



STUDY ON RICE DEVELOPMENT PROGRAMMES

Dr. Showkeen Ahmad Gulzar

*Assistant Professor, Department of Botany, SunRise University, Alwar, Rajasthan (India)
e-mail- gulshowkeen838@gmail.com

Abstract: India's extensive partnership with IRRI involves about 250 institutions all over the country. Under the Global Rice Science Partnership (now The CGIAR Research Program on Rice or RICE), the collaboration between India and IRRI is further expanded and strengthened. Opportunities to widen the focus of partnership with India in upstream and innovative research have opened up and will facilitate the transfer of new technologies to farmers and other stakeholders along the rice value chain. A new regional rice breeding hub- IRRI South Asia Breeding Hub has also been established within the campus of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), in India and operates in close collaboration with ICAR, ICRISAT, the Department of Agriculture and Cooperation (DAC), Department of Biotechnology (DBT) and other public and private sector institutions. The hub is helping strengthen the rice breeding programs of rice-growing countries in South Asia.

[Gulzar, S.A. **STUDY ON RICE DEVELOPMENT PROGRAMMES**. *J Am Sci* 2024;20(2):7-10]. ISSN 1545-1003 (print); ISSN 2375-7264 (online). <http://www.jofamericanscience.org>. 02. doi:[10.7537/marsjas200224.02](https://doi.org/10.7537/marsjas200224.02).

Keywords: Rice, Programme, development

Introduction

IRRI-India's success began with the introduction of high-yielding rice variety IR8 dubbed "miracle rice," which helped save India from a massive famine in the 1960s. IRRI and India have been successfully collaborating for more than five decades. India has been actively involved in IRRI's priority setting, strategic planning, scientific advising, and implementation of research across South Asia. The results of this collaboration have been outstanding and have set an example in international research collaboration.

India began its partnership with IRRI through the Indian Council of Agricultural Research (ICAR) in 1967 when Indian scientists from ICAR's two main rice research centers — the Central Rice Research Institute (CRR) in Cuttack, now known as National Rice Research Institute (NRRI) and the Directorate of Rice Research (DRR) in Hyderabad, now known as Indian Institute of Rice Research (IIRR)— began regularly visiting IRRI.

In 1974, Director Generals, M.S. Swaminathan and N.C. Brady of ICAR and IRRI, respectively, signed their first Memorandum Of Understanding (MoU) for cooperation in research and training. This paved the way for the two institutions to sign work plans every four years, reviewing the progress of research and identifying opportunities and areas for collaboration.

The synergy of the partnership resulted in advances in developing disease- and insect-resistant varieties suited to various rice environments,

developing and releasing hybrid rice varieties bred through government and private sector programs, streamlining rice production practices, and improving postharvest technologies for improved sustainability and productivity. Both institutions trained scientists, conducted socioeconomic research, and provided equitable access to information. From 2009 to 2012, ICAR and IRRI worked together on 37 research projects including two major regional initiatives— Stress-Tolerant Rice for Africa and South Asia (STRASA), and the Cereal Systems Initiative for South Asia (CSISA) projects. IRRI-ICAR collaboration has significantly contributed to agriculture development in India.

On the basis of experience gained and constraints identified in different blocks during the implementation of the Pilot Project in 1984-85, a full fledged Centrally Sponsored "Special Rice Production Programme-SRPP" was started from 1985-86. The objective of the scheme was to bring the substantial increase in the productivity of low productivity areas. For implementation of the scheme, 1/5th of the total number of blocks in the States of Assam, Bihar, Eastern Madhya Pradesh, Orissa, Eastern Uttar Pradesh and West Bengal were taken up. Before taking up the scheme, the block-wise plans were prepared and based on the needs of each block different programmes were taken up. As the constraints vary from block to block the programme of work across the block also vary. The programme was implemented in 420 selected blocks instead of 417 selected initially as the Govt. of West Bengal implemented the programme

in 70 selected blocks. Under the scheme, programmes were taken up to improve the supply of inputs like quality seeds, fertilizers, pesticides, plant protection equipments, farm implements and technology, programme requiring short-term measures for taking up the other works for the improvement of the irrigation, drainage and development of infrastructure facilities were also included. During 1986-87, the scheme was extended to 10 additional blocks of Assam State. State of Tripura was also included during 1988-89 and 9 blocks of the State were identified for the implementation of the scheme. In all, the SRPP was implemented in 439 blocks of the 7 Eastern States. The funding pattern under the scheme was 50:50 sharing basis between the Govt. of India and concerned State Government.

