fodder, and feed and tend livestock. Thus, men's and women's preferences for specific traits in rice varieties may differ, based on gender-specific roles and responsibilities. With increasing male migration to cities, women are taking on more responsibilities as farm managers, aside from their normal household and childcare responsibilities (Paris et al. 1996).

Rice varieties

Varieties grown by farmers

The rice varieties currently grown by farmers are shown in table 3. Traditional varieties are more common in Basalatpur than in Mungeshpur. Although modern varieties (MVs) show higher adoption rates in Mungeshpur, these varieties often suffer from submergence, drought, and stress at reproductive and ripening phases when the crop is planted late. Most farmers felt that traditional varieties are more tolerant to drought, submergence, pests, and diseases, while MVs performed well under irrigated conditions. The majority of the farmers indicated that they felt that MVs needed better management than traditional varieties. Modern varieties need more labor, higher levels of fertilizer, and more irrigation, but more farmers prefer to grow MVs because of their higher yields.

Table 3. Popular Rice Varieties Grown by Farmers According to Land Type

Land type	Variety	Basalatpur	Mungeshpur
Upland/midland	Traditional	Bengalia, Sarya, Kuwari Mashuri, Oriswa, Malwa	Ari, Bagri, Balbagra, Chaini
	Improved	NDR-97, Sarju-52, PNR-381	Saket-4, NDR-80, 97, 118 NDR-359, Pant-4, Pant-10, Pant-12, Sarju-52
Shallow lowland/lowland	Traditional	Kalamanak, Motibaddam, Malwa, Malasia	Bilaspuri, Indrasan
	Improved	Mashuri, Rajshree, Sambha Mashuri	Mashuri, Madhu, BKP-246, Dwarf Mashuri

Topographical adaptations

Farmers generally match varieties with their environment. For rainfed rice, this means an adaptation to the hydrological conditions of their fields. Each field position in the topo-sequence corresponds to a risk of drought or submergence. The drought risk increases from the bottom to the top of the topo-sequence, while submergence risk decreases along the same path, associated with progressively lower water depths and earlier recession of the water. This translates into different ideotypes for the different situations. Table 4 shows varietal diversity according to land type/topography. In Basalatpur, varieties such as *Bengalia, Sarya, Oriswa, Kuwari Mashuri, Malwa,* and *Ghanbhanan* are the major traditional rice cultivars grown in the uplands, and *Kalamanak, Malasia, Motibaddam,* and *Malwa* are the major varieties grown in the lowlands. Improved varieties, such as NDR-97, PNR-381, and Sarju 52 are grown in the uplands by a few farmers, but the improved variety, Mashuri, occupied more area in the lowlands. In Mungeshpur, the common local varieties grown on upland fields are *Ari, Bagri,* 90 days, *Sonia, Lalmati, Punjab, Lalbagra, Ashwani, Indrasan,* and *Bilaspuri.* The improved varieties are Saket-4, NDR-80, and NDR-118 in upland and medium fields and Sarju 52, Mashuri, and dwarf Mashuri mostly in lowland fields.

Table 4. Farmers' Perceptions of Useful Traits in Selecting Rice Varieties According to Land Type

	Mungeshpur							
	Upland		Lowland		Upland		Lowland	
Traits	Male	Female	Male	Female	Male	Female	Male	Female
Grain yield	**36.67**	**39.50**	**48.67**	**49.67**	**41.67**	**35.96**	**42.06**	**40.45**
Duration	**25.83**	**34.50**	0.67	1.00	**20.56**	**25.84**	**20.56**	**15.00**
Grain price	0.00	0.00	**15.67**	**16.00**	1.67	2.81	2.97	1.82
Resistance to abiotic stress	**8.33**	**6.70**	0.67	0.33	**6.10**	**6.18**	5.10	5.00
Biomass quality	3.33	2.50	**5.33**	**4.67**	**5.00**	2.25	**5.52**	**8.64**
Taste	1.67	0.50	**10.33**	**12.33**	2.78	2.81	2.12	3.18
Bold and pure grain	**7.67**	1.50	1.67	0.00	**4.44**	**4.49**	3.40	**5.00**
Adaptation to specific soil type	**3.33**	**3.00**	2.33	0.67	**5.00**	**4.49**	**5.52**	**6.36**
Postharvest quality	0.83	**3.00**	**6.67**	**7.67**	**0.00**	**5.06**	**0.00**	**2.27**
Resistance to biotic stress	**4.17**	2.50	1.00	1.33	3.89	1.69	4.25	3.18
Cooking characteristics	0.83	1.00	1.67	2.00	3.89	3.92	3.40	**5.00**
Response to fertilizer	2.50	1.00	2.67	1.33	5.00	2.25	4.25	1.82
Competitiveness with weeds	0.00	0.00	0.00	2.33	**0.00**	**2.25**	**0.00**	**2.27**
Resistance to lodging	1.67	0.00	2.65	0.67	0.00	0.00	0.85	0.00
Adaptation to several preparations	2.34	**4.00**	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Note: Traits are listed in order of importance. Grain yield includes tillering, panicle length, and number of grains. Resistance to biotic stress includes resistance to pests and blast. Resistance to abiotic stress includes resistance to zinc deficiency and drought. Biomass quality includes height and quality and quantity of straw. Postharvest quality includes ease of hulling and milling recovery. Cooking characteristics include cooking time, elongation ability, aspect after cooking, and impression in the stomach.

