

OUTREACH

Development of Indonesia's Outlying Areas

Cocoa Island

Last month, the government held an *Eat Chocolate* national campaign because strangely enough, although Indonesia is the world's third largest producer of cocoa, chocolate consumption in the country is still low. In the marketplace, the quality of our cocoa seeds is not among the highest, so to improve their products, farmers in a number of areas are cultivating it organically. One of the areas is Bali, where cocoa is a prime commodity. But the farmers find growing organic cocoa, getting their products certified and marketed as a lot of hard work. What is the future of organic cocoa farming in the Isle of the Gods? A *Tempo English Edition* report from Bali.



ROFIQI HASAN FOR TEMPO



JOHANNES P. CHRISTO FOR TEMPO

Going Organic

Farmers in Tabanan and Jembrana, the largest cocoa producers in Bali, have intensified organic cultivation since 2007. It takes time and determination to dispel the temptation of chemical fertilizer.

EVERY four months, I Wayan Suwecana gathers the dung of three cows in his barn. He mixes it with microorganisms, dry leaves and kitchen garbage. In order to turn it into good manure, this “dough” should be left to decompose for about half a month. The result? “Since I used manure, the leaves of my cocoa trees have grown greener,” said the 37-year-old cocoa farmer. He was very happy to see that his cocoa beans grew thicker after the application of manure.

Suwecana has not always used organic materials. The owner of a 1.5-hectare of land got to know the natural method after attending a training session about one year ago. “I wanted to know a better way of growing cocoa,” he added. Since then, his cocoa production has gone up.

“It’s around 50 percent more,” claimed the farmer from Gadungan village, Tabanan.

Since 2007, farmer groups in Tabanan and Jembrana—the two largest cocoa producing areas in Bali—have been trained in the organic planting of cocoa by various organizations. “We’ve been teaching them to return to the former method of farming using chemical-free products. We want to prove that this technique is far safer,” said Agus Heriry Ariesta, Cocoa Value Chain Manager for USAID Bali, one of the institutions training the farmers.

Cocoa farmers in Bali usually have a hard time marketing their cocoa beans, due to a lack of technical assistance and production practices. The Jembrana and Tabanan administrations cooper-

ating with USAID and AMARTA (Agribusiness Market and Support Activity) have trained over 5,000 farmers. This program covered an area of 1,220 hectares in Tabanan or 25 percent of the cocoa plantation, and 875 hectares in Jembrana or 24 percent of its cocoa area. In December 2010, the area was expanded to about 1,200 hectares. “According to our plan, the program will cover Singaraja next year,” said Ariesta.

According to Roemi Liestyowati, Forestry and Plantations Office chief of Tabanan regency, although cocoa plantations in Bali are not as vast as in other parts of Indonesian, its quality is considered superior because of its high fat content. Besides, Bali’s farmers groups are well organized. “Cocoa farmers in Tabanan are members of an organization known as Subak Abian. This body has *awig-awig* (rules) based on *Tri Hita Karana* or three sources of happiness: the relation between God and humans, that between fellow humans, and that between humans and the environment.

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Organic cocoa beans from Tabanan, Bali (left).

Farmers working at a cocoa plantation in Angkah village, Tabanan, Bali.

use natural ingredients from their vicinity. “They can use betel leaves, fragrant roots, lemongrass or *kastuba* (*Euphorbia pulcherrima*). After being immersed, tobacco leaves can also be effective against bugs,” he said. Organic farmers also enjoy the advantages after the trees bear fruits. “As we don’t use chemicals, the soil remains fertile and loose for a longer time. The trees also have higher resistance,” said Pertama.

The group he headed applied organic cultivation. Starting in 2007 and after an evaluation of three years, they finally obtained organic certification in 2010 from PT Bening, an organic cocoa company based in Bali. “They buy cocoa from us at a premium price, 10 percent above the normal rate,” added Pertama. Apart from Buana Mekar, three other Subak-Abian groups in Tabanan have gained certification. Farmers in Jembrana have yet to be certified.

According to Antok Frans, Development Manager of PT Bening, there are some requirements for certification. Farmers should be consistent in using organic materials and their land must meet certain conditions. “We can’t grant certification if the estate is located near paddy fields. These fields are usually cultivated by means of inorganic materials so that they affect the quality of nearby soil,” Frans explained.

