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# Comprehensive Analysis of the Livelihood Index among Millet Farmers Associated with Farmers Producer Organizations (FPOs) in Madurai District of Tamil Nadu

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## Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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## ABSTRACT

This study conducted in 2022 across the Sedapatti, Thirumangalam, and Usilampatti Blocks of Madurai District in Tamil Nadu, aimed to explore the Livelihood Index among Millet Farmers associated with Farmers Producer Organizations (FPOs). Employing a sample size of 120 respondents through a proportionate random selection procedure, data collection was facilitated via structured personal interviews. The study unveiled that a majority of respondents (68.33%) exhibited a medium level of livelihood, characterized by access to all five capitals - Natural Capital, Physical Capital, Human Capital, Social Capital, and Financial Capital. Moreover, 19.16% reported a high level of livelihood, while 12.05% experienced a low level. This distribution underscores the varying degrees of resource accessibility among the surveyed individuals, shedding light on the diversity of livelihood conditions within the studied population. The study's findings emphasize that the elevated livelihoods of millet farmers and members of Farmers Producer Organizations (FPOs) are strongly linked to their access to natural capital resources. It becomes evident that there is a notable requirement for improvement, particularly concerning financial capital, followed by social capital and human capital. The enhancement of these aspects holds the potential to empower respondents to efficiently harness the available capitals, thus fostering sustainable livelihoods. This suggests that strategic efforts towards bolstering financial resources, social networks, and individual capabilities are key to optimizing livelihood outcomes in the context of millet farming and FPO engagement.

**Keywords:** *Livelihood capital index; human capital; social capital; physical capital; financial capital and natural capital; farmer producer organization.*

## 1. INTRODUCTION

"Farmers Producer Organisation" (FPO) - It is one type of PO where the members are farmers. Small Farmers' Agribusiness Consortium (SFAC) is providing support for promotion of FPOs. PO is a generic name for an organization of producers of any produce, e.g., agricultural, non-farm products, artisan products, etc NABARD (2015).

Farmer Producer Organizations (FPOs) are one such farmer's aggregate. FPOs are registered under the Indian Companies Act, 1956 [1-4]. Producer Organizations therefore are supposed to be non-political entities aimed at providing business services to smallholder farmer members, founded on the principal of self-reliance (Onumah et al., 2007).

Eighty-seven per cent of agricultural households in India are small and marginal producers, cultivating small plots which generate low returns. Their average monthly income is Rs 6426, making farming on small plots economically unviable (NSSO 2014). Therefore, policy makers and practitioners are turning to producer collectives as a means for improving the economic situation of small producers.

In India, There are of about 2092 FPOs registered under NABARD with 170 FPOs in Tamil Nadu which stands second next to

Karnataka. Under SFAC, 792 FPOs are registered with 11 FPOs in Tamil Nadu (NABARD, 2019).

Millet is a collective term referring to a number of small-seeded annual grasses that are cultivated as grain crops, primarily on marginal lands in dry areas in temperate, subtropical and tropical regions [5-9].

Some of the common millets available in India are Ragi (Finger millet), Jowar (Sorghum), Sama (Little millet), Bajra (Pearl millet), and Varagu (Proso millet) [10,11].

India has shared the vision to make International Year of Millets 2023 a 'People's Movement' alongside positioning India as the 'Global Hub for Millets' [12,13].

Prime Minister, during his address on the 97th edition of Mann ki Baat on January 29th, emphasized a special focus on millet farming and the use of products made of it.

On one hand, this has made those small farmers happier who used to traditionally grow millets in their fields, on the other hand, Farmer Producer Organisations (FPOs) and entrepreneurs have now speeded up efforts to bring Millets to market and make them available for the common people [14-18].

Considering the information mentioned above, the present study was initiated with the following specific objectives.

## 1.1 Objectives

- ✓ To analyses the livelihood status of Millet Farmers of FPO in Madurai District of Tamil Nadu.

## 2. METHODOLOGY

The selection of Madurai District in Tamil Nadu for this study was carried out deliberately for specific reasons. According to millet production statistics, Madurai ranks second in terms of both area and production among the districts in the southern zone of Tamil Nadu, following the northern zone. This prominence in millet cultivation within the southern zone of the state made Madurai an ideal and purposeful choice for the study.

Four Farmers Producer Organizations (FPOs) were identified within Madurai District.

1. Sathuragiri Farmers Producer Company Limited,
2. Usillsai Farmers Producer Company Limited,
3. Madurai Traditional Farmers Producer Company Limited,
4. DHAN Farmers Producer Company Limited

These FPOs are specifically focused on millet cultivation within Madurai District. These four FPOs operate in collaboration with millet-

cultivating farmers from various blocks within the district, including Sedapatti Block, Thirumangalam Block, and Usilampatti Block.

