

Analysis of Farmers Income on Various Cocoa Intercropping Patterns in Indonesia

Sholahuddin Akbar, Dr. Agung Wahyu Susilo, Dr. A. Adi Prawoto
Indonesian Coffee and Cocoa Research Institute
PT Riset Perkebunan Nusantara

Russia



Cocoa is a national strategic commodity that is a source of income for 1.7 million cocoa farmers in Indonesia^[1]



The area of land managed by farmers for cocoa farming ranges from 0.2 - 1.0 ha (average 0.7 ha) with a productivity level of 1.0 ton/ha/year, and cocoa contributes 60% to farmers' household income^[2]



Cocoa farming provides farmers with an annual income of around \$ 540 or still lower than the minimum standard of income according to the poverty line in Indonesia (\$ 934 /year)^[3]

Reference:

[1] Ditjenbun 2022, [2] Sariningsi, Cocoa Farming Income Contribution on Farming Household Income In Nglanggeran Agricultural Technology Park Pathuk District, Gunungkidul District 2020 [3] Ministry of National Development Planning of the Republic of Indonesia



Aim of the studies

To know the contributions of another commodity for the cocoa farmers income.

To find out the R/C ratio of cocoa intercropping with several patterns.



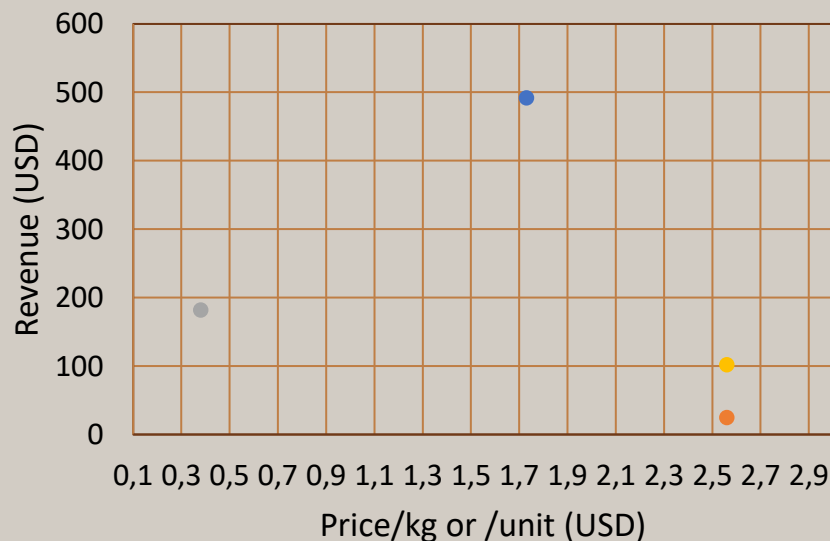
Indonesian Farmers Income from Intercrops

Item	Cocoa	Coconut	Durian
Area (Ha)	0,3	0,3	0,3
Population	250	12	4
Clone/Variety	Sul 1, Sul 2, MCC 2	Local	Local
Production	200 kg/ year	5 unit/tree/ year	25 unit/tree/ year
Price	\$ 1,47/ kg	\$ 0,38/unit	\$ 2,25 /unit
Revenue	\$ 294.00	\$ 22.8	\$ 225
Total Revenue	\$ 294.00	\$ 247.80	
Contributions		54%	46%

Item	Cocoa	Coconut
Area (Ha)	0,5	0,5
Population	500	20
Clone/Variety	Hybrid	Local
Production	480 kg/year	120 unit/tree/year
Price	\$ 1,73 / kg	\$ 0,26/unit
Revenue	\$ 830.40	\$ 624.00
Total Revenue	\$ 1,454.40	
Contributions		57%

Item	Cocoa	Avocado
Area (Ha)	0,2	0,2
Population	200	1
Clone/Variety	Hybrid	Local
Production	288 kg/year	10 kg/tree/year
Price	\$ 1,73 / kg	\$ 2,56/Kg
Revenue	\$ 492.40	\$ 25.60
Total Revenue	\$ 518.00	
Contributions		95%

Item	Cocoa	Coconut	Durian
Area (Ha)	0,3	0,3	0,3
Population	300	4	1
Clone/Variety	Sul 1, Sul 2, MCC 2	Local	Local
Production	480 kg/year	120 unit/tree/year	40 unit/tree/year
Price	\$ 1,73/kg	\$ 0,30/unit	\$ 2,56/unit
Revenue	\$ 830.00	\$ 144.00	\$ 102.40
Total Revenue	\$ 830.00	\$ 246.40	
Contributions		77%	13%



