
Subject IV

Odisha's Tryst with Millets and Integrated Farming: Inclusive, Sustainable and Going Global

Rapporteur: Srijit Mishra*

INTRODUCTION: KEYNOTE AND BEYOND

The keynote address by Arabinda K Padhee "Transforming Agri Food Systems of Odisha" did justice and captured the essence indicated in the theme's outline (Anonymous, 2022) and in some sense also went beyond. It brought into focus how Odisha's tryst with millets and beyond are meant to be transformational by breaking out from vicious cycle of poverty accentuated by rainfed conditions and regular natural calamities (in 42 of the last 50 years there were either floods or drought or both). The agricultural initiatives of Odisha has been to keep the farmer as the focal point and then to come up with enabling factors while doing away with dis-enabling factors. The initiatives have led to convergence across line departments, in particular Mission Shakti that has identified and facilitates the role of women at multiple nodes in the value chain. The approach has not only fostered initiatives on forgotten foods, including uncultivated, foods but also encouraged innovation and fusion of food with contemporary fads that are palatable and nutritious. Unfortunately, something that the participants of the conference missed in the menu served to them.

THE TECHNICAL SESSION

In the technical session for the theme, as indicated in the conference volume, there were thirteen papers (Mishra, 2023) and from these seven were physical presented (in order of their presentation: Singh and Singh, 2023; Rajput and Vani, 2023; Mukesh Kumar, 2023; Pratikshya Mishra et al., 2023; Sarba Narayan Mishra et al., 2023; Basu et al., 2023; Ram, 2023) and six in absentia (Barik, 2023; Vinod Kumar, 2023; Pani et al., 2023; Pathak et al., 2023; Pattanaik et al., 2023; Shah, 2023). From a global perspective, Singh and Singh (2023) presentation points that India has comparative advantage in millet trade with a larger share of area and quantity produced. This also co-exists with the fact that over the years the area and quantity produced as also per capita consumption has been declining in India. Given, that 2023 has been the International Year of Millets and because of an increasing global demand, an issue of discussion was how policy and academia can help India leverage that advantage.

Odisha's tryst with millets has raised a number of eyebrows and has called for comparisons. Rajput and Vani (2023) in their presentation show that Madhya Pradesh has more area as also greater yield. While comparisons are important, it is necessary to to control for agro-climatic conditions. In fact, this concern should also be applicable to issues raised by Shah (2023). Besides, the agronomic interventions by

* Professor, Indira Gandhi Institute of Development Research (IGIDR), Gen AK Vaidya Marg, Goregaon (East), Mumbai-400 065 (Maharashtra).

Odisha would have different yield than that observed in the state at the aggregate level. It also raised concerns on the relevance of both traditional knowledge and scientific practices for the new agronomic practices that have been taken up in Odisha.

The comparative analysis across states over time was further taken up in the presentation of Mukesh Kumar (2023) that used Agricultural Efficiency Index, a tool used by Bhatia (1967) (which in the current context is, state-specific weighted relative yield aggregated over crops with weights being the crop-specific share of area in the state and the relative yield of crops being a ratio of crop-specific yield of the state to that of the country). Some discussions that emerged is that in all measures that are aggregates there is some functional advantage and at the same time there will be loss of information and one should be cautious to not draw policy suggestions that does not follow from the analysis. In other words, additional work is needed to point out why certain states have performed worse than others or how the states have performed over time.

Breaking the silo, presentation of Pratikshya Mishra *et al.* (2023) brings is the advantages that one could get from use of millet residues. This could be in the form of biofuel, briquettes and biochar. Further work needs to be done for its economic feasibility and if the value chain logistics are worked out, it shows promise for potential start-ups.