The sampling method employed for this study was proportionate to the number of farmers in each FPO. As a result, a total of 120 millet farmers were selected as respondents through random sampling.

Different categories of livelihood assets index was followed by Swathi (2016) used in this study comprising of livelihoods such as human capital, social capital, physical capital, financial capital and natural capital for which sub-indices were computed and summed up at rural livelihood index.

Index is the ratio of actual score obtained by the millet grower and maximum score possible under that the particular assets. All the five indices were used by this formula.

**Livelihood capital index** = Actual score of the respective capital obtained by the millet farmers / Maximum possible score of the respective capital obtained by the millet farmers

### 2.1 Land Holdings of the Respondents

It has been referred to the total extent of land possessed or operated by an individual farmer at the time of enquiry. The respondents were then classified into four categories and scores were allotted to them as per the scoring procedure followed by parthiparaja (2007).

**Table 1. The distribution of these respondents.**

S.No	Name of the FPO	Members of the FPO	No. of respondent selected
1.	Sathuragiri Collective Farming Farmers Producer Company Limited.	500	15
2.	Usillsai Collective Farming Farmers Producer Company Limited.	500	15
3.	Madurai Traditional Farmers Producer Company Limited(CCD)	1500	45
4.	Peraiyur & Thirumangalam Farmers Producer Company Limited (DHAN)	1500	45
<b>Total</b>		<b>4000</b>	<b>120</b>

**Table 2.**

S. No	Category	Farm holding	Score
1.	Marginal farmer	Up to 1.25 acres	1
2.	Small farmer	From 1.26 to 2.50 acres	2
3.	Big farmer	2.5 to 5.00 acres	3

#### Farm Size:

**Table 3. Distribution of respondent according to their farm size (n=120)**

S.No	Farm size	Number	per cent
1.	Marginal farmer	67	55.83
2.	Small farmer	17	14.16
3.	Big farmer	31	25.83
<b>Total</b>		<b>120</b>	<b>100.00</b>

The data presented in Table 3 provides insights into the landholding patterns among the respondents. Notably, the majority of the respondents (55.83%) identify as marginal farmers, followed by 25.83% who consider themselves big farmers. A smaller proportion, 14.16%, fall under the category of small farmers.

The prevalence of marginal farmers among the respondents can be attributed to various socio-economic factors. Marginal farmers typically have limited landholdings, often below the threshold required for substantial agricultural production. This limitation might result from historical land distribution, inheritance practices, and economic constraints. Many marginal farmers may not have access to owned land and instead cultivate leased lands to engage in agricultural activities.

On the other hand, the presence of big farmers suggests that there are individuals with larger landholdings within the study area. These farmers may have inherited or acquired larger plots of land, enabling them to engage in more extensive agricultural activities. Owning or accessing significant land resources can provide these farmers with greater opportunities for

diversification, mechanization, and potentially higher yields.

The representation of small farmers adds further complexity to the agricultural landscape. Small farmers might possess moderate landholdings and engage in diverse farming activities. They could prioritize sustainable practices, crop rotation, and mixed farming to make the most of their available resources.

The differences in livelihood profiles and landholding categories can stem from historical, social, and economic factors. Marginal farmers may face challenges in acquiring larger landholdings due to factors such as land fragmentation, tenancy issues, or lack of access to credit. Big farmers might have benefited from favorable land inheritance, purchase, or consolidation.

In summary, the distribution of respondents across different livelihood categories provides insights into the diversity of farmers in the study area, their access to resources, and the challenges they face in pursuing their chosen livelihoods, particularly in relation to land ownership and agricultural practices.

### 3. RESULTS AND DISCUSSION

#### 3.1 Listing of Respondent According to their Access of all Five Capitals

**Table 4. Distribution of respondent according to their access of Human capital (n=120)**

S.No	Human capital	Number	Per cent
1.	Exposure to mass media		
	Low	78	65.00
	Medium	30	25.00
	High	12	10.00
<b>Total</b>		<b>120</b>	<b>100.00</b>

<b>2.</b>	<b>Leadership quality</b>	<b>Number</b>	<b>Per cent</b>
	Low	67	55.84
	Medium	31	25.83
	High	22	18.33
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>3.</b>	<b>Medical treatment availability</b>	<b>Number</b>	<b>Per cent</b>
	Traditional medical method	0	0
	Auxillary nurse midwifery	0	0
	Registered medical practioner	0	0
	Government hospitals	92	76.66
	Private clinic	28	23.33
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>4.</b>	<b>Educational status</b>	<b>Number</b>	<b>Per cent</b>
	Illiterate	26	21.66
	Literate	20	16.60
	Primary	11	9.16
	Middle	38	31.66
	Higher secondary	14	11.66
	Collegiate	11	9.16
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>5.</b>	<b>Labour availability</b>	<b>Number</b>	<b>Per cent</b>
	Engagement with family labour	58	48.33
	Engagement with hired labour	42	35.00
	Skilfulness of labour engaged	20	16.66
<b>Total</b>		<b>120</b>	<b>100.00</b>

