Improving milk supply, competitiveness and livelihoods in smallholder dairy chains in Indonesia

Bogor, October 9, 2018

Ministry of Agriculture

Australian Government
Australian Centre for International Agricultural Research

THE UNIVERSITY of ADELAIDE

Overall goal of project

AGB/2012/099.

Overall goal of this project is to contribute to increasing milk supply (quantity and quality) by 25% by 2020 for at least 3,000 dairy producers in the geographic locations of West Java and North Sumatera

Objective - 2

Identify ***barriers to adoption*** of ***profitable management practices*** and ***farm business models*** and ***develop strategies*** to inform ***development of extension programs***

in West Java

The IndoDairy Smallholder Household Survey (ISHS)

- During August and September 2017, a baseline household survey of 600 dairy farming households located in West Java, Indonesia was implemented using digital data collection applications.
- The Centre for Global Food and Resources (CGFAR) at the University and Adelaide and The Indonesian Centre for Agricultural Socio Economic Policy Studies (ICASEPS) led development and implementation of the household survey.

The IndoDairy Smallholder Household Survey
(20 modules)

A	Household Characteristics	I	Technology
B	Housing	J	Information Source
C	Assets	K	Group Membership
D	Experience and Credit	L	Farmers “ Attitude
E1	Labor	M	Perceptions of Change
E2	Cost and Expenses	N	Cash Income activities
E3	Equipment Costs	O	Food Consumption
F	Milk production	P	HFIAS
G	Marketing	Q	Farmers” Expectation
H	Distance	R	Women Empowerment

Sampling Design

- **The IndoDairy Smallholder Household Survey (ISHS)** collected information from 600 smallholder dairy farm households. A purposive proportional random sampling method was utilised to identify the sample.
- The identification of the sample consisted of the following stages:

1) The five dairy cooperatives who were key collaborators on the project were contacted and a list of active farmers with each cooperative (KUD) was shared.
2) The active member farmers became the study's population for sampling.

4) A proportional sampling method was used to determine the number of farmers that were interviewed from each KUD.

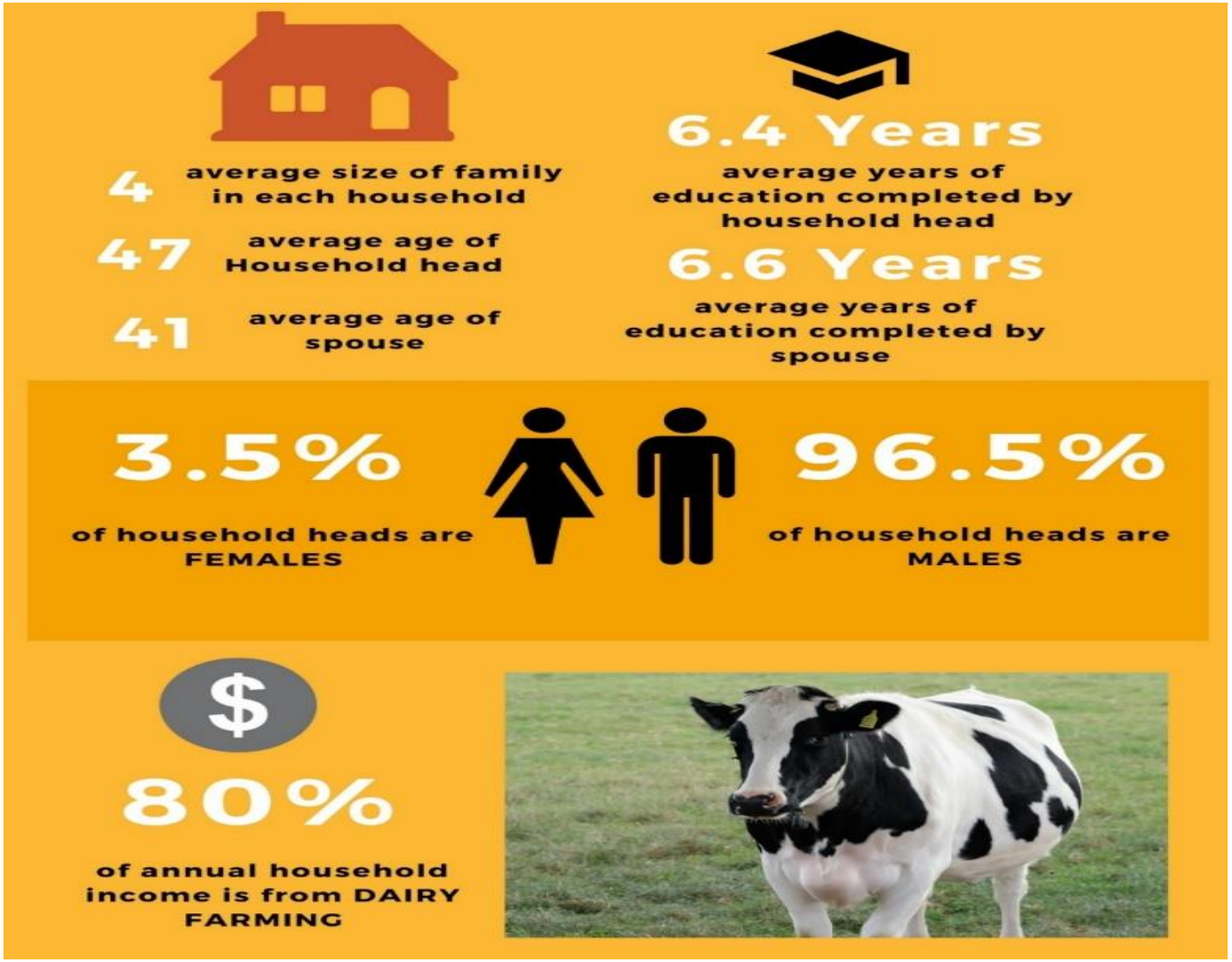
5) The farmers were randomly selected using simple random sampling tools.