Basically, organic cultivation is not easy to carry out and takes a long time to take effect. Farmers have to process the fertilizer themselves. They also need to prepare pesticide. The expected effect is not instant either. According to Ariesta, pests sprayed with chemical pesticide would die instantly, while natural pesticide would only repel them—taking a longer time, too.

Wayan Muliassa, 52, chairman of the Ulun Desa Farmers Group in Bajra district, Tabanan, admitted they still depended on inorganic fertilizer. “To produce manure, at least two buckets of cow dung is needed. With only a kilogram of manmade fertilizer the same result can be obtained. So this (artificial fertilizer) is far more efficient,” he said.

However, he intends to keep encouraging his group so as to fully shift to organic cultivation. “I notice that the Bali government is committed to organic cultivation. Moreover, this method affects the environment more positively,

This principle strongly links its members and makes the organization solid,” said Liestyowati.

The plantations office determines the groups to be trained. The groups are then handled by field trainers. Training always takes place in the field, from Monday to Saturday, from morning to afternoon. Periodically, new modules are released. “Every year we send leaders of farmer groups to South Sulawesi so that they can witness the success of farmers there,” added Ariesta.

Most cocoa trees in Bali were handed down by their parents. Therefore, at the initial stage of the training, farmers were taught to rejuvenate their plants, which generally were 25 years old. In fact, cocoa is most productive at age 5-15. The local government provided new seedlings. Farmers also learned the side-joint method, which grafts the lower stems of old trees to new plants.

The problem is that the planting of seedlings takes three years to grow into new trees. By the side-joint tech-

nique, farmers only need to wait for a year. “Many of them were afraid to take the risk. They feared that their (cocoa) trees would not yield and they wouldn’t be able to make a living,” noted Ariesta. Actually, by leaving the old trees too long, the side-joint method cannot be applied and the trees would die. To overcome this problem, the Buana Mekar Farmer Group in Angkah village, Tabanan, adopted this strategy: “We rehabilitated the trees in phases,” said I Wayan Adi Pertama, 44, the group’s leader since 2007.

After the rejuvenation, farmers were instructed in organic planting to maintain crop quality. The most important thing was how to prepare and use fertilizer and pesticide made of organic materials. In addition of being safer, organic fertilizer also offers the benefit of enabling the anticipation of chemical fertilizer price hikes. “Chemical fertilizers have even disappeared in the last few months,” Ariesta pointed out.

As pesticide, farmers were advised to



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the health of farmers and consumers,” he said. The group under Wayan Muliasa also undertakes its own cocoa fermentation—a requirement for organic cocoa processing—and guides 14 other groups. “For the fermentation process, we dry cocoa in the sun for 6 days. We’ve done this since 2007, following the trend of world demand,” he added. The price of fermented cocoa is normally more expensive at Rp3,500 per kilogram compared with non-fermented cocoa.

Marketing still faces constraints. Pertama indicated the volume purchased by PT Bening is still too low. “Since August (2011) the company has only bought 5–6 tons from us,” Pertama told *Tempo* two weeks ago. Frans said his firm could not buy a lot more because its production capacity is still small. “We usually buy around two tons daily from the plantations we train in Tabanan. It depends on the season,” he said. Cocoa trees in Bali yield fruits throughout the year, peaking in September, October and March.

Cocoa bean at Angkah village in West Selamadeg, Tabanan, Bali.

As only one company issues organic certificates, not all farmers can secure a premium price. One of the major buyers in Bali is now PT. Bumi Tangerang, but they do not buy at premium prices. “Based on estimates, cocoa production by Bali farmers in a year reaches 5,000–6,000 tons of dry beans. Bumi Tangerang buys around 50 percent or 2,500 tons,” said Kiki, head of PT Bumi Tangerang’s Bali Representative Office, to *Tempo*.

In Jembrana and Tabanan, PT Bumi Tangerang purchases about 300 tons annually. The buying price is based on the international cocoa price. “In the present era of technological progress, entrepreneurs cannot just fix prices at will,” added Kiki, adding that farmers can easily be informed of cocoa price developments on the Internet. “If we buy it at a low price, farmers will go to competitors,” Kiki said.