Special Foodgrains Production Programme (SFPP)-RICE

Consequent to the mid-term appraisal of the 7th Five Year Plan a Centrally Sponsored "Special Foodgrains Production Programme (SFPP)" was launched with a view to achieve the minimum food production of 166 million tonnes during 1988-89 and 175 million tonnes for the terminal year 1989-90 of the 7th Five Year Plan. For implementation of SFPP-Rice, 106 potential districts in 13 States i.e. 6 SRPP States – Assam(3), Bihar(13), Madhya Pradesh(11), Orissa(5), Uttar Pradesh(21), West Bengal(7) and other 7 States-Andhra Pradesh(8), Gujarat(4), Haryana(5), Karnataka(8), Maharashtra(7), Punjab(3) and Tamil Nadu(8) were identified. The implementation unit of the SFPP-Rice Programme was district and all the areas in the identified districts were covered for the implementation of the programme. SFPP was 100 percent funded by the Government of India.

Integrated Programme For Rice Development (IPRD)

SRPP and SFPP-Rice were merged on the recommendations of the Planning Commission and unified scheme "Integrated Programme for Rice Development(IPRD)" was implemented from 1990-91. 4 additional States namely Goa, Himachal Pradesh, Jammu & Kashmir and Kerala and 1 Union Territory of Pondicherry were covered under the Scheme. Whereas the SRPP was implemented in the identified blocks and SFPP-Rice in the identified districts, the IPRD was implemented in all the districts of the States covered under the programme. The funding pattern under the scheme was modified to 75:25 to be shared between the Govt. of India and the concerned State Government. From the year 1991-92, the scheme was further extended to 5 more additional States namely Arunachal Pradesh, Manipur, Meghalaya, Mizoram and Nagaland. Thus, the scheme

was implemented in 23 States namely Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Orissa, Punjab, Tamil Nadu, Tripura, Uttar Pradesh, West Bengal and Union Territory of Pondicherry. The State Governments were provided the flexibility to choose the most suitable components out of the approved components under IPRD namely distribution of certified seeds, micro-nutrients(zinc sulphate), herbicides, pesticides, PP equipments, seed treating chemicals, farm implements, supply to power tiller to small and marginal farmers and allocate funds to each components keeping in view of the specific constraints to rice production in the State and overall limited to Rs.57.44 lakh per district. Besides, field demonstrations and training programmes for farmers and farm labourers were also included under the scheme for effective transfer of crop production technology

Integrated Cereals Development Programme In Rice Based Cropping System Areas(ICDPRICE)

The On-going Integrated Programme for Rice Development (IPRD), Special Foodgrains Production Programme-Wheat and Special Foodgrains Production Programme-Maize and Millets Schemes have been modified. Schemes are as Integrated Cereals Development Programme in Rice Based Cropping System Areas(ICDP-Rice), Integrated Cereals Development Programme in Coarse Cereals Based Cropping System Areas(ICDP-Coarse Cereals) and Integrated Cereals Development Programme in Wheat Based Cropping System Areas(ICDP-Wheat). In an area, only one scheme is being implemented and there is no overlapping in the implementation of the scheme of ICDP-Rice, ICDPCoarse Cereals and ICDP-Wheat. The objective of the modified scheme is to increase the overall productivity of cereals under specific crop based systems as a whole as against the individual crop approach. 52 The ICDP-Rice was implemented in 1200 identified blocks of 16 States namely Andhra Pradesh (120), Arunachal Pradesh (20), Assam (75), Bihar (220), Goa (4), Kerala (55), Eastern Madhya Pradesh (90), Manipur (12), Meghalaya (12), Mizoram (8), Nagaland (12), Orissa (115), Tamil Nadu (140), Tripura (8), Eastern Uttar Pradesh (180), West Bengal (125) and one Union Territory of Pondicherry (4).

