### Introduction

A planter's experience with disease outbreaks and the challenges to achieve productivity targets.

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Estate Manager
Peninsular Forest Management
Sdn Bhd
Selangor, Malaysia



#### Introduction

- The rubber plantation project site is located about 60 km to the North of Kuala Lumpur,
   20 KM from the town of Kuala Kubu Bharu, Selangor and about 10 km south of Tanjung
   Malim Perak town, hugging both sides of the north-south highway.
- The best access to the area is through the highway exit at Lembah Beringin Selangor, a semiabandoned township bordering the rubber plantation.
- Currently, the plantation has successfully planted 1,530 Hectares of rubber (TLC), Planted from 2009 to 2011. The clones which are currently planted are as such: —

No	Clone Planted	Percentage %	Year Planted
1	PB 350	76%	2009 -2011
2	PB 260	13%	2010
3	RRIM 2025	5%	2010
4	RRIM 3001 (1 Malaysia)	3%	2010
5	RRIM 901	3%	2010



#### Rainfall

# Rainfall Data By Year From January 2017 to May 2020 For Lembah Beringin, Selangor Malaysia

Year	Raining Days	Not Raining	Rain MM
2017	184	181	3,381
2018	186	179	3,121
2019	173	192	2,911
January 2020 to May 2020	64	302	1,381





Rainfall Data Capturing is very important

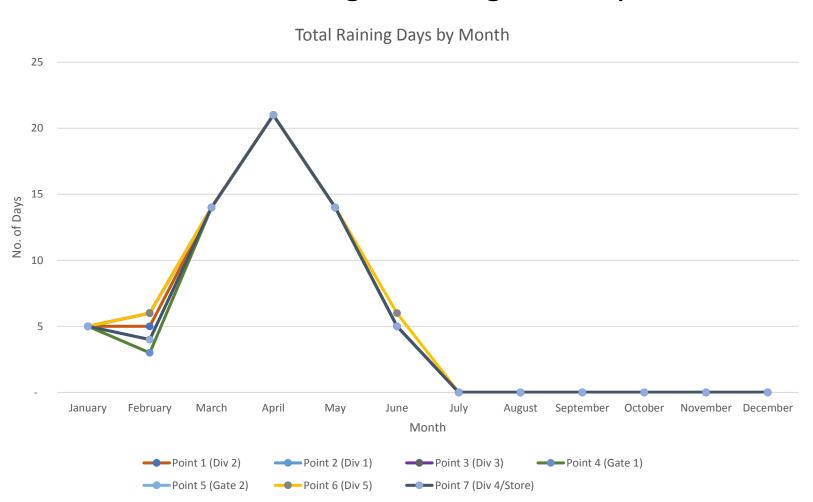
#### Rainfall

# Rainfall Data By Month From January 2017 to May 2020 For Lembah Beringin, Selangor Malaysia

	20	17	20	18	20	)19	20	)20
<u>Month</u>	Raining Days	Rainfall (mm)						
January	14	346	16	308	12	147	5	237
February	9	260	6	45	14	152	5	105
March	23	542	12	209	10	94	14	191
April	21	380	14	147	16	221	21	329
May	18	426	22	443	14	320	14	363
June	10	176	9	174	12	347	5	155
July	6	90	7	137	11	180	0	0
August	16	105	6	83	12	160	0	0
September	17	153	26	422	10	166	0	0
October	13	206	25	431	27	621	0	0
November	19	412	22	390	18	343	0	0
December	19	285	21	331	17	160	0	0
Total	184	3,381	186	3,121	173	2,911	64	1,381

#### Rainfall

## Rainfall Chart By Month From January 2017 to May 2020 For Lembah Beringin, Selangor Malaysia





Rain Gauge (250 mm)

