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CASSAVA PRODUCTION AND VALUE CHAIN SURVEY IN NORTH SUMATERA, INDONESIA

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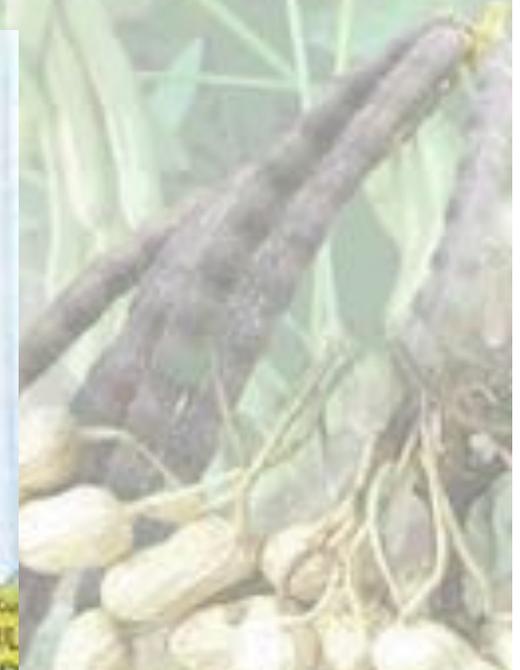


INTRODUCTION

- North Sumatera has a Type A climate (very wet)
- Simalungun District (research location) has rainfall throughout the year
- Cassava can be planted throughout the year
- Simalungun District had second largest harvested area of cassava in North Sumatera – 9,011 ha in 2016
- Pematang Siantar is market centre of Simalungun District, location of large starch factory (Bumisari Prima Factory)



Map of North Sumatera



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Cassava trends in North Sumatera

Harvested area (ha)



Harvested area in North Sumatera has declined since 2015 due to fall in price

Productivity (t/ha)



Although productivity is increasing (to about 35 t/ha), production is decreasing due to declining harvested area

Production (t)



Cassava Price in Indonesia



**From 2002 to 2015,
price of cassava
steadily increased**

**In 2016, cassava price
dropped dramatically**

**In North Sumatera, price
dropped from 1,200 to
600 IDR/kg, even lower**

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RESEARCH METHOD

The survey conducted on 4-10 May 2017 by 10 project staff coordinated by Prof. Wani Hadi Utomo and 2 local persons.

173 farmers interviewed of whom 140 met criteria.

Table 1. Location and number of farmers in household survey

No.	Village	District	Number of farmers	
			Total	Eligible
1	Tanjung Tonga	Pematang Siantar	23	18
2	Tigan Bolon Pane	Simalungun	33	28
3	Dolok Panribuan	Simalungun	19	14
4	Bandar Dolok	Simalungun	30	26
5	Dolok Nagodang	Toba Samosir	24	18
6	Bandar Haluan	Simalungun	44	36
	Total		173	140

RESULTS AND DISCUSSION



CASSAVA PRODUCTION CHARACTERISTICS

Characteristics of survey population

Gender - Male	52%
- Female	48%
Age - Mean	31 yrs
- Range	1-105 yrs
Education	
- Begun university	2.8%
- Graduated university	1.7%
- Graduated senior high	41.8%
- Graduated junior high	17.5%
- No formal education	10.9%
- In junior high school	3.3%
- In senior high school	4.5%
- Primary	17.5%

Oldest respondent (105)



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Working in agriculture

	%
Full-time	30.8
Part-time	20.8
Rarely	12.4
Never	36.1
Total	100.0

Field condition of farm

Slope of the land	%
- Flat	63.5
- Medium	34.5
- Steep	2.0
Land status	
- Own, certificate	44.8
- Own, no certificate	15.2
- Rent	33.1
- Other	6.9
Total	100.0





Coordination before household survey



**Household survey in Porsea,
Toba Samosir**



Household survey in Dolok Panribuan, Simalungun



Use of farm in 2016 and 2017

No	Crop	2016 (%)	2017 (%)
1	Cassava	80.7	64.7
2	Maize	10.9	23.7
3	Cacao	4.7	6.8
4	Oil palm	2.6	1.6
5	Rubber	0.5	1.1
6	Paddy	0.5	0.5
7	Peanut	-	0.5
8	Chili	-	0.3
	Total	100.0	100.0