**Table 5. Distribution of respondent according to their access of Social capital (n=120)**

<b>1.</b>	<b>Participating in training</b>	<b>Number</b>	<b>per cent</b>
	Low	58	48.33
	Medium	37	30.83
	High	25	20.83
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>2.</b>	<b>Social participation</b>	<b>Number</b>	<b>per cent</b>
	Low	26	21.70
	Medium	65	54.16
	High	29	24.16
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>3.</b>	<b>Extension agency contact</b>	<b>Number</b>	<b>per cent</b>
	Low level of contact	82	68.33
	Medium level of contact	23	19.16
	High level of contact	15	12.50
<b>Total</b>		<b>120</b>	<b>100.00</b>

**Table 6. Distribution of respondent according to their access of Financial capital (n=120)**

	<b>Financial capital</b>	<b>Number</b>	<b>Per cent</b>
<b>1.</b>	<b>Debts</b>		
	Less than Rs. 5,000	21	17.50
	Rs. 5,000 to Rs. 10,000	32	26.66
	More than Rs. 10,000	19	15.83
	Never	48	40.00
<b>Total</b>		<b>120</b>	<b>100.00</b>

<b>2.</b>	<b>Savings</b>	<b>Number</b>	<b>Per cent</b>
	Less than Rs. 5,000	32	26.66
	Rs. 5,000 to Rs. 10,000	28	23.33
	More than Rs. 10,000	47	39.16
	Never	23	19.16
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>3.</b>	<b>Place of savings</b>	<b>Number</b>	<b>Per cent</b>
	Bank deposit	12	10.00
	Deposit in cooperative bank	18	15.00
	Investment in gold/silver	50	41.66
	Kept as ready cash in hands	40	33.33
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>4.</b>	<b>Loans in emergency</b>	<b>Number</b>	<b>Per cent</b>
	Money lenders	72	60.00
	Relatives	18	15.00
	Self-help groups	30	25.00
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>5.</b>	<b>Annual income</b>	<b>Number</b>	<b>Per cent</b>
	Low (Upto Rs. 70,000)	74	61.66
	Mediu (Rs. 71,000 to Rs. 1,00,000)	24	20.00
	High (Above Rs.1,00,000)	22	18.33
<b>Total</b>		<b>120</b>	<b>100.00</b>

**Table 7. Distribution of respondent according to their access of Physical capital (n=120)**

	<b>Physical capital</b>		
<b>1.</b>	<b>Household material possession</b>	<b>Number</b>	<b>Per cent</b>
	Low level	21	17.50
	Medium level	82	68.33
	High level	17	14.16
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>2.</b>	<b>Source of energy for cooking</b>	<b>Number</b>	<b>Per cent</b>
	Firewood	0	0
	Kerosene	31	25.83
	LPG	89	74.16
<b>Total</b>		<b>120</b>	<b>100.00</b>
<b>3.</b>	<b>House type</b>	<b>Number</b>	<b>Per cent</b>
	Katcha	46	38.33
	Pakka	72	60.00
<b>Total</b>		<b>120</b>	<b>100.00</b>

### 3.2 Overall Existing Livelihoods of Millet Farmer as well as FPO Member

The results from Table 9, concerning the overall existing livelihoods indicate that a significant majority, over 68.33%, of millet farmers and FPO members possess a medium level of livelihoods, characterized by access to all five capitals. Furthermore, 19.16% reported a high level of livelihoods, while 12.05%

experienced a low level of livelihoods, indicating limited access to the five capitals.

