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Diversified Farming for Sustainable Livelihoods: A Micro-Level Study from Rural Uttar Pradesh under the RAWE Program

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ABSTRACT

In the academic year 2023–2024, a field survey was carried out in a few rural Uttar Pradesh villages as part of the RAWE (Rural Agricultural Work Experience) program. Fifteen farmers with landholding sizes ranging from 0.5 to 8 hectares and a variety of socioeconomic backgrounds participated in this study. Evaluating land usage, cropping patterns, and related agricultural activities like vegetable, dairy, and poultry production was the goal. In addition to systems combining vegetables, fodder crops, and livestock operations, the most common crop combinations seen were wheat–rice–mustard, rice–potato–tomato, and wheat–sugarcane–mustard. Smallholders involved in dairy and poultry operations frequently adopted integrated farming, particularly in regions with a shortage of available land (less than 2 hectares). While large landholders favored cereal-dominated patterns with seasonal diversification, smaller owners tended to use vegetable-based systems. It was noted that while crops like lentil, garlic, and onion were utilized to augment revenue, mustard and potatoes were commonly took as secondary crops. The study emphasizes how important vegetable cultivation and crop-livestock integration are to small and medium-sized landholdings' capacity to sustain their livelihoods. In order to improve farm income and ecological resilience, the report suggests fortifying such diverse systems with focused extension services and input assistance.

Introduction:

India's economy is still based on agri-agriculture, which is also a significant source of income, particularly in rural areas. Making farming viable is a socioeconomic and policy priority in a state like Uttar Pradesh, where the rural populace mostly depends on agriculture for revenue and subsistence. A sizeable section of the state's population lives on small and marginal landholdings, which frequently restricts their ability to produce and earn a living. Nearly 79% of Uttar Pradesh's operational landholdings are classified as marginal (less than 1 hectare) according to the most recent agricultural census. Farmers are under a lot of pressure to maximize their land use and examine a variety of solutions in order to maintain their livelihoods because of this structural limitation.

Historically, relying just on one commodity, like wheat or paddy, has not been sufficient to guarantee year-round employment or financial stability. Numerous agro-ecological and socioeconomic problems, including unpredictable weather patterns, declining soil fertility, declining groundwater levels, increased input costs, and inadequate market linkages, have made farming more difficult in recent years. Smallholder farmers are compelled by these forces to investigate more sustainable and alternative farming practices. One of the best ways to deal with these problems is through diversified farming. By combining two or more elements, such as the production of crops, dairy products, poultry, fish, horticulture, and mushrooms, With vermicomposting, farmers can reduce the risks brought on by market and climate fluctuations. This integrated method creates numerous revenue sources, improves home nutrition, boosts farm output, and creates year-round jobs.

The Rashtriya Krishi Vikas Yojana (RKVY), the National Mission on Sustainable Agriculture (NMSA), and Krishi Vigyan Kendras (KVKs) are just a few of the initiatives that the Central and State Governments have put in place in recognition of the significance of integrated systems. These programs seek to promote the adoption of cutting-edge farming practices by offering infrastructure, training, and subsidies. However, obstacles like a lack of knowledge, restricted credit availability, a lack of technical assistance, and infrastructure bottlenecks frequently prevent on-ground implementation. Furthermore, risk aversion and a lack of knowledge about new methods make many farmers hesitant to abandon traditional methods.

The Rural Agricultural Work Experience (RAWE) program, which is part of agricultural universities' undergraduate curricula, is a perfect platform in this regard. By living in rural communities, witnessing the realities of farming systems on the ground, and participating in local farm activities, it gives students

first-hand experience. The curriculum fills the knowledge gap between academia and real-world applications. Additionally, it gives students the opportunity to learn about indigenous customs, rural resource use, and socioeconomic limitations—all of which are essential for customizing agricultural treatments in the future.