Medium-duration fields are grown mostly in medium land. Varieties such as Sarju-52, Ashwani, NDR-359, Pant-4, -10, and -12, and Indrasan are grown on the fields that are located in between upper and lower levels of land type. Farmers of Mungeshpur prefer to grow these varieties on the these land types on the belief that they need optimum moisture during the growth period. Fields differ in agrohydrological characteristics in Basalatpur; therefore, some farmers prefer to grow medium varieties on upland fields also.

Farmers' perceptions of useful traits in varietal adoption

To determine whether there are gender differences in perceptions of useful traits in varietal adoption, we used graphic illustrations of traits. We first showed cards that illustrate useful traits in selecting rice varieties. We then asked each farmer what traits he or she consider in selecting rice varieties for specific land types—upland and lowland fields. To assess how farmers valued each trait, we asked the question, "If you had 100 *paisa*, how much would you pay for each trait? The value in *paisa* allocated to a particular trait corresponded to the importance given by the farmer. Because many traits are interrelated, we reclassified them in consultation with a plant breeder. For example, we grouped traits such as ease in hulling and milling recovery under postharvest quality. Table 2 shows the selection criteria of male and female farmers for different land types and villages.

Favorable rainfed lowlands (Basalatpur, Siddathnagar district)

In the lowland areas in Basalatpur, yield and duration are the most important traits male and female farmers consider in selection rice varieties.

In this village, the popular traditional varieties are *Bengalia, Oriswa,* and *Kuwari mashuri.* These are short-duration (90–110 days), medium-height varieties. The average yields are 2.5 tons per hectare. Farmers prefer short-duration rice varieties in the uplands because of the importance of growing early winter crops such as oilseed, linseed, pulses, peas, and potatoes. They prefer to parboil *Bengalia*; otherwise, its grains break easily. Women in Basalatpur use traditional rice varieties for making puffed rice and *churra,* beaten rice like cornflakes.. For women who continue to use the traditional method of hand-pounding rice, postharvest qualities such as ease of hulling and high milling recovery are additional useful traits. The men did not mention these. The finding that women are more concerned than men with postharvest traits and milling recovery are similar to the findings in a participatory breeding project in the high altitudes in Nepal. Sthapit, Joshi, and Witcombe (1996) also observed that women farmers are particularly skillful in assessing postharvest traits, such as milling recovery, and the cooking and eating quality of rice. They found that the evaluation scores between male and female farmers in Chhomrong village showed significant agreement. Women farmers reported that they would like to decide on variety selection after the postharvest evaluation. Consumers preferred white-grained rice to red-pericarped rice because it saves women time in milling.

In Basalatpur, both male and female farmers agreed upon the important traits for lowland rice varieties. Grain price is an important consideration for farmers here because they sell traditional varieties in the market. These, like *Kalamanak,* command a higher price because of their good taste and aroma. *Kalamanak* gives low yields of 1.5 to 2 tons per hectare. In contrast, grain price is not an important consideration in Mungeshpur because rice is mainly used for home consumption and is seldom sold in the market.

Shallow, submergence-prone uplands (Mungeshpur, Faizabad district)

In Mungeshpur, both male and female farmers agreed upon important traits in selecting varieties for the uplands. Women gave more importance to postharvest qualities and grain quality such as bold and pure grains. For the lowlands, both males and females cited better grain yield, medium duration (125-135 days), biomass, and resistance to abiotic stress as their selection criteria for lowland rice varieties. Women gave greater weight to better adaptation to specific soil types and to grain quality. Women mentioned additional useful traits for varieties in the uplands and lowlands that were not mentioned by men: competitiveness with weeds and postharvest quality. Weeds are the major problem in the uplands, particularly when rice is direct-seeded. In the lowlands, weeds are more prevalent during drought. These additional traits are related to the roles and responsibilities of female family members (e.g., hand weeding and feeding rice straw to livestock).