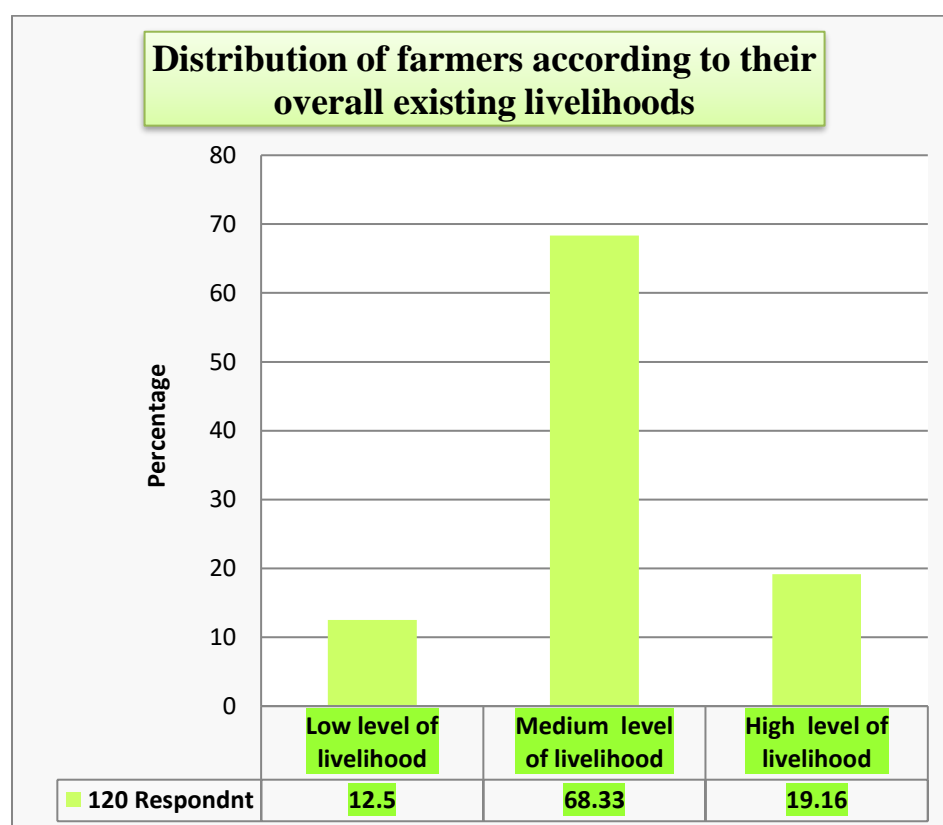
These findings align with prior research by Kiran [19] and Anand [20], providing additional support to the current study's outcomes. This suggests a consistent trend across different studies regarding the assessment of livelihood levels among millet farmers and FPO members.

**Table 8. Distribution of respondent according to their access of Natural capital (n=120)**

	Natural capital	Number	Per cent
1.	<b>Type of soil</b>		
	Red soil	50	41.66
	Black clayey soil	60	50.00
	Alluvial soil	11	9.16
<b>Total</b>		<b>120</b>	<b>100.00</b>
2.	<b>Cropping system</b>		
	Double cropping	105	87.50
	Mixed cropping	15	12.50
<b>Total</b>		<b>120</b>	<b>100.00</b>
3.	<b>Soil depth</b>		
	Deep	73	60.83
	Medium	39	32.50
	Shallow	8	6.66
<b>Total</b>		<b>120</b>	<b>100.00</b>

**Table 9. Distribution of respondent according to their Overall existing Livelihoods of Millet farmer as well as FPO member (n=120)**

S.No	Category	Number	Per cent
1.	Low	15	12.5
2.	Medium	82	68.33
3.	High	23	19.16
<b>Total</b>		<b>120</b>	<b>100.00</b>



**Fig. 1. Comparison of farmers according to their overall existing livelihoods**



Fig. 1 illustrates a comparison of farmers based on their existing livelihood levels. The graph likely depicts how different categories or groups of farmers are distributed across various levels of livelihoods. This comparison could provide insights into the distribution of livelihoods among millet farmers and potentially highlight patterns or trends related to their access to different resources and capitals. The visualization in Fig. 1 may help to understand the distribution and variations in livelihood levels within the studied population.

### 3.3 Access of Five Livelihood Capitals

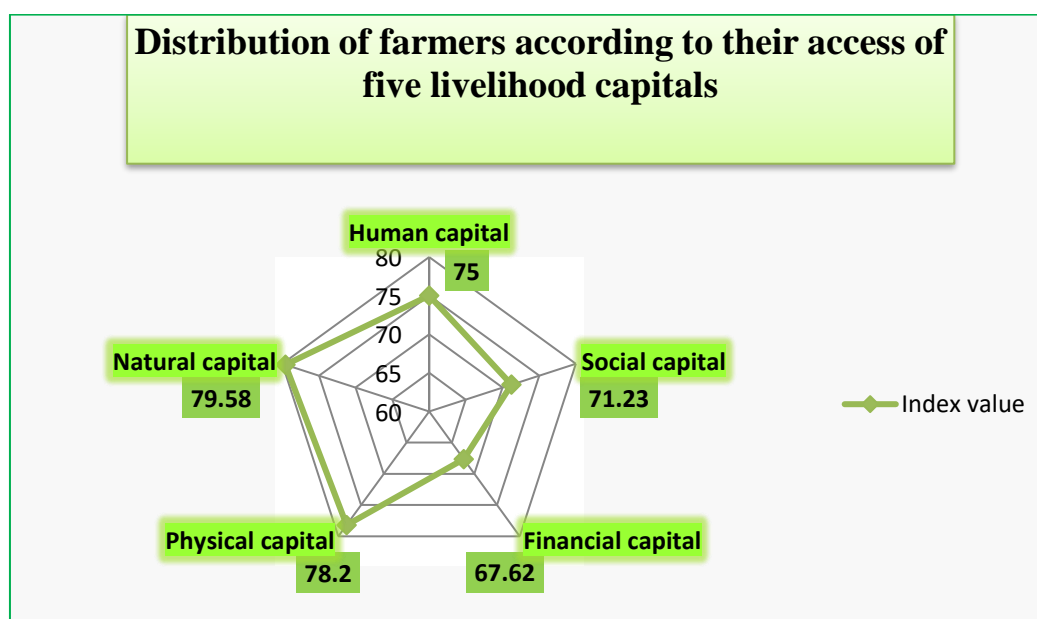
In Table 10, a comprehensive study and comparison of all five capitals was conducted through index calculations. The findings revealed that natural capital (79.58%) holds the highest level of accessibility within the livelihoods of millet farmers and FPO members, followed by physical capital (78.20%), human capital (75.00%), social capital (71.23%), and financial capital (67.62%).

