

Research Article



Organizational Capabilities and Social Enabling Factors in Sustaining Livestock Farmer Groups in West Sumatra, Indonesia

FUAD MADARISA^{1,2*}, BASRIL BASYAR², ERNITA ARIF³, AZRIFIRWAN⁴, RIZA ANDESCA PUTRA¹, RIZKY TAMA SAPUTRA⁵

¹Department of Development and Livestock Business, Faculty of Animal Science, Andalas University, Padang, Indonesia; ²Department of Extension and Development Communication, Graduate School, Andalas University, Padang, Indonesia; ³Department of Communication Science, Faculty of Social and Political Sciences, Andalas University, Padang, Indonesia; ⁴Department of Agro-Industrial Technology, Faculty of Agricultural Technology, Andalas University, Padang, Indonesia; ⁵Alumni at the Faculty of Animal Science, Andalas University, Padang, Indonesia.

Abstract | Livestock farmer groups are important instruments in Indonesian agricultural development, yet maintaining active and sustainable groups remains challenging. While the PAKEM POKTAN assessment framework provides a formal performance evaluation, this study empirically documents the organizational and social enabling factors that allow groups to sustain their operations in practice, and examines their association with formal capabilities. A descriptive mixed-methods case study was conducted on nine Madya-class groups the highest formally assessed tier among 17 groups identified by field practitioners as the most consistently active currently operating in the province through PAKEM POKTAN assessments, in-depth interviews with 45 informants, direct observations, and document reviews during August–October 2025. Groups achieved an average score of 528.78 points (52.9% of maximum), with organizing capability showing the strongest performance (63.5%), three capabilities at medium levels (planning 59.3%, implementing 55.9%, controlling 49.8%), and leadership development the weakest (27.8%). Five sustainability factors were identified across the studied groups: transparency (9/9), member commitment (9/9), regular meetings (8/9), stakeholder connections (6/9), and internal donors (5/9). These factors appear to reinforce formal capabilities rather than operate independently: transparency is associated with administrative-reporting systems, regular meetings serve social cohesion functions beyond administrative purposes, commitment enables consistent implementation of activities, internal donors provide financial flexibility through interest-free informal financing grounded in social embeddedness, and stakeholder connections facilitate access to resources and organizational learning. Sustainability depends on both formal organizational capabilities and social-organizational factors enabling their effective operation.

Keywords | PAKEM POKTAN, Farmer organizations, Internal donor, Transparency, Commitment, Sustainability

Received | January 31, 2026; **Accepted** | March 25, 2026; **Published** | May 19, 2026

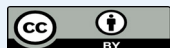
***Correspondence** | Fuad Madarisa, Department of Development and Livestock Business, Faculty of Animal Science, Andalas University, Padang, Indonesia;

Email: fuadmadarisa@ansci.unand.ac.id

Citation | Madarisa F, Basyar B, Arif E, Azrifirwan, Putra RA, Saputra RT (2026). Organizational capabilities and social enabling factors in sustaining livestock farmer groups in West Sumatra, Indonesia. *Adv. Anim. Vet. Sci.*, 14(6):1112-1123.

DOI | <https://dx.doi.org/10.17582/journal.aavs/2026/14.6.1112.1123>

ISSN (Online) | 2307-8316



Copyright: 2026 by the authors. Licensee ResearchersLinks Ltd, England, UK.

This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

INTRODUCTION

Farmer groups are an important instrument in the development of sustainable agriculture in Indonesia.

Three national laws explicitly recognize the role of farmer groups: Law No. 23 of 2014 concerning Regional Government, Law No. 19 of 2013 concerning the Protection and Empowerment of Farmers, and Law No. 16

of 2006 concerning the Agriculture, Fisheries and Forestry Extension System. Farmer groups have been used in many countries as a tool to improve farmers' living conditions, especially in increasing market access, production capacity, and farmers' income (Bachke, 2019). By working in groups, farmers take collective action to help overcome inefficiencies and gain access to technology, means of production, and markets (Fischer and Qaim, 2012; Markelova *et al.*, 2009).

In the context of performance development and monitoring, Indonesia's Ministry of Agriculture developed the Farmer Group Five Capability Assessment (PAKEM POKTAN) instrument (Agricultural Human Resources Extension and Development Agency, 2018). This instrument assesses five ability variables: (1) planning ability, (2) organizational ability, (3) ability to carry out activities, (4) ability to control and report, and (5) ability to develop group leadership. Each ability variable has a score range of 1-1000 and is categorized into four groups: Beginner, Advanced, Madya, and Main. District/city-level agriculture offices widely use this assessment system to evaluate and classify their target groups.

Despite the systematic coaching and assessment framework, maintaining an active and sustainable farmer group remains a challenge (Hermanto and Swastika, 2011). A recent study in West Sumatra found that groups of farmers receiving government assistance did not succeed in increasing their grades; Most remain in the beginner class, and even the livestock population often decreases instead of increases (Madarisa *et al.*, 2024; Putra *et al.*, 2023). These findings reveal a worrying gap between formal coaching efforts and actual sustainability outcomes.

The literature on farmer organizations shows that sustainability is influenced by the complex interplay between formal organizational capabilities, social capital (beliefs and norms), and external connections (Chollet *et al.*, 2025; Kale *et al.*, 2025; Wardhana *et al.*, 2020). However, the specific determinants that make livestock groups in Indonesia able to survive actively in the field, along with their interaction patterns with formal capabilities, have not been empirically documented.

Social capital theory has long established that trust, shared norms, and reciprocal relationships are the cornerstones of collective organizational sustainability (Ostrom, 1990; Silvert *et al.*, 2022; Woolcock and Narayan, 2000). Yet its application in farmer organization research often remains at a broad explanatory level, identifying social capital as important without specifying the concrete practices through which it operates in particular institutional contexts. In the case of livestock farming groups in Indonesia, where the enforcement of formal contracts is limited and access to institutional credit is often constrained, understanding

how social capital operates operationally has immediate theoretical and practical significance. This study, therefore, does not simply apply the existing concept of social capital to a new subgroup; rather, it aims to identify specific social-organizational practices that serve as support mechanisms for group sustainability, and to analyze how these practices interact with the formal organizational capabilities evaluated through PAKEM POKTAN.

