PN-AAX-783
51213

Report of Survey of the Nutmeg Industry in Indonesia

Submitted to U.S. Agency for International Development/
Grenada under IQC number PDC-1406-I-19-1089-00

James L. Woodcock

October 1984

Development Alternatives, Inc. 624 Ninth Street, N.W. Washington, D.C. 20001

CONTENTS

AN OVERVIEW OF THE NUTMEG/MACE/NUTMEG OIL INDUSTRY IN INDONESIA

OUTSTANDING PROBLEMS

PRODUCTION TRENDS

PRICES

LIST OF OFFICES, FIRMS, AND INDIVIDUALS CONTACTED

LIST OF STANDARDS, ABBREVIATIONS, CONVERSION RATES, ETC.

LIST OF MATERIALS ON NUTMEG/MACE SENT WITH THIS REPORT

TRANSLATION OF REFERENCE 1: COMMODITY NOTE: NUTMEG AND MACE

TRANSLATION OF REFERENCE 2: COMMODITY NOTE: NUTMEG OIL

TRANSLATION OF NEWSPAPER ARTICLE

REPORT OF SURVEY OF THE NUTMEG INDUSTRY IN INDONESIA
September 22-30, 1984

AN OVERVIEW OF THE NUTMEG/MACE/NUTMEG OIL INDUSTRY IN INDONESIA

Key Points about Indonesia's Nutmeg Industry

The rest of this report will be easier to understand if the reader bears in mind the following characteristics of the nutmeg industry in Indonesia:

- Almost 100% of Indonesia's nutmeg is grown by thousands of smallholders in often remote and certainly very scattered areas

- Most nutmeg farmers operate on the very edge of subsistence

- Nutmeg competes for land with other crops such as cloves and coconut (copra, coconut oil) in the main production areas

Information Sources

There is no single source of reliable information or statistics on the nutmeg/mace/nutmeg oil industry in Indonesia. The Central Bureau of Statistics publishes quantities and values of exports by standard quality of nutmeg and mace. The quanitites are reasonably trustworthy, but the grades of exports are questionable because various government regulations and policies encourage misspecification of cargo. The National Agency for Export Development works frequently with these and other statistics, and they are the best single source of information as to numbers of exporters, official statistics, experts resident in the Jakarta area, etc. The Directorate General of Estates publishes a book of statistics which is generally reputed to be unreliable in certain areas. For instance, the number of hectares in production throughout Indonesia can only be regarded as a wild guess. Likewise, gross production from these hectares is not to be trusted, nor are the categories of grades exported from the various ports (for instance, export of nutmeg in shell from North Sulawesi has been banned by government since 1982, but such exports are still shown for 1983 from Bitung in North Sulawesi). Individuals maintain personal libraries of reports, but institutions frequently do not have extra copies of their own reports (such as the Department of Trade's National Conference on the Promotion of Production and Export of Nutmeg and Mace). The best source of information is word of mouth from those who are in the business--mainly the exporters--but they are in the provinces. Several exporting companies have family or friends representing them part time in Jakarta, but no exporter has an office in the capital city.

One exporter recommended the Data Section of the Bank of

Indonesia as being a reliable source of information, and it is recommended that any subsequent survey investigate that source of information.

This survey included a visit to Menado, in Indonesia's main production center of North Sulawesi (which produces about half of the nation's nutmeg and mace). Each production center is a special case, and officials based in the capital city have quite an incomplete understanding of how production, collection, processing, and exporting work in North Sulawesi. No doubt this report will reflect quite an incomplete understanding of the production, collection, and export systems in Sumatera and Irian Jaya.

Production

There are at least five different varieties of nutmeg tree grown throughout the Indonesian archipelago. For purposes of an overview, it is best to think of three distinct areas of production, processing, and export about which some generalizations can be made. West Sumatra and Aceh mainly produce the lower quality Padang variety, which is picked before it is ripe and used for making oil. North Sulawesi and Maluku provinces produce the greatest volume (about 85% of Indonesia's total according to Central Bureau of Statistics data for 1982) and highest quality of nutmeg and mace, growing the Banda variety, whose good seeds are used for spice and the poor quality seeds for oil production. Thirdly, Irian Jaya produces the Argenta, or "jungle" variety which receives a lower price and is used mainly for spices.

West Java is a fourth area in which nutmeg is produced, but it is not nearly as significant as the above three areas.

According to official statistics 97% of the acreage planted to nutmeg is smallholdings, estimated by most sources to range from a "few trees" to no more than 2 hectares. Large privately held estates account for only 1%, and government-owned estates for 2% of the nutmeg acreage. These relative proportions are probably accurate, but specific acreage data by location should not be trusted too far. Official statistics from the Directorate General of Estates show, for instance, a drop in production from 1981 to 1982, and statistics from the Central Bureau of Statistics show a significant increase in exports in the same period.

The only producer's association is a farmers' cooperative established with the help of German technical cooperation in the mid-1970's in West Sumatera. The assistance provided a rigorous grading system, which was reported to have increased the farmers' income during the life of the project, but when the project terminated, so did the quality control. The cooperative still survives, though.

Nutmeg trees can bear fruit all year round, but the greatest amount of fruit becomes available between March and October, and this can be called the "harvest season". In North Sulawesi, the peak production month usually is in April, followed by October. Some estimates of the harvest season are slightly different, probably because different varieties at different locations have their greatest yields at different times. Despite the slight seasonality of nutmeg, the local prices of nutmeg do not show seasonal variations reflecting the "harvest" season because local price is determined by the world market, which is not normally affected by Indonesia's "harvest."

The Extension Service of the Department of Agriculture provides some seedlings and conducts campaigns to encourage planting of nutmeg (such as encouragement to plant Banda variety nutmeg in Irian Jaya), but it has little effect on production.

Collection

Because nutmeg must be sold in small lots virtually throughout the year, and because it is grown by (often remote) smallholders, most collection is done by middlemen who gather the produce into large enough quantities so that it can be sold to exporters/processors. In North Sulawesi, the main production comes from islands to the north of Menado. Collectors gather nutmegs from the farmers and bring them in gunny sacks by minibus or boat to the godowns of exporters' representatives in the main centers, where the nutmeg is sold by the ton. Two exporters based in Menado have buying representatives in Siau, and one has a representative in the town of Tahuna. In the area serving the Menado exporters, there are hundreds of collectors and shops that sell to exporters of exporters' representatives. The exporters pay the collectors based on a price (said to be based on world market prices) for a certain standard. Sample nuts are broken open at random to determine the quality of the collector's shipment, and the payment to the collector is adjusted up or down from the standard price depending on the quality of the sampling. The exporter then bears the cost of bringing the nuts, still in the shell, to Menado by boat, where they are stored in the godown until they are shelled, sorted, and shipped.

Apparently the marketing chain that prevails in North Sulawesi is the most common case in Indonesia. The collector often provides credit to the farmer, if he knows him well, as a partial advance payment against the produce which he will collect in the future. In many cases, the exporters also provide credit to the collectors. Collectors may sell to more than one exporter, depending on which one gives the best price.

When the smallholders are remote from the main seaport, a collector may sell to a district merchant, who sells to the exporter (or exporter's representative). This chain is reported to have predominated in marketing channels leading to Ujung

Pandang because the source of supply is quite remote from Ujung Pandang's excellent seaport.

There are two exceptions to the collector-(district merchant)-exporter chain. The two government nutmeg estates (one in Ambon and one near Semarang) are themselves exporters. And, secondly, the cooperative established by West German assistance in West Sumatera buys from farmers and sells directly to exporters.

In the case of nutmeg oil, the first distillation plant was built in about 1975, and there are only 5 facilities operating throughout Indonesia at the present time. The low-quality Padang variety of nutmeg is mainly used for the production of oil, but broken or shriveled nutmeg or inferior quality mace also are used. In North Sumatera, the Padang nutmeg seeds are generally transported directly to the processing plant by collectors hired by the plant. Exporters also will sell black mace to the distillation plants, which have to scramble for supplies when total production is low. At times, even the lower qualities of nutmeg for spices is used to make oil, depending on the relative prices of the spice and oil.

Processing

Processing by the farmers is described in reference (1). The small farmers generally dry the nutmeg over a fire or in the sun before it is sold to collectors. At times, they may keep the nutmegs in a heap if there is rain, and moisture will cause them to become mouldy and subject to attack by insects.

Farmers separate the mace from the nuts-in-the-shell after they pick the fruit. The "meat" of the nutmeg fruit, analogous to the sweet part of a peach, is soaked in sugar and sold as a sweet. This candy is popular in many parts of Indonesia, selling for about Rp. 1,000/kg in Menado.

Exporters at the seaports generally do the shelling by machine. Machines are relatively inexpensive, costing about $5,000, and they are made locally. Although labor is relatively inexpensive, the chief advantage of a machine is that it is fast. Thus, expensive inventory is not tied up while laborers crack shells one at a time with a wooden mallet. An advisor who worked for four years in Grenada stated that Indonesia's locally-made machines are as efficient as those in Grenada. The machine usually cracks the nuts open and expels a misture of nutmegs and shells on to the floor. After shelling, women sort out the shells and the nutmeg. Other women sort the nutmeg into the various grades. A sorter may make from Rp. 1,200 to Rp. 1,600 per day in North Sulawesi if she is employed on a long term basis. Short term labor for overload situations could cost Rp. 2,000 to 2,500 per day.

Exporters also use imported reconditioning machines to clean mouldy or wormy nutmegs. This adds about 10% to the cost of the nutmeg.

The processing of nutmeg oil, unlike the processing of other essential oils, requires expensive imported machinery. Several oil plants are forced to stop production when they are unable to acquire enough raw materials. It has been said that during years that the price of nutmeg spice is high, even inferior quality nutmeg will be sold as a spice, and there will be less stock for distillation into oil. This depends on the relative prices, and it can work both ways: if the price of oil is high, oil processors can outbid spice merchants for stocks. The high capital investment cost and the large fluctuations in the price of the spice and the oil have discouraged more investment in distillation facilities.

The names and locations of the companies operating distillation facilities are shown in the appendix of reference (2). Their capacities are also described in reference (2). The Essominco oil plant in Ambon is producing oil again because of current high world prices for nutmeg oil (see reference 17).

Storage and Exporting

Although the Directorate General of Estates publishes inventory statistics for the important estate crops, no statistics are published for stocks of nutmeg/mace or nutmeg oil. Estimates which were received from persons contacted in Jakarta and the provinces varied so widely that one must conclude only that no one knows the extent of exporters' stocks, although some stocks of considerable size exist because of the problem of gathering enough quantity for a shipment and scheduling shipping from the (sometimes small) ports designated for export of spices. Government-owned estates are known to hold their stocks of nutmeg for up to two months before shipping them out of major nearby ports. Interest rates are extremely high in Indonesia, so exporters have a strong disincentive to hold on to their stocks of nutmeg, mace, or oil even if they anticipate that world prices will rise in the near future.

One can estimate the average amount of nutmeg in stock by assuming that there is an even flow of stock to exporters all year round and that they ship their accumulated stocks once a month (observers in North Sulawesi estimated that exporters shipped once every three weeks on the average, but it all depends on their agreements with buyers. Ships call at Bitung, the port of Menado, about once every two weeks). According to 1983 export statistics, 6,283 tons of all grades of nutmeg, valued at US$6,730,000 were shipped from Indonesia. The annual figures divided by 24 yield an average national inventory on any given day of 262 tons of nutmeg worth $280,000 in 1983 and about 2 tons of mace valued at about $25,000 (at the 1983 market price).

The nutmeg is stored in gunny sacks in godowns. Land is inexpensive in the storage areas, so only the opportunity cost of storage is expensive. If the godowns are fumigated every month there is said to be no problem with pests during storage. In Menado there appears to be more than ample storage space available in large modern godowns.

Exporters of nutmeg and mace are based in the cities near the place of export. Because exporters go in and out of business, it is difficult to state how many are in business at one time. The Chairman of the Indonesia Nutmeg Association estimated that there are only 15-20 exporters presently active.

The Sulawesi-Maluku area exports about 85% of Indonesia's nutmeg and 90% of its mace according to 1982 Central Bureau of Statistics figures. The latgest volume goes through Bitung, which is 45 km from Menado. About 4 exporters are active here. The main source of Menado's supply is the Sangihe islands to the north. Secondarily, production comes from smallholders near the town of Gorontalo. Ambon is the second largest port of export of nutmeg and mace, with about 3-4 active exporters. Ambon's main source of production is the island of Banda and islands in the Maluku's. The main port of the Halmahera's is Ternate, where about 3 exporters are active. Finally, Ujung Pandang used to be a main port until the provincial government of North Menado issued a regulation that from February 1984 onward, nutmeg in the shell may not be sent out of the province. Ujung Pandang, which formerly received most of its stocks from the islands north of Menado, is expected to be an insignificant processing center in the future. There are about 2 active exporters there now, and they are branches of Menado-based exporters.

The second largest area is North and West Sumatera where the ports of Padang and Belawan (the port of Medan), according to government figures, exported about the same weight of nutmeg in 1982. Most of the exports from this area are in the form of oil. Medan's exports come from Aceh, to the north (the main growing area is Tapak Tuan, South Aceh), and Padang's come from Aceh and the West Sumatera area. There are about 4 exporters in Aceh and Medan and 2 in Padang. According to informed sources, at the present time, nearly 100% of Sumatera's production goes to distillation for production of nutmeg oil. This is in contrast to official statistics showing a significant volume of export of nutmeg spice from Sumatera.

The third largest export area is Irian Jaya. Fak-fak is the port of processing/export. It draws its stocks mainly from the Irian Jaya hinterland and the Banda-growing islands of Maluku province that are closer to Fak-fak than Ambon. About 3 exporters are active in Fak-fak.

Semarang is the final area of export. There are about two exporters, and the production comes from the area around

Semarang.

The oldest and largest exporting company is C.V. Angin Timur, based in Menado, Ambon, and Ujung Pandang. P.T. Angin Utara merged with C.V. Sinar Murni to become the become the largest of all North Sulawesi exporters, P.T. Sinar Utara Agung, based in Menado. Other large exporters are C.V. Banteng Mas in Ambon and C.V. Danau Intan in Padang. The number of bona fide exporters in any one year is a widely fluctuating number to say the least. Three lists are included in the references. Many hours of the survey were spent trying to track down offices of exporters who have moved or temporarily left the business. All exporters in North Sulawesi are in other businesses such as construction, export of other produce, etc. The second largest exporter in Menado is not even on any of the three lists, including the 1984 list in reference (1)!

In North Sulawesi, the largest company is P.T. Sinar Utara Agung with about 65-70% of the total trade. It is followed by P.T. Wotraco (Jln. Trikala, Menado. Tel. 3366), which is funded partly by a government-owned company, P.T. Berdikari. C.V. Angin Timur is the third of the three most active exporting companies in Menado. When prices are high and stocks are plentiful, other trading companies may enter the business, only to go out of business when conditions are not good.

The number of buyers of nutmeg and mace is probably known to only a very few. Reference (1) lists 10 buyers, and there probably are twice that many. Several large exporters stated that they sell mainly to agents and not to the consuming companies. They usually make contracts with their buyers to sell at a fixed price up to two months in the future. In North Sulawesi, an exporter reports selling on a C&F basis now instead of an FOB basis. The reason given was that there is now a shipping agent in Menado for the port of Bitung.

The Indonesian Nutmeg Association (INA) was established by exporters in November 1983 to organize exporters of nutmeg to try to raise the quality and obtain better prices for Indonesian nutmeg. Its directors are mainly from North Sulawesi. It has only recently become active, so it does not have an action agenda yet, although it has represented the industry to the government of Maluku province, which was reported to have imposed an export tax of sorts on nutmeg. The first Chairman of the INA is a Director of P.T. Sinar Utara Agung, based in Menado.

There is a spice association in Indonesia, which includes exporters of spices of all kinds, but it has not been very active. It has protested the reported imposition of a tax on exports of nutmeg imposed by the provincial government of Maluku, and the matter is pending investigation.

Although there were 9 steam distilleries before 1980, and more than that many exporters, there are now only about 5 exporters of nutmeg oil at the present time, and each of these companies represents one steam distillery. The largest and most modern distillery is owned by P.T. Adni in South Aceh. It reportedly accounts for about 80% of Indonesia's exports of nutmeg oil.

The number of buyers of nutmeg oil is probably about 20, or a few more than those shown in the appendix of reference (2).

The Indonesian Essential Oils Trade Association (INDESSOTA) was established in 1967 by exporters seeking to improve the essential oils trade. Their Director is the Director of P.T. Tjasula Wangi, a large manufacturer of essential oils (though not nutmeg oil). The activities of this association have not affected the nutmeg oil trade.

About 90% of Indonesia's exports of nutmeg and mace have gone to Singapore mainly for transshipment. Gradually, as a greater volume of cargo is shipped from Indonesian ports, it is expected that much less nutmeg will go first to Singapore. The exporters in Indonesia have strong connections to Singaporean trading companies.

There is no export tax on nutmeg, mace, or nutmeg oil, and the main government involvement (aside from licensing exporters) is to encourage export through the Department of Trade. It is curious that the Department of Trade still publishes a gazetted price of the main grades of nutmeg and mace by port of export. This appears to be an anachronism left over from the days when an export tax was charged. At present, there appears to be no useful function of the quarterly gazetted prices, which are invariably lower than actual FOB prices. Gazetted prices may be found in reference (3) in the section on prices.

According to Indonesian standards, nutmeg, both shelled and in the shell, is exported in gunny sacks weighing 50-90 kg. Mace, according to current export standards, is shipped in wooden boxes 70 x 50 x 50 cm. with net weight of 85 kg., or by triplex (40 x 40 x 60 cm. weighing 50 kg.). Black mace can be shipped in a 60 kg. gunny sack because it is not so valuable. An exporter stated that he normally ships all mace but the highest quality in gunny sacks, contrary to official standards (but, apparently to the satisfaction of his customers).

Export standards state that nutmeg oil should be shipped in drums weighing 182-185 kg. (see reference 2).

Indonesian nutmeg appears to have found a market that needs only lower grades of nutmeg; therefore, exporters appear content to accept the lower quality raw material from the farmers. They do not use to "flotation test" used in Grenada for bad nutmegs in the shell, for instance. They devote their attention to commercial matters and do not try through their collectors to

influence the thousands of small, remote, and scattered farmers to produce a product for a higher-priced market.

OUTSTANDING PROBLEMS

Most exporters mentioned that they regretted that Indonesia and Grenada had not yet formed a cooperation agreement to try to ensure better export prices. The outstanding problems particular to Indonesia are the following:

Pests and Diseases

Specialists at the Department of Plant Protection's Institute f Industrial Plants, Bogor, reported that there are no serious pest or disease problems associated with the culture of local varieties of nutmeg, aside from occasional fungus and root borers. One reason for the surprising relative absence of problems with pests is that smallholdings predominate. Pests are more common in large plantations.

Again, because most of the production is by smallholders, fertilizer is not reported to be a problem. The specialists stated that farmers simply do not generally fertilize their trees. In the very few cases that they do fertilize nutmeg trees, they usually use urea fertilizer. Possibly yields could be increased by provision of fertilizer through a large extension program, but no program reaching even a majority of smallholders could be cost-effective.

Sex Determination of Trees

Many stated that the main problem facing Indonesian nutmeg culture is the problem of determining the sex of trees as early as possible. Some horticulturists felt that Grenada had already solved this problem, although the reason may be simply that Grenadan nutmeg trees show their sex earlier. While there are some poorly-funded government projects which aim at testing some farmers' assertions that they can tell the sex of a tree early, very little is being done to solve this problem.

Competition with Cloves

The land in Sulawesi Utara and Maluku is suitable also for coconut and cloves (and sometimes cocoa). There has been a recent Government initiative to encourage the culture of cloves since Indonesia was until recently a clove importing country. The

first clove auctions in Menado were held in 1979. Last year, the production of Indonesian cloves shot up dramatically with two major effects: the local price of cloves dropped about 50%, and Madagascar, the former supplier of cloves to Indonesia, complained bitterly of being able to export virtually none of its production to Indonesia. The price which the farmer receives this year for cloves is almost double what it was last year, and farmers are enthusiastic about the prospects of clove culture. More can be discovered about the extent of encroachment of cloves on land formerly used for nutmeg by contacting clove traders. The largest ones are Ponggoh, Mayoni, Benteng Tulus/Kencana, and the cigarette companies (Gudang Garam, Bentoel, Jaram Kudus).

Early Harvesting

Smallholders cannot guard their small plots of land, especially if they are not contiguous to their houses, so many pick nutmeg early to prevent theft. Others may pick early simply because they are on the edge of subsistence and need the money immediately. The frequency of early picking may be seen by the statistics relating to the proportion of Rimple grade nutmeg exported. These nutmegs are shriveled because they have been picked early. In 1982 and 1983 about 10% of Indonesia's total exports consisted of Rimple grade. Among nutmeg that is broken, wormy, or punky (BWP grade) a good percentage also must have been shrivelled.

Quality Control

Farmers sell to collectors before quality is sorted out, so they do not appreciate the added advantage of selling higher quality, more ripe nutmeg. This problem is aggravated by the distance between the farmer and the exporter who knows full well the advantages of selling a quality product. The West German technical assistance for growers in West Sumatera in the mid-70's is a good example of a concerted effort at quality control to gain a higher price, and the result is significant: when the assistance terminated, the quality again fell.

In March, 1983, FDA inspectors were invited by Indonesia's Department of Trade to tour processing facilities for pepper, coffee, and nutmeg. They found that a nutmeg factory in Ujung Pandang was particularly beneath FDA standards, filth and dust from the floor of the godown being mixed in with the graded nutmeg.

Standards for export of nutmeg and mace and nutmeg oil were introduced in about 1978, and they have been upgraded and amended frequently since then; however, these standards are not strictly enforced by any official body. The exporter sends a sample to a laboratory or quality surveyor, but there is no guarantee that an entire shipment will be of the same quality as the sample.

Another problem cited by government officers and observers

(but not by exporters) is improper fumigation before shipment. Reportedly, buyers complain of insects in shipments of nutmeg from Indonesia, but never from ex-Grenada shipments.

Shipping

Exporters most commonly mention the infrequent shipping schedules as their largest problem. Ships calling at Bitung, for instance, will either have to offload their cargo at Surabaya or Tanjong Priok (the port of Jakarta) to larger vessels, or, if the shipment is large enough, they will take on additional cargo at Surabaya or Tanjong Priok and then go on to Singapore. There are no direct regular shipping routes from the major nutmeg/mace production centers to Singapore or to the markets in Europe and the United States. One recent route to the United States involves two transshipments: one in Surabaya, and one in Kaohsiung. In addition to forcing the exporter to inventory more stock than he would desire, the infrequent shipping schedules make it difficult for exporters to fulifll orders for early delivery.

Government policy also restricts intra-island routes, frowns on direct shipping from nutmeg export ports to Singapore, and discourages the use of tramp steamers.

Government policy

The January 1984 North Sulawesi provincial regulation banning export of unprocessed nutmeg from the province is an example of the negative effect of government policy (in this case, to encourage the use of North Sulawesi labor). In many cases, it is cheaper to send nutmeg from the islands north of Menado directly to Ujung Pandang than to Menado for export. The reason is that larger ships call more regularly at Ujung Pandang, and the cost of labor used to be much cheaper (for sorting and grading and stevedoring and loading) than in Bitung. The effect of the provincial ban is to increase the income to the province and decrease the income to the nation by making ex-North Sulawesi spice more expensive on the world market. It also lowers prices to the North Sulawesi farmers if the demand for their nutmeg is derived from the world's demand and there is competition among middlemen.

PRODUCTION TRENDS

There are three major factors affecting the production of nutmeg trees in Indonesia: the weather, government policy, and the price of other crops grown by the farmer.

Weather. Many exporters feel that the present high world prices for nutmeg and mace reflect the drought of nearly 9 months without rain in 1982 (which affected the 1983 exports, as well) combined with the rainfall during what should have been the dry season (August-September) in North Sulawesi in 1984. Rainfall during the dry season is said to encourage the growth of leaves and discourage the growth of blossoms on the nutmeg trees.

In the "weather" category probably belongs the effect of volcanoes. Two volcanoes are active in North Sulawesi's nutmeg-growing areas, and when an eruption is massive, either the heat of eruption or the resultant inversion layer can make the blossoms fall off. Normally, smoke from eruptions settles to the ground to make the land fertile, but sometimes too much dust can have a bad chemical effect on the leaves. Karangetang volcano in Siau Island recently erupted, and some speculate it may affect the crop. But no one knows because the smallholdings are so scattered that the aggregate effect can't be measured.

According to exporters, the production of nutmeg has fallen in 1984 because of the weather.

Government Policy. There are no recent government policies affecting the production of nutmeg. The effect of the government clove intensification program on the production of nutmeg is too difficult to measure. The government is considering the imposition of a value added tax, but the issue has not been decided.

Price of Other Crops. Cloves require a great deal of attention, unlike nutmeg trees. When the price of cloves is high, the farmer is likely to neglect his nutmeg trees in favor of his cloves. This is the most frequently given reason given by all those except exporters why the production of nutmeg will fall in 1984. In compensation for the high price of cloves, though, the price of the other main commodity grown on smallholder plots in North Sulawesi/Maluku, coconut, has fallen. This has been due to government policy banning export of coconut oil and copra in order to ensure adequate domestic supply.

All exporters commented that the price of nutmeg and nutmeg oil is high, and it is expected to stay high for the time being. Similarly, they are having trouble finding stocks, and they expect production to stay low for the near future. But those who felt the present shortfall was due to the weather felt that production may pick up again after six months.

Some government officials stated that the production would increase because the government has programs to encourage the increase of production (such as extension service, etc.) But many government officers felt that production would continue to fall in the near future, mainly because of the high price of cloves.

The recent popularity of cloves is unlikely to have an immediate effect on the production of nutmeg. Land planted to nutmeg does not begin to bear fruit until 5 years later, and farmers would probably make the decision to convert nutmeg land to cloves only in cases where nutmeg trees had passed their maximum yeild. Therefore, the effect on nutmeg production of this year's conversion of nutmeg land into cloves would not be felt until 1989. If the majority of those interviewed are correct, production of nutmeg in Indonesia will continue to decline over the next six months, probably because of weather and not because of competition from cloves. All other things being normal, this would mean that production should pick up again after six months, but few would venture to guess that far ahead.

PRICES

The following prices came from references or from interviews. All prices refer to fully dried product. Deductions are made by exporter against collectors if product is not dried.

1. Source: Reference (1) a West Java exporter
   Date: July 1984
   Basis: FOB, presumably Cirebon

Nutmeg ABCD	Rp 1215/kg
Nutmeg Rimole	1064/kg
Nutmeg BWP	897/kg

   Basis: Collector's price to exporter

Nutmegs in shells, all grades	Rp 480/kg

2. Source: North Sulawesi Exporter
   Date: October 22, 1984
   Basis: FOB, Bitung

Nutmeg CN	US$ 2200/MT
Nutmeg ABCD	1850/MT
Nutmeg Rimole	1650/MT
Nutmeg BWP	1400/MT
Mace Whole I	9500/MT
Mace Whole II	8000/MT
Gruis I	none offered
Gruis II	7800/MT
Black	1892/MT

   Basis: farmer's price to collector (Oct. 22, 1984)

Nutmegs in shells, all grades inside	Rp 750-800/kg
Mace, good quality	Rp 6000/kg

   Basis: farmer's price to collector (1983 average)

Nutmegs in shells, all grades inside	Rp 300/kg
Mace, good quality	800/kg

3. Source: A North Sulawesi Department of Trade official
   Date: A few weeks before October 22, 1984
   Basis: FOB Bitung

Nutmeg ABCD	Rp 1400-1500/kg
Nutmeg Rimple	1200-1300/kg
Nutmeg BWP	1100-1200/kg
Mace Gruis II	6500-7200/kg

Basis: Price to collectors from farmers in Siau, Tanuna

Nutmeg in shells, mixed quality Rp 700-750 /kg

Basis: Profit of collectors in North Sulawesi

Profit from sale of nutmeg in shell Rp 50-100/kg

4. Source: A North Sulawesi Exporter
   Date: October 22, 1984
   Basis: FOB Medan

   Nutmeg Oil US$ 2100/MT

5. Source: A Department of Trade Official in Menado
   Date: October 5, 1984
   Basis: Price to collector from farmers in Sangir Talaud Islands

   Nutmegs in shell, mixed quality Rp 800/kg
   Mace, good quality 6000/kg

6. Source: An exporter in Menado
   Date: August 1984
   Basis: FOB Menado

   Nutmeg ABCD US$ 1600/MT

7. Source: DAI Study of Nutmeg Oil Plant (reference 17)
   Date: April 1981
   Basis: Price to oil factory from farmers in Ambon

   Shelled nutmeg, unripe, suitable for oil Rp 300/kg

In addition, please see page 11 of Reference (2) for average prices of nutmeg oil, presumably FOB Padang, 1980-1983. There are many lists of prices in references (1) and (2).

LIST OF OFFICES, FIRMS, AND INDIVIDUALS CONTACTED

1. Mr. William Cammack, Agricultural Counselor, Office of the Agricultural Counselor, U.S. Embassy, Jakarta. Jln. Merdeka Selatan, Jakarta Pusat. Tel. 360360, ext. 351.

2. Mr. I.G.N. Exawirya, Agricultural Soecialist, Office of the Agricultural Counsellor, U.S. Embassy, Jakarta.

3. Mrs. Suliany Tasmin, Librarian, USAID, Jakarta

4. Mr. Alan Hurdus, Agronomist, USAID, Jakarta.

5. Mr. James Gingerich, Acting Chief, Agricultural Section, USAID, Jakarta.

6. Mr. W.C. Taoban, IRRI Liaison Scientist (and former Director, Agricultural Section, USAID, Jakarta). IRRI Jln. Merdeka 99, Bogor. Tel. (0251) 24391.

7. Dr. Suhardjan, Director, Industrial Crop Research Institute (ICRI), Jln. Ciamanggu, Bogor. Tel. (0251) 26194.

8. Dr. Abdullah, former Chief of AARD Project, Ministry of Agriculture, Pasar Minggu (contactable through Dr. Suhardjan).

9. M.T. Mohamad, Plant Protection Soecialist, ICRI (contactable through Dr. Suhardjan)

10. Mr. Sitabu, Plant Protection Soecialist, ICRI (contactable through Dr. Suhardjan).

11. Mr. Paiman Turnip, Agricultural Products Section, National Agency for Export Development. 6th Floor, Sarinah Building. P.O. Box 443, Jakarta. Tel. 320507.

12. Mr. Jimmy Sutjiawan, businessman at P.T. Duta Anggana, and son of owners of P.T. Sinar Agung Utara, Menado. Tel. 624109 ext. 277. Jln. Hayam Waruk #108, Jakarta.