Regular cocoa costs around Rp16,000 per kilogram today. Its value tends to keep declining when the harvest season is over. At peak harvest time, the price can reach Rp25,000 per kilogram.

In order for farmers to be able to always obtain premium price, said Ariesta, the government should be the one issuing organic certificates so that farmers can better sell their organic products to other companies.

Roemi Liestyowati said the local administration is discussing the issue with the provincial and central governments. “I can’t say when we plan to formulate the certification process. Everything is being processed,” she said without elaborating on the difficulty faced by the government.

What is obvious is the farmers’ difficulty: only one company buying with certification, organic cultivation is complicated and time consuming, while government assistance in getting certification is still inaccessible—and no one knows when the problem will be resolved. ■

Holy Cocoa from Tabanan

A company in Bali is showing local farmers how to grow cocoa organically. Their products have already gotten into Europe, the United States and Australia.

NYOMAN Sumarya, 42, carefully binds the bundle of dry cocoa leaves on the branch of a tree laden with fruits. The trees were arrayed in lines in Angkah, a village in Bali's Tabanan Regency. After it had been bound, a band of small round black ants emerged from the bundle. They nimbly gather around each cocoa fruit. "I make nests for the black ants (*Dolichoderus thoracicus*) to get around the problem of pests," Sumarya told *Tempo* last week.

Now Nyoman and 210 other farmers in his village have changed the way they grow cocoa on their 267 hectares of land from non-organic to organic. Since adopting the organic system, Nyoman uses animal dung and compost fertilizers instead of the chemical kinds. He also makes use of nests of black ants instead of insecticides to eradicate pests. He says this puts more money in his pocket as his production costs are far lower —while the selling price for organic cocoa is higher.

Sumarya said that all this began six years ago, when PT Bening Big Tree Farm first made an offer to four *subak* (farmers' groups) in his village, namely Buana Mekar, Angkah Pondok, Bangkung Sakti, and Catur Bona, to teach them how to grow cocoa organically.

From there, PT Bening Big Tree Farm carried out a survey and assessment of the farmers' lands. Every plot was then declared to be in a conversion period lasting three years, calculated from its last use of chemical fertilizer. Throughout that period, the land was not given any fertilizer and the only maintenance was to keep it in its initial state.

During the conversion term, an Internal Control System (ICS) was applied with two farmers appointed to monitor the process. Their daily task was to check on the state of the plantations and to supervise the farmers. "(Just to make sure) no farmers kept chemical fertilizers on their land or even go back to using them," said Wayan Ali Arbawa. The 47-year-old farmer was appointed as one of the ICS officers.

What happens if a farmer violate the agreement? First, he would get a reminder. If he still persists, that person would be asked to re-convert his plantation. Arbawa is grateful that until now no such cases have arisen.

Only after this conversion period ended can PT Bening Big Tree Farm then begin the organic certification process. This certification involves inter-

the basis of their locations for organic agriculture. Their cocoa plantations are located in the hills—relatively distant from the rice fields that are not yet organic—enabling them to gain certification. This was one of the requirements. If they are close to rice fields, the cocoa plantation must be at a higher land—so the flow of paddy field water does not enter the cocoa-growing area. Frans said a strong commitment from the land owners is more important,

Once everybody has agreed, PT Bening Big Tree Farm provides guidance on all aspects, beginning from the production process through to marketing. Farmers were urged to calculate their production costs according to the size of their plantations. This data was used as a benchmark when setting appropriate prices in line with world market prices. Frans said planting organical-



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Selecting cocoa beans at PT Bening, Bali.

national institutions to ensure the organic status of the cocoa products will be acknowledged in international markets. The institutions used are the Control Union from Holland, and Institute for Market Ecology from Switzerland. "This is an important process needed to get a good price and a steady market," said Antok Frans, PT Bening Big Tree Farm's Organic Development Manager.

The fourth *subak* has now already been certified. They were selected on

ly requires a longer time to harvest. A lengthy rainy season is the main enemy. The nests of black ants can only frighten off intruder bugs, not get rid of them completely. "So we don't just tell farmers positive information," Frans told *Tempo*.