Table1. Sampling distribution of the IndoDairy Smallholder Household Survey

District	Dairy Co-operative	Number of respondents	Percentage of respondents
Bogor	KPS Bogor	15	2.5%
Bogor	KUD Giri Tani	65	10.9%
Cianjur	KPS Cianjur Utara	80	13.3%
Garut	KPGS Cikajang Garut	140	23.3%
Bandung	KPBS Pangalengan	300	50%
	Total	600	100%

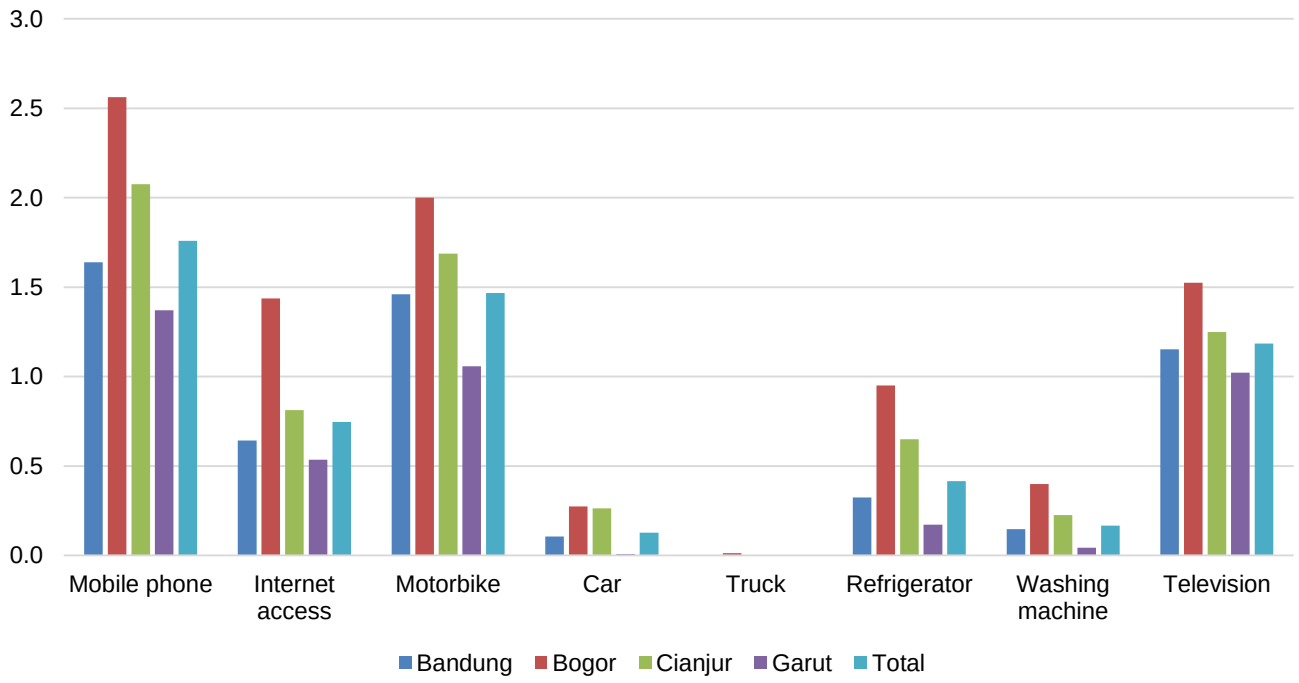
Figure 1. Sample location of each of the districts across West Java

