



Factsheet 11: Gender Inclusiveness in Decision Making

Background

In the previous factsheets, various aspects of dairy farm operations in West Java such as attitudes and perceptions of farmers, dairy farm inputs, sales, labour, technology adoption, costs, revenue, and profitability aspects were examined.

In the next two factsheets of the IndoDairy Smallholder Household Survey (ISHS) 'Farm-to-Fact' series, the aspect of gender inclusiveness will be considered. This factsheet evaluates differences in decision making within the household.

Approach

In order to understand women's role in day-to-day operations on dairy farms and how much involvement they have in decision-making processes, a modified version of the Abbreviated Women Empowerment in Agriculture Index (A-WEAI) was used.

The WEAI was developed by International Food Policy Research Institute (IFPRI). This index measures the empowerment, agency, and inclusion of women in the agricultural sector in an effort to identify ways to overcome obstacles and constraints of active participation.

The A-WEAI uses measurements from five domains of the agricultural sector:

- Production – input in production decisions and autonomy in production.
- Resources – ownership, purchase, sale or transfer of assets, access to, and decisions on credit.
- Income – control over use of income.
- Leadership – group membership and speaking in public.
- Time – workload and leisure.

A modified version of the A-WEAI was used in the ISHS and included questions in the survey on the following aspects, with an emphasis on dairy farming activities:

- Input in production decisions
- Ownership of assets
- Decisions on credit
- Control over use of income
- Group membership

In order to avoid biases in responses, the primary decision makers (PDMs) and the secondary decision makers (SDMs) in the

household were asked the questions in this module separately.

In Factsheet 3, which provided an overview of household characteristics of the ISHS, it was noted that overall, **97% of the households' PDMs were male. 94% of households had a SDM and nearly all were female (99%).**

Activity participation

The respondents were asked questions about participation in certain types of work activities within the household. Detailed district wise results are shown in Table A1 in the Appendix.

These activities included food crop farming (grown primarily for household consumption), cash crop farming (grown for sale on the market), livestock raising (cattle, buffalo, horse, etc.), and activities related to the dairy business including selling and buying cows, forages, concentrates, maintaining herd health, and milk marketing.

- Both **PDMs (10%) and SDMs (9%) reported a similar level of participation in food crop farming grown primarily for household consumption.**
- In regards to **cash crop farming**, PDMs participated in it slightly more (27%) than SDMs (21%).
- 94% of PDMs (most of whom are men) and 76% of SDMs (mostly women), participated in **dairy business activities** (Table A1).

PDMs participated more in different activities of the dairy business compared to SDMs.

Figure 1 shows levels of participation of PDMs and SDMs in various activities of the dairy business.

- Of the various activities, **the largest share (61%) of participation from SDMs (women) was in selecting forages for the dairy farm operations** (Figure 1).
- The **lowest share (50%) in activity participation of SDMs was in selling and buying of cattle** (Figure 1).
- Across the four districts, the share of SDM participation in the dairy business was the highest in Garut district (84%) (Table A1).
- On the contrary, the lowest share of SDM participation in the dairy business was recorded in Cianjur district (69%) (Table A1).

Intra-household decision making

Overall decision making

The primary and secondary decision makers were asked who normally makes the decisions regarding key work activities.

Both respondents were asked who was involved in the decision-making process: themselves, their spouse, another household member, or a non-household member.

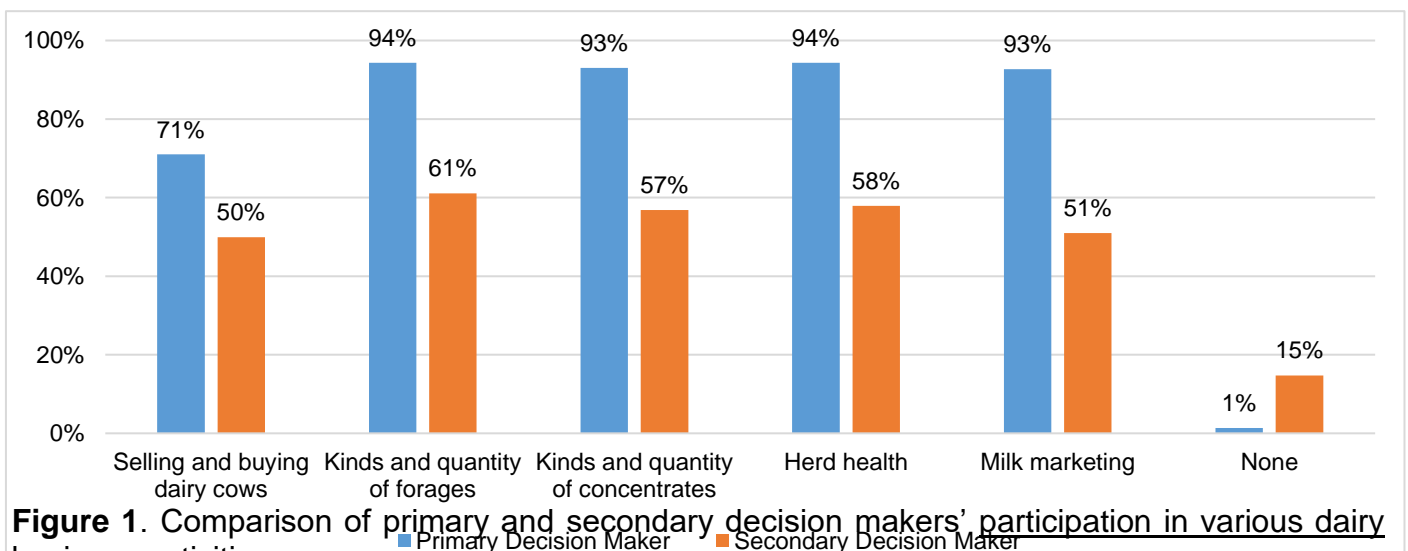


Figure 1. Comparison of primary and secondary decision makers' participation in various dairy business activities.

An overall summary of decision making between household and non-household members, broken down by district, is shown in Table A2 in the Appendix.

For all activities, involvement of other household members and non-household members was very low: 5% as reported by PDMs and 3% for SDMs. Therefore, in the following paragraphs we focus on the differences and similarities between the views of PDMs and SDMs role of themselves and their spouses.

- Overall, 96% of PDMs (men) reported they made these decisions, compared to 74% of SDMs (women).
- The proportion of SDMs (74%) who perceived they made these decisions was significantly higher than the number of PDMs (41%) who thought that their spouses made these decisions (Table A2).

This highlights that **more women perceived they made major decisions than men perceived women did**. This also indicates that **women perceived they had higher levels of decision-making capability than the levels perceived by men**.

