

**IQPISSP6: Assessing the Feasibility of a Contract Farming Model in the Thai
Hemp Industry**

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INTERVIEW PARTICIPANT CONSENT FORM

ESG INTERVIEW PARTICIPATION INFORMED CONSENT

Hello, we are a group of students from Worcester Polytechnic Institute (WPI) completing our Interactive Qualifying Project (IQP). Our team consists of four, third-year undergraduate students completing the IQP at WPI: Abby Hyde, Asha Karmen-Chan, Jake Leavitt, and Brian Shin, and undergraduate students completing the Interactive Science & Social Project (ISSP) at Chulalongkorn University: Natthapat Chatthanayongphakdi, Yosita Phailomwong, Sarisa Keittivuti, and Porsuk Phlalop. Our project aims to assess the feasibility of a contract farming model in the Thai hemp industry.

We invite you to participate in a fully voluntary interview regarding our research project as a means to gather vital information related to hemp cultivation, contract farming model, the types of farms the company is looking for, and the total capital ESG can invest into contract farming. This interview should take about an hour of your time.

The information that you disclose during this interview will be used to direct further research and otherwise advance our project. The interview will be recorded digitally upon your consent. Please remember that this interview process is entirely voluntary and you may choose to not participate. Should we ask a question you do not want to answer, you may skip it. You are invited to ask any questions about the interview before it begins, as well as review anything that we quote from your interview before publication. If you have any questions or concerns following the interview, please feel free to contact us at the email listed below.

By stating your full name and your consent verbally to us, we will begin the interview.

Best,

Team 6: Abby Hyde, Asha Karmen-Chan, Jake Leavitt, and Brian Shin

Worcester Polytechnic Institute

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For more information about this research or about the rights of research participants, or in case of research-related injury, contact: Team 6 (see email above); the International

Review Board Chair (Professor Kent Rissmiller, Tel. 508-831-5019, Email: kjr@wpi.edu); the Human Protection Administrator (Gabriel Johnson, Tel. 508-831-4989, Email: gjohnson@wpi.edu); or our advisors (Professor Holly Ault, Email: hkault@wpi.edu; Professor Stephan Sturm, Email: ssturm@wpi.edu).

Thai Farmer Interview Participation Informed Consent

Hello, we are a group of students from Worcester Polytechnic Institute (WPI) completing our Interactive Qualifying Project (IQP). Our team consists of four, third-year undergraduate students completing the IQP at WPI: Abby Hyde, Asha Karmen-Chan, Jake Leavitt, and Brian Shin, and undergraduate students completing the Interactive Science & Social Project (ISSP) at Chulalongkorn University: Natthapat Chatthanayongphakdi, Yosita Phailomwong, Sarisa Keittivuti, and Porsuk Phlallop. Our project aims to assess the feasibility of a contract farming model in the Thai hemp industry.

We invite you to participate in a fully voluntary interview regarding our research project as a means to gather vital information related to your current business environment and the cultivation of Thai farmers. We seek to collect information regarding your farming methods, financial figures, quality of living, current crops they grow, and labor-intensive. We would also like to gain some insights on your familiarity with the contract farming model and whether Thai farmers are interested in switching to hemp. This interview should take about an hour of your time.

The information that you disclose during this interview will be used to direct further research and otherwise advance our project. The interview will be recorded digitally upon your consent. Please remember that this interview process is entirely voluntary and you may choose to not participate. Should we ask a question you do not want to answer, you may skip it. You are invited to ask any questions about the interview before it begins, as well as review anything that we quote from your interview before publication. If you have any questions or concerns following the interview, please feel free to contact us at the email listed below.

By stating your full name and your consent verbally to us, we will begin the interview.

STANDARD PARTICIPANT INTERVIEW QUESTIONS

Interview Questions For ESG's Director of Innovation

- Approximately, what is the amount of land plots ESG hopes to acquire through a contract farming model? Is there a preference for smaller or larger farms?
- **As the team creates pitches for the Thai farmers, are there any figures on the current size of ESG that would make farmers have more confidence in a contract farming model? How many rai¹ are currently cultivated? How much hemp can ESG's manufacturing facilities process in a day? Does the company have an estimate for the amount of hemp the company hopes to process in the new food venture?**
- The team would like to offer local Thai farmers who are interested in a contract farming model some figures to gauge interest. Is the investment cost an important factor for the company? Does the company consider any specific parts of the cultivation process requiring more investment than others?
- Could you provide us any insights into the operating procedures of a local Thai farm now vs. what you would expect of them in a contract farming model? How much labor is required in growing hemp (small or large scale depending on preferred size)? Is it possible that the farmers may need to hire more laborers? Do you see ESG hiring new talent to supervise these farms or believe the farmers will be able to successfully cultivate hemp on their own?
- To conduct our cost-benefit analysis, could you offer us any financial figures to determine an acceptable value to be feasible for your company? For example, operating cost, annual revenue, cost of just cultivating hemp outside of processing?
- When speaking to the Thai farmers we'd like to be able to offer crop and harvesting times for hemp. How long does a hemp crop take to grow, from planting to harvesting? Is there a drying stage? Is a fallow required? If possible, do you know roughly how much water per rai/fertilizer or nutrients per rai the hemp requires? Are there any other cultivation figures the Thai farmers may find useful to know?

- How much does the company plan to purchase hemp per kilogram or rai or other preferred weight units?
- Do you foresee Thai farmers requiring new machinery or equipment to grow hemp over their current crops?
- Can you elaborate on what ESG is willing to provide to the Thai farmers in this contract farming model, for instance, seeds, nutrients, SOP's, etc. Will the Thai farmers be buying these products from ESG? If yes, do you have an estimate of the cost?
- Do you have any further information or questions for us that will help in measuring the interest of Thai farmers joining this contract model? Thank you again for your time.

Interview Questions For Thai Farmers

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

กรุณาอธิบายว่าตอนนี้กำลังปลูกอะไรอยู่และเป็นจำนวนกี่ไร่

2. How did you begin farming? How long have you been farming?

ปลูกมานานแค่ไหนแล้วและทำไมถึงได้เริ่มมาปลูกสิ่งนี้

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

ช่วยอธิบายเกี่ยวกับกระบวนการผลิตเครื่องจักรที่ใช้และต้องใช้แรงงานหรือกำลังการผลิตอยู่ที่ประมาณกี่คน

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

ชอบส่วนไหนที่สุดของการทำไร่ ข้อดีคืออะไร ท่านอาศัยอยู่ใกล้กับสวนเลยไหม
ช่วยอธิบายถึงบรรยากาศรอบๆตัวสวนได้ไหม เพื่อนบ้านเป็นอย่างไร

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

ด้วยสภาพเศรษฐกิจที่เป็นอยู่ในปัจจุบันซึ่งสืบเนื่องมาจากสถานการณ์แพร่ระบาดของ
ของโรคติดเชื้อไวรัสโคโรนา 2019 อยากทราบว่าท่านพบเจอปัญหาอะไรบ้าง

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

ตอนนี้ท่านขายสิ่งที่ปลูกโดยช่องทางหรือวิธีใด มีปัญหาใดหรือไม่กับช่องทางนั้น ๆ
และ ขายได้ราคาดีหรือไม่

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

นอกจากนี้ท่านได้นำผลผลิตเหล่านั้นมาแปรรูปหรือไม่
ถ้าหากแปรรูปทำเป็นผลิตภัณฑ์อะไรและจำหน่ายในช่องทางใด

8. Do you ever struggle with poor growing seasons and harvests?

ท่านเคยต้องเผชิญกับเหตุการณ์ที่ผลผลิตไม่ดีหรือไม่ กรุณาอธิบาย

9. Have you ever had to deal with natural disasters?

ท่านเคยประสบปัญหาจากภัยพิบัติธรรมชาติบ้างหรือไม่ กรุณาอธิบาย

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

ขณะนี้ท่านพบปัญหาใดในการปลูกผลผลิตของท่านหรือไม่ หากมีโปรดขยายความ

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses regularly per month and how much do they cost? How much gross profit per rai the farm is able to make?

กรุณาอธิบายถึงพืชที่กำลังปลูกอยู่ยกตัวอย่างเช่นต้องใช้เงินในการลงทุนมากน้อยเพียง

ใดต่อการเก็บเกี่ยวหนึ่งรอบ

ต่อหนึ่งในหนึ่งเดือนมีค่าใช้จ่ายอะไรบ้าง และทำไรขั้นต้นต่อไรที่ทำได้คือเท่าไร

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

ถ้าหากท่านไม่ได้กำลังปลูกกัญชงอยู่ขณะนี้ ท่านมีแผนการที่จะปลูกพืชชนิดอื่นใหม่ในอนาคต และถ้าหากมี จะเป็นพืชชนิดใด

เพราะเหตุผลใด

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

จากคำถามข้างต้น ท่านคาดว่าจะต้องการสิ่งใดบ้างในการปลูกพืชชนิดใหม่ และท่านคิดว่าจะพบเจอปัญหาใดหรือไม่ หากมีกรุณาขยายความ

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

ท่านมีความคิดเห็นอย่างไรบ้างกับการปลูกกัญชงและ

ตอนนี้ที่กฎหมายกำลังผ่อนปรนนั้น ท่านสนใจจะปลูกกัญชงหรือไม่

4. How much do you know regarding growing hemp and the crop per se?

หากท่านยังไม่เคยปลูกกัญชง ท่านมีความรู้เกี่ยวกับการเพาะปลูกกัญชง หรือพืชชนิดนี้มากน้อยเพียงใด

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

ท่านทราบความแตกต่างระหว่างการปลูกกัญชงและพืชที่ท่านปลูกอยู่หรือไม่ ยกตัวอย่างเช่น จะต้องใช้การดูแลต่างกันมากเท่าไร

6. Are you familiar with contract farming?

ท่านมีความคุ้นเคยกับสหกรณ์การเกษตรมากน้อยเพียงใด

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

โครงการวิจัยของพวกเรามีผู้สนับสนุนหลักคือบริษัทESGซึ่งเป็น

บริษัทเอกชนที่เป็นหนึ่งในผู้นำรายใหญ่ที่สุดในประเทศด้านการเพาะปลูกและ

ผลิตพืชกัญชงเพื่อการนำไปใช้ทำสินค้า CBD ในเชิงการแพทย์ พลังงาน และอื่น ๆ

โดยในปัจจุบันนี้ ESG จะเปิดการปลูกแนวคิดใหม่ที่เรียกว่าสหกรณ์การเกษตร

(contract Farming)

ซึ่งก็คือการปลูกพืชกัญชงโดยรวมมือกับบริษัทโดยที่บริษัทจะให้การสนับสนุนได้ด้าน

อุปกรณ์การปลูก เมล็ดพันธุ์ ปุ๋ย และสิ่งอื่น ๆ ที่จำเป็น ท่านมีความคิดเห็นอย่างไรบ้าง
และมีความสนใจหรือไม่

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

ท่านคิดว่ามีปัจจัยใดจากบริษัท ESG ที่จะทำให้ท่านสนใจจะหันมาปลูกพืชกัญชง

ท่านอยากได้การสนับสนุนใดเพิ่มเติมหรือไม่จากทางบริษัท และทางบริษัทสามารถ

ทำอย่างไรได้บ้างเพื่อให้ท่านมั่นใจในตัวบริษัท

INTERVIEW TRANSCRIPTS

All interviewed participants included below have given verbal consent for the usage of their responses in the report.