Contributions of Intercrop Plan

5% - 46%

1 USD = Rp 15,600

Source:

Primary Data



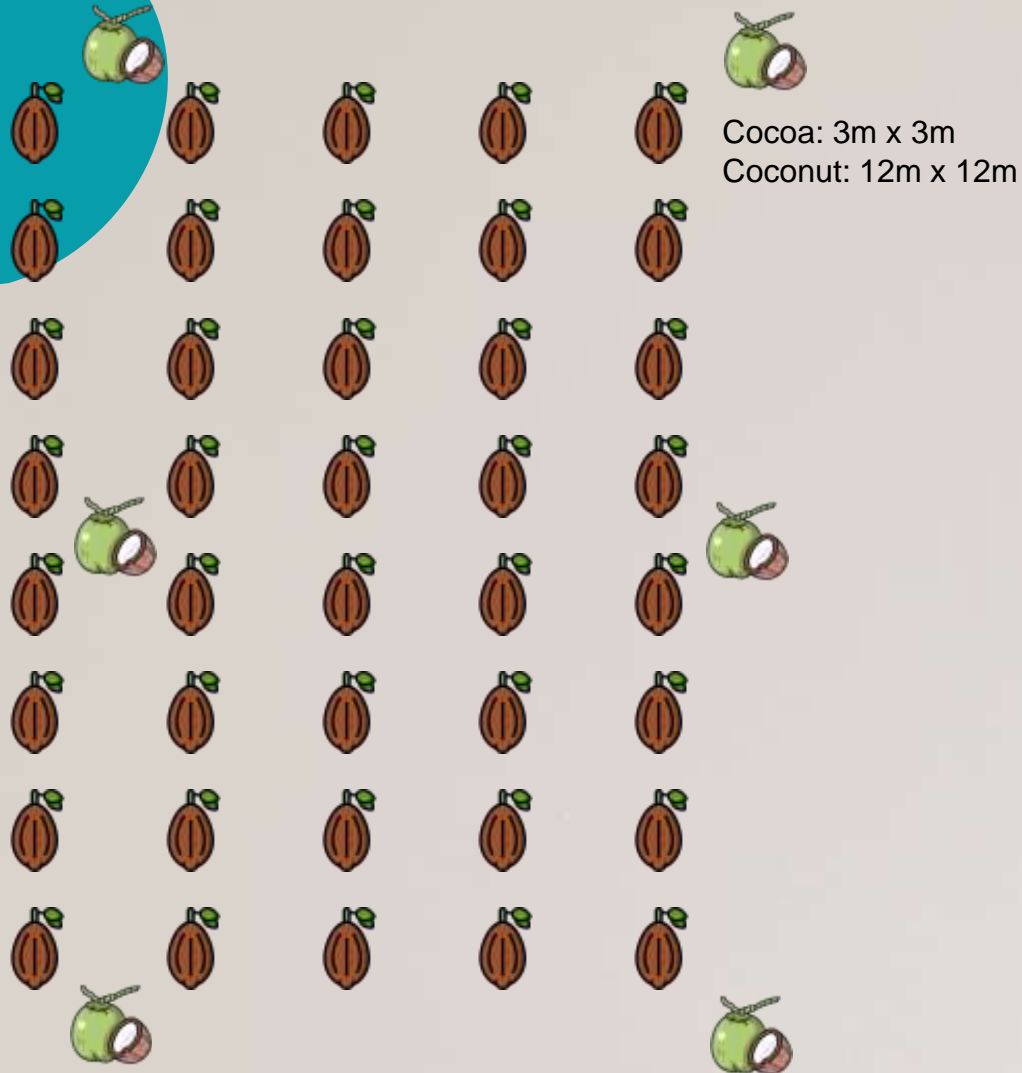
Various Pattern of Intercropping

- Cocoa - Coconut
- Cocoa - Avocado
- Cocoa - Durian
- Cocoa – coconut – Banana (first 3 year)
- Cocoa – Avocado – Banana (first 3 year)
- Cocoa – Durian – Banana (first 3 year)

