

**National Conference
on
Technological Challenges in Social, Environmental
and Agricultural Reforms (TECHSEAR-2017)**

September 9 to 10th, 2017



Organized by

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-Reconstructor of Rural India

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National Conference
on
Technological Challenges in Social, Environmental and Agricultural Reforms

(TECHSEAR 2017) 9th&10thSeptember, 2017

Venue: Auditorium, IIRR, Hyderabad

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PREFACE

India is one of the richest countries in the world known for its vivid biodiversity and natural resources. A systematic review of the factors responsible for the decrease in availability of natural resources, loss of plant bio-diversity, increase in environmental pollution, climatic changes, decline in factor productivity and operational holdings and widening gap between rich and poor are threatening our food security and health. In recent years, enormous progress has been made in developing agriculture technologies, cultivation and trade throughout the world. Making the transition from sustainable empowerment will not be possible without significant new investment in protecting and enhancing the efficiency of production, processing and consumption system. This conference will truly serve a national forum for scientists, growers, product manufactures, students and marketing personnel to embrace and share a diverse range of basic studies, techniques and experiences.

In this context, deliberations in the national conference by eminent, galaxy of speakers may provide a more sustainable approach to agriculture and allied sectors with a scope to come out with concrete solutions. TECHSEAR-2017 is conceptualized with the following themes/sub themes :-

Theme 1: Crop Improvement-Emerging challenges and advances in basic & allied sciences and in Biotechnology

Theme 2: Natural Resource Management-Sustainable Natural Resource Management in relation to crop production, soil health, Rain water harvesting, conservation practices, *permaculture*; *Natural and Organic farming*

Theme 3: Crop Protection-Emerging Challenges and trends in Pest & Disease management in agriculture

Theme 4: Post Harvest Management-Food processing, value addition and crop residue management

Theme 5: Biodiversity and Environmental Challenges-Biodiversity, climate change concerns and IPR related issues; Bio safety and Bio security Challenges

Theme 6: Farm Mechanization-Innovations & marketing opportunities of farm machinery for small and marginal farmers

Theme 7: Issues in Animal Health & Animal Husbandry, Fisheries Science

Theme 8: Social science-Start ups in Agriculture and allied branches; Mechanisms to Attract and Retain Youth in Agriculture; Entrepreneurship Development; ways and means of doubling the farm income; Innovative extension strategies; ICT & digital extension approaches; Policies and economics for profitable agriculture; Present agriculture education, opportunities for improvement

Theme 9: Protected Cultivation-Scope; opportunities and challenges in growing crops under protected conditions viz., Green house, Poly house, Hydroponics etc..

President, General Secretary and staff of **GREEN REAP WELFARE SOCIETY (GRWS), ADILABAD** deserve a lot of thanks for their perseverance and hard work, who whole heartedly worked for organizing the conference. Editors are thankful to all the contributors of the book. Efforts have been taken to proof read the book before printing. As this is the first conference of the society, some errors will slip in for which we advance apologies. Help rendered by Jay Prakash Reddy in timely printing is duly acknowledged. Authors acknowledge one and all that helped in organizing this conference.

September, 2017

Editors

i.e. during 2015-16 and 2016-17 seasons. The cluster front line demonstrations plots yielded higher (390 kg/ha and 1620 kg/ha, respectively) during 2015-16 and 2016-17 compared to the farmer's practice (326 kg/ha and 1265 kg/ha, respectively) in the two years. The mean per cent increase yield was found to be 19.6% and 28.06% respectively for two years. The reduced yield during 2015-16 may be due to the poor rainfall. Higher gross returns (Rs. 42,900 and Rs.89,100) and net returns (Rs. 27,700 and Rs.59,370) was noticed in the CFLD plots compared to the farmers practice which recorded lower gross returns (Rs.17,525 and Rs.69,575) and net returns (Rs. 27,964 and Rs.38,000) respectively for the years 2015-16 and 2016-17. The benefit cost ratio was found to be 2.82:1 and 2.99:1 under CFLD plots, whereas in the farmer's practice a lower B:C ratio of 1.95:1 and 2.2:1 was observed for the year during *Rabi*, 2015-16 and 2016-17, respectively. The technology gap was found to be higher than the extension gap for the two years recording 1610 kg/ha and 64 kg/ha for 2015-16 and 380 kg/ha and 355.0 kg/ha for 2016-17, respectively. The technology index was recorded 80.5% and 19.0% during *Rabi* 2015-16 and 2016-17 seasons