This indicates that the livelihoods of millet farmers and FPO members are significantly influenced by their access to natural capital resources. It is apparent that there is room for improvement in terms of financial capital, followed by social capital and human capital. Enhancing these aspects would enable the respondents to effectively utilize the accessible sustainable livelihood resources at their disposal.

Fig. 2 likely presents the distribution of farmers based on their access to the five livelihood capitals, namely Natural Capital, Physical Capital, Human Capital, Social Capital, and Financial Capital. This graph is likely to display how the surveyed farmers are positioned in terms of their access to these different capitals. It could help visually represent the diversity in resources and opportunities available to farmers, shedding light on which capitals are more accessible to certain groups and which may need improvement. The visualization in Fig. 2 can provide a clear understanding of the resource distribution and the balance of different capitals among the farmers.

**Table 10. Distribution of farmers according to their access of five livelihood capitals**

S.No	Sub capital	Index value (%)
1.	Human capital	75.00
2.	Social capital	71.23
3.	Financial capital	67.62
4.	Physical capital	78.20
5.	Natural capital	79.58



**Fig. 2. Distribution of farmers according to their access of five livelihood capital**

### 3.3.1 Natural capital

The data in Table 8 indicate that the Respondents are had greater access on Natural capital includes the type of land, cropping system and soil depth of the farmer's farmland. Most of the agricultural activities depend on the natural capital. If the natural resources are conducive and favorable, it will contribute to the agriculture development in the rural areas.

**Type of soil:** The crop cultivation practices are influenced by the type of soil present in different zones. In the study area encompassing the villages of Sedapatti, Thirumangalam, and Usilampatti blocks in Madurai, three distinct soil types were observed: red soil, black clayed soil, and alluvial soil.

The predominant soil type observed in the Sedapatti block is black clayed soil, accounting for 50.00% of the area. Similarly, in the Usilampatti block, red soil is the prevalent type, covering 41.66% of the area. On the other hand, the least prevalent soil type is alluvial soil, which is found in the village with a stream originating from the Sathuragiri hills, situated in the peraiyur taluk in sedapati block understanding these soil variations is crucial for determining suitable crop choices and implementing effective agricultural practices in each zone.

**Cropping system:** The cropping patterns adopted by the respondents. A significant majority, 87.50% of the respondents, reported practicing single cropping on their farmland. In contrast, a smaller proportion, 12.5%, indicated that they engage in multiple cropping.

The prevalence of single cropping practices among the respondents indicates that the majority of them rely on cultivating a single crop during a particular growing season. The crops cultivated under this pattern include kuthiraivalli, perennial cotton, red sorghum, maize, varagu, rice, pulses, vegetables, and flowers. Notably, the cultivation of perennial cotton stands out as an interesting practice, where cotton seeds are sown in dry land and harvested after one monsoon. The cotton plants are then left in the field to shoot up again during the subsequent monsoon seasons, resulting in repeated harvests with minimal cultivation costs. This practice reflects an innovative approach to maximizing returns from a single crop over multiple seasons.

Meanwhile, a subset of marginal and big farmers have embraced a multiple cropping pattern on

their farmland. This involves cultivating different crops in different sections of their land. For instance, a respondent might allocate specific areas for growing rice, cholam, cumbu, paruthi, maize, gram, onion, chilly, tomato, sugarcane and coconut. This diverse cropping pattern can be attributed to the respondent's desire to cater to their family's varied consumption needs, including both staple foods and cash crops.

The choice of cropping pattern is deeply linked to the livelihood strategies of the respondents. While single cropping may offer simplicity and efficient resource utilization, multiple cropping enables a more diversified and comprehensive approach to fulfilling both subsistence and income-generation requirements. These observations highlight the adaptability and resilience of farmers who employ different strategies based on their needs, resources, and objectives. It's a testament to the intricacies of farming practices and their alignment with the goals and circumstances of each farming household.

**Soil depth:** The findings related to soil depth indicate that approximately half of the respondents' soil, accounting for 60.83%, is categorized as deep soil. Additionally, 32.50% of the soil is of medium depth, while a smaller portion, specifically 6.66%, is characterized as having shallow depth. These variations in soil depth hold significance for agricultural practices and land use in the respective areas.

