



Global Platform for Sustainable Natural Rubber



**Rubber agroforestry systems (RAS) for sustainable agriculture.  
Systèmes agroforestiers à base d'hévéa.**

## **Workshop GPSNR 2023 with rubber smallholders in North Sumatra, Indonesia**

***Version for external sharing<sup>1</sup>***

**November 2023**

**Held at: Tor Sibohi Hotel, Sipirok**

By Dr Eric Penot (CIRAD UMR Innovation, France), Dr Maria Wang Mei Hua, and  
Ilahang (SNV)

**November 2023, Montpellier, report written in March 2024**



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<sup>1</sup> Participant names redacted from this version for confidentiality purposes.

# **1 Introduction: a GPSNR Rubber Agroforestry Systems (RAS) training session in North Sumatra**

## **1.1 Objectives**

The global objectives of this session with Sumatra rubber smallholders were the following:

- To share technical information on current existing RAS in the world to illustrate examples of what is feasible
- To provide information to farmers and profit as well of their own experience and RAS (“RAS sendiri”).
- To identify constraints and opportunities to develop RAS in various socio-economic environment
- To identify RAS cropping patterns suitable to local farmers
- To identify conditions for further potential actions (demo-plots, On-Farm Trials)
- To share farmers' perceptions on RAS and conditions to develop opportunities

For GPSNR, the objectives were the following;

- To collate global, country, and region-specific best-evidence and best-practice materials on agroforestry for natural rubber systems
- Where feasible, collated material to be disseminated to GPSNR smallholder members and their communities even where workshops are not planned for in 2023-2024
- To conduct workshops for GPSNR smallholder members and their communities to introduce agroforestry concepts and practices, and provide guidance and answers for the following questions:
  - a. What is possible to grow in your region or specific location, and how can this be achieved?
  - b. What is the market availability and demand of particular products in your region?
  - c. How can agroforestry investments benefit smallholders economically, environmentally, and socially?

The target countries for 2023-2024 were Cote d'Ivoire, Indonesia and Liberia. In Indonesia, agroforestry possibilities and practices would vary widely across the country's major rubber-producing regions. There is strong interest from smallholders as well. It will be critical to blend or merge more traditional concepts such as jungle rubber with evidence-based and structured forms of agroforestry

The program of the workshop is detailed in Annex 1. A consent form was distributed to all participants (Annex 2) as well as a questionnaire about current rubber practices (Annex 3). The list of participants is provided in Annex 4.

## 2 General comments: Composition of Participants & Summary of Questionnaire Survey Data

North Sumatra province is relatively similar to West Kalimantan in terms of rubber agroforestry patterns compared to provinces with more focus on monoculture (Jambi, Riau, south Sumatra). Many farmers have some knowledge and know-how on mixing rubber and other plants. The questionnaire has also been modified based on our experience in Cote d'Ivoire and our knowledge of Indonesian culture (Annex 3).

**Participants:** 24 smallholder farmers (among whom at least 3 were also extension officers), 1 extension officer (who was not farmer), and 1 support officer from PT Alam Bukit Tigapuluh (an ecosystem restoration concession in Jambi which involves rubber farming communities). Four had attended the workshop in Jambi in 2023.

**Geographical representation:** Good. 7 from Tapanuli Selatan (local), 5 from Mandailing Natal, 3 from Teluk Kuantan, Kuantan Singingi in Riau, 4 from Musi Banyuasin, 2 from Tebo, and 4 from Muaro Jambi. The 4 participants from Muaro Jambi were sponsored by SNV.

**Gender representation:** 5 women, 21 men. This is an improvement from the workshop in Jambi in 2022 which only had 1 woman. The women were active participants alongside the men.

**Total survey respondents:** 26

**Age:** 33-60, average age is 45.5.

Age range	Count of participants
35 and below	3
36-60	23
above 60	0

### **Ethnicity/Indigenous/minority representation:**

15 self-identified as indigenous, 7 as not indigenous, and 4 did not answer.

12 self-identified as minority, 10 as not minority, and 4 did not answer.

A range of Ethnicities were reported: Batak, Jawa, Mandailing, Melayu, Melayu Jambi, Melayu Riau, Minang (Melayu), and Talang Mamak.

**Participation in Cooperatives:** Most participants were involved in some kind of cooperative or farmer group, only 5 answered no. The answers may not be accurate because the survey question only asked about cooperative. The terms “cooperative”

(*koperasi*), “association” (*asosiasi*), and “farmer group” (*kelompok tani*) are considered quite different entities by Indonesians.

**Rubber hectareage:** Most farmers had 2ha or less of rubber production area. One participant was a clear outlier with 14ha of rubber in production. Other participants had 5 ha or less. We also asked about oil palm hectareage. Those who responded said they had 1-2.5 ha of oil palm.

	All rubber area (ha)	In production (ha)	Not in production (ha)
<b>Average</b>	2.77	2.55	0.37
<b>Sum</b>	66.5	56	8.5
<b>Min</b>	0.5	0.5	0
<b>Max</b>	14	14	3

**Rubber age:** Ranged from 5-60. Some considered rubber >25 years old to be no longer productive. Only 8 farmers had immature rubber, which means that the majority have only mature rubber plantations, and a few with only old rubber (>25 years old). They will likely be thinking about **whether it is worth it to replant rubber trees** or to replace with other more profitable crops.

**Spacing:** Majority of respondents plant rubber trees with spacing of 6x3m (n=8) followed by 4x4m (n=6). Other spacings: 3x4, 4x5, 5x3, 5x4, 5x5, 6x4, and no fixed spacing.

**Clones:** Most common clone used was PB260 (n=7). Other varieties mentioned was Seling, Sungai Putih, GT, BPM24, ITT, IR, TP, grafting, and local seedlings.

**Tapping Frequency:**

D2 or 3x/week is the most common. 3 farmers tapped 4x/week and 2 tapped daily.

**Stimulation Frequency:**

8 farmers do not use stimulation. 11 farmers used stimulation with varying frequencies (2-24x/year), and there seemed to be no observable connection to rubber age or tapping frequency, but possibly a trend with the association membership (UPPB and Maju Bersama members reported using stimulation monthly/twice monthly). We discussed this during the workshop, and a local facilitator explained that for PB 260, stimulation can be applied 4-6x/year, and for GT1 – maximum of 10x/year. Stimulation use should always follow the guidance. Stimulation could be used twice monthly in certain circumstances at **low concentrations**. Another farmer mentioned that it is important to provide nutrients to the rubber trees before stimulation is applied.

**Weeding:**

Most participants use manual weeding method (n=11), a combination of manual + herbicide (n=7), and herbicide only (3; including Roundup mentioned once). Frequency

of weeding varies (from once to four times a year, most commonly is twice a year). The cost also varied (IDR 250.000 to 9 million).