Dairy Farm Characteristics



- On average, there are four people per household (HH). HH in Bandung are significantly smaller households (3.7 people per HH) compared to Bogor (4.4 people per HH) and Garut
- On average, there were one to two children per HH. The difference in average HH size between the districts is due to variation in the number of adults, with average across the districts ranging from 2.4 and 3.0 for adults compared to 1.3 and 1.5 for children
- Overall, asset ownership was highest in Bogor HH, and lowest in Garut
- Approximately 91% of HH consider dairy farming to be the main business activity.
- Of the HH surveyed, dairy-related income, which includes the sale of raw milk, processed milk and dairy cattle, contributes an average of 77% of total household income.

Dairy Farm Characteristics



Telecommunication – The average number of mobile phones was 1.8, while the number of types was forms of internet, such as smart phones or laptops, was 0.8 per household.

Transport – On average, households owned 1.5 motorbikes and 0.1 cars. The average number of trucks owned was 0.0.

Household appliances – there were 1.2 televisions, 0.4 refrigerators and 0.2 washing machines owned.

Dairy Farm Characteristics

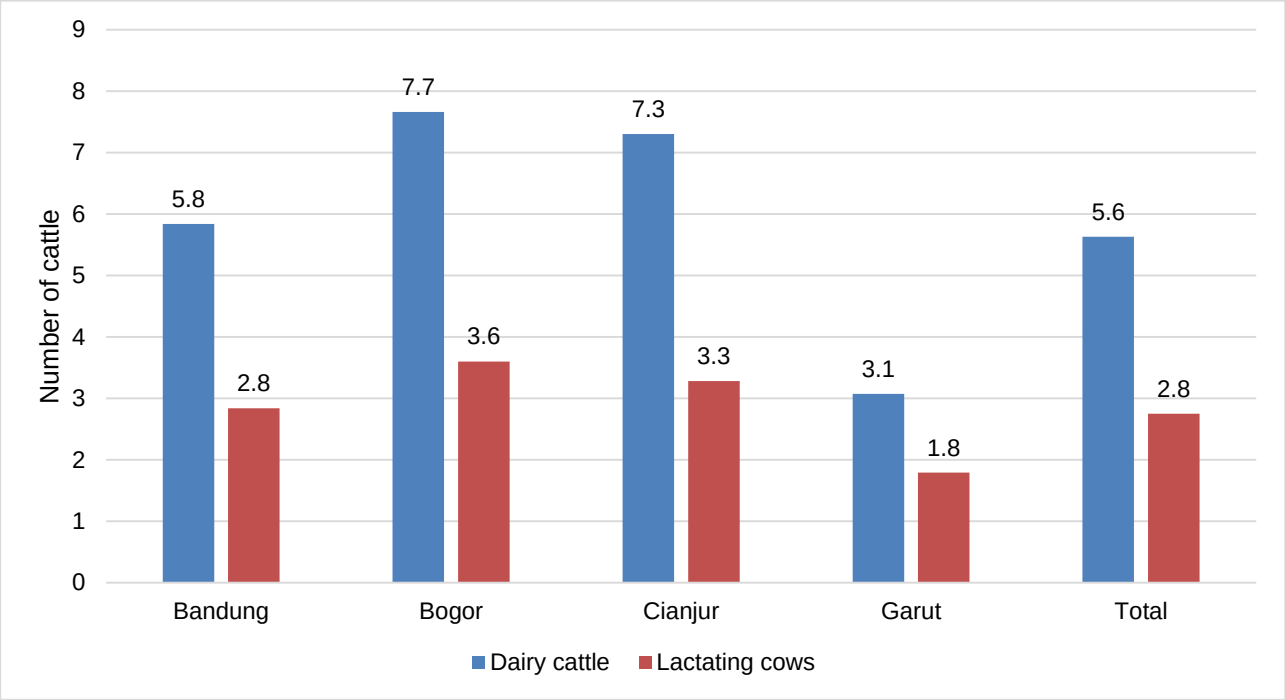
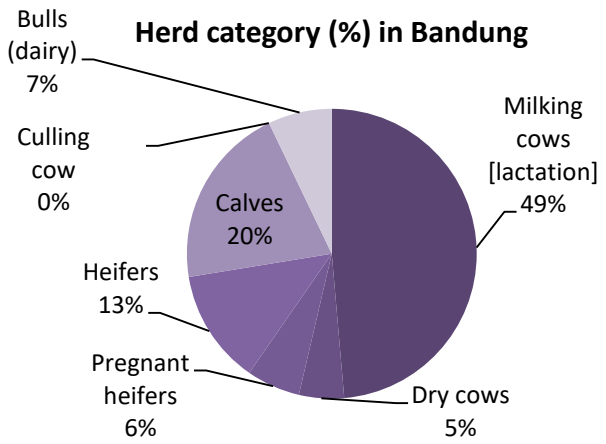