13. Ms. Andrey, Development Officer, German Technical Cooperation Agency. 4th Floor, Skyline Building, Jakarta Pusat.

14. Dr. Solen Salehudin, Professor, Department of Agronomy, Institut Pertanian Bogor, Bogor. Tel. (0251) 23081 ext. 267.

15. Mr. G.L. Franck, Advisor, P.T. Sucofindo (quality surveyors). Jln. Lt. Jend. S. Parman 102. Tel. 596111.

16. Dr. Dardjo Somaatmadja, Director, Balai Besar Industri Hasil Pertanian, Jln. Juanda 5-9, Bogor. Tel. (0251) 24068, 23339.

17. Mr. A.E. Dann, Colombo Plan Expert (contactable through Dr. Dasrdja Somaatmadja.

18. Mr. Gunawan Wijaya, Director, C.V. Angin Timur, Jln. Husni Thamrin no. 108, Manado. Tel. 3450, 2367. He is the Vice-Chairman of the Indonesia Nutmeg Association.

19. Mr. Budiman Luis, Director, P.T. Sinar Utara Agung, Exporter of mace and nutmeg , Jln. Lembong no. 16-18, Manado. Tel. 3023, 2939.

20. Mr. Jantje A. Worotitjan, Director, P.T. Sinar Utara Agung, and Chairman of the Indonesian Nutmeg Association. Jln. Lembong no. 18. Tel. 3667, 2939.

21. Ir. J.A. Tampi, Head of the Provincial Office of Department of Trade, Jln. Diponegoro no. 51, Menado. Tel. 0431, 3995.

22. Drs. Edi H. A. Tawas, Foreign Trade Specialist, Provincial Office of Department of Trade, Jln. Diponegoro No. 51, Menado. Tel. 4195, 3695, 4095.

LIST OF STANDARDS, ABBREVIATIONS, CONVERSION RATES, ETC.

Quality Standards of Indonesian Nutmeg

For a comparison of the standards in Indonesia with those in Grenada, see reference (7), p. 9. The following are Indonesian grades from highest to lowest quality:

Nutmeg CN. Stands for "calibrated nutmeg." Nutmegs of good quality, whole, and of a uniform size (which could be 80's, 110's, etc. 110's means that 110 of these uniform-sized nutmegs weighs a pound. Simillarly, 80 of the 80's make a pound).

Nutmeg ABCD. The highest quality for which there is an official Indonesian standard. ABCD grade has whole good quality nutmegs of varying size. Caliorated nutmegs would be sorted out of ABCD nutmegs by using a screen with holes the size of the desired nutmeg size.

Nutmeg Rimole. A shriveled nutmeg which looks rather like a prune. Most nutmegs are shriveled because they have been harvested before ripe.

Nutmeg BWP. There are "broken, wormy, punky" nutmegs, usually reconditioned. This is the catch-all last quality of nutmeg.

Mace Whole I. The highest quality mace (yellow or reddish green to red).

Mace Whole II. Second highest quality of predominantly whole mace (dark colored).

Mace Gruis I. Better quality of broken mace. There is hardly any Gruis I quality mace on the Indonesian market. These are from nearly-whole to more than 1/11 of a whole mace in size and yellow or reddish yellow to red.

Mace Gruis II. Lower quality broken mace. Most Indonesian mace is of this grade. Smaller than 1/12 of a whole mace. Dark, yellow or reddish yellow to red.

Black Mace. Lowest quality dark mace, blackened because it is not dried carefully.

Exchange Rates Used

October 1984:	US$1=Rp 1055
1983 average:	US$1=Rp 1000

Weights of Shells, etc.

After drying, Indonesian nutmeg loses about 25% of its former weight.

After shelling, Indonesian nutmeg loses 30% of its total dry (pre-shelling) weight.

LIST OF MATERIALS ON NUTMEG/MACE SENT WITH THIS REPORT

Many relevant publications are available only in the personal libraries of individuals who are involved in research. Some of these titles, which are not transmitted with this report, appear in the bibliographies of the papers presented at the Conference on the promotion of Development and Export of Nutmeg and Mace in Indonesia, November 1983. Most of these references are available from the individuals who presented the papers. The publications and excerpts forwarded with this report are the following;

Number	Title and Source

(1) "Commodity Note--Nutmeg and Mace" by the National Agency for Export Development, Department of Trade (July 1984) (in Indonesian). This is a very useful and up-to-date summary of the nutmeg and mace industry in Indonesia. A translation/synopsis is included in the report.

(2) "Commodity Note--Nutmeg Oil" by the National Agency for Export Development, Department of Trade (July 1984) (in Indonesian). This also is a useful general introduction to the nutmeg oil industry in Indonesia in 1984. It has been translated/summarized.

(3) "Estates Statistics of Indonesia--1981-1983" (updated by officers at the Directorate General of Estates to reflect estimated 1984 figures) by Directorate General of Estates (1983) (in Indonesian). Some of these statistics are far from the mark, and the statistical section of DG Estates is in temporary disarray. The headings of key columns in important tables have been translated.

(4) "Statistical Information on Indonesian Agriculture" by the Ministry of Agriculture with assistance from the West German Agency for Technical Cooperation (1978)

(5) "Statistical Information on Indonesian Agriculture" by the Ministry of Agriculture with assistance from the West German Agency for Technical Cooperation (GTZ) (1981)

(6) "Exports by Commodity, Country of Destination and Port of Export" by the Central Bureau of Statistics, Jakarta (1983). This is probably the most reliable statistical book.

(7) "Report of the National Conference on the Development and Export of Nutmeg and Mace--in cooperation with the provincial offices of the Department of Trade, November 21-25, 1983, Mendao, North Sulawesi" by the Department of Trade (1983) In Indonesian. The article attached is, "Comparison of the Grading and Quality Standards for Nutmeg/Mace in Indonesia and Grenada" by A.E. Dann, in English. The titles of the other papers are

translated. Although most have interesting titles, the papers were mainly statements of government policy.

(8) "List of Indonesian Spice Exporters" by National Agency for Export Development (1980)

(9) "Trade Directory of Indonesia" by Department of Trade (1982-83) Excerpts of exporters of Nutmeg, from the American Agricultural Counselor's office.

(10) "Spices" by J. Maistre, Paris, translated into English, from the USAID, Jakarta Library. Handwritten.

(11) "The Book of Spices" by Frederick Rosengarten, Jr. (1973) Excerpts regarding nutmeg and mace.

(12) "Spices", a chapter in an unknown report probably dated 1968, in the USAID Library, Jakarta.

(13) "Prospective Production and Marketing of Spices in West Sumatra Province" by a West German Technical Assistance Team in about 1975. Pages relating to nutmeg and mace, from the USAID, Jakarta, library.

(14) "Spice Trade in South Aceh will Fall," newspaper article dated 4 March 1983. And "Standards for Quality of Nutmeg and Mace for Export are Established," a newspaper article in August 1982 from U.S. Agricultural Counselor's Office, Jakarta. In Indonesian.

(15) Copy of April 1984 cable sent to Washington regarding the price of Indonesian nutmeg and mace.

(16) "A Dictionary of the Economic Products of the Malay Peninsula" Vol. 1 by I.H. Burkill (1966). Excerpt regarding nutmeg and mace.

(17) Copy of letter from DAI to Mr. Masri Ardi re: P.T. Essomindo's Ambon nutmeg oil factory, dated 30 April 1981. This letter describes the capacity of Essomindo's distillation plant and calculates the approximate cost of production of nutmeg oil in Ambon.

TRANSLATION/SUMMARY OF COMMODITY NOTE--NUTMEG AND MACE
(Reference 1)

There are two main varieties of nutmeg tree in Indonesia: *myristica argentea* (*pala Papua*) and *myristica fragrans* (*pala Banda*). In recent years, Grenada has been a formidable competitor because the Grenada Cooperative Nutmeg Association has provided unified marketing and quality control.

Pala begins to bear fruit from 6-10 years after planting, depending on the climate and soil. The best proportion of male trees in any group is from 5-10%. The best seeds come from trees that have proven their ability to bear a lot of fruit. Seedlings usually are raised by planting seeds in a hold about 60x60x60 cm. at distances of 10 meters, filling the holes with 10-20 kg. of farmyard manure, and nurturing the seedlings for two years. The seedlings must be protected at first by *atap* shade. These seedlings can be interplanted with coffee or cocoa plants. Caring for the pala trees is relatively easy.

The maximum yield of pala is reached after about 25 years, but it lives to be 60-70 years and can even live to be 100 if properly cared for. But yield falls off at about 60 years. Harvest is from March to October. The fruit usually is picked, and the mace separated from the nutmeg straightaway after separation of the fruit from the nutmeg/mace. The mace is carefully separated from the nutmeg with a knife and dried in the sun until the moisture is only 10-12%. In the rainy season, it can be dried in an oven for about 90 minutes. When the mace is dry, it is sorted according to quality. Broken mace becomes gruis I and II quality.

The peeled mace is smoked over a small wood fire for 2 days and 2 nights and then usually is sold immediately to a merchant before it spoils. In smoking, the nutmeg is about 2 meters over the wood fire, piled up about 20 cm. high. The wood fire is about 35 to 37 degrees centigrade.

The most modern method of opening the nutmeg shells is by machine, which gives a faster and a higher quality yield. The shelled nutmeg is sorted, and sometimes it is mixed with lime to fill holes bored by insects and to give better coloring. For protection against deterioration during export, the pala is fumigated for 12 hours in methyl bromide (1.5 kg. of methyl bromide for every 10 tons of pala).

The pala is exported in gunny sacks weighing from 80-90 kg.

PRODUCTION

Nutmeg came from the island of Banda, but it has spread all over Indonesia. Now the greatest production comes from North Sulawesi, especially the Sangir Talaud Islands. From 1979-83, the total area in production runs from 55,000 to 58,000 HA with

average production of 18,250 tons per year. 51.2% of the production is from North Sulawesi, followed by Maluku (19.8%), Aceh (10.5%), Irian Jaya (7.3%), West Java (6.3%), West Sumatera (4.2%), and other (0.7%).

North Sulawesi. The center of nutmeg production is Kabupaten Sangir Talaud, which consists of several islands. Nutmeg and mace from here are of the highest and world famous quality. All of the production goes to Menado or Ujung Pandang where it is more quickly processed and exported. Many farmers are concerned about poor market prices, and they have turned their acreage to cloves, which have been more profitable. Pala culture still survives because pala trees don't require much attention.

Maluku. The best areas are Kabupatens Maluku Tengah, North Maluku, and Halmahera Tengah. The best production is from pala Banda trees, averaging as much as 850-950 kg. of dry nuts and 180-200 kg. of mace per hectare. Export is through the ports of Ternate and Ambon.

Irian Jaya. Nutmeg came to Krian Jaya about 5 centuries ago. The native pala is myristica argentes (pala hutan) which grows on the Ozim peninsula to Kaimana. The native pala is not so profitable. Most pala goes to Fak-fak for preparation and export. Pala from islands in North Maluku proviince that are nearest Fak-fak go to that port for processing and export.

West Sumatera. Although West Sumatera produces a small part of the nation's pala, its harvest figures are high because most pala from Aceh is exported through Telok Bayur, the port of Padang. Most of this pala is distilled to make nutmeg oil. Pala here is picked when it still is unripe because young pala yields the most oil. The main producing areas are Maninjau and Pesisir Selatan.

COST OF PRODUCTION

To make it easier to calculate the costs between farmer and exporter, we look at the case where the farmer sells directly to the exporter. The farmer gets Rp. 480/kg. for his pala (translator's note: these prices were given to the National Agency for Export Promotion by a major exporter and checked through phone calls to other exporters in July 1984). Whenever raw pala is processed, it yields 60% shelled nutmeg, and during storage 5% is lost, so only 55% of the original pala is left for export. This means that to produce 1 kg. of processed nutmeg, 1.8 kg. of raw material is needed:

Cost of raw materials	1.8 kg. x 480 Rp./kg.	Rp. 860
Transport from farmer to godown		25
Labor for shelling and sorting		100
Cost of one kg. of processed nutmeg		Rp. 985

CALCULATION OF FOB PRICE

Once the pala is processed, it is sorted into 3 grades: ABCD (28%), shrivel (36%), and BWP (36%). An exporter (identified by the National Agency for Export Development as doing business in West Java in July 1984) has given sample prices as shown below:

Per kilogram		ABCD	Shrivel	BWP
Processed nutmeg	Rp.	1180.00	1024.00	861.00
Packing		10	11	10.85
Certificate of origin		.50	.50	.50
Indo Shipping Assn fees		.65	.60	.85
Fumigation		9	13.15	8.25
Stevedoring		10.50	10.50	10.10
Labor		4.50	4.50	4.50
FOB price per kilogram of nutmeg		1215.15	1064.25	897.40

TRADE

The role of the middleman is still dominant in the marketing of nutmeg and mace, partly because nutmeg grows in areas far from seaports. Some areas have cooperatives, and some exporters take production directly from farmers. But they account for a realtively small portion of the nutmeg trade. The farmers depend on the middlemen. The common marketing chains are:

a. Farmer-local middleman-kecamatan middleman-exporter
b. Farmer-kecamatan middleman-exporter
c. Farmer-cooperative-exporter
d. Farmer-exporter

Case c occurs only in West Sumatera where a West German aid project established a farmer center. Case d occurs only in Banda Island and near Semarang where there are estates (PNP 38 and 18, respectively).

Buyers dominate the market for nutmeg and mace. There is no agreement between exporters to maintain a common price front. There are few regular ships from nutmeg export ports to consuming countries such as the United States, etc. Also, the quality of Indonesian nutmeg isn't constant, so it draws a lower price than nutmeg from Grenada.

The biggest market for pala and mace is the U.S., which received in 1974-83 23% of Indonesia's production, followed by West Germany (18%) and Holland (15%). According to the Central Bureau of Statistics, the portion of nutmeg/mace sent to Singapore was from 56% to 90% of total Indonesian exports. Thus, Indonesia's nutmeg trade is in the hands of Singapore.

PRICES

The local price of nutmeg/mace depends heavily on the world price (london). That price fluctuates. In 1982-83, the price of nutmeg rose from US$1,390/ton to US$2,285/ton. The price of nutmeg in the Holland market for the period January-August 1984 was as shown on page 17.

STANDARDS

In January 1983, the Directorate of Standards, Assurance, and Quality Control, issued quality standards for Indonesian nutmeg/mace, shown in annex 1.

TRANSLATION/SUMMARY OF COMMODITY NOTE--NUTMEG OIL
(Reference 2)

Introduction

Nutmeg oil is an essential oil made by distillation of nutmeg seed and mace or unripe nutmeg seeds. The quality of the oil is determined by the quality and age of the seed. The connection between the age of the harvested fruit and the oil yield is shown on the table on page 3. When the price of nutmeg spice is low, farmers will pick nutmeg fruit early so that it can be made into oil. When the price of spice is high, oil factories lack raw materials.

Indonesia is the world's largest supplier of nutmeg oil, followed by Sri Lanka and Grenada. Indonesia began the nutmeg oil industry in about 1974. The quantity of exports is not known because the amount exported is so small. Only in 1978 was there a statistical category for nutmeg oil in Indonesian statistics. Most raw materials for oil come from West Indonesia. Nutmeg oil is a relatively minor source of foreign exchange, but it is increasing in importance because more capacity for distillation has been added, and the world market has improved. Indonesia produces about 80% of the world's nutmeg oil, but Grenada's nutmeg is more suited for oil production. The species in Indonesia that is best for oil production is the Padang variety, while the Banda variety is of better quality for spices. The oil production centers in Indonesia are in West Sumatera followed by Aceh, North Sumatera, Central Java, Ambon, and North Sulawesi.

PRODUCTION

The area planted and production are shown in Appendix 1. Unlike other essential oils, nutmeg oil requires large machinery. The farmers must sell the raw material to processors. Before 1980 there were 9 companies processing nutmeg oil according to the following geographical breakdown: North Sumatera (2), Aceh (1), and Ambon (1). At the time of writing (translator's note: this was written in July 1984), one company in Ambon, one in Ujung Pandang, and 2 in West Sumatera are not processing anymore because they could not find raw materials during times of high prices for nutmeg spice.

Production capacity is varied: P.T. Adi Aceh has 1.5 ton per unit; Essomindo in Ambon has 1.2 tons (1 unit with 2

kettles). C.V. Danau Intan in Padang has a 3 ton capacity per percessing with 2 kettles. The most modern equipment is from France, owned by P.T. Adi. P.T. Adi's exporter is C.V. Aroma. After distillation, the following recovery rates are estimated by the Estates Service;

Old nutmeg seeds yield	4-5% oil
somewhat old seeds yield	6-7% oil
Young seeds yield	10-12% oil
Mace yields about	15-20% oil

In Sulawesi and Lamuku, only bad seeds are used for oil: good seeds go for spices. The seeds are broken before going into the kettle. The common distilleries take 30-40 hours, and the most modern ones take 12 hours and yield 9-20% oil. To get the purest oil, one must go through the condensation process twice. After that, some companies used a filter press. GGas liquid chromotography is used to check the quality and stability. A quality surveyor such as P.T. Sucofindo also may do spot checks.

PRODUCTION COSTS

The production costs vary by region, but a rough picture comes from the C.V. Danau Intan processing plant:

	Cost (Rp.)	Oil (kg.)
Rough pala 2,500 kg. @ Rp. 675	1,687,500	220
Fine pala 1,000 kg. @ Rp. 1,500	1,500,000	190
Fuel	217,500	
Wages	75,000	
Electricity	3,000	
Bank interest	34,500	

To produce 410 kg. of oil it costs on average Rp. 3,517,500, or about Rp. 8,580/kg. The above costs do not include supervision, materials used in processing, etc.

MARKETING

Almost all of the oil produced in Indonesia is exported. The table on page 11 compares the prices for oil in Rp./kg. in Padang. Oil is mostly exported to the United States and secondarily to Europe, with Singapore and Japan following. The table on page 12 shows Central Bureau of Statistics figures, and the world market prices (New York) are shown on page 14.

Standards have been set for nutmeg oil by the Directorate of Standards, Assurance, and Quality Control. Nutmeg oil is packed in drums weighing 182-185 kg. with a maximum "head space" of 5-10%. The drum is iron plate with a layer of tin, enamel, or other substance that withstands nutmeg oil.

(Translation/summary of 4 March 1983 article in Kompas newspaper)

NUTMEG TRADE IN SOUTH ACEH TO BE REORGANIZED
in order to ensure better farmgate prices

Tapak Tuan, Kompas. The strong-willed Regent of South Aceh, Drs. Ridwansyah, is going to restructure the nutmeg trade in his area. The current trade provides an opportunity for a monopoly by the oil factory owners in Tapak Tuan when the price of nutmeg falls.

This was mentioned by Ridwansyah only six hours after he was installed as the new Regent of South Aceh, replacing Drs. Soekardi Is, whose term of office expired. Ridwansyah was installed in his position by Governor of Aceh, Mr. Hadi Thayeb, in a special session on February 23rd in South Aceh.

Speaking about his capability to govern South Aceh, Ridwansyah said more attention should be paid to the agricultural sector. "We must think again what agricultural commodities in South Aceh can guarantee the livelihood of the people and thus increase the income of the area and the nation," said Ridwan.

Ridhwan explained that the nutmeg trade in South Aceh until now has worked against the farmers. This is shown by the fall in exchange value between rice and nutmeg. About four years ago the farmers could exchange 1 bambu (2 liters) of nutmeg for 2 bambu's of rice. But now the farmers must exchange 2 or 3 babmu's of nutmeg in order to get 1 bambu of rice.

According to the farmers, a few years ago they could make a good living raising nutmeg. They could sell their harvest freely in the marketplace. The nutmeg was purchased by factories outside of the district and from Padang or North Sumatera.

But now some farmers claim that since the passing of new laws a few years ago, farmers have no choice but to sell their nutmeg to the nutmeg oil industry in Tapak Tuan. Since that time, the price of nutmeg has declined.

"Since the price of nutmeg fell, the farmers have lost the volition to take care of their nutmeg plots. This continues to worry us," said an informant in Tapak Tuan.

At the same time, the Head of the Agricultural Extension service in South Aceh, Saifuddin Abdullah, mentioned other factors affecting nutmeg. He said that the fall in the price of nutmeg is caused by the low prices in the world market, and now it is difficult to sell nutmeg oil.

Because of that, it does not follow that the fall in the price of nutmeg in South Aceh is caused by a "monopoly" of buyers for the oil business, according to Saifuddin.

The oil distillers received protection in order to ensure that the harvest from South Aceh is converted to nutmeg oil of export quality. The protection was given by a decision of the Governor of Aceh several years ago.

The acreage of nutmeg estates in South Aceh is about 3,735 hectares with a production of 1,604 metric tons per year. There is production also of 64 tons of mace per year. Normally mace is used by the population to make cakes, or it is used directly to make "manisan". The population of South Aceh is about 300,000 people. The area is 8,910 square kilometers. The population consists largely farmers who grow nutmeg and <u>nilam</u>, an aromatic herb.

(Translator's note: no one interviewed in Jakarta or North Sulawesi knew if the regulation was rescinded, but some said they were aware of a regulation forbidding the shipment of unprocessed nutmeg out of South Aceh. The "processor" in this case is only one--P.T. Adhi. If this regulation is still in force, P.T. Adhi does, in fact, have a monopsony on nutmegs in South Aceh, and this usually lowers the price received by the farmers; however, the cause of low prices in Aceh in 1983 appears to be the low price of nutmeg oil on the world market.)

1

COMMODITY NOTE

PALA - FULI

NUTMEG - MACE

BADAN PENGEMBANGAN EKSPOR NASIONAL
DEPARTEMEN PERDAGANGAN
1984

NAT'L AGENCY FOR EXPORT DEVELOPMENT

C/2

DAFTAR ISI

			Halam
BAB	I.	PENDAHULUAN	1
BAB	II.	STRUKTUR PRODUKSI	3
		1. Sejarah Singkat Pala	3
		2. Budidaya Tanaman Pala	3
		3. Pengolahan	5
BAB	III.	P R O D U K S I	8
		1. Areal Dan Produksi	8
		2. Situasi Produksi Di Daerah - Daerah Penghasil Utama	8
		3. Struktur Biaya Produksi	11
BAB	IV.	P E R D A G A N G A N	13
		1. Dalam Negeri	13
		2. Luar Negeri	14
		3. Perkembangan Harga	16
		4. Standar Mutu	17
		DAFTAR TABEL	
		DAFTAR LAMPIRAN	

---oooOooo---

31

I. PENDAHULUAN

Sebagaimana kita ketahui bahwa Indonesia merupakan negara penghasil dan pengekspor pala - fuli terbesar di dunia. Sekitar 75% dari pada produksi pala dunia dihasilkan oleh Indonesia. Sebagai negara penghasil kedua sesudah Indonesia adalah Grenada (West Indies) yang menghasilkan sekitar 20% dan sisanya sebesar 5% dihasilkan oleh Sri Langka, India, Malaysia dan lain-lain.

Di Indonesia sebenarnya tumbuh beberapa jenis pala, tapi yang mempunyai arti ekonomis hanya ada 2 jenis, yaitu :

1. Myristica Argentea (pala Papua).
   Jenis pala ini berbiji lonjong dikenal dengan berbagai nama antara lain pala Fak-Fak, pala Gorom, pala Petani dan pala Hutan.
   Pala ini banyak terdapat di Irian Jaya yang tumbuh secara liar di hutan-hutan sekitar Teluk Bintuni.
2. Myristica Fragrans (pala Banda).
   Jenis pala ini berbibir bundar/bulat dan disebut juga pala asli atau Nutmeg tree yang berasal dari Kepulauan Banda. Jenis pala inilah yang umumnya diusahakan di Indonesia, Grenada dan Malaysia, oleh karena pala jenis ini adalah yang terbaik.

Dewasa ini walaupun Indonesia menghasilkan sekitar 75% dari produksi pala dunia tapi dalam pemasarannya masih tergantung pada pembeli di luar negeri. Beberapa tahun terakhir ini pala Indonesia sudah mulai terdesak oleh pala asal Grenada. Hal ini terutama disebabkan menurunnya mutu dan kurangnya koordinasi dalam pemasarannya. Sedangkan mutu pala Grenada relatip lebih baik dan konsisten karena pengolahan dan pemasaran dilaksanakan oleh satu Badan berbentuk Koperasi yang dinamakan "Grenada Co-operative Nutmeg Association".

Pala-fuli sebagian besar dipergunakan oleh industri peng-

olahan makanan dan ibu-ibu rumah tangga.

Dalam statistik perdagangan Indonesia, pala-fuli diberi kode sebagai berikut :

- Nutmeg, in shell A,B,C,D, Avarages	:	CCCN	908111
		SITC	752411
- Nutmeg, in shell Rimple	:	CCCN	908112
		SITC	752412
- Nutmeg, in shell BWP	:	CCCN	908113
		SITC	752413
- Nutmeg, shelled CN	:	CCCN	908121
		SITC	752416
- Other Nutmeg, shelled	:	CCCN	908129
		SITC	752419
- Mace Whole I	:	CCCN	908210
		SITC	752421
- Mace Whole II	:	CCCN	908220
		SITC	752422
- Mace Gruis I	:	CCCN	908230
		SITC	752423
- Mace Gruis II	:	CCCN	908240
		SITC	752424
- Black Mace	:	CCCN	908250
		SITC	752425

II. STRUKTUR PRODUKSI

1. Sejarah Singkat

Tanaman pala di Indonesia sudah dikenal sejak kedatangan bangsa Portugis (tahun 1511) ke Indonesia pada abad ke XVI dan mereka menemukan rempah-rempah (pala dan cengkeh) di Kepulauan Indonesia bagian Timur, khususnya Kepulauan Maluku.

Rempah-rempah ini dibeli dengan harga yang sangat murah, kemudian dibawa dan dijual di Eropa dengan harga yang sangat mahal, sehingga mendapatkan keuntungan yang sangat besar. Mulai saat itu rempah-rempah Indonesia menjadi rebutan bangsa-bangsa asing khususnya Eropa.

Pada tahun 1600, V.O.C. menguasai perdagangan tanaman rempah-rempah di Maluku. J.P. Zoen Coen menempatkan orang-orang yang dipercayai untuk menguasai dan mengelola hutan-hutan pala tersebut. V.O.C. berkuasa penuh dalam menetapkan kebijaksanaan segala masalah perluasan areal, penetapan harga serta berbagai aspek mengenai penguasaan pala.

Tanaman pala kemudian dikembangkan ke daerah Minahasa dan Kepulauan Sangir Talaud, Sumatera Barat dan Bengkulu meskipun penanaman di Bengkulu ternyata mengalami kegagalan.

Pada zaman kekuasaan Inggris, tanaman ini disebar luaskan ke beberapa negara jajahannya yang lain, tapi yang paling berhasil hanya di West Indies (Grenada), sedangkan di Malaysia, Sri Langka, Trinidad hanya dihasilkan dalam jumlah yang kecil.

Sampai sekarang Banda Nutmeg dan Siauw Nutmeg tetap terkenal dalam perdagangan pala di dunia.

2. Budidaya Tanaman Pala

Sebagaimana dijelaskan di atas bahwa di Indonesia di-

kenal 2 jenis pala yaitu Myristica Argentea dan Myristica Fragrance. Pala mempunyai bunga berumah dua, yaitu bunga jantan dan bunga betina.

Pala mulai berbunga pada umur 6 - 10 tahun setelah ditanam tergantung pada keadaan tanah dan iklim.

Secara teoritis kemungkinan dalam 100 pohon akan ditemukan 55% pohon betina, 40% pohon jantan dan 5% pohon hermaprodith. Tanaman pala yang ideal adalah apabila jenis jantan berjumlah sekitar 5 - 10% dan tersebar merata dalam areal pertanaman tersebut.

Mengusahakan Pala

a. Memperbanyak tanaman

Guna memperbanyak tanaman ini pada umumnya dilakukan dengan 2 cara yaitu melalui biji dan cara vegetatip. Hingga saat ini penanaman melalui bijilah yang terbanyak dilakukan.
Bibit yang baik adalah bibit yang diambil dari pohon-pohon yang sudah terpilih pada musim produksi besar.
Biji yang telah dipilih harus segera disemaikan sampai tanaman berumur 2 tahun.

b. Persiapan kebun

Sebelum ditanami harus dipersiapkan lobang - lobang berukuran 60 x 60 x 60 cm, dengan jarak tanam 10 x 10 m. Tiap lobang diberi pupuk kandang sebanyak 10 - 20 Kg.

c. Pelindung sementara

Agar tanaman bibit tersebut tumbuh dengan baik diperlukan pelindung sementara, yang dibuat dari sarung kecil dengan atap alang-alang.

d. Tanaman selingan

Pada tahun I dan II tanah kosong diantara tanaman pala dapat dimanfaatkan dengan tanaman muda. Sering juga ditanam kopi dan coklat disela-sela pohon pala.

e. Pohon penahan angin

Tanaman pala berakarannya dangkal dan melebar khusus nya pada tanah gembur, sehingga sering tumbang apabila terjadi angin kencang. Untuk mengatasinya sering diberi pohon-pohon penahan angin seperti pohon Kenari, Abbisia malucana dan lain-lain dengan jarak antara 50 - 50 m.

f. Pemeliharaan

Tanaman pala tidak banyak memerlukan tenaga dan biaya pemeliharaan bahkan tanaman pala yang diusahakan rakyat jarang yang dipelihara.

Pemeliharaannya sangat sederhana dan mudah yaitu dengan membuat rak-rak sebagai tempat daun-daun kering dan busuk untuk ditimbun pada pangkal batang dan akar - akar yang muncul dipermukaan tanah, menggemburkan tanah disekitar pohon sangat berguna.

3. Pengolahan

Pohon pala mulai menghasilkan setelah berumur antara 6 sampai 10 tahun dan mencapai hasil maksimum pada umur 25 tahun yang dapat dipertahankan sampai umur 60 - 70 tahun. Setelah umur 60 tahun, hasilnya mulai menurun, tapi kalau pemeliharaannya baik bisa mencapai umur 100 tahun.
Panen pala sekitar bulan Maret sampai dengan Oktober. Buah pala dipetik langsung dikupas, kemudian dipisahkan dari biji pala dan fuli-nya.

a. Fuli

Fuli yang telah dipisah dengan pisau secara berhati hati agar jangan sampai putus kemudian ditebarkan diatas nampan dan dijemur dipanas matahari hingga kadar airnya tinggal 10 - 12%. Pada musim hujan pengeringan dapat dilakukan dengan tanut (oven) selama ± 1½ jam supaya fuli jangan busuk.

Setelah dikeringkan, dilakukan sortasi sesuai dengan standar atau kualitas yang ditetapkan yaitu Whole I dan II dan apabila ada permintaan fuli yang dihancurkan maka Whole I dan II dapat dijadikan Gruis I dan II.

b. Biji pala

(a) Biji pala yang telah dikupas dan dipisahkan fuli-nya kemudian diasap dengan api unggun kecil-kecilan selama 2 hari 2 malam, dan sebaiknya diasap terus sampai biji pala tadi dijual ke pedagang supaya jangan rusak.