### **Fertiliser:**

Most participants used chemical fertiliser (n=10). Other responses were: none (5), organic (2), organic + chemical (4). The cost also varied (IDR 0.6-6 million).

**Household dependents:** Most respondents had dependents of 3-5.

<b>No. of dependents</b>	<b>Count of Household Dependents</b>
3	6
4	9
5	8
6	1
8	1
n/a	1

### **Income**

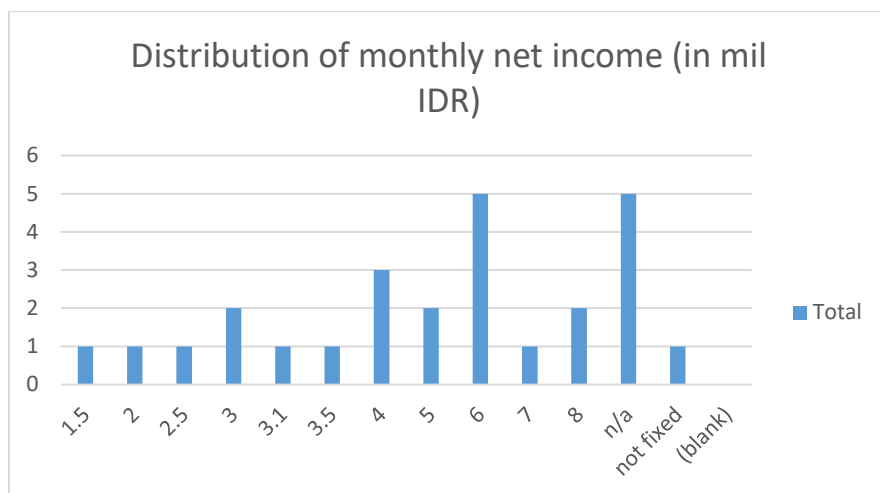
In the survey, we asked respondents about the net monthly income, net income from rubber, from other agricultural sources, and from other sources. We note that the answers are merely rough estimates and not be taken as accurate data, but as a general reflection of the income situation of our workshop participants.

For reference, the average monthly net wage in the agriculture sector in Indonesia is about 2.06 mil IDR, and the average monthly salary for employees in Indonesia is 2.94 million IDR.<sup>2</sup>

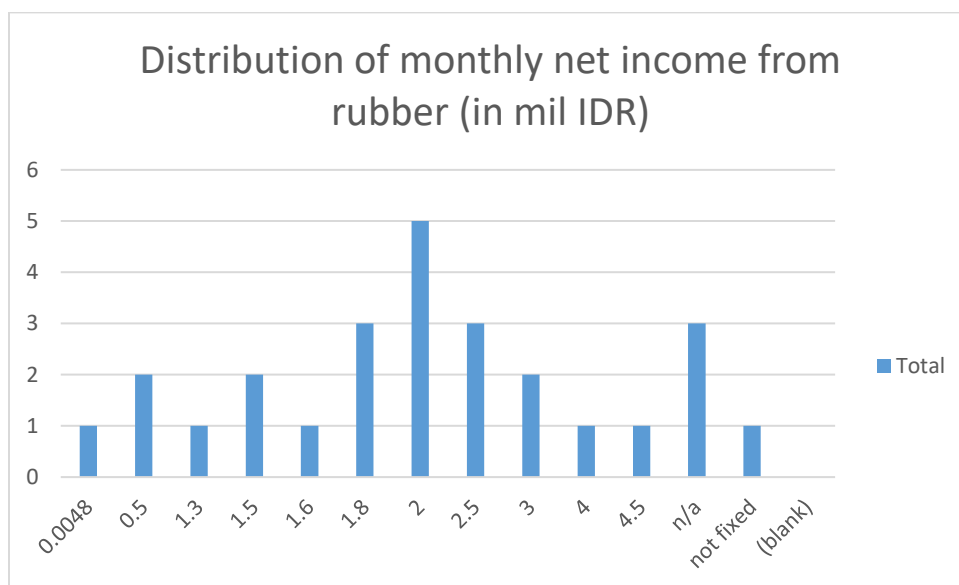
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<sup>2</sup> <https://www.statista.com/statistics/711736/average-net-wage-by-sector-indonesia/>

**Net monthly income:**



**Income from rubber (net):**



Percentage of monthly net income from rubber	No. of respondents
17%	1
22%	1
25%	2
29%	1
33%	1
40%	2

42%	2
45%	1
50%	3
51%	1
58%	1
75%	1
80%	1
100%*	1
n/a	7

\*not accurate as respondent also reported other sources of income.

### ***Income from other sources:***

19 respondents reported having income from other agricultural sources (oil palm, rice, horticulture i.e. vegetable and fruits are the most common sources mentioned).

Not many participants responded about income from non-agricultural sources. A few respondents were extension officers and thus received salaries. A few reported having side businesses (shops). One reported doing odd jobs.

### **Labour:**

5 respondents reported having family labour of 1 (likely themselves), 12 have family labour of 2, and 4 have family labour of 3-5.

14 respondents hired no workers, 3 hired 1 worker, and the remaining hired 3, 5, and 10 workers. Based on the answers to other questions (e.g. rubber production area), there may be some discrepancies as to who is counted as a worker by different respondents.

10 have no sharecroppers, 8 have sharecroppers (1-5 sharecroppers).

### **Prior knowledge/experience:**

We asked participants to rate their knowledge and experience with agroforestry (with any crop), on a scale of 1-4:

Self-assessment of prior knowledge/experience	No. of respondents
1 – No knowledge	11
2 - Some knowledge, but no experience - Unsure of how to practice	6
3 - Some knowledge, some experience - Sufficient knowledge to practice agroforestry, or just started practicing agroforestry	5
4 - Experienced, ready to teach others	4

Years of experience ranged from 3 months to 15 years. Type of prior agroforestry experience ranged from intercropping rubber with fruit trees, oil palm, palm sugar, stingless bees, and cattle.

They learned about agroforestry from various sources, sometimes themselves (5), through friends (3), and other organisations (3).

### **Reasons for interest in agroforestry:**

Majority gave economic reasons (increase income, increase farmer wellbeing). Eight were motivated by knowledge (to learn and increase experience). Two mentioned environmental reasons. One mentioned food inequality.

### **Expectations for the program:**

Common expectations are to improve knowledge, experience, and welfare of farmers. Five expressed hope that this type of workshops will continue, perhaps for other crops. Some also hoped for exchange/sharing of ideas, and to spread the knowledge to farmer communities.

### **Feedback about workshop**

We collected feedback about the workshop through whole group discussion.