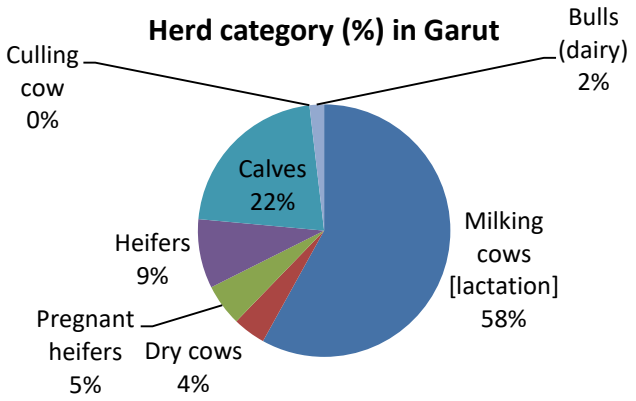
Figure 2. Average dairy herd size, including number of lactating cows.

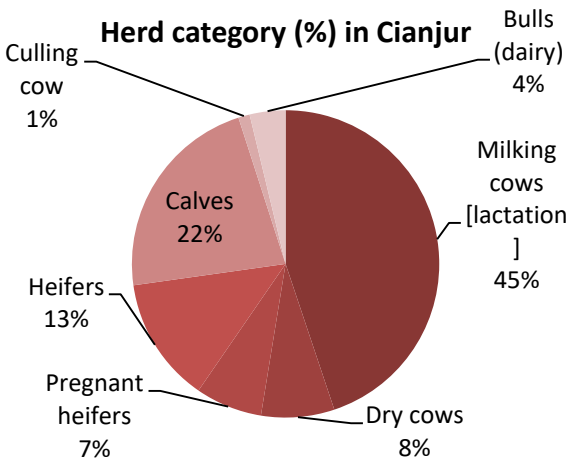
On average, there were 5.6 cattle per farm. Between districts, dairy herd size is highest in Bogor (7.7) and lowest in Garut (3.1); less than half the size of Bogor farms.

The average number of lactating cows per farm is 2.8. Variation between districts follows a similar trend to total herd size, with the highest number in Bogor (3.6) and lowest in Garut (1.8). Despite this, dairy farms across the four districts are, on average, operating small herd sizes.