High Yielding Varieties

The Central Sector Rice Seed Minikit Programme including propagation of improved production technology has played vital role in increasing area under high yielding varieties and also

in demonstration of improved crop production technology to the farmers. This scheme has contributed in increasing rice production and productivity. The high yielding varieties Programme was initiated during 1966-67 and the Directorate of Rice Development, Govt. of India commenced monitoring the scheme of high yielding varieties in a systematic manner from 1970 onward. The total area under rice during 1969-70 was 37.68 million ha in which the area under high yielding varieties (H.Y.V.) was about 4.34 million ha. Thus, the share of H.Y.V. was 4.5 per cent of the total area under rice in the country during 1969-70. But due to the successful implementation of the scheme, the area under H.Y.V. increased significantly from 4.34 million ha during 1969-70 to 33.10 million ha during 1999-2000. The increase in area under H.Y.V. registered more than 8 folds during the past 30 years. During 1969-70 only 16 H.Y.V. were released / notified for cultivation and there after, due to the concerted efforts of research 639 varieties of rice have been released and notified so far. Those varieties have been popularised at the farmers field through rice minikit programme which was initiated during 1971-72 and continued up to 9th plan period. Thus, the percentage of area under high yielding varieties has been increased from 11.5 per cent in 1969-70 to 79 per cent during 1999-2000.

Rice Seed Minikit Programme

Seed is the basic input for increasing production and productivity. Therefore, maintenance of genetic purity through seed replacement is essential for stabilising the yield levels. In addition to the supply of certified seeds of high yielding varieties of rice to the farmers, seed minikits of recently released location specific high yielding varieties were being distributed to the farmers at nominal cost under Central Sector Rice Seed Minikit Programme since 1972 for popularisation of varieties and seed multiplication at the farmer's field level. This programme has helped in spread of recently released varieties and in coverage under high yielding varieties. A number of recently released location specific high yielding varieties of rice spread through Central Sector Rice Seed Minikit Demonstration Programme during the IX Five Year Plan are given in Table-9. During the 9th Five Year Plan more emphasis was given on popularisation of location specific high yielding varieties of rice released/notified during the last 3 years for the favourable rainfed and irrigated areas and 5 years for the problematic areas like rainfed upland & lowland, coastal saline, saline-alkaline lands, high altitude cold stress areas. A total number of 33 lakh seed minikits of 419 location specific high yielding varieties of rice were distributed in different rice growing States during the 9th Five Year Plan.

State Level Training Programme On Rice Production Technology

With a view to disseminate the latest rice production technology to the Extension Officers of the State Governments, State Level Training Programme on Rice Production Technology was organised continuously since 1975-76. The training programmes were conducted at ICAR Research Centres and State Agriculture Universities for three days duration with 30 participants up to 9th Five Year Plan period. An assistance limited to Rs. 22,900/- was given to the organising centres for conducting training programmes.

Special Orientation Training Programme On Rice Production Technology

In addition to the State Level Training Programme, a Special Orientation Training Programme on Rice Production Technology was also organised at the State Agricultural Universities and Indian Council of Agricultural Research (I.C.A.R.) Institutes. The duration of training programme was for 5 days with 20 participants. The financial assistance of Rs. 35,000/- was given to the organizer for each training course. This training programme was initiated during the year 1997-98 with a view to disseminate the latest rice production technology.