Farmers' evaluation of new rice genotypes grown in farmers' fields

During the 1999 monsoon season, two farmers from each of the villages of Mungeshpur and Sariyawan (rainfed neighboring village) of the Faizabad district and from Basalatpur were selected to check the performance of rice genotypes in their fields. The genotypes were (1) advanced lines from a shuttle breeding project from Uttar Pradesh, (2) released varieties, and (3) the most common local varieties. Of the 14 genotypes screened in Basalatpur, two are scented varieties (*Kamini,*

which flowers in 136 days, and *Sugandha*, which flowers in 124 days). Scientists distributed the seeds through the FPB project. In this approach, breeders select the most promising lines with farmers, and farmers are given a "basket of choices," growing several genotypes in their specific environments.

Ten farmers (five women and five men) visited the individual plots and ranked the rice genotypes grown on farmers' fields past the maturity stage. Farmers were asked to rank the rice lines from 1 (excellent) to 14 or 16 (worst) on the basis of visual assessment. The rankings of the new cultivars by the farmers generated an n x k matrix, where n equals the lines being evaluated and k equals the farmers evaluating the crop performance. Kendall's Coefficient of Concordance (W) was used to measure the agreement in rankings among male farmers and among female farmers, and the correlation between male and female farmers' rankings. High and significant correlation values indicate close agreement on the ranking of the rice genotypes by men and women in the sample.

Tables 5a to 5d show that in the two villages, male and female evaluators were in close agreement in the ranking of the lines. The Ws were highly significant, revealing that farmers' and breeders' rankings are often acceptable. Table 6 shows the summary of the ranking of male farmers, female farmers, and plant breeders indicating their choices. Of the 14 and 16 varieties ranked in Basalatpur and Mungeshpur, PVS 1, PVS3, PVS7, PVS9, PVS10, and PVS15 came out as the farmers' and breeders' choices in 1999. The traits of these lines are shown on table 7. During the crop season in 2000, several of these lines were compared with local check through PVS. Twenty-three farmers in two villages in Faizabad grew three rice lines, while 50 farmers in six villages in Siddathnagar grew six rice lines obtained from PVS trials.

Table 5a. Summary Ranking of Rice Genotypes in Basalatpur, Siddathnagar District, 1999

Field 1		Males(5)		Females(5)		Breeders (3)	
No.	Lines	Ave. Score	Rank	Ave. score	Rank	Ave. score	Rank
PVS1	**NDR-40032**	**2.4**	**3**	**2.6**	**2**	**3.0**	**2**
PVS2	**Kamini**	**8.4**	**8**	**8.8**	**6**	**11.3**	**12**
PVS3	**NDR-9730004**	**5.8**	**5**	**7.0**	**5**	**4.0**	**3**
PVS4	Bindili	6.4	6	8.8	6	10.3	11
PVS5	NDR-9830103	10.6	10	13.2	11	9.3	10
PVS6	Sugandha	10.8	10	7.0	5	12.0	13
PVS7	**NDR-96005**	**6.8**	**7**	**7.6**	**7**	**6.3**	**5**
PVS8	4113	14.0	11	12.4	10	14.0	14
PVS9	**NDR-9730015**	**3.0**	**2**	**1.8**	**1**	**5.3**	**4**
PVS10	**NDR-9730020**	**2.0**	**1**	**4.0**	**3**	**2.0**	**1**
PVS11	**Malasia**	**9.6**	**9**	**5.2**	**4**	**8.7**	**9**
PVS12	RAU-1308-10-11-3-1-2-4-3	8.6	11	7.4	5	6.7	6
PVS13	CN-1035-61	4.8	4	10.0	9	8.0	8
PVS14	RAU-1411-10	10.4	10	9.2	8	7.0	7
		w=.73**		w=.63**		w=.70**	

**Significant at 0.5 and .10 per cent level.

Table 5b. Summary Ranking of Rice Genotypes in Basalatpur, Siddathnagar District, 1999