Figure 3. Proportion of dairy cow managed by herd category







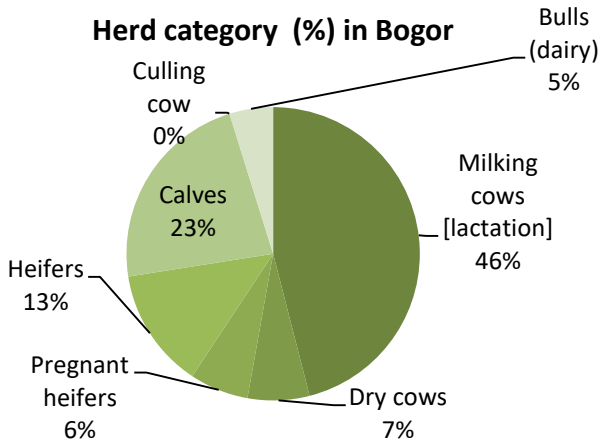


Figure 4. Proportion of dairy cow managed by category

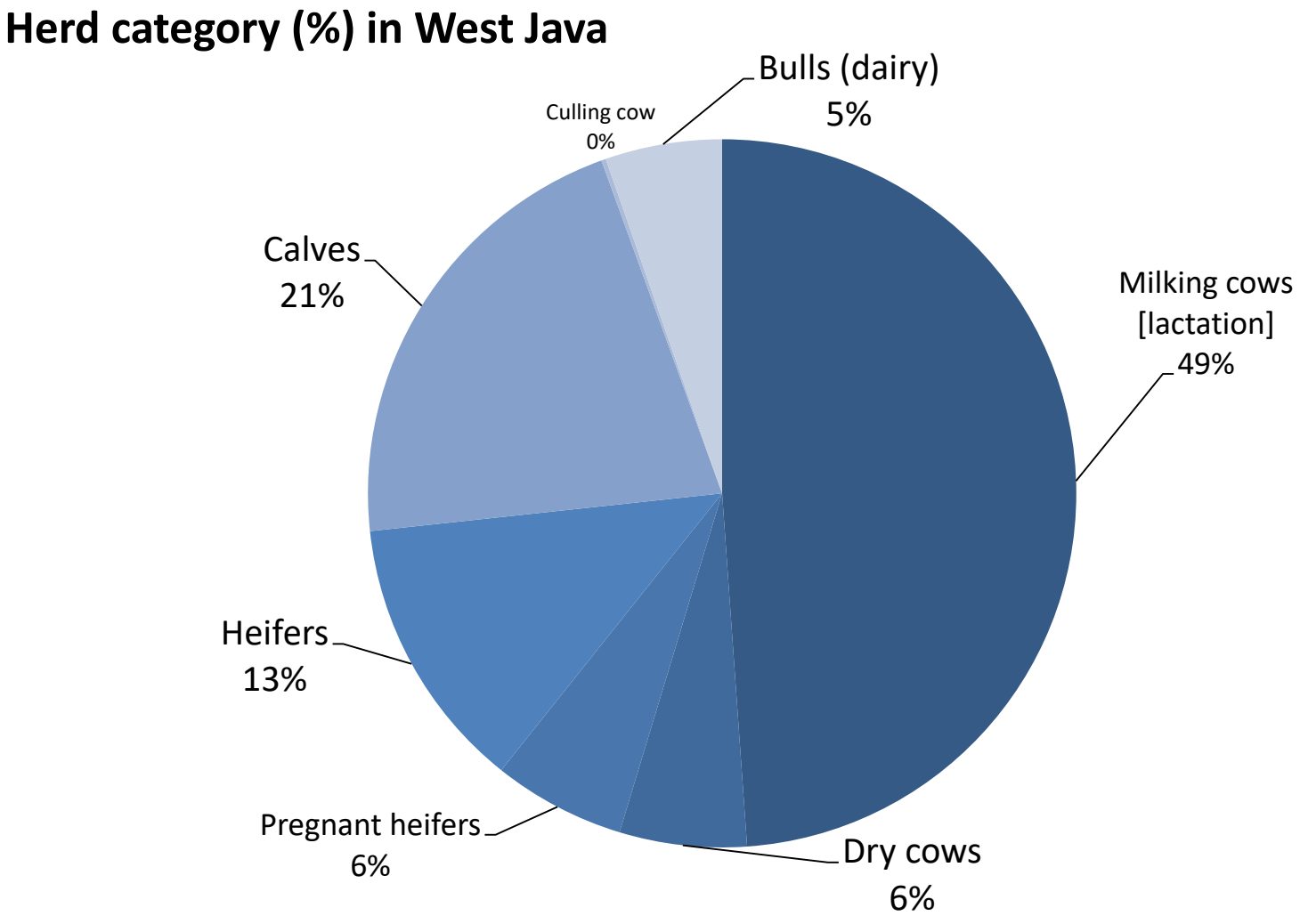


Table 2. Experiences on dairy farming (year)

