

CHAPTER FOUR

RESULTS

The previous chapter explained the methodology used in this study. This chapter reports the results of the study which is divided into three parts based on the data obtained from questionnaires survey collected from 245 respondents as follows:

- 1) Demographic Information of the respondents
- 2) Background knowledge and understanding about community biodiesel (B100)
- 3) Degree of users' satisfaction with community biodiesel (B100)

4.1 DEMOGRAPHIC INFORMATION

The demographic information of the respondents using community biodiesel (B100) specified in the questionnaires including Gender, Age, Occupation, Educational Level, Household Income / Month, and Type of vehicles used, is displayed in Tables 1-6 below.

4.1.1 Gender

Table 1. Gender

Gender	Frequency	Percentage
Male	191	78.9
Female	51	21.1
Total	242	100.00

Table 1. shows that the proportion of gender of samples in this study. The major respondents of 78.9 percent were males, and the minority of 21.1 percent were females.

4.1.2 Age

Table 2. Age

Age	Frequency	Percentage
Under 25 years old	3	1.2
25 – 35 years old	15	6.2
36 – 45 years old	51	21.1
46 – 50 years old	76	31.4
over 50 years old	97	40.1
Total	242	100.00
Average age (\bar{X}) = 48.6 years old		

Table 2. shows the age of respondents in the study. Over forty percent (40.1%) of the respondents were over 50 years of age, 31.4 percent of respondents were between 46-50 years of age, 21.1 percent of them were between 36-45 years old , whereas the remaining 6.2 percent and 1.2 percent of respondents were between 25-35, and under 25 years old, respectively.

4.1.3 Occupation

Table 3. Occupation

Occupation	Frequency	Percentage
Farmer	8	3.31
Orchardman	145	59.91
Fisherman	81	33.47
Others	8	3.31
Total	242	100.00

Table 3. shows the occupation of the respondents in the study. Most of the respondents' occupation were orchardmen (59.91%), followed by fishermen (33.47%) , whereas 3.31 percent were farmers and 3.31 percent accounted for others (refer to government officials, employees, shrimp farmers, vendors, wage earners).

4.1.4 Educational Level

Table 4. Education Level

Education level	Frequency	Percentage
Primary school	142	58.68
Secondary school	75	30.99
Bachelor Degree	21	8.68
Others	4	1.65
Total	242	100.00

Table 4. shows the educational level of the respondents in the study. 58.68 percent of the respondents' educational level was primary school, followed by 30.99 percent for secondary school, and 8.68 percent for bachelor degree, while, 1.65 percent accounted for others(refer to master degree, higher vocational certificate, vocational certificate and illiteracy).

4.1.5 Household Income per Month

Table 5. Household Income per Month

Household Income	Frequency	Percentage
Less than 5,000 Baht	27	11.16
5001-10,000 Baht	24	9.92
More than 10,000 Baht	191	78.93
Total	242	100.00

Table 5. shows the household income per month of the respondents in the study. The majority of the respondents earned more than 10,000 Baht (78.93%), while 9.92 percent of them earned 5,001-10,000 Baht ,and the remaining 11.16 percent earned less than 5,000 Baht.

4.1.6 Type of Vehicles Used

Table 6. Type of Vehicles Used

Type of vehicles	Frequency	Percentage
Car	22	9.28
Pickup truck	159	67.08
Truck	5	2.11
Tractor	3	1.27
Boat	35	14.77
Others	13	5.49
Total	237	100.00

Table 6. shows the type of vehicles used by the respondents in the study. The majority of the respondents, of 67.08 percent, used pickup trucks, followed by 14.77 percent of them with boats, 9.28 percent drove cars, 2.11 percent used trucks, and 1.27 percent had tractors, respectively. The respondents of 5.49 percent used others(refers to motorcycles and no vehicles used).