This research was conducted in West Sumatra, focusing on groups that successfully maintained their operations. Of the 17 groups recommended by the West Sumatra Provincial Animal Husbandry and Animal Health Office, the PAKEM POKTAN assessment resulted in nine Madya class groups (score 456-607), eight groups in the Beginner/Advanced category (score < 456), and none reached the Main level (701-1000). This points to an interesting phenomenon: the groups considered the best by field practitioners not because they are ideal, but because they are the most consistently active in the province are only at the intermediate formal level. This distinction is important: A moderate formal score does not contradict practitioner assessment, but rather suggests that PAKEM POKTAN primarily captures administrative and procedural formalizations, while the ability to remain operationally active may depend on factors not directly measured by the instrument, a gap consistent with the observation that formal assessment frameworks tend to reflect visible organizational attributes but often underestimate roles of informal social dynamics in maintaining collective action (Chambers, 1994; Ostrom, 1990).

Based on the above description, this study aims to: (1) describe the formal performance profile of livestock farmer groups recommended as the best by field practitioners in West Sumatra, based on five PAKEM POKTAN variables; (2) identify the organizational and social factors that characterize the observed groups to remain active and sustainable in practice; and (3) analyze the pattern of association between these factors and formal capabilities as seen in group operations. This study, therefore, examines livestock farmer group sustainability through two interacting dimensions: organizational capabilities as formally assessed through PAKEM POKTAN, and social enabling factors identified through qualitative analysis, exploring how the two operate in relation to each other in observed group practices.

MATERIALS AND METHODS

RESEARCH APPROACH

This study uses a descriptive case study approach with a mixed-methods design. The quantitative component describes the formal performance profile of the group using

the PAKEM POKTAN instrument, while the qualitative component identifies and describes the organizational and social factors that characterize groups observed to remain active and sustainable in practice. The case study approach was chosen because it is appropriate for exploratory research questions about group characteristics in real-life contexts (Yin, 2018). The integration of quantitative and qualitative data allows for a more comprehensive understanding of the groups being studied (Creswell and Plano Clark, 2018).

The essential boundary requirements of this design must be explicitly acknowledged. Because the study focused exclusively on groups that had demonstrated sustained operations and did not include a comparative sample of inactive or disbanded groups, the factors identified should be understood as organizational and social characteristics associated with sustainability in the cases studied, rather than as established causes of sustainability. The absence of comparison groups is a deliberate boundary, not an omission, and its implications for generalization are discussed in the limitations section. Purposive sampling of information-rich case groups that are actively operating and accessible for in-depth study is an appropriate strategy at this stage of investigation, allowing for deep understanding at the expense of statistical representativeness (Patton, 2014).

RESEARCH LOCATION AND TIME

The research was conducted in West Sumatra Province, specifically in the recommended farmer groups. The selection of the location is based on several considerations: (1) West Sumatra has the potential for development and

a strong tradition of community farming, especially beef cattle and goat farming (ruminants) (Madarisa *et al.*, 2007) (2) The West Sumatra Provincial Animal Husbandry and Animal Health Service has consistently implemented the PAKEM POKTAN assessment system in fostering livestock farmer groups. Data collection was conducted from August to October 2025.

RESEARCH RESPONDENTS

This study focuses on livestock farmer groups identified by the West Sumatra Provincial Livestock and Animal Health Office as the best currently operating in the province. Of the 17 recommended groups, the PAKEM POKTAN assessment resulted in 9 Madya class groups, 7 Advanced class groups, and 1 Beginner class group (Table 1). The study focused on nine Madya class groups as they were the groups with the best formal performance available (none of the groups reached the Main level). For each group, interviews were conducted with five informants: management (chairman, secretary, and/or treasurer) and active members, for a total of 45.

DATA COLLECTION METHODS

Data were collected through two integrated approaches. Formal performance data was obtained using the PAKEM POKTAN (Ministry of Agriculture of the Republic of Indonesia) instrument which assesses five dimensions of group capabilities: planning (200 points), organizing (150 points), executing activities (400 points), control and reporting (100 points), and leadership (150 points),

Table 1: Livestock farmer group that performs well in West Sumatra Province.

Group Name	Regency	Commodities	Classes
KWT Mama Ceria	Padang Pariaman	Cow, Silage	Madya
Pemuda Setia	Limapuluh Kota	Compost and cattle	Madya
Mulia	Limapuluh Kota	Duck, Egg	Madya
Pincuran Gadang	Limapuluh Kota	Goat, Compost	Madya
Milenial	Agam	Dairy Cows, Milk, Compost, Feed	Madya
Sumber Rezeki	Pasaman Barat	Balinese Cow, Compost	Madya
Sawah Bangsa	Agam	Organic Rice, Compost, Goat, Beef, Duck	Madya
Ranah Sigajai	Sijunjung	Bali Cattle Farming	Madya
Durian Sabatang	Agam	Kambing, Heler	Madya
Ridho	Limapuluh Kota	Duck, Egg	Advanced
KWT Asoka	Dharmasraya	KUB Chickens, Plant Nursery	Advanced
Rawang Rambutan	Dharmasraya	KUB Chicken	Advanced
Pemuda Tani	Dharmasraya	Goat	Advanced
Setetes Embun	Agam	Goat	Advanced
Semangat Baru	Pasaman Barat	Goats, Plant Nurseries	Advanced
Berkah Jaya	Agam	KUB Chicken	Advanced
Sialang Jaya IV	Pasaman Barat	KUB Chicken, Rice Fields	Beginner

Source: West Sumatra Provincial Animal Husbandry and Animal Health Office, 2025.

with a maximum total of 1000 points. The assessment was carried out by means of structured interviews with administrators and members, as well as examination of group administrative documents. Data triangulation is carried out by comparing oral information and written evidence for validation purposes.

Organizational and social factor data were collected in conjunction with the assessment of PAKEM POKTAN through: (1) in-depth interviews that explored the group's history, routine practices, decision-making, financial management, member-to-member and external relationships, challenges, and sustainability factors according to the informants; (2) direct observation at group locations and cages for information validation; and (3) review of group documents (cash books, minutes, activity documentation) to understand activity patterns and management.

DATA ANALYSIS

Quantitative data analysis was carried out using descriptive statistics (mean, range, and standard deviation) in Microsoft Excel. Mean scores and achievement percentages were calculated to identify relative strengths and weaknesses across PAKEM POKTAN variables. Standard deviation was calculated to examine the degree of inter-group variation per variable, providing an indication of whether observed patterns reflect group-specific characteristics or more systemic conditions shared across the studied groups. Qualitative data were analyzed using reflexive thematic analysis (Braun and Clarke, 2006). Interview transcripts and field notes were read repeatedly to generate initial

codes inductively, without imposing predefined categories. Approximately 21 initial codes were subsequently grouped into sub-themes based on conceptual relatedness, then reviewed against the farmer organization sustainability literature to assess theoretical relevance and sharpen definitions. This process yielded five themes as presented in the coding tree (Table 2). Each theme was systematically documented as strongly present, weak, or absent across the nine groups to enable cross-case pattern identification.