District	N	Mean	StDev
Bandung	300	21.11	10.62
Garut	140	16.53	9.91
Cianjur	80	13.69	8.5
Bogor	80	21.36	9.27
Total	600	19.08	10.4

Table 3. Main Source of capital for dairy farming

Source of capital	Bandung		Garut		Cianjur		Bogor		Total	
	N	%	N	%	N	%	N	%	N	%
1= private (own/savings)	230	76.7	123	87.9	69	86.3	67	83.8	489	81.5
2= cash loan	59	19.7	17	12.1	7	8.75	13	16.3	96	16
3 = partnership	10	3.33	.	.	4	5	.	.	14	2.33
5 = heritage	1	0.33	.	.	.	.	.	.	1	0.17
Total	300	100	140	100	80	100	80	100	600	100

- Dairy farmers on average have 19.1 years of experience in the dairy business, with farmers in Cianjur having the least amount of experience at 13.7 years and farmers in Bogor with the highest amount of experience at 21.4 years.
- Its 81.5% of the farmers used personal funds for capital for their dairy business. These personal funds include savings from previous business activities or earnings from other sources of income. The remaining households have either loans (16.0%), partnerships (2.3%) or inheritance (0.2%) as their main source of capital.

Table 6. Farmers' participation on Farmers'aste uses

Items	Bandung	Garut	Cianjur	Bogor	Total
Waste uses, no. (%)					
Manures	64 (23)	29 (21)	25 (31)	26 (33)	144 (25)
Dung cakes for energy sources	16 (6)	6 (4)	5 (6)	4 (5)	31 (5)
Both	1 (0)	5 (4)	0 (0)	3 (4)	9 (2)
Not used	178 (64)	100 (71)	49 (61)	45 (56)	372 (65)
Else	17 (5)	0 (0)	1 (1)	2 (3)	20 (3)

Table 7. Farmers' participation on sales and marketing of milk products

Items	Bandung	Garut	Cianjur	Bogor	Total
Milk products sold in the last 12 months, no. (%)					
Fresh milk	300 (100)	140 (100)	80 (100)	79 (99)	599 (100)
Pasteurised milk	0 (0)	0 (0)	0 (0)	3 (4)	3 (1)
Flavoured milk	0 (0)	0 (0)	0 (0)	3 (4)	3 (1)
Yoghurt	1 (0)	0 (0)	0 (0)	3 (4)	4 (1)
Sweet condensed milk	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)

Table 10. Farmers' participation based on type of information was received in 2016-2017

No.	Type of information	Percent of respondent (%)				
		Bandung (N=300)	Garut (N=140)	Cianjur (N=80)	Bogor (N=80)	All (N=600)
1	Increase milk quality	83.0	67.9	68.8	42.5	72.2
2	Cow's health	72.3	62.9	62.5	55.0	66.5
3	Increase milk yields	54.3	53.6	50.0	36.3	51.2
4	Milk sales (buyers, prices)	45.3	35.0	37.5	36.3	40.7
5	Concentrates	34.3	50.7	28.8	41.3	38.3
6	Reproduction and AI	30.7	30.0	27.5	31.3	30.2
7	Forage and grasses	25.3	41.4	28.8	23.8	29.3
8	Forage and grasses	27.0	17.9	21.3	6.3	21.3
9	Knowledge sharing	19.0	19.3	20.0	22.5	19.7
10	Provision of new credit	14.3	21.4	28.8	15.0	18.0

