INFORMATION ON AICRIP CENTRE : Karimgunj

1. **Name of the University /** Assam Agricultural University

   Department under which the centre is functioning :

2. **Name of the centre with postal** : Agriculture Research Station, Karimgunj
3. **Address, tel, fax & e-mail** : Assam- 788710

   Ph no. 03843212418

4. **Name of the person in-charge** Dr. B.P.Baruah, Chief Scientist

   With e-mail ID & mobile phone No : 09435066460

5. **Next contact person** Dr. Debojit Sarma, Sr. Scientist(PGB)

   09345176625

   With e – mail ID & mobile phone No :

5. **Year of establishment as AICRIP centre** : April 1977
6. **List of Scientists currently on** Plant Dr. Debojit Sarma, Sr. Scientist,
7. **AICRIP roll - discipline wise** : Breeding& Genetics (Sr. Scientist against the post of Junior Breeder w.e.f.10/12/2003

7. List of other AICRIP staff **:** Nil

8. Region of the state represented by the centre : The BarkValley Zone (BVZ) of southern Assam lying between $24^0$15’ and $25^0$9’ N latitude and $90^0$16’ and $93^0$15’ E longitudes

9. Rice ecologies represented : Rainfed

10. Districts of the state covered : Cachar, Karimganj and Hailakandi districts of southern Assam with a geographical area of 6912 sq.km.

11. Rice area in each of these districts ecology wise: Rice ecology in the Barak valley zone is mainly rainfed, and irrigated area in the zone is less than 2 percent of the net cropped area. All the agaicultural classes of rice (Table 1) are grown in different agro-ecological situations (Table 2) depending on specific locations.

Based on physiography, soils, flood proneness, water retention and cropping pattern, the BVZ is delineated into 5 agro-ecological situations, namely alluvial flood free, alluvial flood prone, beels and haors, piedmonts and plantation crop area, and hills and forests. In alluvial flood free situation the farming practice is rice based. Winter rice (Sali) as moncrop or autumn rice (ahu) followed by winter rice is the important cropping patterns. In lowland areas, shallow water winter rice (asra) is also grown. In alluvial flood prone situation, rice is the dominant crop despite the risk of recurrent flood. As a normal practice ahu rice followed by potato, pulses, toria or winter vegetables, as mixed or pure crops, is popular cropping pattern. The beels and haors situation is almost perennially water-logged and typical for boro rice cultivation.

Table 1. Rice area (lakh ha) in the three districts of Barak valley zone of Assam for the year 2002-03

Crop	Karimgunj	Cachar	Hailakandi	Southern zone	Assam (2001-02)
Autumn rice (ahu)	0.079	0.155	0.061	0.295	4.960
Winter rice (Sali)	0.640	0.871	0.390	1.901	17.150
Summer rice Early ahu & boro	0.082	0.089	0.022	0.193	3.260
Total	0.801	1.115	0.473	2.389	25.37

Table 2. Rice agro-ecologies of Barak valley zone

Sl no.	Agro-ecological situation	Soil	Fertility status	Special feature
1.	Alluvial flood free (AFF)	Mainly old maountain alluvium, sandy/fine loamy	Soil is moderate to high in N, low to moderate in P and low in K content; pH-46 to5.7	Upland, medium land and lowland; rice as moncrop or double crop; rice in sequence with vegetables/potato/ mustard/ pulses in upland and medium land; Sali rice as monocrop or in sequence with ahu in lowland
2.	Alluvial Flood Prone(AFP)	Old riverine alluvium and old mountain alluvium, sandy to fine silty loam	Soils are highly productive; Organic matter content is medium to high; pH-46 to 6.0	Medium to lowland, inundated during monsoon, ahu rice followed by late Sali/ vegetables/potato/ oilseeds; late Sali and vegetables as monocroop
	Beel and Haors	Peat soils/organic soils, fine loamy	Soil is very rich in organic Carbon, medium to high in P and low in K content; neutral soil reaction	Perennially waterlogged sitation, water recedes during winter, boro rice as monocrop; natural fisheries

12. Normal rainfall **:** The average annual rainfall in all the agro-ecological situation ranges from 3200-3500mm except in Hills and Forest situation, which receives 3000-4000mm per annum.

13. Soil type & fertility status **:** Soils and fertility status of the rice agro-

ecologies of the zone are presented in Table2.

14. Popular rice varieties **:** Popular rice varieties of the zone are listed in Table 3. Besides those listed in Table 3 high yielding glutinous varieties such as Gondhi biroin, Chini

biroin, Lal biroin, etc are mostly preferred by the farmers because of their strong glutinous character. Among the scented varieties Kalijeera is the most popular variety in the zone because of its strong scent and fine grain type. Bashabhog, a super fine grain variety is also popular among the farmers. Sali varieties like Andrew Sali, Salivahana, Lakhimi are sparsely found in farmers'field. Traditional ahu varieties like Koimurali and Kasalth are still grown by the farmers because of their shorter duration and water stress tolerance. Similarly Sonamukhi, Banglami, IR 50, Luit are also grown in the boro season. Rata boro, a tall scented awned variety is popular in the boro season because of its acceptability and wide adaptability in lower reaches of the beels in some areas of Karimganj district.