Data integration was performed by constructing a cross-case matrix displaying each group's PAKEM POKTAN variable scores alongside the presence or absence of each identified sustainability factor. For factors with sufficient cross-group variation, descriptive mean comparisons of PAKEM POKTAN scores were calculated between groups with and without each factor. These comparisons are presented as descriptive pattern observations, not statistical associations, given the small sample size and the absence of inactive comparison groups. The validity of the findings was maintained through triangulation of sources (multiple informants per group) and methods (interviews, observations, documents).

RESULTS AND DISCUSSION

FORMAL PERFORMANCE PROFILE OF LIVESTOCK FARMER GROUP

The nine groups achieved an average score of 528.78 points (52.9% of the maximum of 1000), with a variation of 456-607 points (Table 3). Analysis of each variable revealed a

Table 2: Coding tree of thematic analysis.

Initial codes	Sub-Theme	Theme
Open cash book at meetings; regular financial reporting to members; member access to verify records	Financial transparency	Transparency
Open deliberation process; equitable information about programs and aid distribution; member voice in decisions	Decision-making openness	
Attendance at meetings; fulfillment of dues obligations; and adherence to group norms and rules	Behavioral compliance	Member Commitment
Willingness to implement collective agreements; consistency in executing group decisions	Collective reliability	
Scheduled formal meetings; consistency in adhering to the meeting schedule, regardless of frequency	Formal meeting regularity	Regular Meetings
Informal interactions at the livestock pen, social activities, and residential environment	Informal social interaction	
Active relationships with livestock service and extension workers; access to technical information and health services	Government-institutional linkage	Stakeholder connections
Relationships with DPRD members for POKIR fund access; connections with suppliers and consumers	Political-economic linkage	
Economically capable member advancing funds interest-free for group activities	Internal lending mechanism	Internal Donors
Gradual repayment agreement after activity generates results; voluntary and altruistic basis	Trust-based reciprocity	

Source: Primary data analysis, 2025

diverse pattern of achievements: organizational ability recorded the highest achievement (63.5%, strong category), three medium-category variables (planning 59.3%, implementing 55.9%, controlling 49.8%), and the ability to develop leadership recorded the lowest (27.8%, weak category).

Table 3: Livestock farmer group performance score on five PAKEM POKTAN variables.

Groups	V1	V2	V3	V4	V5	Total
KWT Mama Ceria	98	95	175	44	45	457
Pemuda Setia	136	111	250	40	25	562
Mulia	115	110	145	40	50	460
Pincuran Gadang	128	87	248	81	50	594
Milenial	136	90	256	40	30	552
Sumber Rezeki	130	95	252	80	50	607
Sawah Bangsa	127	96	286	45	30	584
Ranah Sigajai	97	80	225	40	45	487
Durian Sabatang	100	93	175	38	50	456
Average	118.56	95.22	223.56	49.78	41.67	528.78
SD	16.37	10.00	47.36	17.56	10.31	63.24
Maximum Value	200	150	400	100	150	1000

Source: Primary data analysis, 2025. Note: V1 = Planning Ability; V2 = Organizational Ability; V3 = Ability to carry out activities; V4 = Controlling and Reporting Ability; V5 = Ability to develop leadership; SD = Standard Deviation (sample).

The standard deviation (SD) values in Table 3 reveal additional patterns beyond average achievement. V2 (Organizational Ability, SD= 10.00) and V5 (Leadership Development, SD= 10.31) show the lowest inter-group variation, indicating that all nine groups are relatively homogeneous on these two dimensions uniformly solid on organizational structure, and uniformly weak on leadership regeneration. This homogeneity suggests that these characteristics may reflect systemic conditions shared across livestock farmer groups in West Sumatra rather than group-specific factors. In contrast, V3 (ability to carry out activities) shows the highest variation (SD = 47.36), indicating substantial differences in operational activity levels across groups. Similarly, V4 (Control and Reporting Ability, SD= 17.56) demonstrates notable variability, with scores ranging from 38 (Durian Sabatang) to 81 (Pincuran Gadang) a difference of 43 points on a 100-point scale. As discussed in the cross-case analysis below, this variability in V3 and V4 is where the presence or absence of certain sustainability factors appears most observable, particularly stakeholder connections in relation to V4 performance.

PERFORMANCE ANALYSIS BY PAKEM POKTAN VARIABLE

To better understand the group's performance profile, an analysis was conducted of each variable's achievement

relative to its maximum value. Table 4 shows the average achievement percentage for each variable, providing an indication of which variables are the relative strengths or weaknesses of the groups studied. Achievements are categorized into five levels: Very strong (81-100%), strong (61-80%), medium (41-60%), weak (21-40%), and very weak (1-20%).

Table 4: Average percentage of achievement per PAKEM POKTAN variable.

Variabel	Average score	Max. value	Achievements (%)	Category
Organizational ability	95.22	150	63.5	Strong
Planning ability	118.56	200	59.3	Medium
Ability to carry out activities	223.56	400	55.9	Medium
Control and reporting capabilities	49.78	100	49.8	Medium
Ability to develop leadership	41.67	150	27.8	Weak

Source: Primary data analysis, 2025.

The data in Table 4 reveal a diverse pattern of achievement between variables. Organizational ability showed the highest achievement (63.5%), three variables were in the medium category: planning ability (59.3%), ability to carry out activities (55.9%), and control and reporting ability (49.8%). Meanwhile, the ability to develop leadership showed the lowest achievement (27.8%) and was categorized as weak. This pattern provides important insights into strengths and areas that require attention in group coaching.

STRONG-CATEGORY VARIABLES: ORGANIZATIONAL ABILITY

Organizational ability achieved the highest score, with an average of 95.22 points out of a maximum of 150 (63.5%), and was the only variable to reach the strong category. This variable covers organizational structure, group rules and norms, and bookkeeping administration. The bookkeeping administration component (mean 58.56/100) and group rules and norms (mean 21.11/25) both indicate adequate organizational formalization: most groups maintain complete administrative records, and written norms with clear sanctions have been broadly implemented. These achievements indicate that the groups already have a solid organizational foundation with a clear structure and an organized administrative system, in line with findings on the importance of democratic governance structures and institutional formalization in the sustainability of farmer organizations (Chollet *et al.*, 2025; Lalitha *et al.*, 2024).