They try to empower farmers, said Antok, in line with the fair-trade model: farmers have a bargaining position in setting prices. They also need to be assisted in the provision of fermentation facilities. To date, farmers sell the cocoa in wet condition, resulting in a drop in price. However, once it has been

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fermented, the selling price can go up to Rp5,000 per kilogram.

Fermentation is carried out by placing the wet cocoa seeds in a box measuring 1x2 meters, and 1 meter high—in which each can contain 800 kilograms of cocoa. The boxes are stacked up in a storage room for two days. The process is continued by drying the cocoa in solar dryers in a room with ultraviolet-resistant plastic sheeting roofs. That process continues for three days. The weight reduction from wet cocoa to the dried kind can be up to 30 percent.

At every stage, the organic cocoa is always separated from the non-organic ones. After that, the commodity is ready for export or processing at the factory located at Sibang Kaja, Badung. Wahyu Sriningsih, PT Bening Big Tree Farm's Factory Manager said the largest part of their production is sent to the United States. The rest goes to European countries and Australia. "Sales to the local market are still small because we prioritize sales to the upper middle class," Sriningsih revealed. The quantity may also go up or down, depending on the state of the world market.

Cocoa production by organic farmers in Tabanan is around 510 tons per year. Apart from this, Big Tree Farm also accepts non-organic cocoa in larger quantities. "The amount depends on the season," she said. The crop-picking season in Bali usually runs from February to November. To cover any lack of supplies, PT Bening Big Tree Farm is working with farmers in Pidie, Aceh, where the cocoa harvest season actually begins in November and ends in July.

Organic cocoa's prospects have inevitably begun to catch the eye of non-organic growers. One such is Abdul Hadi, a farmer from Lalang Linggah who also requested guidance when *Tempo* met him with Frans last week. His group is willing to accept the consequences of becoming organic growers. "Later I'll send a team to check the field," Frans answered in response to the request.

Benjamin Ripple, the man who set up PT Bening Big Tree Farm, has observed that Indonesia is the world's third largest cocoa producer. Nevertheless, 95-96 percent of the cocoa exported is still unprocessed. Many parties, including the government, want to change this. Yet what still needs attention is empowerment at the farmers' level. The biggest difficulty they face is their inability to bargain when facing middlemen. The growers also do not have the capacity to process cocoa to make it more valuable.

That is what led Benjamin Ripple to



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Packing chocolate bars at Big Tree factory in Sibang, Badung Regency, Bali.

Benjamin Ripple, founder of PT Bening Big Tree Farm.

take the initiative of building his own processing factory in 2006. He was fortunate to meet Frederick Schilling who had previously owned a chocolate factory in the US, and was also a cocoa buyer. From Schilling he obtained a range of new and old machinery for processing cocoa. He is hopeful that later all this will be able to yield farmers bigger profits.

His factory also serves as an educational center for people to better understand the processing chain for organic cocoa products and a production system that is fair to farmers. "We will offer tours for buyers," he explained.

According to Arbawa, it is now easier when he wants to sell his cocoa, because PT Bening Big Tree Farm, aside from

guiding them to organic planting method, is also ready to take in their crops. The price depends on the world market price and is far more competitive than what they would get from a middleman. "The set price can be higher by 15 percent if the cocoa we sell meets their requirements," Arbawa stressed.

Nyoman Sumarya, the organic cocoa farmer claims he is no longer worried as his cocoa plantations are already free from chemical fertilizers. He frequently encounters caterpillars and a variety of other creatures roaming freely in his estate. "When I was still using chemical fertilizers, it was rare to see caterpillars," he told *Tempo* gleefully.

Chocolate Factory

INDONESIA is the third biggest producer of cocoa in the world, after the Ivory Coast and Ghana. Indonesia produced as much as 535,000 tons of cocoa in 2010. In the same year, the plantation sector contributed US\$22 million in foreign exchange and the cocoa has become the third biggest contributor, trailing behind rubber and oil palm.

