

Social Analysis Systems²
Concepts and Tools for
Collaborative Research and Social Action

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Title	Identifying the Features of New Cash Crops in Tobacco Producing Areas of Western Bangladesh
Key Words	Option Domain, Bangladesh, Agriculture, Tobacco
Reference	Buckles, D.; Akhter, F. 2006. Identifying the Features of New Cash Crops in Tobacco Producing Areas of Western Bangladesh. Social Analysis Systems ² , Technical Report #20, 4 pp. Retrieved from: http://idl-bnc.idrc.ca/dspace/handle/123456789/29374 .
Context	<p>Daulatpur was once an important food-producing part of the Kushtia District of western Bangladesh. Now, farmers mainly produce tobacco. In a previous diagnosis, Daulatpur farmers and the Bangladeshi organization UBINIG assessed the reasons farmers continue to grow tobacco despite concerns about health impacts, high debt loads, and depleted soil. The action that emerged from that diagnosis was to identify other cash crops that farmers could sell in local and regional markets (see Buckles, D. 2006. Reasons for Growing Tobacco in Daulatpur, Bangladesh. Social Analysis Systems², Technique Report #6, 5 pp).</p> <p>For more information on this project, see UBINIG; Carleton University. 2006. From Tobacco to Food Production: Assessing Constraints and Transition Strategies in Bangladesh. First Interim Technical Progress Report to IDRC. 18 pp.</p>
Purpose	To identify the features of cash crops that farmers can grow instead of tobacco.
Process Summary	UBINIG invited tobacco farmers from various parts of Bangladesh to a workshop at its Centre in Cox's Bazaar. During the workshop, five farmers from Daulatpur (2 men and 3 women) undertook an



assessment. The group created a list of about 35 crops grown in the village and nearby, and then chose 10 crops they thought would be useful to farmers wanting to shift from tobacco to ecological farming. Tobacco was added to the list so it could be compared with other crops. Small bowls of seed from the crops, or a drawing of the crop, were used for the first row of a matrix laid out on the floor. Features of these crops were described, by choosing three crops at random and asking participants to say which two had something in common that was different from the third. The common and different features were labelled as contrasting features, for each crop. Each contrasting feature was scored using white, grey and black cards representing a scale of 1 to 3, respectively. After six features were identified, the crop columns were shifted from lowest to highest for a feature that the participants felt was very important to the question of shifting away from tobacco farming (helps increase soil fertility/fertilizer needs to be added). This led to a discussion of what was similar in rows and columns, and to identification of two more crops of interest to participants that are not yet grown in Daulatpur (bringing the total to 13), as well as two more features of interest (bringing the total to 8). The data from the diagnosis was assessed later using the software RepGrid. Results were shared with farmer participants during follow-up meetings convened by UBINIG. Participants agreed to the use of their information in reports by the authors.

Analysis

The 8 crop features and 13 crops identified and rated by participants during the analysis are shown in Table 1. The features refer mainly to the way crops are marketed or grown and their role in the economic system. The crops include grains, pulses, vegetables, and plants with industrial uses.



Participants noted that the crops and crop features combine to form two major groups. One group is composed of crops that form part of the local food and fodder system. They are taken to market by farmers themselves and can be grown with family labour. They are usually planted and harvested during the same season and thrive with available soil moisture. Examples of these crops are *mosura dal* (a pulse), garlic, coriander, amaranth, and cucumber.

Table 1: Ratings of crops for crop features identified by tobacco farmers in Daulatpur

Crop features	Lentils	Corriander	Garlic	Amaranthus	Cucumber	Potato	Corn	Sugarcane	Wheat	Tobacco	Winter rice	Jute	Peanut
A	1	1	1	1	3	1	2	3	1	1	2	3	3
B	1	3	3	2	2	1	1	1	1	3	1	3	2
C	1	1	2	3	3	2	2	1	2	3	3	1	1
D	1	2	2	1	1	1	1	1	1	3	1	2	2
E	1	1	2	1	2	1	1	1	3	3	3	2	2
F	1	1	1	1	2	2	2	2	3	3	3	1	1
G	1	1	1	1	1	2	1	3	2	3	2	2	2
H	1	1	1	1	1	1	1	3	1	3	1	1	1

Table 1 Legend:

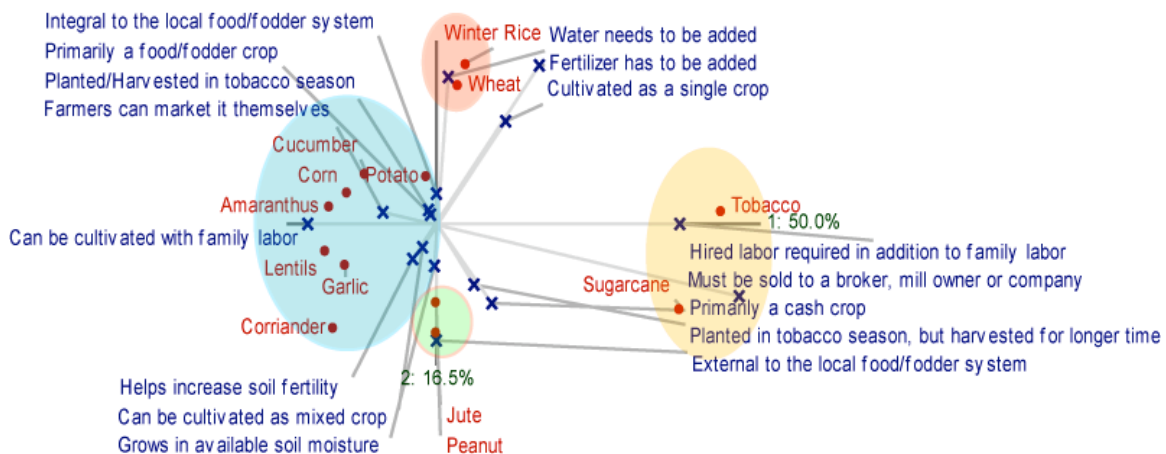
A	1 Planted/harvested in tobacco season 3 Planted in tobacco season, harvested for longer time
B	1 Integral to local food/fodder system 3 External to local food/fodder system
C	1 Grows in available soil moisture 3 Water needs to be added
D	1 Primarily a food/fodder crop 3 Primarily a cash crop
E	1 Can be cultivated as mixed crop 3 Cultivated in a single stand
F	1 Helps increase soil fertility 3 Fertilizer must be added
G	1 Can be cultivated with family labor 3 Hired labor required in addition to family labor
H	1 Farmers can market it themselves 3 Must be sold to broker, mill owner or company