MEDIUM-CATEGORY VARIABLES: PLANNING, IMPLEMENTING ACTIVITIES, AND CONTROL AND REPORTING

The three variables in the medium category reflect the group's functional but not yet optimal operational state. Planning ability (59.3%; mean 118.56/200) shows that most groups have written, market-oriented business plans and involve other farmer groups in study planning, though formal MoU partnerships and engagement of external institutions remain limited (Hermanto and Swastika, 2011). The ability to carry out activities (55.9%; mean 223.56/400) reflects relatively active group operations including regular meetings, joint ventures, and learning activities; however, capital fertilization (mean 21.11/50) and technology-based information services (mean 19.44/60) remain the weakest sub-components, consistent with broader findings on working capital and technology adoption constraints in farmer organizations in developing countries (Fischer and Qaim, 2012; Kale *et al.*, 2025; Ma *et al.*, 2023). Control and reporting capability (49.8%; mean 49.78/100) sits close to the lower boundary of the medium category: Most groups conduct written evaluations involving their own members, but the participation of external parties other farmer groups and outside institutions in group evaluation processes remains limited, weakening the accountability function that an effective control system should provide (Hanggana, 2017).

WEAK-CATEGORY VARIABLES: ABILITY TO DEVELOP LEADERSHIP

The leadership development variable recorded the lowest achievement, with an average of 41.67 points out of a maximum of 150 (27.8%), placing it in the weak category. This score shows that most of the groups have been led by the old chairman/administrator since their establishment and have not carried out systematic leadership regeneration over a sustained period. These findings are in line with previous research that identified the weak cadre mechanism in group leadership as one of the structural weaknesses of farmer groups in Indonesia (Akbar *et al.*, 2024; Purnomo *et al.*, 2022).

This limitation in leadership development is a serious concern because the sustainability of farmer organizations is highly dependent on the availability of competent leaders (Ulvenblad and Cederholm Björklund, 2018). In addition, effective leadership also affects the sustainability of farmer groups in achieving common goals (Larsson *et al.*, 2018; Wheelan, 2016). Some groups tend to rely on long-serving leaders, which can pose a risk when leadership changes. Systematic efforts are needed to develop managerial, agribusiness, and entrepreneurial capacity in the next generation of leaders.

An important finding emerged from a comparison between these findings and the sustainability demonstrated by the groups: despite their low leadership development scores, all nine groups remained operationally active. This suggests that strong socio-organizational factors particularly transparency, member commitment, and regular meetings may serve as compensation mechanisms that sustain group operations in the medium term, even when formal leadership regeneration is limited. However, this compensation should not be equated with resilience. Rather, it represents a latent structural vulnerability: groups that rely heavily on the survival of their long-serving leaders face great risks if the leader steps down or is unable to resume his or her duties. Sustainability maintained through social cohesion alone, without systematic leadership succession, is inherently fragile in the long term (Ulvenblad and Cederholm Björklund, 2018; Wheelan, 2016).

SUSTAINABILITY FACTORS OF LIVESTOCK FARMER GROUPS

Qualitative analysis identified five organizational and social factors that characterized the active, sustainable groups across all nine cases studied (Table 5). These factors are categorized by their prevalence: universal (all nine groups), very common (almost all groups), common (most groups), and additional (about half of the groups) designations that describe the distribution within this sample and carry no statistical implication for the broader population of livestock groups in West Sumatra or Indonesia.

Table 5: Prevalence of sustainability factors in livestock farmer groups.

Name farmer group	Sustainability factors				
	Trans- parency	Regular meetings	Com- mitment	Con- nection	Do- nors
Kwt Mama Ceria	✓	✓	✓	✓	✓
Pemuda Setia	✓	-	✓	✓	-
Mulia	✓	✓	✓	-	✓
Pincuran Gadang	✓	✓	✓	✓	-
Milenial	✓	✓	✓	-	-
Sumber Rezeki	✓	✓	✓	✓	✓
Sawah Bangsa	✓	✓	✓	✓	✓
Ranah Sigajai	✓	✓	✓	-	-
Durian Sabatang	✓	✓	✓	✓	✓
Total	9/9	8/9	9/9	6/9	5/9
Category	Univer- sal	Very common	Univer- sal	Com- mon	Addi- tional

Source: Primary data analysis 2025. Remarks: ✓ = Strong identified factors; - = Unidentified or weak factors

UNIVERSAL FACTOR: TRANSPARENCY AND COMMITMENT

Transparency was identified in all groups (9/9) as a factor that was strongly emphasized by informants. It

operates through two complementary practices: financial transparency regular disclosure of income, expenses, and cash balance in group meetings with member access to verify records and decision-making transparency, encompassing open deliberation, equitable information sharing about programs and aid distribution, and space for members to voice opinions. Together these practices maintain trust and prevent the suspicion that can erode group solidarity.

This emphasis on transparency is consistently expressed across the groups. Two informants illustrate its dual dimensions most clearly. The Chairman of Sumber Rezeki (Ngatmin) stated: "Every meeting, we open the cash book in front of all the members. Income, expenses, everything is explained." At Durian Sabatang, Januar Farezi (secretary) explains: "Our rules are simple: no decisions are taken without mutual discussion, and no expenditure is made without being reported. We also have a WhatsApp group, where we are always connected." Together, these accounts capture both the financial and decision-making dimensions of transparency as practiced in the field.

These findings are in line with the literature on farmer groups and organizations that emphasize the importance of transparency in building trust between members so as to improve group performance (De Jong *et al.*, 2016; Jensen-Auermann *et al.*, 2018). In any organization, trust-based social capital is essential, and transparency serves as a mechanism to maintain group cohesion and prevent internal conflicts that can undermine the sustainability of the organization (Albu and Flyverbom, 2019; Schnackenberg and Tomlinson, 2016).

Member commitment was also identified in all groups (9/9) as a key sustainability factor. In this study, commitment refers to members' consistent fulfillment of collective agreements attending meetings, paying dues, participating in joint activities, and adhering to group norms. Informants consistently attribute their group's continuity to this behavioral consistency: when an agreement has been made, members make every effort to carry it out.

Informants describe commitment not as an abstract value, but as a concrete daily practice. Two accounts capture this most powerfully. A member of the Pemuda Setia group, Iwan, stated: "Many of the groups around us have collapsed. We ask ourselves why we are still here. The answer is always the same: because our members are committed. Our compost products already have regular customers; if we are negligent, they will be disappointed and stop subscribing." The treasurer of the Milenial group noted: Commitment is built from small things. All members must make maximum efforts to fulfill the agreement; if, after the effort, it turns out to be impossible, everything

can be discussed again.

