

Success stories

1.Introduction of new crops -millet in salt affected soil

Background

The aim of the introduction of alternate crop millet and vegetables was to enhance the production using the latest technologies, to form Associations among the farmers and shift from production led agriculture to market led agriculture. Alternate crop for saline soil, increased yield and quality of the produce forms the success of the project. The funds allocated through protected area development zone was effectively utilized in coastal belt (Vizhakkudi village in Thiruthuraipoonndi block).

Interventions

The area under saline soil in Vizhakkudi village in Thiruthuraipoonndi block was surveyed during 2023-24 and subsequently the water deficit villages of Vizhakkudi were identified for implementing the Project. The Finger millet and banyard millet and vegetables like bhendi and cluster bean are a vital component under the project and the demo laid out Th. Mani, Progressive farmers field in 1.0 ha of land at Vizhakkudi village in Thiruthuraipoonndi block, Thiruvarur.

As second intervention, our KVK gave all technical support for getting more yield. Th. Th. Mani, the farmer was trained in our KVK in supplying quality vegetables seeds and supplying at free of cost. Technology transfer through farmer to farmer is found to be very effective. The farmer was able to achieve a good yield by the adoption of improved technology.

They were exposed to the latest techniques not only on crop management but also marketing and value additions. They have made tremendous efforts to improve their economic status through the technologies promoted by Protected area development zone project. Still, they are in the way of promoting lots and lots of farmers who wish to adopt precision farming. In the past couple of years, monsoon deficit has disappointed the farmers and because of adoption of precision farming techniques, farmers are able to cultivate effectively with available water.

Results

An impact study taken up in the project areas, clearly indicated that the technology as very promising and has certainly improved the livelihood status of all the farmers who took up new crop in Vizhakkudi village in Thiruthuraipoonndi block, Thiruvarur District.

Farmers feed back on precision farming

Criteria	Feed back
Yield increase	30%
Weight gain	25%
Labour saving	30%
Water saving	40%
Fertilizer saving	25%

Crop	Yield (kg/ha)	Net returns /unit area(Rs)	BC ratio
Finger millet	1320	16800	1.80
Banyard millet	950	12450	1.62
Bhendi	15250	44500	1.78
Cluster bean	7460	38000	1.59

During 2024, the KVK facilitated the farmers to share their success through local newspaper and media. The appreciation and requirement of alternate crop technologies from other farmers encouraged the farmers to sustain and expand their alternate crop technologies activities further.

2. High yielding rice variety, ADT 57 suitable for Kuruvai cultivation for increasing the livelihood of Thiruvarur farmers

1. Situation analysis/Problem statement:

Mr. D. Ganesan, son of Duraisamy, is a passionate and seasoned farmer residing in Vaduvur Thenpathi village, located in the Needamangalam block of Thiruvarur district. He frequently seeks guidance from the ICAR - Krishi Vigyan Kendra, Thiruvarur, in search of new rice varieties and agricultural technologies. His extensive cultivation includes the popular ADT 43 and ADT 45 varieties, with his harvests being sold at the Direct Procurement Centre (DPC). Previously, Mr. Ganesan encountered challenges with low yields while cultivating ADT 43 and ADT 45, leading to disappointment in his rice farming endeavors. As a result, he developed a keen interest in exploring new varieties with higher yields and better market value. In pursuit of this goal, he sought advice from the scientists at ICAR-KVK, Thiruvarur, who recommended the adoption of a new rice variety known as ADT 57. Acting upon the suggestion from ICAR - KVK, Thiruvarur, Mr. Ganesan decided to cultivate ADT 57 across a one-acre plot of land.

2. Plan, Implement and Support:

Seeking guidance for cultivating a high-yielding rice variety, Mr. D. Ganesan turned to ICAR - KVK, Thiruvarur. Subsequently, he actively participated in various training programs covering topics such as organic cultivation of rice varieties, eco-friendly pest and disease management techniques, soil health preservation, and seed production technologies. In response to his commitment, ICAR KVK provided Mr. Ganesan with essential resources including high-quality ADT 57 rice seeds, biofertilizers, and other necessary inputs. Additionally, KVK - Thiruvarur organized a Front Line Demonstration focusing on "Demonstration of new rice variety suitable for kuruvai cultivation in Thiruvarur district" on a one-acre parcel of Mr. Ganesan's farm. Throughout this process, continuous technical support was extended to the farmer through frequent field visits. Following the technical advice received, Mr. Ganesan diligently implemented Integrated Crop Management practices such as seed treatment, integrated nutrient and water management, and integrated pest management, ensuring comprehensive care for his crops.

