

**Narrative Progress Report:**  
**Scale-up salt tolerant rice variety through FARMSEED**  
**(Farmer-to-farmer seed exchange system)**

**(1 May 2009-31 October 2009)**

**Stress Tolerant Rice for Poor Farmers of Africa and South Asia**  
**(STRASA)**

**Funded by:**  
**Bill & Melinda Gates Foundation**



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## Table of contents

Subject	Page
Front Page	1
Table of contents	2
Introduction	3
Purpose	3
Outputs	3
Duration	3
Reporting Period	4
Location	4
Progress to date	4
(I) Member NGOs network formation	5
(II) Conduct staff training	5
(III) Group formation & Coordinators	6
(IV) Prepare seed production guidelines	6
(V) Conduct farmers' training	7
(VI) Performance of BRRRI dhan 47	8
(a) Seed production and use	8
(b) Irrigation scenario	8
(c) Salinity and its consequences	9
(d) Crop condition of BRRRI dhan 47 at maturity	10
(e) Grain sterility status of BRRRI dhan 47	11
(f) Insect infestation	11
(g) Disease infection	12
(h) Crop field mixture	12
(VII) FARMSEED progress on BRRRI dhan 41	12
a. Seed distribution	12
b. Conduct field monitoring	13
c. Salinity Status	15
d. Water depth of seed plots	15
<b>List of Table</b>	
<b>Table.1:</b> District wise member NGOs of Oitijhya	5
<b>Table.2:</b> NGO-wise number of group coordinator, total member farmers and total community	6
<b>Table. 3:</b> Member NGO-wise number of farmers participated in training sessions.	7
<b>Table. 4:</b> Seed production and use of BRRRI Dhan 47 during 2008-09 Boro season	8
<b>Table. 5:</b> Sources of irrigation for BRRRI Dhan 47 seed production plots during 2008-09 Boro season	9
<b>Table. 6:</b> Salinity status of irrigation water sources and soil of seed production plots of BRRRI dhan 47 during 2008-09 Boro season	9
<b>Table. 7:</b> Crop stage wise seed plots damaged and their damaged level of BRRRI dhan 47 during 2008-09 Boro season	10
<b>Table.8:</b> Crop condition of BRRRI Dhan 47 at maturity during 2008-09 Boro season	11
<b>Table.9:</b> Grain sterility status of BRRRI dhan 47 during 2008-09 Boro season	11
<b>Table.10:</b> Insect infestation on BRRRI dhan 47 during 2008-09 Boro season	12
<b>Table. 11:</b> Disease infection on BRRRI dhan 47 during 2008-09 Boro season	12
<b>Table.12:</b> NGO wise number of farmers/community and total quantity of seed of BRRRI dhan 41 during 2009 T. Aman	13
<b>Table.13:</b> Performance of BRRRI dhan 41 at seed production plots during 2009 T. Aman season	14
<b>Table.14:</b> List of damaged plots of BRRRI dhan 41 during 2009 T. Aman season	14
<b>List of Fig:</b> Project Districts	4
<b>List of Annex</b>	
<b>Annexure .I: List of Member Organizations of Oitijhya (H২Zn)</b>	16
<b>Annexure. II:</b> NGO wise involved and assessed farmers, area, seed production and its use with BRRRI dhan 47 during 2008-09 Boro season in Satkhira, Khulna Bagerhat and Pirojpur (seed received) districts	18
<b>Annexure. III:</b> NGO wise source of irrigation for BRRRI Dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts	19
<b>Annexure. IV:</b> NGO wise salinity status of soil and irrigation water, crop damage stage and status, effect of salinity and crop condition at maturity	20
<b>Annexure. V:</b> NGO wise grain sterility, insect infestation, disease infection and mixture in crop field (%)	22
<b>Annexure. VI:</b> NGO wise crop performance of BRRRI dhan 41, land area, plot salinity status and water depth in seed production plots	23

## **Introduction**

Because seed is an important determining factor in crop production, farmers need better and more affordable access to quality seeds to improve their production. To enhance farmers' access to quality seeds, Agricultural Advisory Society (AAS) has developed an innovative, decentralized seed production and distribution system, commonly known as FARMSEED (Farmer to farmer seed exchange system) in Bangladesh. It is a demand driven community based, farmer-led approach to both formal and informal seed systems. In FARMSEED system, community based seed producers, who received special training on rice seed production from AAS, are provided with foundation seeds. The generation of seeds produced from foundation seeds represents a substantial boost in seed quality when compared with the normally exchanged seeds between farmers. Seeds produced by seed farmers become directly available in the community without being channeled back into government agencies or NGOs for processing and marketing through a network. Vigorous networking is, thus, the key to success of the FARMSEED concept. Informal seed systems can be regarded as traditional in that they normally involve long-standing, well-established practices and links between seed products and consumers. Little improvement of informal seed system can ensure the availability of quality seed in the hands of farmers, especially resource poor farmers at the community level and FARMSEED is an example. Thus, AAS has developed FARMSEED approach, which is the combination of formal and informal seed system and fully sustainable to ensure quality seed supply of the demanded crops among the farmers in general and rice in specific. Accordingly, the FARMSEED approach needs to be introduced a wider and more pervasive scale among the rice farmers with salt tolerant rice modern varieties (MVs) in coastal regions of the country. Through this project, AAS proposes to expand this model of quality rice seeds production and distribution among the resource poor farmers in coastal regions of Bangladesh.

However, the challenge is to establish FARMSEED approach, to ensure the quality seed availability of salt tolerant rice variety in coastal regions in Bangladesh under the funding support from the Bill and Melinda Gates Foundation (BMGF) approved IRRI's project on stress tolerant rice for poor farmers in Africa and South Asia (STRASA). This report summarizes the progress that AAS has made as of 31 October 2009 toward achieving its assigned task for the period of 1 May 2009-31 October 2009.

## **Purpose**

The purpose of the project is to establish a community based sustainable farmer-to-farmer seed exchange system; ensuring, in the process, the availability of quality rice seed of salt tolerant varieties on a sustainable basis and at affordable prices in coastal regions of Bangladesh. This will be done through empowering the farmer's decision-making ability and by enhancing their skill in quality seed production, processing, preservation and distribution.

## **Outputs**

1. FARMSEED Network financially established
2. Improved the skill and knowledge of grower group farmers
3. Increased the availability of quality seed
4. Participatory Monitoring and Evaluation system established

## **Duration**

AAS has been sub-contracted for 27 months under the early cycle of the approved IRRI project funded by BMGF beginning from 1 June 2008 to achieve the above-mentioned outputs of the project on Scale-up salt tolerant rice variety through FARMSEED in coastal regions of the