- This high difference was noted across the four districts, especially in Bandung district where 64% of SDMs (women) perceived they made major decisions, while only little more than half of that, 35% of PDMs (men) perceived that they actually did (Table A2).

A breakdown of responses regarding specific dairy farm activities, broken down by district, is shown in Table A3 in the Appendix.

- Overall, the number of PDMs (9%) who reported they made decisions on **food crop farming** was similar to SDMs who considered themselves responsible (8%).
- In regard to **cash crop farming**, 26% of PDMs reported making these decisions, compared to only 15% of SDMs who reported making those decisions.
- Similarly, 9% of PDMs as opposed to 5% of SDMs, considered themselves responsible

for making decisions regarding **livestock raising**.

- The largest spread was noted in decisions regarding the **dairy business**. 91% of PDMs reported making these decisions, compared to only 58% of SDMs who reported making these decisions.

This highlights that, on average, **fewer women perceived they were responsible for making decisions** regarding various farm activities compared to men, **in particular on the dairy business**.

A comparison of PDMs' and SDMs' perception of decision making by household (HH) members on the dairy business is shown in Figure 2 below.

- 52% of PDMs (men) reported that their spouses are involved in these decisions and 58% of SDMs (women) said they were involved in these decisions, which is relatively similar (Figure 2).
- However, 91% of PDMs reported that they make these decisions themselves, while only 72% of SDMs said that their spouses make these decisions (Figure 2).

Hence, there are **disparities between how husbands and wives perceive each other's involvement** in decision making in the dairy business. However, **this is most pronounced in the couples' view of men's decision making** on the farm: a difference of 19% compared to 6%.

Intra-household decision making in dairy farming activities

In order to understand the gender roles in decision making in smallholder dairy farms, it is critical to assess specific activities related to the dairy business. Therefore, the ISHS had a modified list of activities to the A-WEAL questionnaire. This included asking questions about selling and buying dairy cows, sourcing forages and concentrates, managing herd health, and milk marketing.

District wise results are shown in Table A3 in the Appendix.

Primary decision makers' views of their spouses

The following points highlight the PDMs' view of the spouse's involvement in decision making – i.e. **men's views of their wives**.

- 45% of PDMs reported their spouses make decisions regarding **selling and buying cows**.
- 24% of PDMs said that their spouses make decisions related to **forage management**.
- 26% of PDMs stated their spouses make decisions regarding **concentrate management**.
- 36% of PDMs responded that their spouses make decisions about **herd health**.
- 34% of PDMs reported that their spouses make decisions regarding **milk marketing**.

Secondary decision makers' views of their spouses

The following points highlight the SDMs' view of the spouse's involvement in decision making – i.e. **women's views of their husbands**.

- 48% of SDMs reported that their spouses make decisions regarding **selling and buying cows**.
- 56% of SDMs stated their spouses make decisions regarding **forage management**.

- 48% of SDMs responded that their spouses make decisions regarding **concentrate management**.
- 53% of SDMs said that their spouses make decisions about **herd health**.
- 45% of SDMs reported their spouses make decisions regarding **milk marketing**.

Comparison of decision making between husbands and wives

The previous two sections outlined some of the consistencies and inconsistencies between PDMs and SDMs views of their own and their spouse's role in decision making. The following points highlight the similarities and differences in their responses.

Similarities:

In some aspects of the dairy business, PDMs' view of their spouses' involvement in decision making is relatively consistent with their spouse's view of their own involvement.

This holds true for **selling and buying cows** (45% compared to 43%) and **milk marketing** (34% compared to 38%).

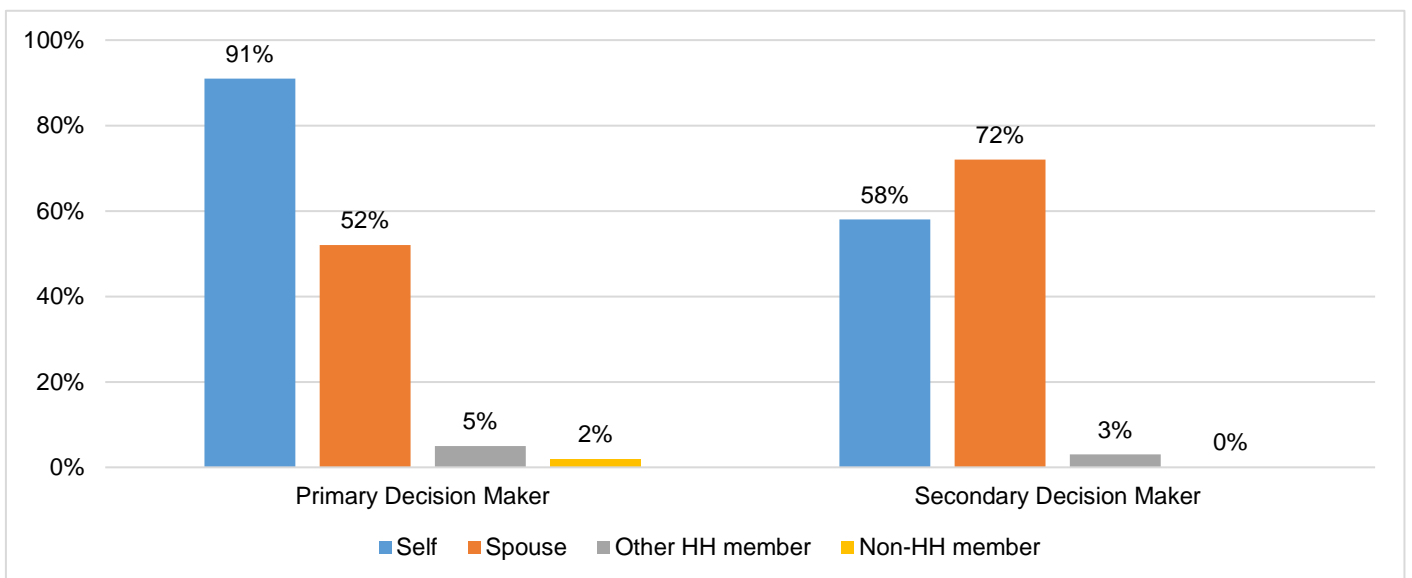


Figure 2. Comparison of primary and secondary decision makers' perception of decision making by household (HH) members on the dairy business.

Differences:

In other aspects of the dairy business, **slightly fewer PDMs reported their spouses make decisions, compared to the number of SDMs who consider themselves responsible.**

- This holds true for **forage management** (24% compared to 37%), **concentrates management** (26% compared to 38%), and **herd health** (35% compared to 45%).

