million tons of crop residue produced; and 0.22 million tons burned.**
- **Agriculture labour decreased from 51.7% (2002) to 40.6% (2017)**

Examples of the best practices in Bangladesh


Animal feed


Composting


Incorporation through puddling operation


Outdoor heating

- Rice straw is a preferable feed for cows and buffaloes but wheat straw is not fed to cows and buffaloes in Bangladesh. Chopped green corn stalk is also a good feed for animals.
- Remaining straw after harvesting is directly incorporated into the soil by ploughing.
- Unused straw from cow shed is dumped in a place and used as fertilizer.
- Small holder farmers and low-income families use straws for outdoor water heating. Maize straw is used as domestic fuel in rural areas.
- Cow dung with wet rice straw is used in biogas plant.
- Rice and wheat straw are used as mulch for fruits and vegetables production.

Recommendations to address crop residue burning in Bangladesh

- **Facilitate purchase of straw balers, straw and corn stalk choppers** through subsidies provided in current farm mechanization project and updating of Agriculture Mechanization Policy 2020
- Provide **agricultural inputs support** to farmers who follow sustainable straw management practices (e.g. CA practices, straw composting, biogas production, etc.)
- **Place restrictions** (limit loan facility, limit grain supply for govt. purchase, higher rate for irrigation, lower govt. seed support incentive) on farmers who violate straw burning rules.
- Support entrepreneurs to make "Biochar" from straw, straw base materials for mushroom production, and fancy straw crafts.
- Launch a promotional campaign on **harmful effects of straw burning and social benefits** of alternate uses of straw.


Strip- till planter


Zero- till planter

Recommended follow-up actions at national level

- Existing govt. agricultural advisory panel to identify different straw management interventions, form a work plan and follow up implementation with an efficient inter-ministerial national task force committee
- **National task force committee**
  - Regularly monitor crop straw management practices
  - Conduct regular meetings to discuss on status of crop straw management, gaps in work plan, identify corrective measures
  - Prepare and distribute factsheets, leaflets to concerned agriculture departments
- Support BARC to organize annual multistakeholder crop straw management workshops and broadcast key messages with agriculture community

Recommendations relevant for other countries or at subregional level

- **Promote appropriate conservation agriculture machinery** such as strip-till planter and zero-till planter, which can work through moderate levels of crop residue. Introduce straw baler, straw chopper for straw management.
- Strategy for **installing more number of biogas plants in the rural areas** using the surplus amount of crop straw.
- Chopping rice and wheat straw and mixing in proper ratio for **base material of mushroom cultivation.**
- Promote **custom hire service model of machinery** for supporting farmers

Thank you


ESCAP 75
MOVING FORWARD TOGETHER
CSAM


SANS
South Asia Network on the SDGs