Factsheet 6: Dairy Farm Labour

Background

In the previous factsheet, dairy farm inputs used by dairy farmers in West Java were examined. In this factsheet, the characteristics of the IndoDairy Smallholder Household Survey (ISHS) will be further examined, focusing on the critical aspect of dairy farm labour.

Main sources of labour

The respondents were asked about the main sources of labour they use on the dairy farm. District wise results are shown in Table A1 in the Appendix.

Figure 1 highlights the main sources of labour.

- **Overall, the majority of the respondents (59%) reported that <u>household members</u> were the main source of labour in dairy business.**

- The share of dairy farms where the <u>respondent was the only source of labour</u> was also significant with 26% of the total responses.

- Overall, the share of <u>hired labour</u> was generally low, with only 3% of the total responses.

- 10% of dairy farms <u>source their labour from hired labour and family members.</u>

- However, this was substantially higher in Bogor district where 24% of the respondents indicated that both <u>themselves and hired labour</u> are the main source of labour in dairy business. On the other hand, only 6% of the respondents reported this in Bandung district.

- <u>Other sources of labour</u> accounted for 2% in total, which included a combination of the household head, immediate and extended family members, and neighbours.

- Overall, the main sources of labour in Bandung, Cianjur and Garut consisted primarily of either <u>just the respondent</u> or <u>the respondent and their family</u>. However, the respondents in Bogor formed a majority in either <u>just the respondent</u> or <u>hired labour and the respondent together</u>.
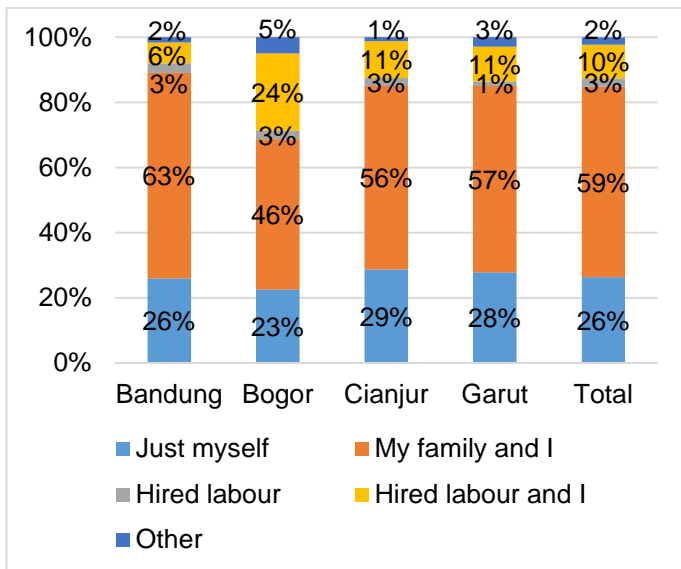
Figure 1. Main sources of labour on dairy farm.

Labour Hire

The respondents were asked if they had hired any labour to work on dairy farm in the past 12 months. District wise results are shown in Table A1 in the Appendix.

- Overall, 22% of the respondents reported hiring labour to work on the farm in the past 12 months.

- The highest share of hiring dairy farm labour in the past 12 months was reported in Bogor district (33%) and lowest in Bandung (19%) and Garut (19%) districts.

Daily wage rates

The respondents were asked if they were to hire someone to work on the farm on the day of the survey, what would be the daily wage rate including meals. The results are summarised in Table A1 in the Appendix.

- The average daily wage rate across the four districts was 46,193 IDR, which is equivalent to USD 3.19.

- The highest daily wage rate was reported by farmers in Bogor district at 53,742 IDR, which was equivalent to USD 3.72. On the other hand, the lowest wage rate was reported by farmers in Garut district at 39,651 IDR, which was equivalent to USD 2.74.
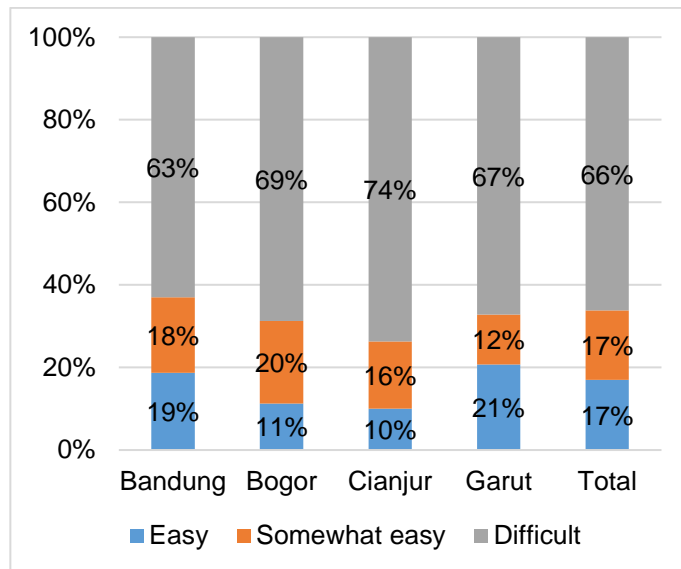

Figure 2. Ease of access to labour.