In every aspect of the dairy business, **there were large discrepancies between SDMs view of their spouses' involvement in decision making (women's views of their husbands) and PDMs view of their own involvement (men's view of themselves).**

- For example, only 48% of SDMs considered their spouses responsible for **concentrate management**, compared to 91% of PDMs who reported making these decisions.
- In **milk marketing**, almost half as many SDMs (45%) reported that their spouses make decisions, compared to 89% of PDMs who reported making these decisions.

Overall, **both men and women perceived their spouse's involvement in decision making differently compared to their partners' perception of self-involvement** in decisions regarding dairy business activities.

Level of input in decisions

The respondents in the ISHS were asked how much input they had in making decisions about the various aspects of farm operations, that is input into: most/all, some, a few, or no decisions.

District wise results are shown in Table A4 in the Appendix.

- It is interesting to note that when it comes to **food crops** grown primarily for household consumption, only 15% of SDMs had input in most or all decisions, while 50% of PDMs had more input in most or all decisions.
- Similar differences were noted with **cash crops produced for sale on the market**. 35% of PDMs had input in most or all

decisions while only 7% of SDMs had input in most or all decisions.

Figure 3 and Table A4 shows levels of input in decisions of the dairy business by PDMs and SDMs.

- Overall, **the majority of PDMs had input in some (46%) or most/all of decisions (42%) regarding the dairy business, combining for 88% in total.**
- **The SDMs, however, formed a majority in only a few (40%) and some input (46%) on decisions regarding the dairy business, combining for 86% in total (Figure 3).**
- **42% of PDMs reported having input in most or all decisions related to the dairy business, compared to only 9% of SDMs (Figure 3).**
- On the other hand, equal number of PDMs and SDMs (46%) reported that they had input in some decisions regarding the **dairy business**, therefore indicating joint decision making (Figure 3).
- With **kinds and quantities of forages**, 40% of SDMs reported they had input in only a few decisions, and 38% reported having input in some decisions. 56% of PDMs reported they had input in some decisions regarding kinds and quantities of forages (Table A4).
- Similar levels were noted with decisions regarding **buying and selling cows**, where 54% of PDMs and 55% of SDMs had some input in decisions (Table A4).
- 57% of PDMs had input in some decisions regarding **kinds and quantities of concentrates**, while 43% of SDMs had input in some decisions (Table A4).

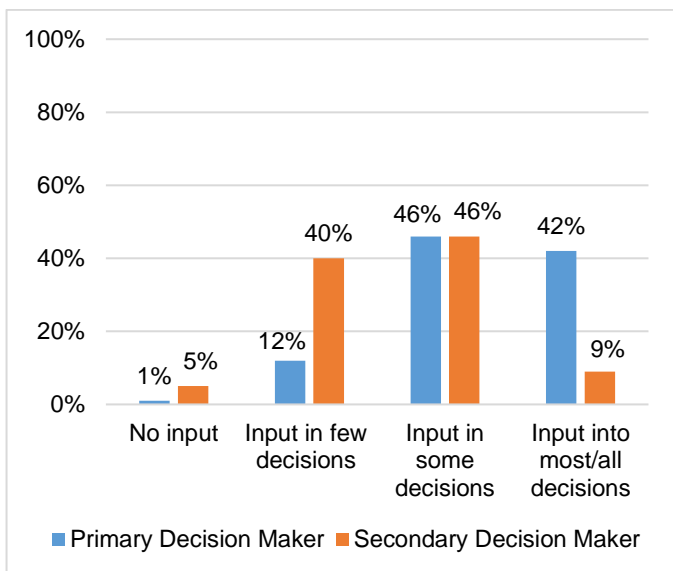


Figure 3. Comparison of primary and secondary decision makers' input in making decisions about the dairy business.

- When it comes to **herd health**, majority of the SDMs either had input in only a few decisions (35%) or input in some decisions (50%); while 56% of PDMs had input in some decisions and 33% had input in most or all decisions (Table A4).
- 59% of PDMs had input in some decisions regarding **milk marketing**, compared to 46% of SDMs that had input in some decisions (Table A4).

In specific dairy business activities, it was found that in a number of aspects, both PDMs and SDMs had input in some decisions, thereby indicating that **majority of decisions were generally made together**. However, there was a **greater emphasis on the role of PDMs (men) level of input compared to SDMs (women)**.

Extent of personal decision making

The respondents in the ISHS were asked to what extent they felt they could make their own personal decisions regarding the household activities: a high, medium, or small extent, or not at all.

District wise results are shown in Table A5 in the Appendix. Figure 4 shows different levels of extent of personal decision making in the dairy business across the four districts.

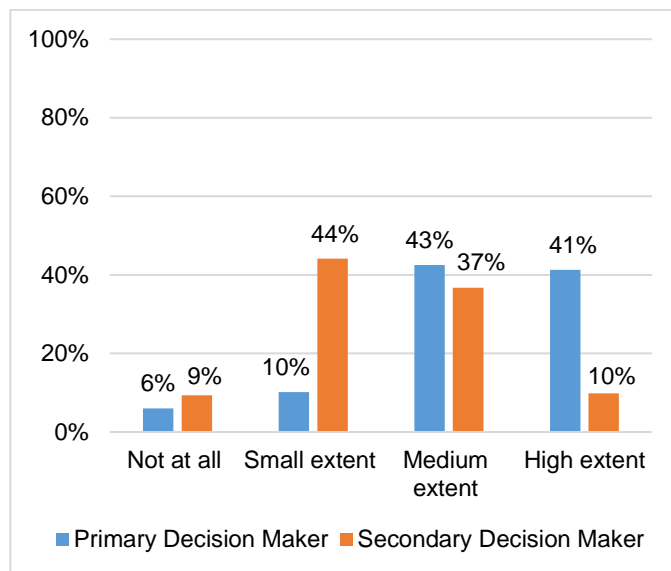


Figure 4. Comparison of primary and secondary decision makers' perception on the extent they feel they contribute to decisions on the dairy business.

- Overall, **the majority of PDMs perceived that they either have a medium (43%) or a high extent (41%) of contribution towards the decisions regarding the dairy business.**
- **The majority of SDMs, on the other hand, mainly perceived that they either have a low (44%) or a medium extent (37%) of contribution** (Figure 4).
- 10% of SDMs felt they had high extent of personal decision-making abilities regarding the **dairy business**, as opposed to 41% of PDMs (Figure 4).
- With **selling and buying cattle**, both PDMs (48%) and SDMs (48%) reported that they had medium extent of personal decision making (Table A5).
- Majority of SDMs reported either small (37%) or medium extent (43%) of personal decision making about **herd health**, while majority of PDMs either had medium (50%) or high extent (38%) in this category.
- Similarly, majority of SDMs either had small (34%) or medium extent (41%) of personal decision making in **milk marketing**, while majority of PDMs reported either medium

(53%) or high extent (28%) in the same category (Table A5).