Cara pengasapan adalah :

- Tinggi para-para (tempat biji pala) ± 2 m di atas api unggun.
- Tinggi tumpukan biji ± 20 cm.
- Suhu api unggun ± 35° - 37° C.

(b) Mengetok

Biji pala yang telah dikeringkan kemudian diketok untuk melepaskan tempurungnya. Pengetokan yang lebih modern dilakukan dengan mesin pemecah tempurung dan hasilnya jauh lebih baik dan lebih cepat. Pengetokan harus dilakukan dengan hati-hati agar daging biji jangan sampai ikut pecah.

c. Sortasi

Pala yang telah dipisahkan dari tempurungnya kemu -

dian dipisah-pisah sesuai dengan grade yang telah dite - tapkan seperti terlihat pada lampiran 1.

d. Mengapur

Dalam tromol berputar pala dicampur dengan kapur se lama beberapa waktu untuk mengisi/menutup lubang-lubang gerekan dari serangga dan memberi warna yang lebih baik.

e. Fumigasi

Untuk menjamin agar pala yang akan diekspor tidak terjadi kerusakan oleh hama dan lain-lain, maka terlebih dahulu diadakan fumigasi dengan jalan memasukkan pala ke dalam suatu kamar tertutup selama 12 jam dan diberi me - thylberomida sebanyak 1½ Kg tiap 10 ton.

f. Pembungkusan

Pala yang telah siap diekspor, dimasukkan ke dalam karung goni (rangkap dua) yang berisi sekitar 80 - 90 Kg.

III. PRODUKSI

1. Areal Dan Produksi

Seperti telah diterangkan pada bab-bab sebelumnya bahwa pala berasal dari Banda, kemudian menyebar ke Sulawesi Utara yaitu di Kabupaten Minahasa dan Kepulauan Sangir Talaud, Irian Jaya, Sumatera Barat, Aceh dan lain-lain. Saat ini Sulawesi Utara merupakan daerah penghasil terbesar pala di Indonesia, khususnya di Kepulauan Sangir Talaud.

Tabel 1 pada lampiran memperlihatkan luas areal dan produksi pala di Indonesia selama 5 tahun terakhir ini(1979-1983). Luas areal diperkirakan berkisar antara 55.000 - 58.500 Ha dengan produksi rata-rata 18.250 ton per tahun.

Dari total produksi tersebut, sebahagian terbesar (51,2%) diproduksi di Sulawesi Utara, kemudian secara berurut diikuti oleh Maluku (19,8%), Daerah Istimewa Aceh (10,5%), Irian Jaya (7,3%), Jawa Barat (6,3%), Sumatera Barat (4,2%) dan sisanya (0,7%) dihasilkan oleh daerah lainnya.

2. Situasi Produksi Di Daerah-Daerah Penghasil Utama

a. Sulawesi Utara

Pusat produksi di daerah ini adalah Kabupaten Sangir Talaud. Kabupaten Sangir Talaud sebenarnya terdiri beberapa Pulau-pulau seperti Sangir Talaud, Pulau Sangir Besar, Pulau Siauw dan lain-lain.
Di daerah ini, pala tumbuh dengan baik dan mempunyai nama yang sangat terkenal di luar negeri.

Pala - fuli yang berasal dari daerah ini masih berbentuk pala - fuli asalan artinya belum dipisahkan antara biji dan batok serta belum dilakukan sortasi. Pala - fuli di daerah ini semuanya dibawa ke Manado dan Ujung

Pandang dimana dilakukan proses lebih lanjut dan dieks - por, pusat produksi pala - fuli lainnya di Sulawesi Utara adalah Kabupaten Minahasa yaitu disekitar Gunung Lo - kan.

Perkembangan harga yang kurang menguntungkan akhir-akhir ini dikhawatirkan banyak petani pala yang beralih ke tanaman cengkeh, yang memang dapat memberikan penghasilan yang lebih tinggi. Tanaman pala ini masih tetap dipertahankan karena pohon pala tidak memerlukan pera - watan yang banyak.

b. Maluku

Daerah-daerah yang paling baik untuk pengembangan - adalah daerah Kabupaten Maluku Tengah, Kabupaten Maluku Utara dan Halmahera Tengah. Dewasa ini pengembangan tanaman pala belum merata untuk seluruh wilayah Kecamatan pada Kabupaten-kabupaten dimaksud di atas.

Proyeksi pengembangan akan dilakukan juga di daerah Kabupaten Maluku Tenggara pada wilayah Kecamatan yang potensi (iklim dan tanah) alamnya memungkinkan.

Jenis pala yang paling baik ditanam di daerah Maluku adalah pala bundar (pala Banda) dengan produktivitas rata-rata per tahun sebesar 850 - 950 Kg biji kering dan 180 - 200 Kg fuli per satu hektar.

Dewasa ini daerah-daerah produksi tersebar di Pulau Ambon, Seram Timur dan Kepulauan Lease (Maluku Tengah), Ternate, Tidore (Halmahera Tengah), Kepulauan Banda, Pulau Gorom (Kepulauan Geser).
Ekspor pala - fuli dari Maluku dilakukan melalui pela - buhan Ambon dan Ternate.

c. Irian Jaya

Di Propinsi Irian Jaya, pala - fuli sudah ditemukan

± 5 abad yang lalu. Pala di daerah ini adalah jenis Myristica Argentea (pala hutan) asli Irian Jaya yang tumbuh dalam hutan disekeliling Mac Gluergolf (Teluk Bintuni) di jazirah Ozim hingga Kaimana.

Oleh karena tanaman pala hutan (pala asli) kurang menguntungkan, kemudian pala ini diganti dengan tanaman pala yang lebih baik dari jenis Myristica Fragrance (pala Banda).

Pada umumnya pengusahaan pala - fuli di Irian Jaya belum sebaik di Sulawesi Utara dan Maluku. Fak-Fak merupakan tempat pengumpulan pengolahan dan ekspor bahkan pala yang berasal dari Pulau-pulau di Maluku Utara yang dekat dengan Propinsi Irian Jaya-pun dibawa ke Fak - Fak untuk kemudian diekspor.

Daerah penghasil utama adalah Kabupaten Fak-Fak kemudian disusul oleh Manokwari, Sorong dan lain-lain.

d. Sumatera Barat

Jika kita lihat pada tabel 1 areal maupun produksi Sumatera Barat dibandingkan dengan daerah lainnya di Indonesia masih sangat kecil. Tapi peranan Sumatera Barat dalam memasarkan hasil produksi pala - fuli untuk daerah daerah lain disekitarnya, seperti Daerah Istimewa Aceh sangatlah penting. Oleh karena sebagian besar pala-fuli dari Daerah Istimewa Aceh diekspor melalui pelabuhan Teluk Bayur - Padang.

Pada umumnya pala yang dihasilkan dari daerah ini termasuk dari Daerah Aceh adalah pala destilasi (untuk minyak pala).

Memang terlihat bahwa pemetikan pala di daerah Sumatera (Sumatera Barat, Aceh) ini berbeda dengan di daerah Indonesia bagian Timur dimana pala di daerah ini umumnya dipetik muda yang sangat baik untuk menghasilkan minyak

pala.

Daerah produksi pala utama di Sumatera Barat adalah di Maninjau dan di daerah Pesisir Selatan.

3. Struktur Biaya Produksi

Untuk memudahkan perhitungan biaya pengolahan pala sejak dibeli dari petani sampai ke pelabuhan ekspor maka kalkulasi biaya dibagi atas dua tahap yakni biaya bahan baku sampai pengolahan dan biaya yang dikeluarkan untuk mengekspor pala olahan tersebut atau harga FOB.

a. Biaya pembelian bahan baku dan pengolahan

Harga bahan baku berupa pala orisinil dari petani adalah Rp 480,00 per Kg. Apabila pala orisinil diproses akan menghasilkan 60% pala kupas dan selama penyimpanan akan susut sebesar 5%, sehingga yang sisa untuk diekspor hanya 55%.

Ini berarti bahwa untuk memproduksi 1 Kg pala olahan dibutuhkan bahan baku sebanyak 1,8 Kg. Dengan demikian biaya dapat diperinci sebagai berikut :

- Biaya bahan baku : 1,8 Kg x Rp 480,00	Rp 860,00
- Ongkos angkut dari petani ke gudang	Rp 25,00
- Upah buruh pengupas dan sortasi	Rp 100,00
Biaya rata-rata pala olahan per Kg	Rp 985,00

b. Kalkulasi harga FOB

Untuk keperluan ekspor, maka pala yang telah diolah disortir menjadi 3 jenis dengan harga yang berbeda-beda, yakni terdiri dari jenis ABCD (28%), Shrivel (36%) dan BWP (36%).

Pola kalkulasi harga pala adalah sebagai berikut :

PER KG		ABCD	SHRIVEL	BWP
- Harga (sudah diolah)	Rp	1.180,00	1.024,00	861,00
- Packing	Rp	10,00	11,00	10,85
- S.K.A. certificate of origin	Rp	0,50	0,50	0,50
- B.P.I. Shipping organizat'n fee	Rp	0,65	0,60	0,85
- Fumigasi	Rp	9,00	13,15	8,25
- E.M.K.L. expedite loading (stevedoring)	Rp	10,50	10,50	10,10
- O.P.P. port fee (labor)	Rp	4,50	4,50	4,50
Harga FOB per Kg	Rp	1.215,15	1.064,25	897,40

SUMBER: Eksportir.

IV. PERDAGANGAN

1. Dalam Negeri

Dalam perdagangan pala - fuli, peranan pedagang perantara masih sangat dominan, apalagi mengingat bahwa tanaman pala kebanyakan tumbuh di daerah yang jauh dari pelabuhan ekspor. Memang dibeberapa daerah sudah ada Koperasi, dan juga ada eksportir yang merangkap produsen tapi jumlahnya masih relatip kecil bila dibandingkan dengan hasil keseluruhan.

Dengan demikian, para petani pala - fuli sangat tergantung pada pedagang perantara.

Berikut ini diberikan beberapa macam rantai tata niaga pala yang lazim berlaku yakni :

a. Petani - Pedagang perantara lokal - Pedagang Kecamatan - Eksportir.
b. Petani - Pedagang Kecamatan - Eksportir.
c. Petani - Koperasi - Eksportir.
d. Petani / Eksportir.

ad. a. Dari 4 saluran rantai tata niaga di atas, cara ini adalah yang terbanyak terjadi dimana para petani menjual pala - fuli (baik basah/kering) kepada para pedagang lokal yang datang ke kampung-kampung untuk mengumpulkan pala - fuli dari petani dan kemudian menjual kepada pedagang Kecamatan yang umumnya adalah wakil dari pada para eksportir sendiri.

ad. b. Di sini juga banyak terjadi di mana petani langsung menjual pala - fuli yang telah dikeringkan kepada pedagang Kecamatan.

ad. c. Saluran ini boleh dikatakan masih sedikit sekali terjadi, hanya di Sumatera Barat dengan adanya kerjasama antara Pemerintah Jerman Barat dan Indonesia men-

dirikan suatu Farmer Centre.

ad. d. Di sini petani langsung sebagai eksportir dan hanya terdapat di Pulau Banda (PNP XXXVIII) dan di Jawa Tengah (PNP XVIII).

2. Luar Negeri

a. Ekspor

Seperti diketahui bahwa Indonesia merupakan negara supplier utama pala - fuli di dunia yaitu ± 75% dari kebutuhan dunia diekspor dari Indonesia. Walaupun Indonesia mensuplai ± 75% dari kebutuhan dunia, tapi dalam hal pemasaran, Indonesia masih sangat tergantung pada pembeli di luar negeri.
Dengan posisi Indonesia yang menguasai suplai pala- fuli di pasaran internasional, sesungguhnya Indonesia harus mampu menjadi penentu dalam perdagangan pala dunia (seller market), akan tetapi dalam kenyataan, sebaliknyalah yang terjadi (buyer market).

Kelemahan-kelemahan dalam pemasaran pala - fuli ini disebabkan :

- Masih belum ada kekompakan diantara eksportir dalam menawarkan barangnya, sehingga timbul persaingan tidak sehat diantara eksportir sendiri. Pada saat harga merosot sebahagian eksportir langsung membanting harga rendah sekali dengan maksud melempar stocknya, sehingga posisi eksportir Indonesia secara keseluruhan semakin lemah.

- Kurangnya kapal-kapal (regular line) dari pelabuhan ekspor khususnya dari daerah penghasil pala seperti : Bitung, Ambon, Fak-Fak, Padang dan lain-lain ke negara-negara konsumen seperti Eropa, Amerika Serikat, sehingga terpaksa ditransit di Singapura.

Disamping itu juga karena pada umumnya freight dari Singapura ke Eropa/Amerika Serikat lebih murah dibanding dengan dari Bitung ke Eropa/Amerika Serikat.

- Mutu pala Indonesia sendiri tidak stabil sehingga mendapatkan harga yang lebih rendah dibandingkan dengan pala ex Grenada.

Ekspor pala Indonesia dalam periode 5 tahun (1974 - 1978) rata-rata sebanyak 5.671 ton per tahun dengan nilai rata-rata sebesar US$ 5,7 juta, sedangkan pada periode 5 tahun berikutnya (1979 - 1983) telah naik menjadi rata-rata 6.437 ton dengan nilai US$ 7,6 juta. Ini berarti ada kenaikan sebesar 13,5% dalam volume dan 33,3% dalam nilai.
Volume ekspor tertinggi selama 10 tahun terakhir terjadi pada tahun 1982 yakni sebesar 7.723 ton sedangkan yang terendah terjadi pada tahun 1975 yakni 5.432 ton. Nilai terbesar sebesar US$ 8,7 juta dan harga FOB terbaik yakni US$ 1.340 per ton tercapai pada tahun 1979 sementara harga FOB terendah terjadi pada tahun 1974 yakni US$ 262 per ton.

Ekspor bunga pala (fuli) selama periode tahun 1974-1983 bervariasi antara 938 - 1.517 ton atau rata - rata 1.237 ton per tahun sedangkan nilainya bervariasi sekitar US$ 690.000 - US$ 2.997.000 atau rata-rata sebesar US$ 2.046.000 per tahun. Guna memperoleh gambaran lengkap mengenai perkembangan ekspor pala - fuli Indonesia sejak tahun 1972 sampai tahun 1983 dapat dilihat pada tabel 2.

Pasaran pala - fuli terbesar sesungguhnya adalah Amerika Serikat yakni sekitar 23% dari total pala - fuli yang diperdagangkan kemudian diikuti oleh Jerman Barat (18%) dan Belanda (15%). Akan tetapi berdasarkan data

statistik yang diterbitkan Biro Pusat Statistik Jakarta, terlihat bahwa sebahagian besar pala - fuli Indonesia terpusat atau diekspor melalui Singapura yakni sekitar 56% tahun 1975 dan meningkat menjadi ± 90% pada tahun 1981 - 1983. Kondisi seperti ini sesungguhnya tidak menguntungkan Indonesia sebab ada anggapan seolah-olah perdagangan pala Indonesia saat ini tergantung sepenuhnya di tangan Singapura (lihat tabel 3).

b. Impor Dunia

Antara 9.500 sampai 10.000 ton pala dan fuli diperdagangkan setiap tahun di dunia. Negara importir terbesar adalah Amerika Serikat yang rata-rata setiap tahunnya mengimpor sekitar 2.000 ton pala dan 250 ton fuli antara periode tahun 1975 - 1980. Kelompok negara MEE sendiri mengimpor sekitar 5.000 ton setahunnya dengan negara-negara Republik Federasi Jerman, Belanda, Inggris dan Perancis sebagai negara importir yang utama. Sebahagian besar pala - fuli yang diimpor Negeri Belanda dire-ekspor ke negara Eropa lainnya.

Amerika Serikat lebih menyukai pala Indonesia dan hanya sekitar 10% dari total impornya berasal dari Grenada. Pala Indonesia lebih disukai karena rasa sedapnya (flavour) bagi grinders dan processors lebih cocok daripada pala Grenada yang berkadar lemak lebih tinggi, sedangkan konsumen di Canada justru lebih menyukai pala Grenada.

Perkembangan impor dunia menurut negara pengimpor diperlihatkan pada tabel 4.

I. Perkembangan Harga

Harga pala dan fuli lokal sangat tergantung pada harga yang terjadi di pasaran internasional artinya apabila harga

di pasaran dunia naik maka akan segera diikuti oleh harga - lokal demikian juga sebaliknya, sehingga perhitungan harga jual yang ditetapkan berdasarkan biaya produksi tidak ba - nyak berpengaruh terhadap harga pala dunia.

Dari tabel 5, dapat dilihat bahwa harga pala di pasaran internasional (London) ternyata selalu mengalami fluk - tuasi. Harga pada tahun 1979 hingga pertengahan tahun 1982 terlihat stabil. Sejak akhir tahun 1982 sampai tahun 1983, harga pala mengalami kenaikan yang lumayan yakni dari US$ 1.390 per ton pada pertengahan tahun 1982 meningkat terus hingga mencapai US$ 2.285 per ton pada bulan Nopember tahun 1983.

Harga rata-rata berbagai jenis pala Indonesia di pasar Belanda selama periode Januari - Agustus tahun 1984 adalah sebagai berikut

Pala 80's	=	Fl. 5.934 per long ton
Pala 110's	=	Fl. 5.416 per long ton
Pala ABCD	=	Fl. 5.212 per long ton
Pala Shrivel	=	Fl. 4.672 per long ton
Pala BWP	=	Fl. 3.772 per long ton

Perkembangan harga pala per bulan di pasaran Belanda dapat dilihat pada tabel 6.

4. Standar Pala Indonesia

Guna meningkatkan daya saing serta memelihara kepercayaan pembeli atas pala Indonesia, Direktorat Standarisasi Normalisasi dan Pengendalian Mutu, Departemen Perdagangan telah mengeluarkan standar mutu pala Indonesia pada bulan Januari 1983. Standar mutu tersebut dapat dilihat pada lampiran 1.

Tabel 1

AREAL DAN PRODUKSI PALA DI INDONESIA
1979 - 1983

No.	Propinsi	1979		1980		1981		1982*		1983**	
		Ha	Ton	Ha	Ton	Ha	Ton	Ha	Ton	Ha	Ton
1.	D.I. Aceh	5.433	1.666	4.940	1.867	4.865	1.857	4.801	2.170	5.106	2.031
2.	Sumatera Utara	316	82	359	77	386	78	437	84	470	86
3.	Sumatera Barat	1.833	689	2.069	762	2.200	764	2.598	790	2.707	810
4.	Jawa Barat	547	969	600	1.044	642	1.184	676	1.261	708	1.288
5.	Sulawesi Utara	23.274	9.058	25.070	9.422	25.070	9.422	25.070	9.422	25.070	9.422
6.	Sulawesi Selatan	1.047	20	1.100	25	1.307	102	1.409	110	1.446	117
7.	Maluku	15.229	3.611	15.229	3.611	15.229	3.611	15.229	3.611	15.229	3.611
8.	Irian Jaya	4.903	1.341	4.903	1.341	4.903	1.341	4.903	1.341	4.903	1.341
9.	Lain - lain	4.778	329	1.278	9	2.440	23	2.466	24	2.488	26
	J U M L A H	57.360	17.765	55.548	18.158	57.042	18.382	57.589	18.813	58.127	18.732

Sumber : Sub Direktorat Data dan Statistik
Direktorat Jenderal Perkebunan.

* Data Sementara.
** Data Estimasi.

TABEL 2

EKSPOR PALA & FULI INDONESIA 1972-1983
NUTMEG MACE

Kuantiti : Ton
VALUE Nilai : US$'000

TAHUN		NUTMEG PALA Kuantiti	NUTMEG PALA Nilai	MACE FULI Kuantiti	MACE FULI Nilai	TOTAL JUMLAH Kuantiti	TOTAL JUMLAH Nilai
1972	:	5.939	1.270	1.190	500	7.129	1.770
1973	:	4.649	1.052	1.022	450	5.671	1.502
1974	:	5.775	1.512	1.225	690	7.000	2.202
1975	:	5.432	2.688	1.209	1.363	6.641	4.051
1976	:	5.681	7.410	1.258	2.045	6.939	9.455
1977	:	5.847	8.468	938	1.968	6.785	10.436
1978	:	5.622	8.182	1.278	2.257	6.900	10.439
1979	:	6.518	8.736	1.188	2.149	7.706	10.885
1980	:	6.105	8.102	1.376	2.150	7.481	10.252
1981	:	5.557	6.374	1.261	1.922	6.818	8.296
1982	:	7.723	8.254	1.517	2.997	9.240	11.251
1983	:	6.284	6.732	1.119	2.922	7.403	9. 54

SUMBER : BIRO PUSAT STATISTIK
Central Bureau of Statistics

TABEL 3.

EKSPOR PALA INDONESIA MENURUT
NEGARA TUJUAN 1980 s/d 1983

Nutmeg Export of Indonesia by Country of Destination

VOLUME = KG
NILAI = US $.

NO.	NEGARA TUJUAN	1980 V	1980 N	1981 V	1981 N	1982 V	1982 N	1983 V	1983 N
1.	Japan	199.060	303.114	241.232	359.240	186.866	256.061	274.840	411.075
2.	Hongkong	79.000	80.624	2.000	3.062	10.000	16.084	28.500	45.334
3.	Singapore	5.373.962	7.357.965	5.017.634	5.784.328	7.432.948	7.861.789	5.865.019	6.169.462
4.	U . S . A.	426.600	317.461	174.733	118.404	45.000	35.223	45.000	37.401
5.	Netherland	10.000	14.308	8.871	8.206	–	–	10.000	6.750
6.	I t a l y	16.500	28.934	–	–	3.000	3.738	–	–
7.	Malaysia	–	–	20.526	11.039	4.736	2.604	–	–
8.	R.F. Germany	–	–	25.159	29.457	10.000	17.564	55.000	54.582
9.	Australia	–	–	10.000	13.095	30.000	40.952	–	–
10.	United Kingdom	–	–	18.800	5.500	–	–	–	–
11.	F r a n c e	–	–	8.500	5.800	–	–	–	–
12.	Belgia & Luxemburg	–	–	29.500	26.200	–	–	–	–
13.	T h a i l a n d	–	–	–	–	–	–	5.500	4.950
		6.105.122	8.102.406	5.556.645	6.374.046	7.722.550	8.254.012	6.283.859	6.731.554

EKSPOR FULI INDONESIA MENURUT
NEGARA TUJUAN 1980 s/d 1983

Mace Exports from Indonesia by Destination

VOLUME:KG
NILAI : US.$.

1.	J a p a n	2.500	5.611	3.000	6.367	1.500	4.144	9.000	47.333
2.	Singapore	1.337.260	2.073.270	1.228.906	1.873.343	1.478.775	2.822.938	1.078.666	2.831.160
3.	U.S.A.	33.085	64.470	10.000	18.498	33.000	62.152	8.000	11.369
4.	C a n a d a	1.500	3.090	–	–	–	–	–	–
5.	R.F. Germany	2.000	3.648	–	–	–	–	19.500	21.513
6.	Netherland	–	–	13.000	15.309	–	–	–	–
7.	Belgia & Luxemburg	–	–	5.000	6.000	–	–	–	–
8.	I n d i a	–	–	–	–	–	–	3.650	10.362
	T O T A L	1.376.345	2.150.097	1.260.906	1.921.901	1.516.525	2.997.234	1.118.816	2.921.737

SUMBER: BIRO PUSAT STATISTIK. from Central Bureau of Statistics

World Imports of Nutmeg and Mace

TABEL 4

IMPOR PALA & FULI DUNIA

1975 - 1980

Kuantiti : ton
Nilai : US$

NEGARA	1975 Kw QTY	1975 Nilai VALUE	1976 Kw QTY	1976 Nilai VALUE	1977 Kw QTY	1977 Nilai VALUE	1978 Kw	1978 Nilai	1979 Kw	1979 Nilai	1980 Kw	1980 Nilai
Belgia & Lux	392	1.077	396	888	435	1.017	467	1.064	439	1.000	515	1.135
Denmark	43	132	50	123	46	123	61	154	68	163	55	134
Perancis	292	724	443	826	380	748	503	1.026	410	778	692	1.128
Jerman Barat	1.675	4.553	1.704	3.654	1.804	4.388	1.732	4.056	1.886	4.010	1.790	3.618
Italia	240	789	317	783	255	690	259	713	324	897	315	830
Belanda (2)	1.688	5.993	1.703	3.569	1.319	2.889	1.272	2.787	1.677	3.384	1.438	2.637
Inggeris	314	944	513	1.066	558	1.173	556	1.234	617	1.318	471	975
Austria (3)	65	193	74	193	80	216	87	245	83	229	96	233
Norwegia	70	215	90	233	68	184	76	208	70	184	82	218
Spanyol	85	262	166	349	136	326	73	184	167	496	158	435
Swiss	129	425	149	372	131	357	132	442	146	471	133	344
Kanada	130	410	212	510	198	441	208	478	229	562	262	629
Amerika Ser.	1.931	4.883	2.238	4.523	2.075	4.421	2.382	4.820	2.671	8.261	2.267	4.591
Yugoslavia	47	169	33	155	80	248	57	252	67	287	28	136
Australia	147	435	135	308	132	314	142	313	143	302	146	302
Jepang (3)	409	1.412	388	1.224	569	3.013	364	1.601	419	2.396	600	3.162
Singapura	749	1.352	753	1.583	946	2.856	593	2.256	30	20	33	20
Lain lain	363	791	892	1.869	1.118	2.400	1.211	2.541	869	2.232	1.043	3.709
JUMLAH	8.018	21.402	9.410	20.559	9.457	22.864	9.513	21.970	10.241	23.864	10.068	24.136

Sumber Source : Spices a Survey of the World Market, Vol. I, ITC, UNCTAD/GATT, Geneva, 1977 & 1982 hal, 54 & 60

Catatan Notes :
1. Survey meliputi 29 negara
2. Termasuk untuk transit includes transit nutmeg/mace
3. Termasuk impor Cardamon includes imports of cardamon

TABEL 5

Comparison of Ex. Grenada and Ex-Indonesia Nutmeg Prices in the London Market

PERBANDINGAN HARGA PALA EX GRENADA DAN EX INDONESIA (LONG TON) DI PASARAN LONDON

TAHUN/BULAN	GRENADA (US$ / FOB)		INDONESIA (G / CIF)	
	80's	Defective	80's	Defective
1975				
Juli	1.312	925	1.430	980
Desember	1.312	850	1.035	940
1976				
Juli	1.400	1.100	1.560	1.100
Desember	1.400	1.100	1.500	1.035
1977				
Juli	2.700	2.000	1.500	1.035
Desember	2.830	1.220	1.500	1.035
1978				
Mei	2.830	1.900	1.500	1.035
Juli	2.830	1.900	1.500	-
Desember	2.775	2.000	1.345	-
1979				
Mei	2.775	2.000	1.345	-
Juli	2.950	1.850	1.345	-
Desember	2.950	1.350	1.390	-
1980				
Mei	2.950	1.350	1.390	-
Juli	2.950	1.350	1.390	-
Oktober	3.250	2.000	1.390	-
1981				
Juli	3.250	2.000	1.390	-
Desember	3.900	2.000	1.390	-
1982				
Januari	3.900	2.000	1.390	-
Maret	3.900	2.000	1.390	-
Nopember	3.540	2.200	1.650	1.200
1983				
Mei	2.500	1.175	2.095	1.290
Juni	2.500	1.200	1.995	1.260

... 2/

Tabel 5 (sambungan)

TAHUN/BULAN	GRENADA (US$ / FOB)		INDONESIA $ / CIF)	
	80's	Defective	80's	defective
Juli	2.450	1.300	1.985	1.235
Agustus	2.450	1.135	1.950	1.160
September	2.150	1.135	1.895	1.230
Oktober	2.190	1.315	2.215	1.505
Nopember	2.420	1.417	2.285	1.510
Desember	2.482	1.372	-	-
1984				
Januari	-	1.407	-	-
Pebruari	2.664	1.440	-	-
Maret	2.700	1.385	-	-
April	2.621	1.417	-	-
Mei	2.584	1.393	-	-
Juni	2.541	1.373	-	-
Juli	2.424	-	-	-
Agustus	2.424	-	-	-
September				
Oktober				
Nopember				
Desember				

SUMBER : - Public Ledger, London (1975 S/d Agustus 1984)
- Telex ITC Geneva (1983) ex Indonesia dalam US. $.

Price of Indonesian Nutmeg in Netherlands Market Jan - Aug 1984

Tabel 6

PERKEMBANGAN HARGA PALA EX INDONESIA DI PASARAN
BELANDA SELAMA TAHUN 1984
(FL/LONG TON)

Bulan	Indonesia					Papua	
	ABCD	Shrivel	BWP	80's	110's	ABCD	BWP
- Januari	5.600	4.850	3.950	5.900	5.600	4.950	3.850
- Pebruari	5.200	4.450	3.750	5.550	5.275	4.800	3.600
- Maret	4.800	4.000	3.425	5.550	5.200	4.600	3.225
- April	5.200	4.725	3.700	6.000	5.500	4.600	3.425
- M e i	5.150	4.625	3.650	6.000	5.325	4.600	3.400
- J u n i	4.925	4.650	3.650	5.875	5.200	4.600	3.400
- J u l i	5.025	4.700	3.700	5.950	5.300	4.550	3.475
- Agustus	5.800	5.375	4.350	6.700	5.925	5.350	3.750

Sumber : Telex ITC Geneva (1984).
Source

Lampiran 1.

SP - 13 - 1975
Revisi, August 1982

STANDAR PALA

PENDAHULUAN

Standar ini disusun berdasarkan survai yang dilakukan di daerah sentra produksi pala, terutama di Sulawesi Utara, Sulawesi Selatan dan Maluku, keterangan para ahli dan literatur tentang pala Indonesia.

Setelah mempelajari hasil survai tersebut di atas, dan memperhatikan pula syarat konsumen luar negeri, maka disusunlah Standar Pala Indonesia sebagai berikut

SPESIFIKASI

1. Ruang Lingkup

Standar ini meliputi syarat mutu, cara pengujian mutu, cara pengambilan contoh dan cara pengemasan pala.

2. Diskripsi

Pala adalah biji dari tanaman Myristica spp yang telah dikeringkan dan dikupas kulit batoknya, berbentuk bulat dan lonjong yang panjangnya antara 20 mm - 40 mm.

3. Jenis Mutu

Pala terdiri dari 4(empat) jenis mutu, yakni mutu Calibrated Nutmeg (C.N.), ABCD Average, Rimpel (Shrivel) dan BWP.

Mutu Calibrated Nutmeg (CN) dibagi menjadi 7 macam.