Bogor is a key urban centre located in close proximity to the national capital, Jakarta, which could be the reason that average daily wage rates are highest in this region.

Methods of payment

The dairy farmers were asked what the most common method of payment was when they hired someone to work on the dairy farm. The results are summarised in Table A1 in the Appendix.

- **Overall, the most common method of payment was <u>cash</u> (65%), with an exception of Cianjur district where only 43% of the respondents reported using <u>cash payments</u>.**

- This was followed by <u>cash and meals</u> with 33% of the respondents using this method. The highest share of this method of payment was recorded in Cianjur district (56%).

- Only a small number of farmers (0.5%) reported using <u>cash, meals and milk</u> as payment for dairy farm labour.

Access to labour

Access to labour is an important aspect of operating a dairy farm. The respondents were asked if it was easy to find labour in their local area. Figure 2 highlights labour accessibility on dairy farms across the four districts.

District wise results are summarised in Table A1 in the Appendix.

- **Overall, majority of the farmers (66%) reported that it was <u>difficult to find labour</u> in their local area.** The highest share of farmers who faced difficulty in access to labour was in Cianjur district (74%) and lowest in Bandung district (63%).

- Only 17% of the farmers found it <u>easy to access labour</u> for their dairy farms. Further, the same number of farmers (17%) found it <u>somewhat easy to find labour</u>.

It is noteworthy that despite being located in close proximity to urban centres, a high number of respondents from Bogor (69%) and Bandung (63%) still reported difficulties in accessing labour.

Labour hours on farm

The number of hours dairy farmers or hired labour spend on dairy farm is an important determinant of productivity, which also relates to the cost of dairy farm operations. The respondents were asked to consider the different activities undertaken on the dairy farm on a daily basis, including the contribution of different household members and employed labour. District wise results are summarised in Table A2 in the Appendix. Figure 3 and 4 show the total number of hours each type of labour spent on the dairy farm operations.
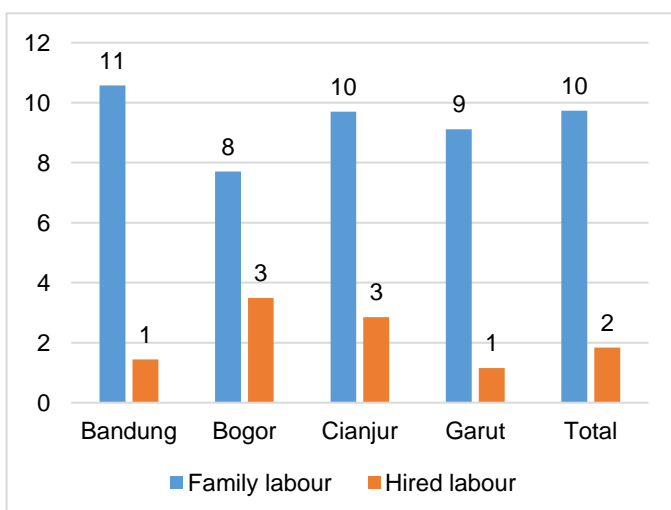

Figure 3. Comparison of family and hired labour hours spent on dairy farms.

- **On average, the family contributed the most in labour (9.7 hours) to the dairy farm operations**.

- The share of hired labour hours was substantially lower compared to family labour, with an average of 1.8 hours overall.

- The share of hired labour hours on farm was highest in Bogor district (3.5 hours) and lowest in Bandung (1.4 hours) and Garut (1.2 hours).

There was a substantial difference between labour hours in males and females across the four districts.

- On average, males spent about 7.2 hours on farm labour while females spent 2.3 hours.

Family labour vs hired labour

Dairy farm families and hired labour collectively spent significant amount of time on the farm in various activities. The share of time spent on these activities was further analysed. District wise results are summarised in Table A2 in the Appendix.