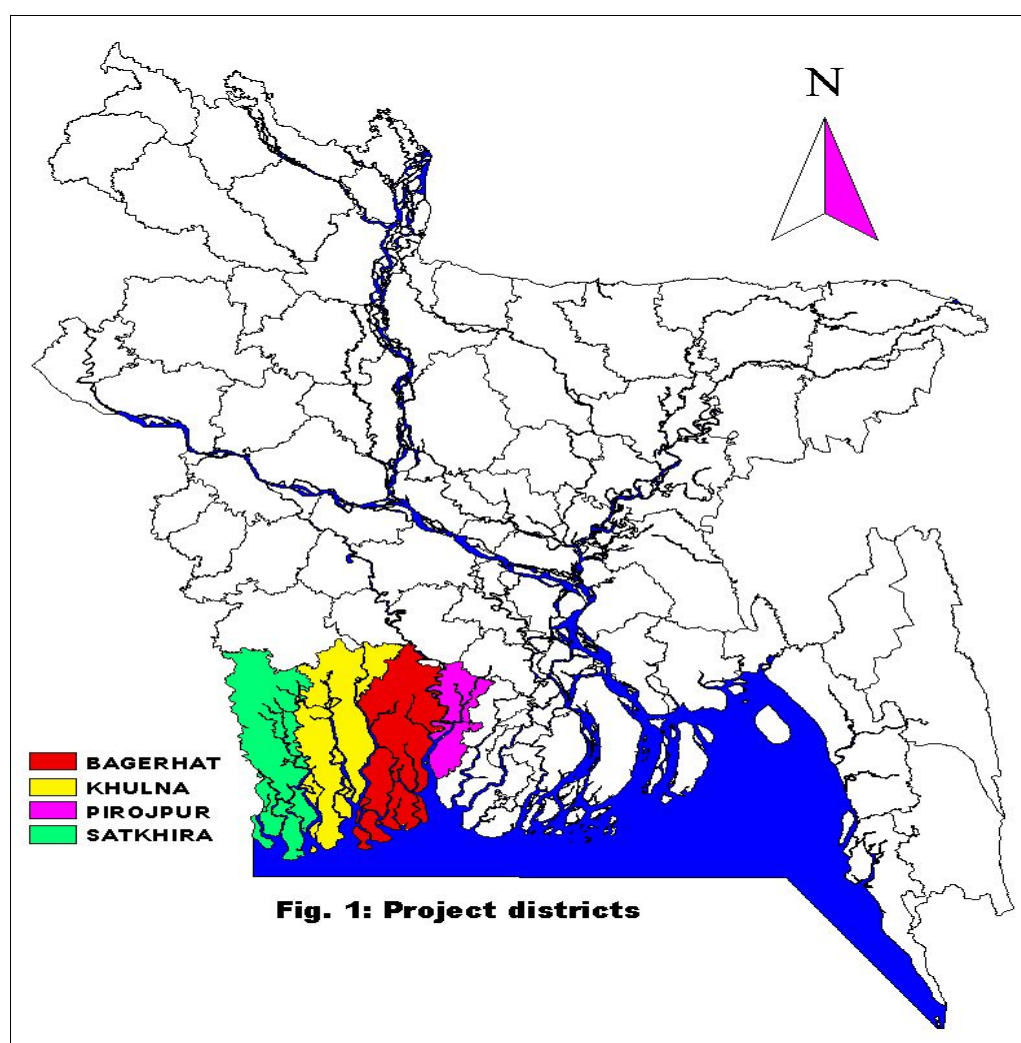
country. Project duration will extend on the basis of changes on the objective, outputs and activities of the accepted project on Scale-up salt tolerant rice variety through FARMSEED.

## Reporting Period

The narrative progress report of the assigned task of the accepted project on scale-up salt tolerant rice variety through FARMSEED is covered from 1 May to 31 October 2009 (As per singed LOA item no. 5).

## Location

As per sub-contract, AAS has been implementing the project activities in Satkhira, Khulna, Bagerhat and Pirojpur districts with partner NGOs. The project location (Satkhira, Khulna, Bagerhat and Pirojpur districts) is shown in the following **Fig.1**:



## Progress to date

AAS has been sub-contracted by IRRI for successful implementation of the activities of the approved project on Scale-up salt tolerant rice variety through FARMSEED in coastal region of the country. Accordingly, AAS has accomplished the following progress during last six months starting from 1 May 2009:

## (I) Member NGOs network formation

AAS has selected 22 local NGOs as the members of proposed FARMSEED Network for dissemination of salt tolerant rice varieties in Satkhira, Khulna, Bagherhat and Pirojpur districts in collaboration with Mostafa Nurunzzaman, Director, Shushilan and Dr. M.K. Basher, CSO & Head, GRSD, BRRI. Partner NGOs network has been formed during launching participatory workshop on Scale-up of salt tolerant variety through FARMSEED. The network name was given as "Oitijhya" by the participants (Chief Executives of NGOs) of the workshop, which was held on 6 June 2008 at Shushilan office Khulna. Details of member organizations of Oitijhya are provided in Annexure I. Network (Oitijhya) will be responsible to take various agricultural development projects including FARMSEED for Scale-up salt tolerant rice varieties in coastal regions of the country. District wise involved member NGOs list of Oitijhya is given in the following Table 1:

**Table.1:** District wise member NGOs of Oitijhya

District	Member NGOs
Satkhira	Nakshikantha (N. Kantha), Peoples Research on grass root Ownership & Traditional Initiative (PROGOTI), IDEAL, Bhumiz Foundation, Mukti Foundation (MF), Palli Punargathan Society (PPS), Palli Chetona (PC), Shushilan, Agricultural Advisory Society (AAS)
Khulna	Nice Foundation (NF), Koyra Unnayan Foundation (KUF), Rural and Urban Poor's Partner for Social Advancement (RUPSA), Mouchak, Social Edification of Benign Assimilation (SEBA), Aporajita Mohila Samaj Kallayan Sangstha (AMSKS), Bangladesh Resource Improvement Center (BRIC), Rupokar, CDP, Shushilan, Agricultural Advisory Society (AAS)
Bagherhat	Ash Bangladesh (AB), Badhon, DIPTE Bangladesh (DB), Gano Milan Foundation (GMF), Chitra Unnayan Sangstha (CUS), Shushilan, Agricultural Advisory Society (AAS)
Pirojpur	Sundarban Bhumukhi Grameen Unnayan Prokalpa (SBGUP), Agricultural Advisory Society (AAS)

AAS has been implementing the activities of the project on scale-up salt tolerant rice variety through FARMSEED in southwest coastal region through NGO network (Oitijha) since its approval under limited funding support from IRRI/BMGF. Member NGOs of the network have been working with AAS without any financial support. As a result most of the members NGOs have been raising their voice to get financial support at least for one working field staff salary and field traveling expenses. Under current funding support is not possible to provide such kind of minimum support for the members NGOs of the network.

AAS has proposed in the approved project to establish FARMSEED approach to disseminate the salt tolerant rice varieties in coastal region with various potential partners including NGOs, CBOs and RPFs (resource poor farmer groups). During FARMSEED model development with funding support from IRRI/PETRRRA project, AAS found grass root level organizations (CBO, RPFs and very small local NGOs) were more efficient than national NGO, regional NGO and even established local NGO. Moreover, the project learned that community based organizations are more effective than NGOs in facilitating the FARMSEED process. Similarly resource poor farmers groups are more effective than CBOs. Accordingly, AAS will give more emphasis to work with grass roots level partners such as CBOs, RPFs etc. in future in collaboration with GRSD, BRRI and Shushilan under AAS's direct delivery to establish FARMSEED approach to disseminate the salt tolerant rice varieties in coastal region of the country.

## (II) Conduct staff training

One participatory staff training was conducted on rice seed production practices of BRRI dhan 41 on 15 August 2009 at conference room of Shushilan, Khulna. A total of eight staffs of AAS

and Shushilan participated in the training course. Staff training was conducted (i) to share the seed production guidelines of BRR I dhan 41; (ii) to prepare the implementation plan on the decided activities relating to BRR I dhan 41 during 2009 T. Aman season; and (iii) to prepare the implementation plan on the performance assessment through impact study on BRR I dhan 47 during 2008-09 Boro season. Mr. Abu Zaffor, FC and Mr. Subrota Kr. Ghosh,FC of AAS were assigned to conduct impact study under direct supervision of Harun-Ar-Rashid, ED, AAS and PI of the project.

### (III) Group formation & Coordinators

Involved member NGOs were selected the suitable communities for seed production and dissemination of BRR I dhan 41 and 47 in Satkhira, Khulna, Bagerhat and Pirojpur districts through FARMSEED approach at the beginning of the project cycle. Informal farmers' groups were formed for salt tolerant rice seed production during implementation of farmers training on seed production practices of BRR I dhan 41 and 47 at communities under the leadership of the involved member NGOs. Each farmer group was formed with a coordinator as representative of the group. NGO wise finalized number of group coordinators is provided in the following Table.2:

**Table.2:** NGO-wise number of group coordinator, total member farmers and total community

SL #	Member NGO	Group Coordinator (Nr.)	Total member farmers	Total community (Nr.)
1	SEBA	2	50	2
2	BRIC	1	25	1
3	RUPSA	2	40	2
4	NF	1	25	1
5	Rupokar	0	0	0
6	KUF	0	0	0
7	GMF	1	25	1
8	CUS	5	115	5
9	Badhon	5	125	5
10	AB	1	25	1
11	DB	2	50	2
12	BF	1	25	1
13	MF	1	25	1
14	N. Kantha	7	111	7
15	PROGOTI	1	25	1
16	IDEAL	1	25	1
17	PC	0	0	0
18	PPS	1	25	1
19	Shushilan	11	283	11
20	SBGUP	4	100	4
<b>Total</b>		<b>47</b>	<b>1099</b>	<b>47</b>

### (IV) Prepare seed production guidelines

Seed production guidelines of BRR I dhan 41 and 47 were prepared and distributed among the trained staffs, group coordinators and progressive farmers of the involved member NGOs in Satkhira, Khulna, Bagerhat and Pirojpur districts. Besides seed production guidelines, project management and monitoring formats were prepared and distributed among the trained staffs and chief executives of the involved member NGOs.