Interview Transcripts: ESG's Director of Innovation

1. Approximately, what is the amount of land plots ESG hopes to acquire through a contract farming model? Is there a preference for smaller or larger farms?

For a long term goal, the company plans to acquire approximately 5000 rai within 3-4 year, maximum. However, not many farmers possess large plots of land. They already are mostly managed by larger companies in the agricultural sector. The company prefers larger plots of land, the larger the better.

2. As the team creates pitches for the Thai farmers, are there any figures on the current size of ESG that would make farmers have more confidence in a contract farming model? How many rai (1 rai equals ~0.4 acres) are currently cultivated? How much hemp can ESG's manufacturing facilities process in a day? Does the company have an estimate for the amount of hemp the company hopes to process in the new food venture?

The company is two years old and considered to be in the pre-revenue stage, which is the same as most players in Thailand. We got seed in the ground and currently have 200 rai of land for growing hemp in-house. From my past experiences, some farmers have bad experiences with larger companies, so they may require a sense of security. With that being said, ESG is willing to provide training and supplies to farmers to build trust, since we focus on long-term stability.

In the 5000 rai model, a grain perspective and processing, we expect 200 kg per rai. This means 1,000,000 kg in total. As for the fiber processing side, we expect to collect 1,200 kg of fiber per rai, which can be calculated to 6,000,000 kg in total.

3. The team would like to offer local Thai farmers who are interested in a contract farming model some figures to gauge interest. Is the investment cost an important factor for the company? Does the company consider any specific parts of the cultivation process requiring more investment than others?

Harvesting equipment is required with bigger fields. Nevertheless, ESG would provide all machines required for harvesting to the farmers. Plus, we want to minimize upfront investment for farmers to transition to hemp.

4. Could you provide us any insights into the operating procedures of a local Thai farm now vs. what you would expect of them in a contract farming model? How much labor is required in growing hemp (small or large scale depending on preferred size)? Is it possible that the farmers may need to hire more laborers? Do you see ESG hiring new talent to supervise these farms or believe the farmers will be able to successfully cultivate hemp on their own?

- More laborers, different growing processes, etc. This varies on what farmers are currently growing.
- Yes, ESG would hire more people to manage this venture.

5. To conduct our cost-benefit analysis, could you offer us any financial figures to determine an acceptable value to be feasible for your company? For example, operating cost, annual revenue, and cost of just cultivating hemp outside of processing?

For the financial figures, ESG would pay THB20,000 per rai for the farmers. With costs included, approximately THB12,000 to THB13,000 of profit for the farmers.

6. When speaking to the Thai farmers we'd like to be able to offer crop and harvesting times for hemp. How long does a hemp crop take to grow, from planting to harvesting? Is there a drying stage? Is a fallow required? If possible, do you know roughly how much water per rai/fertilizer or nutrients per rai the hemp requires? Are there any other cultivation figures the Thai farmers may find useful to know?

- Hemp can be grown for two cycles per year. It requires 120 days from seedling to harvest per cycle. This also includes the drying process.
- Hemp requires minimal water/nutrients. Less water is used to grow hemp than most crops being grown at present. Thus, there should not be any issues with water shortages.
- Additionally, farmers should rotate crops at some point to maintain the balance

of Nitrogen, Phosphorus, and Potassium in the soil.

7. How much does the company plan to purchase hemp per kilogram or rai or other preferred weight units?

ESG would pay farmers per rai. We plan to purchase 200 kg of grain, 1200 kg of the whole plant material per rai. Our goal is to help farmers maximize yield which would make more sense than to pay per rai.

8. Do you foresee Thai farmers requiring new machinery or equipment to grow hemp over their current crops?

There would be an investment up front on both sides.

9. Can you elaborate on what ESG is willing to provide to the Thai farmers in this contract farming model, for instance, seeds, nutrients, SOP's, etc. Will the Thai farmers be buying these products from ESG? If yes, do you have an estimate of the cost?

ESG is willing to provide seed, specifications, equipment to share among farmers in the contract model, training, and SOPs. The cost of this equipment and seeds get deducted from the THB20,000 paid per rai.

10. Do you have any further information or questions for us that will help in measuring the interest of Thai farmers joining this contract model? Thank you again for your time.

I will be able to get in contact with one of my friends who is in the food industry. Also, the team should contact farmers who grow tobacco and sugarcane, since these industries are declining. If it is possible, it would be useful to contact either rice or corn farmers too. I have no region specification for farmers, but the northern region such as Chiang Mai and Chiang Rai, and west of Bangkok is the most popular.

INTERVIEW TRANSCRIPTS: THAI FARMERS

Sugarcane Farmers

Participant 1 (Sugarcane)

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

At the moment, I have 8 rai of sugarcane and 2 rai of cassava.

2. How did you begin farming? How long have you been farming?

I have grown sugarcane for 5 years and cassava for 3 years now.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

For sugarcane, it is an industrial farm where I use a Kubota tractor to smoothen the land (preparation for plantation). Since I have a contract with a company, they provide seeds. Now, for the plantation, I use the company's planter machine. In each lane you create a groove to place the seeds in, then it is covered so the seeds are not exposed. After sugarcane plants reach the vegetative stage (tillering stage), weedkiller is applied to the groove. Then, I will apply fertilizer when they are fully grown. Around 10 months to 1 year, they will be ready to harvest. I use the company's mechanical harvester.

For cassava, again, I use a Kubota tractor to smoothen the land and to make a groove in each lane (preparation for plantation). After that, I apply fertilizer all over the soil before planting. On my farm, 4 laborers are required for plantation. After finishing the plantation process, we will apply weed control. Now, when they are germinated, we will use herbicide (apply onto the groove), then we wait until it rains to apply fertilizer again. Normally, we'd use fertilizer every 3-4 months where it would usually require 2 laborers for applying fertilizers and weed killers. It takes one year to harvest using a Kubota harvester. Lastly, our farm uses farm trucks for transportation (to deliver to

places that buy these crops) where it would take 8 laborers for delivery.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

I personally like the plantation process. I live close to the farm. When coming home, we'd see the crops we grow, how they've grown. We love the sight of our farm when there is no overgrown grass or weeds. Living here allows us to be able to estimate or know how we should apply fertilizer and weed killers for both of our crops.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

There is an increase in laborer wages in some years. The prices of fertilizers, pesticides, herbicides, and gas (for vehicles) are also increasing every year. Moreover, in some years, the prices of the crops would drop. Hence, it's profitless in those years.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

For sugarcane, I sell it to the company I have a contract with. It is sometimes profitable and sometimes profitless depending on the number of crops obtained each year. When selling to the company, I'd have to wait for 15 days to be paid where the company will also charge us for cutting and transporting.

For cassava, I sell to the places that buy the crops. I'd get paid straight away. Also, it is sometimes profitable.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

Not Answered (N/A)

8. Do you ever struggle with poor growing seasons and harvests?

For both sugarcane and cassava, if I obtain low yields, it usually would neither be profitable nor profitless. Usually, I would still have some money left to buy fertilizers and pesticides for the following years.

9. Have you ever had to deal with natural disasters?

Yes. For example, sometimes it will not rain when it's supposed to. For sugarcane, when it'd rain heavily, we wouldn't be able to harvest. When there'd be a storm, some of the crops would be destroyed. Hence, we would obtain fewer yields. For cassava, when it'd rain heavily, the crop would rot.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

No

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses regularly per month and how much do they cost? How much gross profit per rai the farm is able to make?

Sugarcane farming requires high investment. For example, in my case, in the first year, for 8 rai, it took us THB60,000 to invest (fertilizers/pesticides/herbicides are excluded). Fertilizers, pesticides, and herbicides usually cost THB20,000. We also need to pump water, in which gasoline is required for mechanical pumps. As per revenue, if the sweetness of the crops is high and if we obtain high yields, it was around THB120,000 per year in the first year. When taking out all the costs, I obtained THB40,000 in the first year because for the second, third, and fourth years, the costs are lower. For instance, for the second, third, and fourth years, there would be no need to buy seeds and rent tractor planters, hence the profit will be higher than in the first year.

For the first 2 rai, plowing costs about THB1,000. The fertilizer we put on the soil costs THB1,000. We already have the seeds so no need to buy more. As mentioned, we apply fertilizers twice and pesticide/herbicides 1-2 times. Moreover, it costs us THB6000 to invest per year. As for the net profit, it is around THB18,000-20,000 per year for the first two rai.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

No, because I will not have time to take care of them. Growing sugarcane and cassava allows me to have enough time to go to work and I already have the expertise in growing these two crops.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I cannot answer this because I do not know much about hemp.

4. How much do you know regarding growing hemp and the crop per se?

None

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

I am unaware of the differences. However, I think that to grow hemp, I would have to study the market supporting hemp, harvesting, how it is sold, delivery, the weather, or any conditions hemp requires.

6. Are you familiar with contract farming?

No

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been

dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

Yes, I am interested but it depends on how much I can trust ESG. I want to know how much profit I'll be able to make and to make sure that ESG will not take advantage of me or make me undersell my crops. I would like to look further into how people sell and buy hemp in general first so I can decide.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

ESG should take into account how farmers feel about their contracts. Also, ESG should look further into the people who have grown hemp, if they have had any problems from the plantation.