Riau group: effective and practical delivery of training, interesting to listen, hope that the workshop can be done in other locations

South Sumatera group: increase vision and friendship, valuable training, hope it will be done often and directly to farmers

Tapanuli Selatan group: This can be a guide for the government to provide training to farmers, they have learned a lot and feel motivated. Hope that more workshop time can be spent in the field.

Jambi group: Hope that the workshop will be continued, and include government representatives – as they are responsible for issues like infrastructure problems.

ABT group: Pointed out that the workshop has not really discussed agroforestry for ecosystem restoration. Hope that agroforestry knowledge can enrich existing practices. The agroforestry products mentioned are actually forest products that have been utilized as commodities. In ABT, there is not really a cropping pattern, but very dense planting of 800 seedlings/stems per hectare. They hope to find a way to extend the productive lifespan of rubber trees.



### **3 Participant engagement**

In general, the participants were warm, friendly and engaged. The workshop venue, Hotel Tor Sibohi in Sipirok, was excellent as it was in a beautiful location with mountain views, fresh air, and open space. This was appreciated by participants. Most smallholders seemed comfortable to express their opinions when prompted. Participants were also eager to take photos with each other and the organisers. The female participants (5 from 3 different provinces) bonded quickly and all contributed to the workshop. Smallholders and organisers contributed food and snacks to share, increasing comradery.

A WhatsApp group was made in advance of the workshop, which was utilised by smallholders to introduce themselves, make jokes, and ask questions. Ms. Ilaahang (SNV), Pak Febrius (GPSNR Smallholder Champion/EC member) played essential roles in facilitating engagement. It was also helpful that both consultants had some command of Bahasa Indonesia.

Based on feedback from last year's workshop participants who sometimes found it difficult to understand the presentations, Ibu Ilaahang took turns with Dr. Eric to deliver the presentations such that the content would be more localised and adapted to the audience.

### **4 Day-to-day Workshop Flow**

#### **Day 1:**

##### Activities included

- Introductions by organisers and participants
- Presentation about agroforestry during immature period by Dr. Eric and Ilaahang
- Small group discussion about existing agroforestry practices they've experienced and presentation by group leaders

Recommendations for improvement for small group discussions:- Ensure diversity geographical representation/experience among groups to increase sharing and exchange within group.

- Consider some additional questions to provoke discussion, as it seems that Indonesian farmers stayed quite closely to the few simple questions asked. If they were lacking in experience, then the discussion seemed to stagnate.

## **Day 2: Field trip to Rubber Agroforestry Farms + Presentation on agroforestry during mature period**

We visited three different rubber agroforestry farms. They were all remote, and required traversing through bumpy/holey village roads to get to. On the way we saw many rubber trees still standing and often on slopes.

Farm 1: Rubber Lemongrass distillation on-site, nutmeg, jernang, sugar palm, fruit trees.

Farm 2: Palm sugar with old rubber trees.

Farm 3: Stingless bees + rubber trees + various types of flowers

The owner of farm 3, Pak Arrifin, mentioned that he feels reluctant to cut down the rubber trees even though they are no longer a good source of income because he planted them himself.

We had plans to visit a fourth farm, Pak Febrius' farm but it was inaccessible to large groups due to flooding.

Upon return to the accommodation, a second presentation on agroforestry during mature period was given by Dr. Eric and Ilahang.

Workshop organisers and participants engaged in karaoke on the second night.

## **Day 3: Group discussion and farmer feedback**

### **Group reflection about farm visits**

Workshop participants appreciated how the farm visits allowed the sharing of knowledge, increased friendship, and opened up new visions for agroforestry, business opportunities, and economic growth. They could see the crop types adapted to different topography, climate, and elevations (e.g. North Sumatra vs South Sumatra). The farm visits increase the interest of farmers to try agroforestry in their own farms.

The workshop participants could see how the farmers can enjoy the produce from agroforestry: honey, coffee, palm sugar, and palm nectar drink. They could see how farmers themselves are able to innovate and process from upstream to downstream (palm sugar, granulated palm sugar, single origin coffee, honey, distilling citronella oil from lemongrass). Additionally, some farmers obtained palm seedlings (to try to grow on their own farms back home).

The poor road conditions point to longstanding infrastructure issues that require government intervention.

## **Session on eco-enzyme by Pak Februs**

Pak Februs gave a presentation about eco-enzymes, a natural fertiliser made from fruit waste + brown sugar + water. He demonstrated how it was beneficial for his crops, with photos of big vegetables and leafy plants. He also warned about using chicken manure and how it might invite fungi and diseases, or how applying too much at once can cause unhealthy growth. His talk was well received by farmers especially as he is a farmer himself, and he provides very practical information.

## **Farmers sharing**

Only one farmer had prepared a video beforehand (Pak Edi). It showed him collecting cup lumps from his rubber farm which was intercropped with oil palm. For other farmers, they simply contributed to the general discussions.

Some key points:

Smallholder (Muaro Jambi) – interested to integrate AF with palm sugar, honey, and coffee. The main challenge is obtaining seedlings and marketing.

Smallholder (Muaro Jambi) – wish to maximise his coffee production. Interested in sugar palm. Is planning to buy stingless bee starter colony from Shopee (online shopping platform), as there is potential for positive interaction with coffee flowers.

Kuansing group – the past instructions from SRDP was focus on monoculture. So they are interested in restarting agroforestry practices with sugar palm.

Smallholder (South Sumatra) – it is difficult to intercrop rubber with rice and corn in South Sumatra, because they are no longer allowed to clear land with fire. He can only plant cinnamon (rubber is 7 years old) – asked if cinnamon can be planted in South Sumatra? Other farmers shared that yes, cinnamon should be able to grow in South Sumatra. Suggested planting distance 1.5x2m for cinnamon, elevation of 500-1500masl.

Smallholder (South Sumatra) – wish to grow timber trees to grow and maintain the existing natural timber trees, hope that his farm will be an example for the future.

Smallholder (Kuantan Singingi, Riau) – understood that with implementation of AF, need to consider the suitability of the farmland, choice of seeds/seedlings, marketing, and maintenance. She is interested in palm sugar because of the easy maintenance, easy to obtain seeds, easy processing, and good market. She can see the high potential of *Trigona* but doesn't yet have the knowledge. Regarding Jernang (small rattan): she doesn't yet have the knowledge. Also interested in eco-enzyme.

Support officer from ABT ecosystem concession mentioned two villages/districts in Riau that have traditionally raised stingless bees and jernang, so the farmers from Riau can refer to those localities for the knowledge and practice, if interested.

## 5 Photo documentation

This section provides some photos from the farms visited.