Level of input in decisions on generated income

The ISHS captured information about the level of input on decisions regarding the use of income generated from various farm activities: most/all, some, a few, or no decisions.

District wise results are shown in Table A6 in the Appendix.

Figure 5 shows a comparison between PDMs and SDMs on contributing to decisions regarding the use of income generated from the **dairy business**.

- Majority of PDMs (75%) either had input in some or most/all of the decisions regarding the use of income generated from the **dairy business**. Similarly, majority of SDMs had input in some or most/all of those decisions (80%) (Figure 5). However, these numbers are not statistically significant.

Compared to the input in **decisions regarding the dairy business activities**, outlined in an earlier section of the factsheet (Figure 3), the results are more evenly split for decisions on income use.

- The majority of PDMs (88%) reported having input in either some or most/all decisions regarding the income generated from **dairy business**; however, the majority of SDMs (86%) reported having input in only a few or some of those decisions.

Hence, a very interesting difference can be seen. While **PDMs (men) had a higher input in making decisions regarding the dairy business activities**, **SDMs (women) had a higher input in decisions regarding the use of income generated from it**.

For income that was generated from **buying and selling cattle**, the share of SDMs (women) with input in some or most/all decisions (84%) was slightly higher than that of PDMs (men) (80%).

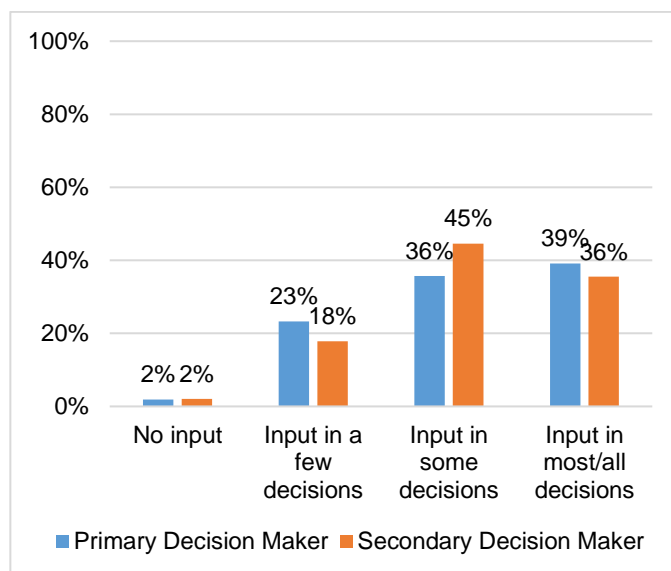


Figure 5. Comparison of PDMs and SDMs input in decisions on the use of income generated from the dairy business.

Summary

In this factsheet, the role and involvement of PDMs and SDMs in making decisions regarding various activities on-farm and related to farm income was examined.

- **94% of PDMs participated in dairy farming activities while only 76% of SDMs participated in the same activities.**
- **Of the various dairy business activities, the largest share (61%) of participation from SDMs was in procuring and feeding forages.**

There is a considerable difference in perception of PDMs and SDMs when it comes to decisions made by spouses.

- **The number of SDMs (women) (74%) who reported they made these decisions was higher than the number of PDMs (men) (41%) who thought that their spouses made these decisions.**

This highlights that more women perceived they made major decisions than men perceived women did. This also indicates that women perceived they had higher levels of decision-making capability than the levels perceived by men.

- Overall, 91% of PDMs (men) perceived that they were responsible for making all major dairy business decisions, while 58% of SDMs (women) perceived they were responsible for making the same decisions.
- Fewer PDMs perceived their spouses responsible for making decisions, compared to the number of SDMs who considered themselves responsible.
- In specific dairy related activities, it was found that in a number of the aspects, both PDMs and SDMs had inputs in some decisions, thereby indicating that majority of the decisions were jointly taken.
- While PDMs (men) had a higher input in making decisions regarding the dairy business, SDMs (women) had a higher input in the decisions regarding the use of income generated from it.
- Regarding inputs in decisions on the use of generated income from various dairy related activities, majority of PDMs had input into some (36%) and most or all (39%) of the decisions in use of generated income. Similarly, majority of the SDMs also had input into some (45%) and most or all (36%) decisions.

In the next factsheet, Factsheet 12, the aspect of gender inclusiveness will be further examined, focusing on asset ownership, credit access, and group memberships.

Appendix to Factsheet 11

The tables included in this appendix provide summary statistics related to gender inclusiveness in decision making for the entire sample.

Statistical significance between districts were determined using ANOVA (for binary and continuous variables) and Pearson's Chi-squared test (for categorical variables). For categorical variables with small observations ($n < 5$), Fisher's exact test was used to confirm the Chi-squared test. ANOVA and Chi-squared tests results are shown in the right-hand column, under the Total. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant ($p < 0.1$). Districts with the same letter are not significantly different at the 5% level ($p > 0.05$).

Table A1. Percent of PDMs and SDMs participating in various farm activities during the last 12 months by district.

Variable	Primary Decision Maker (n=600)										Secondary Decision Maker (n=563)									
	Bandung		Bogor		Cianjur		Garut		Total		Bandung		Bogor		Cianjur		Garut		Total	
	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹
Food crop farming	4.7%	a	6.3%	a	13.8%	ab	19.3%	b	9.5%	***	5.7%	a	3.9%	a	12.2%	ab	17.3%	b	9.1%	***
Cash crop farming	23.3%		8.8%		45.0%	a	35.7%	a	27.2%	***	17.5%		3.9%		35.1%	a	29.3%	a	20.8%	***
Livestock raising (cattle, buffalo, horses etc.)	5.3%	a	12.5%	ab	20.0%	b	11.4%	ab	9.7%	***	3.9%		6.6%		8.1%		9.8%		6.2%	
Dairy farming (general)	92.0%	a	98.8%	ab	90.0%	a	99.3%	b	94.3%	***	75.0%	a	72.4%	a	68.9%	a	84.2%	a	76.0%	*
Selling and buying dairy cows	65.0%	a	85.0%	b	73.8%	ab	74.3%	ab	71.0%	***	45.7%	ab	61.8%	b	40.5%	a	57.1%	ab	49.9%	***
Kinds and quantity of forages	92.7%		98.8%		92.5%		96.4%		94.3%		60.0%	a	50.0%	a	51.4%	a	75.2%		61.1%	***
Kinds and quantity of concentrates	91.7%	ab	98.8%	b	87.5%	a	95.7%	ab	93.0%	**	54.6%	a	53.9%	a	51.4%	a	66.2%	a	56.8%	*
Herd health	92.3%	a	98.8%	a	91.3%	a	97.9%	a	94.3%	**	53.9%	a	57.9%	ab	51.4%	a	69.9%	b	57.9%	**
Milk marketing	91.3%		98.8%		91.3%		92.9%		92.7%		38.2%		60.5%	a	55.4%	a	69.9%	a	51.0%	***
None	1.0%	a	1.3%	ab	5.0%	b	0.0%	a	1.3%	**	12.9%		21.1%		20.3%		12.0%		14.7%	