An interesting dimension is the presentation of Sarba Narayan Mishra *et al.* (2023) on the participatory varietal trial of a Finger Millet. The study through a comparison across farmers using propensity score matching observes additional income through adoption of a specific landrace. This seems to be an independent exercise and not part of the varietal trials leading to Odisha being the first state to have officially released indigenous landraces of Finger Millet for seed production (as indicated in the keynote speech of the theme; Government of Odisha, 2022; 2023). This presentation can contribute to the knowledge repertoire on indigenous landraces. The presentation of Basu *et al.* (2023) on growth and instability of area, production and productivity of Finger Millet in Odisha highlighted the decline over the decades, an aspect that has been pointed out by Vinod Kumar (2023), but these have been discussed in Jena (2022) and Jena and Mishra (2022). During discussions, the issue of methods, particularly the kinked exponential growth of Boyce (1987) came up and then how that work also led to reconciliation of data between the different departments, viz., agriculture and revenue. In other words, for any empirical analysis it is important that the data should be independent of bias.

Food and nutrition security among tribals was the focus of the presentation by Ram (2023), an aspect also touched upon by Barik (2023). This reiterated the concerns that was also mentioned in the keynote speech of the theme that the vulnerable and poverty hotspots also happen to be rainfed regions that are largely inhabited with a greater proportion of tribals. This also resonates with the intention that public policy initiatives ought to be inclusive and sustainable (Anonymous, 2022; Mishra, 2023; also see NCDS, 2016; Government of Odisha, 2016a, 2016c).

The Odisha initiative is important because to address asymmetries in the perception of demand and supply curves (farmers perception of relatively lower demand and consumers perception of relatively lower supply) necessitated that the

millets initiative worked across the value chain, particularly across the four verticals of production, processing, marketing and consumption (NCDS, 2016; Government of Odisha, 2016c). It is in this context that Pani et al. (2023) work on sustainability of millet-based enterprises and Pathak et al. (2023) work on consumer awareness and consumption of millets assume importance.

Besides, the millets initiative of Odisha has to be viewed in a convergence with integrated farming (Government of Odisha, 2016b). The keynote paper of the theme touched on how integrate farming initiatives of Odisha is an ecosystem approach. The contribution of Pattanaik *et al.* (2023) has to be viewed in that context.

CONCLUDING REMARKS

From the discussions, the following points emerge. First, India in general and Odisha in particular could take advantages of the comparative trade advantage that the country has in millets, but should at the same time also meet its own consumption and nutritional requirements. Second, an analysis of secondary data may miss out a proper analysis of the millets intervention in Odisha and while this calls for more field-based studies and it would be particularly worthwhile to see how traditional knowledge has been combined with scientific practices in agronomic practices. Third, it is important to use quantitative tools and techniques, but at the same time one should be also cautious to know its limitations so that policy suggestions remain in sync with the analysis. Fourth, the use millet residues call for further research to examine its economic potential for start-ups. Fifth, the income advantages as shown in the adoption of certain landraces opens up possibility of a dialogue and continuing research with the state government having also notified seed production for indigenous landraces through participatory varietal trial that also combined tradition and science. Sixth, in applied research, the integrity of data cannot be lost sight of. Last, but not the least, public policy research has to be inclusive for crops, lands and peoples.

REFERENCES

- Anonymous (2022), "Odisha's Tryst with Millets and Integrated Farming: Inclusive, Sustainable and Going Global," *Indian Journal of Agricultural Economics*, 77(4): 680-683.
- Barik, B.B. (2023), "Odisha Millets Mission: An Evaluation from Tribal Development Perspective," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.529.
- Basu, Rupa; Birwal, Devesh; Mandal, Sonu; Mann, Preeti; Kumar, Ajay; Mishra, Alice; Neha (2023), "An Analysis of Growth and Instability in Area, Production and Productivity of Finger Millets in Odisha," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.531.
- Bhatia, Shyam S. (1967), "A New Measure of Agricultural Efficiency in Uttar Pradesh, India," *Economic Geography*, 43(3): 244-260.
- Boyce, James K. (1987), *Agrarian Impasse in Bengal: Institutional Constraints to Technological Change*, Oxford University Press, Oxford.
- Government of Odisha (2016a), *Comprehensive Revival of Millets: Securing Nutrition and Surviving Droughts in Southern Odisha*, Concept note for a consultation meeting on 27 January 2016 at NCDS, No 635(8)/DCACS dated 14 Jan 2016, Planning and Coordination Department, Odisha, Bhubaneswar.
- Government of Odisha (2016b) *Guidelines for Implementation of "Special Programme for Millets in Tribal Areas of Odisha,"* Letter No. 40856 dated 25 Nov 2016, National Food Security Mission Cell, Directorate of Agriculture and Food Production, Odisha, Bhubaneswar.