4. Syarat Mutu

Keterangan

- Biji pecah adalah biji yang bentuknya menyimpang dari bentuk biji pala secara alamiah (bentuk bulat atau lonjong), dimana biji dikategorikan pecah bilamana seperempat bagian atau lebih dari biji yang utuh terpisah. Biji retak tidak termasuk di dalam biji pecah.
- Biji berlubang ialah biji yang mempunyai lubang akibat serangan serangga.
- Biji rapuh ialah biji pala, dimana bila ditekan antara dua jari tangan (ibu jari dan telunjuk) akan mudah pecah.
- Biji keriput ialah biji pala yang seluruh permukaannya keriput yang pada umumnya berbentuk pipih akibat pemetikan buah pada umur yang masih muda.
- Jenis pala ABCD Averaga adalah kumpulan biji pala dengan ukuran biji yang umumnya tidak seragam.
- Jenis pala Calibrated Nutmeg (CN) adalah kumpulan biji pala dengan ukuran biji yang umumnya seragam.
- B.W.P. adalah jenis mutu pala yang pecah (Broken), berlubang (Wormy), rapuh/reput (Punky) serta berjamur.

5. Pengambilan Contoh

5.1. Cara pengambilan contoh.

Contoh diambil secara acak sebanyak akar pangkat dua dari jumlah karung dengan maksimum 30 karung dari setiap partai barang. Dari masing-masing diambil secukupnya sehingga berjumlah 5 Kg untuk dicampur merata dan dari campuran tersebut diambil 500 gram untuk ditentukan mutunya.

5.2. Petugas pengambil contoh.

Petugas pengambil contoh harus memenuhi syarat yaitu orang yang telah berpengalaman atau dilatih le -

bih dahulu dan mempunyai ikatan dengan suatu badan hukum.

6. Pengemasan

6.1. Cara pengemasan.

Pala dimasukkan ke dalam karung goni (HC green) yang baik dan bersih atau kemasan lain yang sesuai, dijahit rapat dimulutnya dengan berat bersih antara 50 - 90 Kg per karung. Kemudian difumigasi sebelum dikapalkan.

6.2. Pemberian merek.

Pada bagian luar dari pada goni ditulis dengan cat yang tidak mudah luntur, yang bertuliskan sebagai berikut :

- Produce of Indonesia
- Nama Perusahaan/Eksportir
- Nama/mutu barang
- Negara tujuan
- Nomor karung
- Berat bersih

STANDAR PALA DESTILASI

PENDAHULUAN

Standar ini disusun berdasarkan survey terutama di daerah daerah sentra produksi di Sumatera Barat, disamping menghubungi Dinas Perkebunan Rakyat, Propinsi Sumatera Barat.

Setelah mempelajari hasil-hasil survey tersebut di atas , maka disusunlah Standar Pala Destilasi Indonesia sebagai berikut :

SPESIFIKASI

1. Ruang Lingkup

Standar ini meliputi syarat mutu, cara pengujian mutu, cara pengambilan contoh dan pengamanan pala destilasi.

2. Diskripsi

Pala destilasi adalah biji yang berasal dari buah tanaman Myristica fragrans Hout yang dipetik pada waktu muda.

3. Jenis Mutu

Pala destilasi digolongkan dalam 2(dua) jenis mutu,yakni Mutu I yang dikenal dalam pasaran dunia dengan kode AZWI dan Mutu II yang dikenal dalam pasaran dunia dengan kode ETEZ.

3.1. Mutu I (AZWI) ialah buah pala yang dikeringkan dan tanpa batok. Umumnya berumur 2 - $2^1/2$ bulan dan biasa juga disebutkan pada halus.

3.2. Mutu II (ETEZ) ialah buah pala yang dikeringkan. Umumnya berumur 3 - 5 bulan dan biasa juga disebut pala kasar atau pala polong atau pala Padang.

4. Syarat Mutu

Karakteristik	Syarat		Cara Pengujian
	Mutu I	Mutu II	
Kadar air %(bobot/bobot), maks.	14,0	14,0	SP-SMP-7-1975 (ISO R 939-1969(F)
Kadar minyak atsiri, %(bobot/bobot), maks.	10	8	SP-SMP-37-1975
Kadar Ekstrak minyak Non Atsiri, %(bobot/bobot), min.	10*	12*	SP-SMP-13-1975 (BS 4325 part 4 1968)
Benda asing ** %(bobot/bobot), maks.	0,5	0,5	SP-SMP-8-1975

Keterangan : * Angka sementara.
** Benda asing ialah benda-benda lain yang bukan biji pala yang tercampur dalam biji pala.

5. Pengambilan Contoh

5.1. Cara pengambilan contoh.

Contoh diambil secara acak sebanyak akar pangkat dua dari jumlah karung dengan maksimum 30 karung tiap partai barang, kemudian dari tiap karung diambil sebagai contoh uji maksimum 500 gram. Contoh-contoh tersebut diaduk/dicampur sehingga merata, kemudian dibagi empat dan dua bagian diambil secara diagonal. Cara ini dilakukan beberapa kali sampai mencapai contoh seberat 500 gram.

Contoh kemudian disegel dan diberi etiket.

5.2. Petugas pengambil contoh.

Petugas pengambil contoh harus memenuhi syarat yaitu orang yang telah berpengalaman atau dilatih lebih dahulu dan mempunyai ikatan dengan suatu badan hukum.

6. Pengemasan

6.1. Cara pengemasan.

Pala destilasi dikemas dalam karung goni yang bebas hama, mulutnya dijahit, dengan bobot netto 40 Kg.

6.2. Pemberian merek.

Dibagian luar karung goni, ditulis dengan bahan yang berwarna jelas dan tidak mudah luntur, jelas terbaca, antara lain disebutkan :

- Produce of Indonesia
- Nama barang
- Nama/kode perusahaan/eksportir
- Berat bruto
- Berat netto
- Negara tujuan

SP-13-1975

Revisi, August 1982

STANDAR FULI

PENDAHULUAN

Standar ini disusun berdasarkan survai yang dilakukan di daerah sentra produksi fuli, terutama di Sulawesi Utara, Sulawesi Selatan dan Maluku, keterangan para ahli dan literatur tentang Fuli Indonesia.

Setelah mempelajari hasil survai tersebut di atas dan memperhatikan pula syarat konsumen luar negeri, maka disusunlah - Standar Fuli Indonesia sebagai berikut

SPESIFIKASI

1. Ruang Lingkup

Standar ini meliputi syarat mutu, cara pengujian mutu, cara pengambilan contoh dan cara pengemasan fuli.

2. Diskripsi

Fuli adalah arillus yang berwarna merah sampai kuning muda yang terdapat diantara daging dan biji dari buah tanaman Myristica spp, dibersihkan kotorannya dan dikeringkan.

3. Jenis Mutu

Fuli digolongkan dalam 5(lima) jenis mutu, yakni

- Mutu Whole I (Mutu Utuh I)
- Mutu Whole II (Mutu Utuh II)
- Mutu Gruis/Broken I (Mutu Pecah I)
- Mutu Gruis/Broken II (Mutu Pecah II) dan
- Black Mace (Fuli Hitam)

4. Syarat Mutu

M u t u	Syarat-syarat Visual	Kontaminasi Jamur % (bobot/bobot) maks.
- Whole I (Utuh I)	Utuh dan pecahan besar, sampai kira-kira 1/3 dari utuh, berwarna kuning dan atau kuning kemerah-merahan sampai merah.	5
- Whole II (Utuh II)	Utuh dan pecahan besar, sampai kira-kira 1/3 dari utuh, berwarna gelap/buram.	5
- Gruis/Broken I (Pecah I)	Pecah-pecah dengan ukuran sampai minimum 1/12 dari yang utuh berwarna kuning dan atau kuning kemerah-merahan sampai merah.	5
- Gruis/Broken II (Pecah II)	Pecah-pecah dengan ukuran lebih kecil dari 1/12 dari yang utuh, berwarna buram, kuning dan atau kuning kemerah-merahan sampai merah.	5
- Black Mace	Yang tidak termasuk Whole (Utuh) Gruis (Pecah) yang berwarna gelap hampir hitam	-
Cara Pengujian	Visual	SP-SMP-308-1980

5. Pengambilan Contoh

5.1. Cara pengambilan contoh.

Contoh diambil secara acak sebanyak akar pangkat dua dari jumlah peti/karung dengan maksimum 30 peti karung dari tiap partai barang. Dari masing - masing peti/karung contoh diambil secukupnya, sehingga berjumlah 5 Kg untuk dicampur merata dan dari campuran tersebut diambil 500 gram untuk ditentukan mutunya.

5.2. Petugas pengambil contoh.

Petugas pengambil contoh harus memenuhi syarat yaitu orang yang telah berpengalaman atau dilatih lebih dahulu dan mempunyai ikatan dengan badan hukum.

6. Pengemasan

6.1. Cara pengemasan.

Setelah fuli difumigasi kemudian dimasukkan ke dalam peti kayu ukuran 70 cm x 50 xm x 50 cm dengan berat bersih maksimum 85 Kg atau peti tripleks berukuran 40 x 40 x 60 cm dengan berat maksimum 50 Kg. Bagian luar peti dilapisi dengan atau tanpa bahan goni yang baik dan bersih, bagian dalam peti dilapisi dengan kertas sampul, kertas minyak atau kertas timah dan peti di klem atau tidak dengan pita baja. Kemudian difumigasi lagi sebelum dikapalkan.

Khusus untuk jenis Pecah (Broken) dan Fuli Hitam (Black Mace) dapat dikemas dalam karung goni yang baru, bersih dan kering dengan berat bersih maksimum 60 Kg.

6.2. Pemberian merek.

Merek ditulis pada salah satu bagian luar peti dengan cat yang tidak mudah luntur, yang isinya antara lain sebagai berikut

- Produce of Indonesia
- Nama dan mutu barang
- Nama Perusahaan/Eksportir
- Negara tujuan
- Nomor peti/karung
- Berat bersih

Lampiran 2

DAFTAR EKSPORTIR PALA - FULI

1. CV. ARENA COMPANY
   JL. JENDERAL A. YANI 5
   TAPAKTUAN, ACEH SELATAN
2. CV. SARI BUMI
   JL. T. UMAR 10
   BANDA ACEH
   PHONE : (0651) 23924
3. CV. SARI BUMI
   JL. RIAU 70
   MEDAN
   PHONE : (061) 511408
4. CV. ANEKA POWER
   JL. KUMANGGO 5
   MEDAN
   PHONE : (061) 325355, 325455
   TELEX : 51658 SIN MDN
5. CV. DANAU INTAN
   JL. ARAU 29
   PADANG
   PHONE : (0751) 22645, 21663
6. CV. REMPAH SARI
   JL. PULAU AIR 30
   PADANG
   PHONE : (0751) 22854, 21803
7. PT. PERKEBUNAN XVIII
   JL. MUGAS DALAM ATAS
   SEMARANG
   PHONE : (024) 25471
8. CV. GEDONG BEJO
   JL. A. YANI 149
   SEMARANG
9. CV. ANGIN TIMUR
   JL. HUSNI THAMRIN 108
   MANADO
   PHONE : (0431) 2367, 3450
   TELEX : 74148 ATIMUR MO
10. PT. SINAR UTARA AGUNG
    JL. LEMBONG 16
    MANADO
    PHONE : (0431) 2939, 3667, 3023
    TELEX : 74129
11. CV. ANGIN TIMUR
    JL. SANGIR 71
    UJUNG PANDANG
    PHONE : (0411) 7383, 7957
12. FA. MAMESA TRAD. CO.
    JL. LAMANDAU KALENG 20
    UJUNG PANDANG
13. CV. BENTENG MAS
    JL. A.Y. PATTY 30
    AMBON
    PHONE : (0911) 2277, 2638
14. FA. MEGAH COMMERCIAL COY.
    JL. MR. J. LATUHARHARY 35
    AMBON
    PHONE : (0911) 3031, 3030, 3322
15. FA. SETIA KAWAN
    JL. PAHLAWAN REVOLUSI 8
    TERNATE
16. PT. SETIA KAWAN MAKMUR
    JL. PAHLAWAN REVOLUSI 8
    TERNATE
17. PNP XXVIII KEBUN MALUKU
    JL. PANTAI
    AMBON
    PHONE : (0911) 3336
18. FA. TANBERS
    JL. IZAK TELLUSA 1
    FAK-FAK
19. FA. FAJAR CO.
    JL. IZAK TELLUSA 33
    FAK-FAK
20. CV. KENANGAN RAYA
    JL. IZAK TELLUSA 48 - 50
    FAK-FAK

Lampiran 3.

DAFTAR IMPORTIR PALA - FULI

1. SIE SHEYE PIE TRADING PTE LTD.
   34-A NANKIN STREET
   SINGAPORE 0104
   P.O. BOX 3150
   SINGAPORE 9051

2. DALGETY INTERNATIONAL TRADING LTD.
   CORN EXCHANGE BUILDING
   52, MARK LANE
   LONDON EC3 R7SR

3. THE R.T. FRENCH COMPANY
   ONE MUSTARD STREET
   ROCHESTER, NEW YORK, N.Y. 14609
   UNITED STATES OF AMERICA

4. E.H. WORLEE & CO.
   BELEEVUE 7
   POSFACH 602960
   2000 HAMBURG 39
   WEST GERMANY

5. ALDO BERTOLI
   VICOLO S TRIINTA 4
   38100 TRENTO
   ITALY

6. MAISON ALGAIN
   ENTERPRISE POUR LE COMMERCE EXTERIEM
   BOITE POSTALE NO. 4
   7458 MAISIERES BELGIQUE

7. RAZNOIZNOS
   1, TSAR ASSEN 1 ST.
   SOFIA, BULGARIA
   TELEX : 022540, 022364

8. CATZ INTERNATIONAL B.V.
   BLAKEBURG-BLAAK 22-4TH FLOOR
   P.O. BOX 180
   3000 AD ROTTERDAM
   HOLAND

9. TRAUSTRADING B.V.
   P.O. BOX 25087
   3001 HB ROTTERDAM
   HOLLAND

10. ATAR TRADING CO.
    P.O. BOX 291
    SAFAT, KUAWAIT
    TELEX

2

COMMODITY NOTE

MINYAK PALA

NUTMEG OIL

BADAN PENGEMBANGAN EKSPOR NASIONAL
DEPARTEMEN PERDAGANGAN
1984

NATIONAL AGENCY FOR EXPORT DEVELOPMENT

C/5

61

DAFTAR ISI

	Halaman
KESIMPULAN	1
I. PENDAHULUAN	3
1. Pengenalan Produk	3
2. Perkembangan Minyak Pala	4
3. Kriteria Pemilihan Komoditi dan Daerah . . .	5
4. Metodologi Penyusunan	5
II. ASPEK PRODUKSI	7
1. Daerah Produksi Minyak Pala	7
2. Situasi Bidang Usaha	7
3. Proses Produksi	8
4. Biaya Produksi	10
III. PEMASARAN	11
1. Harga Dalam Negeri	11
2. Ekspor	12
3. Perdagangan Dunia	13
4. Standar Mutu	14
DAFTAR EKSPORTIR	16
DAFTAR IMPORTIR	17
LAMPIRAN	19

SOENARSONO

TEBET DALAM I E/1
TEBET

Phone: 822906

KESIMPULAN

Minyak pala merupakan salah satu komoditi ekspor minyak atsiri Indonesia yang berperanan cukup besar di pasaran dunia. Cara penyulingan minyak pala adalah sistem penyulingan uap dengan rendemen 9 - 20%.

Berbeda dengan pengusahaan jenis minyak atsiri yang - lain, penyulingan minyak pala ini biasanya dilakukan pengusaha yang merangkap eksportir, sehingga rantai pemasaran dalam negeri lebih pendek dibanding komoditi minyak atsiri yang lain.

Karena pengusahaannya dilakukan oleh suatu perusahaan maka alat penyulingan yang dipergunakan mempunyai sistem lebih bagus dengan kapasitas yang lebih besar dibanding dengan pengusahaan jenis minyak atsiri yang lain, bahkan ada perusahaan yang mempunyai alat penyuling yang berasal dari impor sehingga hasil minyaknya lebih bagus dalam kualitas maupun kuantitas.

Tanaman pala umumnya merupakan tanaman perkebunan rakyat yang diusahakan secara tradisional. Pengembangan arealnya dirasakan agak lambat karena perkembangan harganya tidak stabil dan kurang menguntungkan dibanding komoditi yang lain.

Produksi minyak pala Indonesia hampir seluruhnya ditujukan untuk ekspor, Ekspor terbesar tertuju ke Amerika Serikat yang merupakan negara konsumen dan importir minyak pala terbesar di dunia.

Permasalahan produksi yang paling menonjol adalah penyediaan bahan baku. Apabila harga pala rempah-rempah sedang naik maka pala distilasi sukar diperoleh karena para petani cenderung memetik dan menjual pala sebagai rempah-rempah yang berarti produksi minyak pala sangat tergantung dengan keadaan baik buruknya harga pala rempah-rempah.

Tingkat harga minyak pala ditentukan oleh pembeli di luar negeri meskipun Indonesia merupakan supplier terbesar di dunia. Indonesia belum berperan dalam pengendalian harga karena kerjasama antara sesama eksportir masih kurang baik.

I. PENDAHULUAN

1. Pengenalan Produk

Minyak pala adalah salah satu jenis minyak atsiri yang diperoleh dengan menyuling biji buah pala (Myristica fragrance Houtt). Bahan baku untuk ekstraksi minyak pala ini adalah biji pala dan fuli yang diafkir atau biji pala muda yang khusus diambil untuk keperluan distilasi. Tingkat kualitas pala dan fuli distilasi terutama ditentukan oleh prosentase kadar minyak yang dikandung dalam biji tersebut dan bertalian erat dengan kemudaan buah yang dipetik, pre prosesing dan kemasan. Hubungan antara umur buah yang dipanen dengan prosentase kandungan minyak dapat dilihat pada tabel di bawah ini.

RELATIONSHIP BETWEEN TIME OF PICKING, APPEARANCE, OIL CONTENT, AND SEEDS/K

Tabel 1

HUBUNGAN ANTARA WAKTU PEMETIKAN DENGAN CIRI VISUIL BIJI FULI, KADAR MINYAK DAN JUMLAH BIJI/KG.

Nama dagang	Ciri visuil biji	Umur buah dipetik (Age of picking)	Kadar minyak (%) (Oil content)	Jumlah biji/kg. (TOTAL SEEDS/K OF SEEDS CN)
nutmeg for distillation → Pala distilasi				
1. Saring/ADP I	keriput, kulit batok 50%	3 bulan (months)	14-16	615
2. Madya/ADP II	kulit batok 70%	4 bulan	11-12	305
3. Bolong/ADP III	kulit batok 85%	5 bulan	7-8	245
4. Mace	warna coklat kemerahan (reddish brown)	3-5 bulan	23	-
nutmeg for eating → Pala makan				
Kilat	kulit batok 100% berkilat	6 bulan	4-5	187

Sumber: Beberapa aspek teknis & ekonomis pengolahan pala distilasi dan pala makanan, Safri Iskandar, 1978, laporan.

Perubahan tingkat kadar minyak atsiri dari panen buah muda ke buah masak diduga sebagai perkembangan fisioligis pembentukan buah. Pemetikan buah muda untuk keperluan distilasi sangat dipengaruhi oleh perkembangan harga minyak pala dan pala sebagai rempah-rempah. Bila harga minyak pala

91

naik, petani akan memanen palanya pada waktu muda dan jika harga pala dianggap lebih menguntungkan, para petani akan memanen pala masak.

Minyak pala yang dapat bahasa perdagangan disebut nutmeg oil ini tidak berwarna atau berwarna kuning muda dan mudah menyerap oksigen sehingga berwarna lebih gelap dan lebih kental apabila disimpan lama dan berhubungan dengan udara. Minyak pala terdiri dari senyawa-senyawa terpene, karbon berantai lurus dan turunan-turunan benzen yang memberikan bau khas. Komponen terbesar yang menyusun minyak pala adalah d-pinene, d-remphene, d-pentene dan myristicin. Kandungan myristicin dalam minyak pala dan fuli sekitar 4%.

Penggunaan minyak pala dalam ramuan obat-obatan dan flavoring agent hanya dalam jumlah kecil karena myristicin bekerja sebagai narkotik dalam tubuh yang bila dipergunakan dalam jumlah besar dapat menyebabkan degenerasi hati.

Kegunaan minyak pala di bidang pangan adalah untuk formulasi minyak campuran pemberi flavor, bumbu-bumbu masakan dan saus, sedang di bidang non pangan digunakan sebagai campuran obat-obatan dan parfum.

2. Perkembangan Minyak Pala

Indonesia merupakan negara penghasil minyak pala yang terbesar di dunia kemudian disusul Sri Lanka dan Grenada. Pada mulanya penyulingan minyak pala ini timbul karena banyaknya pala sortir yang tidak terpakai, dan adanya permintaan dalam pasaran minyak pala di dunia.

Indonesia mulai mengusahakan minyak pala pada sekitar tahun 1974, tetapi angka ekspor belum bisa dilihat secara nyata karena jumlahnya masih dicampur dengan jenis minyak atsiri lain yang nilainya masih relatif kecil. Kemudian karena jumlah ekspor makin meningkat maka pada tahun 1978 datanya mulai dipisahkan walaupun belum mempunyai nomor CCCN tersendiri.

Jenis pala yang banyak dipergunakan sebagai bahan baku dalam pembuatan minyak pala adalah yang berasal dari Indo-

nesia bagian Timur. Biji pala yang berasal dari Indonesia Barat kualitasnya lebih bagus dan banyak diperdagangkan dalam bentuk rempah-rempah karena dianggap lebih menguntungkan dibanding dengan memperdagangkan sebagai minyak.

3. Kriteria Pemilihan Komoditi dan Daerah

Peranan minyak pala sebagai sumber devisa masih relatif kecil, yakni ± 0,1% dari total nilai ekspor minyak atsiri akan tetapi pada beberapa tahun terakhir ini ekspor minyak pala mengalami peningkatan. Kenaikan ekspor tersebut disebabkan adanya kenaikan produksi dan juga situasi pasaran dunia masih cukup baik.

Produksi pala Indonesia hampir mencapai 80% produksi dunia, sementara Granada menjadi produsen terbesar ke dua, akan tetapi pala asal Granada justru lebih cocok untuk minyak. Jenis pala yang baik untuk minyak di Indonesia adalah pala Padang, sedangkan pala Banda kebanyakan dipergunakan untuk rempah-rempah karena kualitasnya memang lebih baik.

Sentra produksi minyak pala adalah Sumatera Barat, Aceh, Sumatera Utara serta sedikit di Jawa Tengah, Ambon dan Sulawesi Utara.

4. Metodologi Penyusunan

Metode yang digunakan dalam penyusunan Commodity Note ini adalah sebagai berikut:

a. Melakukan Desk Research, yaitu mengumpulkan data sekundair yang diperoleh dari bulletin-bulletin, karya tulis yang telah ada di BPEN. Juga data statistik dari Biro Pusat Statistik dan tulisan-tulisan mengenai minyak pala 'ang diterbitkan oleh instansi lain.

ngadakan wawancara langsung dengan para produsen dan pportir untuk mendapatkan gambaran mengenai situasi uksi dan pemasarannya serta permasalahan yang meng- t peningkatan ekspor/produksi.

c. Melakukan diskusi dengan pejabat Instansi Pemerintah yang menangani komoditi ini seperti Dinas Perindustrian dan Perkebunan, Kantor Wilayah Perdagangan dan juga asosiasi pala - fuli Indonesia, guna melengkapi informasi yang telah ada.

II. ASPEK PRODUKSI

1. Daerah Produksi Minyak Pala

Minyak pala banyak diproduksi di wilayah Indonesia Barat yaitu di Sumatera Utara, Sumatera Barat dan Daerah Istimewa Aceh, di daerah Indonesia Timur biji pala banyak diperdagangkan dalam bentuk rempah-rempah.

Pengembangan areal dan produksi pala di Indonesia dirasakan lambat yang terutama disebabkan oleh ketidakstabilan harga dan problem jenis sex yang sangat merugikan. Perkembangan areal dan produksi biji pala selama 5 tahun terakhir di daerah produksi utama dapat dilihat pada Lampiran 1. Hampir semua daerah areal pertanamannya menurun terutama di Sulawesi Utara dan Maluku yaitu dari sejumlah ± 25.000 hektar dan ± 15.200 hektar menjadi sekitar 9.400 hektar dan 3.600 hektar. Hanya daerah Jawa Barat yang mengalami sedikit pengembangan yaitu dari ± 600 hektar menjadi 1.200 hektar.

Jumlah produksi minyak pala tidak dapat diketahui dengan pasti hanya diperkirakan sebesar jumlah ekspornya karena selama ini penggunaan minyak pala di dalam negeri boleh dikatakan tidak ada. Produksi terbesar dihasilkan oleh Sumatera Utara, Aceh dan Sumatera Barat serta sebagian kecil dari Jawa Tengah dan Sulawesi Utara.

2. Situasi Bidang Usaha

Berbeda dengan jenis minyak atsiri yang lain, pengusahaan minyak pala tidak dikerjakan oleh penyuling-penyuling kecil melainkan oleh suatu perusahaan walaupuns sebagian alat penyulingan yang dipergunakan masih sederhana (buatan sendiri). Para petani hanya menjual bahan baku bi la pala ke perusahaan penyulingan.

Sebelum tahun 1980 terdapat 9 perusahaan penyuling mi nyak pala yaitu di Sumatera Utara (2), Aceh (1), Sumatera Barat (3), Ujung Pandang (2), Sulawesi Utara (1) dan di Ambon (1). Pada saat ini perusahaan yang ada di Ambon dan

15

Ujung Pandang serta 2 buah di Sumatera Barat tidak berproduksi lagi. Berhentinya produksi minyak pala di beberapa perusahaan adalah karena kurangnya bahan baku. Para petani banyak yang memperdagangkan biji pala sebagai rempah-rempah, karena cara demikian diperhitungkan lebih menguntungkan dibanding bila mengolah menjadi minyak pala.

Kapasitas produksi masing-masing perusahaan berbeda. P.T. Adi Aceh berkapasitas 1.5 ton per unit, [illegible]komindo - Ambon 1.200 kg per prosesing (1 unit terdiri dari 2 ketel), sedangkan C.V. Danau Intan - Padang berkapasitas 3 ton per prosesing dan mempunyai 2 unit alat prosesing yang masing-masing terdiri dari 2 ketel yang digunakan bergantian.

Unit pengolahan yang digunakan oleh P.T. Adi termasuk yang paling modern yang dibeli dari Perancis. Alat keseluruhan tersebut dari bahan stainless steel untuk menghindari korosi dan pencemaran terhadap hasil minyaknya, sehingga secara kuantitas dan kualitas hasil minyak yang diperoleh lebih bagus dibanding bila menggunakan alat prosesing yang masih sederhana. Efisiensi waktu penyulingan lebih baik karena proses penyulingannya lebih cepat

Produsen minyak pala pada umumnya merangkap sebagai eksportir, sehingga jalur tata niaga dalam negeri tidak panjang. Sebagian dari produsen P.T. Adi diekspor melalui C.V. Aroma.

Pengadaan bahan baku sering menjadi penghambat produksi minyak pala karena sebagian besar biji pala dipergunakan /diperdagangkan sebagai rempah-rempah.

3. Proses Produksi

Proses pengolahan minyak pala menggunakan distilasi uap (steam distillation). Rendemen yang terkandung dalam biji pala berbeda sesuai dengan ketuaannya dan menurut Dinas Perkebunan dapat dibedakan sebagai berikut:

a. Biji pala tua, mengandung rendemen minyak 4 - 5%.
b. Biji pala agak tua, mengandung rendemen minyak 6 - 7%.
c. Biji pala muda, mengandung rendemen minyak 10 - 12%.
d. Fuli, mengandung minyak sekitar 15 - 20%.

Untuk penyulingan minyak pala, bahan berupa fuli dan biji beserta tempurungnya ditumbuk/digiling lebih dahulu. Di Sulawesi dan Maluku diperoleh dari biji pala bermutu jelek, sedangkan yang baik diekspor sebagai rempah-rempah.

Pada umumnya proses penyulingan minyak pala dapat digambarkan sebagai berikut: Biji pala campur dihancurkan/digiling sebelum dimasukkan ke ketel penyulingan. Lama penyulingan dengan alat prosesing yang masih sederhana bisa sekitar 30 - 40 jam sedangkan dengan alat yang lebih modern hanya sekitar 12 jam dengan rendemen 9 - 20%. Unit pengolahan yang sederhana belum menggunakan bahan stainless steel secara keseluruhan sehingga air yang akan masuk ke ketel uap harus disaring terlebih dahulu supaya pipa-pipanya tidak cepat berkarat. Uap air dialirkan ke dalam ketel biji pala tumbuk, sehingga diperoleh campuran uap air dan uap minyak biji pala. Campuran tersebut didinginkan melalui spiral-spiral dalam alat pendingin hingga terbentuk cairan campuran minyak dan air yang kemudian ditampung dalam drum pemisah yang berfungsi memisahkan minyak dari airnya. Untuk memperoleh hasil minyak yang murni, pemisahan ini diulang 2 kali. Setelah itu minyak disaring dengan suatu alat penyaring yang di beberapa perusahaan mempergunakan filter press. Kemudian minyak jernih yang diperoleh ditampung dalam suatu bak pengaduk yang dimaksudkan untuk meratakan kualitas minyak.

Pemeriksaan mutu di sebagian perusahaan (P.T. Adi dan Aroma) dilakukan sendiri dengan menggunakan alat GLC (Gas Liquid Chromatography) sehingga kualitasnya dapat dipertahankan stabil, sedangkan di beberapa perusahaan yang lain langsung diperiksakan secara formal ke P.T. Sucofindo atau Badan lain yang berwenang dalam pengujian mutu. Kualitas minyak yang diperoleh dengan menggunakan alat penyulingan yang sederhana masih belum stabil sehingga kadang-kadang mereka harus mengaduk ulang lagi supaya diperoleh kualitas yang memenuhi persyaratan ekspor.

4. Biaya Produksi

Biaya produksi minyak pala tidak selalu sama di setiap daerah, akan tetapi untuk memberikan gambaran kasar di bawah ini diberikan perhitungan biaya untuk satu kali penyulingan di C.V. Danau Intan sebagai berikut.

Nama bahan	Biaya	Hasil Minyak Pala
a. Pala kasar 2.500 kg @ Rp. 675,-	Rp.1.687.500,-	220 kg
b. Pala halus 1.000 kg @ Rp.1.500,-	Rp.1.500.000,-	190 kg
	Rp.3.187.500,-	410 kg

Ongkos-ongkos	
a. Minyak solar	Rp. 217.500,-
b. Gaji	Rp. 75.000,-
c. Listrik	Rp. 3.000,-
d. Bunga Bank	Rp. 34.500,-
	Rp. 330.000,-

Untuk memproduksi 410 kg minyak pala diperlukan biaya Rp.3.517.500.-. biaya rata-rata per kg. adalah Rp.8.580,-. Dalam perincian perhitungan ini masih ada biaya-biaya yang belum dimasukkan seperti penyusutan barang, pemeliharaan, dan lain-lain.