Revised seed production guidelines of BRR I dhan 41 was prepared and distributed among the trained staffs, group coordinators and progressive farmers of the involved member NGOs in Satkhira, Khulna, Bagerhat and Pirojpur districts during 2009 T. Aman season. Besides seed

production guidelines, project management and monitoring formats were prepared and distributed among the trained staff and chief executives of the involved member NGOs during 2009 T. Aman season

Revised seed production guidelines of BRR I dhan 47 has been prepared for distribution among the group coordinators and staffs of member NGOs of the network during training on production practices of BRR I dhan 47 for 2009-10 Boro season. Besides seed production guidelines of BRR I dhan 47, formats for impact study on the performance of BRR I dhan 41 during 2009 T. Aman season and formats for project management, monitoring formats etc for 2009-10 Boro season have been prepared for administering the decided activities.

## (V) Conduct farmers' training

Project staff of AAS in collaboration with trained staff and chief executives of the involved 22 member NGOs conducted participatory farmers training on seed production practices of BRR I dhan 41 and 47 at community during 2008 T. Aman season and 2008-09 Boro season respectively. The staff of member NGOs documented farmers' participation in training session.. Member NGO-wise number of farmers participated in training sessions during 2008 T. Aman and 2008-09 Boro seasons are provided in the following Table.3.

Similarly, project staff in collaboration with trained staffs and chief executives of the involved 18 member NGOs conducted participatory farmers training on the seed production practices of BRR I dhan 41 at community during 2009 T. Aman season after distribution of the seeds. The staff of the member NGOs documented farmers' participation in training sessions. Member NGO-wise number of farmers participated in training sessions during 2008 T. Aman, 2008-09 Boro and 2009 T. Aman seasons are provided in the following Table.3.

**Table. 3:** Member NGO-wise number of farmers participated in training sessions during 2008 T. Aman, 2008-09 Boro seasons and 2009 T. Aman season

NGO	District	2008 T.Aman	2008/09 Boro	2009 T. Aman	Total
Nakshikantha	Satkhira	25	30	150	205
PROGOTI	Satkhira	25	30	25	80
IDEAL	Satkhira	25	30	25	80
Nice Foundation	Khulna	25	30	22	77
KUF	Khulna	25	30	0	55
Bhumiz Foundation	Satkhira	25	30	25	80
RUPSA	Khulna	25	30	50	105
Ash Bangladesh	Bagerhat	25	0	25	50
Badhon	Bagerhat	25	30	55	110
Mukti Foundation	Satkhira	25	30	25	80
PPS	Satkhira	25	30	25	80
Mouchak	Khulna	25	30	0	55
DIPTE Bangladesh	Bagerhat	25	30	50	105
Palli Chetona	Satkhira	25	30	25	80
Gano Milan Foundation	Bagerhat	25	30	20	75
SEBA	Khulna	25	30	55	110
AMSKS	Khulna	25	30	0	55
CUS	Bagerhat	25	30	35	90
BRIC	Khulna	25	30	25	80
Rupokar	Khulna	25	30	0	55
Shushilan	Satkhira	0	70	326	396
SBGUP	Pirojpur	0	90	50	140
<b>Total</b>	<b>-</b>	<b>500</b>	<b>730</b>	<b>1013</b>	<b>2243</b>

## (VI) Performance of BRR1 dhan 47

The performance of BRR1 dhan 47 during 2008-09 Boro season assessed through conducting an impact study during July-September 2009. The impact study was conducted by field staffs of AAS in collaboration with trained field staffs and chief executives of the member NGOs under the close supervision of Harun-Ar-Rashid, PI of the project. The structured assessment tools (format and guidelines) were used during implementation of impact study. A total of 730 trained farmers of 20 member NGOs were received the seed of BRR1 dhan 47 for sowing during 2008-09 Boro season in Satkhira, Khulna, Bagerhat and Pirojpur districts. However, the impact study team conducted impact study with trained and involved 593 farm families in Satkhira, Khulna and Bagerhat districts. Collected data were analyzed and presented in the following sections and sub-sections:

### (a) Seed production and use

Out 593 assessed farm families, 444 farm families were harvested the crop after maturity. Average about 19 decimals land produced 340 Kg seed of BRR1 dhan 47 per involved family, which is about 4.42 ton per hectare grain yield. About 4.24% of the total produced grain was used as seed, of which 2.92% as family saved (Average 25 Kg/family), 0.17% as an exchange and only 1.15% as sale to other farmers (Average 18 Kg/family). On the other hand, about 96% of the produced grain of BRR1 dhan 47 was consumed as food, of which family consumption as food was about 91% and sale in market as food was about 4.65%. Grain production and used of BRR1 dhan 47 during 2008-09 Boro season with trained seed farmers of 20 member NGOs in Satkhira, Khulna and Bagerhat districts are provided in the following Table. 4.

**Table. 4:** Seed production and use of BRR1 Dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts

Used as seed						Consumption as grain					Total used	
Family used <sup>1</sup>		Exchange (%)	Sale (%)	E & S <sup>2</sup> Av. (Kg/ Family)	Total (%)	Family <sup>3</sup>		Sale <sup>4</sup>		Total (%)	Seed	Consumption
%	Av. (Kg/ Family)					%	Av. (Kg/ Family)	%	Av. (Kg/ Family)		%	%
2.92	25	0.17	1.15	18	4.24	91.11	325	4.65	281	95.76	4.24	95.76

<sup>1</sup> Total family used = 178, <sup>2</sup> E & S family = 109, <sup>3</sup> Total family consumed = 423, <sup>4</sup> Total family sold = 25, Total 444 families seed produced = 1, 50,857 Kg.

Total farmers received seed = 730 (4 districts)

Total assessed farmers = 593 (3 districts)

Total plots (farmers) harvested = 444

Total drop out plots (farmers) = 149

[Seed sold = 7, seedlings damaged at seed bed = 72, germination failed = 8, crop damaged during vegetative growth = 62] = 149

NGO wise involved and assessed farmers, land area, seed production and its use of BRR1 dhan 47 during 2008-09 Boro season in Satkhira, Khulna, Bagerhat and Pirojpur (only seed received) districts are provided in Annex II:

### (b) Irrigation scenario

Out of 593 assessed plots, 525 plots were under five irrigation water supply sources. Highest numbers of plots (198) were under STW irrigation source (37.71%) followed in order by canal water irrigation source (30.29), pond water irrigation source (17.52%), river water irrigation source (14.29%) and DTW irrigation source (0.19%) in Satkhira, Khulna and Bagerhat districts. Farmers failed to irrigate in 53 plots from their decided source of irrigation and there was no plot under rain-fed condition. Sources of irrigation for seed production of BRR1 dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts are provided in the following Table.5.



**Table. 5:** Sources of irrigation for BRRi Dhan 47 seed production plots during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts

Total farmer	STW		DTW		Canal		River		Pond		Rainfed	
	Nr.	%	Nr.	%	Nr.	%	Nr.	%	Nr.	%	Nr.	%
525	198	37.71	1	0.19	159	30.29	75	14.29	92	17.52	0	0

Total assessed plots = 593, Total irrigated plots = 525, Total non irrigated plots = 53, Farmers failed to raise seedling = 15

The depth of well for existing STWs were found between 35' to 350' with the average wells depth ranging from 79' with Dipte Bangladesh and 288' with Rupokar among the 21 member NGOs in Satkhira, Khulna and Bagerhat districts. NGO wise sources of irrigation for BRRi dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts are provided in Annexure.III.