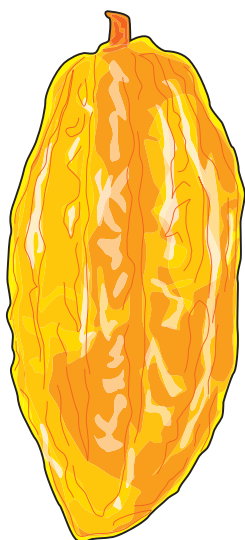
This commodity has brought jobs to more than 1.7 million farmers. Almost 85 percent of the national cocoa plantations are owned by small famers. However, the product is yet to bring prosperity to them. The quality of Indonesian cocoa is still considered low in the world market. "The percentage of dirty cocoa and impurities in Indonesian farming is still high. The fermentation is not optimal, so the price falls when it is being sold," said food expert Daisy Irawan to *Tempo*. Below is the current condition of cocoa cultivation in Indonesia:

Different Method of Cocoa Processing

CONVENTIONAL COCOA	ORGANIC COCOA
Uses fertilizer and chemical pesticides	Uses organic manures and pesticides from various plants
Unripened beans in the trees are harvested	Ripe beans are taken from the tree using a knife
The fermentation is not optimal, even it is not fermented	Fermented for 3-5 days
Depends on the sun to dry the cocoa beans which is not effective due to the changing climate	Dried under the sun and using cocoa bean drier tool
Sorted manually, not evenly	Uses a machine to sort out the cocoa seeds

SOURCE: TEMPO DATA AND ANALYSIS CENTER

Types of cocoa in Indonesia:

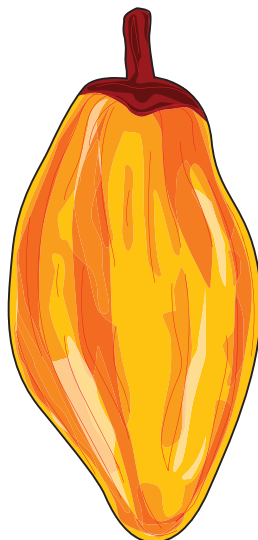


CRIOLLO

Other names: Noble Cocoa, Edel Cocoa or Fine Flavor Cocoa.

Characteristics:

- Oval shape
- Ripe young cocoa is red and orange
- The seed is white
- The pulp is thin
- The weight of a seed is 1-2 grams.
- Cocoa butter ± 56%
- Strong aroma, sweet flavor
- Short fermentation period of 3-4 days.

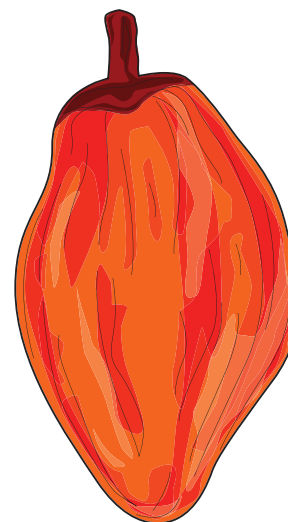


FORASTERIO

Lindak Cocoa

Characteristics:

- Oval shape
- Ripe young cocoa is green and yellow
- The skin is smooth and hard
- The seed is purple
- The seed is flat and small
- The weight of the dry seed ± 1 gram
- Cocoa butter ± 56%
- Light aroma, the flavor is bitter