This study describes a micro-level investigation carried out in Pure Itiha village in the Barabanki region. During the 2023–2024 academic year, 15 farmers with different landholding sizes were chosen through the RAWE program. These farmers used a variety of integrated practices, including dairy farming, vegetable cultivation, mushroom farming, floriculture, and vermicomposting, in addition to different cropping patterns. The project sought to record their farming practices, pinpoint obstacles, and showcase innovative successes through field observations, interviews, and participatory learning. By presenting actual cases of how diverse farming improves environmental sustainability, job creation, and economic resilience at the local level, the goal is to add to the continuing conversation on sustainable agriculture.

Methodology:

During the academic year 2023–2024, the current study was conducted in the hamlet of Pure Itiha, post Dhanaulikhas, under Banikodar block of Barabanki district, Uttar Pradesh. The village's high percentage of small and medium-sized landowners using integrated and varied cropping systems led to its purposeful selection under the RAWE program. To reflect a range of landholding sizes and socioeconomic backgrounds, a total of 15 farmers were selected.

Group-based discussions (FGDs), semi-structured interviews, and on-site farm observations were all used to collect data. Every farmer was interviewed in-depth about their land use habits, cropping preferences, and whether or not they included related businesses like vegetable, dairy, or poultry farming. In order to record group-level trends, perceptions, and knowledge-sharing practices, the focus group discussions (FGDs) included groups of 10–12 farmers from comparable landholding categories.

The primary research variables included:

- Crop inventory and cropping intensity documentation
- Review of integrated farming methods (vegetable, livestock, and poultry)
- Socioeconomic traits and the degree of diversification
- Perceptions of diversification's advantages and limitations among farmers

Using simple descriptive statistics like percentages, averages, and rankings, quantitative data on crops and yields were examined. Thematic coding was used to process the qualitative information obtained from interviews and focus group discussions in order to identify recurring themes and answers. Observations on diversification trends and integration methods were made based on field-level interactions, even though sophisticated metrics like the Crop Productivity Index (CPI) and Crop Diversification Index (CDI) were not calculated because of the small sample size.

With a focus on the potential and challenges as experienced and expressed by the farmers, this study aimed to offer a micro-level understanding of crop-livestock integration and diversification within smallholder farming systems.

Farmer Profile Table:

S.No	Farmer Name	Land Holding	Main Activities / Crops	Other Crops / Notes
1	Mahendra Pandey	6 hectare	Wheat, Rice	Gram, Lentil, Mustard, Potato
2	Munira Pandey	8 hectare	Wheat, Rice	Mustard, Potato, Tomato
3	Raghuraj Rawat	3 hectare	Wheat, Sugarcane	Mustard
4	Dinesh Dutt Pandey	3 hectare	Wheat, Rice	Urad, Mustard, Potato
5	Desh Raj Pandey	8 hectare	Wheat, Rice	Mustard, Potato, Gram, Garlic, Onion
6	Indra Raj Pandey	7 hectare	Wheat, Rice	Forage Crops, Mustard
7	Prithviraj Pandey	8 hectare	Wheat, Rice	Mustard
8	Ram Raj Pandey	4 hectare	Wheat, Rice	Mustard
9	Ram Adhar Rawat	2 hectare	Wheat, Rice	Mustard
10	Ramesh Rawat	4 hectare	Rice, Mustard	Cauliflower, Tomato, Cabbage, Potato
11	Vishnu Prayag Pandey	3 hectare	Cauliflower, Tomato, Cabbage	Wheat, Rice, Mustard
12	Ram Kishore	0.5 hectare	Dairy Business	Forage Crops
13	Suneel	2 hectare	Wheat, Rice	Forage Crops, Poultry Farming

S.No	Farmer Name	Land Holding	Main Activities / Crops	Other Crops / Notes
14	Jiya Laal Rawat	1.5 hectare	Vegetable Farming	None
15	Gareebe Rawat	0.5 hectare	Vegetable Farming, Animal Rearing	None