Participant 2 (Sugarcane)

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

Currently, I grow sugarcane, durian, and avocado. Specifically, I have 170 rai of sugarcane that I grow for the sugar factory, 5 rai of sugarcane for the juice, 100 trees of durian, and 40 trees of avocado.

2. How did you begin farming? How long have you been farming?

Sugarcane for sugar factory: I am the third generation. My grandfather started it.
Sugarcane for sugarcane juice: I started on January 16th, 2021. I have grown durian for 8 months and avocado for 3 years.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

As for the machines, our farm has a ten-wheel dump truck, a tractor, and sugarcane

juicers. We have 4 laborers.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part about farming is the fact that I have freedom, I get to be myself by doing what I love, and I am able to choose the path to take on my own. For sugarcane farming, the harder I work, the more it pays off. So, this means that how much I make solely depends on myself.

I am working in a private hospital, so I am free on weekends. During weekends, I'll be back in Kamphaengphet province which is where my farm is located. My neighbors are all my relatives. My house is deep in the village which is my family's field. It is around 70 rai of land. There is a river cutting across the field and groundwater. So, fortunately, our farm never experienced drought.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I would say that I am also affected by the situation. I have had to work 7 days since Covid started. Also, when I obtain low yields, I struggle with paying laborers wages. Sometimes, I would also get paid lower, even when the quality of my crops is high.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

Sugarcane for the sugar factory: I send the crops to the factory directly.

Sugarcane for sugarcane juice: I sell them through social media such as Facebook and I also make youtube videos to promote my farm.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

I process some of my sugarcane crops into sugarcane juice where I also sell the products through social media such as Facebook and promote them on my youtube channel.

8. Do you ever struggle with poor growing seasons and harvests?

Yes. When it gets too hot and there is no rainfall for a long period of time, the farm will need to pump water from the pond or the groundwater for usage. This comes with more labor and petroleum costs. However, this still might not be sufficient to cover all 170 rai of factory sugarcane.

For juice sugarcane, I use the Pareto method but it has not been effective. I am usually able to control the quality of the products, however, due to heavy rain, sugarcane may fall and be damaged.

9. Have you ever had to deal with natural disasters?

Yes. The farm has faced strong wind and storms which damages sugarcane crops.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

No, so far, the only problem I have faced is the storms.

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses regularly per month and how much do they cost? How much gross profit per rai the farm is able to make?

For sugarcane grown for juice: each time, the farm invests THB30,000 which lasts for 4-5 years. This investment covers mechanical sugarcane juicers and seedings of the sugarcane. There is no solid amount of the gross profit since I put all the money I gained to invest for other things or the new season.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

Yes, I have considered growing hemp and marijuana because they are going to be legalized soon. Also, I am interested in this field due to its medical applications and benefits.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

I think I would require capital that allows me to start the new crop farming because I already have some free land available to grow them, but my farm is currently on a budget. I also want to obtain knowledge regarding plantations, manufacturing processes, and a long-term/sustainable marketing method.

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

Yes, I am very interested.

4. How much do you know regarding growing hemp and the crop per se?

I have studied hemp and marijuana. So, I do have some basic knowledge about the crops. I have also completed training on hemp and marijuana from Maejo University in Chiangmai. However, I am only familiar with theories regarding growing hemp and I do not have experience of growing them. I think the reason that I have not tried growing hemp before is that there are still unclear areas around the laws and regulations.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

I do have some information on the difference between growing hemp and the crops I am currently growing. However, I still have never grown it practically.

6. Are you familiar with contract farming?

Yes. In fact, I tried to contact several companies, but most companies offer very high seed prices (THB200). Plus, the companies I have reached out to have no concrete marketing plan and reliability. I am still concerned about how I should invest, how to take care of hemp, and who to sell to.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is

looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I have been interested in models for a long time. As I mentioned, I have reached out to many companies. However, I want to be able to fully trust the company I will work with. Again, I want to work with a company that is reliable, trustworthy, and transparent.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I would like financial support or investment money since I have plenty of land plots available for planting but I only have a little budget. I also want knowledge from the beginning of the planting process to selling. I would like to be informed on whether I can process or manufacture my crops and how to do it. Plus, I would like to be educated on the Thai hemp market. I want a sustainable market since growing and taking care of hemp requires dedication and time.

Tobacco Farmers

Participant 1

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing tobacco for 10 rai, and I am also the owner of the land.

2. How did you begin farming? How long have you been farming?

I follow what my parents did, and the family has been farming tobacco for 40 years.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

The type of tobacco that my farm grows is burley tobacco. It is very popular in Si Samrong district, Sukhothai province where my farm is. We required 1 month to harvest all of the tobacco leaves in 10 rai of land. After the leaves are harvested, they will be kept in a tobacco house and dried for approximately 20 days. When all the leaves are dried, we will then sell them to the Tobacco Authority of Thailand (TAOT). It is required that all farmers who grow tobacco must register all of their tobacco farming areas with the TAOT since the tobacco plant is illegal. For example, I have 10 rai of land, so I registered with the TAOT for 10 rai.

I have a tractor and a farm truck. During the growing season, the tobacco plants were being sprayed with chemical pesticides and herbicides. The pesticides and herbicides used are all given by the TAOT, and they come, annually, to collect soil samples for chemical testing at Maejo University. This is to make sure that the pesticides and herbicides are being used in the right amount, so it does not affect the products. However, if the chemical amount in the soil exceeds what is expected, then they will lower the price or may not buy the farm's products.

During the one-month harvest season, workers come to work at 4:00 am and finish their work at 12-1 pm. This routine will be repeated until the end of the harvest season.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

The COVID-19 situation caused the TAOT to not be able to export tobacco overseas.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

My farm produces dried tobacco leaves and sells them to the TAOT.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

Heavy rain and/or flood may severely damage the tobacco plant since tobacco plants require a little amount of water to grow.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses regularly per month and how much do they cost? How much gross profit per rai the farm is able to make?

Tobacco can be categorized into many grades depending on its quality. The top-grade tobacco is called “Krung Thong” and it is being sold for THB85 per kg. The second-grade tobacco is called “Sai Fon” and it is being sold for THB70 per kg. The third-

grade tobacco is being sold for THB60-65 per kg. The lowest grade tobacco is being sold for THB30-40 per kg. When the TAOT buys this dried tobacco they will grade the product according to the quality. The TAOT quota is approximately 400 kg per rai, but, if I produce more than what is required for the quota, I will sell it to Philip Morris, a tobacco company from the United States.

For the expenses of laborers, I hire the villager or outsider for THB300 per day or at their minimum wage per day. Plus, I also provide one free lunch meal for all the workers. The profit will be deducted from laborer wages. For instance, the farm requires 3 laborers to harvest per rai; harvesting takes 3 days which would cost THB2,700 for the laborer wage. However, in some fields, tobacco crops take less time to harvest. Thus, the cost will be lower.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

N/A

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, I would like to say that I am familiar with contract farming. I once did contract farming with a chili company, but it was unsuccessful due to the declining demand in the industry. However, if there is a sustainable trend for the hemp market and the profit is higher than what the TAOT is offering, it is possible that I would like to sign up for a contract farming contract.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I would be interested in contract farming with the company, but the risk must be lower than that of tobacco farming or the profit must be higher than what I am currently making.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

As I have mentioned earlier, I believe that ESG must be able to provide a sustainable demand on the crops that they expect the farmers to grow. The company must provide good marketing and promotion resources that secure the demand in the industries, for the farmers to have a stable income. Moreover, it would be great if the company is able to provide a tangible layout for the farmers to follow since the farmers would need strong motivation and guarantees. In order to switch farmers to grow hemp, the company must give enough information on the benefits and reasons why they should switch to grow it instead.

Participant 2

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am growing 10 rai of tobacco. I also grow rice during the rainy season as a rotational crop for an entire year.

2. How did you begin farming? How long have you been farming?

It is a family business. I have been growing tobacco since private companies were permitted by the law. So I reckon my family and I have been farming tobacco for 40-100years. I have worked with Thailand's ministry of finance and excise department.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

The drying and compacting processes are done by the factory I work with. So all the machines used are the factories. I only have a chopping machine. After harvesting, we will use a centralized drying facility to incubate the leaves before chopping. As I said, I work with a factory where I have a quota of 1500 kilograms. So if the yield is more than 1500 kilograms, we are allowed to sell it to someone else. Tobacco has grown a cycle per year, then we rotate it with rice. My farm has 10 farmers and 7-8 laborers for harvesting. The minimum laborer wage is THB300/day.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I have struggled to pay the farm's electric and water bills. Sometimes there would be no electricity since the farm is in the suburbs. We also have to pump water to use

ourselves.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I sell my crops to the company I have a contract with and to the Tobacco Authority of Thailand.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

No.

8. Do you ever struggle with poor growing seasons and harvests?

No.

9. Have you ever had to deal with natural disasters?

Yes. I have dealt with floods. Also, the soil at the farm contains a high amount of nitrogen could be detrimental to tobacco.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses regularly per month and how much do they cost? How much gross profit per rai the farm is able to make?

- The company we have a contract with invests in pesticides and fertilizers for us and these costs will be deducted from when we get paid.
- Laborer wage for harvesting costs THB8,000/month/rai.
- The farm can harvest 400-500 kg/rai per round. Harvesting costs THB45 per kilogram.
- Land rent costs THB5000/rai/year
- Gas for pumping water from the Mekong river costs THB500/day

- The water bill is THB100/year which I pay to the municipality.
- Whether the farm will make a profit depends on the quality of the crops. This varies from year to year.
 - If there's no heavy rain or other natural disasters, it's almost always profitable. For the most part, it's profitable, but not by a lot.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

Yes. I am interested in growing hemp.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

I would like training and necessary information regarding hemp cultivation. I am especially concerned about the hemp market price. I am afraid that it will drop eventually.

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, in fact, I am currently participating in a contract farming model with a company for tobacco. So far, I am happy with how the model works.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

Yes, I would be pleased to work with the company.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I would like a clear and transparent contract. I would prefer ESG to buy my cropper kilogram instead of per rai. I want the company to take care of us farmers and come to check upon us.

Participant 3

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am growing tobacco for 51 rai.