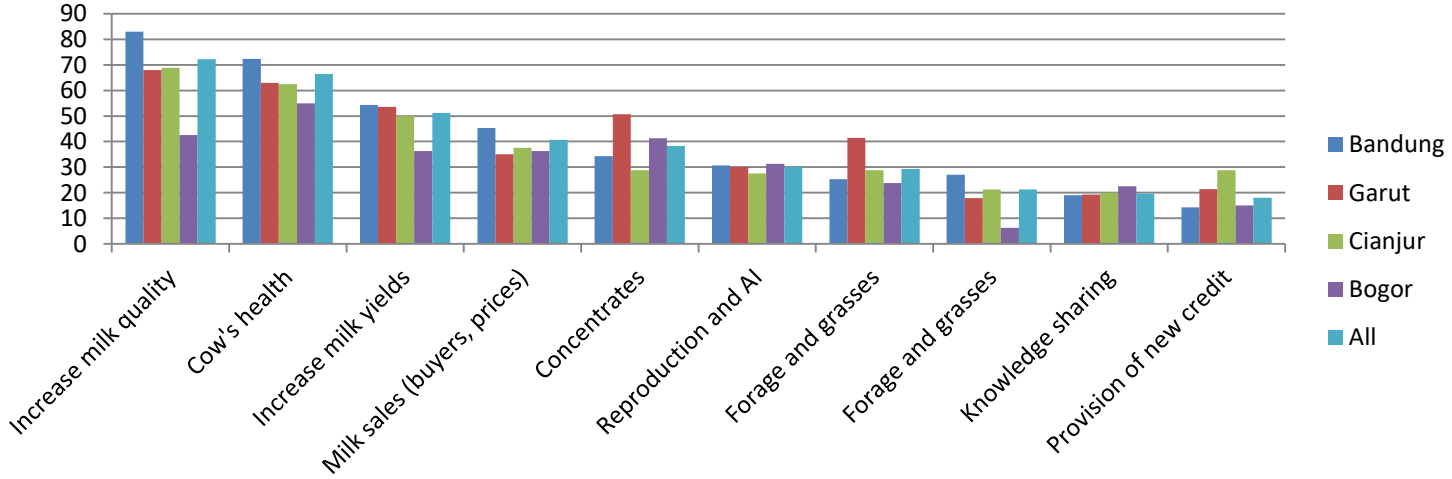
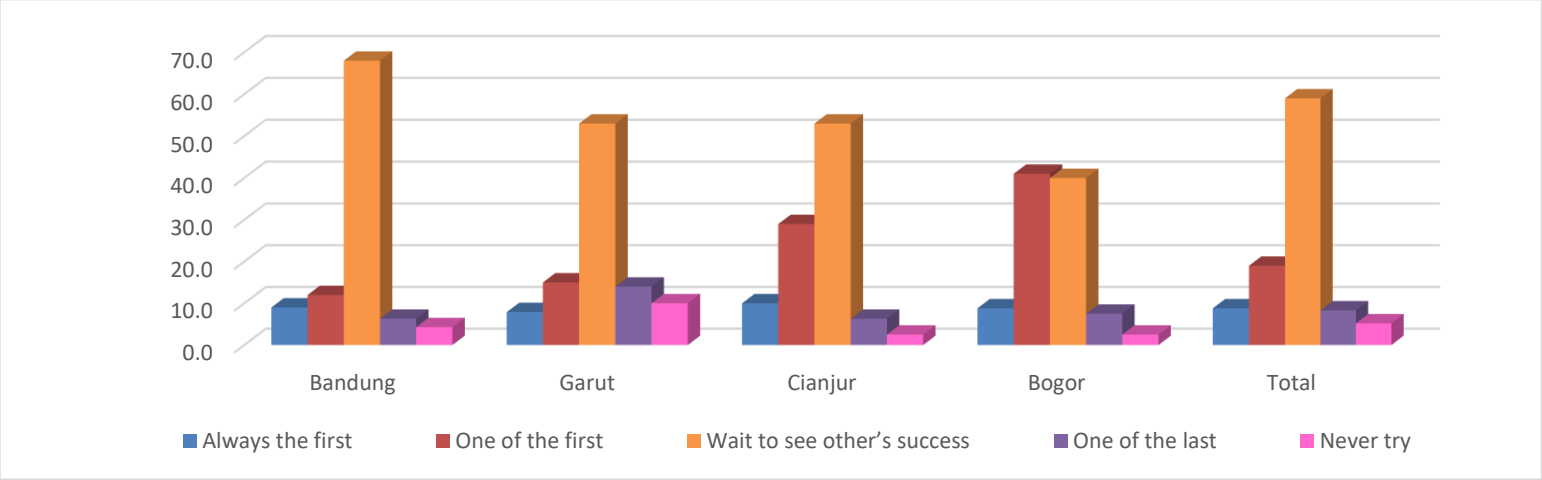