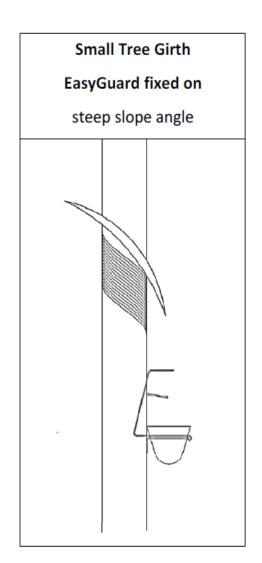
## **Challenges**

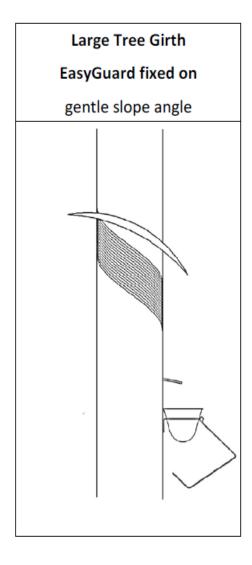
## Challenges During Raining Season

- 1. Unable to tapped Lose tapping days.
- 2. Washout (Unless Latex Coagulant is applied immediately after tapping for field coagulum or known as rubber cup lump in lay mans term).
- 3. Workers tapping without knowledge during raining season causing (Brown Bast). Brown bast is second most serious threat to rubber estate after, Pestalotiopsis from a estates perspective of view.
- 4. Unable to achieve monthly yield and fail to fulfill yearly targets.
- 5. Rubber tapping will be done vigorously during dry months to compensate for raining days. However, this method has been known to cause critical stress to the rubber trees and resulting in fast decrease in the tree's latex production or ending up with panel dryness and brow bast.
- 6. When earning of tappers is low during raining season, it will lead to workers running away or becoming free birds. Which will further cost shortage of workers in rubber industry. Which currently is already a major problem for most of the rubber industry in Malaysia

#### **Rain Guard**

- EasyGuard was invented and patented by Gaincrest founder in 2003 to overcome the problem.
- EasyGuard is designed to divert rainwater running down the tree tapping panel, which prevents the water from touching the tapping panel and keep the panel dry.
- E.g. Tapping starts at 3.00 AM and there was rain at 9.00 PM a day earlier. The tapper will be able to tapped the tree because the panel is still dry, also take note it wont take effect if is a heavy downpour of rainfall. Estate supervisor must determine whether the panel is dry and safe for tapping. The rain guard has been helpful to achieve higher tapping days for my plantation.
- Cost of material is RM 0.61 / Tree.
- Labour for fixing easy guard is at RM 0.45 / Tree.
- Breakeven of cost 2 tapping days.





Copyright: Gaincrest Industries Sdn Bhd

## **Rain Guard**





Easy Guard with printed numbers and words.

Sealant packed in soft and high barrier plastic bag for easy application and storage.

Modified staple for fixing easy guard onto tree bark.