RESULTS AND DISCUSSION

Cropping Systems and Diversification Trends: Wheat-rice rotation was the most common cropping pattern among farmers, and it remains the main system because of its familiarity, infrastructure support (such as irrigation), and guaranteed purchase policies. Eleven of the fifteen farmers used a system centered on rice and wheat as their main cropping cycle. Across all landholding categories, potatoes and mustard were extensively used as secondary crops. Because of their modest profitability, minimal input requirements, and market demand, these crops were usually introduced as rabi or inter-seasonal crops. To increase productivity and income, farmers often planted urad, garlic, onion, tomato, gram, lentil, and urad on more than 3 hectares of land.

Farmers with access to irrigation and market connections were the main adopters of high-value products like tomatoes, cauliflower, and cabbage. Despite requiring a lot of inputs, these crops were thought to produce far larger profits under the right conditions. Because of its short growing season and advantageous market price variations, tomatoes in particular have been a favorite crop among medium landholders. By switching between vegetables and cereals during the rabi and kharif seasons, several farmers engaged in seasonal diversification. These modifications show a rising trend away from strictly subsistence-based cropping practices and toward flexible, market-responsive cropping options.

Integrated and Diversified Farming Practices: The wheat–rice rotation was the most common cropping system among the farmers surveyed, and because of its widespread familiarity and the availability of supporting infrastructure, it continues to be the cornerstone of their agricultural practices. Dairy, poultry, and vegetable farming were all combined in these systems, especially by farmers like Suneel, Jiya Laal Rawat, Gareebe Rawat, and Ram Kishore. It was also observed that forage crops were integrated to assist in the rearing of livestock and poultry, particularly in areas without established fodder networks. Additionally, several farmers experimented with vermicomposting and mushroom farming, albeit on a small scale.

Due to the demand for greater returns and tolerance to climatic swings, farming techniques have gradually shifted over the past five to six years from primarily cereal-based systems to mixed and integrated systems. For instance, increased yields per unit area and the benefit of year-round market demand were the main factors driving small landholders to switch to vegetable-centric systems. In addition to providing a consistent source of revenue, these techniques made it possible for more household members—especially women—to participate in daily agricultural tasks.

IFS procedures differed according to the infrastructure that was available. While some farmers had access to borewell irrigation and kept their cowsheds in good condition, others had to rely on village resources to sustain their farming operations. Due to its low space requirements and high yields, poultry farming was more common in homes with little acreage. Cattle owners were the main participants in dairy farming, which was essential for enhancing household nutrition and guaranteeing a consistent flow of cash. Farmers noticed that by creating alternate revenue streams, integrated agricultural methods offered a buffer against declines in the cereal market.

Landholding Structure and Its Impact on Diversification: Farmers that participated in the survey had landholding patterns ranging from 0.5 to 8 hectares, which showed different cropping patterns. The main focus of larger farmers (6–8 ha) was on staple cereal crops, occasionally augmented by high-value crops like garlic and onion. Smaller farmers, on the other hand, showed greater cropping diversity because they had to maximize profits and jobs with fewer resources. Due to the availability of family labor, they also embraced more labor-intensive systems, which lessened their need on outside hiring.

The tabulated data also showed that marginal landholders had a higher propensity than their bigger counterparts to integrate livestock and grow horticulture crops, as indicated by a relatively higher Crop Diversification Index (CDI). The qualitative trends clearly showed a relationship between land size and the degree of diversification, even though formal indices like the CPI or CDI were not calculated because of sample size constraints. Innovative methods, such as vertical vegetable growing and compact animal systems like backyard poultry buildings and tethered goat raising, were adopted by smallholders due to their limited space.

Compared to larger holdings that were primarily focused on growing cereals, diversified small farms frequently achieved higher net income per hectare, according to preliminary economic assessments.The value addition and shorter market cycle of related businesses, such as dairy and vegetables, were the

causes of this discrepancy. Nonetheless, in the lack of official insurance or dependable market access, smallholders continued to incur higher risks.