- Government of Odisha (2022) *Standard Operating Procedure (SOP) for Seed System for Landraces under Odisha Millet Mission*, Letter No. 1M(04)-07/2019/10737 dated 02 Apr 2022. Directorate of Agriculture and Food Production, Odisha, Bhubaneswar.
- Government of Odisha (2023) *Notification*, No. 29868 dated 10 Aug 2023, Department of Agriculture and Farmers Empowerment, Odisha, Bhubaneswar.
- Jena, Diptimayee (2022), *Better Food for More: Examining Odisha's Search through Millets*, Ph.D. Thesis, Utkal University, <https://shodhganga.inflibnet.ac.in/handle/10603/509710>.
- Jena, Diptimayee; Mishra, Srijit (2022), "Growth and Decomposition of Millets in Odisha: 1960-61 to 2019-20," *Agricultural Science Digest*, 42(3): 272-277.
- Kumar, Mukesh (2023), "Comparative Progress of Odisha in Millets Farming: An Inter-State Analysis through Agricultural Efficiency Index," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, pp.501-514.
- Kumar, Vinod (2023), "Growth and Instability in Area, Production, Productivity of Millets in India," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.533.
- Mishra, Pratikshya; Mohanty, Ananyaa; Samal, Suraji Kumar; Lenka, Devraj; Jena, Diptimayee (2023), "Economic Feasibility of Millets Residue Conversion," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.532.
- Mishra, Sarba Narayan; Kumar, K. Nirmal Ravi; Reddy, M Jagan Mohan; Nandy, A; Mandal, B.K; Das, M.K (2023), "A Study on the Adoption and Impact of Improved Finger Millet Varietal Technology (Bada Mandia) in Odisha," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, pp.473-485.
- Mishra, Srijit (2023), "Rapporteur's Report on Odisha's Tryst with Millets and Integrated Farming: Inclusive, Sustainable and Going Global," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, pp.566-572.
- NCDS (2016) *Proposal on Comprehensive Revival of Millets in Adivasi Areas of Southern Odisha*, No. 181/NCDS dated 20 Feb 2016, Nabakrushna Choudhury Centre for Development Studies, Odisha, Bhubaneswar.
- Pani, Saswat Kumar; Jena, Damodar; Dibat, Nibal; Mishra, Abha; Jain, Parul; Sahoo, Pradeep Kumar (2023), "Millet-based Enterprises and Sustainability: Evidence from Farmer Producers Company in Kalahandi District," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, pp.462-472.
- Pathak, Hulas; Kiran, Kothuru Naga Madhu; Gauraha, A.K (2023), "Consumer Awareness and Consumption Pattern of Millets and Millet-Based Products in Raipur City, Chhattisgarh," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, pp.486-500.
- Pattanaik, Subrat; Sarangi, Khittish; Priyadarshini, Arati (2023), "Assessing the Impact of Integrated Farming Systems on Agricultural Productivity and Livelihood of Farmers in Puri District, Odisha," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.530.
- Rajput, Ankita; Vani, G.K. (2023), "Comparative Performance of Millets in Odisha, Madhya Pradesh and India," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.530.
- Ram, Ravinder (2023), "Food and Nutritional Security Among Tribal Communities of Odisha," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p.534.
- Shah, Deepak (2023), "Millet Economy of Odisha: How Far It is Viable and Sustainable?," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, pp. 515-526.
- Singh, O.P.; Singhj, P.K. (2023), "Performance of Millets (Shree Anna) Production, Consumption, Trade and Government Intervention in India," *Indian Journal of Agricultural Economics*, Vol. 78, No. 3, p 528.