III. PEMASARAN

1. Harga Dalam Negeri

Hampir 100% produksi minyak pala Indonesia ditujukan untuk ekspor. Jalur pemasaran minyak ini tidak terlalu panjang seperti jenis minyak atsiri yang lain karena produsen minyak pala pada umumnya sebagai eksportir juga. Dengan demikian harga minyak pala dalam negeri berarti harga langsung produsen. Gambaran perkembangan harganya adalah sebagai berikut.

Tabel 2

PERKEMBANGAN HARGA RATA-RATA MINYAK PALA DI KODYA/PADANG 1980 - 1983

AVG PRICE OF NUTMEG OIL IN KODYA / PADANG

harga (Rp./kg.)

Bulan	1980	1981	1982	1983
Januari	5.850	6.438	5.563	6.100
Februari	6.338	6.400	5.719	6.125
Maret	6.400	6.900	5.750	6.378
April	*	8.125	5.875	*
Mei	6.313	8.125	5.800	10.550
Juni	6.500	*	5.875	10.550
Juli	*	*	5.875	10.550
Agustus	*	5.800	5.870	10.357
September	*	5.938	5.875	10.662
Oktober	6.500	*	5.844	10.650
Nopember	6.500	5 490	6.000	*
Desember	6.400	5.500	6.040	11.050

Sumber: Kanwildag Sumatera Barat. Source W. Sumatra Dept Trade office

Ket.: *) tidak diperoleh data. no data available

Harga pasaran minyak pala dalam negeri cukup mantap hanya pada tahun 1981 mengalami sedikit fluktuasi, yaitu dari bulan Maret harganya Rp.6.900,-/kg kemudian bulan April naik menjadi Rp.8.125,-/kg dan pada bulan Agustus dan seterusnya

mengalami penurunan sehingga harganya hanya berkisar - Rp.5.000,- - Rp.6.000,-/kg. Pada bulan ke 5 tahun 1983 harganya mulai meningkat dan sampai saat sekarang harganya berkisar antara Rp.11.000,- - Rp.12.000,-/kg. Pada saat sekarang di Sulawesi Utara harganya sekitar Rp.7.000,- sampai dengan Rp.8.000,-/kg., sedangkan di Aceh sekitar Rp.12.000/kg.

2. Ekspor

Ekspor minyak pala sebagian besar ditujukan ke Amerika sisanya diekspor ke Eropa Barat, Singapura dan Jepang. Gambaran besar ekspornya ke negara-negara tujuan adalah sebagai berikut.

Tabel 3

VOLUME EKSPOR MINYAK PALA INDONESIA
MENURUT NEGARA TUJUAN
1980 - 1983
(Januari - Oktober)

WEIGHT of EXPORTS OF NUTMEG OIL FROM INDONESIA BY DESTINATION

Volume: kg.

DESTINATION Negara Tujuan	1980	1981	1982	1983 (Jan-Okt)
Singapore	22.620	6.310	1.620	-
Malaysia	3.610	2.200	1.980	3.433
Australia	20	-	25	-
Amerika	148.157	71.660	118.162	101.569
Canada	1.570	1.850	1.850	-
Inggris	12.300	3.670	5.380	10.245
Belanda	8.740	7.910	12.530	3.800
Perancis	6.690	12.280	13.060	9.200
Jerman	14.330	4.140	9.310	5.415
Swiss	930	1.080	900	-
Jepang	3.170	-	20.770	2.714
Spanyol	380	2.090	5.000	1.130
Mexico	2.596	1.281	-	-
Brazilia	522	-	-	-
Italy	-	190	190	190
Belgia - Luxemburg	-	-	-	3.240
Total	225.635	114.661	190.777	140.936

Sumber: Biro Pusat Statistik.

Source Cent. Bureau of Statistics

Negara pengimpor terpenting di antara negara Eropa Barat adalah Belanda, Inggris, Perancis dan Jerman. Ekspor ke Jepang tidak menentu, di mana pada tahun 1980 hanya sebesar 3 ton, tahun 1981 tidak ada sama sekali dan tahun 1982 melonjak sampai 20,7 ton kemudian tahun 1983 (Januari - Oktober) turun lagi menjadi 2,7 ton. Peranan Singapore menurun pesat yakni pada tahun 1980 sebesar 22,6 ton dan pada tahun 1982 merosot menjadi 1,6 ton kemudian tahun 1983 (Januari - Oktober) tidak ada sama sekali. Hal ini mungkin karena adanya usaha eksportir Indonesia untuk mengadakan hubungan langsung dengan para pemakai di luar negeri.

Gambaran ekspor minyak pala Indonesia adalah sebagai berikut.

Tabel 4

PERKEMBANGAN EKSPOR MINYAK PALA INDONESIA

1978 - 1983 Export of Nutmeg oil from Indonesia

Volume: ton

Nilai : 000 US$

Tahun	Volume long tons	Nilai Value US$
1978	246	1.660
1979	136	1.429
1980	226	2.105
1981	115	1.097
1982	191	1.402
1983 (Januari-Oktober)	141	1.180

Sumber: Biro Pusat Statistik. Source: Central Bureau of Statistics

3. Perdagangan Dunia

Negara produsen utama komoditi ini adalah Indonesia, Sri Lanka dan Grenada, tetapi dalam beberapa tahun terakhir ini produksi Grenada tidak ada. Produksi Indonesia sekitar beberapa ratus ton sedangkan produksi Sri Lanka hanya 10-15 ton per tahun. Produksi kedua negara ini terutama ditujukan untuk ekspor.

Amerika Serikat merupakan pasaran terbesar dengan jumlah impor rata-rata 160 ton per tahun. Beberapa negara industri di Eropa, Jepang, Mexico, Venezuela dan Australia mengimpor antara ratusan kg sampai beberapa ton per tahun. Perkembangan harga minyak pala di pasaran dunia adalah sebagai berikut:

Tabel 5

HARGA RATA-RATA MINYAK PALA DI PASARAN NEW YORK

Avg price nutmeg oil in New York

Harga: US$/lb.spot

Bulan	1982	1983	1984
Januari	-	9.50 - 15.50	9.00 - 12.50
Pebruari	-	9.50 - 15.50	9.00 - 12.50
Maret	-	9.50 - 15.50	
April	-	9.50 - 15.50	
Mei	-	9.50 - 15.50	
Juni	-	9.50 - 15.50	
Juli	-	9.50 - 15.50	
Agustus	-	9.50 - 15.50	
September	-	9.30 - 14.38	
Oktober	9.50 -15.50	9.00 - 12.50	
Nopember	9.50 -15.50	9.00 - 12.50	
Desember	9.50 -15.50	9.00 - 12.50	

Sumber: Chemical Marketing Reporter, New York.

Keadaan harga pada tahun 1982/1983 cukup stabil hanya pada akhir triwulan 1983 kelihatan agak menurun sampai awal 1984. Walaupun demikian situasi pasaran cukup mantap.

4. Standar Mutu

Untuk mencegah pemalsuan dan menjaga mutu minyak pala Indonesia, Direktorat Standarisasi, Normalisasi dan Pengendalian Mutu, Departemen Perdagangan telah menetapkan standar mutu minyak pala untuk ekspor sebagai berikut:

Tabel 6

STANDAR MUTU MINYAK PALA

Karakteristik	Syarat
- Bobot jenis $25^{o}C/25^{o}C$	0.847 - 0.919
- Indeks bias (n_D^{25})	1.472 - 1.495
- Putaran optik $(\alpha)_D$	$(+10^{o})$ s/d $(+30^{o})$
- Kelarutan dalam etanol 90%	1 : 3 jernih seterusnya jernih
- Sisa penguapan contoh 4,8 gr - 5,2 gr maks	2,5%
- Zat-zat asing:	
a. Minyak pelikan	negatif
b. Minyak terpentin	negatif
c. Minyak lemak	negatif
d. Alkohol tambahan	negatif

- Sertifikat Mutu diperoleh dari Sucofindo atau PPMB (Pusat Pengendalian Mutu Barang).

Kemasan dilakukan dalam drum berisi 182 - 185 kg dengan "head-space" sebesar 5 - 10% dari isi drum. Drum dibuat dari plat besi berlapis timah putih, galvanis atau berenamel atau plat besi yang di dalamnya dilapisi dengan lapisan yang tahan minyak pala.

DAFTAR EKSPORTIR

1. C.V. Danau Intan
   Jalan Arau 29, Padang
   Telp. 22645, 21663
2. C.V. Aroma & Co.
   Jalan Sutomo No.504, Medan
   Telp. 24776, 25676, 25103
3. C.V. Karimun Aromatic Co. Ltd.
   Jalan Kol. Sugiono 8B, Medan
4. P.T. Adi
   Jalan Mata Ie No.3, Tapaktuan
   Aceh Selatan
5. P.T. Sinar Utara Agung
   Jalan Lembang 16, Menado. } not in operation

P.T. Essomindo, Ambon, is working again

84

DAFTAR IMPORTIR

1. George Uhs Co., Inc.
   76 Ninth Avenue New York 10011
2. Ungerer & Co. Ltd.
   161 Avenue of the Americans New York USA
3. J. Manheimer Inc.
   47 - 22 Pearson Place Long
   Island City USA
4. L.A. Champon Co. Inc.
   70 Hudson St Hoboken
   New Jersey 07030
5. Polarome Manufacturing Co. Inc.
   22 Ericsson Place New York USA
6. Ludwig Mueller Co. Inc.
   2 Park Avenue New York NY 10016 USA
7. Handels Onderneming Eprimer B.V.
   Rokin 95 Amsterdam C. Netherlands
8. Zat Flavors & Fragrances Ltd.
   Jl. Venheuvelenweg 60
   Tilburg - Netherland
9. Dragoco GmbH
   D - 3450 Helzminden
   West Germany
10. C. Melchers Und Co.
    Steindamm 48-A
    P.O. Box 770340
    2820 Bremen 77 Tlx. 0246066
11. Fritzche Dodge & Olcott GmbH
    Spadding Str 140
    D - 2000 Hamburg 1.

12. Paul Kaders GmbH
    Zippalhavs 5
    D - 2000 Hamburg AA
    Tlx. 2161003 pkhd

13. Adrian Sa.
    15 Rue De Casgis 13268
    Marseilles

14. Anarabot Sa.
    06 Grasse, France

15. Fierst Day Lawson Ltd.
    1 Leaden Hall Street
    United Kingdom

16. T.M. Roche and Son Ltd.
    50 Mark Lane, London EC 3

17. Kyoko Co. Ltd.
    55 - 2 Chome Veshio - Machinirami-ku
    Japan

18. Mitsui & Co. Ltd.
    2 - 1 Ohtemachi - Chome Chiyodaku
    Tokyo - Japan.

LAMPIRAN I. Luas Areal dan Produksi Perkebunan Rakyat Seluruh Indonesia menurut Propinsi
Jenis Tanaman : PALA
Tahun : 1979 - 1983

Area and Production Smallholders throughout Indonesia by Province

superceded - new figures are lower for 82, 83

DATI I/ PROPINSI	LUAS AREAL (HA)					PRODUKSI (TON)				
	1979	1980	1981	1982*	1983**	1979	1980	1981	1982*	1983*
Aceh	5.433	4.940	4.865	5.025	5.106	1.665	1.867	1.857	1.968	2.031
Sumut	316	359	386	437	470	82	77	78	83,9	86,2
Sumbar	1.833	2.069	2.200	2.598	2.707	689	762,17	764	790	810
Riau	-	-	-	-	-	-	-	-	-	-
Jambi	13	14	65	66	67	-	2	-	-	-
Sumsel	-	-	-	-	-	-	-	-	-	-
Lampung	-	-	-	-	-	-	-	-	-	-
Bengkulu	-	2	-	-	-	-	-	-	-	-
Jabar	547	600	642	676	708	969	1.044	1.194	1.261	1.288
Jateng	188	510	416	415,3	418	4	5	0,20	0,2	0,2
Yogyakarta	-	-	-	-	-	-	-	-	-	-
Jatim	1.736	-	-	-	-	318	-	-	-	-
Kalbar	-	-	2	2	2	-	-	-	-	-
Kalsel	34	32	21	21	21	-	-	-	-	-
Kalteng	-	-	-	-	-	-	-	-	-	-
Kaltim	494	460	288	288	296	3	1	1	1	1
Sulut	23.274	25.070	25.070	25.070	25.070	9.058	9.422	9.422	9.422	9.422
Sulteng	1.260	-	1.380	1.394,7	1.403	1	-	1,5	2	2
Sulsel	1.047	1.100	1.307	1.409	1.446	20	25	102	110	117
Sultera	256	254	271	271	274	3	1	20,4	20,4	22,5
NTB	-	-	-	-	-	-	-	-	-	-
NTT	800	5,81	7	7	7	-	-	-	0,5	0,5
Maluku	15.229	15.229	15.229	15.229	15.229	3.611	3.611	3.611	3.611	3.611
Irja	4.903	4.903	4.903	4.903	4.903	1.341	1.341	1.341	1.341	1.341
DKI Jaya	-	-	-	-	-	-	-	-	-	-
TimTim	-	-	-	-	-	-	-	-	-	-
Jumlah	57.369	55.548	57.042	57.813	58.127	17.764	18.158	18.362	18.610	18.732

*) Data sementara
**) Data Estimasi

Direktorat Jenderal Perkebunan
Sub Direktorat Data & Statistik

STATISTIK PERKEBUNAN INDONESIA

TAHUN 1981 - 1983

KOMODITI PENUNJANG :

KAPOK
COKLA
JAMBU METE
KAPAS
PALA NUTMEG
CASSIAVERA
JAHE
SERAI WANGI
PANILI

DIREKTORAT JENDERAL PERKEBUNAN

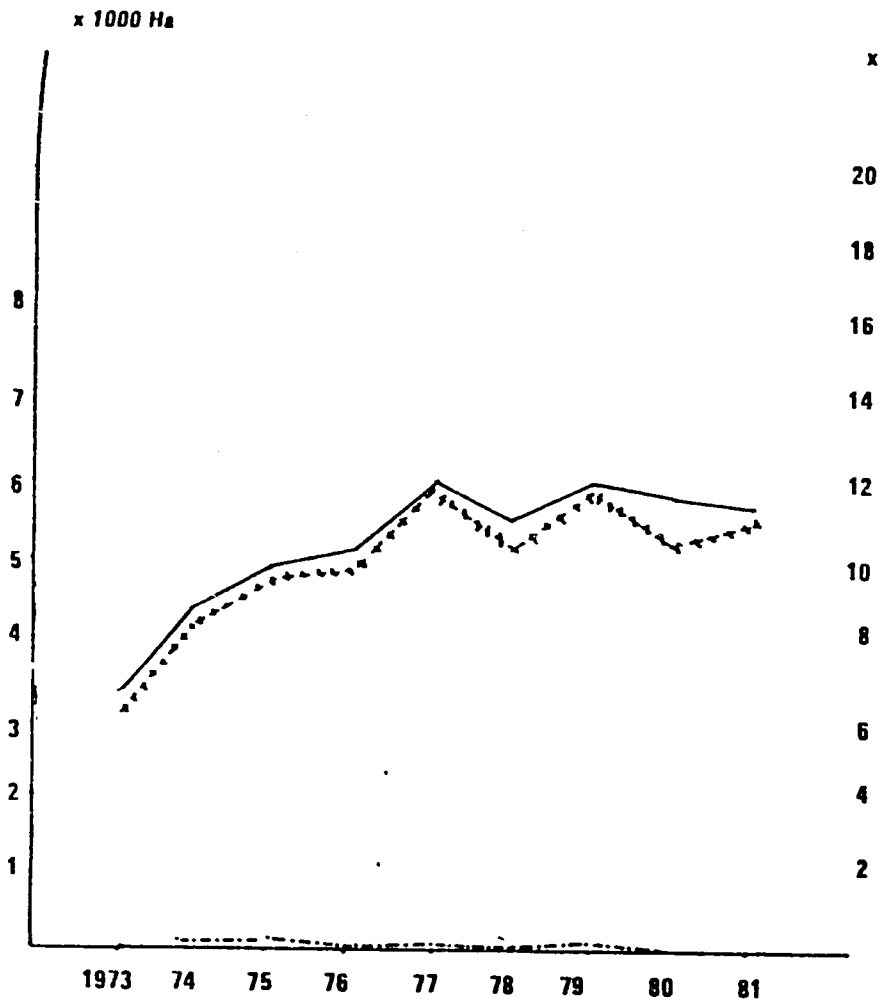
JAKARTA

1984

NUTMEG

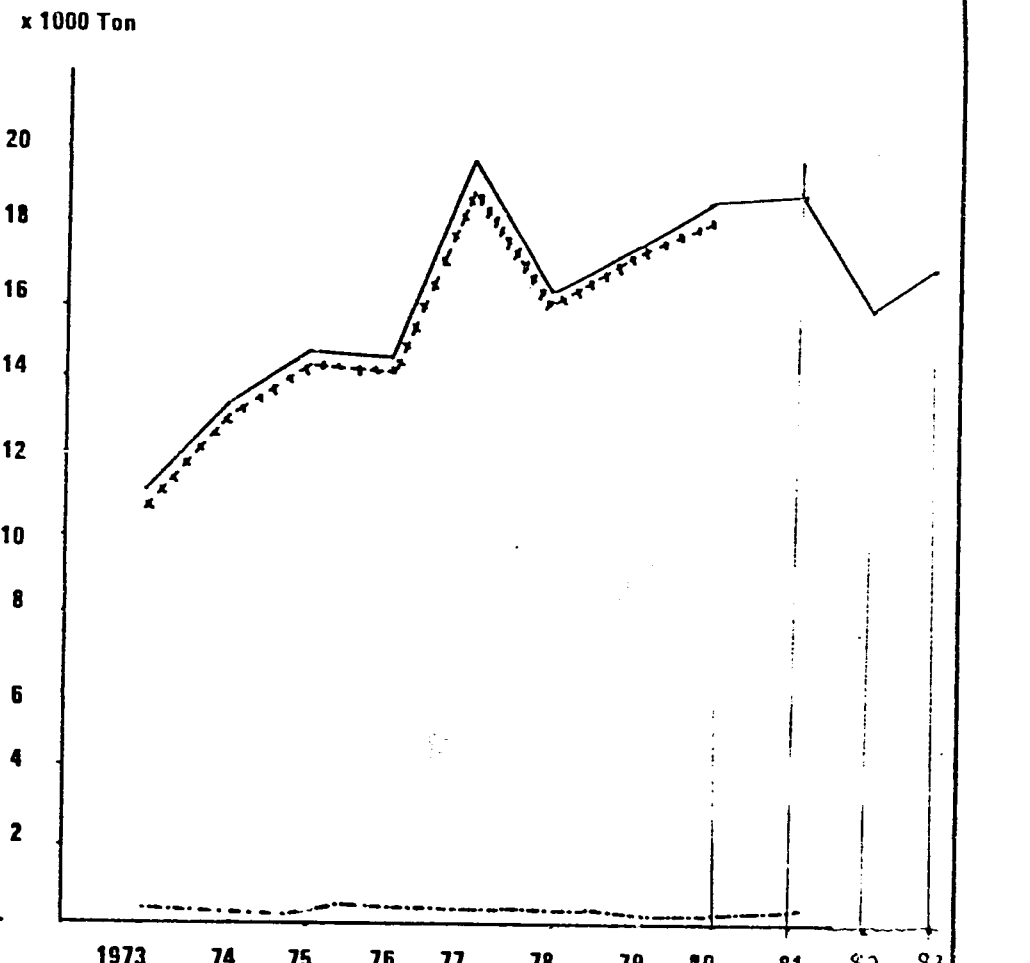
REKAPITULASI

NUTMEG (ALL GRADES)



KETERANGAN

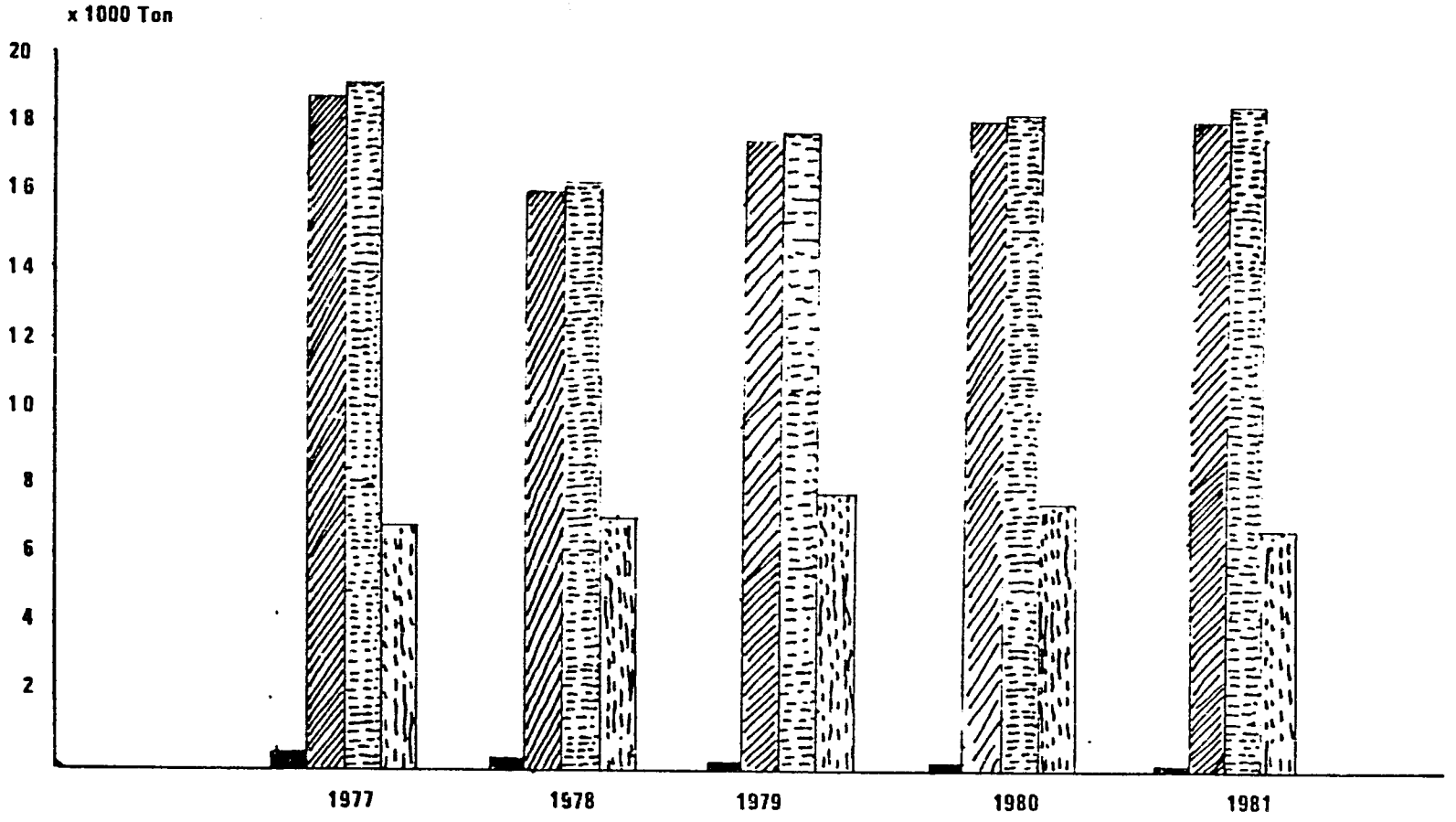
- LUAS TOTAL total area planted
- LUAS PERKEBUNAN RAKYAT smallholders
- LUAS PERKEBUNAN BESAR SWASTA private estates
- LUAS PERKEBUNAN BESAR NEGARA govt estates



KETERANGAN

- PRODUKSI TOTAL total production
- PRODUKSI PERKEBUNAN RAKYAT
- PRODUKSI PERKEBUANN BESAR SWASTA
- PRODUKSI PERKEBUNAN BESAR NEGARA

KOMODITI : PALA



KETERANGAN

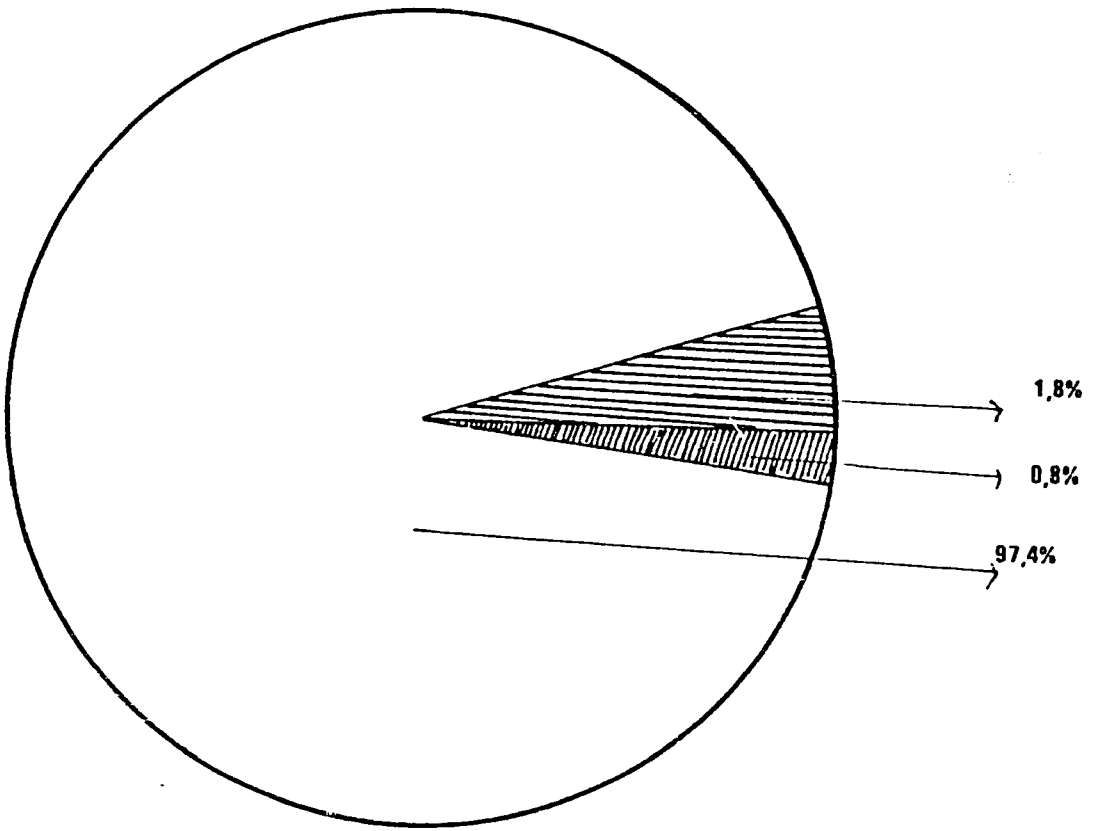
PRODUKSI PERKEBUNAN BESAR NEGARA govt estate production

PRODUKSI PERKEBUNAN RAKYAT smallholders

PRODUKSI PERKEBUNAN TOTAL total

PRODUKSI EKSPORT export prod'n

PERBANDINGAN LUAS AREAL PERKEBUNAN
MENURUT STATUS PENGUSAHAAN
JENIS TANAMAN : PALA nutmeg
TAHUN : 1981



KETERANGAN :

- AREAL PERKEBUNAN RAKYAT 57.012 Ha. (97,4%) smallholders
- AREAL PERKEBUNAN BESAR SWASTA 497 Ha. (0,8%) large private estates
- AREAL PERKEBUNAN BESAR NEGARA 1.002 Ha. (1,8%) gov't estates

1b

Area and Production of all Estates/Smallholdings throughout Indonesia : Nutmeg

Luas dan Produksi Perkebunan Seluruh Indonesia
(Perkebunan Rakyat, Perkebunan Besar Swasta,
Perkebunan Besar Negara)

Jenis Tanaman : PALA Nutmeg
Tahun : 1967 – 1983

No.	Tahun	Total Hectares (includes non-producing trees) Luas (Ha)	production Produksi (ton)	Keterangan
1	2	3	4	5
1	1967	12.743	6.350	
2	1968	14.169	7.470	
3	1969	22.059	8.158	
4	1970	25.469	9.612	
5	1971	28.680	5.007	
6	1972	30.218	10.442	
7	1973	32.610	10.883	
8	1974	44.468	13.217	
9	1975	49.333	14.634	
10	1976	50.669	14.374	
11.	1977	59.723	19.136	
12.	1978	55.216	16.336	
13.	1979	57.360	17.764	
14.	1980	57.927	18.355	
15.	1981	58.551	18.603	
16.	1982*	60.149 58 237	18.801 18.025	
17.	1983**	60.463 63 587	18.923 18 359	
	1984**	61,000 62.353	19 [illegible] 18 [illegible]	

* Data Sementara Tentative data
** Data Estimasi Estimated

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Luas dan Produksi Perkebunan seluruh Indonesia
menurut Status Pengusahaan by status of owner
Jenis Tanaman : Pala nutmeg
Tahun : 1967 - 1983

No.	Tahun	LUAS AREAL (HA)				PRODUKSI (TON)			
		Perkebunan Rakyat small-holder	Perkebunan Besar Swasta Private Estates	Perkebunan Besar Negara Govt Estates	Jumlah Total	Perkebunan Rakyat	Perkebunan Besar Swasta	Perkebunan Besar Negara	Jumlah
1.	2.	3.	4.	5.	6.	7.	8.	9.	
1.	1967	12.743	–		12.743	6.350	–	–	6.350
2.	1968	14.169			14.169	7.470	–	–	7470
3.	1969	19.724		2.335	22.059	7.998	–	160	8155
4.	1970	23.576	–	1.891	25.469	9.389	–	223	9612
5.	1971	26.600	–	2.080	28.680	4.846	–	159	5005
6.	1972	27.932	–	2.286	30.218	10.158	–	284	10442
7	1973	30.349	–	2.261	32.610	10.570	–	313	10883
8	1974	42.534	–	1.934	44.468	12.943	–	274	13217
9	1975	47.008	–	2.325	49.333	14.292	–	342	14634
10.	1976	48.676	–	1.993	50.669	14.092	–	282	14374
11.	1977	57.322	303	2.098	59.723	18.881	2	255	19138
12.	1978	52.595	303	2.118	55.216	16.081	–	255	16336
13.	1979	57.360	497	2.118	59.975	17.764	–	188	17952
14.	1980	55.548	500	1.879	57.927	18.158	–	195	18353
15.	1981	57.052	497	1.002	58.551	18.382	–	221	18603
16.	1982	~~57.813~~ 55.[illegible]	~~497~~ [illegible]	~~1.839~~ [illegible]	60.149 [illegible]	18.610 [illegible]	0,03	191	[illegible]
17.	1983 **	58.127 [illegible]	~~497~~ [illegible]	1.839 [illegible]	60.463 [illegible]	18.732 [illegible]	0,03	191	[illegible]
	1984 **	62.[illegible]	400	[illegible]	[illegible]	[illegible]		255	[illegible]