Commitment of this kind does not arise automatically; it is sustained through clear sanction systems, recognition of member contributions, and tangible benefits from group membership (Meyer *et al.*, 2002). The commitment of members has an impact on the continuity and success of farmer organizations (Hao *et al.*, 2024). In the Madya class studied, member commitment served as the glue that enabled the groups to continue operating despite various external challenges.

VERY COMMON FACTOR: REGULAR MEETINGS

Regular meetings were identified in 8 of the 9 groups (8/9) as a very important practice for maintaining group activity. The frequency of meetings varies between groups; Some hold meetings every month, every two months, every three months, or every six months. What is important is not the specific frequency but the consistency in adhering to the agreed meeting schedule.

Regular meetings serve as a space for various important activities: delivering up-to-date information about group activities, discussing problems and solutions, planning future activities, evaluating activities that have been carried out, and learning together. In addition to formal meetings, sustained groups also show intensive informal interactions between members, such as cage meetings, group social activities, or social activities in residential environments.

The social significance of these meetings extends well beyond their administrative functions. The chairman of Durian Sabatang captured this most clearly: Our formal meetings are held once every two months, but in fact we meet almost every day: in the stables, in each other's homes, during village events. It is in these informal meetings that the day-to-day affairs of the group are discussed, but the formal decisions remain in formal meetings.

This multilevel interaction strengthens group cohesion and facilitates a continuous exchange of information (Sukayat *et al.*, 2023). These findings on the importance of regular meetings are consistent with previous research that found that regular social interaction is the foundation for trust and collaboration in farmer organizations (Fischer and Qaim, 2014; Österberg and Nilsson, 2009).

COMMON FACTORS: CONNECTIONS WITH RELATED STAKEHOLDERS

Six of the nine groups (6/9) had strong connections with relevant stakeholders, especially government agencies such as the livestock service, reproductive and animal health officers, agricultural extension workers, and, in some cases, members of the DPRD. These connections facilitate group

access to a wide range of resources: technical information, government program assistance, livestock health services, and policy advocacy.

Livestock groups in West Sumatra remain dependent on external support for their sustainability and development, making stakeholder relationships a strategic rather than optional priority. Informants clearly explained both the technical and political dimensions of this dependency. Yanmaris from Mama Ceria explains: “Without a good relationship with the livestock office and the extension officers, we would be isolated. When there was information about the outbreaks of Jembrana and foot-and-mouth disease some time ago, we were informed first. When there is a government program, our name is remembered. It’s not just luck; it’s because we maintain a good relationship.” Raffles, Chairman of Ranah Sigajai, added: “We also always try to establish relationships with legislative members (DPRD) from our region. Most of the government’s assistance is now channeled through the DPRD’s POKIR fund. If we don’t have a good relationship with that person, we won’t be considered.”

These findings are in line with the literature that emphasizes the importance of external networks of interaction with various stakeholders in the effectiveness of farmer organizations in Indonesia (Wardhana *et al.*, 2020).

ADDITIONAL FACTORS: PRESENCE OF INTERNAL DONORS

Five of the nine groups (5/9) have an internal donor mechanism, in which one or more economically capable members are willing to contribute or lend funds to implement group activities or innovations. This mechanism emerged in response to the group’s limited working capital and the limited economic capabilities of most members.

In practice, internal donors are usually members or administrators who have more established businesses or other sources of income outside the farm. When the group wants to carry out activities that require funds beyond the joint contribution, the internal donor advances the costs under an implicit agreement: repayment is made gradually once the activity generates income, with no financial interest charged. The non-financial dimension of this arrangement what might be termed “other rewards” in informal finance consists primarily of enhanced social standing within the group, strengthened trust relationships, and the expectation of reciprocal support in future group decisions or activities. These are relational, not transactional, returns that reflect the social embeddedness of the mechanism rather than a formal contractual obligation.

A concrete example can be seen in the Mulia Livestock Group, where the Chairman, Yanti Aidnan, explained that

Mrs. Hj. Ernawati (Treasurer) lent her funds first to build a cage. She didn’t do it for profit she did it because she believed in this group. A similar example also occurred at Durian Sabatang, Harjone said: “When we wanted to build a new goat pen, but our collective funds were insufficient, the treasurer of the group, who had a more established business, was willing to lend money first. There is no interest, just an agreement to pay off gradually once the activity gets results.”

The findings about internal donors are interesting because they are a form of informal financing that has not been widely documented in the literature of Indonesian farmer organizations (Allen *et al.*, 2019). In the context of livestock groups, the internal donor mechanism can be categorized as constructive informal financing that relies on the benefit of information or altruistic relationships in social and business networks. The presence of internal donors provides financial flexibility, enabling the group to respond to emerging opportunities or needs without waiting for capital to accumulate from external contributions or assistance.

It should be noted that the four groups without an internal donor mechanism can still operate by relying on member contributions and the group’s business results, suggesting that internal donors provide additional benefits but are not a prerequisite for survival. Although operational benefits were evident in the groups studied, theoretical risks warrant acknowledgment: reliance on a single economically capable member may create power imbalances where donor preferences disproportionately influence group decisions, and delayed repayments can strain interpersonal relationships particularly in groups where social cohesion is the primary binding force. These risks were not directly observed, which likely reflects the sample composition: all nine groups were functional and sustainable, meaning cases where such mechanisms failed or caused conflict were absent from the data. Future research should examine groups where informal financing has created tensions, to clarify the conditions under which internal donors are beneficial versus potentially disruptive (Ault and Spicer, 2014).

THE INTERACTION BETWEEN FORMAL PERFORMANCE AND SUSTAINABILITY FACTORS

The cross-case matrix in Table 6 allows for a structured examination of observable patterns between formal PAKEM POKTAN scores and the presence of social-organizational sustainability factors across the nine groups. Given the small sample size (n=9) and the descriptive nature of this study, these patterns are presented as cross-case observations rather than statistical associations, and should be interpreted with appropriate caution.

Table 6: Cross-case matrix of PAKEM POKTAN performance scores and sustainability factors presence.