Contact of Supplier : -

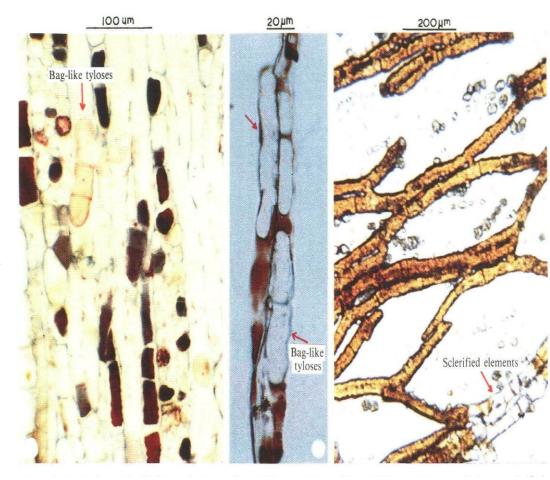
Sean Tham Jiunn-Lung - +6 012-5233 848

gaincrestindustries@gmail.com



#### **Brown Bast**

- 1. Physiological disease or tree characterized by a grayish brown or greenish brown discoloration of the inner bark near the tapping cut and a stoppage in the flow of latex.
- 2. Tapping Panel Dryness or known as Brown Bast, plantation practices if we are hit by brown bast we will let the tree rest for six months, and try tapping after six months with one round booster of 1.25% of ethereal application (Product: Ethephon Plus 1.25%, supplier- (*Greenyield Berhad PIC Encik Badrul +6 012 621 5783*).
- 3. Brown bast can me a major problem, if we have unskillful tappers and contract tappers who priorities the money taken back rather then taking care of the rubber tree.
- 4. Stressing the tree for higher output is what we should avoid taking into consideration the lifespan of the rubber tree which should be able to tapped for 20 years. If the tree is exploited it may only survive for 10 years. So its not worth exploiting the rubber tree.



Macerated latex vessels showing sclerified vessels. Note nuclei in them. Safranin and vessels showing bag-like elements. Stained in Sudan HI. Magnification fast green technique. Magnification 256 x .

Source : 2004 - Julio Manuel Barba Gomez, Samsidar Hamzah, H. Ghandimathi

#### **Brown Bast**

Pictures showing rubber tree which has brown bast.

Source:

Peninsular Forest Management Sdn Bhd

Picture taken on 09.06.2020





### **Brown Bast**

Video showing rubber tree which has brown bast.

Source:

Peninsular Forest Management Sdn Bhd

Video taken on 09.06.2020

Video



## Affected Area and Treatment - 2019

Penins	sular Forest Mana	agement Sdr	n Bhd					
Pestal	otiopsis Affected	Area and Tr	eatment					
1 Incide	ent Detected on (	20.07.2019	to 10.10.2019)					
					•	Treatment Done To da	te	
	Phase	Actual (HA)	Affected (HA)	Affected (%)	1st Round (HA)	2nd Round (HA)	3rd Round (HA)	4rd Round (Ha)
	1	302	118	39%	118	118	118	118
	2	160	33	20%	33	33	33	32
	4	109	82	75%	82	82	82	18
	5	86	34	40%	34	34	34	16
	Total	657	267	41%	267	267	267	184
			Treat	ment Done %	100%	100%	100%	69%
	ield was af	fected b	y <b>25</b> % due	to				
Pest	talotiopsis							

## Affected Area and Treatment - 2020

				1	reatment Done To d	ate	
Phase	Actual (HA)	Affected (HA)	Affected (%)	1st Round (HA)	2nd Round (HA)	3rd Round (HA)	4rd Round (Ha
5	56	35	62%	25	25	25	25
6	31	23	75%				
Total	87	58	67%	25	25	25	2!
		Treatm	ent Done %	43%	43%	43%	43%