### (c) Salinity and its consequences

**Water and soil salinity status:** Soil and irrigation water salinity levels were recorded on the basis of the involved farmers' long term experience and their perception. However, out of total 525 irrigated plots for BRRi dhan 47, 515 plots were assessed by the study team. Highest numbers of plots (249) for irrigation water sources were found as low salinity level (48.35%) followed by salinity free (23.30%), very high salinity (15.15%) and high salinity (13.20%). On the other hand, regarding soil salinity the highest numbers of plots (202) were found as low soil salinity (39.22%) followed by high salinity (26.02%), soil salinity free (17.48%) and very high salinity (17.28%) in Satkhira, Khulna and Bagerhat districts. NGO wise soil and irrigation water salinity levels are provided in Annexure.IV Salinity status of irrigation water and soil of seed production plots of BRRi dhan 47 are provided in the following Table. 6.

**Table. 6:** Salinity status of irrigation water sources and soil of seed production plots of BRRi dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts.

Salinity level <sup>1</sup>	Irrigation water		Soil	
	Plots (Nr.)	%	Plots (Nr.)	%
Very High	78	15.15	89	17.28
High	68	13.20	134	26.02
Low	249	48.35	202	39.22
Free	120	23.30	90	17.48
<b>Total</b>	<b>515</b>	<b>100</b>	<b>515</b>	<b>100</b>

<sup>1</sup> Water and soil salinity levels of BRRi dhan 47 plots were decided on the basis farmer assessment & perception

Total irrigated plots = 525, Total field plots' salinity assessed = 515, Total missing plots = 10

**Crop damaged stages and damaged level:** Out of 515 plots, 272 plots were damaged at various levels at six different crop stages, such as seedlings at seedbed, tillering stage, panicle initiation stage, flowering stage, ripening stage (shattering) and harvesting stage (shattering). Highest numbers of plots were damaged (94 plots) at ripening stage (34.56%) followed by flowering stage (22.79%), tillering stage (18.38%), harvesting stage (16.18%), PI stage (5.52%) and seedling at seedbed (2.57%) in Satkhira, Khulna and Bagerhat districts. Overall crop damaged level was found at higher level from 5-100% and most vulnerable stage was flowering stage of the growth cycle of BRRi dhan 47 during 2008-9 Boro season. NGO wise crop damage status at different growth stages and the effect of salinity on BRRi dhan 47 are provided in

Annexure.IV. Crop stage wise seed plots damaged and their damaged level of BRR1 dhan 47 are provided in the following Table.7.

**Table. 7:** Crop stage wise seed plots damaged and their damaged level of BRR1 dhan 47 during 2008-09 Boro season

SL No	Damage stage	Plots (Nr.)	%	Damage level (%)
1.	Seedling damage at seedbed	7	2.57	100
2.	Tillering stage	50	18.38	40-100
3.	Panicle initiation stage	15	5.52	50-100
4.	Flowering stage	62	22.79	10-100
5.	Ripening stage: Shattering	94	34.56	5-90
6.	Harvesting stage: Shattering	44	16.18	10-25
	<b>Total</b>	<b>272</b>	<b>100</b>	

### Effect of salinity

The various effects of salinity on BRR1 dhan 47 were recorded on the involved farmers' comment and opinion and the listed effects of salinity are as follows:

1. Over all higher level of UFG(Un-filled grain) due to salinity
2. Higher level UFG due to crop damage at panicle initiation stage
3. Crop damage at panicle initiation stage due to salinity
4. Crop damage at tillering stage due to salinity
5. UFG due to salinity at panicle initiation and flowering stage
6. UFG due to salinity at flowering stage
7. Crop damage at flowering stage due to salinity (water & soil)
8. Seedling damage at seedbed due to salinity
9. At low salinity lower UFG of BRR1 dhan 47 and better yield than BRR1 dhan 28.
10. High UFG because of lack of irrigation causing increased salinity in soil
11. Medium yield due to lack of rainfall
12. Seedling damaged at tillering stage
13. Unhealthy seedling at seed bed
14. Crop totally damaged

### Damage stage

1. Seedling damage at seedbed
2. Tillering stage
3. Panicle initiation stage
4. Flowering stage
5. Ripening stage: Shattering
6. Harvesting stage: Shattering

### (d) Crop condition of BRR1 dhan 47 at maturity

Out of 593 assessed farmers, of which 439 plots were reported for the crop condition evaluation at maturity stage of BRR1 dhan 47 in Satkhira, Khulna and Bagerhat districts. The highest numbers of plots (185) were under good crop condition (42.14%) followed by moderate crop condition (26.42%), very good crop condition (12.98%), bad crop condition (10.03%) and very bad crop condition (8.43%). NGO wise crop condition at maturity of BRR1 dhan 47 is provided in

Annexure.IV. Crop condition at five levels of BRRi dhan 47 at maturity during 2008-09 Boro season is provided in the following Table.8.

**Table.8:** Crop condition of BRRi Dhan 47 at maturity during 2008-09 Boro season

Crop condition	Maturity	
	Plots (Nr.)	%
Very bad	37	8.43
Bad	44	10.03
Moderate	116	26.42
Good	185	42.14
Very good	57	12.98
<b>Total</b>	<b>439</b>	<b>100</b>

Total farmer assessed = 593, Total plots assessed at maturity = 439, Total missing plots = 5

#### (e) Grain sterility status of BRRi dhan 47

A total of 593 farmers assessed, of which 444 plots were evaluated for the grain sterility status (levels) of BRRi dhan 47 in Satkhira, Khulna and Bagerhat districts. The highest number of plots (151) was found under low level of grain sterility (34.00%) followed by moderate grain sterility (20.50%), very low sterility (16.67%), very high sterility (15.77%) and high sterility (13.06%). NGO wise grain sterility status of BRRi dhan 47 during 2008-09 Boro season is provided in Annexure.V. Grain sterility status of BRRi dhan 47 is provided in the following Table.9.

**Table.9:** Grain sterility status of BRRi dhan 47 during 2008-09 Boro season

Crop condition	Grain sterility	
	Plots (Nr.)	%
Very low	74	16.67
Low	151	34.00
Moderate	91	20.50
High	58	13.06
Very high	70	15.77
<b>Total</b>	<b>444</b>	<b>100</b>

Total farmers assessed = 593, Total plots' grain sterility evaluated = 444

#### (f) Insect infestation

Total of 444 plots were assessed on the level of insect infestation of BRRi dhan 47 during 2008-09 Boro season. The highest numbers of plots (209) were found at low level of insect infestation (47.07%) followed by moderate level of infestation (25.45%), very low level infestation (15.09%), high level infestation (11.28%) and very high level infestation (1.13%). NGO wise insect infestation status of BRRi dhan 47 during 2008-09 Boro season is provided in Annexure.V. Insect infestation on BRRi dhan 47 during 2008-09 Boro season is provided in the following Table.10.

**Table.10:** Insect infestation on BRR1 dhan 47 during 2008-09 Boro season

Crop condition	Insect infestation	
	Plots (Nr.)	%
Very low	67	15.09
Low	209	47.07
Moderate	113	25.45
High	50	11.26
Very high	5	1.13
<b>Total</b>	<b>444</b>	<b>100</b>

Total farmers assessed = 593, Total plots' insect infestation = 444

### (g) Disease infection

Total of 444 plots were assessed on disease infection of BRR1 dhan 47, of which 44 plots (9.23%) were found disease free. The highest numbers of plots (212) were found as low level of disease infection (47.75%) followed by very low level disease infection (34.46%), moderate level of disease infection (6.76%), high level infection (1.58%) and very high level infection (0.23%). NGO wise disease infection status of BRR1 dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts is provided in Annexure.V. Disease infection of BRR1 dhan 47 during 2008-09 Boro season is provided in the following Table.11.

