

# Rice Diversity in Bongaigaon Area of Bongaigaon District, Assam, India

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**Abstract**— Bongaigaon area of Bongaigaon district is rich in rice diversity. This rich diversity of rice serves as a valuable genetic resource for its future improvement to meet the ever-increasing demand for rice production as these varieties of rice form the initial material for selecting suitable parents for hybridization for economic and genetic studies. Due to population growth and increasing demands of food the farmers have to adopt new agricultural technology for greater production using High Yielding Varieties (HYV). This ultimately has reduced the practice of cultivation of traditional varieties. Cultivation of some varieties has decreased in such a way that if care is not taken or conservation is not done timely then they will be lost forever. With an aim to study the rice diversity in Bongaigaon area a field study was made in different localities of Bongaigaon area of Bongaigaon district during the period of 2010-2015. Percentage of people practicing HYV mainly Ranjit, Aijong, Swarna masuri has increased while practice of cultivating traditional varieties like Rangjuli, Malsira, Gandubaji, Moinagiri, Goyasuri etc. have reduced drastically. But all these genotypes have great importance, as future of crop improvement needs the genetic variation and the farmers might not have new HYVs without the presence of these traditional varieties. So, it has become very necessary to aware people (especially, the farmers) about this matter and encouraged them to carry on cultivation of traditional varieties too alongside these HYVs.

**Key words:** Bongaigaon, Rice Diversity, Traditional Variety

## I. INTRODUCTION

Rice plays a unique role in providing food to the majority of the world population. In India, it is an important staple food for more than 2/3<sup>rd</sup> of population (Panda, 2010). It is the principal crop of north eastern region of India where a considerable range of diversity exists (Hore D.K. 2005). The eastern Himalayan region of north east India is home to a large number of indigenous rice varieties (Choudhury B. 2013). But due to adoption of new agricultural technology for greater production the demands of these traditional varieties has become less (Roy R. 2016). With the advancement of knowledge and better understanding of plant and environment, agricultural practices are modified and new practices developed for high productivity. The farmers often adopt modern rice varieties and no longer grow the traditional varieties they had been using for generations. Eventually many of these genetic varieties are lost forever. But future of crop improvement depends upon these genetic variations. So conservation of these genotypes has become most essential.

Bongaigaon (26°28'N and 89°96'E) area of Bongaigaon district is rich in rice diversity. Farmers of this region cultivated different rice varieties but there is every possibility for genetic erosion of rice due to the introduction of new agricultural technology and swift economy as well as availability of a number of HYVs in the market. In this

context I want to make a study to see the rice diversity in different localities of Bongaigaon area. If the impacts of new agricultural technology using HYVs really cause genetic erosion, measure should be taken immediately.

## II. MATERIALS & METHODS

Ten localities from Bongaigaon area were selected randomly. A field study was made during the rice harvesting period (December to January) of 2010-11 to 2014-15. A total of 344 cultivators from these localities were given questionnaires to get knowledge about different rice varieties cultivated by them, their local name, uses and productivity.

## III. RESULTS & DISCUSSION

The common HYV cultivated in Bongaigaon area are Ranjit, Aijong and Swarna masuri. Among these 3 HYVs, Ranjit was found to be more popular than Aijong and Swarna masuri. The percentage of people cultivating Ranjit has increased from 29.0% to 86.9% by the year 2010-11 to 2014-15. But in case of Aijong and Swarna masuri it was 11.3% to 44.4% and 7.2% to 29% respectively (Fig.1).

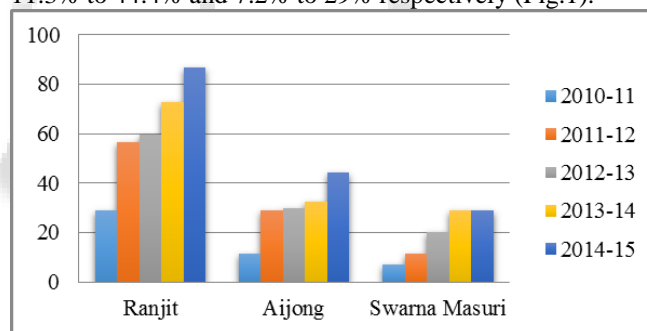


Fig. 1: Year wise percentage of people cultivating HYV of rice in Bongaigaon area of Bongaigaon district.

Fig. 2 shows the percentage of people cultivating different Joha rice (Bhogdhan) in Bongaigaon area of Bongaigaon district. It was found that the practice of cultivation of all the seven varieties of Joha rice (Bhogdhan) had decreased from 2010-11 to 2014-15. It might be due to their less productivity (Table. 1). Though some varieties are still cultivated it is only for their traditional use in different rituals for preparation of some special dishes. Upto 2010-11, Kalabhog was found to be most popular (53.4% people practiced). But by the end of 2014-15 it has decreased to 9%. In comparison to all these seven different Joha varieties Kathari bhog was found to be popular among the cultivators. In the year 2010-11 people percentage cultivating this variety was 11.9% which has increased upto 12.2% by the end of 2014-15. Though little (1.4% and 0.2%) the cultivators of some localities in Bongaigaon area cultivated Kewabhog and Siyal bhog till 2011-12 and 2013-14. But at the end of 2014-15 the percentage of people cultivating these two varieties was zero.