- On average, **most time was spent on <u>collecting forages</u>**, both for family (4.4 hours) and for hired labour (1.0 hour).

- Other activities that took up a large amount of the family's time included <u>milking</u> (1.1 hours) and <u>washing the barn</u> (1.1 hours).
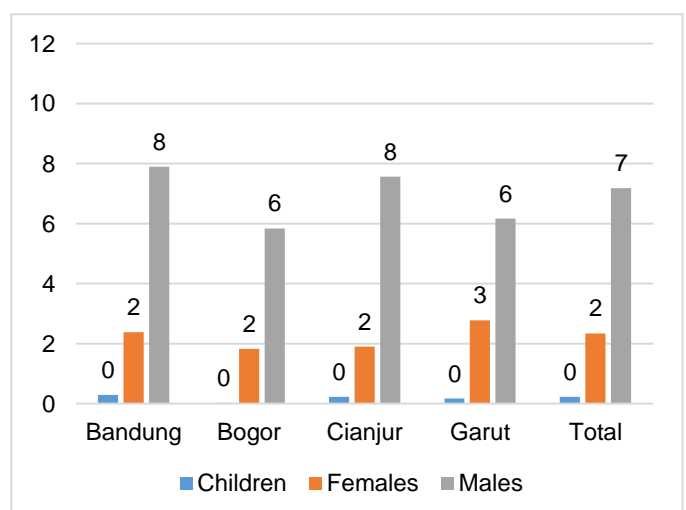

Figure 4. Comparison of family labour hours on dairy farm.

- Feeding took up almost an hour (0.9 hour) of the family's time.

- Washing cows also took up almost an hour (0.8 hour) of the dairy farm family's time.

- Apart from collecting forages, hired labour spent little time on other activities. For instance, milking (0.2 hour), washing barn/cage (0.2 hours), feeding (0.1 hour) and washing cows (0.1 hour).

Therefore, labour was mainly hired for the purposes of collecting forages.

Summary

- **Collectively, family members were the main source of labour on dairy farm.**

- **The number of hired labour on dairy farm was generally low. However, in Bogor district there was a higher number of households employing labour compared to the other districts.**

- **Finding labour was generally difficult, even in districts that are in close proximity to urban centres like Bogor and Bandung.**

- **Dairy farm owners mostly used cash to pay for hired labour.**

- **Collecting forages took up the most time of both family and hired labour.**

In the next factsheet, Factsheet 7, milk productivity, price and quality will be analysed across the four districts.

Appendix to Factsheet 6

The tables included in this appendix provide summary statistics related to use of labour inputs at the dairy household level 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. Dairy farm labour statistics.

Variable	Bandung Value[1]	Bandung SD[2]	Bandung Sig[3]	Bogor Value[1]	Bogor SD[2]	Bogor Sig[3]	Cianjur Value[1]	Cianjur SD[2]	Cianjur Sig[3]	Garut Value[1]	Garut SD[2]	Garut Sig[3]	Total Value[1]	Total SD[2]	Total Sig[3]
Main source of labour in dairy business (n=600)															
Just myself	26.0%			22.5%			28.8%			27.9%			26.3%		***
My family and I	63.0%			46.3%			56.3%			57.1%			58.5%		***
Hired labour	3.0%			2.5%			2.5%			1.4%			2.5%		***
Hired labour and I	6.3%			23.8%			11.3%			10.7%			10.3%		***
Other	1.7%			5.0%			1.3%			2.9%			2.3%		***
Total litres per labour unit	10,044	5,218	a	12,201	8,320		9,658	5,918	a	7,612	3,877		9,713	5,722	***
Hired labour in the past 12 months? (n=600)	18.7%		a	32.5%		b	27.5%		ab	18.6%		ab	21.7%		**
Number of people currently hired (n=130)	1.48	1.32		1.73	0.96		1.82	1.44		1.54	1.03		1.60	1.22	
Employed labour daily rate (n=600)															
IDR	46,256	19,601	a	53,742	20,768	b	49,574	18,458	ab	39,651	15,748		46,193	19,256	***
USD[4]	3.20	1.36	a	3.72	1.44	b	3.43	1.28	ab	2.74	1.09		3.19	1.33	***
Common payment methods (n=600)															
Only cash	72.7%			56.3%			42.5%			67.9%			65.3%		***
Cash and meals	25.7%			40.0%			56.3%			31.4%			33.0%		***
Cash, meals and milk	0.3%			1.3%			1.3%			0.0%			0.5%		***
Other	1.3%			2.5%			0.0%			0.7%			1.2%		***
Ease of finding local labour (n=600)															
Easy	18.7%			11.3%			10.0%			20.7%			17.0%		
Somewhat easy	18.3%			20.0%			16.3%			12.1%			16.8%		
Difficult	63.0%			68.8%			73.8%			67.1%			66.2%		

[1]Value is either percentage or mean; [2]SD = Standard Deviation; [3]Sig = 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 ($p > 0.05$). [4]Exchange rate: 1 USD = 14,459.50 Indonesian Rupiah on 27 July 2018.

