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Indu Dubey
Department of Agricultural
Extension, Mahatma Phule
Krishi Vidyapeeth, Rahuri,
Maharashtra, India

Rajeev Rana
Department of Agricultural
Communication,
Sardarkrushinagar Dantiwada
Agricultural University,
Dantiwada, Gujarat, India

Prerna Phukan
Department of Agricultural
Communication,
Sardarkrushinagar Dantiwada
Agricultural University,
Dantiwada, Gujarat, India

Dhanush Pawar
Department of Agricultural
Communication,
Sardarkrushinagar Dantiwada
Agricultural University,
Dantiwada, Gujarat, India

Corresponding Author:
Indu Dubey
Department of Agricultural
Extension, Mahatma Phule
Krishi Vidyapeeth, Rahuri,
Maharashtra, India

Participatory rural appraisal for identifying agricultural training needs of women farmers

Indu Dubey, Rajeev Rana, Prerna Phukan and Dhanush Pawar

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Abstract

Women perform 60-80% of agricultural labour in rural India, yet their training requirements are seldom assessed participatively. This research used PRA techniques focus groups, seasonal calendars, problem ranking, Venn diagrams, and transect walks to identify training needs of 120 women farmers across four villages in Ahmednagar district, Maharashtra. Organic farming emerged as the highest priority (gap score 2.5/5), followed by post-harvest handling (2.7) and market linkages (2.6). The PRA process was valued by participants as empowering and inclusive. Findings inform gender-responsive training curricula for extension agencies in semi-arid western India.

Keywords: Participatory rural appraisal, training needs, women farmers, gender mainstreaming, rural empowerment, agricultural extension, gap analysis, focus group discussions, semi-arid agriculture, Maharashtra

Introduction

Despite providing the bulk of farm labour, women farmers remain excluded from extension services ^[1]. In India, women account for ~65% of the agricultural workforce but receive less than 10% of extension contacts ^[2]. Existing programmes are designed around male priorities, delivered at inconvenient times, and rarely address tasks women actually perform ^[3].

Participatory rural appraisal offers tools that place women at the centre of needs assessment using visual methods that don't require literacy ^[4, 5]. Yet PRA applications specifically for gender-differentiated agricultural training needs in India have been limited ^[6]. Maharashtra, where women's self-help groups have played an important role, and Ahmednagar district's semi-arid rainfed conditions, make an ideal setting for this research ^[7]. This research used a multi-tool PRA approach to identify and prioritise women-specific training needs for informing extension curricula.

Theoretical framework

The research combined Borich's (1980) needs assessment model, which defines training need as the discrepancy between perceived importance and current knowledge ^[8], with Chambers' (1994) participatory framework ^[4]. The Borich model has been used in agricultural extension but rarely within a PRA rather than survey methodology ^[9].

Material and Methods

Material

The research was conducted in Ahmednagar district, Maharashtra, between March and August 2023. Four villages with active women's SHGs were selected. A total of 120 women farmers (30 per village) aged 22-58 years were sampled from SHG member lists. Ethical approval was obtained from MPKV, Rahuri (Protocol No. MPKV/IREC/2023-04) ^[10].

Methods

Five PRA tools were employed sequentially in each village: focus group discussions, seasonal calendars, problem ranking matrices, Venn diagrams, and transect walks ^[5, 11]. Following PRA exercises, a structured questionnaire quantified training gaps using the Borich discrepancy model ^[8]. For each topic, respondents rated importance (1-5) and

knowledge (1-5). Mean Weighted Discrepancy Score (MWDS) was calculated as: $\Sigma(\text{importance} \times (\text{importance} - \text{knowledge})) / n$. Data were analysed using Kruskal-Wallis

tests and Spearman correlations in R 4.2.1 [12]. The questionnaire was validated with Cronbach's alpha of 0.84 (importance) and 0.81 (knowledge) [13].

Results

Table 1: Socio-demographic profile of participating women farmers (n = 120)

Characteristic	Category	Frequency (%)
Age group	22-30 years	28 (23.3)
	31-40 years	44 (36.7)
	41-58 years	48 (40.0)
Education	Illiterate	31 (25.8)
	Primary (1-5)	42 (35.0)
	Secondary+	47 (39.2)
Farm size	Marginal (<1 ha)	52 (43.3)
	Small (1-2 ha)	47 (39.2)
	Medium (2-4 ha)	21 (17.5)

Most participants (63.3%) were 31-58 years old and 60.8% had primary or no formal education