¹Sig = Significance; * p < 0.1, ** p < 0.05 and *** p < 0.01 indicate significance at the 10%, 5% and 1% levels, respectively. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant (p < 0.1). Districts with the same letter are not significantly different at the 5% level (p > 0.05).

Table A2. Percent of PDMs and SDMs reporting on who normally make decisions (for all activities), by district.

Variable	Primary Decision Maker (n=3516)										Secondary Decision Maker (n=2189)									
	Bandung		Bogor		Cianjur		Garut		Total		Bandung		Bogor		Cianjur		Garut		Total	
	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹
Self	95.3%	a	96.9%	a	96.3%	a	97.1%	a	96.1%	*	64.0%		82.6%	a	86.3%	a	79.4%	a	73.7%	***
Spouse	35.2%	a	44.1%		35.3%	a	53.7%		41.0%	***	90.7%	ab	87.2%	a	89.5%	ab	93.4%	b	90.9%	**
Other HH member ²	4.8%	a	4.3%	a	9.1%		3.3%	a	5.0%	***	2.7%		4.3%		4.3%		2.0%		2.9%	
Non-HH member ²	1.6%		1.2%		1.0%		0.8%		1.3%		0.5%		0.7%		0.7%		0.0%		0.4%	

¹Sig = Significance; ²HH = Household; * p < 0.1, ** p < 0.05 and *** p < 0.01 indicate significance at the 10%, 5% and 1% levels, respectively. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant (p < 0.1). Districts with the same letter are not significantly different at the 5% level (p > 0.05).

Table A3. Percent of PDMs and SDMs reporting on who normally makes the decisions regarding various farm activities, by district.

Variable	Primary Decision Maker (n=600)										Secondary Decision Maker (n=563)										
	Bandung		Bogor		Cianjur		Garut		Total		Bandung		Bogor		Cianjur		Garut		Total		
	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	
Food crop farming																					
Self	4.0%	a	6.3%	ab	13.8%	bc	19.3%	c	9.2%	***	3.9%	a	3.9%	a	9.5%	ab	15.8%	b	7.5%	***	
Spouse	2.0%	a	5.0%	a	7.5%	ab	14.3%	b	6.0%	***	4.6%	a	3.9%	a	12.2%	ab	15.0%	b	8.0%	***	
Other HH member ²	0.3%		0.0%		0.0%		0.0%		0.2%		0.4%		0.0%		0.0%		0.0%		0.2%		
Non-HH member ²	0.0%		0.0%		0.0%		0.7%		0.2%		0.0%		0.0%		0.0%		0.0%		0.0%		
Cash crop farming																					
Self	22.0%	a	8.8%	a	45.0%	b	33.6%	b	26.0%	***	11.1%	a	2.6%	a	27.0%	b	23.3%	b	14.9%	***	
Spouse	8.3%	a	6.3%	a	18.8%	ab	20.0%	b	12.2%	***	14.6%	a	3.9%	a	33.8%	b	28.6%	b	19.0%	***	
Other HH member ²	1.3%		0.0%		2.5%		2.1%		1.5%		1.1%		0.0%		0.0%		0.0%		0.5%		
Non-HH member ²	0.7%		0.0%		0.0%		0.7%		0.5%		0.7%		0.0%		0.0%		0.0%		0.4%		
Livestock raising (cattle, buffalo, horses etc.)																					
Self	5.0%	a	11.3%	ab	20.0%	b	10.7%	ab	9.2%	***	1.8%	a	6.6%	ab	8.1%	ab	9.0%	b	5.0%	***	
Spouse	3.0%	a	8.8%	a	10.0%	a	8.6%	a	6.0%	**	3.6%	a	6.6%	a	8.1%	a	9.8%	a	6.0%	*	
Other HH member ²	0.0%	a	0.0%	a	1.3%	a	0.0%	a	0.2%	*	0.0%	a	0.0%	a	1.4%	a	0.0%	a	0.2%	*	
Non-HH member ²	0.0%	a	1.3%	a	0.0%	a	0.0%	a	0.2%	*	0.0%		0.0%		0.0%		0.0%		0.0%		
Dairy business (general)																					
Self	87.3%	a	95.0%	ab	87.5%	ab	96.4%	b	90.5%	***	52.1%	a	64.5%	ab	55.4%	ab	66.2%	b	57.5%	**	
Spouse	47.0%	a	58.8%	ab	38.8%	a	64.3%	b	51.5%	***	70.7%	ab	67.1%	ab	60.8%	a	82.7%	b	71.8%	***	
Other HH member ²	3.7%		6.3%		8.8%		2.9%		4.5%		1.8%	a	2.6%	a	6.8%	a	1.5%	a	2.5%	*	
Non-HH member ²	2.3%		0.0%		1.3%		0.7%		1.5%		0.4%		1.3%		0.0%		0.0%		0.4%		