**Photo 1 rubber and lemongrass**



**Photo 2 Lemon grass distillation unit**



**Photo 3 Lemongrass**



**Photo 4 Sugar palm**



Sugar palm bunch

**Photo 5 Jernang (Rattan)**



**Photo 6 Nutmeg tree**



**Photo 7 Young sugar palm trees**



**Photo 8 Sugar palm**



**Photo 9 Durian and fruit trees**



**Photo 10 Fruit trees**



**Photo 11 Coffee**





**Photo 12 Jernang (rattan)**



**Photo 13 & 14 Local Jungle rubber**



**Photo 15, 16, 17 & 18 Honey production**



**Photo 19 Flower trees for feeding bees**



These pictures display a large variety of plants intercropped with rubber: lemongrass for distillation, jernang (a variety of rattan), sugar palm, coffee, durian and other fruits, stingless bees and flower trees for bee feeding .....

But most of these intercrops are planted in old ageing rubber plantation, highly attacked by leaf diseases with a poor canopy providing generally less than 50% of shade. It seems that in front of ageing rubber plantations, most farmers are in transition from rubber-based agroforestry systems to diverse agroforestry systems where lemongrass, sugar palm and coffee are the next leading crops.

## Other photos

**Photo 20 Seminar room during the workshop**



**Photo 21 Small group discussion**



**Photo 22 Presentation by Pak Februs, smallholder champion**



**Photo 23 Smallholder owner of second farm primarily intercropping rubber with sugar palm.**



**Photo 24-25 Smallholder owner of rubber + stingless bees farm.**



- **being interviewed by SNV Staff**



**Photo 26 Female smallholder, being interviewed by Rudi (SNV Staff)**



**Photo 27 Durian sharing session**



## **6 Data about current agroforestry practices of workshop participants**

The detailed data are presented in the following table. Similar to last year, the most common agroforestry practice among workshop participants is intercropping during immature period.

The main problems for practicing agroforestry are animals and pests, linked with the fact that there are still some forest remnants in the mountains, a situation very similar to Eastern Sri Lanka.

Rubber is clearly in decline in this area where some local markets provide opportunities for crops like coffee, the jernang rattan and sugar palm.

The local agricultural system is in transition where rubber is progressively abandoned, mainly due to long period of very low prices and priority given to more profitable perennial crops.

This situation is very clearly showing the general current trend in Indonesia where rubber is being outcompeted by other crops. While in most places in Indonesia, oil palm is the main competitor; this is not the case on North Sumatra in the visited area where competitor crops are different (coffee, sugar palm, fruits, durian, bees...). This raises uncertainty in the future of rubber in such economic conditions. Agroforestry patterns may diversify and improve plot gross margin/ha and more generally farmers' income but that might not be sufficient due to low rubber prices and rubber no longer being attractive to farmers.

Type	Species	Duration of AF	Reasons	Problems
Immature	Upland rice	6-month phase	To supplement basic food	Pests - e.g. birds, monkeys, pigs, rats
Immature	banana (pisang barangan)	1 year phase	Increase income	Pests - apes, Puserium fungus
Immature	vegetables, eggplant, beans, chili	2-3 month phase	To fulfill kitchen needs	Pests - fruit flies, Puserium
Immature	Cucumber, peanut, long bean	3-4 years	Utilizing land and income	None
Immature	Watermelon	2 years	-	None
Immature	Curly chili	7 months	Increase income and facilitate maintenance	None
Immature	Field rice	2 years	-	Pests - birds
Immature	Watermelon	3 years	Utilizing land that is not yet productive	None
Immature	Upland rice	1 year	Land is still clean, there is still a lot of humus rice plants do not interfere with rubber plants	Pests - rats, birds
Immature	Red chili	1.5 years	No competition occurs. Nutrient absorption	Pests and diseases
Livestock	Cattle	15 years	Produce manure; increase income; weed control	Disturb cup
Livestock	Trigona, Apis cerana	Approximately 3 years	To increase economic income	Maintenance, marketing
Livestock	Goat	4 years	Increase income and produce fertilizer.	Often enter neighbor's garden

Livestock	Stingless bees (Trigona)	Approximately 1 tahun	Economic improvement. Highly nutritious for health	-
Mature	Durian	10-12 years	Fruits can be sold	Pests, cockroaches, squirrels, pigs
Mature	Natural wood	self-growing	Utilization of wood for building materials	Irregular growth
Mature	Coffee, jambu madu (Syzygium sp.)	Approximately 2 years	In addition to the economy, the flowers are for nectar for the bees	Pests - monkeys
Mature	Cocoa	5 years	Simplify maintenance (at the same time)	Unproductive (pests and diseases)
Mature	Coffee	4 years (until now)	Reduce weeds, increase income	No post-production equipment
Mature	Natural wood	-	Let woody plants grow in the garden to be utilized for wood	-
Mature	Sugar palm	Continuous - 10 years	Increases income, does not interfere with new crops	-
Mature	Salacca	Continuous	Increase family income. Utilization of 1 piece of land with various crops according to the climate	-
Mature	Cocoa	Continuous	Increases income	Cocoa production is not maximized and pests (squirrels)



## **Annexes**

## Annex 1: GPSNR Agroforestry Workshop Programme for Indonesia (2023) [English and Bahasa]

DAY 1: 22 NOVEMBER 2023 (Wednesday)

Time	Programme
08:00 – 09:30	<b>Registration</b> Consent Forms Participants Survey (Online/Paper)
09:30 – 10:00	<b>Introduction</b> - Organizers and GPSNR Secretariat introduce themselves & about the workshop - Self introductions by all participants - Icebreaker
10:00 – 12:00	<b>Presentation on Agroforestry during Immature Period</b> by Dr. Eric Penot with Q&A (during/after)  * <b>Short break</b> during presentation when appropriate
12:00 – 13:00	Lunch
13:00 – 13:30	Time to fill in survey and return forms Give “Intro to Agroforestry” guide when forms are returned
13:30 – 15:30	<b>Small group discussion:</b> Smallholders’ Experiences with <u>Agroforestry during Immature Period</u> , <u>Mature Period</u> & <u>Agroforestry with Animals</u> Each group will have a spokesperson and a scribe. The scribe will record the information <i>neatly</i> in tables provided. The spokesperson will present on behalf of the group in the next session.
15:30 – 16:00	Break
16:00 – 17:00	<b>Whole group sharing:</b> The spokesperson from each small group will present on behalf of their groups. Discussion will follow.