Table 2: Training need gap analysis: MWDS ranked by priority

Training domain	Import.	Knowl.	Gap	MWDS	Rank
Organic farming	4.3	1.8	2.5	10.75	1
Post-harvest handling	4.1	1.4	2.7	11.07	2
Market linkages	3.8	1.2	2.6	9.88	3
Seed selection	3.5	1.9	1.6	5.60	4
Water management	3.6	2.1	1.5	5.40	5
Livestock rearing	3.2	2.4	0.8	2.56	6
Financial literacy	3.1	1.1	2.0	6.20	7

Organic farming, post-harvest handling, and market linkages were the top three priorities. Financial literacy had a large gap but lower perceived importance

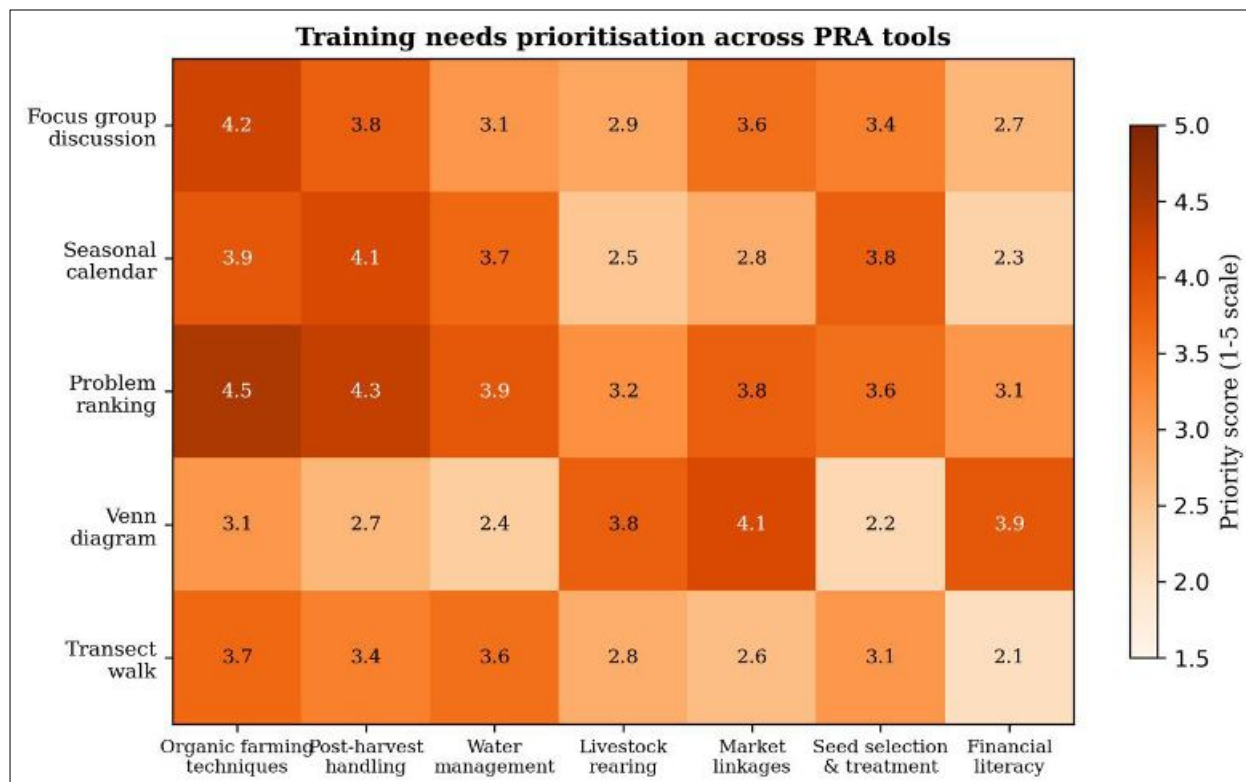


Fig 1: Training need priority scores across PRA tools and training domains

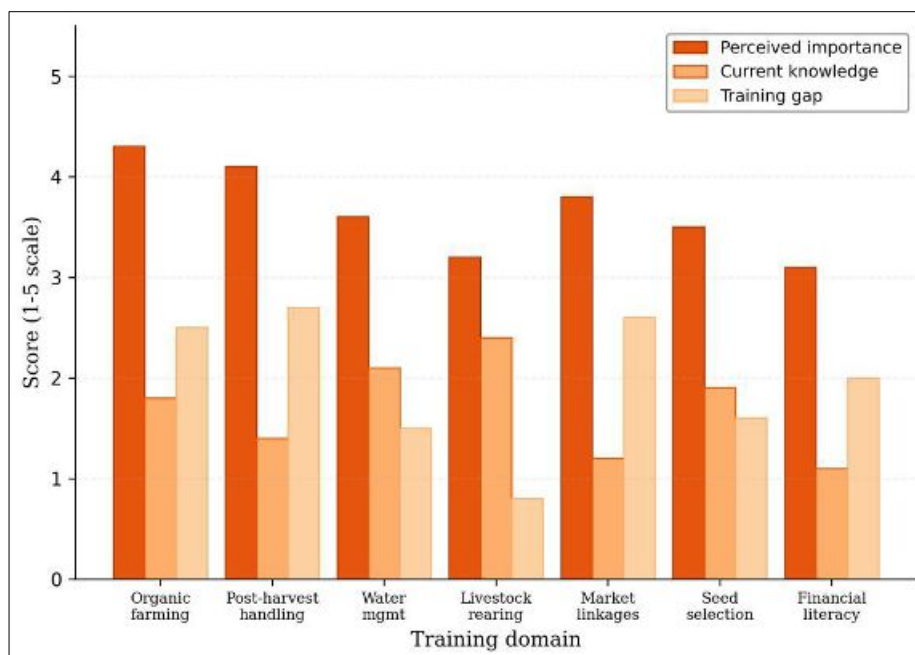


Fig 2: Perceived importance, current knowledge, and gap for each training domain

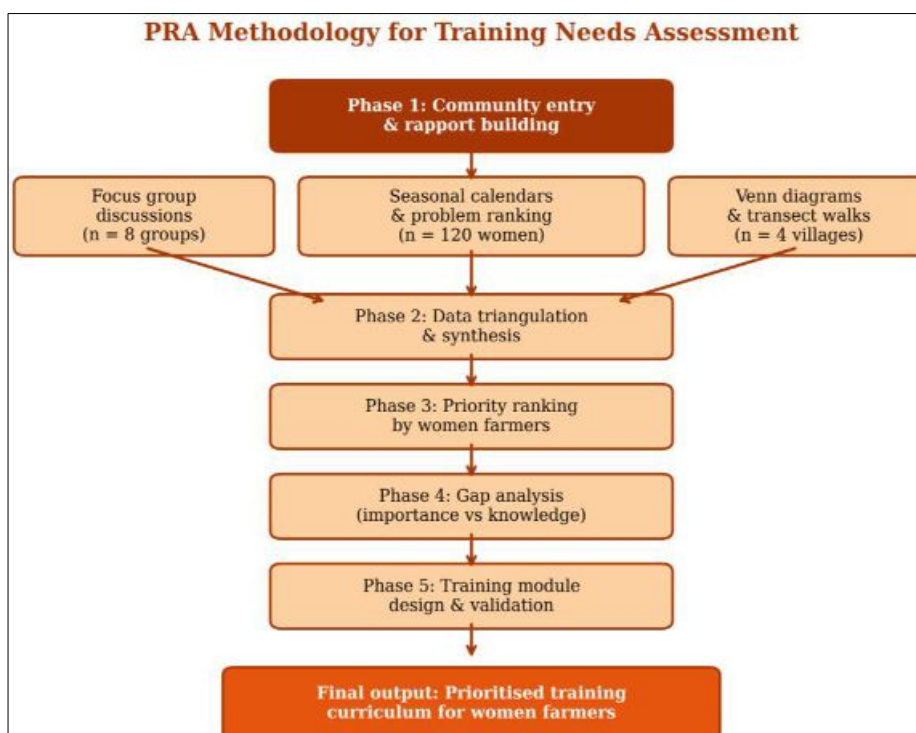


Fig 3: PRA-based training needs assessment workflow

Discussion

The dominance of organic farming reflects a broader shift in Indian smallholder agriculture. Government schemes like PKVY have promoted organic practices but provided limited hands-on training for women [2]. The low priority for financial literacy, despite its large knowledge deficit, may indicate that women don't yet recognise its importance or that cultural norms place financial matters in the male domain [3, 7]. Extension programmes should integrate financial modules within higher-priority topics rather than offering them standalone.

Between-village differences in top priorities were non-significant (Kruskal-Wallis $p > 0.05$), but livestock rearing ranked higher in villages where goat-keeping supplements

income. The seasonal calendar revealed that training should be scheduled during August-September or January-February slack periods to maximise attendance.

Limitations

Purposive village selection may not represent women outside SHG networks. Self-reported knowledge may be affected by social desirability bias. The cross-sectional design captures needs at one point; priorities may shift with changing conditions.

Conclusion

This PRA-based research identified organic farming, post-harvest handling, and market linkages as top training

priorities for women farmers in Ahmednagar. The approach proved effective at eliciting women-specific needs that conventional methods might miss. Extension agencies should redesign curricula around actual priorities of women farmers rather than assumptions. Future research should extend this methodology to other districts and women outside SHG networks.

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