2. How did you begin farming? How long have you been farming?

My family and I have been growing tobacco for generations.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

The farm has 10 laborers for 51 rai. They help take care of the farm in general: plantation, water, harvest, loosen the soil, etc. I use mechanical tractors to plow the land and dig the soil before planting. This costs THB1,100 per rai. To dry tobacco leaves, we use a centralized drying facility that processes around 900 kg per one facility which would take two days. We can obtain roughly 600kg/rai.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

The farm has struggled to pay laborers' wages and other expenses. Also, due to the situation, there have not been enough laborers.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

We sell to the Tobacco Authority of Thailand and a private company.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

I have had to deal with hail storms which would damage the crops.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

We use mechanical tractors to plow the land and dig the soil before planting which costs THB1,100 per rai. Some other expenses include a water bill that costs THB100, a gasoline fee to pump water from the Mekong river, a maintenance fee, and a pumping machine. Moreover, I invested THB500,000 for 51 rai. This includes food to feed laborers, fertilizer (costs THB190,000), and laborer wage that costs THB2,000/day/person. Lastly, the Gross Profit is roughly THB400,000-500,000/51 rai.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

N/A

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I would be interested in growing hemp in the future but I would have to get approval from the company I am working with first.

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, we are already working on the model with a company.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I would like ESG to provide us with training regarding the cultivation of hemp. ESG should also build fences and install CCTV for us.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

N/A

Participant 4

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I have grown tobacco of over 1,000 rai for hundreds of years along with tomato as a rotational crop. I also have the authority over 6,000 rai of the land but it's actually the government's land.

2. How did you begin farming? How long have you been farming?

N/A

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

My farm only requires 2 laborers per rai for taking care of the crops and harvesting. The farm uses mechanical tractors to plow the land and dig the soil before planting.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

We are not really affected by this. This is because we also do rotational crops such as tobacco and tomato. Tomato's price is pretty high. For instance, tomato is THB10 each. Thus, we gain THB40,000-50,000/rai.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I sell tobacco crops to the Tobacco Authority of Thailand.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

It depends on the season. For tomatoes, if the crops are grown during their growing season, we would obtain high yields, hence they will be sold in accordance with the market price (standard price for tomato). However, if they are not grown during their growing season, the price would be higher.

9. Have you ever had to deal with natural disasters?

Yes. We have had to deal with rains and storms. It hardly happens though, possibly

once in 10 years.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

We invest THB23,000/rai. This includes rent, gas for electric water pump, harvesting, laborer wage, firewood, etc. As for revenue, we obtain THB50,000/rai in which we can harvest 500 kilograms of tobacco crops per rai. The farm uses organic fertilizers. The soil is nutritious due to minerals from the Mekong river.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

Yes, I have. I am interested in hemp.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I would consider growing hemp if it is permitted by the law.

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

N/A

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

Yes, I am.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I am especially concerned about hemp plantations and the regulations around it. This is because I have no knowledge in growing hemp, I do not know anything about the conditions hemp requires to grow. I also think that hemp flowers would require a high level of care. Most farmers under my supervision are also not aware of hemp cultivation and how much they could make from hemp. As for the model, I am happy with ESG buying our cropper rai. ESG must have a clear and transparent contract with us farmers. I also want ESG to train and educate us. Moreover, I also would like to know if we can also grow tobacco at the same time as growing hemp. As of right now, farmers only get paid once a year (from tobacco crops), but they have various expenses, hence it is a good idea to grow something else too. Farmers' biggest requirement is that they want more sources of income. They also want ESG to provide them with job opportunities, help them build a career, and help them diversify the risks. Actually, I contacted the community enterprise already but they never responded and we never had any big companies reaching out to us. Also, ESG must provide them with a clear warranty and

they should work with Cultural District Authority, Provincial Ministry of Commerce in order to reassure farmers.

Participant 5

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

My family is growing 2 rai of tobacco. In this area, most families grow approximately 1-2 rai, since heavy rain and storms might cause damages to the plant before we were able to harvest them.

2. How did you begin farming? How long have you been farming?

The contract company comes to our village and offers the villagers to grow tobacco for them. My family has been growing tobacco for 10 consecutive years. As a matter of fact, our family has been farming it for more than 30 years, but we stopped for several years when I had my first daughter.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

Tobacco can only be grown once a year since the field will be flooded through the rest of the year. First, the village representative receives tobacco seeds from the contract farming company. Then he prepares and grows the seeds into saplings. After they become saplings, I and other villagers take these seedlings into our field. Before placing the saplings into the field, she hires a soil plower to lift the soil surfaces. It took 45 days for the tobacco plant to be fully grown and ready for harvest. Tobacco does not require much care, but they are sensitive to rain. As a result, we need to cover the field with canvas when rain and storms come. When the leaves are being harvested, they will be strung together, dried in the sun, and arranged inboxes. At the end of the season, the company will come and buy all of the tobacco. The prices are being arranged based on their quality.

Our farm hires some of the villagers to harvest and string all the leaves, and they are paid based on the amount of strand they had done.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part about farming tobacco is that I am able to stay at home and always have time for my daughter.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

Given the covid situation, prices are being dropped and some of the products were almost unable to be sold.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

We sell our crops directly to an international tobacco company in Taiwan and Korea.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

No, we do not manufacture or process the dried tobacco leaves, we only sell them directly to the company.

8. Do you ever struggle with poor growing seasons and harvests?

Last year, we had a low yield due to the thinness of the tobacco leaves. The tobacco leaves became thinner due to the heavy rain and aphids. This further caused the overall weight of the end products to be lower than it used to be. As a result, we got a smaller amount of money with the same amount of expenses.

9. Have you ever had to deal with natural disasters?

Yes, as I mentioned in the previous question, heavy rain and storms are our main threats when growing tobacco.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

In each year we spend approximately 2000 baht on a field cultivator, 6000 baht for two laborers, 5000 baht for fertilizer, 1000 baht for pesticides, and 900 for gas. The total expense per two rai per year is approximately 15,000 baht. The total revenue depends on the quality and weight of the dried tobacco which can range from 40,000 to 50,000 baht.

(The team did a calculation from the information given and her gross profit is between 35,100 to 25,100 baht per two rai per year.)

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

My family has not considered growing other crops, but we would if there is an offer available with higher gross profit. This is because the process of drying tobacco requires an abundance of time and causes our hands and clothes to be all covered with tobacco gum.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

-

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

It is interesting since there are many people in the area who are still looking for an occupation. Plus, aside from growing tobacco, I would like to find a part-time job to do.

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, I am familiar with the contract farming model. It is similar to what we have been doing with the tobacco company. However, from the past few years, we have lost a huge amount of profit due to many difficulties, such as the heavy rain and the covid-19 situation. Despite this, many villagers are still growing tobacco, since they have no other options.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

Yes, I would definitely be interested in contract farming with ESG.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

The company must provide training, soil preparation and plantation method, a representative, and a solid goal and plan for the farmers joining the contract farming. I am interested in the contract farming model with ESG, and it will be better for the farmers if we are able to sell our products per rai rather than per kg. Plus, I also have a

concern over the location of my field, since it is more suitable for growing rice and might be flooded during the monsoon season.

Participant 6

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I grow tobacco for 2 rai.

2. How did you begin farming? How long have you been farming?

I have farmed for a really long time. We do not really have other jobs.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

N/A

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part about farming is during the harvest season.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

The farm has been affected by the economy. For instance, I have been paid less. However, the company always buys our crops.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I only sell to the contracted company. The company exports the crops overseas.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

If the weather is bad or if there is too much dampness, the crops and roots will be rotten or there will be mold.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

The quality of crops depends on the weather even when using the same amount of fertilizer.

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

I obtained a total revenue of THB30,000 for 2 rai (THB15,000/rai). Laborer wage costs roughly THB8000/year. The laborers string the leaves where there would be 100 leaves for each string. The laborer wage is THB4 per string. The fertilizers used are provided by the company in which the cost will be deducted from the money paid by the company. The company takes out about ฿4000 per year. We can obtain around 500 kg of crops per 2 rai. However, this varies each year.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

N/A

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, I am.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

Yes, I am interested in growing hemp with ESG.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

N/A

Hemp Farmers

Participant 1

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

We have grown hemp as well as various other Thai herbs. We have 1 rai of our own along with our contract farming for 30 rai and other contracts in a very large amount of rai. We also buy hemp crops from other farmers. We have a plan to expand our plot of land to grow more hemp very soon.

2. How did you begin farming? How long have you been farming?

We began planting hemp 2 months after being permitted by the law. Hemp's price became much higher after being legalized, so it was worth it. However, soon after, the price started to drop by 5-10 times.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required? We

We support hill tribe farmers by buying their hemp crops including leaves and stems in a large volume. We then manufacture these crops into processed hemp-based food where we also export the products overseas. We sell hemp seed and fibers which will be processed into textile.

- For dried hemp leaves, we use an oven (40-50 degrees celsius) and sunlight (only during summer). However, during the rainy season, we will use gas and Electrical ovens instead.
- For hemp tea, we use a packaging machine, sealing machine, and laborers for packing.
- For hemp oil, we have oil extract machines.
- For hemp soju, we do not sell and produce it ourselves though. We do not have

the equipment for it. We are only a supplier for other large companies or brands.

- Lastly, for hemp spice or food ingredients, we use a blender and a sealing machine.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

Not really. Our farm is located in Lampang province (The northern part of Thailand). Our farm and the machines we use are not on a big scale, so we are not really affected by the economy. However, in terms of the sale of products, it's mostly our shops and pop-up stores that are affected by the Covid-19 situation. Thus, we are now only focusing on our online platforms, long-term customers, franchising, etc.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

We use top social media sites such as Facebook, LINE official, LAZADA, Shopee, etc. The problems we have faced are regarding restrictions on each platform and franchising. For instance, firstly, some online platforms do not allow hemp to be sold, namely LAZADA, Shopee, and Facebook; this is due to the uncertainty of the law. Secondly, as for franchising, some people are interested in selling hemp but are unsure of the law. Thus, they would usually back off eventually. Additionally, some people have been fined for selling hemp because even the authorities are still unsure of the law themselves.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

Yes, we do. We produce a wide variety of hemp-based processed food such as dried leaves, hemp tea, hemp oil, hemp soju, hemp spice, etc. These products are sold on social media platforms as mentioned earlier.

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

N/A

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

For hemp leaves, no fences are required for the plantation process. Plantation methods are similar to growing corn. For instance, we only need to drop seeds which only takes a day. The farm uses 10 laborers per 15 rai in which we can obtain 15-20 kilograms of leaves per one harvest cycle. Laborer wage for planting, taking care of the plants in general, harvesting costs under THB30,000/month. No water system is required. This means that we did not have to invest in the water system. Growing hemp during rain season only costs THB30,000 to invest. Fertilizers/chemicals (pesticides, herbicides, etc.) costs under THB50,000/15 rai. Seeds cost THB750/kg which the farm buys 150 kilograms.