4.2 BACKGROUND KNOWLEDGE AND UNDERSTANDING ABOUT COMMUNITY BIODIESEL (B100)

This part is to measure B100 users' background knowledge and understanding about community biodiesel (B100), which consists of 10 statements as listed below.

Table 7. Background Knowledge and Understanding about Community Biodiesel (B100)

Background Knowledge and Understanding about Community Biodiesel (B100)	Result		\bar{X}	End result
	Gained	Not gain		
1. The use of B100 in your community helps save the environment, because it is clean and biodegradable fuel.	239 (98.76)	3 (1.24)	7.68	Gained
2. B100 production in your community enables you to sell oil crops at reasonable prices.	226 (93.39)	16 (6.61)	7.40	Gained
3. B100 can be used as a replacement for regular diesel.	239 (98.76)	3 (1.24)	7.68	Gained
4. B100 low quality may damage your diesel engine.	233 (96.28)	9 (3.72)	7.55	Gained
5. B100 releases fewer air pollutants than regular diesel does.	236 (97.52)	6 (2.48)	7.61	Gained
6. The price of B100 in your community is cheaper than that of regular diesel.	233 (96.28)	9 (3.72)	7.68	Gained
7. Service stations for fueling B100 are available in your community.	231 (95.45)	11 (4.55)	7.50	Gained
8. The government has encouraged the use of B100 in Thailand.	79 (32.64)	163 (67.36)	4.05	Not gain
9. B100 can be used directly, or can be applicable with minor modification in most low-speed diesel engines.	234 (96.69)	8 (3.31)	7.57	Gained
10. B100 can be easily used even in low technology environment	230 (95.04)	12 (4.96)	7.48	Gained
Total	218 (90.08)	24 (9.92)	7.22	Gained

Table 7. shows the respondents' background knowledge and understanding about community biodiesel (B100) in the study as follows : the total arithmetic mean

was 7.22. For items No. 1-7 ,the arithmetic mean was 7.68, 7.40, 7.68, 7.55, 7.61, 7.68, 7.50 and items No. 9-10 the arithmetic mean was 7.57, 7.48 respectively.

Remarkably, 67.36 percent respondents of revealed ‘gained’ for B100 knowledge and understanding in most items No. 1-7 and 9-10, except the item of No.8, regarding the government’s encouragement of B100 that 32.64percent of respondents showed ‘not gain’.

The results of arithmetic mean calculated from the above respondents’ background knowledge and understanding about community biodiesel (B100) were analyzed as follows:

Max = 10 maximum value = 10 items

Min = 1 minimum value = 1 item

$$\text{Width of interval scale} = \frac{\text{maximum} - \text{minimum}}{\text{Number of level}}$$

$$\text{Range} = \frac{10-1}{2} = \frac{9}{2} = 4.5$$

Respondents with less B100 knowledge and understanding:

1-5.50 = 9 respondents

Respondents with greater B100 knowledge and understanding:

5.51-10 = 233 respondents

4.3 DEGREE OF USERS’ SATISFACTION WITH COMMUNITY BIODIESEL (B100)

4.3.1. Satisfaction with the Opportunity to Generate Higher Household Income

For this part, closed-ended questions with a Likert Five-Point Scale were used to measure the degree of users’ satisfaction with community biodiesel (B100) for determining the respondents’ satisfaction with the opportunity to generate higher household income when using B100. The findings are shown in the form of mean and standard deviation.