# Table below shows, how the plantation keep tracks of the treatment done – May 2020

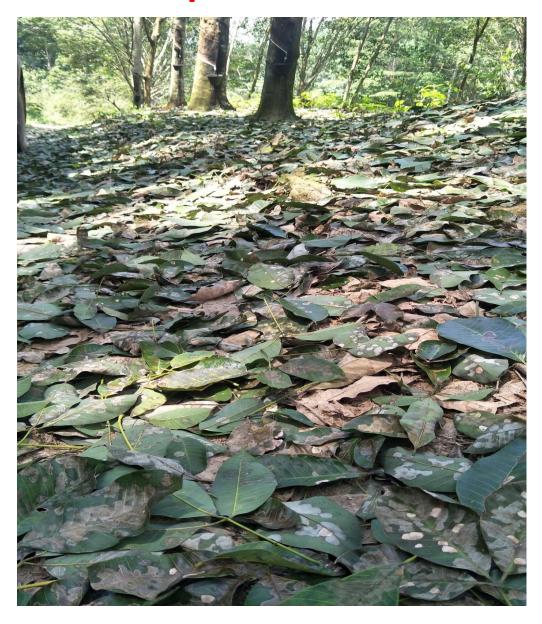
Peninsular Forest	t Manageme	ent Sdn Bhd							
Pestalotiopsis Aff	fected Area	and Treatment							
1. Incident Detec	cted on 05.0	5.2020							
						Treatment	Treatment	Treatment	Treatment
						06.05.2020	13.05.2020	20.05.2020	27.05.2020
Phase	Block	Clone	Actual Ha	Affected Ha	Affected %	1st Round	2nd Round	3rd Round	4th Round
5	2/11	RRIM 2025	7.89	5.52	70%	06.05.2020	13.05.2020	20.05.2020	27.05.2020
5	2/12	RRIM 2025	1.86	1.49	80%	06.05.2020	14.05.2020	21.05.2020	30.05.2020
5	2/13	RRIM 2025	1.81	1.27	70%	07.05.2020	14.05.2020	21.05.2020	30.50.2020
5	2/14	RRIM 2025	4.68	2.34	50%	07.05.2020	14.05.2020	21.05.2020	30.05.2020
5	2/16	RRIM 2025	5.13	2.57	50%	12.05.2020	19.05.2020	22.05.2020	06.06.2020
5	1/4	RRIM 2025	4.12	2.06	50%	09.05.2020	15.05.2020	23.05.2020	04.06.2020
5	1/5	RRIM 2025	1.93	1.35	70%	09.05.2020	15.05.2020	23.05.2020	04.06.2020
5	1/6	RRIM 2025	3.94	2.76	70%	11.05.2020	16.05.2020	25.05.2020	05.06.2020
5	1/8	RRIM 2025	5.83	4.08	70%	11.05.2020	16.05.2020	25.05.2020	05.06.2020
5	3/2	RRIM 3001	5.75	1.73	30%	12.05.2020	19.05.2020	22.05.2020	06.06.2020
		Total	42.94	25.16					