52. FARMERS' PRACTICES FOR THE HIGHEST SORGHUM PRODUCTIVITY IN RICE-FALLOWS UNDER ZERO-TILLAGE

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ABSTRACT

In coastal Andhra Pradesh, sorghum cultivation is gaining popularity among farmers due to its high productivity (6.8 t/ha in 2014-15) whereas, the national productivity is very low (0.96 t/ha). The farmers were commercially motivated and selected to grow sorghum instead of maize on residual moisture of rice-harvested field without tillage condition after comparing economic benefits. Since, sorghum cultivation is being picked up since last 6-7 years in this area, there were no technology interventions for sorghum cultivation per say. The farmers were applying high agro-chemical inputs and its skillful management in order to the crop response to their soils by using their tacit knowledge and innovative ideas gained with advancement of technologies adopted for other crops. After the harvest of *kharif* transplanted rice, the sorghum was being sown mostly in December under zero-tillage to utilize the residual soil moisture. The sowing was done manually in rows (45x15cm) at 4-6 cm depth by making a hole with wooden stick and putting 2-3 seeds in each hole. For effective weed control, tank mixed application of atrazine+paraquat (1.0+0.50 kg/ha) was being done one day after sowing. Crop was being irrigated twice at 30 and 60 days after sowing (DAS). The crop was being fertilized with 150 kg N, 60 kg P₂O₅ and 75 kg K₂O/ha which is almost double than the recommendations for traditional sorghum. No fertilizer was applied at sowing. Half amount of N (75 kg/ha) and full dose of P₂O₅ (60 kg/ha) were being side dressed in rows at 30 DAS. Remaining amount of N (75 kg/ha) and full dose of K₂O (75 kg/ha) were applied at 60 DAS (after 2nd irrigation). To reduce the incidence of shoot fly, application of cypermethrin @ 3 ml/lit of water was done one week after crop emergence. Furodon 3G at 12 kg/ha was applied in leaf whorl of individual plants at 40 days after sowing. Crop was harvested manually at around 115 days after sowing. They preferred to grow hybrids which had high grain yield potential and medium height (2.0 to 2.5 m) to avoid losses from lodging. Consequently, they were getting higher grain yield up to 7.5 t/ha from

evaluation trials which was seven times than any other conventional sorghum cultivation in India (< 1.00 t/ha). It was resulted into an average of Rs. 78,000/- per ha gross profits excluding fodder price. However, there is need of scientific interventions for sustainable growth of the crop in long run. These practice-wise farmers' innovative knowledge was identified and documented which would be viable inputs for research and development of sorghum in rice-fallows condition.

53. RICE MARKETING CHANNELS IN NALGONDA

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ABSTRACT:

Rice is considered to be the oldest and ancient cereal with a history of more than 2800 years. Rice being the staple food of south India, it is of utmost importance to analyze the way it is produced, marketed and the role of different actors in this chain. Nalgonda district has major markets for paddy and is grown as the major crop in the Nagarjunasagar project (NSP) canal area due to which agro-based industries are flourishing. The mapping of rice value chain includes four stages – production of paddy, processing of paddy, primary movement and secondary movement of the produce, processing and movement of the byproducts. The various products identified are parboiled rice and raw rice with byproducts rice bran, broken grains, cheeru or param. The rice manufacturing of rice bran oil is another major industry from the byproduct rice bran. The key value chain actors include farmers, commission agents, traders, millers, PACS, FCI, fair price shops, wholesalers, retailers and consumers. Different sub chains of marketing of paddy are : 1) Farmer – Miller – Consumer; 2) Farmer – Miller – Wholesaler – Consumer; 3) Farmer – Miller - Wholesaler – Retailer – Consumer; 4) Farmer – Commission agent – Miller - Wholesaler – Consumer; 5) Farmer – Fellow farmer/ money lender - Miller– Wholesaler – Retailer – Consumer; 6) Farmer – Commission agent – Miller- Commission agent - Wholesaler – Retailer – Consumer. The highest producer's share in consumer's rupee in channel (F-M-C) was 71.97 per cent due to no involvement of intermediaries. The producer's share in consumer's rupee was estimated as 49.63 % in channel 6, with channels 5 and 3 recording around 52 percent while channels 4 and 2 ranging from 60-61 percent. The producer's share in consumer's rupee was found to be decreasing with increase in the length of the channel. Thus, efficient handling of the existing marketing network by direct procurement helps the farmers to realize better income.

54. CONSTRAINTS AND PREFERENCES IN MARKETING OF PADDY

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ABSTRACT

The conceptual framework of value chain of paddy and the movement of produce from farmers to the ultimate consumers provide meaningful insights to the farmers and intermediaries present in different stages of value chain and also to realize the extent of exploitation of middlemen in different sub chains. Various problems encountered by rice farmers in Nalgonda district were analysed using Garette ranking. Marginal farmers have