Variable	Primary Decision Maker (n=600)										Secondary Decision Maker (n=563)									
	Bandung		Bogor		Cianjur		Garut		Total		Bandung		Bogor		Cianjur		Garut		Total	
	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹	Value	Sig ¹
Selling and buying dairy cows																				
Self	61.3%	a	83.8%	b	68.8%	ab	73.3%	b	68.2%	***	39.6%	a	53.9%	a	37.8%	a	47.4%	a	43.2%	*
Spouse	39.3%	a	57.5%	c	36.3%	ab	52.9%	bc	44.5%	***	43.9%	ab	57.9%	b	36.5%	a	56.4%	b	47.8%	***
Other HH member ²	3.3%	a	3.8%	a	8.8%	a	2.1%	a	3.8%	*	1.1%		2.6%		1.4%		0.8%		1.2%	
Non-HH member ²	1.0%		1.3%		2.5%		0.0%		1.0%		0.7%		0.0%		1.4%		0.0%		0.5%	
Kinds/quantity of forages																				
Self	88.3%	a	97.5%	a	90.0%	a	93.6%	a	91.0%	**	29.3%	a	32.9%	a	41.9%	ab	54.1%	b	37.3%	***
Spouse	19.7%	a	21.3%	a	18.8%	a	37.9%		24.0%	***	55.4%	a	42.1%	a	43.2%	a	70.7%		55.6%	***
Other HH member ²	5.3%		5.0%		10.0%		4.3%		5.7%		1.8%		2.6%		1.4%		3.0%		2.1%	
Non-HH member ²	2.0%		0.0%		0.0%		0.7%		1.2%		0.0%	a	1.3%	a	0.0%	a	0.0%	a	0.2%	*
Kinds/quantity of concentrates																				
Self	87.3%	a	96.3%	a	85.0%	a	92.1%	a	89.3%	**	30.7%	a	40.8%	ab	43.2%	ab	48.9%	b	38.0%	***
Spouse	22.7%	a	26.3%	ab	17.5%	a	37.9%	b	26.0%	***	45.4%	a	42.1%	a	43.2%	a	57.9%	a	47.6%	*
Other HH member ²	3.7%		3.8%		8.8%		2.9%		4.2%		1.1%		2.6%		1.4%		1.5%		1.4%	
Non-HH member ²	1.7%		1.3%		1.3%		0.7%		1.3%		0.0%	a	0.0%	a	1.4%	a	0.0%	a	0.2%	*
Herd health																				
Self	88.0%	a	96.3%	ab	87.5%	ab	96.4%	b	91.0%	***	36.8%	a	50.0%	ab	48.6%	ab	57.9%	b	45.1%	***
Spouse	31.3%	a	35.0%	ab	30.0%	a	50.0%	b	36.0%	***	50.0%	a	48.7%	a	47.3%	a	65.4%	a	53.1%	**
Other HH member ²	4.7%		3.8%		7.5%		2.9%		4.5%		1.1%		2.6%		1.4%		1.5%		1.4%	
Non-HH member ²	0.3%		1.3%		1.3%		0.7%		0.7%		0.0%		0.0%		0.0%		0.0%		0.0%	
Milk marketing																				
Self	88.7%		92.5%		85.0%		89.3%		88.8%		21.8%		51.3%	a	51.4%	a	57.9%	a	38.2%	***
Spouse	23.0%	a	48.8%	b	36.3%	ab	48.6%	b	34.2%	***	33.6%		51.3%	a	50.0%	a	60.9%	a	44.6%	***
Other HH member ²	4.3%		3.8%		7.5%		3.6%		4.5%		1.4%		2.6%		2.7%		1.5%		1.8%	
Non-HH member ²	1.0%		2.5%		0.0%		0.7%		1.0%		0.0%		0.0%		0.0%		0.0%		0.0%	

¹Sig = Significance; ²HH = Household; * p < 0.1, ** p < 0.05 and *** p < 0.01 indicate significance at the 10%, 5% and 1% levels, respectively. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant (p < 0.1). Districts with the same letter are not significantly different at the 5% level (p > 0.05).

Table A4. Percent of PDMs and SDMs reporting on how much input they have in making decisions on various farm activities, by district.

Variable	Primary Decision Maker (PDM)						Secondary Decision Maker (SDM)					
	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹
Food crop farming (PDM=38) (SDM = 46)												
<i>No input</i>	0.0%	0.0%	0.0%	0.0%	0.0%		7.1%	0.0%	11.1%	0.0%	4.4%	
<i>Input in few decisions</i>	0.0%	0.0%	0.0%	9.5%	5.3%		35.7%	66.7%	22.2%	35.0%	34.8%	
<i>Input in some decisions</i>	57.1%	25.0%	83.3%	33.3%	44.7%		35.7%	33.3%	55.6%	50.0%	45.7%	
<i>Input into most or all decisions</i>	42.9%	75.0%	16.7%	57.1%	50.0%		21.4%	0.0%	11.1%	15.0%	15.2%	
Cash crop farming (PDM=81) (SDM=110)												
<i>No input</i>	6.9%	0.0%	0.0%	3.2%	3.7%		9.1%	0.0%	8.0%	2.6%	6.4%	**
<i>Input in few decisions</i>	6.9%	20.0%	18.8%	12.9%	12.4%		29.6%	66.7%	40.0%	57.9%	42.7%	**
<i>Input in some decisions</i>	51.7%	0.0%	68.8%	45.2%	49.4%		54.6%	0.0%	52.0%	29.0%	43.6%	**
<i>Input into most or all decisions</i>	34.5%	80.0%	12.5%	38.7%	34.6%		6.8%	33.3%	0.0%	10.5%	7.3%	**
Livestock raising (cattle, buffalo, horses etc.) (PDM=37) (SDM=34)												
<i>No input</i>	0.0%	0.0%	0.0%	0.0%	0.0%		20.0%	0.0%	0.0%	0.0%	5.9%	
<i>Input in few decisions</i>	22.2%	0.0%	12.5%	8.3%	10.8%		40.0%	20.0%	50.0%	76.9%	52.9%	
<i>Input in some decisions</i>	22.2%	87.5%	50.0%	33.3%	46.0%		40.0%	80.0%	50.0%	23.1%	41.2%	
<i>Input into most or all decisions</i>	55.6%	12.5%	37.5%	58.3%	43.2%		0.0%	0.0%	0.0%	0.0%	0.0%	
Dairy farming (general) (PDM = 334) (SDM=408)												
<i>No input</i>	0.0%	2.0%	2.7%	0.0%	0.6%	*	7.5%	0.0%	0.0%	3.6%	4.7%	
<i>Input in few decisions</i>	12.3%	14.3%	5.4%	12.9%	12.0%	*	35.0%	43.1%	48.9%	44.6%	40.2%	
<i>Input in some decisions</i>	42.6%	44.9%	67.6%	43.0%	45.8%	*	47.0%	51.0%	46.8%	41.8%	46.1%	
<i>Input into most or all decisions</i>	45.2%	38.8%	24.3%	44.1%	41.6%	*	10.5%	5.9%	4.3%	10.0%	9.1%	
Selling and buying dairy cows (PDM = 283) (SDM=271)												
<i>No input</i>	0.0%	2.1%	2.9%	0.0%	0.7%		2.4%	2.3%	7.4%	1.3%	2.6%	
<i>Input in few decisions</i>	7.9%	8.5%	14.7%	6.7%	8.5%		29.6%	25.0%	25.9%	34.7%	29.9%	
<i>Input in some decisions</i>	50.4%	53.2%	58.8%	58.7%	54.1%		52.0%	56.8%	59.3%	57.3%	55.0%	
<i>Input into most or all decisions</i>	41.7%	36.2%	23.5%	34.7%	36.8%		16.0%	15.9%	7.4%	6.7%	12.6%	
Kinds and quantity of forages (PDM = 177) (SDM=319)												
<i>No input</i>	1.3%	5.3%	9.1%	5.2%	4.0%	*	18.4%	18.2%	9.4%	9.4%	14.7%	
<i>Input in few decisions</i>	9.0%	15.8%	13.6%	1.7%	7.9%	*	38.6%	27.3%	50.0%	42.7%	39.8%	
<i>Input in some decisions</i>	51.3%	63.2%	50.0%	62.1%	55.9%	*	37.3%	48.5%	34.4%	39.6%	38.9%	
<i>Input into most or all decisions</i>	38.5%	15.8%	27.3%	31.0%	32.2%	*	5.7%	6.1%	6.3%	8.3%	6.6%	
Kinds and quantity of concentrates (PDM = 183) (SDM=272)												
<i>No input</i>	3.7%	8.7%	9.5%	5.3%	5.5%		18.6%	15.6%	9.4%	10.1%	14.7%	
<i>Input in few decisions</i>	15.9%	30.4%	14.3%	8.8%	15.3%		33.3%	40.6%	40.6%	34.2%	35.3%	
<i>Input in some decisions</i>	52.4%	56.5%	61.9%	61.4%	56.8%		38.8%	43.8%	43.8%	48.1%	42.7%	