Field 2		Males (5)		Females (5)		Breeders (3)	
No.	Lines	Ave. score	Rank	Ave. score	Rank	Ave. score	Rank
PVS1	**NDR-40032**	**2.2**	**2**	**3.8**	**3**	**3.3**	**4**
PVS2	**Kamini**	**7.2**	**6**	**7.8**	**7**	**10.7**	**10**
PVS3	**NDR-9730004**	**8.2**	**7**	**5.4**	**5**	**2.7**	**2**
PVS4	Bindili	5.6	4	2.6	2	11.7	11
PVS5	NDR-9830103	8.0	7	9.2	8	9.7	9
PVS6	Sugandha	6.4	5	6.2	5	9.3	8
PVS7	**NDR-96005**	**4.6**	**3**	**6.4**	**5**	**5.3**	**5**
PVS8	4113	11.0	9	12.2	10	13.3	12
PVS9	NDR-9730015	1.8	1	1.8	1	1.3	1
PVS10	**NDR-9730020**	**2.4**	**2**	**5.0**	**4**	**3.0**	**3**
PVS11	**Malasia**	**12.6**	**10**	**7.2**	**6**	**9.3**	**8**
PVS12	RAU-1308-10-11-3-1-2-4-3	13.6	11	12.2	10	7.7	7
PVS13	CN-1035-61	8.6	8	12.2	10	6.0	6
PVS14	RAU-1411-10	12.8	10	11.0	9	11.7	11
		w=.90**		w=.72**		w=31**	

**Significant at 0.5 and .10 percent level.

Table 5c. Summary Ranking of Rice Genotypes in Mungeshpur, Faizabad District, 1999

Field 1		Males (5)		Females (5)		Breeders (3)	
No.	Lines	Ave scores	Rank	Ave scores	Rank	Ave scores	Rank
PVS1	NDR-40032	3.2	3	2.6	2	1.7	1
PVS2	Kamini	15.8	16	15.2	14	15.3	16
PVS3	**NDR-9730004**	**6.6**	**6**	**6.0**	**4**	**3.0**	**2**
PVS4	NDR-9730003	10.4	13	7.2	7	3.7	3
PVS5	RAU-1308-9-3-1-10-3-4-3	8.4	8	9.0	8	13.0	13
PVS6	PSRM-1-16-48-1	13.8	15	14.8	13	14.0	13
PVS7	**NDR-9830102**	**2.9**	**1**	**1.8**	**1**	**5.7**	**5**
PVS8	NDR-9730002	9.2	10	12.6	10	7.0	8
PVS9	**NDR-9730015**	**8.0**	**7**	**6.6**	**5**	**5.0**	**4**
PVS10	**NDR-9730020**	**5.4**	**4**	**7.0**	**6**	**6.0**	**6**
PVS11	**Mashuri**	**6.6**	**5**	**10.6**	**9**	**9.7**	**10**
PVS12	RAU-1308-10-11-3-1-4-3	10.2	11	13.0	11	12.0	12
PVS13	NDR-96012	9.0	9	8.8	8	8.0	9
PVS14	RAU-1411-10	10.4	12	6.0	4	10.0	11
PVS15	NDR-9830103	3.0	2	3.4	3	6.7	7
PVS16	RAU-1400-13-200-4-6	14.0	14	13.2	12	13.3	140
			w=71**		w=.81**		w=0.79**

**Significant at 0.5 and .10 per cent level.

Table 5d. Summary Ranking of Rice Genotypes in Mungeshpur, Faizabad District, 1999

Field 2		Males (5)		Females (5)		Breeders (4)	
No	Lines	Ave scores	Rank	Ave scores	Rank	Ave scores	Rank
PVS1	NDR-40032	4.2	3	3.4	3	2.3	1
PVS2	Kamini	11.4	12	14.4	14	14.7	11
PVS3	NDR-973004	8.0	7	6.2	4	4.7	2
PVS4	NDR-973003	8.6	9	8.0	8	8.0	6
PVS5	RAU-1308-9-3-1-10-3-4-3	14	12.0	12	14.3	10	10
PVS6	PSRM-1-16-48-1	12.8	13	11.8	11	12.3	8
PVS7	NDR-9830102	3.6	2	2.4	2	7.0	5
PVS8	NDR-9730002	8.0	7	10.0	9	8.7	7
PVS9	NDR-9730015	5.6	5	6.4	5	5.0	2
PVS10	NDR-9730020	5.2	4	7.0	6	6.0	4
PVS11	Mashuri	10.6	10	13.6	13	7.0	4
PVS12	RAU-1308-10-11-3-1-4-3	8	10.2	10	12.7	9	9
PVS13	NDR-96012	10.8	11	7.2	7	9.3	7
PVS14	RAU-1411-10	7.0	6	10.0	9	9.0	7
PVS15	**NDR-9830103**	**1.6**	**1**	**1.4**	**1**	**5.3**	**3**
PVS16	RAU-1400-13-20	15.0	15	10.0	9	9.7	6
			w=.65**		w=.65**		w=.60**