3. Output:

The farmer successfully harvested the ADT 57 rice variety within a span of 110 days. Throughout its growth stages, there were no significant occurrences of pests or diseases observed. The plants exhibited medium height with robust stem girth, ensuring they remained upright even at maturity without lodging. With a grain yield of 3000 kg/ha, surpassing the average yield outlined in the variety release proposal, the farmer achieved remarkable results. Moreover, the produce commanded a premium price in the market. Consequently, the cultivation of ADT 57 rice proved to be more profitable compared to other varieties, highlighting its efficacy and suitability for the farmer's agricultural pursuits.

4. Outcome

Cultivating the rice variety ADT 57 proved to be significantly more profitable for the farmer compared to cultivating ADT 43 rice variety. Within a period of 110 days, the farmer achieved a yield of 75 quintals of rice grain per hectare, resulting in a net return of Rs. 1,30,000/-. This endeavor proved to be more economical and rewarding for Mr. D. Ganesan. The noteworthy profit earned by Mr. Ganesan became known to nearby farmers, sparking considerable interest among them to also cultivate the ADT 57 rice variety. This widespread interest reflects the success and profitability of ADT 57, potentially leading to its increased adoption in the farming community.

Parameters	Check (ADT 43)	Demo (ADT 57)
Yield (Q/ha)	54	75
Gross income (Rs/ha)	124200	172500
Gross cost (Rs/ha)	42500	42500
Net return (Rs/ha)	81700	130000
BCR	2.92	4.06

5. Impact:

Farmers have shown a preference for the rice variety ADT 57 due to its exceptional grain yield, surpassing that of other rice varieties typically used in kuruvai cultivation. Moreover, ADT 57 is highly regarded for its suitability in meal preparation, offering good gel consistency and optimal gelatinization temperature. During the 2023-24 season, only ten farmers cultivated rice ADT 57. However, a significant number of farmers in the Thiruvarur district have expressed keen interest in adopting this variety for the upcoming season. This surge in interest indicates a growing recognition of the benefits and potential profitability associated with cultivating ADT 57. Through this successful trial and the positive feedback from early adopters, it is anticipated that the cultivation area dedicated to rice ADT 57 will expand in the near future, reflecting its increasing popularity and acceptance among farmers in the region.

3. Cultivation of Oyster Mushroom – Farm women and unemployed youths as Entrepreneur in Cauvery Delta Zone

1. Situation Analysis/Problem Statement:

In Tiruvarur district, where 1.27 lakh hectares of paddy are cultivated annually, there exists an opportunity to utilize the straw obtained from paddy cultivation for oyster mushroom cultivation. This presents an opportunity to generate additional income for farm women and create opportunity to unemployed youths in rural area. However, the current scenario might lack infrastructure and knowledge regarding mushroom cultivation, which can hinder the exploitation of this potential income source.

2. Plan, Implement, and Support:

To address this, a plan can be formulated to assist farmers in setting up mushroom production huts using readily available materials such as coconut thatches and paddy straw. These huts, which are relatively low-cost to construct and maintain, can be managed efficiently by farmers. With proper training and guidance, farmers can cultivate oyster mushrooms in these huts, generating a steady income stream.

3. Output and Outcome:

With successful implementation, farm women and unemployed youths can expect to generate a net profit of up to Rs 5,000 per month per hut. This additional income can significantly contribute to the economic stability of farming households, improving their overall financial well-being.

4. Impact:

- Increase in Farm Income: The cultivation of oyster mushrooms provides an additional source of income for farmers, thereby boosting their annual income.
- Per Capita Income Growth: The increase in farm income directly contributes to the growth of per capita income in the community.
- Integrated Farming System (IFS) Practice: By utilizing paddy straw for mushroom cultivation, farmers adopt an integrated approach to farming, promoting sustainable agricultural practices and minimizing waste.

- **Recycling of Farm Waste:** Mushroom cultivation utilizing paddy straw demonstrates an eco-friendly approach by repurposing agricultural waste, contributing to waste reduction and environmental sustainability.
- **Empowerment of Farm Women and Unemployed Youths:** Involving farm women and unemployed youths as entrepreneurs in mushroom cultivation not only provides them with a source of income but also empowers them economically and socially. This can lead to the emergence of progressive farmers who serve as role models and mentors for others in the community.
- Overall, the cultivation of oyster mushrooms presents a promising opportunity to enhance farm incomes, promote sustainable agricultural practices, and empower marginalized groups within the community, thereby fostering rural development and economic growth.

4. Enhancing Rice Yield through Innovative Potash Releasing Bacteria

Name: G. Baskar

Location: Karuppu Kilar

Initial Yield: 40 quintals per hectare

Final Yield: 54.5 quintals per hectare

Background

- Karuppu Kilar, situated in an area with sodic soil, faced challenges in optimizing rice yields due to low availability and high cost of chemical potassium fertilizers. The soil condition led to poor potassium (K) use efficiency by rice plants, with most of the K being locked up in unavailable forms within soil minerals.