For hemp seed, it requires fences for the plantation; for every 2 rai, this costs THB100,000. Other plantation processes including soil plowing, harvesting, and fences cost over THB200,000. Additionally, if our contracted farmers have no water system, we will also invest in them. This would cost THB50,000-100,000. Specifically, we will install sprinklers for them. Solar cell costs THB10,000/2 rai; this is especially necessary for growing during winter. CCTV and other security systems cost a little bit under THB20,000. Seed costs roughly THB10,000 (approximately THB1/seed).

For hemp flower, it requires even a higher level of security. This takes up about 0.5 rai of land. Fences cost THB100,000. It also requires CCTV installation. Moreover,

it must be grown in-door. Hence, we need to construct 2 domes. Each dome costs THB50,000. The farm has to pay for a burn pit which costs THB10,000. We also need to pay for the water system, this includes sprinklers and drip irrigation. The soil costs over THB10,000. As for the seed, it has to be imported; it costs THB60,000/300 seeds. Lastly, the farm has to install storage and a security system for hemp flowers, namely containers, fingerprint scanner, two-layer doors, temperature control system along with the office for customers, visitors, and guests; this costs THB1,000,000 and takes up 0.5 rai of land in total. The reason why it costs this much is that we intended to make the place to be an attraction, so we wanted to make it look nice.

Lastly, for contract farming, we charge farmers for testing their crops THB20,000.

As for gross profit, it depends on many factors. Some rai are even profitless. This is because some farmers' cultivation is done poorly. The problem is then amplified when some crops are becoming rotten due to transportation. For the farmers, it's always going to be profitable. Hemp flowers take 4-5 months to harvest, seeds take 6-7 months while leaves take 3-4 months. The long harvest time is a pitfall as it means higher costs of production. Flowers are sold for a high price. For instance, dried flowers are sold for THB15,000. It gives a profit of at least THB100,000/rai. As for hemp leaves, we could harvest 1 ton/rai in which we gain THB50,000. The farmers usually only invest THB50,000/15rai. They will be paid THB750,000 for only investing THB50,000. Nevertheless, for companies like ours, we'd have to bear the risk of transportation as hemp is fragile.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

The farm has already grown a lot of other Thai herbs since our business is mainly about those herbs. We recently added hemp and Kratom to the business due to the new market trends.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes. In fact we are working with a lot of farmers using this model. The way we do contract farming will depend on what the farmers we work with require. For example, if farmers do not have the money to invest, we will offer financial and material supports. Moreover, we will help farmers build fences needed for hemp plantation and provide seeds; Farmers only have to plant and take care of the crops. While some other farmers do not require us to invest for them, they only what us to make contract promising that we will buy what they grow. We charge our farmers for testing the soil, testing the crops for CBD and THC contents, and travelling for THB20,000. Hemp used to be worth THB1,000-2,000 after being legalized, however, now the price dropped to about hundreds of baht. So, the contract depends on the market trend. This is one of the main disadvantages of contract farming as the market price constantly changes. From our experience, we promised our farmers to buy their crops for THB500, but then over time it became cheaper; the farmers weren't happy with the price we'd pay so they refused to sell it to them. Hence it is risky for the company. Moreover, we have faced several problems from the model and we believe a contract farming is not suitable in Thailand.

There are so many contract loopholes allowing farmers to not hold their end of the bargain. For example, there was this one time where they lied about there having been a storm or flood which is why they got low yield, when in reality, they already sold it to someone else who paid them more.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

It depends on who farmers are and where they live. Farmers from different regions have different mindsets. For us, working with farmers has been difficult. They are selfish and dishonest. For example, they do not use the seeds provided by our company. They also do not provide their entire crop saying that they obtain low yield when they already plan to sell it else where. So, I think ESG should take this into account. At first, we felt sorry for farmers and we really wanted to help them have a better quality of life, but working with them has taught us not to trust them or even work with them. They took advantage of companies like us. Now we just wanna stay away from them and we will expand our plot of land to grow hemp on our own. But we are happy to buy crops from farmers if the crops have all the qualities we want.

Participant 2

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I have grown hemp that gives a high amount of CBD (flower) for 15 rai. I import 2-3 species of hemp seeds from the US which the farm has to obtain approval from the laboratory first.

2. How did you begin farming? How long have you been farming?

I started the farm in Aug 2021. I have now been growing hemp for 7-8 months already. I began growing hemp because covid had affected my main business. Also, the deregulation made me interested in growing hemp.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

The farm has 4 glasshouses (1,000 square meters each) on top of those 15 rai. Those 4 glasshouses are divided into an evacuate house where a cooling pad and cooling water to maintain temperature are used, and 3 other houses which are closed systems in which we only use fans. Currently, I have no plan of doing anything with the space left yet. It is only used for mixing fertilizer and soil. At present, I am working on the farm's second round of crops. As for the water system, I use a water filtration system (RO) for planting and drip irrigation water system directly to each pot. RO water system allows the crop to have high quality. I also possess a machine to mix fertilizer, storage for the crops, and a packing machine before delivery to a factory or a lab. As for the workers, I have an academic consultant, about under 10 laborers for all of the 4 glasshouses to plant seeds, take care of the crops, mix soil, transplant to larger pots once germinated, cut leaves, and harvest flowers, and 2 plantation experts for each glasshouse. For the plantation process, the farm has a seed nursery station. Since hemp requires deep care, we use weaved baskets instead of atypical pots to grow them. Weaved baskets help with water absorbance, drainage, and ventilation. I have faced difficulties due to the fact that I was inexperienced. This one time, I planted them too close to each other (too crowded), hence, there was too much dampness which leads to fungus and low quality of the crop. Therefore, I have had to fix this problem by nursing the seeds and planting them separately.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

I would say my favorite part of farming is harvesting. I like that I get to see hemp flowers and the crops grow. I also find the terpene scent of hemp while harvesting very therapeutic.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

Since growing hemp does not require many laborers and the farm is in the suburbs, we are not really affected by the economy/covid and always have enough laborers. However, we have had issues with plantation experts; they are quite hard to find, high cost, and in high demand. Moreover, covid has affected the market. For example, people who grow hemp don't know where to sell or what to do with their crops. As for myself, I also do not know what products to make from my hemp crops. Originally, I wanted to produce hemp-based cosmetics but the factory I am working with has no knowledge of making them. This is because hemp is still very new. Thus, they required me to provide them with a recipe/formula in which I also have no expertise. Moreover, I was told that CBD was gonna pay THB100,000-200,000/kg when in reality the costs of producing them are also very high. I would also have to find an extraction place if I want to continue the cosmetic project. However, there are not many places in Thailand at the moment. The hemp market in Thailand is still very volatile and the prices are ambiguous.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I am now only focusing on the plantation process since I have just started the farm. Thus, I have not really ventured into the market. Also, I am still deciding on what products to make.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

Yes, we do. Our products are dried hemp leaves, hemp tea which helps to fall asleep

easily, hemp roots which help cure Gout, hemp seeds oil which contains high omega 3 and cadmium that helps with bone and joint, hemp stem which is processed into the textile (shoes and Levi's jeans), and hemp concrete. In the future, I want to make use of hemp leaves in animal feed to help relax animals.

8. Do you ever struggle with poor growing seasons and harvests?

Yes. As mentioned, it was when the farm was too crowded. Moreover, the dampness from the rain would hemp root rot. Pests such as caterpillars also result in poor quality of crops; this happens even when our crops are grown indoors.

9. Have you ever had to deal with natural disasters?

N/A

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

For the fan system, we invest THB200,000/glasshouse. As for the evacuation system, it costs even higher but I can't tell you the exact number. It does not cost much to take care of the crops. I never computed how much electric/water bills cost though, but I think that it's not that high. As for the farm's monthly expenses: THB40,000 for consultation/month, 2 plantation experts THB40,000/month, and a plantation assistant THB10,000/month. I also have to pay the minimum laborer wage THB300/day in which the farm requires 10 people for 3 days per week, thus, this comes to THB36,000/month.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I am only focusing on acquiring CBD from hemp. However, I might expand to other hemp species that provide hemp seed oil or other species that also give high CBD. I might also expand to Kratom. I won't grow marijuana though since it'd require a new license.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I think that deregulation is only applied to household use. I am now waiting to see how things in the market will go, what products will people produce, and when. Basically, I want to study the market first. I think it's important to educate people about the potential of hemp for them to support the hemp market more. This is because some people do not agree with how high the hemp's price is and won't support hemp-based products. Personally, I only started growing hemp because of its high price and the deregulation, but when I actually got to do it, it was not that easy and required much care. As I said, hemp is highly fragile. Additionally, there are not many factories that would process my crops into products, and the market price of hemp is still uncertain. So, there's still a lot for me to learn. I am very inexperienced in the field. It's really been helpful that my farm has plantation experts to guide us, otherwise, it would have been so much harder. Most farmers rely on their experience too much, but growing hemp requires more knowledge. I think it's important that they learn something new.

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, I am. I have a Contract Economics degree. I was working on a project where I had to talk to farmers about community enterprise. Since hemp is a fragile crop and it requires a high level of care, it has to be planted in a closed system. Hence it's rather hard to convince farmers to grow it. Except, the community enterprise has to invest in a closed system or glasshouse for them to attract farmers.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I also produce hemp seed oil to make superfoods. So, I am very interested if ESG would buy my crops. I think it's good for my business to have connections with larger companies.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I want to talk to the company and to know what exactly ESG would want from us farmers. Since I also import seeds myself I don't think I'd require much support from the company. I am ready to talk business with the company and make a contract. I'm only afraid I wouldn't actually get to talk to the actual company.

Participant 3

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing hemp for half a rai. This hemp is considered a semi-medical grade.