Table 11. Farmers' response toward new technology (%)

Farmers' attitude	Proportion (%)				
	Bandung (N=300)	Garut (N=140)	Cianjur (N=80)	Bogor (N=80)	Total (N=600)
Always the first	9.0	7.9	10.0	8.8	8.8
One of the first	12.0	15.0	29.0	41.0	19.0
Wait to see other's success	68.0	53.0	53.0	40.0	59.0
One of the last	6.3	14.0	6.3	7.5	8.3
Never try	4.3	10.0	2.5	2.5	5.2
Total	100.0	100.0	100.0	100.0	100.0



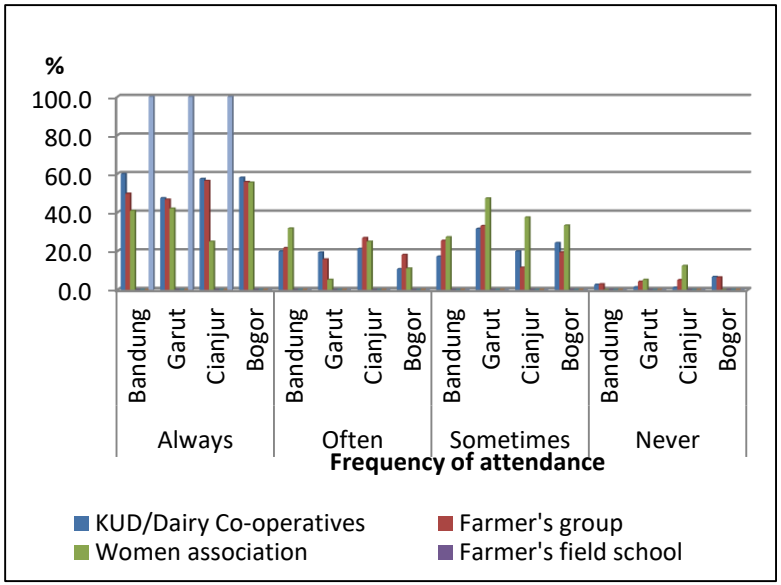
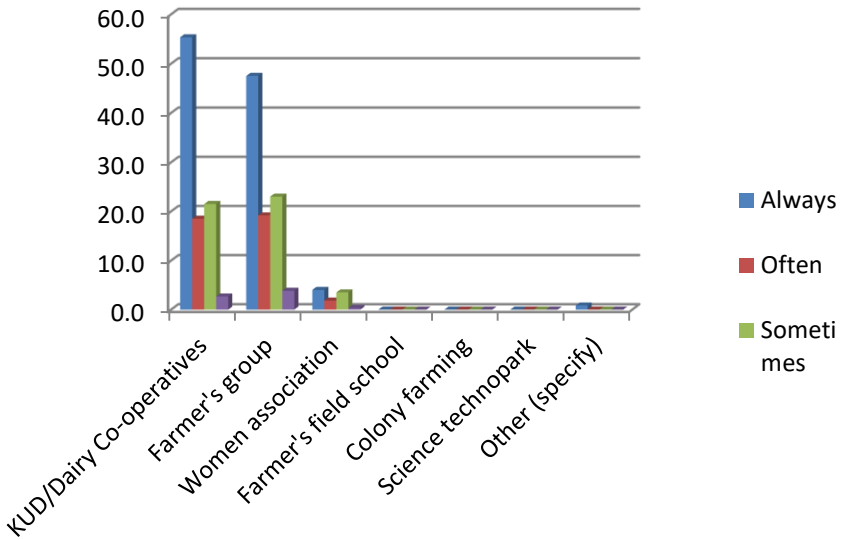


Figure 8. Frequency of farmer attendance on farmer' group meeting

Figure 9. Frequency of farmer' attendance on farmers group meeting relatted the new technology



THANK YOU