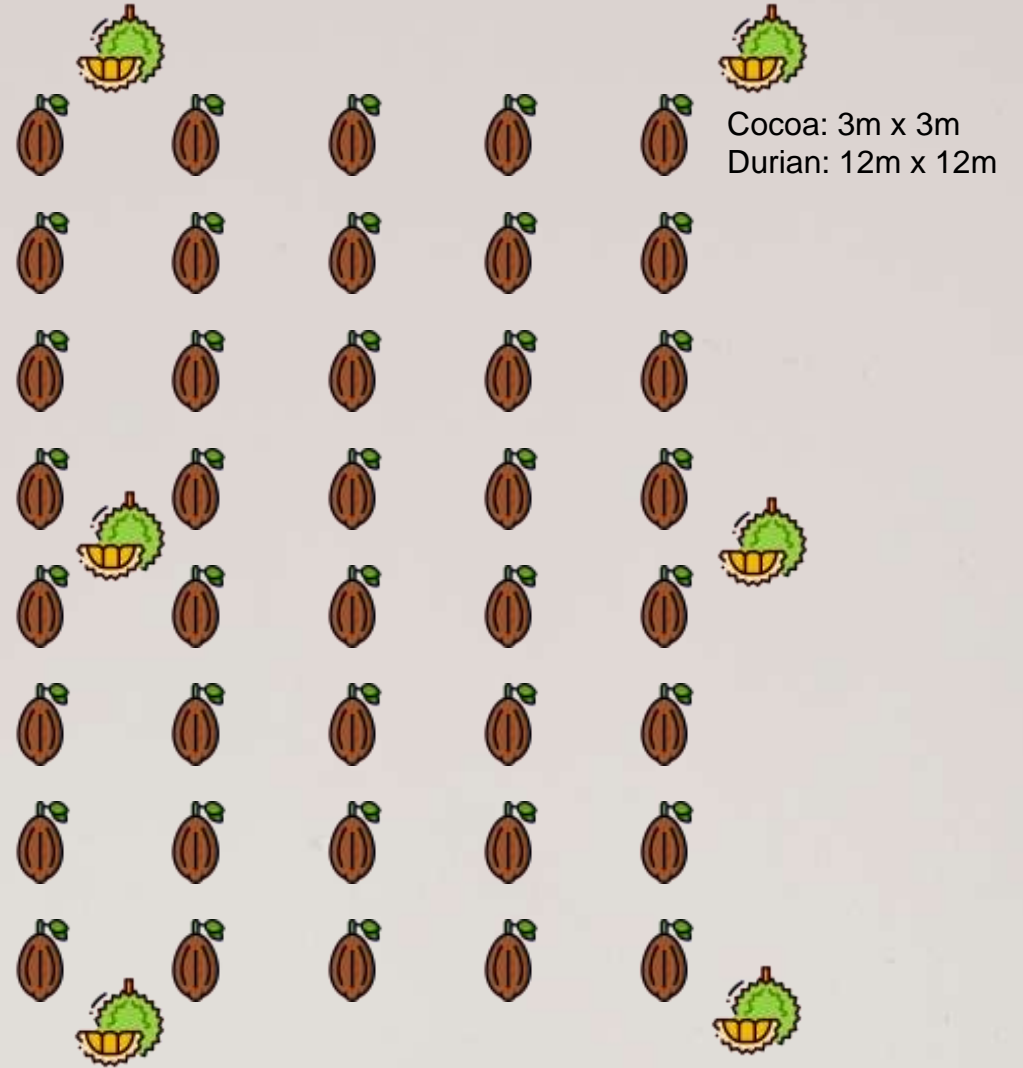




Various Pattern of Intercropping

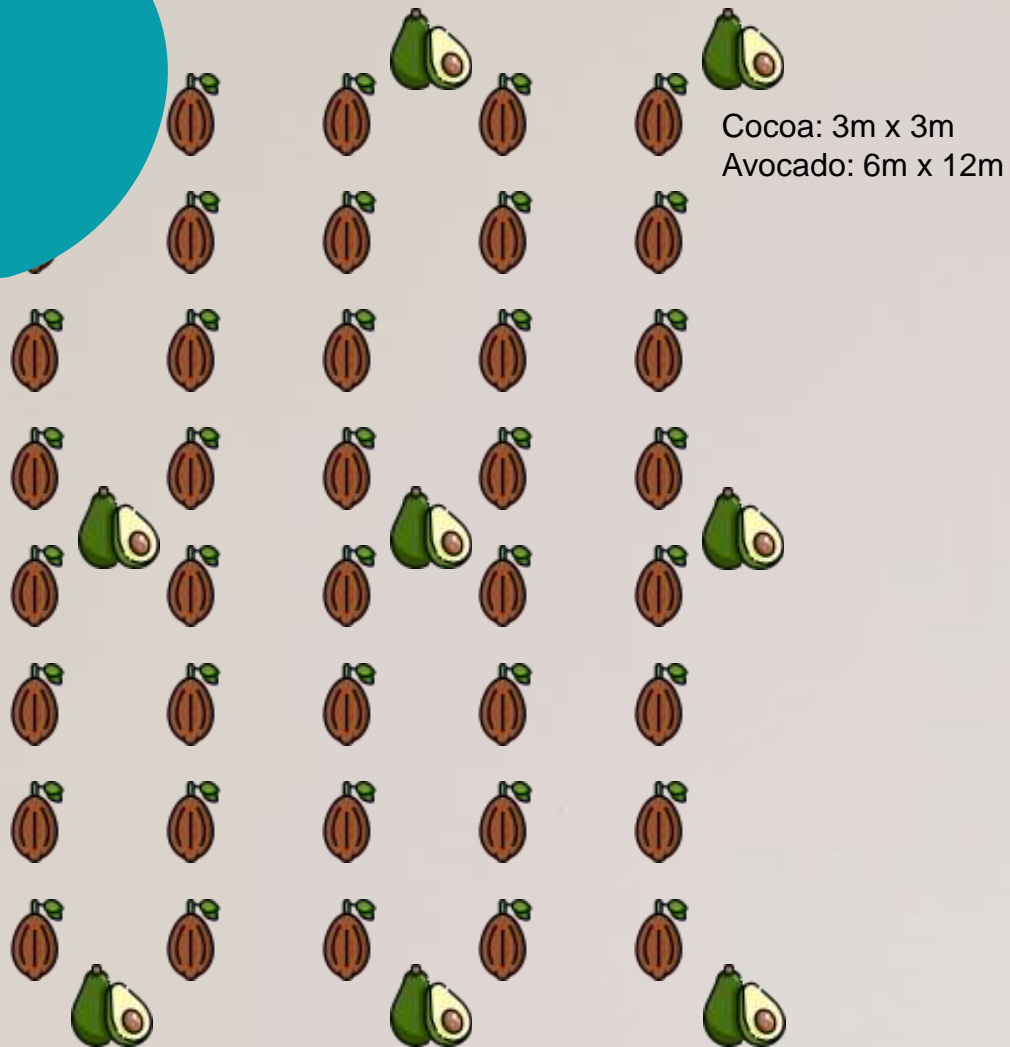


Cocoa - Coconut

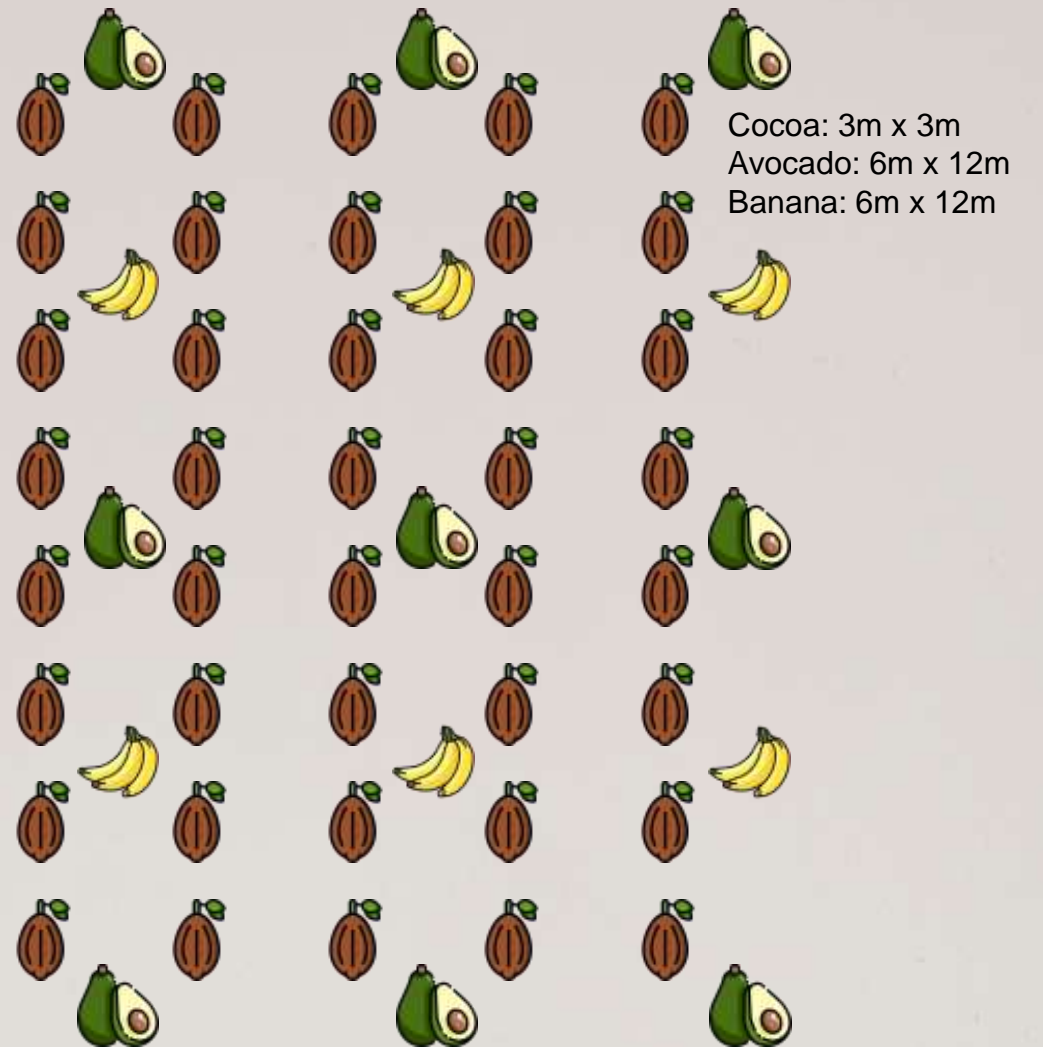


Cocoa - Durian