2. How did you begin farming? How long have you been farming?

The purpose that I started growing hemp is to study hemp diseases and pests. I called my method of farming “safe agricultural practices.” I have been growing hemp since October 2021.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

I currently have 6 sprinkler taps for watering the plants and a chopping machine for coconut coir. My farm is not very labor-intensive, because it is a small family business. The workers include myself, my brother, and several laborers.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

We are not affected at all by the economy since we hire no labor on the farm. Plus, the only main expenses are fertilizer and farm construction.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

We are selling our products through our Facebook page, restaurants, hospitals, and a craft beer company. On Facebook and other online platforms, I increase my profit by using influencers to review my products. For the restaurants and hospitals, I have a connection with Phramongkutklao Hospital. The hospital is requesting for me to come in and give a presentation. This is because they want to include hemp medication treatment in the army to increase the soldier’s appetite. The craft beer company had just recently brought my entire crop using CBD from leaves and roots. The THC to CBD

percent is 11.17% per 1% THC which is very suitable for beer. Plus, the crop that Suan Fah Yim grow has a different scent than hemp from most farm due to the usage of a mixture of water you use to rinse uncooked rice, eggshell, brown sugar, M150 (an energy drink), and flavor enhancer (as organic fertilizers). This makes the beer give off a nicer scent than normal beer. Moreover, my brother's wife is planning on exporting hemp products to China.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

The seeds are used to make superfoods. Leaves are being dried to make hemp tea. We also manufacture hemp into hemp honey, hemp whiskey, sweet tamarind with sugar, salt chili and hemp, and hemp cookie.

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

N/A

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

For the overall expenses, the fences, building cost, soil, plantation equipment, and electricity altogether cost 150,000 baht. For every quarter of a rai, I use 4 trucks worth of black soil for 700 baht per truck, 2 trucks of rice husk ash for 700 baht per truck, one truck of rice husk for 2-300 baht per truck, and leftover coconut coir, which I have brought the chopping machine for 25,000 baht. The labor wage per day is 300 baht, and I have started hiring laborers since the farm is expanding. The water is free from the nearby pond. The monthly electricity bill for the farm and my house is 4000 baht in total. This separates 30% for household use and 70% for farm usage. Plus, I have

brought 14 new LED lights for 900 baht each.

Since the farm has just been opened, we have not calculated the gross profit yet. However, from December 2021 when we first harvested the crop to the present, I made approximately 100,000 baht in total from growing and selling hemp.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

9. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I am planning to expand from cultivating 500 hemp plants to 3,000 hemp plants in April 2022. I am already permitted to do so. With the new plot of land, I plan to divide it into two sections. The first one is to obtain seed for making superfoods, and the other is mainly for obtaining CBD from hemp flowers. Now, the price of 6% CBD stands for 2000 baht per 1 kilogram of dried flower. Considering the current farm size of 500 plants, this allows me to obtain approximately 10kg of dried flowers. This means that I receive 20,000 baht for selling all 10kg per one crop rotation.

10. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

11. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

12. How much do you know regarding growing hemp and the crop per se?

N/A

13. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

14. Are you familiar with contract farming?

I would frankly say that I am not familiar with contract farming models.

15. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I am concerned about the level of commitment I must give to the company. This is because the proposed plan appears to be included with a high level of commitment. I personally do not entirely believe that the big companies will buy my crops. There have been several cases where the company sold their seeds to the farmers but never contacted them back. I am very concerned about the clearness of the contract. When the company comes to collect the crops and we have to pay for the seed and equipment, what if they charged us extra for consultation or travel? Would it be profitable for the farmers? Plus, I am concerned about the growing conditions that the company may require. For example, the company might require the farmers to grow indoors. This is impossible for my farm since we are currently growing the hemp plants outdoors. If I agree to work with the company, will they provide the facilities required for each farmer, or do we have to purchase them by ourselves? I am unsure whether the company will take care of the farmers or not. For example, SME or OTOP is supported by the government until the end of the project period. After it ends, the government no longer provides any support for the farmers. I want to know how ESG will be different from the government organizations.

From what you have proposed, this theoretically sounds promising, but I am not sure whether it is practical. Especially during the covid-19 pandemic, if the farmers have problems and they require help from the company, then what would they do? Some of the farmers may not have internet access. How do we make sure that the company is not telling lies to the farmers?

16. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

The ESG must be able to build trust with the farmers. To gain trust from the farmers, the company must have tested for the most suitable growing method for the farmers and must provide their results. The company could collaborate with the agricultural center of each province, where farmers can easily reach out for help.

Additional notes: CP and the Wellness group came to observe my farm and they were interested. They would like to use my farm as a model for the other farmers since they mentioned that mine is a good example.

Other Farmers

Participant 1

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am a licensed farmer who is currently growing marijuana. I grow 120 marijuanas since the Thai regulation stated that 1 marijuana plant per 1 square meter. This means that for 120 I have 120 square meters (approximately 0.075 rai).

2. How did you begin farming? How long have you been farming?

N/A

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

What I am doing is a community enterprise where there must be more than seven people involved. We water the plants manually. The soil is mixed manually using a small concrete mixer.

4. What is your favorite part about farming? Do you live close to the farm? What is around

the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

My farm is not strongly affected by the economy because we own the soil, and we did not hire any laborers. People inside this community enterprise are living in the same area, so we do a rotation on watering and taking care of our plants. These people in the community enterprise are my mom's old friends who are either government officials or have their own businesses. They all come together and do what they are interested in, planting marijuana. Hence, money is not a problem for us.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

We are currently selling our product through Facebook page and LINE application.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

We processed our marijuana into cannabis honey, cannabis soap, cannabis tea, and cannabis fermented fish.

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

N/A

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

We do not gain a huge amount of profit, it is rather in the middle range neither high nor low. It is normally a bargain price because Maejo University sells their marijuana products much cheaper than we do. This is because the university is farming on a larger scale than what we are doing. Maejo's price is 2000 baht per one kilogram of marijuana leaves, but we sell ours at 6000 to 4000 baht at the same amount. However, our products are considered ready-to-ship products, but Maejo's must be preordered.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I am interested in growing hemp. I have talked to the people in the industry and understood that there is only a small amount of difference between cultivating hemp and marijuana. Plus, cultivating hemp does not require a high amount of investment, and it also gives better profit than marijuana does. I am planning to expand to 200 to 300 marijuana plants in the next one or two years due to the license application.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

I am concerned about the pests and worms, even though they are mostly similar to those found in cannabis plants. However, since we water our plants by hand, it is easier for us to spot those pests and handle them.

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

No, I am not familiar with the contract farming model. (After the Chula team explains about contract farming.) I am highly interested in this and believe that it is a good idea.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I am interested in contract farming with ESG and hemp. Plus, I would like the company to educate and train my team on growing hemp, specifically on soil and water.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

The support I would want from ESG is training. I believe that it is important.

Participant 2

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing 20 marijuana plants, lime, coconut, and other Thai herbs. The plants are not for sale. They are planted in my backyard for household consumption.

These marijuana are still not legally allowed to grow, but I have thought of growing them commercially. The reason that I have not grown them legally is because of the concern over the license application and the control by the authorities.

2. How did you begin farming? How long have you been farming?

I have been growing them for six to seven years.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

I am currently working alone on the farm. As for the people in my village, they are using tractors and other workforces on their farms.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I am not really affected by the economy and the global Covid-19 situation.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

Farmers in the village do not sell the marijuana that they grow, since they grow the crops illegally. They only sell their herb and other crops to the fresh market.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

Yes, the weather does affect a lot. For example, during the monsoon season, if the soil too damp, then the marijuana root will rot and die.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

-

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

For the people in my village, they do not have any investment. This is because the fertilizers come from the cow's excreted matter, seeds are being shared among the farmers, and they are growing the crops in the household.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

Now, I am not considering growing other crops. However, if I am going to expand my farm and grow crops commercially. I would like to grow marijuana rather than hemp since it has a higher price compared to hemp.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

There is a possibility that I will be growing hemp in the future. However, I am concerned about growing hemp during the monsoon season, since the plant is a herbaceous plant. This means that they required more care.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

I have heard and been educated on this type of farming. I am interested, but the company comes to the village and explains about their condition first. Plus, I would need to consider the contract carefully before signing.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I would be interested, but ESG must come and talk to me first.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I am concerned about the facilities required to grow hemp. I would require the company to build a glasshouse, water system, and growing system. The company must clarify who will be paying for the fertilizers and pesticides, and how much is their prices. They must provide training, and a glasshouse to maintain temperature and to prevent pests. This is because the farmers usually grow hemp outdoors, so it means that each leaf will not grow evenly. This is the first time that any big company has approached me. I want to know if the company has a minimum number of land they want to invest in or not.

Participant 3

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

Currently, I'm growing 3 rai of watermelon, 15 rai of rice, and also eucalyptus in the free space between each field. Additionally, I also grow sticky rice, but for consuming purposes only.

2. How did you begin farming? How long have you been farming?

Our family is farmers so it has been over decades since I've been introduced to farming.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

As mentioned, it's a family business, so every family member is lending a hand to help. The machine used is a water pump. We have to pump water into the rice field. We also use a Kubota harvester.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part about farming is that it allows me to watch the crops grow; it warms my heart. My home is near the field, so, sometimes, I'd stay over at the field to get some fresh air and to keep a close eye on the crops.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I have faced some problems. For example, prices of agricultural materials and equipment have increased. In addition, the price of rice has dropped.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

We sell our rice directly to the mill. There are not any significant problems to point out since our rice is black rice. Hence, it is of higher quality than normal rice, so the price is quite good.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

No, we don't.

8. Do you ever struggle with poor growing seasons and harvests?

Fortunately, no. This is because I've already prepared a water system to provide enough water for the field when there isn't enough rain or when there's drought.

9. Have you ever had to deal with natural disasters?

The only problem I've ever faced is drought. However, as mentioned, our farm has a water system ready.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

It costs around THB600 per rai to harvest using a mechanical harvester. My monthly expenses come from buying chemical fertilizers and organic fertilizers. Our farm is divided into two sectors, one is grown with chemical fertilizers, whereas the other is organic. The organic side earns more money since it costs less to grow and yields better quality products. We make around THB12 per kilogram of rice which one rai produces around 2,000 kilograms. In short, we make around THB50,000-60,000 in profit per year from growing rice.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I do not have any plans to expand the farm or to grow other crops yet except eucalyptus. Eucalyptus is grown between the rice fields in order to make use of the space that's left. They grow pretty quickly; they take 2 years to harvest. After the first two years, it can be harvested repeatedly. The net profit from eucalyptus is around THB20,000 per year.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I am not interested in it and never studied or knew anything about growing hemp. This is because I have no space left to grow a new crop. I am also afraid of the law and regulations as one of the people I know has been fined before. Also, growing rice does not allow me to have time to grow other things. The cycle of rice already takes up the entire year.