**Table. 11:** Disease infection on BRR1 dhan 47 during 2008-09 Boro season

Crop condition	Disease infection	
	Plots (Nr.)	%
Very low	153	34.46
Low	212	47.75
Moderate	30	6.76
High	7	1.58
Very high	1	0.23
Disease free	41	9.23
<b>Total</b>	<b>444</b>	<b>100</b>

### (h) Crop field mixture

About 10% of the assessed plots (444) were found at very low level varieties mixture in BRR1 dhan 47 seed production plots in Satkhira, Khulna and Bagerhat districts. But the supplied seed of BRR1 dhan 47 was free from any other variety seed mixture. NGO wise crop mixture is provided in Annexure.V.

## (VII) FARMSEED progress on BRR1 dhan 41

### a. Seed distribution

A total of 3000 Kg TLS seed procured from BADC and distributed 3066 Kg seeds among 1411 farmers of 20 member NGOs in Satkhira, Khulna, Bagerhat and Pirojpur districts during 2009 T. Aman season. Member NGO-wise seed distribution of BRR1 dhan 41 is provided in the following Table. 12.

**Table.12:** NGO wise number of farmers/community and total quantity of seed of BRRI dhan 41 during 2009 T. Aman

SL #	NGO	Upazila	District	Community #	Farmers #	Total Seed (Kg)	Remarks
1	SEBA	Dacope	Khulna	3	75	300	4 Kg / Farmers
2	BRIC	Dacope	Khulna	1	25	50	2 Kg / Farmers
3	RUPSA	Terokhada	Khulna	2	50	100	"
4	NF	Botiaghata	Khulna	1	25	50	"
5	Rupokar	Koyra	Khulna	2	50	100	"
6	KUF	Koyra	Khulna	4	100	200	"
7	GMF	Chitalmari	Bagerhat	1	25	50	"
8	CUS	Chitalmari	Bagerhat	5	125	250	"
9	Badhon	Fakirhat	Bagerhat	5	125	250	"
10	AB	Bagerhat	Bagerhat	1	25	50	"
11	DB	Mollahat	Bagerhat	2	50	100	"
12	BF	Tala	Satkhira	1	25	50	"
13	MF	Tala	Satkhira	1	25	50	"
14	N. Kantha	Shyamnagar	Satkhira	6	150	300	"
15	PROGOTI	Shaymnagar	Satkhira	1	25	50	"
16	IDEAL	Debhata	Satkhira	1	25	50	"
17	PC	Satkhira	Satkhira	1	25	50	"
18	PPS	Satkhira	Satkhira	1	25	50	"
19	Shushilan	Kaligonj, Shaymnagar, Botiaghata	Satkhira, Khulna	13	333	666	"
20	SBGUP	Mothbaria	Pirojpur	4	100	200	"
21	Seed Farmers	Debhata	Satkhira	-	3	100	
<b>Total</b>				<b>56</b>	<b>1411</b>	<b>3066</b>	

#### b. Conduct field monitoring

**Crop performance:** Assigned field coordinator of AAS has been conducting field monitoring under close supervision of Harun-Ar-Rashid, ED, AAS and PI of the project at seed production plots during 2009 T. Aman season with BRRI dhan 41 in collaboration with group coordinators, trained staffs and chief executives of the member NGOs in Satkhira, Khulna, Bagerhat and Pirojpur districts. The impact study team evaluated the crop performance of BRRI dhan 41 at field during tillering stage of the crop cycle. Highest number of plots (282) is found as very good crop condition (50.27%) followed by good crop condition (31.55%), moderate crop condition (12.12%), bad crop condition (3.39%) and very bad crop condition (2.67%). NGO wise crop performance of BRRI dhan 41 is provided in Annexure.VI. Performance of BRRI dhan 41 of the seed production plots during 2009 T. Aman season is provided in the following Table. 13.

**Table.13:** Performance of BRR1 dhan 41 at seed production plots during 2009 T. Aman season

Performance Level	Crop status	
	Plots (Nr.)	%
Very good	288	50.27
Good	177	31.55
Moderate	68	12.12
Bad	19	3.39
Very bad	15	2.67
<b>Additional:</b>		
Total Plots (Nr.)	561	
Total farmers listed (Nr.)	1058	
Total damaged plots (Nr.)	647	
Total farm families received seed (Nr.)	1411	

**Damaged plots:** A total of 647 seed plots of BRR1 dhan 41 has damaged, of which 184 farmers were not sown the seed, seedlings of 182 seedbeds (farmers) were damaged and 281 plots were damaged after seedling transplanting due to heavy rainfall. A total of 154 farmers were not able to sow the seed due to standing saline water in crop fields after the devastating Aila in Koyra upazila of Khulna district. NGO wise number of plots damaged under three categories is provided in the following Table.14.

**Table.14:** List of damaged plots of BRR1 dhan 41 during 2009 T. Aman season

SL #	NGO	Reason wise damaged plot (Nr.)			Total
		Seed not sown	Seedling damaged at Seedbed	Post transplanting crop damaged due to heavy rainfall	
1	SEBA	-	10	1	11
2	BRIC	-	2	-	2
3	RUPSA	-	23	1	24
4	NF	-	8	-	8
5	Rupokar	50	-	-	50
6	KUF	100	-	-	100
7	GMF	-	24	-	24
8	CUS	3	23	62	88
9	Badhon	-	17	-	17
10	AB	-	21	-	21
11	DB	5	2	-	7
12	BF	-	-	25	25
13	MF	-	-	25	25
14	N. Kantha	-	1	67	68
15	PROGOTI	-	11	-	11
16	IDEAL	15	-	-	15
17	PC	-	-	22	22
18	PPS	6	4	6	16
19	SBGUP	5	4	-	9
20	Shushilan	-	32	72	104
<b>Total</b>		<b>184</b>	<b>182</b>	<b>281</b>	<b>647</b>

### **c. Salinity Status**

Impact study team evaluated salinity status of 826 seed production plots of BRRI dhan 41 during 2009 T. Aman season in Satkhira, Khulna, Bagerhat and Pirojpur districts. Out of 826 seed production plots, 350 plots were found under low salinity status (42%) and 476 plots were found under salinity free condition (58%). NGO wise number of plots under two levels salinity is provided in Annexure.VI.

### **d. Water depth of seed plots**

Impact study team monitored the water depth of the seed production plots during field visit. The water depth was found at shallow in most plots with few exceptions. NGO wise water depth of seed production plots is provided in the Annexure.VI.

## Annexure. I:

**Scale-up salt tolerant rice variety through FARMSEED  
Stress-tolerant rice for poor farmers in Africa and South Asia (STRASA)  
(IRRI/BMGF Project)**

**List of Member Organizations of Oitijhya (Hizn)**

SL #	Organization (Name)	Chief Executive (Name)	Designation	Address	Working district	Mobile / Phone / E-mail
1	Shushilan	Mostafa Nuruzzaman	Director	Ho # 157, Rd # 1, Muzgunni R/A. Khulna	Satkhira, Khulna, Bagerhat	Mob: 01720510199 E-mail: director.shushilan@gmail.com, contact@shushilan.org, shushilan_ho@yahoo.com, shushilan@shushilan.org
2	Nakshikantha (N. Kantha)	Chandrika Banerjee	Director	Nakipur, Shyam nagor Satkhira	Satkhira	Ph: 088-04726-74172 Mob: 01716-134867, 01714-573942, 01718-554692
3	Peoples Research on grass root Ownership & Traditional Initiative (PROGOTI)	Ashck-E-Elahi	Secretary	Nakipur, Shyam nagor Satkhira	Satkhira	Ph: 04726-74218 01718-405066 E-mail: progoti_as@yahoo.com
4	IDEAL	Dr. Md. Nazrul Islam	Executive Director	Parulia, Debhata, Satkhira	Satkhira	Ph: 04732-72112 Mob: 01711-866504
5	NICE Foundation (NF)	Muzibur Rahman	Secretary	Keshoblal Road, Pabla, Daulatpur, Khulna	Khulna	Mob: 01917-565607
6	Bhumiz Foundation (BF)	Achinta Shaha	Director	Tala, Satkhira	Satkhira	Mob: 01715-645168
7	Koyra Unnayan Foundation (KUF)	Shahanaj Parvin	Director	Koyra, Khulna	Khulna	Mob: 01716-698838
8	Rural and Urban Poor's Partner for Social Advancement (RUPSA)	Arifa Yasmin Shimu	Director	67/ West Bania Khamar, Khulna	Khulna	Mob: 01711-061464
9	Ash Bangladesh (AB)	Md. Kamruzzaman	Director	Rail Road, Bagerhat, Opposite of Krishi Bank)	Bagerhat	Mob: 01818-078181
10	Badhon	A.S.M. Monzurul Hasan	Director	Dashani traffic Mor, Bagerhat	Bagerhat	Mob: 01711-950380