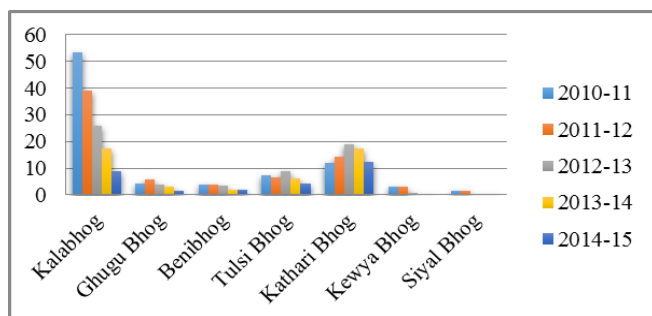


Fig. 2: Year wise percentage of people cultivating Joha rice in Bongaigaon area of Bongaigaon district.

People percentage cultivating Bora rice (Bonnidhan) that is used traditionally in different rituals by different caste and communities has also decreased greatly. The six different varieties of Bora rice are Nal bonni, Saha bonni, Buri bonni, Anarashi bonni, Bhog bonni and Pakhati bonni. Among these only Nal bonni and Buri bonni were found to be cultivated by 14.8% and 4.9% cultivator by the end of 2014-15. People percentage cultivating other four

varieties i.e., Saha bonni, Anarashi bonni, Bhog bonni and Pakhati bonni were found to be negligible (4.3%, 2.0%, 1.7% and 2.9% respectively) Fig. 3.

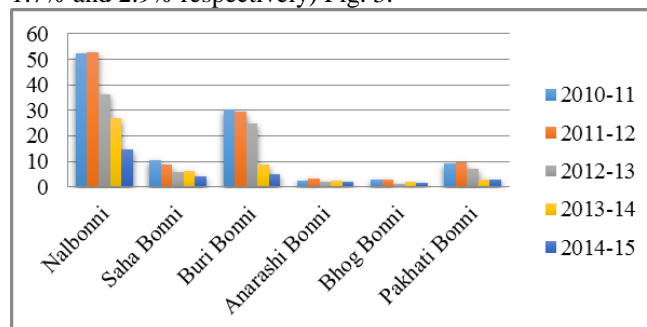


Fig. 3: Year wise percentage of people cultivating Joha rice in Bongaigaon area of Bongaigaon district.

Sl. No.	Name of the Variety	Productivity (monn per bigha)	Sl. No.	Name of the Variety	Productivity(monn per bigha)
1	Kalabhog	7.5	22	Dhepaboa	11.5
2	Ghogu bhog	6.5	23	Kholsaboa	8.5
3	Benibhog	6.0	24	Phulpakhri	7.0
4	Tulsi bhog	7.0	25	Golapi	11.5
5	Kathari bhog	8.5	26	Ranjit	17.0
6	Kewya bhog	7.2	27	Rangjuli	10.0
7	Siyal bhog	6.8	28	Boko dhan	10.0
8	Nalbonni	7.3	29	Lurki	13.0
9	Saha bonni	9.25	30	Masuri	14.5
10	Buri bonni	7.3	31	Rangpuria	7.0
11	Anarashi bonni	10.0	32	Malsongra	9.3
12	Bhog bonni	9.0	33	Sonajul	11.0
13	Pakhati bonni	8.7	34	Doria	8.5
14	Badam	10.2	35	Bahadur	10.0
15	Goyasuri	10.5	36	Gujuri	13.0
16	Aijong	14.3	37	Moinagiri	12.25
17	Dhamua	11.0	38	Malsira	9.5
18	Boromdoi	11.0	39	Katiansali	10.6
19	Lalkehar	11.6	40	Aghonsali	8.5
20	Hatisali	9.0	41	Parimal	12.0
21	kakoaboa	7.0	42	Gendubaji	9.0

Table 1: Rice varieties with their local name and average productivity (monn/bigha) cultivated in Bongaigaon area of Bongaigaon district in the year 2014-15.