4. How much do you know regarding growing hemp and the crop per se?

I have no knowledge about it.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

No.

6. Are you familiar with contract farming?

I have heard about it and I am interested.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is

looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

No, not really. I find it hard to trust large companies. A few years back, I worked with large companies who said that they'd invest for us and buy our crops. So, I grew taro and eucalyptus for them. However, we never heard from them again. I reckon it's best for me to farm on my own.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I think If the company could gather a group of farmers in my area, the leader of my village or highly recognized figures to participate, I might be interested. ESG should provide human resources to look after our fields or to check up on us once in a while. The company should have officers come in and talk to them.

Participant 4

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I grow nine rai of cassava.

2. How did you begin farming? How long have you been farming?

I have been farming cassava for ten years, following what my parents did.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

5 laborers are required in the production process for nine rai of land. These laborers

must prepare suitable soil for the new crop season by plowing up soil using a tractor and distributing fertilizer. Then they will chop cassava into small pieces and plant them into the fertilized soil.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part about farming is, during the plantation preparation period, staying at another house close to the field which has pleasant weather. Yes, I do live close to the farm, and most of the people in my neighborhood are farming cassava as well.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

Due to the global COVID-19 situation, the fertilizers' price is higher and this led to a drop in my overall gross profit. However, there is no effect on the rental fee, since I am the land owner myself.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I have been selling my cassava to the middleman ever since. Through these years, I have had no problem doing it, but the prices may vary each year.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

No, I do not process or manufacture any goods. The products are being sold to the middleman directly.

8. Do you ever struggle with poor growing seasons and harvests?

Yes, sometimes the cassavas can be rotten or spoiled due to heavy rain. This lessened the overall yield of my farm.

9. Have you ever had to deal with natural disasters?

As I mentioned in the previous question, monsoon season and heavy rain caused the cassava to become easily spoiled and rotten.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

I spend approximately 20,000 baht on a regular basis annually. The 20,000 baht expenses include petroleum for my tractor, laborers, herbicides, and fertilizer. In return, I receive 50,000 baht profit per year.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I am planning on growing corn since it may require lesser expenses on a regular basis and cause more fortune than cassava does.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

I will need to get more information on their specifications, how to grow them, and other required knowledge. I barely have information on growing corn and will need to find more in the near future. I believe my main obstacle here is the lack of knowledge.

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I am interested in growing hemp, but I have no knowledge about it.

4. How much do you know regarding growing hemp and the crop per se?

I have no information regarding how to grow hemp or basic information about the plant.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

I have no information about this.

6. Are you familiar with contract farming?

No, I am not familiar with contract farming at all.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I would be interested in working with ESG, but this depends on the crops' productibility. This is because, as I have mentioned earlier, I have zero information on hemp plants and how to grow them.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

It would be very useful if ESG provides advice and support to me. The company must make sure that the products are completely legal, could provide me more fortune and there is a sustainable market.

Participant 5

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing bananas for 5-6 rai (250 banana trees), durian for 1 rai, rambutan

for 1 rai, and coconut, mango, tamarind, and other crops in a total of 20 rai. Another 20 rai are being occupied with crutches and teakwood for 10 rai and sugarcane for another 10 rai. I am from Nong Bua-Lum Phu province in the northeastern part of Thailand.

2. How did you begin farming? How long have you been farming?

N/A

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

Recently, I had joined the Royally-Initiated New Theory Agricultural Project of the late H.M. King Bhumibol. In order to do this plantation, I must first prepare water and soil. For the preparation of the water, I have to drill for water and dig wells. For soil preparation, buffalo and cow's excreted matter can be used for fertilizer. I also use a straw to cover the soil to restore and preserve the soil.

For the worker, there are community aids from my friends as initially, I worked by myself. I do not want to hire the farmers because I rely mostly on my cultivation capabilities. I am not farming for commercial purposes but rather as a means to sustain my own life. If there are leftovers, I would donate them to charity. On my farm, I also do a concrete plantation on bananas, and the banana seedlings are being brought from other villagers. The only machine I use is a tractor with 45 horsepower.

Moreover, the water pipe used in my farm is based on the late H.M.King's project called "Sai Kai Canal". This resembles a canal or a river.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

Farming brings me happiness because I am able to stay in nature and breathe clean air. There is no need to spend money on vegetables and fruits since I can get them from my farm. The village where I live is close to the farm, so I can walk there easily. My main happiness of farming is seeing the crops and plants grow.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I am not affected by the Covid-19 situation since the food supply is from my farm. As I am not selling my crops commercially, market inflation does not appear to be a problem at all. In contrast, the pandemic allows me to have more time on the farm and have more concentration on them.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

N/A

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

I process my bananas into banana chips and fried bananas. However, they are not for sale. I am not good at marketing, so these crops are mainly to sustain my own life.

8. Do you ever struggle with poor growing seasons and harvests?

Never, because I have a 2 rai area of the pool to store the rainwater.

9. Have you ever had to deal with natural disasters?

Yes, during the monsoon season, my farm was hit by a storm. However, it did nothing to my farm and the crops.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

I do not have a high amount of funding, so I did not invest much in the farm. The cost is shared within the family.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I want to grow other crops, but I am not having the courage to do so. This is because I am not good at marketing and not willing to take many risks. However, I might take more consideration into growing other crops.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

I was once being persuaded to grow Kratom leaves, but I rejected them. I believe that the risk is high; I am afraid of losing profit. Therefore, I mainly farm to sustain my life.

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I do not believe that the new regulation will take down hemp and cannabis plants from the list of controlled drugs in Category 5 addictive and make farming them legal, since I am not good at law. Furthermore, I recently saw one of the villagers being caught by the police for growing hemp. However, my geographic location is very suitable for farming marijuana and hemp.

4. How much do you know regarding growing hemp and the crop per se?

I have the confidence that I can grow hemp well, but my main obstacle is the law.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

-

6. Are you familiar with contract farming?

No, I am not. I'd like to be provided with more details.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I am usually against the use of chemical substances such as fertilizers, pesticides, etc., so I want to know more information about the company. For example, I'd like to know if the company plants hemp using chemical substances or not? I'd prefer it to be organic farming. I am interested in knowing the conditions and agreements of the contract.

Participant 6

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I'm currently growing 2 rai of corn along with rice. I also have 2 stalks of straw mushrooms.

2. How did you begin farming? How long have you been farming?

I started because I did not have any jobs before, so I decided to farm to support my family. I started farming corn 2 years ago. Last year, I expanded into straw mushrooms.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

I only use a tiller machine to prepare the soil before growing crops. My crop field requires 2 workers while the straw mushroom stall requires 6 workers.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

I like the fact that farming allows me to sustainably support and pay for all of my family's expenses. I live in a village which is quite close to the farm so that I could walk day in and day out. There's nothing around the farm which makes the weather there very good with no pollution.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

Covid-19 hasn't had much impact on my farm. The only thing is that the fertilizer was cheaper before the pandemic, so I used the compost from the straw mushroom soil to make the compost for growing the corn and rice.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I sold my crops through a middleman in the northern part of Thailand and some to the villagers. I gain around THB10 per kilogram for corn, THB50 per kilogram for straw mushrooms, and THB80 per kilogram for bamboo mushrooms.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

I never manufactured or processed any of my agricultural products into other types of products because they sell pretty well and are almost always sold out.

8. Do you ever struggle with poor growing seasons and harvests?

It depends on the weather, if it is too hot or too cold, the mushroom would hardly grow.

While there are no problems with corn, the price is always THB10/kg.

9. Have you ever had to deal with natural disasters?

There are no natural disasters where I live. I have never faced something like a flood because I live on a highland.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

The mushroom house costs THB500,000 but it's a one-time cost. Mushroom spores cost around THB20,000. If the mushrooms grow as planned, the profit would be enough for the family expenses.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

No, I haven't thought about growing any other crops because there isn't any space left.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I would've been interested if there's more space available. Maybe growing a small amount would be possible but surely not for a large quantity.

4. How much do you know regarding growing hemp and the crop per se?

Yes, I know about hemp.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

Yes, I am familiar with the contract farming model and I am quite interested in it. However, the contract farming model is unlikely to happen for me because I own only a small piece of land and would like to know the minimum plot of land required.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I may have to think about it first but I feel like I would have a hard time with the course where ESG provides knowledge about hemp. This is because I am a slow learner.

Participant 7

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

Right now, I possess 1 rai of banana and 30 rai of rice farming.

2. How did you begin farming? How long have you been farming?

I inherited the rice farm from my parents a couple of years ago. For bananas, I just started planting them for 3-4 months since there's some free space. Moreover, I also grow jackfruit, longan, and marian plum in the same area.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

I hire an outsource worker to do the labor work in which the farm already has all the equipment ready for the job. The only two machines I have are a submersible water pump and a tractor.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

I only started farming as a minor occupation. So far, it has been quite enjoyable and not chaotic at all even when working with a lot of people. The field is right next to my house.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I do have some problems caused by the pandemic. Some bananas grown were already reserved while leftovers are for sale in my office at the government department where I do my full-time job. Nevertheless, rice prices dropped to the point where there isn't any profit left after subtracting the cost to hire workers, required growing components, and equipment.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

Rice was all sold to the middleman while people nearby reserved the banana.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

I did some before but not anymore. Now, I only sell it without processing which is lower in profit but easier to sell.

8. Do you ever struggle with poor growing seasons and harvests?

Rice had a struggle during the pandemic last year because the price was not going well. Moreover, rice pests such as worms and *Setaria parviflora* were found. To eliminate the pests, I use the urea fertilizer which digests the pest faster.

9. Have you ever had to deal with natural disasters?

My field isn't located near any water sources, so, normally there's no flood. However, 4-5 years ago, a storm hit and resulted in a flood. The main problem is drought though.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

It costs around THB20,000 per rai to grow rice (the price may vary for jasmine rice and Kor Khor 43 rice). Rice price depends on whether the northeast region produces enough crops or not. If there's still high demand for rice, the price will go up, but if there's already enough rice in the market, the price will go down.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I have not considered any other crops yet. In fact, it is already hard for me to manage what I have because I have my full-time work which finishes at 8 pm. I've heard that a lot of people in the village grow marijuana and kratom but I haven't considered

changing yet.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

I have some knowledge about contract farming and I am interested in doing it. However, I need the company to come and contact me directly because I don't really have time to approach the company by myself.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I'll have to look into the contract and what the ESG will provide first. In addition, I'll have to look into ESG's information and procedures to grow hemp. In conclusion, if my mother who is in charge of the farm agrees, I would have no objection.