Table 3. Popular rice varieties of Barak valley zone (Assam)

Variety	Growing season	Area coverage (ha)	remark
Ranjit	Sali	27549	Rainfed crop
Balam/Badal	Sali	19017	Rainfed crop
Bahadur	Sali	15102	Rainfed crop
Mahsuri	Sali	6565	Rainfed crop
Manoharsali	Sali	5139	Rainfed crop
Pankaj	Sali	2320	Rainfed crop
Krishna	Ahu	10732	Rainfed crop
IR 36	Ahu	9051	Rainfed crop
Luit	Ahu	8296	Rainfed crop
Cauvery	Ahu	3582	Rainfed crop
Boro I & Boro II	Boro	3452	Rainfed crop
Boro 68	Boro	2581	Rainfed crop
Mahsuri	Boro	1873	Rainfed crop
Krishna	boro	734	Rainfed crop

b

Agro-ecological Situation1: Alluvial flood free

Sali rice

1. water stagnation in low lying areas
2. low and erractic response to fertilizers
3. 40% of the area is under tall traditional varieties, which are susceptible to lodging
4. Thrips and WBPH are problems in Sali nursery
5. Sheath rot, sheath blight and Bacterial leaf blight are the major disease problems

Ahu rice

1. optimum time of sowing and planting of ahu crop cannot be maintained due to

dependence on pre-monsoon showers
2. Drought during early vegetative stage of ahu crop
3. Profuse weed growth in ahu crop
4. Sprouting of seeds and grain discolouration
5. Low and erractic fertilizer response
6. Seed borne diseases like Bakanae
7. Post harvest loss due to inclement weather

Agro-ecological situation 2: Alluvial flood prone

Early ahu rice

1. Ideal variety with short duration, medium tall stature, cold tolerance at vegetative stage, drought tolerance and moderate seed dormancy is lacking
2. Blast disease is sometimes a problem

Direct seeded normal ahu rice

1. General dependence on traditional varieties like Koimurali
2. Blast is a problem

Transplanted ahu rice

Same as ahu rice of Situation 1

Normal and late transplanted Sali rice

1. Absence of high yielding varieties suitable for flood sitation
2. Late transplanting after recession of flood water
3. Low and erratic response to fertilizers and also difficulty of application in standing water
4. Difficulties in pesticide application in water logged situation

Direct seeded late Sali rice

1. Recommended varieties are low yielder.
2. Optimum package like line sowing, fertilizer application, etc is not followed.

Agro-ecological situation 3: Beels and Haors

1. Existing varieties are generally unsuitable for lack of cold tolerance, high sterility and inundation damage at maturity stage
2. Leaf blast disease is a general problem in both nursery and main field
3. Plant protection measures against insect pests are rarely taken due to uncertain production
4. In middle and lower reaches of beels fertilizers are not applied due to uncertainty of harvest.

16. Major contribution of the centre

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A.Varieties released since inception of the centre

Sl no.	Name	Origin	Year of release	Adaption
1.	Kmj 1-17-2	IR 8 x Manohar sali	1978	Transplanted late Sali
2.	Kmj 1-19-1	IR 8 x Manohar sali	1978	Transplanted late Sali
3.	Bhogali (glutinous)	Ghew bora x kmj 1-52-2	1990	Transplanted normal Sali
4.	Ranglilee (glutinous)	Ghew bora x kmj 1-52-2	1990	Transplanted normal Sali
5.	Sonamukhi	Pure line selection	1991	Transplanted ahu and late Sali (direct seeded)
6.	kushiara	1 x J hybrid derivative	1995	Transplanted normal Sali
7.	Paresh (Glutinous)	Ghew bora x kmj 1-52-2	1995	Transplanted normal Sali
8.	Longai	Pusa 2-21 x China 63	1995	Transplanted early ahu

B. varieties recommended in the zone (2002-2006)

1. Normal Sali:IET 19122
2. Delayed planting in Sali: MSE 9
3. Normal transplanted ahu: Gopinath, Tamdao

C. varieties identified (2002-2006)

1. Sali –Rainfed shallow water: IET 18442, IET 18638, IET 19133, IET 19122, IET 19121
2. Sali- Rainfed semi deep water: IET 17725, IET 17392, IET 18781, IET 18193
3. Boro: IET 18068, IET 16825, IET 19051, IET 19600, IET 19601

D. Varieties under on farm testing (2002-2007)

i) Semi deep water situation: IET 15522, IET 16481, IET 18193, IET 19189, IET 19208, MSE 9
ii) Shallow water situation :IET 19133, Kmj 1-2-16
iii) Boro: IET 19600, IET 19601, BRS 7, Kmj 1-2-3, Kmj 2-3-1

17. Any other relevant information :

At present the following projects are in progress:

i) Identification of superior semi deep water varieties having good submergence tolerance.
ii) Identification of short duration boro varieties with cold tolerance
iii) Quality improvement of Luit –Advance promising lines of Mahsuri x Luit are under preliminary yield and quality evaluation in ahu, Sali and boro season.
iv) Development of hispa resistant rice varieties –Advance promising lines of Mahsuri x Malbhog (resistant parent) are under replicated evaluation and on farm testing. Newly identified resistant parent as 100 has been crossed to most popular susceptible variety Ranjit.
v) Enhancement of germplasm – some promising collections of indigenous glutinous rice are being evaluated.