The other group of crops is composed of crops grown in response to regional market demand. These crops must be sold to brokers, mill owners or company buyers before they get to market. They are fewer in number and tend to be grown in a single stand with inputs such as water, fertilizers and hired labour. Examples of crops with these features are tobacco and sugarcane.

The pattern observed in the table by participants suggests that the

current cropping system in Daulatpur can be seen as one that combines mixed cropping of local food and fodder crops with regional market crops grown in single stands. The participants noted that the two ways of growing crops tend to happen during the same season and thus compete with each other for land and other resources such as labour, soil fertility, and water.

Figure 1: Features of crops from the perspective of tobacco farmers in Daulatpur



This dual strategy is confirmed by principal component analysis of the data by the authors using RepGrid (Figure 1).¹ Tobacco and sugarcane have a set of features opposite to those of cucumber, corn, lentils, Garlic, Corriander, Potato and Amaranthus.

Follow up analysis of Figure 1 and discussion with farmers that participated in the assessment also suggests that between these two profiles lie two smaller groups of crops that combine features

¹ The statistical technique used to create this figure is called principal component analysis. It simplifies a data set by reducing the multi-dimensional relationships among observed variables to a cross-shaped, two-dimensional representation. The shorter the distance between crops (dots) and features (crosses) shown in the figure, the closer their relationship to each other. In the figure, the scores assigned to crops and features (the observed variables) are mapped in relation to two fictive variables. The horizontal line (first component) represents a fictive variable that accounts for 50.0% of the total variance in the data (pattern of relationships among dots and crosses). The vertical line (second component) represents a fictive variable that accounts for another 16.5% of the total variance. Together, the two principal components account for 66.5% of the total variance, a moderate level of explanation.

differently. Crops such as wheat, rice and to some extent potato are grown in a way that mimics regional crops (single stand, external inputs needed). Unlike the regional crops, they play a strong role in the local food and fodder system and can be marketed by farmers themselves. These crops may occupy the land at the same time as tobacco, yet do not offer the same regional market opportunities as tobacco. A second smaller group of crops (jute and peanut) can be grown in the same way as local food and fodder crops. They help to sustain fertile soils, do well with available soil moisture and can be grown either as single stands or as part of a mixed cropping system. However, unlike many of the local food and fodder crops, these crops cross into the tobacco season and have well-established regional markets.

Interpretation

Participants said that the two ways crops are grown now reflect farmers' attempts to grow food and fodder for their households, while also seeking sources of cash income. They recognized that this dual strategy is not stable because they compete directly with each other for land and other resources. Discussion also pointed out that local food and fodder crops are at a disadvantage because they receive little policy support and regional markets for them have declined locally or do not exist. Farmers noted during the exercise, and during the follow up, that crops not currently grown in Daulatpur such as jute and peanuts have crop features that are rarely brought together. These features point to opportunities to bridge the dual strategy in the current cropping system by replacing tobacco.

Action



Participant farmers and UBINIG decided to focus on crops where there is a demand in markets they can access themselves (either locally or regionally), that can be grown in mixed cropping systems, and that straddle the tobacco season. This was seen by participants as a way to combine crop features in new ways, and potentially avoid growing tobacco.

One of the farmers in the diagnosis noted that she had come to the same conclusion as this assessment some months earlier. Sheuli Begum explained that she had been going to the local markets

looking for new cash crops when she saw a spice that she and other rural women sometimes buy. It contains seeds of three different plants not currently grown in her region. She sprouted and planted all three types, and then chose one (*Methi*) that she believed could be easily grown in her current mixed cropping system. Participants decided to also search local markets for crops that combine the features identified during the assessment.

Observations on the Process

Changing the way the matrix was displayed, from the highest score to the lowest for a key feature (helps increase soil fertility/fertilizer has to be added), enhanced the way participants were able to think about and reflect on the data. The use of a 3 point grey scale also helped them engage in analysis of the matrix. Participants were particularly excited by the discussion that emerged once they added the crops that were not currently grown in Daulatpur to the matrix. This supported discussion of novel combinations of crop features useful to a transition out of tobacco production. The gap between the initial analysis by participants and the identification of secondary patterns using RepGrid was resolved in part by discussing the findings in follow-up meetings and repeating the diagnosis in a number of other villages.