Years cultivating cassava

Mean 12 years

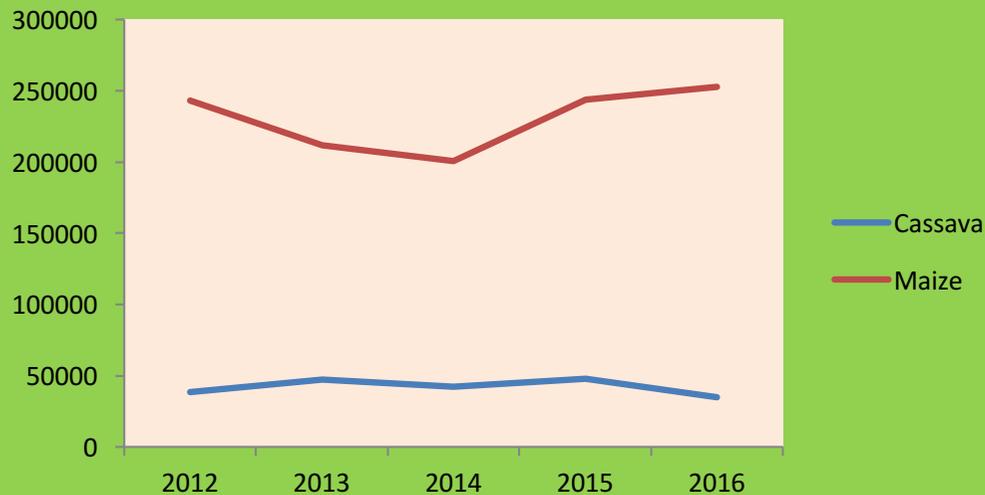
Range 1-80 years

Cassava cropping system

Cropping system	%
- monoculture	96.8
- intercropping	3.2
Total	100.0



Harvested area (ha)



In 2016, many cassava growers were switching to maize

Area below was planted with cassava, now converted to maize (2017)



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Cassava varieties used

Variety	%
Malaysia	55.8
Lampung Ubi Roti	20.9
Adira 4	10.9
Cikaret	5.4
Malang 4	1.6
Taiwan	0.8
Not identified	4.7

Original source of planting material

Source	%
Farmer within village	72.1
Farmer outside village	8.2
Collection point	12.3
Starch factory	3.3
Researcher	2.5
Village trader	2.5
Total	100.0



Use of fertiliser on cassava

Response	%
Applies organic fertiliser	32.6
Applies inorganic fertiliser	94.9
Understands NPK	36.2
Has seen fertiliser demo	12.3
Fertiliser improves profitability	79.0
Interest in visiting trial	82.6
Interest in hosting trial	60.1
Credit for fertiliser available	22.5
Purchased fertiliser on credit	12.3
Other loan in last 12 months	29.0



MARKETING CHAIN

1. Cassava marketed through PT. Bumisari Prima (starch factory)

- Collector linked to a factory agent (e.g., Pak Turisno) who has a daily delivery quota
- Collector buys from around 80-100 farmers and delivers to factory according to agent's schedule
- Factory pays agent who pays collector who pays farmers (same day)
- A formal contract system
- Cassava with high starch content is needed by factory

2. Cassava sold directly to factory from more remote location, with different planting season.

- Collector (e.g., Choki) buys from around 50 farmers
- Collector sells directly to factory without formal contract



Determining price of cassava roots

Farm-gate price largely determined by factory price

- Factory price (after deductions) = 600 IDR/ kg
- Harvest cost = 120 IDR / kg
- Transportation cost = 120 IDR / kg
- Farm-gate price = 360 IDR / kg

At Bumisari Prima Factory (starch production capacity 1,000-1,200 t/day)



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Deliveries to Bumisari factory by a collector via agent, 2016

	Months	Quantity delivered
Peak season	July-December	100 tons/day
Off season	January–June	50 tons/day

Deliveries to Bumisari factory more remote area, 2016

	Month	Quantity delivered
Peak season	September-March	40 tons/day
Off season	April-October	5-6 tons/day



CONCLUSION

1. Farmers plant cassava as monocrop on own land; cassava is main crop but there are alternative crops
2. Most farmers obtain planting material from other farmers within community (Malaysia variety most preferred)
3. Most farmers use inorganic fertilizer and understand benefits
4. In Pematang Siantar District, cassava is processed into cassava starch by Bumisari Prima factory
5. Most farmers sell cassava to the factory through traders and agents and are paid straight away
6. Farmers respond to price fall by changing to other crops (e.g., maize)

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THANK YOU