Direktorat Jenderal [illegible]
Sub. Direktorat Data & [illegible]

Perkebunan Rakyat

Smallholdings

Luas Areal dan Produksi Perkebunan Rakyat
Seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : P A L A
Tahun : 1980

No	DATI I/PROPINSI Province	Tanaman belum menghasilkan/ muda (Ha) Area not yet bearing fruit	Tanaman menghasilkan (Ha) Fruit-Bearing	Tanaman Rusak/tua tidak menghasilkan (Ha) Old, non-bearing area	Jumlah (Ha) Total area	Produksi (Ton)	Rata-rata Produksi (Ton) (3) ÷ (6) Avg. production	Keterangan
1	2	3	4	5	6	7	8	9
1	D.I. Aceh	1.504	3.341	95	4.940	1.867	559	
2	Sumatera Utara	193	148	18	359	77	520	
3	Sumatera Barat	861	1.154	54,22	2.069	762,17	660	
4	Riau	–	–	–	–	–	–	
5	Jambi	12	2	–	14	2	1.000	
6	Sumatera Selatan	–	–	–	–	–	–	
7	Lampung	–	–	–	–	–	–	
8	Bengkulu	2	–	–	2	–	–	
9	Jawa Barat	311	288	1	600	1.044	3.798	
10	Jawa Tengah	471	19	20	510	5	263	
11	D.I. Yogyakarta	–	–	–	–	–	–	
12	Jawa Timur	–	–	–	–	–	–	
13	Kalimantan Barat	–	–	–	–	–	–	
14	Kalimantan Selatan	24	–	8	32	–	–	
15	Kalimantan Tengah	–	–	–	–	–	–	
16	Kalimantan Timur	412	13	35	460	1	76,92	
17	Sulawesi Utara	12.018	12.058	994	25.070	9.422	–	
18	Sulawesi Tengah	–	–	–	–	–	–	
19	Sulawesi Selatan	1.011	85	4	1.100	25	–	
20	Sulawesi Tenggara	173	61	20	254	1	32	
21	Bali	–	–	–	–	–	–	
22	Nusa Tenggara Barat	–	–	–	–	–	–	
23	Nusa Tenggara Timur	5,18	0,63		5,81		–	
24	Maluku	8.248	6.727	254	15.229	3.611	537	
25	Irian Jaya	1.426	3.023	454	4.903	1.341	443,59	
26	DKI Jakarta	–	–	–	–	–	–	
27	Timor Timur	–	–	–	–	–	–	
	Jumlah	26.671	26.920	1.957	55.548	18.158	976,63	

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Luas Areal dan Produksi Perkebunan Rakyat
Seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : P A L A
Tahun : 1981

No.	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1	2	3	4	5	6	7	8	9
1.	D.I. Aceh	1.391	3.342	132	4.865	1.857	555,65	
2.	Sumatera Utara	196	157	33	386	78	498	
3.	Sumatera Barat	932	1.190	78	2.200	764	642	
4.	R i a u	–	–	–	–	–	–	
5.	J a m b i	62	3	–	65	.	–	
6.	Sumatera Selatan	–	–	–	–	–	–	
7.	Lampung	–	–	–	–	–	–	
8.	Bengkulu	–	–	–	–	–	–	
9.	Jawa Barat	301	309	32	642	1.184	3.831	
10.	Jawa Tengah	395	1	20	416	0,20	200	
11.	D.I. Yogyakarta	–	–	–	–	–	–	
12.	Jawa Timur	–	–	–	–	–	–	
13.	Kalimantan Barat	2	–	–	2	–	–	
14.	Kalimantan Selatan	13	–	8	21	–	–	
15.	Kalimantan Tengah	–	–	–	–	–	–	
16.	Kalimantan Timur	269	9	10	288	1	–	
17.	Sulawesi Utara	12.018	12.058	994	25.070	9.422	781,39	
18.	Sulawesi Tengah	1.268	99	13	1.380	1,5	23,4	
19	Sulawesi Selatan	1.089	216	2	1.307	102	–	
20.	Sulawesi Tenggara	142	125	4	271	20,4	163,20	
21.	B a l i	–	–	–	–	–	–	
22.	Nusa Tenggara Barat	–	–	–	–	–	–	
23.	Nusa Tenggara Timur	–	–	–	7	–	–	
24.	M a l u k u	8.248	6.727	254	15.229	3.611	356,79	
25.	Irian Jaya	1.426	3.023	454	4.903	1.341	443,59	
26.	DKI Jakarta	–	–	–	–	–	–	
27.	Timor Timur	–	–	–	–	–	–	
	Jumlah	27.759	27.250	2.034	57.052	18.382	674	

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Luas Areal dan Produksi Perkebunan Rakyat seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1982

PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1. D.I. Aceh	1.157	3.535	109	4.801	2.178	616	
2. Sumatera Utara	71	147	21	239	75	510	
3. Sumatera Barat	693	1.484	81	2.248	935	630	
4. Riau	–	–	–	–	–	–	
5. Jambi	63	12	–	75	–	–	
6. Sumatera Selatan	–	–	–	–	–	–	
7. Bengkulu	–	–	–	–	–	–	
8. Lampung	–	–	–	–	–	–	
9. Jawa Barat	300	312	7	619	1.194	3.827	
10. Jawa Tengah	207	4	–	211	–	–	
11. D.I. Yogyakarta	–	–	–	–	–	–	
12. Jawa Timur	–	24	–	24	3	125	
13. Bali	–	–	–	–	–	–	
14. Nusa Tenggara Barat	–	–	–	–	–	–	
15. Nusa Tenggara Timur	7	1	–	8	–	–	
16. Kalimantan Barat	3	–	–	3	–	–	
17. Kalimantan Tengah	–	–	–	–	–	–	
18. Kalimantan Selatan	5	–	–	5	–	–	
19. Kalimantan Timur	269	9	10	288	–	–	
20. Sulawesi Utara	11.374	11.946	990	24.310	5.455	457	
21. Sulawesi Tengah	1.267	99	13	1.379	2	20	
22. Sulawesi Selatan	1.157	253	–	1.410	110	435	
23. Sulawesi Tenggara	136	35	5	176	4	114	
24. Maluku	8.248	6.727	254	15.229	3.611	537	
25. Irian Jaya	1.426	3.023	454	4.903	1.341	444	
26. D.K.I. Jakarta	–	–	–	–	–	–	
27. Timor Timur	–	–	–	–	–	–	
INDONESIA	26.373	27.611	1.944	55.928	14.908	540	

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Luas Areal dan Produksi Perkebunan Rakyat seluruh Indonesia menurut Propinsi dan Keadaan Tanaman

Jenis Tanaman : PALA

Tahun : 1983 *

PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (3) ÷ (6) (Kg / Ha)	Keteran
1	2	3	4	5	6	7	8
1. D.I. Aceh	1.157	3.560	110	4.827	2.330	656	
2. Sumatera Utara	146	264	31	441	101	383	
3. Sumatera Barat	758	1.486	68	2.312	963	648	
4. Riau	–	–	–	–	–	–	
5. Jambi	71	20	–	91	–	–	
6. Sumatera Selatan	–	–	–	–	–	–	
7. Bengkulu	–	–	–	–	–	–	
8. Lampung	–	–	–	–	–	–	
9. Jawa Barat	329	372	7	708	1.288	3.462	
10 Jawa Tengah	166	6	–	172	1	167	
11. D. I. Yogyakarta	–	–	–	–	–	–	
12. Jawa Timur	3	24	–	27	5	208	
13. Bali	–	–	–	–	–	–	
14. Nusa Tenggara Barat	–	–	–	–	–	–	
15. Nusa Tenggara Timur	7	1	–	8	–	–	
16. Kalimantan Barat	3	–	–	3	–	–	
17. Kalimantan Tengah	–	–	–	–	–	–	
18. Kalimantan Selatan	5	–	6	11	–	–	
19. Kalimantan Timur	269	9	10	288	–	–	
20. Sulawesi Utara	14.532	13.653	980	29.165	6.233	457	
21. Sulawesi Tengah	1.268	99	13	1.380	2	20	
22. Sulawesi Selatan	944	321	–	1.265	171	533	
23. Sulawesi Tenggara	143	127	4	274	23	181	
24. Maluku	8.248	6.727	254	15.229	3.611	537	
25. Irian Jaya	1.426	3.023	448	4.897	1.341	444	
26. D.K.I. Jakarta	–	–	–	–	–	–	
27. Timor Timur	–	–	–	–	–	–	
INDONESIA	29.475	29.692	1.931	61.098	16.075	541	

Keterangan :

* Data Sementara

Direktorat Jenderal Perkebunan

Subdit Data dan Statistik

Luas Areal dan Produksi Perkebunan Rakyat seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : PALA Nutmeg
Tahun : 1984 **

PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1. D.I. Aceh	1.164	3.581	111	4.856	2.520	704	
2. Sumatera Utara	155	278	34	467	107	385	
3. Sumatera Barat	776	1.685	92	2.553	1.238	735	
4. Riau	–	–	–	–	–	–	
5. Jambi	68	14	–	82	–	–	
6. Sumatera Selatan	–	–	–	–	–	–	
7. Bengkulu	–	–	–	–	–	–	
8. Lampung	–	–	–	–	–	–	
9. Jawa Barat	335	379	8	722	1.300	3.430	
10. Jawa Tengah	209	5	8	222	4	800	
11. D.I. Yogyakarta	–	–	–	–	–	–	
12. Jawa Timur	3	24	–	27	5	208	
13. Bali	–	–	–	–	–	–	
14. Nusa Tenggara Barat	–	–	–	–	–	–	
15. Nusa Tenggara Timur	6	2	–	8	–	–	
16. Kalimantan Barat	3	–	–	3	–	–	
17. Kalimantan Tengah	–	–	–	–	–	–	
18. Kalimantan Selatan	5	–	6	11	–	–	
19. Kalimantan Timur	275	10	9	294	–	–	
20. Sulawesi Utara	14.656	13759	1.000	29.415	7.500	545	
21. Sulawesi Tengah	1.282	99	13	1.394	2	20	
22. Sulawesi Selatan	1.277	353	–	1.630	191	541	
23. Sulawesi Tenggara	145	128	4	277	24	188	
24. Maluku	8.248	6.727	254	15.229	3.611	537	
25. Irian Jaya	1.426	3.023	454	4.903	1.341	444	
26. D.K.I. Jakarta	–	–	–	–	–	–	
27. Timor Timur	–	–	–	–	–	–	
INDONESIA	30.033	30.067	1.993	62.093	17.843	593	

Keterangan :
** = Data Estimasi

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Breakdown of Smallholdings by Kabupaten

Luas Arel dan Produksi Perkebunan Rakyat
Seluruh Indonesia menurut Kabupaten dan Keadaan Tanaman
Jenis Tanaman : P A L A
Tahun : 1981

No	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1	2	3	4	5	6	7	8	9
1	D. I. ACEH							
	Kab. Aceh Besar	157	35	–	192	9	257,1	
	Kab. Aceh Pidi	94	10	1	105	3	300	
	Kab. Aceh Selatan	681	3.002	8	3.691	1.801	599,1	
	Kab. Aceh Barat	139	91	42	272	22	241,7	
	Kab. Aceh Utara	156	166	17	339	12	72,2	
	Kab. Aceh Tenggara	77	9	–	86	3	333,3	
	Kab. Aceh Timur	87	29	64	180	7	241,3	
	Jumlah	1.391	3.342	132	4.865	1.857	555,6	
2	SUMATERA UTARA							
	Kab Langkat	8	13	–	21	15,6	1.200	
	Kab Deli Serdang	–	10	17	27	4,65	465	
	Kab. Lab. Batu	137	26	–	163	5,4	207	
	Kab. Tap. Tengah	3	7	2	12	1,6	228	
	Kab. Tap. Selatan	10	9	–	19	2,27	252	
	Kab. Nias	38	92	14	144	48,72	530	
	Jumlah	196	157	33	386	78,24	498	
	Bulat	196	157	33	386	78	–	
3	SUMATERA BARAT							
	Kab. Agam	112	375	5	492	317	845	
	Kab. Pasaman	8	13	–	21	2	154	
	Kab. Tanah Datar	25	97	5	127	78	804	
	Kab. Padang Pariaman	299	164	36	499	80	488	
	Kab. Solok	200	257	–	457	77	300	

Keterangan :
Kab. = Kabupaten

No.	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1	2	3	4	5	6	7	8	9
	Kab. Pesisir Selatan	270	183	20	473	168	918	
	Kab. SWL/Sijunjung	10	12	1	23	2	167	
	Kodya Padang	8	89	11	108	40	449	
	Jumlah	932	1.199	78	2.200	764	642	
	Bulat							
4.	JAMBI							
	Kab. Sarko	62,5	3	–	65,5	–	–	
	Jumlah	62,5	3		65,5	–	–	
	Bulat	62	3	–	65			
5.	JAWA BARAT							
	Kab. Serang	2	–	–	2	–	–	
	Kab. Bogor	74	170	–	244	680,00	4.000	
	Kab. Sukabumi	131	97	25	253	388,00	4.000	
	Kodya Sukabumi	2	2	–	4	8,400	4.200	
	Kab. Cianjur	56	10	7	73	30,00	3.000	
	Kab. Purwakarta	26	10	–	36	30,00	3.000	
	Kab. Subang	–	1	–	1	1,950	1.950	
	Kab. Tasikmalaya	3	3	–	6	–	–	
	Kab. Kuningan	7	16	–	23	20,450	1.278	
	Jumlah	301	309	32	642	1.183,77	3.831	
	Bulat	301	309	32	642	1. 184	3.831	
6.	JAWA TENGAH							
	Kab. Pemalang	38,90	–	–	38,90	–	–	
	Kab. Semarang	103	–	–	103	–	–	
	Kab. Banjarnegara	87,40	–	–	87,40	–	–	
	Kab. Boyolali	165,40	1	19,60	186	0,20	200	
	Jumlah	394,70	1	19,60	415,30	0,20	200	
	Bulat	395	1	20	416	0,20	200	

Keterangan :

Kab. = Kabupaten

8a. DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1 2	3	4	5	6	7	8	9
7 NUSA TENGGARA TIMUR							
Kab. Timur Tengah Selatan	1	–	–	1	–	–	–
Kab. Alor	6	–	–	6	0,20	–	
Jumlah Bulat	7	–	–	7	0,20	–	
8. KALIMANTAN BARAT							
Kab. Pontianak	2	–	–	2	–	–	
Jumlah	2	–	–	2	–	–	
9 KALIMANTAN SELATAN							
Kab. Tapin	11	–	8	19	–	–	
Kab. H.S. Tengah	1	–	–	1	–	–	
Kab. Barito kuala	1	–	–	1	–	–	
Jumlah Bulat	13	–	8	21	–	–	
10. KALIMANTAN TIMUR							
Kab. Samarinda	63	2	–	65	0,3	–	
Kab. Balikpapan	31	2	–	33	0,2	–	
Kab. Pasir	87	3	–	90	0,3		
Kab. Berau	50	–	–	50	–		
Kab. Bulongan	23	2	–	25	–	–	
Kab. Kutai	15	–	10	25	–	–	
Jumlah Bulat	269	9	10	288	1		
11 SULAWESI SELATAN							
Kab. Bantaeng	215	7,5	2	224,5	3,0	400	

Keterangan :

Kab. = Kabupaten

No.	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1	2	3	4	5	6	7	8	9
	Kab. Gowa	2	–	–	2	–	–	
	Kab. Bulukumba	19,81	5,19	–	25	2,5	481,70	
	Kab. Selayar	473,92	181,84	–	655,76	89,525	492,33	
	Kab. Sinjai	137	5	–	142	2	400	
	Kab. Bone	27,62	4,65	–	32,27	1,221	262,58	
	Kab. Wajo	3	–	–	3	–	–	
	Kab. Pinrang	3,5	–	–	3,5	–	–	
	Kab. Sidrap	2	–	–	2	–	–	
	Kab. Enrekang	12,35	1,0	–	13,35	0,3	300	
	Kab. Polmas	5,15	1,7	–	6,85	0,775	455,88	
	Kab. Mamuju	15	–	–	15	–	–	
	Kab. Majene	18	–	–	18	–	–	
	Kab. Tana Toraja	35	–	–	35	–	–	
	Kab. Luwu	119,5	9,5	–	129	2,786	293,26	
	Jumlah	1.089	216	2	1.307	102	472	
	Bulat							
12.	SULAWESI TENGAH							
	Kab Donggala	264	–	–	264	–	–	
	kab. Poso	321,8	35,0	12,9	369,70	–	–	
	Kab Toli-Toli	272,37	64,02	0,17	336,56	1,5	23,4	
	Kab. L Banggai	410,0	–	–	410	–	–	
	Jumlah	1.268,17	99,02	13,07	1.380,26	1,5	15,1	
	Bulat	1.268	99	13	1.380	1		
13.	SULAWESI TENGGARA							
	Kab. Kendari	72	68	3	143	1,7	25	
	Kab. Kolaka	20	47	–	67	17	361,7	
	Kab. Muna	15	2	1	18	1,5	750	
	Kab. Buton	35	8	–	43	0,2	25	
	Jumlah	142	125	4	271	20,4	163,20	
	Bulat	142	125	4	271	20,4	163,20	

Keterangan :

Kab. = Kabupaten

DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
2	3	4	5	6	7	8	9
14 SULAWESI UTARA							
Kab. Minahasa	3.104,6	1.906	–	5.010,6	1.070	–	
Kab. Bolang Mongondow	2.055,7	–	–	2.055,7	–	–	
Kab. Gorontalo	1.517,7	–	–	1.517,7	–	–	
Kab. Sangihe Talaud	5.340	10.152	993,7	16.485,7	8.352	–	
Jumlah Bulat	12.018	12.058	994	25.070	9.422	781,39	
15 MALUKU	8.248	6.727	254	15.229	3.611	356,79	
Jumlah Bulat	8.248	6.727	254	15.229	3.611	356,79	
16 IRIAN JAYA	1.426	3.023	454	4.903	1.341	443,59	
Jumlah Bulat	1.426	3 023	454	4.903	1.341	443,59	
INDONESIA	27.752	27.256	2.034	57.042	18.382	674	

Keterangan :

Kab. = Kabupaten

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Luas Areal dan Produksi Perkebunan Rakyat seluruh Indonesia menurut Kabupaten dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1982

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1. D.I. ACEH							
Kab. Aceh Tenggara	35	36	24	95	7	194	
Kab. Aceh Timur	93	33	60	186	9	273	
Kab. Aceh Utara	135	127	7	269	10	79	
Kab. Pidie	90	23	2	115	10	435	
Kab. Aceh Besar	134	35	–	169	9	257	
Kab. Aceh Barat	121	107	12	240	23	215	
Kab. Aceh Selatan	549	3.174	4	3.737	2.110	665	
TOTAL PROPINSI	1.157	3.535	109	4.801	2.178	616	
2. SUMATERA UTARA							
Kab. Nias	38	87	19	144	47	540	
Kab. Tapanuli Selatan	10	7	–	17	2	286	
Kab. Tapanuli Tengah	6	9	2	17	2	222	
Kab. Deli Serdang	8	32	–	40	9	281	
Kab. Langkat	9	12	–	21	15	1.250	
TOTAL PROPINSI	71	147	21	239	75	518	
3. SUMATERA BARAT							
Kab. Agam	97	379	7	483	369	974	
Kab. Pasaman	8	19	–	27	4	211	
Kab. Tanah Datar	18	110	–	128	82	745	
Kodya Padang	20	87	15	122	48	552	
Kab. Padang Pariaman	219	281	–	500	99	352	
Kab. Solok	190	267	–	457	77	289	
Kab. Pesisir Selatan	126	323	59	508	258	793	
Kab. Sw. Lunto Sijunjung	5	18	–	23	–	–	
OTAL PROPINSI	683	1.484	81	2.248	935	630	

eterangan :
ab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
4. RIAU	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
5. JAMBI							
Kab. Sarko	58	7	–	65	–	–	
Kab. Bungo Tebo	5	5	–	10	–	–	
TOTAL PROPINSI	63	12	–	75	–	–	
6. SUMATERA SELATAN	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
7. BENGKULU	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
8. LAMPUNG	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
9. JAWA BARAT							
Kab. Serang	2	–	–	2	–	–	
Kab. Bogor	84	170	–	254	626	3.557	
Kab. Sukabumi	136	84	3	222	482	5.738	
Kodya Sukabumi	2	2	–	4	4	2.000	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
Kab. Cianjur	43	18	4	65	38	2.167	
Kab. Purwakarta	28	10	–	38	10	1.000	
Kab. Subang	–	1	–	1	2	2.000	
Kab. Tasikmalaya	1	6	–	6	–	–	
Kab. Kuningan	7	16	–	23	31	1.938	
TOTAL PROPINSI	300	312	7	619	1.194	3.827	
10. JAWA TENGAH							
Kab. Banyumas	–	1	–	1	–	–	
Kab. Purbalingga	1	1	–	2	–	–	
Kab. Banjarnegara	61	–	–	61	–	–	
Kab. Purworejo	3	1	–	4	–	–	
Kab. Wonosobo	43	1	–	44	–	–	
Kab. Jepara	1	–	–	1	–	–	
Kab. Semarang	17	–	–	17	–	–	
Kab. Batang	30	–	–	30	–	–	
Kab. Pemalang	61	–	–	61	–	–	
TOTAL PROPINSI	207	4	–	211	–	–	
11. D.I. YOGYAKARTA	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
12. JAWA TIMUR							
Kab. Malang	–	24	–	24	3	125	
TOTAL PROPINSI	–	24	–	24	3	125	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
13. B A L I	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
14. NUSA TENGGARA BARAT	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
15. NUSA TENGGARA TIMUR							
Kab. Timor Tengah Selatan	1	–	–	1	–	–	
Kab. Alor	6	1	–	7	–	–	
TOTAL PROPINSI	7	1	–	8	–	–	
16. KALIMANTAN BARAT							
Kab. Sambas	1	–	–	1	–	–	
Kab. Pontianak	2	–	–	2	–	–	
TOTAL PROPINSI	3	–	–	3	–	–	
17. KALIMANTAN TENGAH	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
18. KALIMANTAN SELATAN							
Kab. Barito Kuala	1	–	–	1	–	–	
Kab. Tapin	4	–	–	4	–	–	
TOTAL PROPINSI	5	–	–	5	–	–	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
19. KALIMANTAN TIMUR							
Kodya Samarinda	63	2	–	65	–	–	
Kodya Balikpapan	31	2	–	33	–	–	
Kab. Pasir	87	3	–	90	–	–	
Kab. Kutai	15	–	10	25	–	–	
Kab. Berau	50	–	–	50	–	–	
Kab. Bulongan	23	2	–	25	–	–	
TOTAL PROPINSI	269	9	10	288	–	–	
20. SULAWESI UTARA							
Kab. Minahasa	2.502	1.812	10	4.324	961	530	
Kab. Bolaang Mongondow	1.889	–	–	1.889	–	–	
Kab. Gorontalo	1.754	–	–	1.754	–	–	
Kab. Sangihe Talaud	5.229	10.134	980	16.343	4.494	443	
TOTAL PROPINSI	11.374	11.946	990	24.310	5.455	457	
21. SULAWESI TENGAH							
Kab. Donggala	264	–	–	264	–	–	
Kab. Poso	321	35	13	369	–	–	
Kab. Banggai	410	–	–	410	–	–	
Kab. Buol Toli-toli	272	64	–	336	2	31	
TOTAL PROPINSI	1.267	99	13	1.379	2	20	
22. SULAWESI SELATAN							
Kab. Selayar	500	200	–	700	92	460	
Kab. Bulukumba	23	7	–	30	2	288	
Kab. Bantaeng	220	15	–	235	8	400	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
Kab. Gowa	2	–	–	2	–	–	
Kab. Sinjai	140	10	–	150	4	400	
Kab. Bone	30	5	–	35	2	400	
Kab. Wajo	5	–	–	5	–	–	
Kab. Sidenreng Rappo	2	–	–	2	–	–	
Kab. Pinrang	4	–	–	4	–	–	
Kab. Enrekang	15	2	–	17	–	–	
Kab. Luwu	125	10	–	135	3	300	
Kab. Tana Toraja	50	2	–	52	1	500	
Kab. Polewali Mamasa	8	2	–	10	–	–	
Kab. Majene	10	–	–	10	–	–	
Kab. Mamuju	15	–	–	15	–	–	
TOTAL PROPINSI	1.157	253	–	1.410	110	435	
23. SULAWESI TENGGARA							
Kab. Buton	42	–	–	42	–	–	
Kab. Muna	3	–	2	5	–	–	
Kab. Kendari	91	35	3	129	4	114	
TOTAL PROPINSI	136	35	5	176	4	114	
24. MALUKU							
Kab. Maluku Tenggara	348	284	11	643	1	4	
Kab. Maluku Tengah	4.618	3.765	143	8.524	2.458	853	
Kab. Halmahera Tengah	353	288	9	650	123	427	
Kab. Maluku Utara	2.831	2.390	91	5.412	1.029	431	
TOTAL PROPINSI	8.248	6.727	254	15.229	3.611	537	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
25. IRIAN JAYA							
Kab. Kota Jayapura	14	5	–	19	–	–	
Kab. Teluk Cendrawasih	32	6	6	44	–	–	
Kab. Manokwari	215	8	6	227	–	–	
Kab. Yapen Waropen	113	116	1	230	–	–	
Kab. Sorong	54	10	8	72	–	–	
Kab. Fak-fak	996	2.880	433	4.309	1.341	466	
Kab. Paniai	2	–	–	2	–	–	
TOTAL PROPINSI	1.426	3.023	454	4.903	1.341	444	
26. D.K.I. JAKARTA	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
27. TIMOR TIMUR	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
INDONESIA	26.373	27.811	1.844	55.928	14.908	540	

Keterangan :
Kab. = Kabupaten

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Best Available Document

Luas Areal dan Produksi Perkebunan Rakyat seluruh Indonesia menurut Kabupaten dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1983 *

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1. D.I. ACEH							
Kab. Aceh Tenggara	35	36	25	96	7	194	
Kab. Aceh Timur	95	34	61	190	9	265	
Kab. Aceh Utara	133	126	7	266	10	79	
Kab. Pidie	99	25	2	126	2	80	
Kab. Aceh Besar	139	34	–	164	8	235	
Kab. Aceh Barat	111	99	11	221	22	222	
Kab. Aceh Selatan	554	3.206	4	3.764	2.278	711	
TOTAL PROPINSI	1.157	3.560	110	4.827	2.336	656	
2. SUMATERA UTARA							
Kab. Nias	49	111	24	184	52	468	
Kab. Tapanuli Selatan	34	23	–	57	8	348	
Kab. Tapanuli Tengah	21	31	7	59	7	226	
Kab. Deli Serdang	16	64	–	80	14	219	
Kab. Langkat	28	35	–	61	20	571	
TOTAL PROPINSI	148	264	31	441	101	383	
3. SUMATERA BARAT							
Kab. Agam	96	383	7	486	370	966	
Kab. Pasaman	8	19	–	27	5	263	
Kab. Tanah Datar	18	111	–	129	92	739	
Kodya Padang	21	90	–	111	78	867	
Kab. Padang Pariaman	201	259	–	460	87	338	
Kab. Solok	191	268	–	459	85	317	
Kab. Pesisir Selatan	223	338	61	622	256	757	
Kab. Sw. Lunto Sijunjung	–	19	–	19	–	–	
TOTAL PROPINSI	758	1.488	68	2.312	993	648	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
4. R I A U							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
5. J A M B I							
Kab. Sarko	65	14	–	79	–	–	
Kab. Bungo Tebo	6	6	–	12	–	–	
TOTAL PROPINSI	71	20	–	91	–	–	
6. SUMATERA SELATAN							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
7. BENGKULU							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
8. LAMPUNG							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
9. JAWA BARAT							
Kab. Serang	2	–	–	2	–	–	
Kab. Bogor	57	217	–	274	758	3.493	
Kab. Sukabumi	184	88	3	275	442	5.023	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
Kodya Sukabumi	2	2	–	4	2	1.000	
Kab. Cianjur	54	24	4	82	35	1.458	
Kab. Purwakarta	22	20	–	42	25	1.250	
Kab. Tasikmalaya	1	5	–	6	–	–	
Kab. Kuningan	7	16	–	23	26	1.625	
TOTAL PROPINSI	329	372	7	708	1.268	3.462	
10. JAWA TENGAH							
Kab. Banyumas	–	1	–	1	1	1.000	
Kab. Purbalingga	1	1	–	2	–	–	
Kab. Banjarnegara	81	–	–	81	–	–	
Kab. Purworejo	2	1	–	3	–	–	
Kab. Wonosobo	43	–	–	43	–	–	
Kab. Kendal	1	3	–	4	–	–	
Kab. Batang	30	–	–	30	–	–	
Kab. Pemalang	28	–	–	28	–	–	
TOTAL PROPINSI	166	6	–	172	1	167	
11. D.I. YOGYAKARTA							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
12. JAWA TIMUR							
Kab. Malang	3	24	–	27	6	208	
TOTAL PROPINSI	3	24	–	27	6	208	
13. B A L I							
	–	–	–	–	–	–	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
TOTAL PROPINSI	–	–	–	–	–	–	
14. NUSA TENGGARA BARAT							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
15. NUSA TENGGARA TIMUR							
Kab. Timor Tengah Selatan	1	–	–	1	–	–	
Kab. Alor	6	1	–	7	–	–	
TOTAL PROPINSI	7	1	–	8	–	–	
16. KALIMANTAN BARAT							
Kab. Sambas	1	–	–	1	–	–	
Kab. Pontianak	2	–	–	2	–	–	
TOTAL PROPINSI	3	–	–	3	–	–	
17. KALIMANTAN TENGAH							
	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
18. KALIMANTAN SELATAN							
Kab. Barito Kuala	1	–	–	1	–	–	
Kab. Tapin	4	–	6	10	–	–	
TOTAL PROPINSI	5	–	6	11	–	–	
19. KALIMANTAN TIMUR							
Kodya Samarinda	83	2	–	85	–	–	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
Kodya Balikpapan	31	2	–	33	–	–	
Kab. Pasir	87	3	–	90	–	–	
Kab. Kutai	15	–	10	25	–	–	
Kab. Berau	50	–	–	50	–	–	
Kab. Bulongan	23	2	–	25	–	–	
TOTAL PROPINSI	269	7	10	298	–	–	
20. SULAWESI UTARA							
Kab. Minahasa	3.292	2.665	–	5.957	1.216	456	
Kab. Bolaang Mongondow	2.678	–	–	2.678	–	–	
Kab. Gorontalo	2.543	–	–	2.543	–	–	
Kab. Sangihe Talaud	8.019	10.948	980	17.967	5.017	457	
TOTAL PROPINSI	14.532	13.653	980	29.186	6.233	457	
21. SULAWESI TENGAH							
Kab. Donggala	284	–	–	284	–	–	
Kab. Poso	322	35	13	370	–	–	
Kab. Banggai	410	–	–	410	–	–	
Kab. Buol Toli-toli	272	64	–	336	2	31	
TOTAL PROPINSI	1.268	99	13	1.380	2	20	
22. SULAWESI SELATAN							
Kab. Selayar	475	275	–	750	154	560	
Kab. Bulukumba	29	10	–	39	3	300	
Kab. Gowa	2	–	–	2	–	–	
Kab. Sinjai	149	10	–	159	4	400	
Kab. Bone	30	5	–	35	2	400	
Kab. Wajo	5	–	–	5	–	–	