### 3.3.2 Physical capital

Physical capital is the basic infrastructure and an indicator for the development status of the respondents. It includes household material and livestock possession, housing type, and cooking fuel available to the growers. Jonathan (2000) stated that infrastructure is commonly a public good that is used without direct payment, consisting of changes to the physical environment that help people to meet their basic needs and to be more productive.

The data in Table 7 data inferred under following sub headings:

**Livestock and Household material possession:** The data on household material possession reveals that the majority of respondents (68.33%) possess a medium level of livestock and household materials. In contrast, 17.50% of the respondents have a low level of

possession, while 14.16% have a high level of possession of both livestock and household materials.

The distribution of possession levels among respondents provides insights into the overall standard of living in today's society. The majority of respondents with a medium level of possession indicate an improved standard of living, likely owing to the availability of current household materials and gadgets. Those with low possession levels are often characterized by lower annual incomes and possess marginal or small land holdings. Conversely, respondents with high possession levels tend to be big farmers with higher annual incomes.

It's noteworthy that regardless of possession levels, respondents are engaged in livestock rearing. This practice serves a dual purpose: meeting personal consumption needs and contributing to additional household income. This multifunctional use of livestock aligns with their livelihood strategies and underscores their adaptability to various income-generation activities.

**Source of energy for cooking:** The data presented in the table highlights that a significant majority of respondents, accounting for 74.16%, primarily rely on LPG as their source of energy for cooking. This can be attributed to the government's subsidized pricing of LPG cylinders on a monthly basis, which has made it an accessible and economical option for cooking purposes.

Conversely, 25.83% of respondents continue to use kerosene as an alternative source of energy for cooking, typically on occasions when LPG is not available or as an additional source to conserve LPG usage for extended periods. It's worth noting that the practice of using firewood as a source of energy for cooking has become uncommon, with most respondents utilizing it more for general household purposes than for cooking. This shift can be attributed to the convenience and efficiency of modern energy sources like LPG.

**House type:** The housing patterns among the respondents reveal that a majority (60.00%) reside in pucca houses, while 40.00% of the respondents live in katcha houses. The prevalence of nuclear families plays a significant role in the majority's choice of pucca houses, as they often possess the financial means for more

permanent housing. However, it's important to note that 40% of the respondents fall within the low-income category, which likely influences their decision to live in katcha houses due to budget constraints. This housing distribution closely aligns with the livelihoods and economic circumstances of the respondents.

From the Table 4 inferred under following sub headings:

**Mass media exposure:** Mass media encompasses various communication channels such as television, radio, internet, mobile applications, and newspapers, which are strategically designed to disseminate information to a wide audience. Analysis of the respondents' exposure to mass media reveals that a significant majority (65.00%) had a low level of exposure to mass media platforms. In comparison, 25.00% had a medium level of exposure, and a smaller proportion (10.00%) reported a high level of exposure. This distribution suggests that a considerable portion of the respondents had limited interaction with mass media, potentially influencing their access to information and their ability to stay informed about various topics.

From the data inferred the limited exposure to mass media among respondents can be attributed to several factors. A significant majority of the respondents are of older age, which might result in a lower familiarity with new devices and technologies. Additionally, their lower literacy rates could contribute to difficulties in navigating modern media platforms, and a lack of familiarity with social media further contributes to this low degree of exposure.

**Leadership quality:** Leadership defined as process of influencing the behaviour of the individual in given situation. The respondents were categorized as low, medium, high level based on their leadership quality.

The overall analysis of leadership quality within the study population revealed that a significant majority, comprising 55.84% of the respondents, possessed a low level of leadership quality. This means that more than half of the participants demonstrated limited leadership qualities. Following this, 25.83% of the respondents exhibited a medium level of leadership quality, while 18.33% displayed a high level of leadership quality.

The prevalence of low-level leadership quality among the respondents can have several implications. It may contribute to low levels of participation in meetings and training sessions, hinder the initiation of new initiatives, and reduce group cohesiveness. Additionally, it might result in limited knowledge dissemination from administrative bodies and suboptimal implementation of marketing strategies. Enhancing leadership skills within the community or organization could be a valuable strategy to address these issues and improve overall effectiveness.

**Medical treatment availability:** Medical treatment availability refers to the presence of medical care resources and facilities that individuals can access for medical treatment. These resources may include medical practitioners located in nearby villages or distant towns. The findings regarding medical treatment availability show that a substantial majority (76.66%) of the farmers have access to government hospitals, while a smaller proportion (23.33%) seek medical treatment at private clinics. This distribution could be attributed to the prevalence of primary health centers in many villages, offering adequate healthcare services and timely medical assistance. The preference for government hospitals could stem from their accessibility and affordability. Additionally, it's worth noting that the majority of respondents belong to a lower income group, which might limit their ability to access private clinics due to cost considerations.