Various Pattern of Intercropping



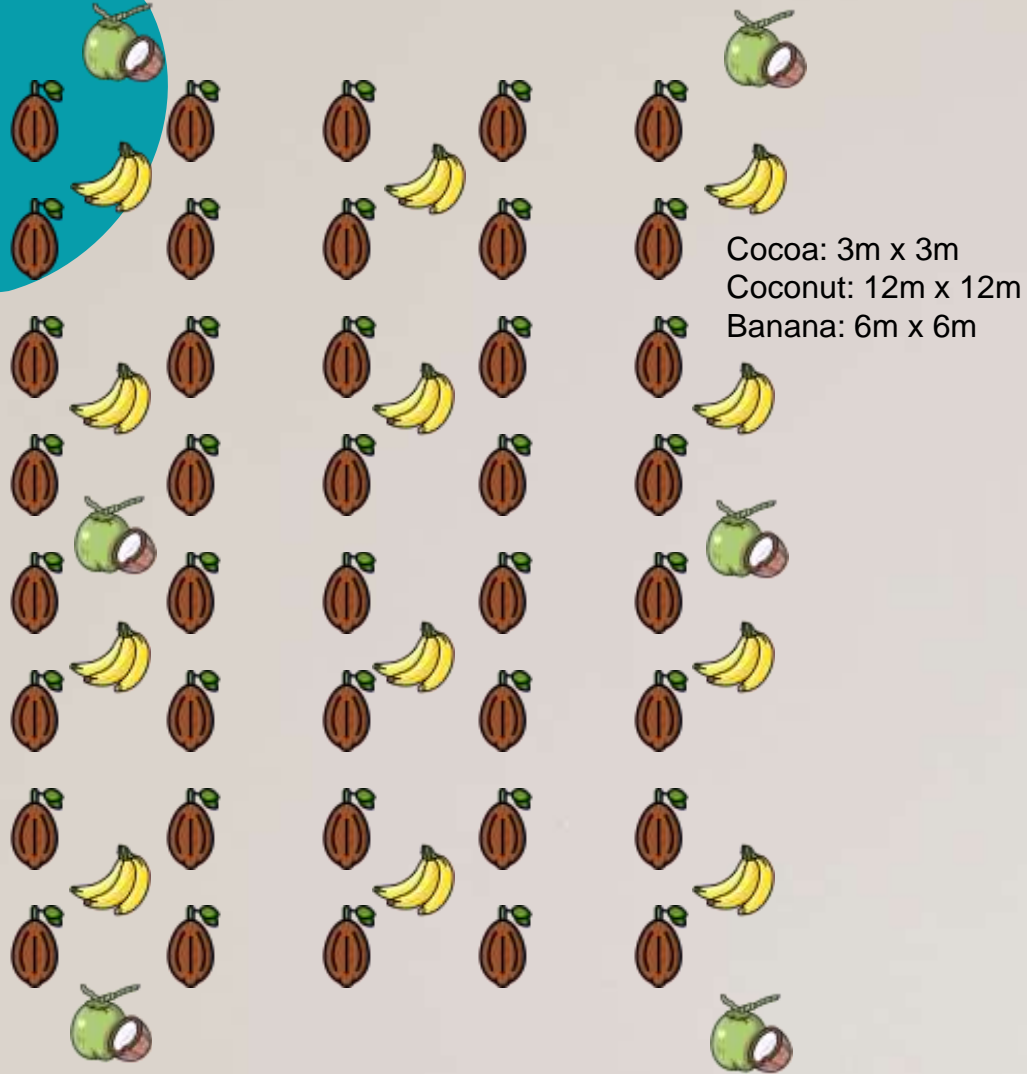
Cocoa - Avocado



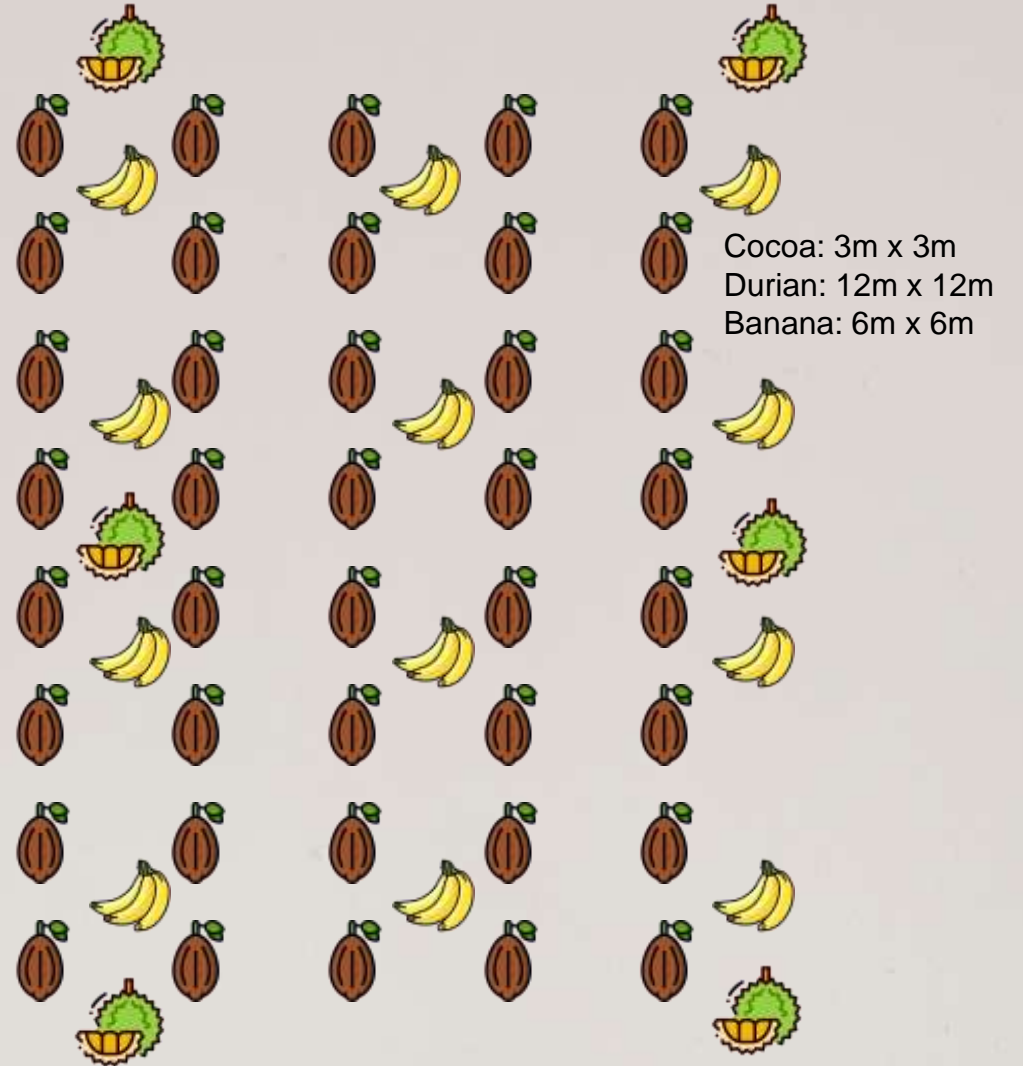
Cocoa - Avocado - Banana



Various Pattern of Intercropping