Table A2. Number of hours spent daily by labour on dairy farm (n = 600).

Variable	Bandung			Bogor			Cianjur			Garut			Total		
	Value[1]	SD[2]	Sig[3]	Value[1]	SD[2]	Sig[3]	Value[1]	SD[2]	Sig[3]	Value[1]	SD[2]	Sig[3]	Value[1]	SD[2]	Sig[3]
Total number of labour hours on farm															
Family labour	10.57	4.28	c	7.70	3.26	a	9.70	4.48	bc	9.11	3.40	ab	9.73	4.11	***
Children	0.29	1.11		0.02	0.13		0.23	1.06		0.17	0.76		0.22	0.95	
Females	2.38	2.54	ab	1.83	2.50	a	1.90	2.94	ab	2.78	2.54	b	2.34	2.60	**
Males	7.90	3.51	b	5.84	2.90	a	7.56	4.20	b	6.17	2.81	a	7.18	3.49	***
Hired labour	1.44	4.52	a	3.49	8.04	b	2.85	8.15	ab	1.15	4.36	a	1.84	5.71	***
Total number of owner's hours spend on															
Cut-and-carry grass	4.38	2.35	a	3.21	1.99		4.52	2.65	a	5.01	2.56	a	4.39	2.45	***
Feeding	1.05	0.78		0.70	0.56	a	0.77	0.47	a	0.69	0.43	a	0.88	0.67	***
Providing water	0.69	0.96		0.24	0.25	a	0.39	0.51	a	0.33	0.22	a	0.51	0.74	***
Milking	1.21	0.96	b	0.87	0.65	a	1.05	0.90	ab	0.81	0.55	a	1.05	0.85	***
Washing barn / cage	1.28	0.79	b	1.03	0.69	a	1.13	0.75	ab	0.91	0.55	a	1.14	0.74	***
Washing cows	1.00	0.97	a	0.92	0.64	a	0.97	0.74	a	0.39	0.44		0.84	0.84	***
Cleaning equipment	0.32	0.20	b	0.24	0.21	a	0.29	0.23	ab	0.26	0.16	a	0.29	0.20	***
Milk handling (filtering / packing)	0.09	0.16		0.08	0.18		0.08	0.11		0.06	0.10		0.08	0.15	
Milk delivery	0.54	0.42	ab	0.42	0.55	a	0.51	0.44	ab	0.65	0.60	b	0.55	0.49	***
Total number of hours hired labour spend on															
Cut-and-carry grass	0.82	2.37	a	1.51	2.99	a	1.70	4.11	a	0.80	2.68	a	1.02	2.83	**
Feeding	0.10	0.52	a	0.37	1.00	b	0.17	0.78	ab	0.07	0.48	a	0.14	0.64	***
Providing water	0.04	0.25	a	0.12	0.35	a	0.10	0.41	a	0.02	0.15	a	0.06	0.28	**
Milking	0.19	1.13	a	0.44	1.13	a	0.37	1.80	a	0.08	0.41	a	0.22	1.14	*
Washing barn / cage	0.08	0.46	a	0.49	1.92	b	0.21	0.76	ab	0.08	0.51	a	0.15	0.86	***
Washing cows	0.12	0.59	a	0.35	1.00	b	0.18	0.69	ab	0.05	0.29	a	0.14	0.63	***
Cleaning equipment	0.03	0.17	a	0.10	0.27	b	0.06	0.23	ab	0.02	0.10	a	0.04	0.19	***
Milk handling (filtering / packing)	0.01	0.07		0.03	0.13		0.01	0.09		0.01	0.09		0.01	0.09	
Milk delivery	0.05	0.17	a	0.09	0.23	a	0.06	0.27	a	0.02	0.09	a	0.05	0.18	*

[1]Value is mean; [2]SD = Standard Deviation; [3]Sig = 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 ($p > 0.05$).