**Educational status:** The analysis of the above table 5 reveals the educational distribution among the respondents. The largest segment of respondents (31.66%) reported having completed education up to the middle school level. Following this, 21.66% of respondents mentioned being illiterate, while an additional 16.66% indicated possessing functional literacy. About 11.66% of respondents had successfully completed their secondary school education, with the same percentage (9.16%) having reached primary education levels. The remaining 9.16% of respondents had achieved a degree-level education.

It's worth noting that the distribution of educational levels appears to align with the age distribution of the respondents. The majority of respondents falling within the old age category corresponds with the second's higher percentage of illiterate individuals, which can be attributed to

the historical context and limited access to education during their era. On the other hand, the younger respondents predominantly reporting middle, secondary and degree-level education reflects the improved educational opportunities available in more recent times.

**Labour availability:** Labour availability and their skills had a major contribution to the human capital livelihood.

The results concerning labour availability indicate that a notable portion (48.33%) of millet farmers and FPO members rely on family labour for their agricultural activities. Additionally, 35.00% of respondents employ hired labour, while 16.66% utilize skilled labour. This distribution suggests that a substantial proportion of agricultural tasks are carried out by family members, indicating the importance of familial contributions in agricultural activities. However, it's also notable that a significant number of farmers opt for hired labour, which might reflect the need for additional manpower during peak agricultural seasons or for specific tasks. The engagement of skilled labour showcases a focus on expertise-driven activities within the farming operations. Overall, the distribution of labour sources underscores the dynamic nature of agricultural labour management within the millet farming context.

### 3.3.4 Social capital

Social capital has direct link with the development of the society and the livelihood of the people. Social capital refers to social resources including informal networks, membership and relationships of formalised groups and trust that facilitate cooperation (Clark and Carney 2008, Sayer and Campbell 2003). The components under social capital are participating in training, membership in organisations, access to society and extension agency contact. Social capital is the most important resource available in the rural communities as they have a strong societal tie up.

The data from table 5 inferred under following sub headings:

**Participating in training:** The outcomes related to participation in training reveal that approximately half of the total respondents (48.33%) reported a low level of engagement in training activities. In contrast, 30.83% of millet farmers, including FPO members, indicated a medium level of participation, while 20.83% of

them reported a high level of engagement in trainings. The underlying rationale for these findings could be attributed to the demographic composition of the respondents. A significant portion of the respondents consists of women and elderly individuals. Women often prioritize household duties and responsibilities, which might limit their availability for training programs. Similarly, older individuals might encounter challenges related to mobility and transportation, impacting their ability to participate actively in training initiatives.

**Social participation:** The outcomes related to social participation reveal that the majority of farmers (54.16%) exhibited a medium level of social engagement. Additionally, 24.50% of respondents, reported a high level of social participation, while 21.70% of them indicated a low level of social engagement. The prevalence of high social participation could be attributed to many respondents being members of Self-Help Groups (SHGs), Farmer Interest Groups (FIGs), and Cooperatives. These community-based organizations play a significant role in fostering social interaction and collaborative activities among their members, contributing to higher levels of social engagement among the respondents.

**Extension agency contact:** The findings concerning extension agency contact indicated that the majority of respondents (68.33%) had a low level of interaction with extension agencies. Furthermore, 19.16% of millet farmers, including FPO members, reported a medium level of contact with extension agencies, while only 12.50% of them had a high level of such contact. This situation might arise from the respondents' limited awareness of extension agents. Moreover, extension agents may not have established regular communication with the broader farming community, except for the contact farmers. It's worth noting that even Agricultural offices and Madurai Krishi Vigyan Kendra (KVK) may be unfamiliar to some respondents, potentially reflecting the gender distribution among respondents, with a majority being women. This may reflect the fact that a significant portion of the respondents are women, who might have limited exposure to these institutions and services.

### 3.3.5 Financial capital

Financial capital includes annual income, access to credit, savings, debt, place of saving, and

loans in emergency. Financial capital is very crucial for growth and development in a society.

The data from table 6 inferred under following sub headings:

**Debts:** Debts were defined operationally as the amount of money owned by a person.

The findings concerning debts indicate that 40.00% of the farmers reported having no debts. Furthermore, 26.66% of millet farmers, including FPO members, had debts ranging from Rs. 5,000 to Rs. 10,000, while 17.50% of them had debts of less than Rs. 5,000. Additionally, 15.83% of the respondents had debts exceeding Rs. 10,000. This distribution suggests that the majority of respondents belong to nuclear families and are relatively less burdened by debts. Among those with debts, it's notable that the borrowed funds are primarily utilized for agricultural purposes and supporting their children's education.