11	Mukti Foundation (MF)	Gobinda Ghos	Director	Tala, Satkhira	Satkhira	Mob: 01716-840757
12	Palli Punarghathan Society (PPS)	Abdur Sabur	Director	Katia, Sarkarpara, Satkhira	Satkhira	Mob: 01711-483102
13	Mouchak	Md. Mahabubur Rahman	Director	Pabla, Daulatpur, Khulna	Khulna	Mob: 01912-903734
14	DIPTE Bangladesh (DB)	Rafael Khan	Executive Director	Mollahat, Bagerhat	Bagerhat	Mob: 01711-933294
15	Palli Chetona (PC)	Anisur Rahman	Director	Zoredia Bangdaya, Satkhira	Satkhira	Mob: 01711-309148
16	Gano Milan Foundation (GMF)	Dr. Ranajit Biswas	Director	Chitalmari, Bagerhat	Bagerhat	Mob: 01711-814196
17	Social Edification of Benign Assimilation (SEBA)	Mina Haldar	Director	146/3 Khanjahan Ali Road, Khulna	Khulna	Mob: 01714-956157
18	Aporajita Mohila Samaj Kallayan Sangstha (AMSKS)	Kazi Morzina	Director	Shonadanga Surgical Hospital, Shattar Biswas Road, Khulna	Khulna	Mob: 01734-958776
19	Chitra Unnayan Sangstha (CUS)	Sabina Bulbul	Director	Chitlamari, Bagerhat	Bagerhat	Mob: 01718-550357
20	Bangladesh Resource Improvement Center (BRIC)	A.S.M. Wahidul Islam	Executive Director	North Deana, Daulatpur, Khulna	Khulna	01715-707865 E-mail: bricngo@yahoo.com
21	Rupokar	Nurul Amin Khoka	Director	Koyra, Khulna	Khulna	Mob: 01717-666148
22	Sundarban Bhumukhi Grameen Unnayan Prokalpa (SBGUP)	Md. Eunus Ali Mollah	Executive Director	Vill: Shapleza Post: Schillargonj, Upazila: Mathbaria, Pirojpur	Pirojpur	Mob: 01730036620 E-mail: sbgup_bd@yahoo.com
23	CDP	Anowara Alam	Coordinator	55/02 Islampur Road, Khulna	Khulna	Mob: 01914884064
24	Genetic Resource & Seed Division (GRSD), Bangladesh Rice Research Institute (BRRI)	Dr. M.K. Basher	CSO & Head	Gazipur	-	Mob: 01711283982 E-mail: mkbashar.brri@gmail.com, mkbashar.brri@yahoo.com
25	Agricultural Advisory Society (AAS)	Md. Harun-Ar-Rashid	Executive Director	8/7, Block-B, Lalmatia, Dhaka-1207	Natore, Sirajganj, Pabna, Rajshahi, Jhenaidah etc	Ph: 8113645 Mob: 01712094218 E-mail: aas@bdcom.com harunaas@bdcom.com

**Annexure. II:** NGO wise involved and assessed farmers, area, seed production and its use with BRRI dhan 47 during 2008-09 Boro season in Satkhira, Khulna Bagerhat and Pirojpur (seed received) districts

SL #	NGO	Total farmers (Nr.)		Total area (Decimals)	Total production (Kg.)	Total seed used (Kg.)					Consumption as food			
		Seed received	Assessed			Own (Kg.)	Farmer (Nr.)	Exchange (Kg.)	Sale (Kg.)	E & S Farmers (Nr.)	Family (Kg.)	Family (Nr.)	Sale (Kg.)	Family (Nr.)
1	Mouchak	30	30	718	2125	0	0	0	0	0	2125	22	0	0
2	CUS	30	28	772	15000	259	4	0	0	0	14741	27	0	0
3	GMF	30	30	407	9260	621	17	124	0	25	8515	23	0	0
4	Shushilan	70	50	951	8150	560	32	60	1535	52	5615	31	380	2
5	MF	30	20	529	9625	65	6	0	0	0	9560	19	0	0
6	DB	30	30	475	7710	46	7	0	0	0	7664	29	0	0
7	PC	30	18	250	4110	84	6	0	0	0	2063	11	1963	6
8	PPS	30	20	517	8920	15	2	0	0	0	7145	13	1760	4
9	IDEAL	30	26	450	4990	100	7	0	0	0	4650	20	240	2
10	NF	30	30	618	2290	110	5	0	0	0	370	3	1810	8
11	Badhon	30	30	319	5505	191	12	0	0	0	5314	23	0	0
12	BF	30	25	492	11160	193	10	30	40	7	10897	24	0	0
13	N. Kantha	30	26	665	5960	155	6	0	100	9	5405	21	300	1
14	KUF	30	30	236	3090	174	9	10	10	4	2896	12	0	0
15	RUPSA	30	30	531	7020	50	2	0	0	0	6970	27	0	0
16	PROGOTI	30	27	702	8030	70	6	0	40	4	7360	19	560	2
17	SEBA	30	29	319	3650	85	8	5	0	1	3560	19	0	0
18	AB	0	27	427	8850	1105	5	10	5	2	7730	18	0	0
19	Rupokar	30	30	667	9610	155	14	25	0	5	9430	25	0	0
20	AMSKS	30	27	628	14522	305	15	0	0	0	14217	23	0	0
21	BRIC	30	30	450	1280	65	5	0	0	0	1215	14	0	0
22	SBGUP	90	-	-	-	-	--	-	-	-	-	-	-	-
<b>Total</b>		<b>730</b>	<b>593</b>	<b>11123</b>	<b>150857</b>	<b>4408</b>	<b>178</b>	<b>264</b>	<b>1730</b>	<b>109</b>	<b>137442</b>	<b>423</b>	<b>7013</b>	<b>25</b>
<b>Average</b>		<b>33</b>	<b>28</b>	<b>530</b>	<b>7184</b>	<b>210</b>	<b>8</b>	<b>13</b>	<b>82</b>	<b>5</b>	<b>6545</b>	<b>20</b>	<b>334</b>	<b>1</b>
<b>Range</b>		<b>0-90</b>	<b>18-50</b>	<b>236-951</b>	<b>1280-11160</b>	<b>15-1105</b>	<b>1'-32</b>	<b>0-124</b>	<b>0-1535</b>	<b>0-52</b>	<b>370-14739</b>	<b>3'-31</b>	<b>0-1963</b>	<b>0-8</b>

**Note:** Impact study not conducted in Pirojpur district

**Annexure. III: NGO wise source of irrigation for BRR I Dhan 47 during 2008-09 Boro season in Satkhira, Khulna and Bagerhat districts**