Variable	Primary Decision Maker (PDM)						Secondary Decision Maker (SDM)					
	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹
<i>Input into most or all decisions</i>	28.1%	4.4%	14.3%	24.6%	22.4%		9.3%	0.0%	6.3%	7.6%	7.4%	
Herd health (PDM = 240) (SDM=301)												
<i>No input</i>	0.0%	6.7%	10.3%	0.0%	2.1%	***	5.7%	2.7%	0.0%	4.6%	4.3%	
<i>Input in few decisions</i>	7.4%	10.0%	0.0%	12.3%	8.3%	***	39.7%	27.0%	37.1%	28.4%	34.6%	
<i>Input in some decisions</i>	50.9%	66.7%	62.1%	57.5%	56.3%	***	41.1%	67.6%	51.4%	55.7%	49.8%	
<i>Input into most or all decisions</i>	41.7%	16.7%	27.6%	30.1%	33.3%	***	13.5%	2.7%	11.4%	11.4%	11.3%	
Milk marketing (PDM = 226) (SDM=256)												
<i>No input</i>	0.0%	4.8%	9.1%	2.9%	3.1%		20.6%	5.1%	5.3%	6.1%	11.3%	***
<i>Input in few decisions</i>	13.6%	11.9%	12.1%	15.7%	13.7%		39.2%	25.6%	36.8%	30.5%	34.0%	***
<i>Input in some decisions</i>	54.3%	69.1%	66.7%	55.7%	59.3%		34.0%	66.7%	50.0%	48.8%	46.1%	***
<i>Input into most or all decisions</i>	32.1%	14.3%	12.1%	25.7%	23.9%		6.2%	2.6%	7.9%	14.6%	8.6%	***

¹Sig = Significance; * p < 0.1, ** p < 0.05 and *** p < 0.01 indicate significance at the 10%, 5% and 1% levels, respectively. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant (p < 0.1). Districts with the same letter are not significantly different at the 5% level (p > 0.05).

Table A5. Percent of PDMs and SDMs reporting on the extent of making personal decisions on various farm activities, by district.

Variable	Primary Decision Maker (PDM)						Secondary Decision Maker (SDM)					
	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹
Food crop farming (PDM=38) (SDM = 46)												
<i>Not at all</i>	0.0%	0.0%	0.0%	0.0%	0.0%		0.0%	0.0%	11.1%	0.0%	2.2%	
<i>Small extent</i>	0.0%	0.0%	0.0%	9.5%	5.3%		28.6%	66.7%	22.2%	25.0%	28.3%	
<i>Medium extent</i>	42.9%	25.0%	66.7%	33.3%	39.5%		64.3%	33.3%	44.4%	55.0%	54.4%	
<i>High extent</i>	57.1%	75.0%	33.3%	57.1%	55.3%		7.1%	0.0%	22.2%	20.0%	15.2%	
Cash crop farming (PDM=81) (SDM=110)												
<i>Not at all</i>	3.5%	0.0%	0.0%	9.7%	4.9%		6.8%	0.0%	8.0%	13.2%	9.1%	
<i>Small extent</i>	13.8%	20.0%	25.0%	12.9%	16.1%		36.4%	66.7%	40.0%	50.0%	42.7%	
<i>Medium extent</i>	51.7%	0.0%	43.8%	41.9%	43.2%		52.3%	0.0%	36.0%	31.6%	40.0%	
<i>High extent</i>	31.0%	80.0%	31.3%	35.5%	35.8%		4.6%	33.3%	16.0%	5.3%	8.2%	
Livestock raising (cattle, buffalo, horses etc.) (PDM=37) (SDM=34)												
<i>Not at all</i>	0.0%	0.0%	0.0%	16.7%	5.4%		0.0%	0.0%	0.0%	15.4%	5.9%	
<i>Small extent</i>	33.3%	0.0%	12.5%	8.3%	13.5%		70.0%	20.0%	33.3%	69.2%	55.9%	
<i>Medium extent</i>	33.3%	62.5%	37.5%	16.7%	35.1%		30.0%	60.0%	50.0%	15.4%	32.4%	
<i>High extent</i>	33.3%	37.5%	50.0%	58.3%	46.0%		0.0%	20.0%	16.7%	0.0%	5.9%	
Dairy farming (general) (PDM = 334) (SDM=408)												
<i>Not at all</i>	5.8%	2.0%	2.7%	9.7%	6.0%	**	12.5%	0.0%	0.0%	11.8%	9.3%	**
<i>Small extent</i>	9.7%	16.3%	5.4%	9.7%	10.2%	**	40.0%	58.8%	53.2%	40.9%	44.1%	**
<i>Medium extent</i>	43.2%	38.8%	67.6%	33.3%	42.5%	**	39.0%	31.4%	36.2%	35.5%	36.8%	**
<i>High extent</i>	41.3%	42.9%	24.3%	47.3%	41.3%	**	8.5%	9.8%	10.6%	11.8%	9.8%	**
Selling and buying dairy cows (PDM = 283) (SDM=271)												
<i>Not at all</i>	6.3%	2.1%	2.9%	5.3%	5.0%		16.0%	2.3%	7.4%	2.7%	9.2%	
<i>Small extent</i>	5.5%	12.8%	14.7%	5.3%	7.8%		29.6%	34.1%	29.6%	34.7%	31.7%	
<i>Medium extent</i>	45.7%	42.6%	52.9%	53.3%	48.1%		45.6%	47.7%	51.9%	50.7%	48.0%	
<i>High extent</i>	42.5%	42.6%	29.4%	36.0%	39.2%		8.8%	15.9%	11.1%	12.0%	11.1%	
Kinds and quantity of forages (PDM = 177) (SDM=319)												
<i>Not at all</i>	1.3%	5.3%	9.1%	6.9%	4.5%		18.4%	18.2%	9.4%	14.6%	16.3%	
<i>Small extent</i>	9.0%	15.8%	13.6%	6.9%	9.6%		37.3%	42.4%	50.0%	36.5%	38.9%	
<i>Medium extent</i>	44.9%	52.6%	40.9%	46.6%	45.8%		35.4%	33.3%	25.0%	37.5%	34.8%	
<i>High extent</i>	44.9%	26.3%	36.4%	39.7%	40.1%		8.9%	6.1%	15.6%	11.5%	10.0%	
Kinds and quantity of concentrates (PDM = 183) (SDM=272)												
<i>Not at all</i>	3.7%	8.7%	9.5%	10.5%	7.1%		20.9%	15.6%	9.4%	12.7%	16.5%	
<i>Small extent</i>	13.4%	26.1%	19.1%	12.3%	15.3%		36.4%	43.8%	40.6%	39.2%	38.6%	
<i>Medium extent</i>	43.9%	52.2%	42.9%	45.6%	45.4%		33.3%	37.5%	31.3%	32.9%	33.5%	
<i>High extent</i>	39.0%	13.0%	28.6%	31.6%	32.2%		9.3%	3.1%	18.8%	15.2%	11.4%	