DAY 2: 23 NOVEMBER 2023 (THURSDAY)

Time	Programme
07:30 -15:30	<b>Field visit to 3 rubber agroforestry farms</b> Lunch <b>Field visit to rubber agroforestry farm with bees</b>
Before Dinner	<b>Presentation on Agroforestry during Mature Period</b> by Dr. Eric Penot / Q&A session

DAY 3: 24 NOVEMBER 2023 (FRIDAY)

Time	Programme
08:30 – 09:30	<b>Discussion about Field Visit</b>
09:30 – 10:30	<b>Smallholder Presentations</b> – smallholders present about their farm situation, ideas/plans for agroforestry, available markets. Encouraged to

	bring drawing/sketches of their land, photos and videos Feedback will be given by Dr. Eric & other participants
10:30 – 11:00	Break
11:00 – 12:30	<b>Smallholder Presentations (continued)</b>
12:30 – 13:30	Lunch
13:30 – 15:00	<b>Discussion about smallholder presentations / Presentations from SNV</b>
15:00 – 15:30	Break + Exit Survey
15:30 – 16:30	Spoken feedback from participants about workshop Conclusion & Thanks!

## Program Workshop Agroforestri Karet sama Petani Karet (2023)

*HARI 1: 22 NOVEMBER 2023 (Rabu)*

Waktu	Program
08:00 – 09:30	<b>Registrasi</b> Formulir Persetujuan Survei Peserta
09:30 – 10:00	<b>Pengantar/Perkenalan</b> - Penyelenggara dan Sekretariat GPSNR memperkenalkan diri & tentang lokakarya - Perkenalan diri oleh semua peserta - Ice-breaker
10:00 – 12:00	<b>Presentation Agroforestri pada Masa Belum Dewasa</b> oleh Dr. Eric Penot dengan Soal/Jawab  * <b>Istirahat sejenak</b> selama presentasi bila diperlukan
12:00 – 13:00	Makan Siang
13:00 – 13:30	Waktu untuk mengisi survei dan mengembalikan formulir Berikan panduan "Pengantar Agroforestri" saat formulir dikembalikan
13:30 – 15:30	<b>Diskusi kelompok kecil:</b> Pengalaman Petani dengan Agroforestri pada <u>Masa Belum Dewasa</u> , <u>Masa Dewasa</u> & <u>Agroforestri dengan Hewan</u> Setiap kelompok akan memiliki seorang juru bicara dan seorang juru tulis. Juru tulis akan mencatat informasi dengan rapi dalam tabel yang telah disediakan. Juru bicara akan mempresentasikan atas nama kelompoknya di sesi berikutnya.
15:30 – 16:00	Istirahat
16:00 – 17:00	<b>Berbagi dengan seluruh kelompok:</b> Juru bicara dari setiap kelompok kecil akan mempresentasikan atas nama kelompoknya. Diskusi akan dilanjutkan.

*HARI 2: 23 NOVEMBER 2023 (KAMIS)*

Waktu	Programme
07:30 – 15:30	<b>Kunjungan lapangan ke 3 kebun agroforestry karet</b> Makan siang <b>Kunjungan lapangan ke kebun agroforestry karet dengan lebah</b>
	Istirahat
Sebelum Makan malam	<b>Presentasi Agroforestri pada Masa Dewasa</b> oleh Dr. Eric Penot

*HARI 3: 24 NOVEMBER 2023 (JUMAAT)*

Waktu	Programme
08:30 – 09:30	<b>Diskusi tentang kunjungan lapangan</b>
09:30 – 10:30	<b>Presentasi Petani Kecil</b> - petani kecil akan mempresentasikan situasi kebun mereka, ide/rencana agroforestri, pasar yang tersedia. Para petani didorong untuk membawa gambar/sketsa lahan mereka, foto dan video  Umpan balik akan diberikan oleh Dr. Eric & peserta lainnya
10:30 – 11:00	Istirahat
11:00 – 12:30	<b>Presentasi Petani Kecil (lanjutan)</b>
12:30 – 13:30	Makan Siang
13:30 – 15:00	<b>Diskusi tentang presentasi petani kecil / Presentasi dari SNV</b>
15:00 – 15:30	Istirahat + Exit Survei
15:30 – 16:30	Umpan balik lisan dari para peserta tentang lokakarya Kesimpulan dan Terima kasih!

## **Annex 2: Participant Information Sheet and Consent Form (English and Bahasa)**

Participant Information Sheet (You may keep this sheet for your reference)

**Project title: Rubber Agroforestry Workshop in Indonesia**

**Researchers involved:** Dr. Eric Penot (consultant, CIRAD), Maria Wang Mei Hua (consultant, independent)

**Local project partners:** SNV (Ilahang, Rudy Zariansyah)

**Organizer:** GPSNR

**Funder:** Bridgestone

### **Introduction and purpose:**

**Workshop Objectives:** (1) To share the latest technical information on rubber agroforestry with participants; (2) To create a space for participants to share their own experiences; (3) To understand participants' perceptions on rubber agroforestry; (4) To identify constraints and opportunities, including special concerns for female, youth and minority participants.

**Research Objectives:** (1) To understand participants' perceptions and experiences of rubber agroforestry and of the workshop; (2) To collect baseline data on participants' existing knowledge and practices of rubber cultivation and agroforestry.

**Rationale:** (1) To monitor and evaluate effectiveness of this workshop; (2) To improve the quality of future trainings; (3) To improve agroforestry knowledge and dissemination.

**Research Methods:** semi-structured survey, participation observation, note-taking, and informal conversations by researchers during the workshop; analysing written material (document analysis).

**Output:** After the workshop, we will write a report which will be sent to GPSNR. The anonymised outputs of this project may contribute to broader research projects on agroforestry.

### **Participation:**

Your part in this investigation is to participate in a rubber agroforestry workshop, which includes a written survey, group discussions, presentations, and providing comments via written or verbal methods. The written survey will ask you about your rubber plantation, your current practices, and your existing knowledge and practice of agroforestry.

Your participation is voluntary and you can choose to withdraw at any time without consequences. Your participation in the workshop is financially supported by GPSNR through a grant provided by Bridgestone and APROMAC. The workshop will take place over 3 days. With your approval we may contact you again to conduct a follow up survey or interview.

### **Use of information:**

The information collected from this study will be recorded via audio recorder / on paper / on a computer. Paper records will be transformed into digital records to be stored electronically. The information collected will be used to better understand participants' perceptions and experience with rubber agroforestry, and for monitoring and evaluation by GPSNR and project partners to assess effectiveness of the training and improve future trainings.

A report of the workshop will be written by the consultants for GPSNR. The report will be shared internally within GPSNR, CIRAD, the funders, and local project partners. GPSNR may choose to make the report or

parts of the report available to members of the public who request it. Anonymised data may be shared with external research partners for the purpose of scientific studies.

Your personal data (e.g. phone number) will not be shared outside the two researchers involved, GPSNR, the funders, and the local project partners.