Groups	PAKEM POKTAN scores						Sustainability factors					Factor count
	V1	V2	V3	V4	V5	Total	Tran.	Meeting	Commit.	Connect.	Donors	
Mama Ceria	98	95	175	44	45	457	✓	✓	✓	✓	✓	5
Pemuda Setia	136	111	250	40	25	562	✓	-	✓	✓	-	3
Mulia	115	110	145	40	50	460	✓	✓	✓	-	✓	4
Pincuran Gadang	128	87	248	81	50	594	✓	✓	✓	✓	-	4
Milenial	136	90	256	40	30	552	✓	✓	✓	-	-	3
Sumber Rezeki	130	95	252	80	50	607	✓	✓	✓	✓	✓	5
Sawah Bangsa	127	96	286	45	30	584	✓	✓	✓	✓	✓	5
Ranah Sigajai	97	80	225	40	45	487	✓	✓	✓	-	-	3
Durian Sabatang	100	93	175	38	50	456	✓	✓	✓	✓	✓	5
Mean (with Connection, n=6)	119.8	96.2	231	54.7	41.7	543	-	-	-	-	-	
Mean (without Connection, n=3)	116	93.3	208.7	40	41.7	499.7	-	-	-	-	-	
Mean (with Donors, n=5)	114	97.8	206.9	49.4	45	512.8	-	-	-	-	-	
Mean (without Donors, n=4)	124.3	92	244.8	50.3	37.5	548.8	-	-	-	-	-	

Source: Primary data analysis 2025. Note: ✓ = factor strongly identified; — = factor absent or weak. V1= Planning; V2= Organizational; V3=Implementing Activities; V4=Controlling and Reporting; V5= Leadership Development. Comparative mean rows are presented only for Connection and Donors, as Transparency and Commitment are universal (9/9), and Regular Meetings show insufficient variation for meaningful comparison (8/9). Factor Count = total sustainability factors identified per group.

One observable pattern involves stakeholder connections and V4 (Control and Reporting). The two groups with the highest V4 scores in the sample Pincuran Gadang (81) and Sumber Rezeki (80) both have strong stakeholder connections. This is consistent with the qualitative finding that external relationships with extension workers and government agencies facilitate the incorporation of outside perspectives into group evaluation processes, which is directly assessed under V4. However, other groups with stakeholder connections recorded V4 scores comparable to groups without such connections, suggesting this pattern is not uniform. This inconsistency points to a distinction that the prevalence matrix alone cannot capture: it may be the quality and intensity of stakeholder connections that matters, rather than their mere presence. Groups such as Pincuran Gadang and Sumber Rezeki appear to maintain more strategic and consistent engagement with extension workers and government agencies relationships that actively feed back into the group's evaluation and planning processes whereas other groups with nominally similar connections may interact with stakeholders primarily for resource access rather than for organizational learning. This distinction warrants attention in future research that examines not only whether connections exist, but how they function in practice.

A second pattern concerns total score and factor count. Groups with the highest number of identified sustainability factors (5 factors: KWT Mama Ceria, Sumber Rezeki, Sawah Bangsa, Durian Sabatang) do not consistently record higher formal scores than groups with fewer factors. Pemuda Setia, for instance, recorded the second-highest total score (562) while having only three sustainability factors identified. A closer reading of Pemuda Setia's

profile suggests a plausible explanation: this group focuses on a commercially oriented product compost and cattle with established market customers whose demands create an external accountability mechanism that partially substitutes for some social enabling factors. The group's V1 (Planning, 136) and V3 (Implementing Activities, 250) scores are among the highest in the sample, consistent with a group whose commercial orientation requires systematic planning and reliable execution regardless of the breadth of social enabling conditions. In contrast, groups with broader social factor profiles tend to show more balanced scores across all five variables rather than concentrated strength in planning and implementation. This pattern is consistent with the conceptual framing in Figure 1, where formal capabilities and social factors are understood as interacting rather than hierarchical: A group may achieve relatively high formal performance through strong commercial accountability, while another sustains active operations with lower formal scores by drawing on a wider set of social enabling mechanisms.

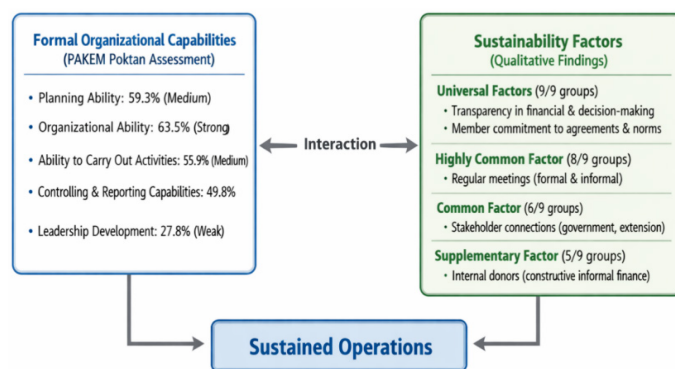


Figure 1: Conceptual model of livestock farmer group sustainability.

Beyond these cross-case patterns, qualitative analysis reveals five specific association patterns at the level of individual variables and factors. Transparency is associated with the bookkeeping administration component of V2 and with V4 groups with stronger transparency practices tend to maintain more orderly administrative systems, and the two appear to reinforce each other in practice. Regular meetings, while captured in the frequency component of V3, carry social cohesion functions that formal scoring does not assess. Member commitment appears as an enabling condition across all five variables without it, plans remain unimplemented, structures become formalities, and activities lose consistency. The internal donor mechanism operates in a space not captured by the capital fertilization component of V3, providing financial flexibility that enables activity without being reflected in formal scoring. Stakeholder connections reinforce access to information and external evaluation input, particularly relevant given that government assistance is increasingly channeled through POKIR mechanisms (Anas *et al.*, 2024).

Taken together, these observations indicate that formal capabilities and social-organizational factors operate in a mutually reinforcing relationship rather than as independent dimensions. This is consistent with the broader farmer organization literature that group effectiveness reflects the interaction between formal structures and social dynamics (Chollet *et al.*, 2025; Kale *et al.*, 2025; Wardhana *et al.*, 2020), while this study contributes by identifying specific mechanisms through which such interaction is observable in Indonesian livestock farmer groups.

DISCUSSION

The findings of this study provide various theoretical implications in understanding the sustainability of farmer organizations. First, the finding that transparency and commitment were present in all nine studied groups reinforces the literature emphasizing the importance of trust-based social capital in collective organizations (Hao *et al.*, 2024; Schnackenberg and Tomlinson, 2016). In a context where formal contract enforcement is limited, these factors appear to function as practical substitutes for contractual coordination sustaining group cohesion through social norms and mutual accountability rather than legal obligation (Wardhana *et al.*, 2020). This pattern suggests that what matters is the operationalization of social capital through observable practices, not social capital as a latent construct.