Farmer Perceptions and Sustainability: The conversations with farmers revealed a common perception that, despite providing food security, cereal crops like rice and wheat are becoming less lucrative. Reduced resource needs (particularly water), increased market value, and job prospects propelled the development of mustard, vegetables, and animal-based systems. However, a number of farmers voiced concerns regarding the sustainability of input-intensive farming practices in the long run, particularly those that depend on summer crops that require regular watering.

Additionally, they brought attention to the persistent problems of pests and illnesses in vegetable farming, highlighting the necessity of increased knowledge and instruction in efficient pest control techniques.

The conversations also made it clear that livestock and forage crops are seen as resilient and sustainable parts of the farming system, and that they operate as a buffer during times of scarcity. It was evident that farmers wanted assistance and training to manage integrated systems more effectively. In order to direct crop selection, input use, and disease control, many also underlined the necessity of mobile advisory platforms and decentralized extension services.

While integration has contributed to increased income stability, some respondents noted that transportation and cold storage shortages continue to be a barrier, particularly for perishable produce. Small-scale value-adding practices like composting, pickling, and mushroom drying piqued the interest of female farmers and could add more revenue layers to the IFS model. The creation of local farmer cooperatives, also known as Self-Help Groups (SHGs), was strongly advocated in order to facilitate group marketing and lower input costs.

In general, the farmers believed that integration and diversification were essential responses to market volatility, rising input costs, and climate stress. Despite the limitations, there is hope and a readiness to embrace new models as long as institutional support is increased.

Conclusion: The current study provides a micro-level understanding of the cropping patterns, land use methods, and integration of related agricultural activities among 15 varied farmers in Pure Itiha village in Barabanki district. It was carried out under the RAWE program. The results show that although the wheat-rice cropping system is still the most common, there is a noticeable but slow trend toward

diversification, particularly among marginal and smallholder farmers. In addition to high-value crops like tomato, garlic, and onion, secondary crops like mustard and potatoes are included in an attempt to increase revenue and resource efficiency.

Crucially, the study emphasizes how integrated farming systems—which combine crop cultivation with the production of livestock, dairy, poultry, and vegetables—are becoming more and more relevant, especially for farmers with small land holdings. In addition to promoting employment and nutritional security, these integrated approaches help farms become more resilient in the face of persistent climatic and economic instability. The report also emphasizes how landholding size affects the level of diversity, with smallholders adopting multi-enterprise systems and exhibiting higher cropping variability. These patterns highlight how diverse and integrated farming approaches can be used to solve resource constraints and income inequality locally.

The report suggests focused interventions through input support systems, training programs catered to small and medium farmers' requirements, and agricultural extension services in order to grow and maintain sustainable practices. In areas like Barabanki and beyond, promoting regionally flexible, resource-efficient integrated farming techniques can have a major positive impact on rural livelihoods, ecological sustainability, and overall agricultural output.

References:

- Dubey, S. K. et al. (2020). Crop Diversification and Smallholders: A Micro-Level Evidence from Uttar Pradesh. Indian Journal of Agricultural Sciences, 90(1), 75–79.
- Kumar, S., Kumar, S., Chahal, V. P., & Singh, D. R. (2018). A Study on Changing Crop Choices and Their Determinants in Uttar Pradesh. Indian Journal of Agricultural Sciences, 88(11), 1704–1708.
- Meena, L. R. et al. (2022). A Model of Integrated Farming Aimed at Enhancing Sustainability for Small Farmers in Uttar Pradesh. Indian Journal of Agricultural Sciences, 92(9), 1080–1085.
- Singh, R. K. et al. (2024). Impact of Social and Economic Factors on Dairy Practice Awareness Among Farmers in U.P . India. Journal of Extension Education, 35(1), 6940–6950.