SL	NGO	Total assessed farmers (Nr.)	Total assessed plots (Nr.)	Source of irrigation water									
				STW: plot (Nr.)	Well depth (Ft.)		DTW: plot (Nr.)	Well depth (Ft.)		Canal : plot (Nr.)	River : plot (Nr.)	Pond: plot (Nr.)	Rainfed: plot (Nr.)
					Av.	Range		Av.	Range				
1	Mouchak	30	30	8	204	60 - 230	0	0	0	11	1	6	0
2	CUS	28	28	0	0	0	0	0	0	4	5	18	0
3	GMF	30	30	0	0	0	0	0	0	14	10	1	0
4	Shushilan	50	50	28	200	200 -241	0	0	0	8	0	6	0
5	MF	20	20	19	185	125 - 270	0	0	0	0	0	0	0
6	DB	30	30	23	79	60 - 100	0	0	0	3	0	3	0
7	PC	18	18	16	123	80 - 190	0	0	0	0	0	0	0
8	PPS	20	20	16	149	110 - 230	0	0	0	0	0	0	0
9	IDEAL	26	26	20	141	40 - 250	0	0	0	0	3	0	0
10	NF	30	30	1	200	200	0	0	0	26	0	0	0
11	Badhon	30	30	0	0	0	0	0	0	2	21	0	0
12	BF	25	25	23	207	100 - 300	1	1000	0 - 1000	0	0	0	0
13	N. Kantha	26	26	7	191	75 - 265	0	0	0	5	6	7	0
14	KUF	30	30	2	193	35-350	0	0	0	10	1	4	0
15	RUPSA	30	30	0	0	0	0	0	0	27	0	0	0
16	PROGOTI	27	27	9	197	75-220	0	0	0	1	7	20	0
17	SEBA	29	29	0	0	0	0	0	0	11	6	9	0
18	AB	27	27	0	0	0	0	0	0	5	13	0	0
19	Rupokar	30	30	13	288	250-300	0	0	0	2	0	10	0
20	AMSKS	27	27	12	250	250-251	0	0	0	5	2	4	0
21	BRIC	30	30	1	150	150	0	0	0	25	0	4	0
<b>Total</b>		<b>593</b>	<b>593</b>	<b>198</b>	-	-	<b>1</b>	-	-	<b>159</b>	<b>75</b>	<b>92</b>	-
<b>Average</b>		<b>28</b>	<b>28</b>	<b>9</b>	-	-	<b>0.05</b>	-	-	<b>8</b>	<b>4</b>	<b>4</b>	-
<b>Range</b>		<b>18-50</b>	<b>18-50</b>	<b>0-28</b>	-	-	<b>0-1</b>	-	-	<b>0-27</b>	<b>0-21</b>	<b>0-20</b>	-

**Annexure. IV: NGO wise salinity status of soil and irrigation water, crop damage stage and status, effect of salinity and crop condition at maturity**

SI	NGO	Total Plot (Nr)	Salinity status (scale: 1-4) <sup>a</sup>										Crop damage stage & status			Effect of Salinity <sup>b</sup>	Crop condition at maturity (Scale: 1-5) <sup>c</sup>					
			1		2		3		4		Total		Damage stage	Damage status (%)			1	2	3	4	5	Total
			S	W	S	W	S	W	S	W	Soil	Water		Average	Range							
1	Mouchak	30	0	0	3	3	3	3	21	21	27	27	2,3,4,5,6	77	10-100	1,2,3,4,5,6,7,8	16	3	0	2	1	22
2	CUS	28	10	13	14	13	3	1	0	0	27	27	6,4	21	5'-40	9	0	2	7	14	4	27
3	GMF	30	0	0	17	17	8	8	0	0	25	25	6,5,4	19	10'-30	9,8,	0	0	2	14	9	25
4	Shushilan	50	14	14	16	16	2	2	9	9	41	41	5,2,1,3	58	5-100	1,9,8,11,12,13,	0	2	16	15	0	33
5	MF	20	19	19	0	0	0	0	0	0	19	19	5	17	10'-30	9	0	0	8	10	1	19
6	DB	30	0	17	24	12	5	0	0	0	29	29	5	16	5'-30	9,8	0	3	9	15	2	29
7	PC	18	12	12	4	4	0	0	0	0	16	16	5	16	10'-30	9,8	1	1	4	6	4	16
8	PPS	20	2	9	8	3	6	4	0	0	16	16	4,5	17	5'-30	9,8	0	3	3	7	3	16
9	IDEAL	26	0	1	7	20	13	0	2	1	22	22	4,5	34	10'-100	14,1,8,9	0	5	7	7	2	21
10	NF	30	0	0	1	6	8	6	19	16	28	28	4,5,2,3	93	60'-100	9,1,4,14,8	4	1	3	1	1	10
11	Badhon	30	2	2	15	20	7	5	0	0	24	24	5,4	28	10'-50	9,8	0	1	9	12	1	23
12	BF	25	24	24	0	0	0	0	0	0	24	24	6	10	5'-15	9	0	2	3	15	0	20
13	N. Kantha	26	0	2	14	15	5	6	5	1	24	24	5,4,3,6,2	67	10'-100	1,10,9,14,8	3	6	3	7	2	21
14	KUF	30	0	0	2	13	12	4	3	0	17	17	4,5,2,1,3	91	70'-100	9,8,14,1	1	2	2	4	3	12
15	RUPSA	30	0	0	26	27	1	0	0	0	27	27	5,6,4	15	5'-40	9,8	1	0	12	14	0	27
16	PROGOTI	27	1	1	12	16	8	8	6	2	27	27	5,6,4,2,3	60	10'-100	9,1,8,14,10	2	2	2	5	8	19
17	SEBA	29	0	0	5	14	13	5	8	7	26	26	2,4,1,6,5	69	5'-100	9,8,1,14	2	3	7	5	2	19
18	AB	27	0	5	17	13	1	0	0	0	18	18	5,6	13	10'-20	9,8	0	0	3	12	3	18
19	Rupokar	30	0	0	0	14	25	11	0	0	25	25	5,4,3	41	20'-90	8,1,9	2	2	9	12	0	25
20	AMSKS	27	6	1	16	16	1	3	0	0	23	23	5,6,4	21	10'-50	9,8,1	0	1	4	7	11	23
21	BRIC	30	0	0	1	7	13	2	16	21	30	30	3,4,2	84	10'-100	2,3,1	5	5	3	1	0	14
<b>Total</b>		<b>593</b>	<b>90</b>	<b>120</b>	<b>202</b>	<b>249</b>	<b>134</b>	<b>68</b>	<b>89</b>	<b>78</b>	<b>515</b>	<b>515</b>	-	<b>867</b>	-	-	<b>37</b>	<b>44</b>	<b>116</b>	<b>185</b>	<b>57</b>	<b>439</b>
<b>Average</b>		<b>28</b>	<b>4</b>	<b>6</b>	<b>10</b>	<b>12</b>	<b>6</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>25</b>	<b>24</b>	-	-	-	-	<b>2</b>	<b>2</b>	<b>6</b>	<b>9</b>	<b>3</b>	<b>21</b>
<b>Range</b>		<b>18-50</b>	<b>0-24</b>	<b>0-24</b>	<b>0-26</b>	<b>0-27</b>	<b>0-25</b>	<b>0-11</b>	<b>0-21</b>	<b>0-21</b>	<b>16-41</b>	<b>16-41</b>	-	-	-	-	<b>0-16</b>	<b>0-6</b>	<b>0-16</b>	<b>1'-15</b>	<b>0-11</b>	<b>10'-33</b>

<sup>a</sup>Salinity status: Scale: 1 = Free 2 = Low 3 = High 4 = Very high

<sup>c</sup>Crop condition at maturity: Scale: 1 = Very bad 2 = Bad 3 = Moderate 4 = Good 5 = Very good

### **Effect of salinity:**

The various effects of salinity on BRR1 dhan 47 were recorded on the involved farmers' comment and opinion and the listed effects due to salinity are as follows:

1. Over all higher level of UFG(Un-filled grain)due to salinity
2. UFG due to crop damage at panicle initiation stage
3. Crop damage at panicle initiation stage due to salinity
4. Crop damage at tillering stage due to salinity
5. UFG due to salinity at panicle initiation and flowering stage
6. UFG due to salinity at flowering stage
7. Crop damage at flowering stage due to salinity (water & soil)
8. Seedling damage at seedbed due to salinity
9. At low salinity low UFG of BRR1 dhan 47 and better yield than BRR1 dhan 28.
10. High UFG because of lack of irrigation causing increased salinity in soil
11. Medium yield due to lack of rainfall
12. Seedling damaged at tillering stage
13. Unhealthy seedling at seed bed
14. Crop totally damaged