Second, the internal donor mechanism represents a novel empirical contribution to the understanding of informal financing in farmer organizations. This finding is best understood within a positive deviance framing (Pascale *et*

al., 2010), by focusing on groups that successfully sustained operations rather than on the majority that did not, this study surfaced a financing mechanism that would likely remain invisible in studies of average or failing groups. Following the typology of informal financing (Allen *et al.*, 2019), this mechanism can be categorized as constructive informal financing voluntary and altruistic, grounded in social embeddedness and reciprocity expectations in a closed network in contrast to predatory informal financing that relies on coercive social sanctions.

Third, the pattern of interaction between formal capabilities and socio-organizational factors shows that the two do not operate independently but are mutually constitutive. Transparency requires an administrative system as an infrastructure, while member commitment enables formal capabilities. This pattern is consistent with the perspective of institutional theory that the effectiveness of formal structures depends on legitimacy and social support (Chollet *et al.*, 2025). Taken together, the three theoretical contributions of this study the operationalization of social capital through concrete practices, the documentation of constructive informal financing as a positive deviance mechanism, and the mutual constitution of formal and social dimensions of group sustainability suggest that the PAKEM POKTAN framework, while valuable as a formal assessment tool, captures only part of what sustains livestock farmer groups in practice.

CONCLUSION

This study shows that the sustainability of livestock farmer groups in West Sumatra cannot be adequately explained by formal organizational capabilities alone. Among the nine groups studied, organizational ability emerged as the strongest formal dimension and leadership development as the weakest, indicating solid administrative foundations alongside systemic constraints in leadership regeneration. Five social-organizational enabling factors were identified: transparency and member commitment as universal conditions, regular meetings sustaining social cohesion beyond their formal frequency, stakeholder connections facilitating resource access, and internal donor mechanisms representing a novel form of constructive informal financing grounded in social embeddedness. These factors were found to associate with specific formal capabilities rather than operating independently, suggesting that formal structures and social dynamics are mutually constitutive in sustaining group operations. For extension officers, these findings point to the need for facilitation and organizational development competencies, best strengthened through structured partnerships with universities or extension-specialized institutions. For policymakers, enriching formal assessment frameworks with observable proxy

indicators such as meeting attendance, dues fulfillment, and leadership rotation offers a practical approach to capturing dimensions of sustainability that PAKEM POKTAN does not currently measure. Replication across other provinces and longitudinal designs are recommended to test generalizability and examine causal pathways.

ACKNOWLEDGMENTS

We would like to thank the Graduate School of Andalas University for entrusting this research and financing it (Contract No.: 26/UN16.16.DIR/PT.01.03/2025). We would also like to thank LPPM Andalas University and all parties who facilitated the research so that it could run smoothly.

NOVELTY STATEMENT

This study makes two principal contributions to the literature on farmer organization sustainability. First, it provides the first empirical documentation of an internal donor mechanism — interest-free informal financing advanced by economically capable members — as a form of constructive informal financing in Indonesian livestock farmer groups, a practice previously undocumented in this context. Second, by integrating formal PAKEM POKTAN assessment with reflexive thematic analysis, the study demonstrates that formal organizational capabilities and social-organizational enabling factors are mutually constitutive rather than independent dimensions of group sustainability, thereby operationalizing social capital theory through concrete, observable practices specific to the Indonesian livestock farming context.

AUTHOR'S CONTRIBUTION

FM conceptualized and designed the study. RAP developed the methodology, conducted field data collection, performed data analysis, and drafted the manuscript. RTS contributed to data collection and entry, assisted with data analysis, and revised the manuscript. BB, EA, and A contributed to data interpretation and critical revision of the manuscript. All authors read and approved the final version of the manuscript.

GENERATIVE AI AND AI ASSISTED TECHNOLOGY STATEMENT

The authors declare that no generative AI and AI assisted technology was used in the creation of this manuscript.

CONFLICT OF INTEREST

The authors have declared no conflict of interest.

REFERENCES

- Agricultural Human Resources Extension and Development Agency (2018). Guidelines for assessing the capabilities of farmer groups. Ministry of Agriculture, Indonesia. <https://repository.pertanian.go.id/handle/123456789/14363>
- Akbar A, Salam M, Arsyad M, Rahmadanih R (2024). Mediating role of leadership and group capital between human capital component and sustainability of horticultural agribusiness institutions in Indonesia. *Open Agric.*, 9(1): 1–11. <https://doi.org/10.1515/opag-2022-0250>
- Albu OB, Flyverbom M (2019). Organizational transparency: Conceptualizations, conditions and consequences. *Bus. Soc.*, 58(2): 268–297. <https://doi.org/10.1177/0007650316659851>
- Allen F, Qian Y, Tu G, Yu F (2019). Entrusted loans: a close look at China's shadow banking system. *J. Financ. Econ.*, 133(1): 18–41. <https://doi.org/10.1016/j.jfineco.2019.01.006>
- Anas A, Ediset E, Alianta AA (2024). Evaluation of government grant program (case study: Dana Pokok Pikiran (POKIR) in farmers groups in Padang city, West Sumatra, Indonesia). *IOP Conf. Ser. Earth Environ. Sci.*, 1292(1): 012028. <https://doi.org/10.1088/1755-1315/1292/1/012028>
- Ault JK, Spicer A (2014). The institutional context of poverty: State fragility as a predictor of cross-national variation in commercial microfinance lending. *Strateg. Manage. J.*, 35(12): 1818–1838. <https://doi.org/10.1002/smj.2185>
- Bachke ME (2019). Do farmers' organizations enhance the welfare of smallholders? Findings from the Mozambican national agricultural survey. *Food Policy*, 89: 101792. <https://doi.org/10.1016/j.foodpol.2019.101792>
- Braun V, Clarke V (2006). Using thematic analysis in psychology. *Qual. Res. Psychol.*, 3(2): 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Chambers R (1994). Participatory rural appraisal (PRA): Analysis of experience. *World Dev.*, 22(9): 1253–1268. [https://doi.org/10.1016/0305-750X\(94\)90003-5](https://doi.org/10.1016/0305-750X(94)90003-5)
- Chollet P, Enjolras G, Pavez I, Saisset LA (2025). The sustainability performance of agricultural cooperatives: A systematic literature review. *Ann. Publ. Coop. Econ.*, pp. 1–47. <https://doi.org/10.1111/apce.70013>
- Creswell JW, Plano Clark VL (2018). Designing and conducting mixed methods research. 3rd Ed. SAGE Publications.
- De Jong BA, Dirks KT, Gillespie N (2016). Trust and team performance: A meta-analysis of main effects, moderators and covariates. *J. Appl. Psychol.*, 101(8): 1134–1150. <https://doi.org/10.1037/apl0000110>
- Fischer E, Qaim M (2012). Linking smallholders to markets: determinants and impacts of farmer collective action in Kenya. *World Dev.*, 40(6): 1255–1268. <https://doi.org/10.1016/j.worlddev.2011.11.018>
- Fischer E, Qaim M (2014). Smallholder farmers and collective action: What determines the intensity of participation? *J. Agric. Econ.*, 65(3): 683–702. <https://doi.org/10.1111/1477-9552.12060>
- Hanggana S (2017). Analysis of regulatory weaknesses in Poktan, Gapoktan, UPJA and LKM-A in increasing farmers' income. *Analisis Kebijakan Pertanian*, 15(2): 137–149. <https://doi.org/10.21082/akp.v15n2.2017.137-149>
- Hao J, Bijman J, Heijman W, Gao M (2024). The effect of trust and social pressure on member commitment in agricultural cooperatives: Evidence from China. *Ann. Publ. Coop. Econ.*, 95(3): 919–944. <https://doi.org/10.1111/apce.12467>