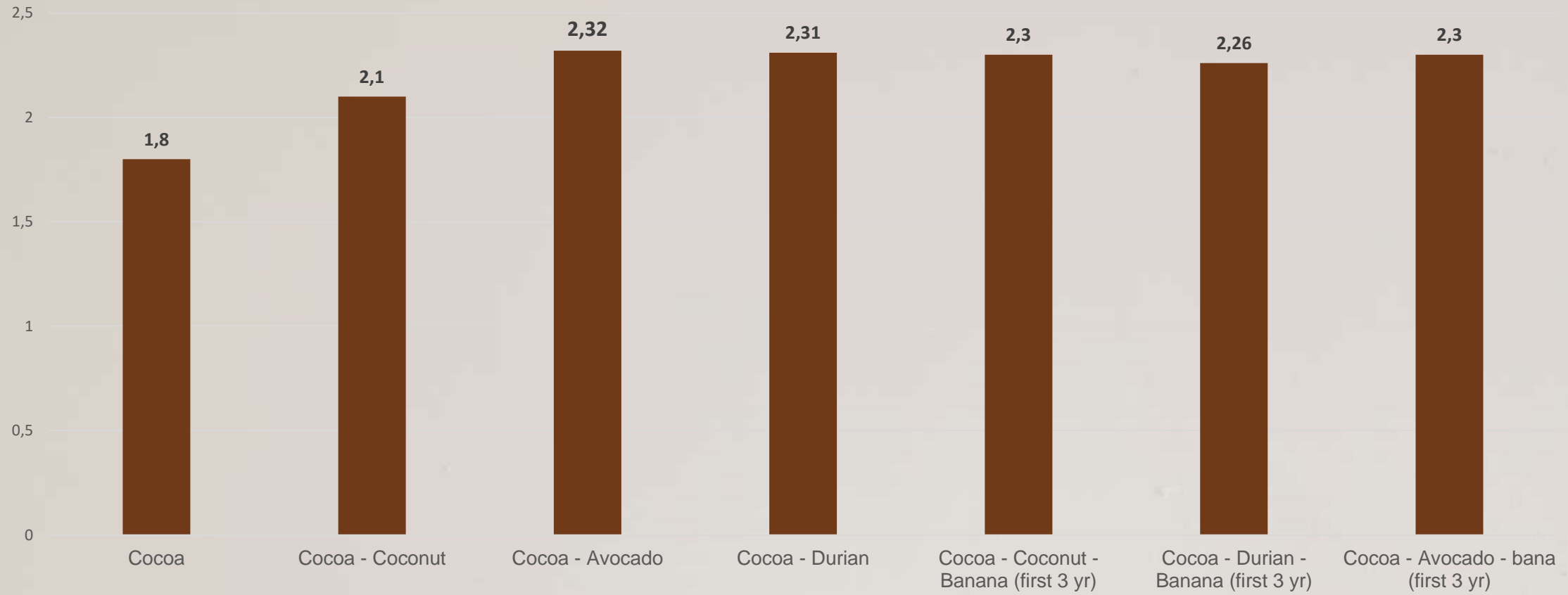
Cocoa - Coconut - Banana



Cocoa - Durian - Banana



R/C Ratio Analysis





Lesson Learned

- The wide range of management intensities in the production systems in the different studies is likely responsible for the variation in the mean differences of the economic variables analyzed between cocoa agroforestry systems and monocultures.
- The economic performance of the production systems depends on the level of management of the plantation and the pattern of commodity.
- Intercrops systems can be economically as viable as than monocultures system



Thank you.