### **Damage stage:**

1. Seedling damage at seedbed
2. Tillering stage
3. Panicle initiation stage
4. Flowering stage
5. Ripening stage: shattering
6. 12. Harvesting stage: shattering

**Annexure. V:** NGO wise grain sterility, insect infestation, disease infection and mixture in crop field (%)

SL #	NGO	Total Plot (Nr.)	Grain sterility status (Nr) <sup>d</sup>						Insect infestation status (Nr) <sup>d</sup>						Disease infection status (Nr.) <sup>e</sup>						Crop field mixture (%)	
			Scale: 1-5						Scale: 1-5						Scale: 1-5						Average	Range
			1	2	3	4	5	Total	1	2	3	4	5	Total	1	2	3	4	5	Total		
1	Mouchak	30	1	2	0	3	16	22	0	1	19	2	0	22	14	2	0	0	0	16	0	0
2	CUS	28	6	11	5	3	2	27	3	10	11	3	0	27	12	13	1	1	0	27	0	0
3	GMF	30	12	8	5	0	0	25	7	12	4	2	0	25	10	10	2	0	0	22	1	0'-1
4	Shushilan	50	4	15	11	3	0	33	3	29	0	1	0	33	0	28	3	2	0	33	0	0
5	MF	20	0	7	8	4	0	19	2	13	2	2	0	19	3	15	2	0	0	20	0	0
6	DB	30	9	14	3	1	2	29	4	18	5	2	0	29	14	14	1	0	0	29	4	1'-10
7	PC	18	5	5	2	3	1	16	4	5	3	3	1	16	11	2	2	2	0	17	8	5'-10
8	PPS	20	1	4	6	5	0	16	1	11	4	0	0	16	7	9	0	0	0	16	0	0
9	IDEAL	26	0	5	7	5	4	21	3	10	3	5	0	21	10	9	2	0	0	21	2	0'-2
10	NF	30	0	3	1	2	5	11	0	3	4	4	0	11	1	6	3	0	0	10	3	0'-3
11	Badhon	30	5	11	0	5	2	23	2	7	8	5	1	23	6	13	4	0	0	23	4	1'-30
12	BF	25	4	13	3	3	1	24	4	14	3	3	0	24	17	5	2	2	1	27	10	0'-10
13	N. Kantha	26	2	6	0	2	11	21	4	12	2	2	1	21	11	6	4	0	0	21	10	0'-10
14	KUF	30	4	3	2	0	3	12	0	9	3	0	0	12	1	6	0	0	0	7	0	0
15	RUPSA	30	2	9	8	8	0	27	1	5	12	9	0	27	0	22	3	0	0	25	3	2'-5
16	PROGOTI	27	0	9	6	0	4	19	10	4	5	0	0	19	5	13	1	0	0	19	0	0
17	SEBA	29	0	9	3	2	5	19	2	10	3	2	2	19	6	13	0	0	0	19	0	0
18	AB	27	5	3	8	2	0	18	4	5	8	1	0	18	4	9	0	0	0	13	0	0
19	Rupokar	30	0	8	8	3	6	25	0	20	4	1	0	25	11	12	0	0	0	23	0	0
20	AMSKS	27	14	4	3	0	2	23	13	8	1	1	0	23	2	3	0	0	0	5	0	0
21	BRIC	30	0	2	2	4	6	14	0	3	9	2	0	14	8	2	0	0	0	10	0	0
<b>Total</b>		<b>593</b>	<b>74</b>	<b>151</b>	<b>91</b>	<b>58</b>	<b>70</b>	<b>444</b>	<b>67</b>	<b>209</b>	<b>113</b>	<b>50</b>	<b>5</b>	<b>444</b>	<b>153</b>	<b>212</b>	<b>30</b>	<b>7</b>	<b>1</b>	<b>403</b>	-	-
<b>Average</b>		<b>28</b>	<b>4</b>	<b>7</b>	<b>4</b>	<b>3</b>	<b>3</b>	<b>21</b>	<b>3</b>	<b>10</b>	<b>5</b>	<b>2</b>	<b>0.2</b>	<b>21</b>	<b>7</b>	<b>10</b>	<b>1</b>	<b>0.33</b>	<b>0.048</b>	<b>19</b>	-	-
<b>Range</b>		<b>18-50</b>	<b>0-14</b>	<b>2-15</b>	<b>0-11</b>	<b>0-8</b>	<b>0-16</b>	<b>11'-33</b>	<b>0-13</b>	<b>1'-29</b>	<b>0-19</b>	<b>0-9</b>	<b>0-2</b>	<b>11'-33</b>	<b>0-17</b>	<b>2'-28</b>	<b>0-4</b>	<b>0-2</b>	<b>0-0.04</b>	<b>5'-33</b>	-	-

<sup>d</sup>Grain sterility & insect infestation: Scale: 1= Very low 2 = Low 3 = Medium 4 = High 5 = Very high

<sup>e</sup>Disease infection: Scale: 1=Very low 2=Low 3=Medium 4=High 5=Very high

**Annexure. VI:** NGO wise crop performance of BRRI dhan 41, land area, plot salinity status and water depth in seed production plots

SL #	NGO	Plots (Farmer) (Nr.)	Land Area (Decimals)				Crop Status (Plot Nr.)						Plot Salinity status (Plots Nr.)				Total	Water depth (Inch) (Range)
			Total	Av.	Ra.	Plot (Nr.)	Scaling (1-5)					Total	Very High	High	Low	Free		
							1	2	3	4	5							
1	SEBA	55	676	15	5-25	44	0	0	6	13	25	44	0	0	44	0	44	2-15
2	BRIC	25	261	11	5-25	23	0	1	1	4	17	23	0	0	11	12	23	1-9
3	RUPSA	40	238	15	5-25	16	0	2	0	3	11	16	0	0	0	17	17	1-3
4	NF	25	136	8	5-10	17	0	1	0	1	15	17	0	0	7	10	17	1-7
5	Rupokar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	KUF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	GMF	25	8	8	8	1	0	0	0	0	1	1	0	0	0	1	1	2
8	CUS	103	840	56	5-17	15	0	0	0	5	10	15	0	0	46	31	77	1-20
9	Badhon	100	972	12	5-26	83	0	0	2	22	59	83	0	0	18	65	83	1-10
10	AB	25	20	5	4-6	4	0	0	2	2	0	4	0	0	0	4	4	5-12
11	DB	49	425	10	5-20	42	0	3	5	21	13	42	0	0	0	42	42	1-10
12	BF	25	282	0	8-16	0	0	0	0	0	0	0	0	0	0	25	25	30
13	MF	25	320	0	6-18	0	0	0	0	0	0	0	0	0	0	25	25	30
14	N. Kantha	124	2236	40	5-33	56	9	3	14	17	13	56	0	0	64	60	124	2-25
15	PROGOTI	24	280	22	4-25	13	3	1	4	1	4	13	0	0	24	0	24	1-12
16	IDEAL	25	116	12	6-17	10	0	0	1	9	0	10	0	0	10	0	10	2-10
17	PC	23	28	28	28	1	0	0	0	1	0	1	0	0	0	23	23	15-25
18	PPS	25	212	24	5-35	9	0	0	0	4	5	9	0	0	0	15	15	2-18
19	Shushilan	241	2337	17	3-33	137	1	5	16	43	72	137	0	0	96	86	182	1-20
20	SBGUP	99	1147	13	3-33	90	2	3	17	31	37	90	0	0	30	60	90	1-10
<b>Total</b>		<b>1058</b>	<b>10534</b>			<b>561</b>	<b>15</b>	<b>19</b>	<b>68</b>	<b>177</b>	<b>282</b>	<b>561</b>	<b>0</b>	<b>0</b>	<b>350</b>	<b>476</b>	<b>826</b>	

Scale: 1 = Very bad    2= Bad            3 = Moderate            4 = Good            5 = Very good