Table 8. Satisfaction with the Opportunity to Generate Higher Household Income

Degree of Users' Satisfaction							
with the Opportunity to							
Generate Higher Household	Very	Dissatisfied	Neutral	Satisfied	Very	Mean	S.D.
Income.	dissatisfied	(2)	(3)	(4)	satisfied		
	(1)				(5)		
1. You can save more money when using B100 produced in your community	1 (0.41)	3 (1.24)	6 (2.48)	199 (82.23)	33 (13.64)	4.07	0.49
2. You can earn more income when B100 is produced in your community.	0 (0)	3 (1.24)	15 (6.20)	184 (76.03)	40 (16.53)	4.08	0.52
3. Your oil crop prices are boosted ,or stabilized when B100 is produced in your community.	0 (0)	3 (1.24)	17 (7.05)	201 (83.40)	20 (8.30)	3.99	0.45
4. More job opportunities are created when B100 is produced in your community.	0 (0)	1 (1.24)	17 (7.05)	201 (83.40)	21 (8.68)	4.01	0.41
5. Your burden of debts has been alleviated when you became a member of Mae Klong Samakki Karnkaset Group.	2 (0.8)	1 (0.41)	13 (5.39)	195 (80.91)	30 (12.45)	4.04	0.52

Table 8. shows the Degree of Users' Satisfaction with the Opportunity to Generate Higher Household Income as described in items 1-5.

In conclusion, the majority of the respondents were both satisfied and very satisfied with the opportunity to generate higher household income, as the mean value = 4.07 and 4.08 obtained in items 1 and 2 respectively. The results represented the overall respondents' satisfaction that the respondents could not only save their money, but also earn more income when using B100 produced in their community.

4.3.2. The Managing Efficiency of the Core Team at Mae Klong Samakki Karnkaset Group

Table 9 *Satisfaction with the Managing Efficiency of the Core Team at Mae Klong Samakki Karnkaset Group*

Degree of Users'Satisfaction with the Managing Efficiency of the Core Team at Mae Klong Samakki Karnkaset Group	Very dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very satisfied (5)	Mean	S.D.
1. The core team is supportive to members of Mae Klong Samakki Group in running the B100 community business.	1 (0.41)	0 (0)	12 (4.98)	197 (81.74)	31 (12.86)	4.07	0.46
2. The core team educates you how to use B100 properly and makes B100 easy to use.	0 (0)	2 (0.83)	15 (6.20)	192 (79.34)	33 (13.64)	4.06	0.48
3. The core team can make communities to be more energy sufficient.	0 (0)	1 (1.24)	14 (5.83)	201 (83.40)	24 (10.00)	4.03	0.42
4. The core team can manage to establish the convenient community's service stations for B100 and sell it at the reasonable price.	0 (0)	1 (1.24)	19 (7.92)	196 (81.67)	24 (10.00)	4.01	0.44
5. When producing, the core team is able to consistently control B100 quality.	1 (0.41)	1 (0.41)	19 (7.92)	197 (82.08)	22 (9.17)	3.99	0.48

Table 9. shows the Degree of Users'Satisfaction with Managing Efficiency of the Core team at Mae Klong Samakki Karnkaset Group as described in items 1-5.

It was concluded that, the majority of the respondents were both satisfied and very satisfied with Managing efficiency of the core team at Mae Klong Samakki Karnkaset Group as the mean value = 4.07 and 4.06 shown in items 1 and 2, respectively. The results reveal that the core team was so supportive and educative to its members in running B100 business as well as training its members how to make and use B100 properly that such a very satisfactory level was fulfilled.

4.3.3. Marketing Mix :4 Ps

Table 10. Satisfaction with Marketing Mix: Product

Degree of Users' Satisfaction with B100 Product	Very dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very satisfied (5)	Mean	S.D.
1. B100 quality is worth buying.	0 (0)	1 (0.42)	15 (6.36)	138 (58.47)	82 (34.75)	4.28	0.59
2. B100 is easy to produce and use.	0 (0)	0 (0)	8 (3.40)	139 (59.15)	88 (37.45)	4.34	0.54
3. B100 helps save the environment.	0 (0)	0 (0)	3 (1.27)	58 (24.58)	175 (74.15)	4.73	0.47

Table 10. shows the Degree of Users' Satisfaction with B100 Product produced by Mae Klong Samakki Karnkaset Group as described in items 1-3.