Keterangan :
Kab. = Kabupaten

Best Available Docume

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
Kab. Sidenreng Rappa	2	–	–	2	–	–	
Kab. Pinrang	4	–	–	4	–	–	
Kab. Enrekang	24	2	–	26	1	500	
Kab. Luwu	129	15	–	144	5	333	
Kab. Tana Toraja	54	2	–	56	1	500	
Kab. Polewali Mamasa	8	2	–	10	1	500	
Kab. Majene	18	–	–	18	–	–	
Kab. Mamuju	15	–	–	15	–	–	
TOTAL PROPINSI	944	321	–	1.265	171	533	
23. SULAWESI TENGGARA							
Kab. Buton	35	8	–	43	6	750	
Kab. Muna	15	4	1	20	5	1.250	
Kab. Kendari	73	63	3	144	10	147	
Kab. Kolaka	20	47	–	67	2	43	
TOTAL PROPINSI	143	127	4	274	23	181	
24. MALUKU							
Kab. Maluku Tenggara	348	284	11	643	1	4	
Kab. Maluku Tengah	4.616	3.765	143	8.524	2.458	653	
Kab. Halmahera Tengah	353	288	9	650	123	427	
Kab. Maluku Utara	2.931	2.390	91	5.412	1.029	431	
TOTAL PROPINSI	8.248	6.727	254	15.229	3.611	537	
25. IRIAN JAYA							
Kab. Kota Jayapura	14	5	–	19	–	–	
Kab. Teluk Cendrawasih	32	6	–	38	–	–	

Keterangan :
Kab. = Kabupaten

PROPINSI / KABUPATEN	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
Kab. Manokwari	215	6	6	227	–	–	
Kab. Yapen Waropen	113	116	1	230	–	–	
Kab. Sorong	54	10	8	72	–	–	
Kab. Fak-fak	996	2.880	433	4.309	1.341	466	
Kab. Paniai	2	–	–	2	–	–	
TOTAL PROPINSI	1.426	3.023	448	4.897	1.341	444	
26. D.K.I. JAKARTA	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
27. TIMOR TIMUR	–	–	–	–	–	–	
TOTAL PROPINSI	–	–	–	–	–	–	
INDONESIA	29.476	29.592	1.931	61.998	16.075	541	

Keterangan :
* Data Sementara ; Kab. = Kabupaten

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Best Available Copy

PRIVATE ESTATES

Perkebunan Besar Swasta

Area and Production of Private Estates by Province

Luas Areal dan Produksi Perkebunan Besar Swasta
Seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : P A L A Nutmeg
Tahun : 1980

No.	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha) Too young to bear	Tanaman menghasilkan (Ha) bearing	Tanaman Rusak/tua tidak menghasilkan (Ha) Too old	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.) (7) ÷ (4)	Keterangan
1	2	3	4	5	6	7	8	9
1	D.I. Aceh	197	–	20	217	–	–	
2	Sumatera Utara	–	–	–	–	–	–	
3	Sumatera Barat	–	–	–	–	–	–	
4	Riau	–	–	–	–	–	–	
5	Jambi	–	–	–	–	–	–	
6	Sumatera Selatan	–	–	–	–	–	–	
7	Lampung	–	–	–	–	–	–	
8	Bengkulu	–	–	–	–	–	–	
9	Jawa Barat	–	–	–	–	–	–	
10	Jawa Tengah	–	–	–	–	–	–	
11	D.I. Yogyakarta	–	–	–	–	–	–	
12	Jawa Timur	–	–	–	–	–	–	
13	Kalimantan Barat	–	–	–	–	–	–	
14	Kalimantan Selatan	–	–	–	–	–	–	
15	Kalimantan Tengah	–	–	–	–	–	–	
16	Kalimantan Timur	–	–	–	–	–	–	
17	Sulawesi Utara	–	–	–	–		–	
18	Sulawesi Tengah	–	–	–	–	–	–	
19	Sulawesi Selatan	3	–	–	3	–	–	
20	Sulawesi Tenggara	–	–	–	–	–	–	
21	Bali	–	–	–	–	–	–	
22	Nusa Tenggara Barat	–	–	–	–	–	–	
23	Nusa Tenggara Timur	–	–	–	–	–	–	
24	Maluku	52	3	225	280	–	–	
25	Irian Jaya	–	–	–	–	–	–	
26	DKI Jakarta	–	–	–	–	–	–	
27	Timor Timur	–	–	–	–	–	–	
	Jumlah	252	3	245	500	–	–	

Keterangan :

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Best Available Document

Luas Areal dan Produksi Perkebunan Besar Swasta
Seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : PALA nutmeg
Tahun : 1981

No.	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1	2	3	4	5	6	7	8	9
1.	D.I. Aceh	214	–	–	214	–	–	
2.	Sumatera Utara	–	–	–	–	–	–	
3.	Sumatera Barat	–	–	–	–	–	–	
4.	Riau	–	–	–	–	–	–	
5.	Jambi	–	–	–	–	–	–	
6.	Sumatera Selatan	–	–	–	–	–	–	
7.	Lampung	–	–	–	–	–	–	
8.	Bengkulu	–	–	–	–	–	–	
9.	Jawa Barat	–	–	–	–	–	–	
10.	Jawa Tengah	–	–	–	–	–	–	
11.	D.I. Yogyakarta	–	–	–	–	–	–	
12.	Jawa Timur	–	–	–	–	–	–	
13.	Kalimantan Barat	–	–	–	–	–	–	
14.	Kalimantan Selatan	–	–	–	–	–	–	
15.	Kalimantan Tengah	–	–	–	–	–	–	
16.	Kalimantan Timur	–	–	–	–	–	–	
17.	Sulawesi Utara	–	–	–	–	–	–	
18.	Sulawesi Tengah	–	–	–	–	–	–	
19	Sulawesi Selatan	3	–	–	3	–	–	
20.	Sulawesi Tenggara	–	–	–	–	–	–	
21.	Bali	–	–	–	–	–	–	
22.	Nusa Tenggara Barat	–	–	–	–	–	–	
23.	Nusa Tenggara Timur	–	–	–	–	–	–	
24.	Maluku	52	3	225	280	–	–	
25.	Irian Jaya	–	–	–	–	–	–	
26.	DKI Jakarta	–	–	–	–	–	–	
27.	Timor Timur	–	–	–	–	–	–	
	Jumlah	269	3	225	497	–	–	

Keterangan :

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

115

Luas Areal dan Produksi Perkebunan Besar Swasta seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1982

PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1 D.I. Aceh	194	–	20	214	–	–	
2 Sumatera Utara	–	–	–	–	–	–	
3 Sumatera Barat	–	–	–	–	–	–	
4 Riau	–	–	–	–	–	–	
5 Jambi	–	–	–	–	–	–	
6 Sumatera Selatan	–	–	–	–	–	–	
7 Bengkulu	–	–	–	–	–	–	
8 Lampung	–	–	–	–	–	–	
9 Jawa Barat	–	–	–	–	–	–	
10 Jawa Tengah	–	–	–	–	–	–	
11 D.I. Yogyakarta	–	–	–	–	–	–	
12 Jawa Timur	–	–	–	–	–	–	
13 Bali	–	–	–	–	–	–	
14 Nusa Tenggara Barat	–	–	–	–	–	–	
15 Nusa Tenggara Timur	–	–	–	–	–	–	
16 Kalimantan Barat	–	–	–	–	–	–	
17 Kalimantan Tengah	–	–	–	–	–	–	
18 Kalimantan Selatan	–	–	–	–	–	–	
19 Kalimantan Timur	–	–	–	–	–	–	
20 Sulawesi Utara	–	–	–	–	–	–	
21 Sulawesi Tengah	–	–	–	–	–	–	
22 Sulawesi Selatan	–	–	–	–	–	–	
23 Sulawesi Tenggara	–	–	–	–	–	–	
24 Maluku	52	3	225	280	–	–	
25 Irian Jaya	–	–	–	–	–	–	
26 DKI Jakarta	–	–	–	–	–	–	
27 Timor Timur	–	–	–	–	–	–	
INDONESIA	246	3	245	494	–	–	

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Luas Areal dan Produksi Perkebunan Besar Swasta seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1983 *

PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1. D.I. Aceh	194	–	18	212	–	–	
2. Sumatera Utara	–	–	–	–	–	–	
3. Sumatera Barat	–	–	–	–	–	–	
4. Riau	–	–	–	–	–	–	
5. Jambi	–	–	–	–	–	–	
6. Sumatera Selatan	–	–	–	–	–	–	
7. Bengkulu	–	–	–	–	–	–	
8. Lampung	–	–	–	–	–	–	
9. Jawa Barat	–	–	–	–	–	–	
10. Jawa Tengah	–	–	–	–	–	–	
11. D.I. Yogyakarta	–	–	–	–	–	–	
12. Jawa Timur	–	–	–	–	–	–	
13. Bali	–	–	–	–	–	–	
14. Nusa Tenggara Barat	–	–	–	–	–	–	
15. Nusa Tenggara Timur	–	–	–	–	–	–	
16. Kalimantan Barat	–	–	–	–	–	–	
17. Kalimantan Tengah	–	–	–	–	–	–	
18. Kalimantan Selatan	–	–	–	–	–	–	
19. Kalimantan Timur	–	–	–	–	–	–	
20. Sulawesi Utara	–	–	–	–	–	–	
21. Sulawesi Tengah	–	–	–	–	–	–	
22. Sulawesi Selatan	–	–	–	–	–	–	
23. Sulawesi Tenggara	–	–	–	–	–	–	
24. Maluku	52	3	226	280	–	–	
25. Irian Jaya	–	–	–	–	–	–	
26. D.K.I. Jakarta	–	–	–	–	–	–	
27. Timor Timur	–	–	–	–	–	–	
INDONESIA	246	3	243	492	–	–	

Keterangan :
* Data Sementara

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Luas Areal dan Produksi Perkebunan Besar Swasta seluruh Indonesia menurut Propinsi dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1984 **

PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg / Ha)	Keterangan
1	2	3	4	5	6	7	8
1. D.I. Aceh	194	–	16	210	–	–	
2. Sumatera Utara	–	–	–	–	–	–	
3. Sumatera Barat	–	–	–	–	–	–	
4. Riau	–	–	–	–	–	–	
5. Jambi	–	–	–	–	–	–	
6. Sumatera Selatan	–	–	–	–	–	–	
7. Bengkulu	–	–	–	–	–	–	
8. Lampung	–	–	–	–	–	–	
9. Jawa Barat	–	–	–	–	–	–	
10. Jawa Tengah	–	–	–	–	–	–	
11. D.I. Yogyakarta	–	–	–	–	–	–	
12. Jawa Timur	–	–	–	–	–	–	
13. Bali	–	–	–	–	–	–	
14. Nusa Tenggara Barat	–	–	–	–	–	–	
15. Nusa Tenggara Timur	–	–	–	–	–	–	
16. Kalimantan Barat	–	–	–	–	–	–	
17. Kalimantan Tengah	–	–	–	–	–	–	
18. Kalimantan Selatan	–	–	–	–	–	–	
19. Kalimantan Timur	–	–	–	–	–	–	
20. Sulawesi Utara	–	–	–	–	–	–	
21. Sulawesi Tengah	–	–	–	–	–	–	
22. Sulawesi Selatan	–	–	–	–	–	–	
23. Sulawesi Tenggara	–	–	–	–	–	–	
24. Maluku	52	3	226	280	–	–	
25. Irian Jaya	–	–	–	–	–	–	
26. D.K.I. Jakarta	–	–	–	–	–	–	
27. Timor Timur	–	–	–	–	–	–	
INDONESIA	246	3	241	490	–	–	

Keterangan :
** Data Estimasi

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

GOVERNMENT ESTATES

Perkebunan Besar Negara

118

(XXVIII)

only 2 govt estates : one in Ambon and one outside of Semarang (XVIII)

Luas Areal dan Produksi Perkebunan Besar Negara
Seluruh Indonesia menurut PNP/PTP dan Keadaan Tanaman
Jenis Tanaman : P A L A nutmeg
Tahun : 1980

DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.) (4) ÷ (7)	Keterangan
2	3	4	5	6	7	8	9
XVIII (SEMARANG)	486	458	–	944			
Biji nutmeg					66,090	144,30	
Fuli mace					5,698	12,44	
XXVIII (AMBON)	–	935	–	935			
Biji nutmeg					129,634	138,64	
Fuli mace					15,317	16,38	
Jumlah Total	486	1.393	–	1.879	195,724 Biji	140,50	
					21,015 Fuli	15,08	

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Luas Areal dan Produksi Perkebunan Besar Negara
Seluruh Indonesia menurut PNP/PTP dan Keadaan Tanaman
Jenis Tanaman : P A L A
Tahun : 1981

No.	DATI I/PROPINSI	Tanaman belum menghasilkan/ muda (Ha)	Tanaman menghasilkan (Ha)	Tanaman Rusak/tua tidak menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)	Rata-rata Produksi (Kg./Ha.)	Keterangan
1	2	3	4	5	6	7	8	9
1.	JAWA TENGAH							
	Lokasi * XVIII	428	513	–	941	83.637 9.852	163,04 19,20	Biji Fuli
2.	JAWA TIMUR							
	Lokasi* XXVIII	–	61	–	61	115.209 12.645	1.888,67 207,30	biji Fuli
	Jumlah	428	574	–	1.002	198.846 22.497	346,42 39,19	Biji Fuli

Keterangan :
* Lokasi Kantor PNP/PTP

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Luas Areal dan Produksi Perkebunan Besar Negara seluruh Indonesia menurut PNP/PTP dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1982

DATI I / PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)		Rata-rata Produksi (Kg / Ha)	Keterangan
					Biji	Fuli		
1	2	3	4	5	6	7	8	9
1. JAWA TENGAH								
Lokasi * XVIII	350	530		880	62	6		
2. JAWA TIMUR								
Lokasi * XXVIII	–	939		935	47	5		
Jumlah	350	1.465		1.815	109	11		

Keterangan :
* Lokasi Kantor PNP/PTP

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Luas Areal dan Produksi Perkebunan Besar Negara seluruh Indonesia menurut PNP/PTP dan Keadaan Tanaman
Jenis Tanaman : PALA
Tahun : 1983

DATI I / PROPINSI	Tanaman belum Menghasilkan (Ha)	Tanaman Menghasilkan (Ha)	Tanaman Rusak / Tua tidak Menghasilkan (Ha)	Jumlah (Ha)	Produksi (Ton)		Rata-rata Produksi (Kg / Ha)	Kurang
					Biji	Fuli		
1	2	3	4	5	6	7	8	9
1. JAWA TENGAH								
Lokasi * XVIII	291	571		862	99	11		
2. JAWA TIMUR								
Lokasi * XXVIII	–	935		935	155	19		
Jumlah	291	1.506		1.797	254	30		

Keterangan :
* Lokasi Kantor PNP/PTP

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

122

EKSPOR - IMPOR

Volume dan Nilai Ekspor—Impor Pala Indoneisa
Menurut Negara Tujuan/Negara Asal
Tahun : 1971 — 1981

presumably spice in bottles, finished produc

No.	Tahun	Ekspor EXPORT			Impor IMPORTS			Negara	
		Volume (Ton)	Nilai (1.000 US$)	Jenis	Volume (Ton)	Nilai VALUE (1.000 US $)	Jenis	Tujuan DESTINATION	Asal SOURCE OF IMPORTS
1	2	3	4	5	6	7	8	9	10
1.	1971	8.304	2.958	Biji NUTMEG	–	–	Biji	Jepang	Singapore
2.	1972	7.158	1.800	&	–	–	&	Hongkong	Amerika Serikat
3.	1973	5.671	1.502	Bunga MACE	–	–	Bunga	Singapore	Inggris
4.	1974	7.000	2.203		–	–	NUTMEG AND MACE	Australia	Brazil
5	1975	6.641	1.397		0,147	0,834		Amerika Serikat	Australia
6	1976	6.940	9.455		0,022	0,296		Belanda	United Kingdom
7	1977	6.785	10.436		4	34		Perancis	
8	1978	7.070	10.440		0,032	0,069		R.F. Jerman	
9	1979	7.707	10.885		0,112	0,352		Italia	
10	1980	7.481	10.253		0,095	0,423		Lintenburg	
11	1981	6.818	8.296		0,319	1,318		Malaysia	
	[illegible]	[illegible]	[illegible]					Kanada	
3	[illegible]	[illegible]	[illegible]					Denmark	
	[illegible]							Swedia	
up to July '83								Spanyol	
								United Kingdom	
								Belgia, Luxemburg	

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

nutmeg

Volume dan Nilai Ekspor Pala Menurut Pelabuhan Ekspor

Tahun : 1980

Port of Export Jenis Barang, Pelabuhan Ekspor	Volume Bersih (Kg.) net volume weight	Value FOB Nilai F. O. B. (US $)
Biji Berkulit nutmeg in shell		
Belawan	49.985	37.012
Polonia	100	115
Padang/Teluk Bayur	233.000	197.327
Jumlah	283.085	234.454
Biji Kupas shelled nutmeg		
Belawan	117.880	114.261
Padang/Teluk Bayur	236.600	143.534
Tanjung Priok	40.000	53.771
Cirebon	1.000	1.000
Semarang	13.500	11.745
Bitung	2.327.250	3.357.936
Ujung Pandang	847.660	1.302.212
Ternate	747.600	958.180
Ambon	1.142,590	1.681.800
Fak-fak	347.887	343.511
Jumlah	5.822.037	7.867.925
Fuli Mace		
Pakan Baru/Kunbai	126	13
Bitung	399.585	711.382
Ujung Pandang	139.500	248.826
Ternate	132.706	202.023
Ambon	306.400	547.856
Manokwari	300	360
Fak-Fak	397.728	439.637
Jumlah	1.376.345	2.150.097

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Volume dan Nilai Ekspor Pala
menurut Pelabuhan Eksport
Tahun : 1981

No.	Jenis barang, Pelabuhan Ekspor	Volume Bersih (Kg.)	Nilai FOB (US$)
1	Biji Nutmeg (Shelled, unshelled)		
	Belawan	358.245	259.133
	Padang	541.000	304.282
	Bitung	1.274.959	1.737.283
	Ternate	448.026	466.929
	Ambon	1.262.520	1.588.914
	Fakfak	430.825	384.453
	Semarang	74.370	72.577
	Ujung Pandang	1.166.700	1.560.475
	Jumlah	5.556.645	6.374.046
2	Fuli Mace		
	Bitung	394.020	703.207
	Ujung Pandang	96.430	167.301
	Ternate	79.124	129.346
	Ambon	312.655	51.702
	Belawan	344.677	362.239
	Jumlah	1.260.906	1.921.901

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Volume and Value of Nutmeg by port and country of destination

Volume dan Nilai Ekspor Pala menurut
Pelabuhan Ekspor dan Negara tujuan
Tahun : 1982

JENIS	port of export PELABUHAN EKSPOR	VOLUME (KG)	Value NILAI FOB (US $)	destination NEGARA TUJUAN	VOLUME (KG)	Value NILAI FOB (US $)	KE
1	2	3	4	5	6	7	
Biji berkulit nutmeg in shell	Belawan	312.476	211.465	Singapore	2.006.422	2.636.907	
	Semarang	41.640	41.640	USA	10.000	5.000	
	Bitung *	621.900	772.188	Malaysia	4.738	2.604	
	Ujungpandang	3.000	4.746				
	Ternate	447.000	448.421				
	Ambon	973.980	1.022.052				
	Padang TL. Bayur	2.500	2.500				
	Fak-fak	219.062	141.493				
		2.621.158	2.644.511		2.621.158	2.644.511	
Biji kupas Shelled nutmeg	Belawan	110.156	53.381	Singapore	4.826.526	6.244.884	
	Bitung	2.032.150	2.345.801	Italia	3.000	3.738	
	Ujungpandang	1.720.190	1.992.260	Japan	188.866	256.061	
	Ambon	264.900	298.965	Hongkong	10.000	15.000	
	Palania	9.993	13.220	Australia	30.000	40.952	
	Padang TL Bayur	450.000	378.077	USA	35.000	30.223	
	Ternate	482.000	604.052	RF. Germany	10.000	17.564	
	Fak-fak	32.000	23.150				
		5.101.392	5.609.506		5.101.392	5.609.506	
Full mace	Bitung	603.500	1.339.313	Singapore	1.478.775	2.922.938	
	Ujungpandang	181.500	376.928	USA	33.000	62.152	
	Ternate	131.500	272.591	Japan	1.600	4.144	
	Ambon	361.500	727.892	Canada	3.250	8.000	
	Fak-fak	133.000	93.550				
	Semarang	6.300	4.449				
		1.516.525	2.997.234		1.516.525	2.997.234	

Keterangan :
Sumber : BPS

Direktorat Jenderal Perk
Subdit Data dan Stat

Source: Central Bureau of Statistics

Volume dan Nilai Ekspor Pala
Periode Januari — Juli
Tahun : 1983

JENIS	VOLUME (KG)	NILAI FOB (US $)
1	2	3
1. Biji Pala	3.850.467	4.838.378
2. Fuli	745.718	1.635.222

Keterangan :
Sumber : BPS

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

* According to No. Sulawesi Dept of Trade, the govt has not allowed export of nutmeg in shell from Bitung in the last 3 years.

Volume dan Nilai Ekspor Pala menurut Negara Tujuan
Tahun : 1980

Jenis Barang, Negara Tujuan Destination	net weight Volume Bersih (Kg.)	Nilai FOB (US $)
Biji Bersih in shell ? (This term is confusing to most Indonesians, as well)		
Japan	25.100	12.865
Singapura	62.985 (22 %)	45.162
U.S.A.	195.000 (69 %)	176.427
Jumlah	283.085	234.454
Biji Kupas shelled		
Japan	173.037 3 %	290.249
Hongkong	79.000	80.624
Singapura	5.310.977 91 %	7.312.803
USA	231.603 4 %	141.034
Nederland	10.000	14.308
Italy	16.000	28.934
Jumlah	5.822.037	7.867.952
Fuli Mace		
Japan	2.500	5.611
Singapura	1.337.260 97 %	2.073.278
U.S.A.	33.085 2 %	64.470
Canada	1.500	3.090
R.F. Germany	2.000	3.648
Jumlah	1.376.345	2.150.097

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Volume dan Nilai Eksport Pala menurut Negara Tujuan
Tahun : 1981

Jenis barang, Negara Tujuan	Volume bersih (Kg.)	Nilai FOB (US $)
Biji (in and out of shell) nutmeg		
Singapore	5.017.624	5.784.328
U.S.A.	174.733	118.404
Malaysia	20.526	11.039
Japan	241.232	359.240
R.F. Germany	25.159	29.467
Italia	8.500	9.705
Hongkong	2.000	3.062
Australia	10.000	13.095
United Kingdom	10.000	5.500
Netherlands	8.871	8.206
France	8.500	5.800
Belgia & Luxemburg	29.500	26.200
Jumlah	5.556.645	5.374.046
Fuli Mace		
Singapore	1.229.906	1.875.727
Japan	3.000	6.367
Netherlands	13.000	15.309
U.S.A.	10.000	18.498
Belgia & Luxemburg	5.000	6.000
Jumlah	1.260.906	1.921.901

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Imports

Volume dan Nilai Impor Pala menurut Negara Asal
Tahun : 1981

No.	Jenis	Country of origin Negara Asal	Volume (Kg.)	Nilai (US $)
1.	Biji nutmeg	Singapore Australia U.S.A. United Kingdom	60 13 72 2	221 109 413 31
		Jumlah	147	774
2.	Fuli mace	Singapore	172	1.318
		Jumlah	172	1.318

Direktorat Jenderal [illegible]
Sub. Direktorat Data & [illegible]

130

HARGA-HARGA PRICES

Penetapan Harga Patokan Pala Kupas
Tahun : 1980

Gazetted Price
Shelled Nutmeg
1980

Ketetapan date of announcement effectiveness	gazetted price Harga Patokan Komoditi (US $ / MT)							
	Ex Maluku dan Sulawesi			Ex Papua			Ex Sumatera	
	ABCD	Rimpio	BWP	ABCD	BWP	Reconditioned	Pala Padang & Sumatera	Pala Padang & daerah Sumatera lainnya. from Sumatra Aceh
2	3	4	5	6	7	8	9	10
31-3-1980	1.640	1.400	1.000	1.350	870	1.420	550	1.040
30-6-1980	1.640	1.400	1.000	1.350	870	1.420	550	1.040
30-9-1980	1.500	1.250	900	1.200	750	1.275	500	950
31-12-1980	1.550	1.300	1.000	1.300	850	1.350	550	1.000

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

Penetapan Harga Patokan Pala Kupas

Tahun : 1981

No.	Ketetapan	Harga Patokan Komoditi (US $ / MT)							
		Ex Maluku dan Sulawesi			Ex Papua			Ex Sumatera	
		ABCD	Rimple	BWP	ABCD	BWP	Reconditioned	Pala Padang & daerah Sumatera	Pala [illegible] & D[illegible] matera [illegible] nya
1	2	3	4	5	6	7	8	9	10
1.	31-3-1981	1.550	1.300	1.000	1.300	850	1.350	550	1.000
2.	30-6-1981	1.350	1.100	1.000	1.150	850	1.200	550	1.000
3.	30-9-1981	1.200	1.000	900	1.050	750	1.100	500	900
4.	31-12-1981	1.250	1.050	950	1.050	750	1.100	500	900

Direktorat Jenderal Perkebunan

Sub. Direktorat Data & Statistik

Harga Patokan Pala Kupas
Tahun : 1982

NO.	JENIS		HARGA PATOKAN (US $ / Mt)
1	2		3
1.	Ex Maluku & Sulawesi	: A. B. C. D.	1.150
		RIMPLE	950
		B. W. P.	850
2.	Ex Papua	: A. B. C. D.	950
		B. W. P.	800
		Reconditioned Nutmeg	1.000
3.	Pala Padang, Biji Saring (dan Palabolong ex Sumatera .....)		500
	Pala Padang dan Pala ex daerah Sumatera lainnya		900

Keterangan :

Sumber : Business News

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Harga Patokan Bunga Pala
Tahun : 1982

NO.	JENIS		HARGA PATOKAN (US $ / Mt)
1	2		3
1.	Ex Maluku dan Sulawesi	:	
		Whole I	1.750
		Whole II	1.650
		Pruis I	1.650
		Pruis II	1.550
2.	Ex Papua		
		Whole I	1.450
		Whole II	1.200
		Pruis I	1.250
		Pruis II	1.100
3.	Ex Sumatera	:	
		Whole I	1.700
		Whole II	1.600
		Pruis I	1.600
		Pruis II	1.300

Keterangan :
Sumber : Business News

Direktorat Jenderal Perkebunan
Subdit Data dan Statistik

Harga Patokan Pala Kupas
Tahun : 1983

O.	JENIS		HARGA PATO (US $ / Mt)
	2		3
	Ex Maluku dan Sulawesi	: A. B. C. D.	1.300
		RIMPLE	1.100
		B. W. P.	950
	Ex Papua	: A. B. C. D.	1.100
		B. W. P.	800
		Reconditioned Nutmeg	1.150
	Pala Padang Biji Saring (daw Pala bciong ex Sumatera		850
	Pala Padang dan Pala ex daerah Sumatera lainnya		1.050

Keterangan :
Sumber : Business News

Direktorat Jenderal
Subdit Data dan

Maret 1983

NO.	JENIS		HARGA PATOKAN (US $ / Mt)
1	2		3
1.	Ex Maluku dan Sulawesi :		
		Whole I	1.950
		Whole II	1.850
		Pruis I	1.950
		Pruis II	1.750
2.	Ex Papua		
		Whole I	1.650
		Whole II	1.400
		Pruis I	1.400
		Pruis II	1.300
3.	Ex Sumatera		
		Whole I	1.900
		Whole II	1.800
		Pruis I	1.800
		Pruis II	1.500

Keterangan :

Sumber : Business News

Direktorat Jenderal Perkebunan

Subdit Data dan Statistik

136

Penetapan Harga Patokan Bunga Pala

Tahun : 1980

Gazetted Price
Mace
1980

[illegible]	Harga Patokan Komoditi (US $ / MT)												Ket.
	Ex Maluku dan Sulawesi				Ex Papua			Ex Sumatera					
	Whole I	Whole II	Gruis I	Gruis II	Whole I	Whole II	Gruis I	Gruis II	Whole I	Whole II	Gruis I	Gruis II	
2	3	4	5	6	7	8	9	10	11	12	13	14	15
31-3-1980	1.850	1.750	1.700	1.470	1.730	1.350	1.290	1.240	1.870	1.760	1.670	1.420	
30-6-1980	1.850	1.750	1.700	1.470	1.730	1.350	1.290	1.240	1.870	1.760	1.670	1.420	
30-9-1980	1.850	1.550	1.500	1.350	1.550	1.200	1.150	1.100	1.675	1.575	1.475	1.275	
31-12-1980	1.700	1.600	1.600	1.500	1.550	1.300	1.300	1.200	1.750	1.650	1.650	1.400	

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

127

Penetapan Harga Patokan Bunga Pala
Tahun : 1981

Gazetted Price
March
1981

No.	Ketetapan effective date	Harga Patokan Komoditi (US $ MT)											
		Ex Maluku dan Sulawesi				Ex Papua				Ex Sumatera			
		Whole I	Whole II	Gruis I	Gruis II	Whole I	Whole II	Gruis I	Gruis II	Whole I	Whole II	Gruis I	Gruis II
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	31-3-1981	1.700	1.600	1.600	1.500	1.550	1.300	1.300	1.200	1.750	1.650	1.650	1.400
2	30-6-1981	1.650	1.550	1.550	1.450	1.450	1.200	1.200	1.100	1.700	1.600	1.600	1.300
3	30-9-1981	1.650	1.550	1.550	1.450	1.450	1.200	1.200	1.100	1.700	1.600	1.600	1.300
4.	31-12-1981	1.750	1.650	1.650	1.550	1.450	1.203	1.200	1.100	1.700	1.600	1.600	1.300

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

138

Harga Ekspor Pala dipasaran Internasional
Singapore
Tahun : 1981—1982

International Market
Export Price (Singapore
Nutmeg

TAHUN—BULAN		HARGA (SIN $ / PIKUL)
1981	Januari	413
	Februari	338
	Maret	370
	April	370
	Mei	370
	Juni	380
	Juli	363
	Agustus	380
	September	388
	Oktober	388
	Nopember	388
	Desember	368
1982	Januari	368
	Februari	359
	Maret	359
	April	359
	Mei	359
	Juni	359

Direktorat Jenderal Perkebunan
Sub. Direktorat Data & Statistik

The production centre for pepper is Sumatra, where 90% of the total area of pepper is located. The main "pepper-provinces" are Lampung and South Sumatra with 69% and 17%, respectively, of the total pepper acreage of Indonesia. The chief regencies regarding pepper cultivation are North Lampung, Central Lampung, and Bangka.