**Saving:** Savings were operationally defined as the money set aside, often stored in banks or as cash on hand. The data on savings are presented in the provided table. Notably, the majority of respondents (39.16%) reported having savings exceeding Rs. 10,000. In addition, 26.66% of respondents indicated having savings below Rs. 5,000, while 23.33% of millet growers, including FPO members, reported savings ranging from Rs. 5,000 to Rs. 10,000. Conversely, 19.16% of respondents stated that they had no savings.

The higher range of savings observed could be attributed to the family structure of the respondents, with many belonging to nuclear families consisting of only one child or elderly couples (Grandma & Grandpa). Additionally, respondents who own larger tracts of land for cultivation might contribute to the higher level of savings. Among the various reasons for saving, the most prominent one was preparing for their children's marriages, followed by other reasons for the remaining respondents.

**Place of saving:** Place of saving refers to the place where the funds and resources were kept or invested. There are several choices left with people for making savings such as deposits in post office, deposits in commercial banks and cooperative banks etc.,.

The allocation of savings to different places is often influenced by factors such as interest rates,

accessibility, and additional services provided by financial institutions. The collected data on respondents' preferences for their savings' location were analyzed and are presented in the provided table.

The findings indicate that 41.66% of respondents chose to save or invest their income in gold or silver. Following this, 33.33% of respondents kept their income as ready cash on hand. Moreover, 15.00% of millet growers, including FPO members, deposited their income in cooperative banks, while 10.00% opted to deposit their income in regular banks.

The prevalence of investing in gold or silver can be attributed to its traditional significance in farming communities, with farmers often saving a portion of their harvest returns in these precious metals. The inclination towards keeping ready cash reflects the need for immediate liquidity, perhaps for debt repayment or family expenses. The preference for depositing income in cooperative banks might stem from respondents' membership in cooperatives. Lastly, the decision to deposit income in regular banks could result from advice provided by their children, awareness of interest rates, and higher levels of literacy among some farmers.

**Loans in emergency:** Studying the source of debt helps to conclude to whom the respondents approach for debts. The source of debt varies with respondents. The lower interest rate, assurance asked, time period given for repayment were some of the factors deciding the source of debt.

Analyzing the sources of debt helps provide insight into from whom the respondents seek loans. The choice of debt source can vary among respondents based on factors such as lower interest rates, assurance requirements, and repayment timelines.

The study reveals that the majority of respondents (60.00%) obtain loans from money lenders. Following this, (25.00%) of respondents borrow money from Self Help Groups (SHGs), (15.00%) while the remaining respondents borrow money from their relatives.

This distribution suggests that many farmers turn to money lenders because they provide loans in times of need without requiring collateral. Money lenders often impose conditions such as selling the harvest to them or deducting the debt directly

from the harvest proceeds. SHGs/FIGs offer an easy and convenient option for lending money, particularly suitable for housewives and those who may not have access to formal financial institutions, the comfortable and familiar nature of SHGs and FIGs encourages borrowing from these sources, providing a supportive framework for financial assistance within the community. Relatives also serve as a source of borrowing, likely due to the familiarity and trust within family relationships.

**Annual income:** The term Gross Annual Income, or GAI, is the total income earned by an individual through their salary, wages, interest, and dividends within a given tax year.

Annual income is the total amount of money you earn over one standard year or your annual salary.

The data presented in Table 7 reveals that a significant portion of the respondents (61.66%) reported having a low level of annual income. Following this, 20.00% of the respondents indicated a medium level of income, while 18.33% reported having a high level of income. This distribution reflects the economic realities faced by many small and marginal farmers in the region. The majority of respondents belonging to the low and medium income categories can be attributed to the challenges inherent in agricultural practices. These farmers often spend a substantial portion of their income on purchasing agricultural inputs and carrying out intercultural operations for their crops. Unfortunately, this investment doesn't always translate into higher returns, leaving them with incomes that are lower than their cultivation costs. Consequently, they find themselves operating with narrow profit margins, if any. The financial strain is further evident in their need to repay debts immediately after earning income from their harvests. This underscores the financial vulnerability and cyclic nature of the agricultural income for many of the farmers.

#### 4. CONCLUSION

In conclude, millet grower have experienced moderate level of livelihood. However, there remains a need for further advancement in terms of social and financial capital, It is imperative that they need to well-informed about millet value addition and promotional initiatives, secure sufficient financial access and ultimately, harness the complete advantage of Farmers Producer

Organzataions (FPOs) across all dimensions of livelihood capital.

In forthcoming years, millet are poised to play pivotal role in global food security, while Farmers Producer Organzataions will continue to be instrumental in ameliorating the livelihoods of small and marginal farmers in India. Furthermore, the aspiration of the agricultural community could be realized – whereby farmers themselves determine the prices of their produce. Farmers Producer Organzataions will be under governance of farmers and for the prosperity of farmers.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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