**Contacts:**

If you have any further questions or concerns about this study, please use the contact information below. Thank you for reading this information – please ask any questions if you are unsure about what is written here / you have heard here.

Dr. Maria Wang Mei Hua  
WhatsApp: +60142734182  
Email: [wang.mh.maria@gmail.com](mailto:wang.mh.maria@gmail.com)

Dr. Eric Penot  
Email: [eric.penot@cirad.fr](mailto:eric.penot@cirad.fr)

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**CONSENT FORM**

- I confirm that I have read or have been told and understood the information sheet and the researcher has answered any queries to my satisfaction.
- I consent to being a participant in the Rubber Agroforestry Workshop.
- I understand that my participation is voluntary and that I am free to withdraw from the project at any time, up to the point of completion, without having to give a reason and without any consequences. If I exercise my right to withdraw and I do not want my data to be used, any data which have been collected from me will be destroyed.
- I understand that I can withdraw from the study any personal data (i.e. data which identify me personally) at any time.
- I understand that anonymized data (i.e. data which do not identify me personally) cannot be withdrawn once they have been included in the study.
- I understand that the information I provide will be anonymized before any dissemination. This also covers direct quotes. The information will not be traceable to me.
- I consent to my answers being recorded on paper and/or in electronic format.

PRINT NAME:

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Participant signature:

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Date:

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**Lembar Informasi Peserta** (Anda bisa menyimpan lembar ini untuk referensi Anda)

**Judul Proyek:** Workshop Agroforestri Karet di Indonesia

**Peneliti yang terlibat:** Dr. Eric Penot (konsultan, CIRAD), Maria Wang Mei Hua (konsultan, independen)

**Mitra proyek lokal:** SNV (Ilahang, Rudy Zariansyah)

**Penyelenggara:** GPSNR

**Pendana:** Bridgestone

**Pengantar dan Tujuan:**

**Tujuan Workshop:**

- (1) Berbagi informasi teknis terbaru tentang agroforestri karet kepada peserta;
- (2) Menciptakan ruang bagi peserta untuk berbagi pengalaman mereka sendiri;
- (3) Memahami persepsi peserta tentang agroforestri karet;
- (4) Mengidentifikasi hambatan dan peluang, termasuk perhatian khusus untuk peserta perempuan, pemuda, dan minoritas.

**Tujuan Penelitian:**

- (1) Memahami persepsi dan pengalaman peserta tentang agroforestri karet dan tentang workshop;
- (2) Mengumpulkan data dasar mengenai pengetahuan dan praktik peserta dalam budidaya karet dan agroforestri.

**Rasional:**

- (1) Memantau dan mengevaluasi efektivitas workshop ini;
- (2) Meningkatkan kualitas pelatihan di masa depan;
- (3) Meningkatkan pengetahuan dan penyebaran agroforestri.

**Metode Penelitian:**

survei semi-struktural, observasi partisipasi, pencatatan, dan percakapan informal oleh peneliti selama workshop; analisis materi tertulis (analisis dokumen).

**Hasil:**

Setelah workshop, kami akan menyusun laporan yang akan dikirimkan kepada GPSNR. Hasil yang dihasilkan dalam proyek ini yang telah diubah menjadi data anonim dapat memberikan kontribusi pada proyek penelitian lebih luas tentang agroforestri.

**Partisipasi:**

Peran Anda dalam penelitian ini adalah untuk berpartisipasi dalam workshop agroforestri karet, yang melibatkan survei tertulis, diskusi kelompok, presentasi, dan memberikan komentar melalui metode tertulis atau lisan. Survei tertulis akan mengajukan pertanyaan tentang perkebunan karet Anda, praktik saat ini, dan pengetahuan serta praktik Anda dalam agroforestri.

Partisipasi Anda adalah sukarela, dan Anda dapat memilih untuk keluar kapan saja tanpa konsekuensi. Partisipasi Anda dalam workshop ini didukung secara finansial oleh GPSNR melalui hibah yang diberikan oleh Bridgestone dan APROMAC. Workshop akan berlangsung selama 3 hari. Dengan persetujuan Anda, kami mungkin akan menghubungi Anda lagi untuk melakukan survei lanjutan atau wawancara.

#### **Penggunaan informasi:**

Informasi yang dikumpulkan dari penelitian ini akan dicatat melalui perekam audio / kertas / komputer. Catatan kertas akan diubah menjadi catatan digital yang akan disimpan secara elektronik. Informasi yang dikumpulkan akan digunakan untuk lebih memahami persepsi dan pengalaman peserta terkait agroforestri karet, serta untuk pemantauan dan evaluasi oleh GPSNR dan mitra proyek guna menilai efektivitas pelatihan dan meningkatkan pelatihan di masa depan.

Laporan tentang workshop akan disusun oleh konsultan untuk GPSNR. Laporan ini akan dibagi secara internal di GPSNR, CIRAD, pihak pendana, dan mitra proyek lokal. GPSNR dapat memilih untuk membagikan laporan atau sebagian laporan kepada masyarakat yang memintanya. Data yang diubah menjadi anonim dapat dibagikan dengan mitra penelitian eksternal untuk tujuan studi ilmiah.

Data pribadi Anda (misalnya, nomor telepon) tidak akan dibagikan di luar dua peneliti yang terlibat, GPSNR, pihak pendana, dan mitra proyek lokal.

#### **Fotografi dan Wawancara**

Tim kami akan mengambil **foto** selama lokakarya, termasuk aktivitas kelompok, interaksi individu, dan adegan umum dari lokakarya dan kunjungan ke pertanian. Tujuan kami adalah untuk mendokumentasikan pengalaman dan pembelajaran dari sesi-sesi berharga ini secara visual.

Selain fotografi, kami berencana untuk melakukan **wawancara** dengan beberapa peserta. Wawancara ini dimaksudkan untuk mengumpulkan wawasan dan cerita pribadi tentang pengalaman mereka dalam agroforestri, yang sangat berharga bagi proyek kami.

Setiap foto yang diambil dan wawancara yang dilakukan akan digunakan dengan hormat dan hanya untuk tujuan komunikasi dan pemasaran yang terkait dengan inisiatif GPSNR. Ini mungkin termasuk, tapi tidak terbatas pada, materi promosi, laporan, presentasi, dan konten digital.

#### **Kontak:**

Jika Anda memiliki pertanyaan atau kekhawatiran lebih lanjut mengenai penelitian ini, silakan hubungi informasi kontak di bawah ini. Terima kasih telah membaca informasi ini - mohon ajukan pertanyaan jika Anda kurang paham tentang apa yang tertulis di sini / yang telah Anda dengar.