The different Sali varieties cultivated in different localities of Bongaigaon area are Katiansali, Aghansali, Badam, Boromdoi, Lalkehar, Hatisali, Rangpuria, Malsongra, Doria, Bahadur, Lurki, Parimal, Gujuri, Golapi, Sonajul, Malsira, Gendubaji, Moinagiri, Goyasuri, Boko and Dhamua (Table 1). But the common varieties are Lurki, Parimal, Gujuri, Golapi, Sonajul and Dhamua. Though people percentage cultivating these different Sali rice (Lurki, Gujuri, Gulapi, Sonajul, Dhamua and Parimal) has decreased but it is not so drastic like that of Rangjuli, Malsira, Gendubaji, Moinagiri, Goyasuri (Fig.4 and Fig.5). People percentage cultivating these varieties were 23.2%, 16.5%, 46.8%, 26.7% 13.9% and 30.5% in 2010-11 and they became 15.9%, 13%, 19.4%, 24.7%, 10.4% and 34.5% by the end of 2014-15. In case of Rangjuli, Malsira,

Gendubaji, Moinagiri, Goyasuri it was 6.3%, 4.3%, 2.0%, 4.9% and 5.5% in 2010-11 and 2.9%, 1.1%, 0%, 0.8% and 2.9% by the end of 2014-15.10%. This might be due to their less productivity and unsuitable environmental condition.

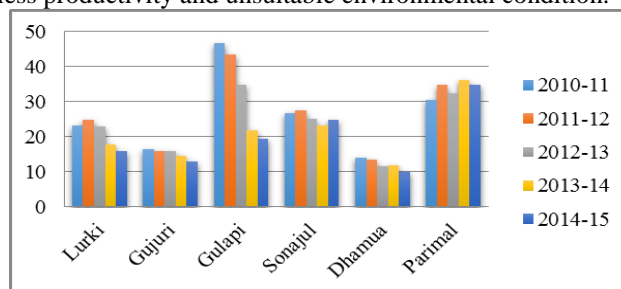


Fig. 4: Year wise percentage of people cultivating Sali rice in Bongaigaon area of Bongaigaon district.

Other varieties Aghonsali, Katiansali, Hatisali, Kakoaboa, Dhepaboa, Kholsaboa, Bokodhan, Doria, Badam, Boromdoi, Lalkehar Phulpakhiri, Rangpuria, Malsongra, and Bahadur were found to be cultivated by few people in certain localities only. Percentage of people practicing these varieties has also been decreased (Fig. 6 & Fig. 7).

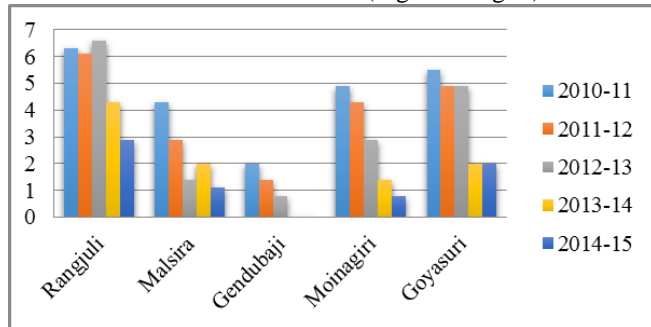


Fig. 5: Year wise percentage of people cultivating Sali rice in Bongaigaon area of Bongaigaon district

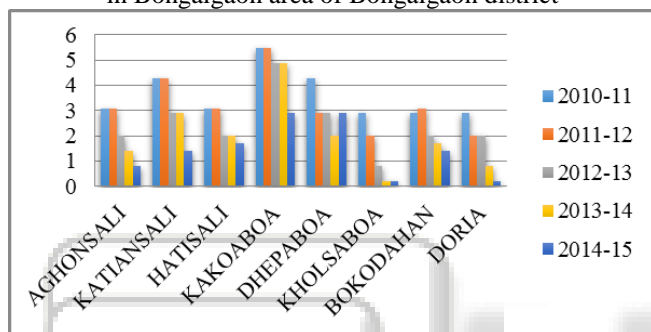


Fig. 6: Year wise percentage of people cultivating Sali rice in Bongaigaon area of Bongaigaon district

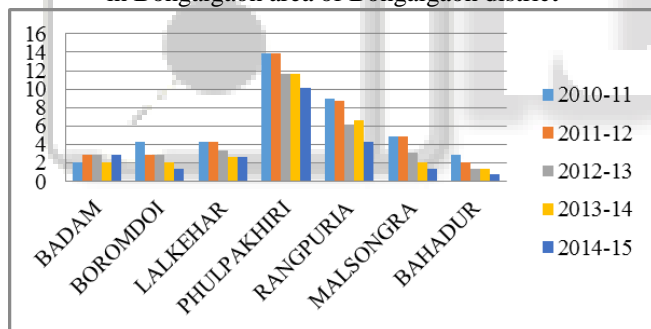


Fig. 7: Year wise percentage of people cultivating Sali rice in Bongaigaon area of Bongaigaon district

#### IV. CONCLUSION

Due to rapid population growth and increase demand of food as well as decrease of agricultural area the cultivator of Bongaigaon area greatly influenced by the HYV rather than traditional varieties. From the point of biodiversity the 39 different traditional rice varieties cultivated in these localities are the resource for future crop improvement. So it is the time to be aware and to make aware all the cultivators about the importance of all these varieties. So for sake of conservation we should do everything to encourage the cultivators to carry on cultivation of these traditional varieties too along with different HYVs.

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