Participant 8

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I grow rice for 14 rai.

2. How did you begin farming? How long have you been farming?

My family members have been farmers for over 50 years. So, I have been carrying on what they left for me.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

In order to grow rice, I start by burning the straw and then bale the water for the tiller machine to spin and operate in the field. There are many machines used in the field including Kubota tractor, tiller machine, and combine harvester. There are only 2-3 workers who help me work in the field.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part about rice farming is when I sow rice seeds as I view it as a result of my hard work and I'm proud of it.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

The rice farming work hasn't been affected by the pandemic because there are not many people growing rice in Sukhothai province; thus there is high demand still. However, covid-19 has affected the price of petrol and fertilizer causing them to be much more expensive. The Covid-19 situation also caused the price of rice to become cheaper (THB5900-6500). I feel like doing rice farming during this hard time is like wasting money to buy fertilizers and insecticide sellers.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I sell my rice crops to the rice shop.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

Currently, there are pests invading my rice field which damages the rice and lowers the product yield.

9. Have you ever had to deal with natural disasters?

I once experienced a heavy flood that destroyed all the rice crops to the point where there is only a few left to collect.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

I would say this question is very hard to answer, sometimes the rice plant fuses turn

pale on the leaves in which extra chemicals need to be added. Also, the price depends on the season.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I haven't considered growing any other crops yet.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

I don't really have an interest in hemp farming. Furthermore, people in Sukhothai province are unfamiliar with hemp even though it is already deregulated.

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

I'm not trying to avoid participating in the contract farming model but I want to rely on myself first before reaching out for help. Moreover, I wouldn't get to enjoy my favorite thing about farming which is when I sow my rice if I were to switch to hemp. Also, I don't think the market is sustainable, so doing contract farming on hemp is probably not suitable for me.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I work at the provincial health center, so, I won't have much time to spare besides farming rice. I'm still unsure if the hemp market will be able to support the production of hemp. One additional problem is that my rice farming area isn't suitable for growing hemp as the topsoil is incinerated and topsoil never got rested.

Participant 9

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing rice for a total of 25 rai.

2. How did you begin farming? How long have you been farming?

I started growing rice since it allows me to be close to my mother since she is already old. This allows me to take care of her every day. I would rather stay near my mother and do farming than get other jobs far away.

3. Can you please describe your production process?

- a. What machines or equipment do you possess or require to use to complete your production process?
- b. Is your farming labor-intensive? How many laborers are required?

I use a tractor, tiller machine, and water pump. My farm isn't labor-intensive, We rarely hire any workers. My husband and I are the ones doing all the work.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part is that I get to consume the crops that I grow myself and that saves a whole lot of money. I live near the farm to make it easy for me to take care of the crops.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

Since the Covid-19 outbreak, rice prices started declining while fertilizers and chemicals' prices skyrocketed. There's inflation every year while my income is only getting lower.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I sell my rice to a middleman. The problem is that the middleman forces the price down.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

Yes, sometimes, aphids and insects attack the rice farm, some farms do not obtain any yield from the incident.

9. Have you ever had to deal with natural disasters?

Last year, there was a big flood that destroyed all the crops.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

I don't know how much the investment costs these days. However, before the fertilizer price went up, it was around THB50,000 for 15 rai.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I have not considered growing any other crops yet. But in Saraburi province, people either grow rice, taro, or watermelon. If there's any expansion, I would consider these choices first.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

I've heard that it is good to do contract farming. However, I'm concerned about the market to support hemp production. For instance, whether or not there is enough demand for the crop that will be grown in the future.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I don't think that I'm interested in growing hemp both by myself and with ESG yet. My land is soaked which isn't suitable for hemp farming.

Participant 10

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing several different types of crops in 5 rai of land. The crops I am growing include banana, marian plum, jackfruit, santol, neem, fingerroot, bergamot, potato, bamboo, and coconut.

2. How did you begin farming? How long have you been farming?

My family has been farming these crops for three generations, since my grandfather. However, I have been doing it for only three years.

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

The water system is equipped with solar cell panels. We are hiring only two laborers.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

My favorite part of farming is eating my own products which are safe from chemicals, inorganic fertilizers, and herbicides. I live close to the farm, and I have only one neighbor.

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

I only sell the farm's products to my friends and the people I know. The demand is higher than what my farm can produce. Given the current economic damage from COVID-19, not much has been affected. This is because the crops are being harvested throughout the year, so I received a year-round revenue.

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

I mainly sell my products through online platforms such as Facebook. By using online platforms, I am able to sell my products at good prices.

7. Do you manufacture or process your crops into other types of products? If so, what are those and how do you sell them?

Yes, on my farm we process the fingerroot into honey lemon fingerroot juice and crispy baked fingerroot. I sell these products through the farm's Facebook page and at the farmers' market.

8. Do you ever struggle with poor growing seasons and harvests?

Yes, sometimes the squirrels would eat my products, so I must make sure to harvest the fruits before they eat them.

9. Have you ever had to deal with natural disasters?

No, not yet so far.

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

The expenses on a regular basis per one crop rotation include laborers for taking care of the farm and harvesting the crops. The total expenses are approximately 4500 baht.

The crops that I grew can be sold at decent prices since I do not use any fertilizer or chemical herbicides. This allows me to have lower expenses compared to other farms.

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

I am considering growing durian. I believe that there is a demand for the fruit.

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

I would need more information on their specifications and how to commercially grow them.

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

Yes, I would be interested in growing hemp.

4. How much do you know regarding growing hemp and the crop per se?

I barely have information about hemp.

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

I believe the plant requires more caring and must be monitored closely. Plus, they might need some covering or must be planted in a glasshouse in case of damage from strong wind and storms that might happen.

6. Are you familiar with contract farming?

I have little information on contract farming.

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

I am interested, but there is no area left in my 5 rai of land. All of them were already occupied.

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

I would like to have investment support from the company.

Participant 11

Part 1: Determine the current business environment of local Thai farmers, financial figures, quality of living, current crops they grow, labor-intensive.

1. What are the crops you are currently growing and for how many rai?

I am currently growing 25 rai of rice, 15 rai of santol and mango, and another 10 rai is my residence.

2. How did you begin farming? How long have you been farming?

I bought the plots of land 8 years ago from another farmer. The previous farmer was already growing rice, mango, and santol

3. Can you please describe your production process? What machines or equipment do you possess or require to use to complete your production process? Is your farming labor-intensive? How many laborers are required?

I did not grow both santol and mango. I am just waiting for them to grow and harvest their fruits. The fruits can be harvested from March to may. I let the middleman come and collect them.

As for rice, I grow them twice a year. Growing rice requires only one laborer because he uses tractors and harvesters. There are 4 months in between the two cycles where I do not grow rice since it is a drought season.

Both mango and santol are sold for THB5 per kg. I do not keep track of how much I make from selling them. For the rice crop, I also let the farmers harvest them.

4. What is your favorite part about farming? Do you live close to the farm? What is around the farm? Please describe the environment around your farm.

N/A

5. Given the current economic damage from the global COVID-19 situation, what are the difficulties that you have faced?

N/A

6. What are the platforms you use or where do you sell your crops? Are there any problems that occur from said platforms? How effective are the platforms?

N/A

7. Do you manufacture or process your crops into other types of products? If so, what are

those and how do you sell them?

N/A

8. Do you ever struggle with poor growing seasons and harvests?

N/A

9. Have you ever had to deal with natural disasters?

N/A

10. Are there any problems arising from you growing said crop(s)? If yes, please elaborate.

N/A

11. Please expand more on what you are currently growing. For example, how much did you invest per one harvest per rai? What are the expenses on a regular basis per month and how much do they cost? How much gross profit per rai the farm is able to make?

N/A

Part 2: Create a validation proposition for ESG on whether Thai farmers are interested in switching to hemp

1. Have you considered growing other crops? If yes, what are the crops you are interested in growing?

N/A

2. Based on the previous question, what would you require to grow a new type of crop? Do you think that there will be any obstacles? If yes, would you please further clarify that?

N/A

3. What is your opinion regarding growing hemp? Now that it is being deregulated by Thailand's Ministry of Public Health, would you be interested in growing hemp?

N/A

4. How much do you know regarding growing hemp and the crop per se?

N/A

5. Do you know the difference between growing hemp and your crops? How much more attention would be required?

N/A

6. Are you familiar with contract farming?

N/A

7. ESG is one of Thailand's largest manufacturers of hemp-derived cannabidiol (CBD) products. ESG is at the forefront of CBD extraction in Thailand and has collaborated with the Thai government in an effort to destigmatize hemp and CBD. The company is looking to establish a contract farming model where they would help supply seeds, nutrients, growing procedures, and other help you may need to grow hemp on your farm. They will also supply guaranteed business to buy your hemp after it has been dried and harvested on your farm. Would you be interested in contract farming with ESG and hemp?

N/A

8. What kind of support from ESG would be attractive? Would there be any other support you would like to ask of the company? How would ESG be able to offer a sense of security?

CONTENT ANALYSIS QUESTIONS AND CODES

Main Question: Are Thai farmers interested in contract farming for hemp cultivation?

1. Does the farmer grow hemp (including marijuana)? (HE)
2. If the farmer does not grow hemp, what do they grow? (NH)
 - a. Tobacco (NH-T)
 - b. Sugarcane (NH-S)
 - c. Rice (NH-R)
 - d. Cassava (NH-C)
3. Does the farmer have more than 10 rai? (MR)
4. Does the farmer use mechanical equipment? (ME)
5. Did the farmer mention drought or other natural disasters that negatively affected their crops? (ND)
6. Does the economy affect the farmer? (EC)
7. Does the farmer make less profit than ESG's offer? (LP)
8. Has the farmer considered growing a new crop? (NC)
9. Does the farmer know anything about growing hemp already? (KH)
10. Did the farmer know what contract farming is? (KC)
11. Did the farmer express interest in contract farming? (IN)
12. Was there at least one unknown response to the questions 1-11? (UN)

DEFINITIONS

Rai: A rai is a measurement unit for land area in a cadaster or cadastral map that is equal to 1,600 square meters or 0.395369 acres.