Dr. Maria Wang Mei Hua  
WhatsApp: +60142734182  
Email: [wang.mh.maria@gmail.com](mailto:wang.mh.maria@gmail.com)

Dr. Eric Penot  
Email: [eric.penot@cirad.fr](mailto:eric.penot@cirad.fr)



## **FORMULIR PERSETUJUAN**

*(Mohon pulangkan kepada penyelenggara setelah ditandatangani)*

- Saya mengkonfirmasi bahwa saya telah membaca atau telah dijelaskan dan memahami lembar informasi ini, dan peneliti telah menjawab semua pertanyaan saya dengan memuaskan.
- Saya memberikan izin untuk menjadi peserta dalam Workshop Agroforestri Karet.
- Saya mengerti bahwa partisipasi saya adalah sukarela dan saya bebas untuk keluar dari proyek ini kapan saja, hingga saat penyelesaian, tanpa harus memberikan alasan dan tanpa konsekuensi. Jika saya memutuskan untuk keluar dan tidak ingin data saya digunakan, semua data yang telah dikumpulkan dari saya akan dihancurkan.
- Saya memahami bahwa saya dapat menarik kembali data pribadi saya (yaitu, data yang mengidentifikasi saya secara pribadi) kapan saja.
- Saya memahami bahwa data yang telah diubah menjadi anonim (yaitu, data yang tidak mengidentifikasi saya secara pribadi) tidak dapat ditarik kembali setelah dimasukkan ke dalam penelitian.
- Saya memahami bahwa informasi yang saya berikan akan diubah menjadi data anonim sebelum penyebarannya. Ini juga mencakup kutipan langsung. Informasi tersebut tidak dapat ditelusuri kembali ke saya.
- Saya memberikan izin untuk catatan saya dicatat dalam format kertas dan/atau elektronik.
- **Persetujuan untuk Fotografi dan Wawancara**  
Saya menyetujui GPSNR untuk mengambil foto dan melakukan wawancara dengan saya selama lokakarya dan kunjungan ke pertanian. Saya setuju bahwa foto dan wawancara ini dapat digunakan oleh GPSNR untuk tujuan komunikasi dan pemasaran, termasuk dalam materi promosi dan konten digital. Saya memahami penggunaan ini akan dilakukan dengan hormat dan hanya untuk tujuan yang dinyatakan. Saya menegaskan bahwa partisipasi saya dalam foto dan wawancara ini adalah sukarela. Dengan menandatangani, saya melepaskan GPSNR dari segala klaim yang terkait dengan penggunaan materi ini.

NAMA (HURUF KAPITAL):

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Tandatangan:

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Tanggal:

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## Annex 3: Survey Questionnaire (English and Bahasa)

### Survey for GPSNR Rubber Agroforestry Workshop



Adapted from a baseline questionnaire of Rubber Agroforestry for Sustainability Foundation (RAFS) (2023). For more information about RAFS: [rafs.thailand@gmail.com](mailto:rafs.thailand@gmail.com) | <https://www.rafsfoundation.org/index.php>

Scan the QR code to answer the survey online!

1. Name: \_\_\_\_\_
2. Are you a GPSNR Member? [ Yes / No ]
3. Are you an indigenous in your district? Yes / No
4. Are you a member of a minority group in your district? Yes / No
5. If you are a member of an indigenous or minority group, please state the name of your ethnicity or minority group that you belong to: \_\_\_\_\_
6. Are you a member of an Agricultural Cooperative?
7. Please state the name(s) of the cooperative(s): \_\_\_\_\_

### **8. Information about Rubber Plantation and Management**

9. Size of rubber plantation (ha) in production: \_\_\_\_\_
10. Size of rubber plantation (ha) not in production: \_\_\_\_\_
11. Size of **oil palm** plantation (ha) in production: \_\_\_\_\_
12. Size of **oil palm** plantation (ha) not in production: \_\_\_\_\_
13. Age of rubber trees in production: \_\_\_\_\_
14. Age of rubber trees not in production: \_\_\_\_\_
15. Spacing between rubber trees (e.g., 6x3m, ): \_\_\_\_\_
16. Rubber clone used? \_\_\_\_\_
17. Frequency of tapping? \_\_\_\_\_
18. How many times a year do you use stimulation? \_\_\_\_\_
19. How do you manage weeds? Circle all that apply.  
No Weeding / Herbicide / Manual Weeding / Other: \_\_\_\_\_

20. How many times in a year do you weed?
21. What is the cost of weeding per year? \_\_\_\_\_ (Rp per year)
22. What fertilization method do you use in your rubber farm?  
None / Organic / Chemical / Other: \_\_\_\_\_
23. What is the cost of fertilizer per year? \_\_\_\_\_ (Rp per year)

**Economics and Labour**

24. Total number of dependents in your household? \_\_\_\_\_
25. Total household **net** income per month?  
\_\_\_\_\_ (Rp per month)
26. From the total household **net** income per month, about how much income is from rubber?  
\_\_\_\_\_ (Rp per month)
27. From the total household **net** income per month, about how much income is from other farming activities?  
\_\_\_\_\_ (Rp per month)
28. From the total household **net** income per month, about how much income is from non-farming activities?  
\_\_\_\_\_ (Rp per month)
- a. Please state the source:  
\_\_\_\_\_
29. Number of family members who work on the rubber plantation (including yourself)? \_\_\_\_\_
30. Number of external paid workers who work on the rubber plantation? \_\_\_\_\_
31. Number of sharecroppers? \_\_\_\_\_
32. Any other details you'd like to share about labour needs?  
\_\_\_\_\_

**Agroforestry knowledge and practice**

33. Rate your knowledge & experience with agroforestry (with any crop).

Choose ONLY ONE from 1, 2, 3, 4:

1 - No knowledge

2 - Some knowledge, but no experience - Unsure of how to practice

3 - Some knowledge, some experience - Sufficient knowledge to practice agroforestry, or just started practicing agroforestry

4 - Experienced, ready to teach others

34. How many **years** of agroforestry experience do you have, and with **what type of agroforestry** (which crop/animals)?

---

35. Who taught you about agroforestry?

No prior knowledge / Yourself / Friends / Relatives / Government / Other (please specify):

---

36. Why are you interested in agroforestry?

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37. What are your expectations of this program?