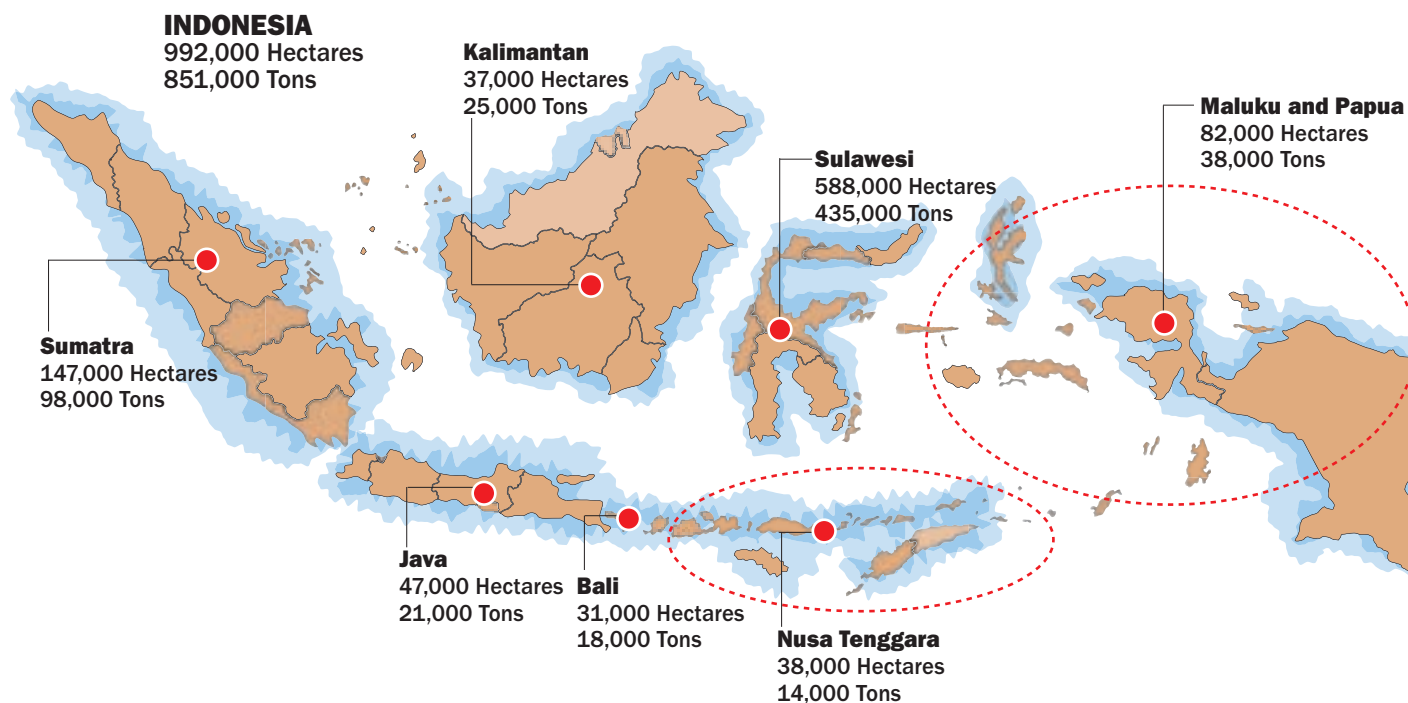
TRINITARIO

A hybrid between Forastero and Criollo cocoa.

Characteristics:

- The cob is green and red
- The leaf color ranges from light and dark purple

COCOA PRODUCTION IN INDONESIA (2007)



Production Of Cocoa Beans (Thousand Tons)

	2007/08	%	2008/09	%	2009/10	%
AFRICA	2693	71.8	2518	69.9	2458	68.0
Cameroon	185		227		190	
Cote d'Ivoire	1382		1222		1242	
Ghana	729		662		632	
Nigeria	230		250		240	
Others	166		158		154	
AMERICA	469	12.5	488	13.5	522	14.4
Brazil	171		157		161	
Ecuador	118		134		160	
Others	180		197		201	
ASIA & OCEANIA	591	15.8	599	16.6	633	17.5
INDONESIA	485		490		535	
Papua New Guinea	52		59		50	
Others	55		50		48	
World Total	3752	100.0	3605	100.0	3613	100.0

Grindings of Cocoa Beans (Thousand Tons)

	2007/08	%	2008/09	%	2009/10	%
EUROPE	1551	41.4	1446	41.4	1499	41.0
Germany	385		342		361	
Netherlands	490		440		470	
Others	676		664		668	
AFRICA	564	15.0	621	17.8	660	18.0
Cote d'Ivoire	374		419		400	
Ghana	123		133		200	
Others	67		70		60	
AMERICA	831	22.2	773	22.1	813	22.2
Brazil	232		216		226	
United States	391		361		382	
Others	208		196		205	
ASIA & OCEANIA	804	21.4	651	18.6	687	18.8
INDONESIA	160		120		120	
Malaysia	331		278		298	
Others	313		252		269	
World Total	3749	100.0	3491	100.0	3659	100.0
Origin Grindings	1468	39.2	1412	40.5	1490	40.7

ILLUSTRATION: RIZKY LAZUARDI

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