- Hermanto, Swastika DKS (2011). Strengthening farmer groups: the first step toward improving farmers' welfare. *Analisis Kebijakan Pertanian*, 9(4): 371–390. <https://doi.org/10.21082/akp.v9n4.2011.371-390>
- Jensen-Auermann T, Adams I, Doluschitz R (2018). Trust factors that have an impact on the interrelations between members and employees in rural cooperatives. *J. Co-op. Organ. Manag.*, 6(2): 100–110. <https://doi.org/10.1016/j.jcom.2018.09.001>
- Kale RB, Dangi PA, Nikam V, Khandagale K, Gadage SS, Mahajan V (2025). How are new collective models transforming support for smallholder farmers? Empirical evidence from thematic and sentiment content analysis. *Front. Sustain. Food Syst.*, 8. <https://doi.org/10.3389/fsufs.2024.1542676>
- Lalitha N, Viswanathan PK, Vinayan S (2024). Institutional strengthening of farmer producer organizations and empowerment of small farmers in India: Evidence from a case study in Maharashtra. *Millenn. Asia*, 15(2): 278–299. <https://doi.org/10.1177/09763996221098216>
- Larsson G, Bencker A, Hyllengren P, Brandebo MF (2018). Leader development using group dynamic interventions: A systematic literature review. *Scand. Psychol.*, 5. <https://doi.org/10.15714/scandpsychol.5.e7>
- Ma W, Marini MA, Rahut DB (2023). Farmers' organizations and sustainable development: An introduction. *Ann. Public Coop. Econ.*, 94(3): 683–700. <https://doi.org/10.1002/sd.2506>
- Madarisa F, Iskandar L, Andelina D (2007). Analysis of local feed potential for beef cattle development in West Sumatra. *J. Petern. Indones.*, 12(3): 182–194. <https://doi.org/10.25077/jpi.12.3.182-194.2007>
- Madarisa F, Putra RA, Novarista N (2024). The influence of the performance of livestock farming groups on the development of government assisted livestock populations in Lima Puluh Kota District. *IOP Conf. Ser.: Earth Environ. Sci.*, 1341(1): 012103. <https://doi.org/10.1088/1755-1315/1341/1/012103>
- Markelova H, Meinzen-Dick R, Hellin J, Dohrn S (2009). Collective action for smallholder market access. *Food Policy*, 34(1): 1–7. <https://doi.org/10.1016/j.foodpol.2008.10.001>
- Meyer JP, Stanley DJ, Herscovitch L, Topolnytsky L (2002). Affective, continuance and normative commitment to the organization: a meta-analysis of antecedents, correlates and consequences. *J. Vocat. Behav.*, 61(1): 20–52. <https://doi.org/10.1006/jvbe.2001.1842>
- Österberg P, Nilsson J (2009). Members' perception of their participation in the governance of cooperatives: The key to trust and commitment in agricultural cooperatives. *Agribusiness*, 25(2): 181–197. <https://doi.org/10.1002/agr.20200>
- Ostrom E (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511807763>
- Pascale R, Sternin J, Sternin M (2010). *The power of positive deviance: How unlikely innovators solve the world's toughest problems*. Harvard business impact education. <https://hbsp.harvard.edu/product/1066-HBK-ENG>
- Patton MQ (2014). *Qualitative research and evaluation methods: Integrating theory and practice*. SAGE Publications.
- Purnomo M, Hadiwiyono E, Andriatmoko ND, Pariasa II, Kustanti A, Faust H (2022). Transformation role of forest farmer group's (FFGs) in Indonesia from development agent to brokering project. *Sage Open*, 12(1), 21582440221082144. <https://doi.org/10.1177/21582440221082144>
- Putra RA, Novarista N, Anas A, Madarisa F (2023). Identification of capacity grade improvement of livestock farmer groups receiving government assistance in Padang Pariaman district, West Sumatra. *J. Peternak. Indones.*, 25(2): 136–149. <https://doi.org/10.25077/jpi.25.2.136-149.2023>
- Schnackenberg AK, Tomlinson EC (2016). Organizational transparency: A new perspective on managing trust in organization-stakeholder relationships. *J. Manage.*, 42(7): 1784–1810. <https://doi.org/10.1177/0149206314525202>
- Silvert C, Ochieng W, Orozco JP, Asanzi A (2022). Dissecting the roles of social capital in farmer-to-farmer extension: A review. *J. Int. Agric. Ext. Educ.*, 29(4): 7–26. <https://doi.org/10.4148/2831-5960.1058>
- Sukayat Y, Setiawan I, Suharfa Putra U, Kurnia G (2023). Determining factors for farmers to engage in sustainable agricultural practices: a case from Indonesia. *Sustainability*, 15(13): 10548. <https://doi.org/10.3390/su151310548>
- Ulvenblad P, Cederholm Björklund J (2018). A leadership development programme for agricultural entrepreneurs in Sweden. *J. Agric. Educ. Ext.*, 24(4): 327–343. <https://doi.org/10.1080/1389224X.2018.1473260>
- Wardhana D, Ihle R, Heijman W (2020). Farmer cooperation in agro-clusters: Evidence from Indonesia. *Agribusiness*, 36(4): 725–750. <https://doi.org/10.1002/agr.21637>
- Wheelan SA (2016). *Creating effective teams: A guide for members and leaders* (Fifth edition). SAGE.
- Woolcock M, Narayan D (2000). *Social Capital: Implications for Development Theory, Research, and Policy*. World Bank Res. Observer, 15(2), 225–249. <https://doi.org/10.1093/wbro/15.2.225>
- Yin RK (with Campbell DT) (2018). *Case study research and applications: Design and methods* (Sixth edition). SAGE Publications, Inc.