## Pestalotiopsis Treatment Using (Benomyl)

TURAN PEN enggunaan	mengikut label adalah	n di bawah Akta Ra	acun Makhlu	k Perosak 1974.
Tanaman		10 Liter Air	Sehektar	
embikai	Antraknos (Colletotrichum orbiculare)		Sellental	Sehektar
angga, Betik	Antraknos (Colletotrichum gloeosporioides	5 g	0.55 kg	1100 liter
da Hitam	Antraknos (Colletotrichum piperis)			
ngan kutip l gi mangga,	hasil tanaman tembikai sekurang-kurang betik dan lada hitam.	gnya 3 hari selepa	s semburar	terakhir; 14 har
tapkan dala gan guna pa	etengah penuh dengan air bersih. Campu m jadual sukatan dan bancuh. Seterusnya ada kadar lebih tinggi daripada yang disyo at penyembur.	tambah baki air bei	rsih yang dip	erlukan dan kacai
NATIONAL PROPERTY.	embur			
kukan sembu abila perlu sa makan <b>KEN</b> L	uran apabila tanda-tanda penyakit mulai k haja. JANGAN guna melebihi dari 6 kali ser ATE berselang-seli dengan racun kulat da	mburan semusim/tal	hun. Jika rav	vatan perlu diulang
kukan sembu abila perlu sa makan KENL ndakan berbez mpoh Dilara WAS: Bahaya Kepa Elakkan darij merokok. Se tempat berku sebersih-bers	uran apabila tanda-tanda penyakit mulai k haja. JANGAN guna melebihi dari 6 kali ser ATE berselang-seli dengan racun kulat da ta.  ng Masuk Semula Kawasan Rawatan (Ri ada Manusia: Berbahaya jika termakan. Ela pada terkena kulit atau mata. Ketika menge elepas mengendalikan produk ini, pastikan unci yang mempunyai peredaran udara ya sihnya selepas menggunakannya. Pastika	mburan semusim/tal aripada kumpulan b EI): 12 jam akkan daripada terh andalikan produk ini n tutup bekas racur ang baik, kering da n mandi sebersih-b	hun. Jika raw erlainan yan idu debu ata i, JANGAN r n dengan ra in dingin. Co persihnya m	watan perlu diulang ng mempunyai cara au kabus semburan makan, minum ala apat dan simpan d uci alat penyembur enggunakan sabun
kukan sembu abila perlu sa makan KENL mdakan berbez mpoh Dilara VAS: Bahaya Kepa Elakkan darij merokok. Se tempat berku sebersih-bers dan air yang Pakaian dan (PPE) berpia	uran apabila tanda-tanda penyakit mulai k haja. JANGAN guna melebihi dari 6 kali ser ATE berselang-seli dengan racun kulat da ta. ng Masuk Semula Kawasan Rawatan (Ri ada Manusia: Berbahaya jika termakan. Ela pada terkena kulit atau mata. Ketika menge elepas mengendalikan produk ini, pastikan unci yang mempunyai peredaran udara ya sihnya selepas menggunakannya. Pastika	mburan semusim/tal uripada kumpulan b EI): 12 jam akkan daripada terh endalikan produk ini n tutup bekas racur ang baik, kering da in mandi sebersih-b n produk ini, pastika	hun. Jika raw erlainan yar iidu debu ata i, JANGAN r n dengan ra n dingin. Ci persihnya m an pakai pal	watan perlu diulang ng mempunyai cara nu kabus semburan makan, minum alai apat dan simpan di uci alat penyembir enggunakan sabun kaian pelindung diri
abila perlu sa unakan KENL ndakan berbez mpoh Dilaran VAS: Bahaya Kepa Elakkan darip merokok. Se tempat berki sebersih-bersi dan air yang Pakaian dan (PPE) berpia Bahaya Pad cemarkan ko	aran apabila tanda-tanda penyakit mulai khaja. JANGAN guna melebihi dari 6 kali ser ATE berselang-seli dengan racun kulat dara.  Ing Masuk Semula Kawasan Rawatan (Riada Manusia: Berbahaya jika termakan. Elabada terkena kulit atau mata. Ketika mengelepas mengendalikan produk ini, pastikan unci yang mempunyai peredaran udara yasihnya selepas menggunakannya. Pastika banyak.  Alat Perlindungan: Ketika mengendalikan waian termasuk sarung tangan, gogal, kasia Alam Sekitar: Produk ini adalah berbalalam, sungai atau saliran air.	mburan semusim/tal uripada kumpulan b EI): 12 jam akkan daripada terh endalikan produk ini n tutup bekas racur ang baik, kering da in mandi sebersih-b n produk ini, pastika	hun. Jika raw erlainan yar iidu debu ata i, JANGAN r n dengan ra n dingin. Ci persihnya m an pakai pal	watan perlu diulang ng mempunyai cara nu kabus semburan makan, minum alai apat dan simpan di uci alat penyembir enggunakan sabun kaian pelindung diri
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kukan sembu abila perlu sa makan KENL makan berbez mpoh Dilaran VAS: Bahaya Kepa Elakkan darij merokok. Se tempat berku sebersih-bersi dan air yang Pakaian dan (PPE) berpia Bahaya Pad cemarkan ko ANDA KERAG Satal - gatal pa KAWATAN KE Tanggalkan pa	aran apabila tanda-tanda penyakit mulai ki haja. JANGAN guna melebihi dari 6 kali ser ATE berselang-seli dengan racun kulat data.  Ing Masuk Semula Kawasan Rawatan (Rigada Manusia: Berbahaya jika termakan. Elabada terkena kulit atau mata. Ketika mengelepas mengendalikan produk ini, pastikan unci yang mempunyai peredaran udara yasihnya selepas menggunakannya. Pastika banyak.  Alat Perlindungan: Ketika mengendalikan kalam Sekitar: Produk ini adalah berbal olam, sungai atau saliran air.  CUNAN ada mata, hidung, kerongkong dan kulit.  CEMASAN kaian yang terkena racun. Jika terkena padada mata, bersihkan dengan menggunakan sertelan, JANGAN ikhtiarkan pesakit itu mungan.	mburan semusim/tal uripada kumpulan b EI): 12 jam akkan daripada terh endalikan produk ini n tutup bekas racur ang baik, kering dan mandi sebersih-tan produk ini, pastika ut getah, penutup m haya pada organism	hun. Jika raw erlainan yar iidu debu ata i, JANGAN r n dengan ra n dingin. Ci persihnya m an pakai pak uka dan alat uka dan alat ma akuatik d	au kabus semburan makan, minum ata apat dan simpan duci alat penyembur enggunakan sabun kaian pelindung diri t pernatasan. dan ikan. JANGAN dan kan sabun dan akan sabun da
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# Pestalotiopsis – Rubber Leaf Fall