Objective

- To enhance rice yield by improving potassium availability and utilization through the use of suitable potash-releasing bacteria.

Challenges

- 1. Low availability of potassium in soil.
- 2. High cost of chemical potassium fertilizers.
- 3. Poor potassium use efficiency by rice plants.

Approach

- After thorough research, G. Baskar decided to assess the potential of potash-releasing bacteria in improving potassium availability for rice plants. He identified *Paenibacillus mucilaginosus* strain KRB-9 as a promising candidate for this purpose.

Implementation

- 1. **Selection of Potash Releasing Bacteria:** G. Baskar chose *Paenibacillus mucilaginosus* (KRB-9) based on its known ability to release potassium from soil minerals.
- 2. **Field Application:** He applied *Paenibacillus mucilaginosus* (KRB-9) at a rate of 500ml/ha directly to the soil.
- 3. **Monitoring and Evaluation:** Regular monitoring of the rice crop was conducted to assess the effectiveness of the treatment in improving potassium uptake and overall yield.

Results

- 1. Yield Increase: The application of *Paenibacillus mucilaginosus* (KRB-9) resulted in a significant increase in rice yield. The initial yield of 40 quintals per hectare rose to a remarkable 54.5 quintals per hectare. Percent Yield Increase: The percentage increase in yield was calculated to be approximately 36.25%, showcasing the substantial impact of the intervention on rice production in Karuppu Kilar.
- 2. Grain Weight Increase: Alongside the overall yield increase, there was also a noticeable increase in grain weight, indicating improved plant health and nutrient uptake.

Conclusion

Through the innovative use of potash-releasing bacteria, particularly *Paenibacillus mucilaginosus* (KRB-9), G. Baskar successfully addressed the challenges posed by sodic soil conditions. By enhancing potassium availability and utilization, he not only improved rice yields but also mitigated the reliance on expensive chemical fertilizers. This success story serves as a model for sustainable agriculture practices, demonstrating the potential of microbial interventions in optimizing crop production and ensuring food security in challenging environments.

5. Alternate wetting and drying (AWD) method of irrigation for improving productivity and profitability in rice cultivation by Thiruvarur farmers

1. Situation analysis/Problem statement:

Mr. Gubendiran, is a progressive rice farmer residing in Vaduvur Thenpathi village, located in the Needamangalam block of Thiruvarur district. He frequently seeks guidance from the ICAR - Krishi Vigyan Kendra, Thiruvarur, in search of new rice varieties and agricultural technologies. He adopted the method of alternate wetting and drying method of irrigation for rice crop to improve the tillering and to facilitate the free air movement into the soil, and reducing the number of irrigation thereby reducing the labour, improving the yield and environmentally safe for reduced methane emission.

2. Plan, Implement and Support:

By learning this AWD technology the free field water tube supplied by the ICAR-KVK, Needamangalam, Mr. Gubendiran installed in his rice field and followed the irrigation based on the irrigation water level in the field water tube. Following the technical advice received, Mr. Gubendran diligently implemented Integrated Crop Management practices such as seed treatment, integrated nutrient and AWD based water management, and integrated pest management, ensuring comprehensive care for his crops.

3. Output:

The farmer successfully harvested the rice crop. Throughout its growth stages, there were no significant occurrences of pests or diseases observed. The plants exhibited medium height with more number of productive tillers, robust stem girth, ensuring they remained upright even at maturity without lodging. With a grain yield of 4850 kg/ha, the farmer achieved remarkable results.

4. Outcome

Cultivating the rice variety by adopting AWD based irrigation method by field water tube proved to be significantly more profitable for the farmer compared to conventional irrigation methods. With this technology, the farmer achieved a yield of 48.50 quintals of rice grain per hectare, resulting in a net return of Rs. 97,000/-. This endeavor proved to be more economical and rewarding for Mr. Gubendran. The noteworthy profit earned by Mr. Gubendran became known to nearby farmers, sparking considerable interest among them to adopt the AWD in their respective

farms. This widespread interest reflects the success story and field day also celebrated involving the department officials and published in the daily newspaper for mass dissemination to the farming community.

Parameters	Check	Demo
Yield (Q/ha)	41.23	48.50
Gross income (Rs/ha)	82460	97000
Gross cost (Rs/ha)	42500	42500
Net return (Rs/ha)	39960	54500
BCR	1.94	2.28

5. Impact:

Farmers in Cauvery delta zone now giving importance to the AWD method of irrigation to get more productive tillers and yield. Through this intervention it is expected that the farmers of Thiruvarur district will adopt it in a large scale for harvesting the benefits of AWD method of irrigation in rice cultivation.