Macro Management Scheme Of Agriculture

The Govt. of India has initiated Macro Management Scheme of Agriculture. This is a Centrally Sponsored Scheme. The objective of this scheme is to aim at all round development in agriculture through Work Plans prepared by the respective State keeping in view the following aspects:-

- (a) Reflection of local needs/crops/regions specific/priorities etc.
- (b) Providing flexibility and autonomy to States.
- (c) Optimum utilization of scarce financial resource.
- (d) Maximization of returns and
- (e) Removal of regional imbalances. The Govt. of India has merged 27 Centrally Sponsored Schemes into Macro Management Mode. The previous pattern of Centrally Sponsored Schemes (C.S.S.) was lacking in various flexibility resulting in large amount of unutilized balances with the State Govts. The present Macro Management approach will provide more flexibility to State Govts. to develop and pursue programmes on the basis of regional priorities. The outlay of the Work Plan would be shared by the Centre and the States in the ratio of 90:10. In the case of North-Eastern States, the entire expenditure will be borne by the Govt. of India. Macro Management Scheme will be implemented in all States and Union

Territories. The following 27 C.S.S. have been integrated into Macro Management mode:-

1. Assistance to Weaker Section.
2. Assistance to women Co operatives.
3. Non- overdue Cover Scheme.
4. Agri. Credit Stabilisation Fund.
5. Special Scheme for SC/ST.
6. Integrated Cereal Development Programmes in Rice Based Cropping System Areas.
7. Integrated Cereal Development Programmes in wheat Based Cropping System Areas.
8. Integrated Cereal Development Programmes in Coarse Cereals Based Cropping System Areas.
9. Special Jute Development Programme.
10. Sustainable Development of Sugarcane Based Cropping System Areas.
11. Balanced and Integrated use of Fertilizer.
12. Promotion of Agricultural Mechanization among Small Farmers.
13. Integrated Development of Tropical, Arid & Temperate Zone Fruits.
14. Production and Supply of Vegetable seeds.
15. Development of Commercial Floriculture.
16. Development of Medicinal and Aromatic Plants.
17. Development of Roots and Tuber Crops.
18. Development of Cocoa and Cashew.
19. Integrated Programme for Development of Spices.
20. Development of Mushroom.
21. Use of Plastics in Agriculture.
22. Bee keeping.
23. National watershed Development Project for Rainfed Areas.
24. Schemes for Foundation & Certified Seed Production of Vegetable Crops.
25. Soil Conservation in Catchments of River Valley Projects and Flood Prone Rivers.
26. Reclamation and Development of Alkali Soils.
27. State Land use Boards.

References:

- [1]. James, R. A., Blake, C., Zwart, A. B., Hare, R. A., Rathjen, A. J., & Munns, R. (2012). Impact of ancestral wheat sodium exclusion genes *Nax1* and *Nax2* on grain yield of durum wheat on saline soils. *Functional plant biology : FPB*, 39(7), 609–618. <https://doi.org/10.1071/FP12121>
- [2]. Jamil, A., Riaz, S., Ashraf, M., & Foolad, M. R. (2011). Gene expression profiling of plants under salt stress. *Critical Reviews in Plant Sciences*, 30(5), 435-458.
- [3]. Janda, T., Szalai, G., Giauffret, C., Paldi, E. and Ducruet J.M. (1999), "The thermoluminescence „after glow“ band as a sensitive indicator of abiotic stresses. In *Plants Z Naturforsch.* 54: 629-633.

- [4]. Jang, I. C., Oh, S. J., Seo, J. S., Choi, W. B., Song, S. I., Kim, C. H., ... & Kim, J. K. (2003). Expression of a bifunctional fusion of the *Escherichia coli* genes for trehalose-6-phosphate synthase and trehalose-6-phosphate phosphatase in transgenic rice plants increases trehalose accumulation and abiotic stress tolerance without stunting growth. *Plant physiology*, 131(2), 516-524.
- [5]. Jha BN, Singh R. Physiological response of rice varieties to different levels of moisture stress. *Ind J Plant Physiol.* 1997; 2:81-84.
- [6]. Ji, H., Pardo, J. M., Batelli, G., Van Oosten, M. J., Bressan, R. A., and Li, X. (2013). The Salt Overly Sensitive (SOS) pathway: established and emerging roles. *Mol. Plant* 6, 275–286. doi: 10.1093/mp/sst017
- [7]. Jones RGW. Salt tolerance. In: CB Johnson (Ed), *Physiological Processes Limiting Plant Productivity*. Butterworths, London, 1981, 271-292.

2/21/2024