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## Survei Workshop Agroforestri Karet GPSNR



Diadaptasi dari kuesioner dasar Rubber Agroforestry for Sustainability Foundation (RAFS) (2023). Untuk informasi lanjut mengenai RAFS: [rafs.thailand@gmail.com](mailto:rafs.thailand@gmail.com) | <https://www.rafsfoundation.org/index.php>

Pindai kode QR untuk menjawab survei secara **online!**

1. Nama: \_\_\_\_\_
2. Apakah Anda anggota GPSNR? **Ya / Tidak**
3. Apakah Anda merupakan bagian dari suku pribumi di daerah Anda? **Ya / Tidak**
4. Apakah Anda termasuk dalam kelompok minoritas di daerah Anda? **Ya / Tidak**
5. Jika Anda merupakan bagian dari suku pribumi atau kelompok minoritas, mohon sebutkan suku atau kelompok minoritas yang Anda wakili:  
\_\_\_\_\_
6. Apakah Anda adalah anggota koperasi pertanian? **Ya / Tidak**
7. Mohon sebutkan nama-nama koperasi: \_\_\_\_\_
8. **Perkebunan dan Pengelolaan Karet**
9. Luas kebun karet yang dalam produksi (ha): \_\_\_\_\_
10. Luas kebun karet yang tidak dalam produksi (ha): \_\_\_\_\_
11. Luas kebun **sawit** yang dalam produksi (ha): \_\_\_\_\_
12. Luas kebun **sawit** yang tidak dalam produksi (ha): \_\_\_\_\_
13. Usia pohon karet dalam produksi: \_\_\_\_\_
14. Usia pohon karet yang tidak dalam produksi: \_\_\_\_\_
15. Jarak antara pohon karet (misalnya, 6x3m, 4x4m): \_\_\_\_\_

16. Klona karet yang digunakan? \_\_\_\_\_
17. Frekuensi penyadapan karet: \_\_\_\_\_
18. Berapa kali dalam setahun Anda menggunakan stimulasi? \_\_\_\_\_
19. Metode **penyiangan** apa yang Anda gunakan di kebun karet Anda?  
Tiada / Herbicida / Manual / Lainnya: \_\_\_\_\_
20. Berapa **kali dalam setahun** Anda melakukan penyiangan? \_\_\_\_\_
21. Berapa **biaya penyiangan** per tahun? \_\_\_\_\_ (Rp per tahun)
22. Metode **pemupukan** apa yang Anda gunakan di kebun karet Anda?  
Tiada / Organik / Kimia / Lainnya: \_\_\_\_\_
23. Berapa **biaya pemupukan** per tahun? \_\_\_\_\_ (Rp per tahun)

### **Ekonomi dan Tenaga Kerja**

24. Jumlah tanggungan di rumah tangga Anda? \_\_\_\_\_
25. Berapa total pendapatan bersih rumah tangga Anda per bulan?  
\_\_\_\_\_ (Rp per bulan)
26. Dari total pendapatan bersih per bulan, kiranya berapa pendapatan dari **hasil karet**?  
\_\_\_\_\_ (Rp per bulan)
27. Dari total pendapatan bersih per bulan, kiranya berapa pendapatan dari **kegiatan pertanian lainnya**? \_\_\_\_\_ (Rp per bulan)
- a. Harap sebutkan apakah kegiatan pertanian selain karet:  
\_\_\_\_\_
28. Dari total pendapatan bersih per bulan, kiranya berapa pendapatan dari kegiatan tidak berhubungan dengan pertanian? \_\_\_\_\_ (Rp per bulan)
- a. Harap sebutkan sumbernya:

---

29. Jumlah anggota keluarga yang bekerja di kebun karet (termasuk diri Anda)? \_\_\_\_\_

30. Jumlah pekerja sewaan yang bekerja di kebun karet? \_\_\_\_\_

31. Jumlah petani penggarap (sharecroppers) di kebun karet? \_\_\_\_\_

32. Apakah ada komen lain yang ingin Anda bagikan mengenai kebutuhan tenaga kerja?

---

### **Pengetahuan dan Praktik Agroforestri**

33. Beri penilaian terhadap pengetahuan & pengalaman Anda dalam agroforestri (dengan jenis tanaman apa pun). PILIH HANYA SATU DARIPADA 1, 2, 3, 4:

**1** - Tidak ada pengetahuan

**2** - Beberapa pengetahuan, tetapi tidak berpengalaman - Tidak yakin cara melakukan agroforestri

**3** - Beberapa pengetahuan, beberapa pengalaman - Pengetahuan yang cukup untuk melakukan agroforestri, atau baru saja memulai praktik agroforestri

**4** - Berpengalaman, siap untuk mengajarkan kepada orang lain

34. Berapa tahun pengalaman agroforestri yang Anda miliki? Dengan jenis agroforestri apa (tanaman apa atau hewan apa)?

---

35. Siapa yang mengajari Anda tentang agroforestri?

Tidak ada pengetahuan sebelum ini / Anda sendiri / Teman / Saudara / Pemerintah /

Lainnya (Sebutkan): \_\_\_\_\_

36. Mengapa Anda tertarik pada agroforestri?

---

37. Apa harapan Anda dari program ini?

---

**Annex 4: List of Participants (Complete Survey Data provided in separate Excel File for internal use)**

Gender	Age	Profession	Address	Province
Male	49	Farmer	Mandailing Natal	Mandailing Natal
Female	46	Farmer, Extension Officer	Tapsel	Tapanuli Selatan
Male	35	Rubber farmer	Muaro Jambi, Jambi	Jambi
Male	60	Farmer	Padang Sidempuan	Tapanuli Selatan
Male	48	Rubber farmer	Muaro Jambi, Jambi	Jambi
Male	38	Farmer	Tebo	Tebo
Male	50	Rubber farmer	Aek Godang, Paluta, Sumut	Tapanuli Selatan
Female	43	Farmer	Mandailing Natal	Mandailing Natal
Male	50	Farmer	Mandailing Natal	Mandailing Natal
Male	52	Farmer	Arse	Tapanuli Selatan
Male	42	Farmer	Mandailing Natal	Mandailing Natal
Male	40	Rubber farmer	MUBA	Musi Banyuasin
Male	49	Farmer	Paluta	Tapanuli Selatan
Female	48	Farmer	Mandailing Natal	Mandailing Natal
Male	46	Support officer	Tebo	Tebo
Male	50	Farmer	MUBA	Musi Banyuasin
Male	39	Farmer	Paluta	Tapanuli Selatan
Male	33	Farmer, UPPB	Suka Jaya, MUBA	Musi Banyuasin
Male	33	Rubber farmer	Muaro Jambi, Jambi	Jambi
Male	44	Farmer	Taluk Kuantan	Kuantan Singingi
Female	48	Farmer, Extension Officer	Tapsel	Tapanuli Selatan
Male	50	Farmer, committee of APKARKUSI	Taluk Kuantan	Kuantan Singingi
Male	39	Rubber farmer	Menois, MUBA, SUMSEL	Musi Banyuasin
Male	39	Farmer	Tebo	Tebo
Female	57	Farmer, committee of APKARKUSI	Taluk Kuantan	Kuantan Singingi
Male	56	Extension Officer	Muaro Jambi, Jambi	Jambi