It was concluded that most of the respondents were very satisfied with B100 made by Mae Klong Samakki Karnkaset Group, in terms of its easy production and application, as well as its environmental friendliness, as the mean value= 4.34 and 4.73 presented in item 2 and 3, respectively.

Table 11. Satisfaction with Marketing Mix: Price

Degree of Users' Satisfaction with B100 Price	Very dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very satisfied (5)	Mean	S.D.
1. B100 is reasonably sold at the price of 2 Baht per liter cheaper than regular diesel.	0 (0)	1 (0.42)	30 (12.55)	178 (74.48)	30 (12.55)	3.99	0.52
2. B100 price can be floated depending on the mechanism of regular diesel market price.	0 (0)	1 (0.42)	25 (10.42)	191 (79.58)	23 (9.58)	3.98	0.47
3. Because of its high quality, B100 should be set at competitive price with regular diesel	0 (0)	4 (1.68)	25 (10.50)	188 (78.99)	21 (8.82)	3.95	0.51

Table 11. shows the Degree of Users' Satisfaction with B100 Price as described in items 1-3.

In conclusion, most of the respondents were satisfied with B100 Price set up by Mae Klong Samakki Karnkaset Group, in terms of its reasonable price and it

could be floated depending on the market price's mechanism of regular diesel, as the mean value = 3.99 and 3.98 given in item 1 and 2, respectively.

Table 12. Satisfaction with Marketing Mix: Place

Degree of Users' Satisfaction with B100 Place	Very dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very satisfied (5)	Mean	S.D.
1. You can buy B100 in your community service station.	0 (0)	0 (0)	14 (5.86)	197 (82.43)	28 (11.72)	4.06	0.42
2. B100 service station is easily accessible.	0 (0)	2 (0.83)	21 (8.75)	195 (81.25)	22 (9.17)	3.99	0.46
3. B100 supply meets your community demand.	0 (0)	3 (1.26)	24 (10.04)	194 (81.17)	18 (7.53)	3.95	0.47
4. You are confident in using B100 produced by other groups when out of your community.	0 (0)	5 (2.11)	25 (10.55)	190 (80.17)	17 (7.17)	3.92	0.51

Table 12. shows the Degree of Users'Satisfaction with B100 Place as described in items 1-4.

In conclusion, most of the respondents were very satisfied with the place that they could buy B100 in their community service station as the mean value = 4.06 shown in item 1. Many respondents were also satisfied with the easily accessible B100 service stations in their community as the mean value = 3.99 given in item 2.

Table 13. Satisfaction with Marketing Mix: Promotion

Degree of Users' Satisfaction with B100 Promotion	Very dissatisfied (1)	Dissatisfied (2)	Neutral (3)	Satisfied (4)	Very satisfied (5)	Mean	S.D.
1. When using B100, you are regularly provided with relevant information/ instructions by the core team.	0 (0)	0 (0)	30 (12.45)	182 (75.52)	29 (12.03)	4.00	0.50
2. B100 is widely used in your community because of regular publicizing.	0 (0)	0 (0)	33 (13.75)	182 (75.83)	25 (10.42)	3.97	0.49
3. How do you rate overall B100 promotion ?	0 (0)	0 (0)	30 (12.55)	179 (74.90)	30 (12.55)	4.00	0.50

Table 13. shows the Degree of Users'Satisfaction with B100 Promotion as described in items 1-3

In conclusion, most of the respondents were satisfied with B100 promotion, because they were regularly provided with B100 information and instructions needed by the core team as the mean value = 4.00 given in items 1 and 3.

Other suggestions:

The significant suggestions given by the B100 users at Mae Klong Samakki Karnkaset Group, Samut Songkram Province from the questionnaire, could be summarized as follows:

1. The state should provide them with the needed budget from governmental financial sources, so that they will be able to implement their B100 project effectively.
2. The government should provide them with relevant technical trainings for further improvement of B100 project regarding the project management, project networking, project feedstock provision and project consultancy.

The findings of the study will be summarized and discussed in the next chapter.