**Significant at 0.5 and .10 per cent level.

Table 6. Summary Ranking of Preferred Lines by Male and Female Farmers and Plant Breeders, 1999

	Male farmers		Female farmers		Plant breeders	
	Field 1	Field 2	Field 1	Field 2	Field 1	Field 2
Basalatpur						
PVS1	3	2	2	3	2	4
PVS3	5	7	5	5	3	3
PVS7	7	3	7	5	5	5
PVS9	2	1	1	1	4	1
PVS10	1	2	3	4	1	3
Mungeshpur						
PVS1	3	3	2	3	1	1
PVS3	6	7	4	4	2	2
PVS7	1	2	1	2	5	5
PVS9	8	5	5	5	4	2
PVS10	4	4	6	6	6	4
PVS15	3	1	3	1	7	6

Table 7. Farmers' Assessment of New Rice Lines during the 1999 *Kharif* Season

Lines (Location)	Name	Positive traits	Negative traits
PVS1		Good yield	
		Medium plant height	
		Good straw (quantity and quality)	
		Has regeneration capacity (faster recovery after submergence)	
		Short, bold, heavy grains	
		Best for puffed rice, has good	
PVS-3	NDR-973004	Medium plant height	
		Submergence-tolerant	
		Good tillering capacity	
		Long panicles	
		Good eating quality	
		Good milling recovery	
		Remains soft after cooking	
PVS-7	9830102	Short duration (110 d) which makes rice available during the lean period	
		Good yield (4 t/ha)	
		Medium plant height	
		Good straw (quantity and quality)	
		Better for early rabi crops	
		Good taste	
PVS9	NDR9730015	Medium plant height	More broken grains after milling
		Suitable to land type	Becomes hard after cooking
		Submergence-tolerant	
		Good tillering capacity	
		Long, bold grain size	
		Good straw	
		Good for puffed rice	
PVS10	NDR9730020	High yield—more grains per panicle than PVS1 (NDR-40032)	
		Suitable to land type	
		Medium plant height	
		Resistant to lodging (hardy stem)	
		Resistant to pests and diseases	
		Longer panicles	
		Grains are long and cylindrical and finer than PVS9 (NDR9730013)	
		Higher milling recovery	
		Good taste	
		Remains soft after cooking	
		Good for special social occasions	
		Easy to harvest and thresh	

Listening to the voices of male and female farmers

Aside from asking men and women to rank traits and varieties through visual assessment, we conducted informal interviews with men and women farmers, separately. This enabled plant breeders to listen not only to men but also to women. Some of their perceptions of the rice varieties and lines tested are below.

Mrs. Yadav is 53 years old, illiterate, and a full-time farmer. Her husband is a full-time worker in the flour and oil mills. This makes her the *de facto* head of household. She supervises the farm and makes decisions regarding what crops and varieties to grow. Three years ago, she grew mostly local varieties because of a lack of irrigation facilities. We gave her seeds of NDR 97, a new variety, which she planted on 0.10 ha of land. Later she increased the area planted to this variety to 0.5 ha. She told us the positive traits she likes in this variety, such as suitability to her land type, good taste, shorter duration, good milling recovery, ease of threshing, and medium height, and negative traits such as less rice straw:

> *I tried many varieties since the last four to five years such as Saket4 and NDR80, but because they were damaged by drought and disease, I stopped growing them. I shifted back to a local variety [ARI] although it does not taste good, has poor milling recovery and coarse grains. But I like NDR97 because of its suitability to my land, good taste, and shorter duration. The only problem is that it produces less biomass [straw], which is not enough for my two bullocks and five buffaloes. We need more straw for the animals throughout the year. We also grow* curbi *[green fodder] and harvest them green during the* kharif *season. Due to the early duration of NDR97, we can cultivate our land for early* rabi *crops such as oilseed and vegetables before wheat. I also like the taste of NDR97 and I am satisfied with its milling recovery. It is also easy to thresh; it is neither very tall nor short.*

Mrs. Savitri Devi is 45 years old, illiterate, and a full-time farmer of the backward caste. She cultivates 1.1 ha of land in Mungeshpur. She has two types of land, upland and lowland. She grew NDR359, Sarju52, and *Jallahri* in 1998. We gave the new seeds of NDR359 to her in 1996. She prefers this variety because it has a good taste and short duration. She describes their use of NDR359:

> *I don't like the taste of Sarju52. It is coarse and does not remain soft after cooking. It also does not have many broken grains after milling. So we sold Sarju52 and used NDR359 for home consumption. One thing I noticed with the straw of NDR359 is that it is soft, so instead of storing it for a long time, we had to feed it immediately to our animals. If we keep the straw for two to three months, it will not be very easy to cut and the animals will refuse to eat it. Instead of leaving the rice stalks to dry in the field, which is our usual practice, we immediately thresh after harvesting. Its short duration also enables me to grow another crop during the* rabi *season.*

Mrs. T. B Singh, 50 years old, belongs to the upper caste. Due to labor shortages during the peak season and the lack of male labor (her husband is fully engaged in a nonfarm job), she has been forced to provide physical labor in most of the rice operations. She was able to finish five years in school. She is the decision maker in the household and is quite knowledgeable about farming. In 1997, she was one of the collaborators of the project. After testing 13 genotypes on her field, she obtained 5.2 tons per ha from PVS5 (NDRSB9730015), so she decided to continue to grow this variety and expand the area during the 1998 *kharif* season. She expected to get six tons per ha, but because of drought, there were many unfilled grains. She told us about the variety's positive traits aside from its high yield:

> *I prefer PVS5 because of its medium duration; medium bold, cylindrical grain; resistance to pests and diseases; and better milling recovery.*

In 1995, we gave her new seeds of BKP246.

I like this variety too because it is suitable for the lowland rainfed area, has good yields, and is not susceptible to diseases. I like the size and the shape of the grain—medium and bold. It also has the best milling recovery and commands a high price in the market. In 1998, I sold four quintals of paddy at Rs 400 per quintal, while the other varieties are Rs 50 less than BFK246. We use Sarju52 and Saket4 for home consumption. Saket4 has fine grains and matures early, a trait ideal for the uplands. Our agricultural workers prefer coarse grains, which last longer in the stomach than paddy with finer grains. I observed that the quantity of straw of BFP346 is less, but grain quality is more important to us.

Mr. Bansat Lal , 42 years old, an illiterate father from the backward caste, is a full-time farmer. His sons are fully engaged in nonfarm activities and his daughter-in-law supervises farm activities and takes part in decision making. In 1997, he was a collaborator in the plant varietal-selection program and obtained good yields. After threshing and milling, the female members of his household also agreed that the PVS5 (NDRSB9730015) and PVS6 (NDRSB9730020) should be grown the following year. Both Mr. Lal and his daughter-in-law have the same criteria for selection, such as better yield, good quality of straw, medium height, resistance to pests and diseases, longer and fine grains, no broken grains after milling, softness and expansion after cooking.

My daughter-in-law observed that PVS5 is easy to hull through hand pounding after parboiling. It is also good for puffed rice.

Mr. Lal shared the seeds of PVS5 with other farmers. In 1998, he cultivated PVS5 and PVS6 on his 3 *bigha* (0.3 ha) land area. He was able to obtain a yield of six quintals per *bigha* in one plot and four quintals in another plot. These yields were higher than those in nearby fields.

Conclusions

Socioeconomic surveys revealed that a major determinant of varietal choice is the conscious attempt of farmers to match varieties with the land type. Each field position in the topo-sequence corresponds to a risk of drought or submergence. In Mungeshpur (shallow and submergence-prone) farmers' criteria for selecting rice varieties are associated mainly with duration (short to medium), for growing *rabi* crops after rice in the upland fields, and with better yield. A second determining factor is the adaptation to different user needs: food, livestock fodder, thatching, and cash. A third determining factor is related to different postharvest operations like ease of threshing, good taste, high milling recovery (above 65%), good storage capacity, and premium market price. Gender-specific roles and responsibilities also determine varietal preferences. For example, women prefer medium or semi-tall varieties that are easier to thresh, as well as varieties that have a good quantity and quality of rice straw for livestock feed. Moreover, they prefer varieties for the specific rice products that they make. While it may be difficult to combine all their preferred traits into one unique variety because of genetic correlations, it is important that both men and women have a "basket of choices" of varieties suited to their needs and agroecosystems. Clearly, listening to farmers' perceptions and involving both men and women farmers in selecting rice varieties at the early stage of breeding can lead to faster adoption of varieties suited to their specific rice ecosystems and diverse needs.