Variable	Primary Decision Maker (PDM)						Secondary Decision Maker (SDM)					
	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹	Bandung	Bogor	Cianjur	Garut	Total	Sig ¹
Herd health (PDM = 240) (SDM=301)												
<i>Not at all</i>	0.9%	6.7%	10.3%	5.5%	4.2%	**	9.2%	2.7%	0.0%	10.2%	7.6%	
<i>Small extent</i>	7.4%	13.3%	0.0%	12.3%	8.8%	**	39.7%	37.8%	37.1%	31.8%	36.9%	
<i>Medium extent</i>	45.4%	53.3%	58.6%	50.7%	49.6%	**	38.3%	51.4%	45.7%	44.3%	42.5%	
<i>High extent</i>	46.3%	26.7%	31.0%	31.5%	37.5%	**	12.8%	8.1%	17.1%	13.6%	13.0%	
Milk marketing (PDM = 226) (SDM=256)												
<i>Not at all</i>	3.7%	4.8%	6.1%	11.4%	6.6%		20.6%	5.1%	5.3%	15.9%	14.5%	**
<i>Small extent</i>	14.8%	14.3%	15.2%	7.1%	12.4%		40.2%	33.3%	34.2%	25.6%	33.6%	**
<i>Medium extent</i>	46.9%	57.1%	60.6%	52.9%	52.7%		33.0%	53.9%	44.7%	43.9%	41.4%	**
<i>High extent</i>	34.6%	23.8%	18.2%	28.6%	28.3%		6.2%	7.7%	15.8%	14.6%	10.6%	**

¹Sig = Significance; * p < 0.1, ** p < 0.05 and *** p < 0.01 indicate significance at the 10%, 5% and 1% levels, respectively. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant (p < 0.1). Districts with the same letter are not significantly different at the 5% level (p > 0.05).

Table A6. Percent of PDMs and SDMs reporting on how much input they have in decisions regarding the use of income generated from various farm activities, by district.

Variable	Primary Decision Maker (PDM)					Sig ¹	Secondary Decision Maker (SDM)					Sig ¹
	Bandung	Bogor	Cianjur	Garut	Total		Bandung	Bogor	Cianjur	Garut	Total	
Cash crop farming (PDM=163) (SDM=117)												
<i>No input</i>	1.4%	0.0%	0.0%	2.0%	1.2%		2.0%	0.0%	3.9%	0.0%	1.7%	
<i>Input in few decisions</i>	15.7%	42.9%	30.6%	20.0%	21.5%		14.3%	0.0%	26.9%	23.1%	19.7%	
<i>Input in some decisions</i>	35.7%	14.3%	27.8%	36.0%	33.1%		51.0%	66.7%	42.3%	51.3%	49.6%	
<i>Input into most or all decisions</i>	47.1%	42.9%	41.7%	42.0%	44.2%		32.7%	33.3%	26.9%	25.6%	29.1%	
Livestock raising (cattle, buffalo, horses etc.) (PDM=58) (SDM=35)												
<i>No input</i>	12.5%	0.0%	0.0%	0.0%	3.5%		0.0%	0.0%	0.0%	0.0%	0.0%	
<i>Input in few decisions</i>	25.0%	20.0%	18.8%	31.3%	24.1%		36.4%	0.0%	16.7%	30.8%	25.7%	
<i>Input in some decisions</i>	6.3%	40.0%	18.8%	18.8%	19.0%		54.6%	60.0%	33.3%	38.5%	45.7%	
<i>Input into most or all decisions</i>	56.3%	40.0%	62.5%	50.0%	53.5%		9.1%	40.0%	50.0%	30.8%	28.6%	
Dairy farming (general) (PDM = 566) (SDM=428)												
<i>No input</i>	3.6%	1.3%	0.0%	0.0%	1.9%		3.3%	1.8%	0.0%	0.9%	2.1%	
<i>Input in few decisions</i>	22.1%	20.3%	26.4%	25.9%	23.3%		18.1%	18.2%	21.6%	15.2%	17.8%	
<i>Input in some decisions</i>	35.5%	38.0%	29.2%	38.1%	35.7%		44.8%	43.6%	41.2%	46.4%	44.6%	
<i>Input into most or all decisions</i>	38.8%	40.5%	44.4%	36.0%	39.1%		33.8%	36.4%	37.3%	37.5%	35.5%	

¹Sig = Significance; * p < 0.1, ** p < 0.05 and *** p < 0.01 indicate significance at the 10%, 5% and 1% levels, respectively. Pairwise comparisons were performed for continuous and binary variables using Tukey tests when the ANOVA test was trending towards significant (p < 0.1). Districts with the same letter are not significantly different at the 5% level (p > 0.05).