# **Pestalotiopsis – Sample of rubber tree Leaf**











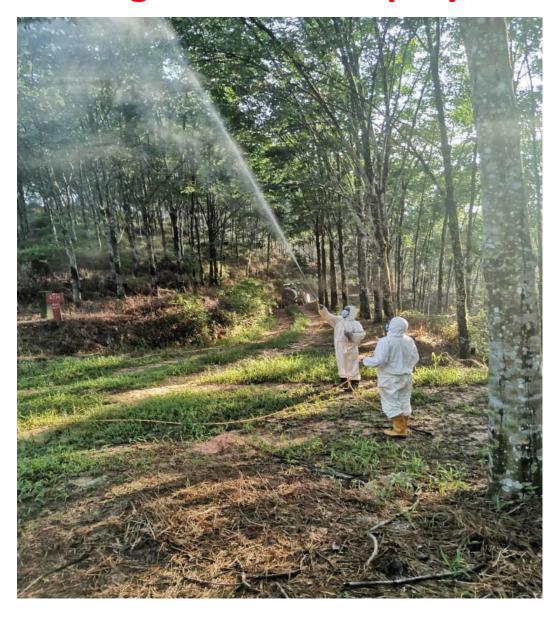
# Pestalotiopsis – Video - Major rubber leaf fall





# Pestalotiopsis – Treatment in progress using mechanical sprayer





# **Pestalotiopsis – Video – Treatment in progress**



## How to Increase Productivity (Workers / Time / Sun / Rain / Recovery)

- 1. Monitoring of working hours for tappers, to achieve the highest yield tappers are advice to start tapping at 3.00 AM, and to avoid tapping after 9.30 AM, avoid tapping during sun light due to the panel will dry and latex flow will be very slow and not worth the effort, stressing the tree may also lead to panel dryness and lead to brown bast.
- 2. To do recovery tapping, management can have a policy to carry out recovery tapping on high raining days, recovery tapping can be in the evening or switch from D3 to D2 tapping.
- 3. E.g. on Monday suppose to tapped Section A, but it started raining 1 AM, that particular section can be tapped in the evening and the next day Section B can be tapped. So that we don't lose the tapping days.
- 4. Another method of recovery tapping is to switch from D3 to D2, tappers can tapped 1.5 task/day to recover for the loss days. No of trees per task must be considered as well.
- Normally we say 300 days = 100% tapping
   365 days less 52 Sundays = 313 days
   11 days less public holiday = 302 days
   D3 tapping will get about = 100 tapping / Year
   D2 tapping will get about = 150 tapping / Year
  - However if you achieve (+/-) 95% out-turn of tappers or 280 tapping days it's a good output.
- 6. The management of the plantation plays a very important role on how the recovery plan is executed.
- 7. Rain guard plays an important role, as explain on the above slides.









#### Visit hosted by Peninsular Forest Management Sdn Bhd at their rubber estate - 12.09.2019





Visit to check the quality and process of the collection for field coagulum (Rubber Cup Lump) – 12.09.2019



# Thank You For Your Time