11. Cassiavera (Table 43 and graphs 55a, b)

Currently, Cassiavera is only produced by smallholders. Nearly all of the total area of plantations is on Sumatra. Quite recently plantations started on other islands, but their production is of no importance so far.

On Sumatra the provinces of Jambi and West Sumatra have the greatest extent of plantations. The absolute centre of cassiavera production is the regency of Kerinci (Jambi) with 42 500 ha plantations, of which 30 000 ha are not yet mature. In the future, when all trees will have reached producing age, a considerable growth of output may be expected.

According to the 1973 Agricultural Census there were 27 estates with cassiavera plantations. None of these plantations (altogether 1 086 ha with some 1 million trees) has started production (1973 only 50 ha with 5 000 trees had reached maturity). The planting started slowly in the early sixties but was increased at the beginning of the seventies. The plantations are fairly evenly distributed between Sumatra and Java.

12. Nutmeg (Table 44 and graphs 56a, b)

Only the production of nutmegs by smallholders is recorded. Production centres are Sulawesi and Maluku, especially the provinces of North Sulawesi (particularly the regency Sangihe Talaud and in the province of Maluku the regencies North and Central Maluku). These regencies have also the greatest number of plantations of producing age.

In the 1973 Agricultural Census 45 estates are reported as having nutmeg plantations of some 2 800 ha (about 580 000 trees). Of this area 1 400 ha were producing, but the total production amounted to 227 t only (i.e. an averagae yield of 196 kg/ha as against 350 kg/ha for smallholders' plantations). No further data concerning the production by estates is available.

For the nutmeg production by smallholders one may also expect an increase. Since about 40% of the plantations are still too young for production, there will certainly be some increase provided there is no crop failure, as was obviously the case in Sulawesi in 1971.

Statistical Information on Indonesian Agriculture 1978 German Aid Team (44)

Table 43: Cassiavare, Smallholders, 1968—1975

	1968	1969	1970	1971	1972	1973	1974	1975[x]	1976
	Area in Exploitation (1 000 ha)								
Java & Madura	—	0.0	0.0	—	0.0	0.1	0.2	0.3	
Sumatra	25.4	26.0	30.9	35.9	40.6	50.1	58.8	62.2	
Kalimantan	—	—	—	—	—	—	—	—	
Sulawesi	—	—	—	—	—	0.1	0.2	0.2	
Maluku, Irian J.	—	—	—	0.0	—	0.1	0.2	0.2	
Bali, Nusatengg.	—	—	—	—	0.1	—	0.3	0.3	
Indonesia	25.4	26.0	31.0	36.0	40.7	50.4	58.5	63.2	
	Production (1 000 t) (dry)								
Java & Madura	—	—	—	—	—	0.1	0.1	0.1	
Sumatra	5.5	8.4	6.0	5.7	6.2	7.2	7.1	6.3	
Kalimantan	—	—	—	—	—	—	—	—	
Sulawesi	—	—	—	—	—	—	0.0	0.0	
Maluku, Irian J.	—	—	—	—	—	—	0.0	0.0	
Bali, Nusatengg.	—	—	—	—	0.0	0.0	—	—	
Indonesia	5.5	8.4	6.0	5.7	6.2	7.3	7.2	6.4	

	Situation of Plantations 1975					
	Area (1 000 ha)			Percentage		
	I	II	III	I	II	III
Java & Madura	0.2	0.1	0.0	70	29	1
Sumatra	47.6	14.6	0.0	77	23	0
Kalimantan	—	—	—	—	—	—
Sulawesi	0.2	0.0	—	94	6	—
Maluku, Irian J.	0.2	0.0	—	97	3	—
Bali, Nusatengg.	0.3	—	—	100	—	—
Indonesia	48.5	14.7	0.0	77	23	—

Source: Directorate General of Estates "Data Statistik Perkebunan"
NB.: 0.0 = More than nil, but less than half the unit used.
x) Preliminary
I = Young/Not producing
II = Producing
III = Damaged/Old/Not producing

Table 44: Nutmeg, Smallholders, 1968 – 1975

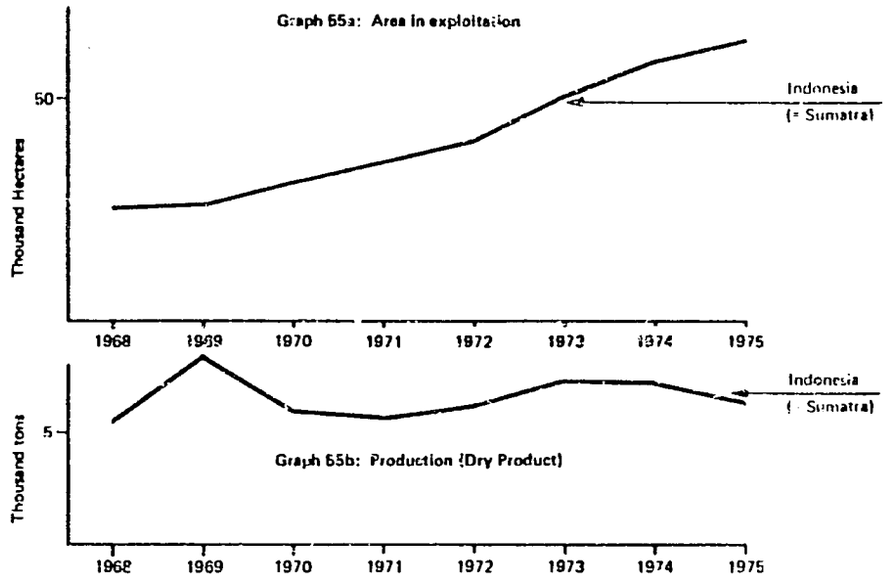
	1968	1969	1970	1971	1972	1973	1974	1975	1976
	Area in Exploitation (1 000 ha)								
Java & Madura	0.3	0.3	0.4	0.5	0.6	0.4	0.4	0.3	
Sumatra	1.0	3.2	3.6	3.7	4.5	5.4	5.8	6.6	
Kalimantan	–	–	–	–	–	0.0	0.2	0.4	
Sulawesi	10.1	10.3	11.4	15.9	15.5	16.1	17.6	20.2	
Maluku, Irian J.	2.8	5.8	8.2	6.5	7.4	8.4	18.6	19.0	
Bali, Nusatengg.	–	–	–	–	–	–	–	–	
Indonesia	14.2	19.7	23.6	26.6	27.9	30.3	42.5	46.5	
	Production (1 000 t) (dry)								
Java & Madura	0.2	0.1	0.8	0.3	0.9	1.4	0.8	0.8	
Sumatra	0.6	1.0	1.3	1.1	1.2	1.1	1.4	2.1	
Kalimantan	–	–	–	–	–	–	–	0.0	
Sulawesi	5.1	5.5	6.0	0.9	6.0	7.1	7.1	8.9	
Maluku, Irian J.	1.5	1.4	1.3	2.5	2.0	1.1	3.7	2.9	
Bali, Nusatengg.	–	–	–	–	–	–	–	–	
Indonesia	7.5	8.0	9.4	4.8	10.2	10.6	12.9	14.6	

	Situation of Plantations 1975					
	Area (1 000 ha)			Percentages		
	I	II	III	I	II	III
Java & Madura	0.1	0.2	0.0	39	54	8
Sumatra	2.6	3.3	0.1	40	59	1
Kalimantan	0.4	0.0	0.0	100	–	–
Sulawesi	8.7	10.3	1.2	43	51	6
Maluku, Irian J.	6.8	11.6	0.6	36	61	3
Bali, Nusatengg.	–	–	–	–	–	–
Indonesia	18.6	25.9	2.0	40	56	4

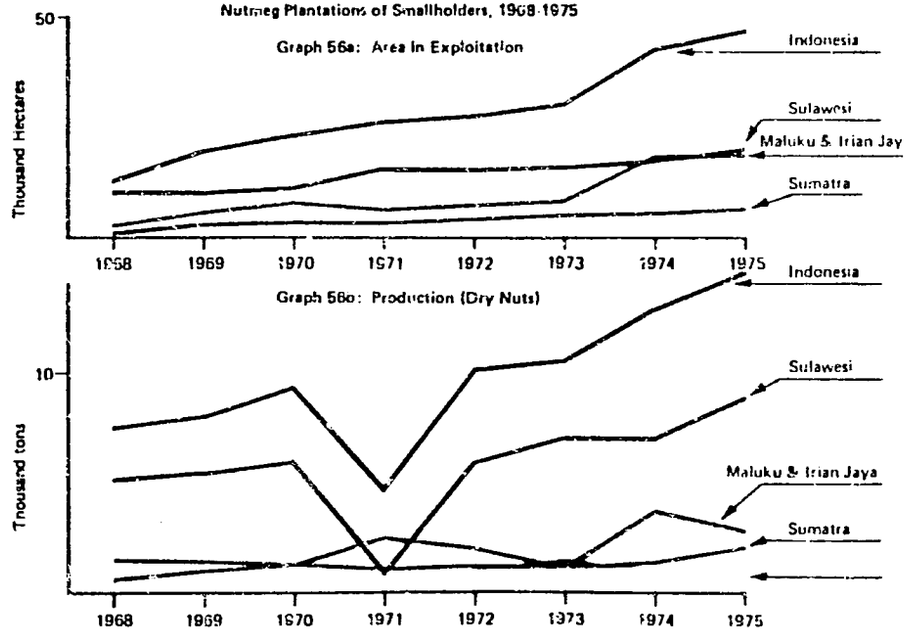
Source: Directorate General of Estates "Data Statistik Perkebunan"
I = Young/Not yet producing
II = Producing
III = Damaged/Old/Not producing

0.0 = More than nil, but less than half the unit used. *) Preliminary

Cassiavera Plantations of Smallholders, 1968-1975



Nutmeg Plantations of Smallholders, 1968-1975



(5)

STATISTICAL INFORMATION ON INDONESIAN AGRICULTURE

Second Edition
1968 – 1980

Data compilation by the Ministry of Agriculture, Republic of Indonesia.
Analysis and graphical presentation by Dr. Manfred Woelke.
Publication sponsored by German Agency for Technical Cooperation (GTZ), Market Information Project ATA 85/86.
Printed by P.T. Intermasa, Jakarta.

State of Maturity of Pepper Plantations, 1978

Region	Area (1 000 ha)			Percentage of regional total area		
	I	II	III	I	II	III
Java & Madura	0.5	0.6	0.1	39	56	5
Sumatera	7.1	49.3	1.6	12	85	3
Kalimantan	1.5	2.2	0.3	38	55	7
Sulawesi	0.6	0.5	0.0	51	46	3
Maluku, Irian Jaya	0.0	0.0	–	73	27	–
Bali, Nusatenggara	0.0	0.6	–	25	75	–
Indonesia	**9.7**	**52.7**	**2.0**	**15**	**82**	**3**

I = Not yet producing; II = Producing; III = Not producing (Old/Damaged)

0.0 = More than nil, but less than half the tabulation unit.

Source : Direktorat Jenderal Perkebunan "Data Statistik Perkebunan, tahun 1977 dan 1978 per propinsi"

It is rather feared, that a production decline will result from turning the state of a certain percentage of plantations from "producing" to "not producing" without being able to substitute this percentage from the reservoir of 15% mentioned above.

In 1978 the most important "pepper-provinces" were -on Sumatera- the provinces Lampung and South Sumatera, comprising some 56 000 ha (87% of Indonesia's total area of pepper plantations), and - on Kalimantan - the provinces East and West Kalimantan (5% of Indonesia's total area).

4. 3.4. Producing of Nutmeg.
(Tables 29a-29b; Graphs 33a-33c)

In each of the six regions of Indonesia some nutmeg is produced, but the important production centres are located in three regions.

Nearly half of the Indonesian nutmeg arboricultures are on Sulawesi (46%), which accounts for more than half of the nutmeg production (52%). Rank 2 has to be granted the Maluku Irian Jaya region, holding 38% of the plantations and adding 27% to the total production. Third is Sumatera, whose share of area amounts to 14%, and whose part of the total production sums up to about 16%.

Plantation extent and production have grown remarkable ever since 1968.

Production of Nutmeg by Smallholders, 1968 – 1979
Average Annual Growth Rates (%)
(Main producing centres only)

Region	Area	Production
Sumatera	20.25	13.43
Sulawesi	8.71	5.40
Maluku, Irian Jaya	19.62	11.57
Indonesia[1]	**13.43**	**8.30**

Source : Calculated from data given in table 29a.

The data given above have one similarity for all regions: The growth rates for production are in all cases smaller than those for the area. This manifests, that the average yields have declined, which is confirmed by the data contained in table 29a and depicted clearly in graph 33c. This means, that the higher production was not caused by increases of the average yield (higher production from the same amount of land), but by area extension (higher production because of use of more land). Here seem to be extraordinary possibilities to increase the production without cultivating more suitable land, even if the data, given in the following tabel, promise further production increases without such efforts (see as below).

1) All regions are considered.

State of Maturity of Nutmeg Plantations, 1978

Region	Area (1 000 ha)			Percentage of regional total area		
	I	II	III	I	II	III
Java & Madura	0.6	0.3	0.0	68	30	2
Sumatera	2.2	4.4	0.5	31	62	7
Kalimantan	0.5	0.0	0.0	94	3	3
Sulawesi	12.1	11.0	1.0	50	46	4
Maluku, Irian Jaya	9.6	9.7	0.7	48	49	3
Bali Nusatenggara	0.0	0.0	0.0	82	9	9
Indonesia	**25.0**	**25.4**	**2.3**	**48**	**48**	**4**

0.0 = More than nil, but less than half of tabulation unit.

I = Not yet producing; II = Producing; III = Not producing (Old/Damaged)

Source Direktorat Jenderal Perkebunan "Data Statistik Perkebunan tahun 1977 dan 1978 per propinsi"

Some data about nutmeg production in the provinces :

The main "nutmeg-provinces" are North Sulawesi (holding 22 000 ha or 41% of the Indonesian nutmeg arboriculturesl, and Maluku (15 000 ha or 28%).

The production of these two provinces in 1978 added up to roughly 12 000 t, equal to nearly three quarters of the Indonesian total production (73%).

Table 26a: Cloves, Smallholders, 1968 – 1980

Region	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979*)	1980**)	1978***) relative distribution
							Area in Exploitation (1 000 ha)							
Java and Madura	18.4	15.6	24.0	36.0	36.1	49.3	57.0	69.1	69.0	79.2	92.7	69.5	103.4	30.8%
Sumatera	39.2	31.5	33.9	36.9	43.1	53.2	64.6	78.5	93.3	114.8	120.5	124.6	134.5	40.0%
Kalimantan	1.1	0.2	0.6	0.8	1.4	2.1	2.9	4.4	6.4	8.0	10.1	11.4	11.3	3.4%
Sulawesi	11.4	16.0	16.7	20.7	20.7	26.2	30.1	38.3	41.7	44.3	49.2	52.1	54.9	16.3%
Maluku, Irian Jaya	5.5	5.3	5.6	5.6	6.5	7.2	13.6	14.9	16.3	30.4	19.7	23.1	22.0	6.5%
Bali, Nusatenggara	0.2	0.3	0.6	0.9	1.1	1.6	2.3	3.7	5.3	7.1	8.8	12.3	9.8	2.9%
Indonesia	**75.8**	**68.9**	**81.4**	**100.9**	**108.9**	**139.6**	**170.5**	**208.9**	**232.0**	**283.8**	**301.0**	**293.3**	**335.9**	**100 %**
							Production (1 000 t) (Dry)							
Java and Madura	1.7	1.3	2.7	1.5	2.5	6.6	1.6	2.5	2.9	3.9	3.7	1.6	3.2	16.7%
Sumatera	10.7	7.2	10.4	6.6	9.8	10.7	8.3	9.7	11.5	13.3	10.6	5.4	9.1	48.0%
Kalimantan	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.5%
Sulawesi	3.3	2.0	2.2	2.0	0.9	8.1	0.8	2.9	0.1	12.2	2.6	6.6	2.2	11.8%
Maluku, Irian Jaya	1.4	0.5	0.1	1.1	1.7	1.8	4.3	4.0	5.0	9.9	4.0	3.8	3.4	18.1%
Bali, Nusatenggara	0.0	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.1	0.0	0.9	5.0%
Indonesia	**17.1**	**11.0**	**15.4**	**11.2**	**14.9**	**27.3**	**15.1**	**19.2**	**19.6**	**39.5**	**22.1**	**18.6**	**18.9**	**100 %**
							Average Yield (100 kg/ha)							
Java and Madura														
Sumatera														
Kalimantan														
Sulawesi														
Maluku, Irian Jaya														
Bali, Nusatenggara														
Indonesia														

Since the relevant basic data, i.e. the number of trees, are not available, no values for average yield are calculated.

*) *Preliminary* **) *Estimated* ***) *The figures indicate the regions' shares of the total of Indonesia.*
0.0 = More than nil, but less than : all of tabulation unit.
Source : Directorate General of Estates "Data Statistik Perkebunan"

Table 29a: Nutmeg, Smallholders, 1968 – 1980

Region	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979*)	1980*)	1978***) relative distribution
						Area in Exploitation (1 000 ha)								
Java & Madura	0.3	0.3	0.4	0.5	0.6	0.4	0.4	0.2	0.4	0.6	0.9	2.5	1.1	1.7%
Sumatera	1.0	3.2	3.6	3.7	4.5	5.4	5.8	5.6	6.8	7.1	7.1	7.6	8.5	13.5%
Kalimantan	–	–	–	–	–	0.0	0.2	0.5	0.5	0.5	0.5	0.5	0.6	1.0%
Sulawesi	10.1	10.3	11.4	15.9	15.5	16.1	17.6	20.2	21.4	23.4	24.2	25.3	29.0	46.0%
Maluku, Irian Jaya	2.8	5.8	8.2	6.5	7.4	8.4	18.6	19.5	19.5	25.7	19.9	20.1	23.8	37.8%
Bali, Nusatenggara	–	–	–	–	–	–	–	–	0.0	0.0	0.0	0.9	0.0	0.0%
Indonesia	**14.2**	**19.6**	**23.6**	**26.6**	**28.0**	**30.3**	**42.6**	**47.0**	**48.6**	**57.3**	**52.6**	**56.8**	**63.0**	**100 %**
						Production (1 000 t) (Dry)								
Java & Madura	0.2	0.1	0.8	0.3	0.9	1.4	0.8	0.9	0.6	0.8	0.8	1.3	1.0	5.0%
Sumatera	0.6	1.0	1.3	1.1	1.2	1.1	1.4	2.1	1.4	2.4	2.5	2.4	3.0	15.6%
Kalimantan	–	–	–	–	–	–	–	0.0	–	0.0	0.0	0.0	0.0	0.0%
Sulawesi	5.1	5.5	6.0	6.9	6.0	7.1	7.1	7.8	8.0	8.3	8.4	9.1	10.0	52.5%
Maluku, Irian Jaya	1.5	1.4	1.3	2.5	2.0	1.1	3.7	3.6	4.2	7.4	4.3	5.0	5.1	26.9%
Bali, Nusatenggara	–	–	–	–	–	–	–	–	0.0	–	–	0.0	0.0	–
Indonesia	**7.4**	**8.0**	**9.4**	**10.8**	**10.1**	**10.7**	**13.0**	**14.3**	**14.2**	**18.9**	**16.0**	**17.8**	**19.1**	**100 %**
						Average Yield (100 kg/ha) (Dry)								
Java & Madura	6.0	3.1	3.6	3.0	2.7	2.0	2.4	3.2	2.1	3.4	3.5	3.2	3.5	115.8%
Sumatera														
Kalimantan	5.0	5.3	5.3	4.3	3.9	4.4	4.0	3.9	3.7	3.6	3.5	3.6	3.4	114.1%
Sulawesi	5.4	2.4	1.6	3.3	2.7	1.3	2.0	1.8	2.2	2.9	2.2	2.5	2.1	71.0%
Maluku, Irian Jaya	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Bali, Nusatenggara														
Indonesia	**5.3**	**4.1**	**4.0**	**4.1**	**3.6**	**3.5**	**3.0**	**3.0**	**2.9**	**3.3**	**3.0**	**3.1**	**3.0**	

N.B. Values of average yield have only been calculated for those regions with reasonable areas in exploitation and production. For the other regions these values were too small to render significant results concerning average yield.

*) Preliminary **) Estimated ***) *For area in exploitation and for production the figures indicate the regions' shares of the total of Indonesia; for average yield they are result of comparing the regions' average yields with that of Indonesia.*

[illegible]

Table 29b. : CHANGES IN PRODUCTION

Four Year Averages
(1968/1971 vs. 1977/1980)

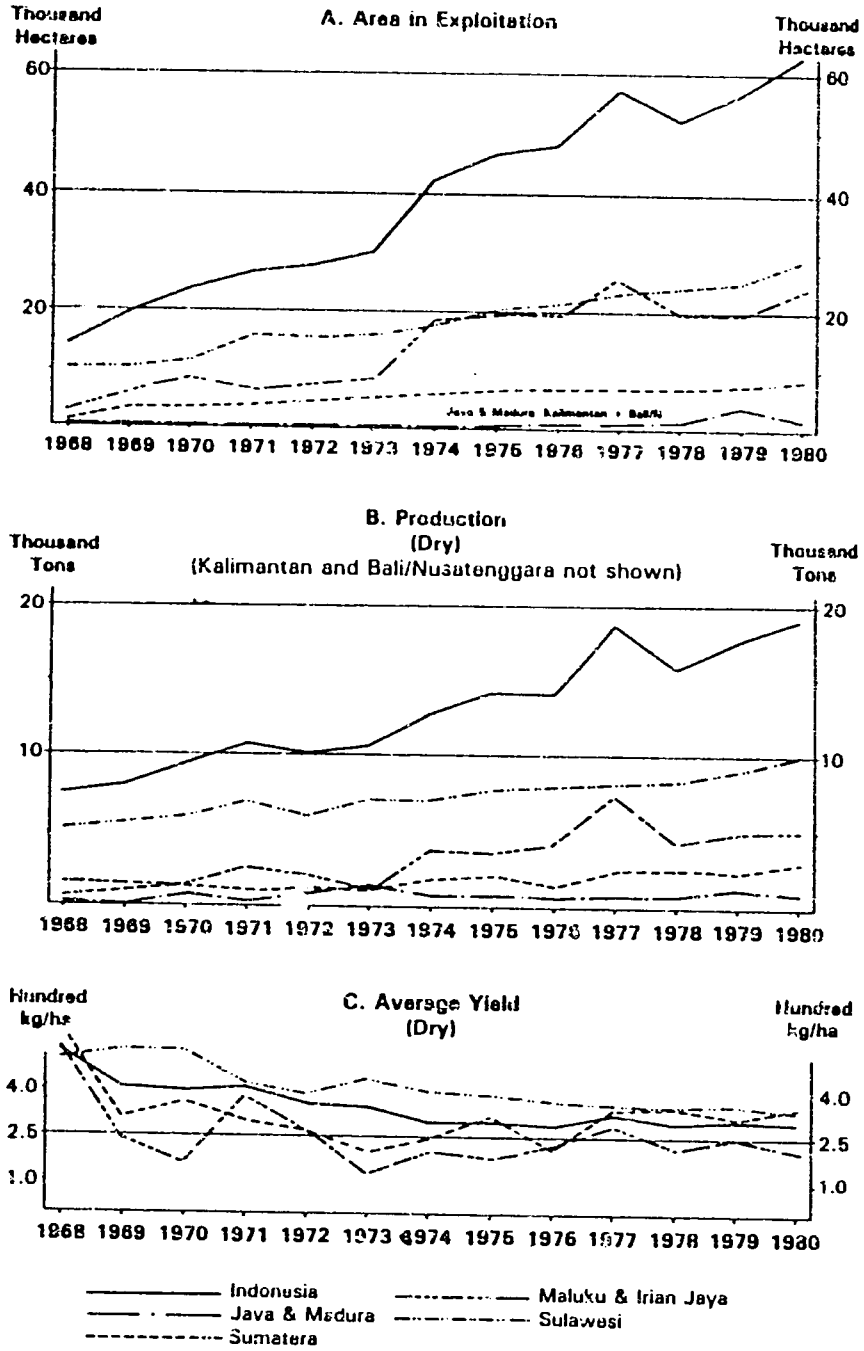
Nutmeg, Smallholders

Region	Average Periods 1968/1971	Average Periods 1977/1980	Differences 1977/80 minus 1968/71 absolute	Differences 1977/80 minus 1968/71 in % of 1968/71
Indonesia				
		Area in Exploitation (1 000 ha)		
Java and Madura	0	1	+ 1	+ 240.0
Sumatera	3	8	+ 5	+ 163.5
Kalimantan	–	1	+ 1	X
Sulawesi	12	25	+ 14	+ 113.6
Maluku, Irian Jaya	6	22	+ 16	+ 284.1
Bali, Nusatenggara	–	0	+ 0	X
Indonesia*)	**21**	**57**	**+ 36**	**+ 173.4**
		Production (1 000 t) (Dry)		
Java and Madura	0	1	+ 1	+ 178.6
Sumatera	1	3	+ 2	+ 157.5
Kalimantan	–	0	+ 0	X
Sulawesi	6	9	+ 3	+ 52.3
Maluku, Irian Jaya	2	5	+ 4	+ 225.4
Bali, Nusatenggara	–	0	+ 0	X
Indonesia*)	**9**	**18**	**+ 9**	**+ 101.7**
		Average Yield (100 kg/ha) (Dry)		
Java and Madura	Basic values are too small to render significant results.			
Sumatera	3.5	3.4	– 0.1	– 2.3
Kalimantan	(See above)			
Sulawesi	4.9	3.5	– 1.4	– 28.8
Maluku, Irian Jaya	2.9	2.4	– 0.4	– 15.3
Bali, Nusatenggara	(See above)			
Indonesia	**4.2**	**3.1**	**– 1.1**	**– 26.4**

*) *Deviations of sums are due to rounding. – X = No values are calculated, if the denominators are equal nil.*

Percentages and average yields are calculated from the original values, not from rounded figures given here

Graph: 33. PRODUCTION OF NON-FOOD CROPS
Smallholders
NUTMEG



Chapter 5

PRODUCTION OF NON-FOOD CROPS BY ESTATES
(Tables 30a to 37b; Graphs 34a to 41b).

In this chapter - like in chapter 4 - a subdivision is applied.

The divers crops have been assigned to one of three groups of crops according to their future use and/or consumption. These three groups are similar to those of chapter 4, but they have been adapted to the special requirements of crop production by estates. The three groups are entitled as follows:

1. Crops yielding raw materials;
2. Tea, Coffee, and Cocoa; and
3. Minor estate crops.

Within each group the crops are arranged in descending order of the relevant plantations' areas.

Attention is drawn to the fact, that - contrary to the statistics given in the preceding chapters on food crop production and on non-food crop production by smallholders - the data published here for the years 1979 and 1980 are final values. (In the chapters mentioned preliminary figures were tabulated for the year 1979, and the data for 1980 were estimates, only).

The data contained in the tables of this chapter refer to the production of state owned estates[1] and of private estates[2].

---

1) PN/PT Perkebunan.
2) Perkebunan Besar Swasta.

5.1 "Estates' Production of Crops Yielding Raw Materials"
(Tables 30a—32b; Graphs 34a—36c)

5.1.1 Production of Rubber.
(Tables 30a—30b; Graphs 34a—34b)

Estates producing rubber exist in all regions of Indonesia - with the exception of the Maluku/Irian Jaya region.

The important regions of the rubber production by estates are the regions Sumatera and Java & Madura. On Sumatera nearly two thirds of the estates' total rubber arboricultures are situated (62 %), on Java & Madura are a bit more than one third (35 %). As regards the production of raw rubber, 67 % stem from the Sumateran plantations and 31 % from Java (1980 data).

TABLE 6. EXPORT BY COMMODITY BY COUNTRY OF DESTINATION (CONTINUED)

COMMODITY DESCRIPTION	SITC CODE	COUNTRY OF DESTINATION	QUANTITY	UNIT	NET WEIGHT (KG)	VALUE F O B (US$)
CASSIA VERA CVERA PL*	752217	PAKISTAN	-		12 558	16 074
		U.S.A	-		620 108	633 770
		CANADA	-		85 400	85 426
		MEXICO	-		250 075	217 723
900150 OTHER CINNAMON	752219		-		5 842 655	6 646 012 *
		JAPAN	-		25 125	33 981
		HONGKONG	-		15 000	13 030
		SINGAPORE	-		1 217 914	1 394 966
		MALAYSIA	-		142 000	207 849
		SAUDI ARABIA	-		30 000	77 289
		KUWAIT	-		10 000	9 038
		MAROCCO	-		115 000	136 023
		SUDAN	-		30 000	38 360
		AUSTRALIA	-		10 000	19 576
		U.S.A	-		3 010 026	3 383 779
		CANADA	-		2 500	5 874
		MEXICO	-		98 000	132 843
		NICARAGUA	-		10 000	11 463
		BRAZIL	-		30 000	38 350
		UNITED KINGDOM	-		5 000	6 629
		NETHERLANDS	-		228 500	237 182
		FRANCE	-		10 000	16 203
		F.F.GERMANY	-		695 640	630 645
		BELGIA&LUXEMBURG	-		23 500	22 783
		DENMARK	-		15 000	16 770
		SWEDEN	-		92 000	94 241
		ITALY	-		11 350	7 213
		SPAIN	-		4 500	5 620
		PORTUGAL	-		3 000	6 393
		GREECE	-		19 000	25 711
		HUNGARY	-		55 000	66 688
		RUMANIA	-		10 000	11 463
907100 CLOVES	752310		-		1 000	3 450 *
		SINGAPORE	-		1 000	3 450
907900 OTHER CLOVES (WHOLE,FRUIT, STEMS)	752390		-		79 937	253 633 *
		SINGAPORE	-		78 437	247 700
		U.S.A	-		1 500	5 933
90A111 NUT MEG IN SHELL, A.B.C.C. AVARAGES	752411		-		690 596	731 168 *
		SINGAPORE	-		675 860	723 564
		MALAYSIA	-		4 736	2 604
		U.S.A	-	$1,150/MT	10 000	5 000
90A112 NUT MEG IN SHELL,RIMPLE	752412		-		739 000	818 158 *
		SINGAPORE	-		709 000	818 158
90A113 NUT MEG,IN SHELL B U P	752413		-		1 221 562	1 095 185 *
		SINGAPORE	-		1 221 562	1 095 185
90A121 NUT MEG,SHELLED CN	752416		-		583 440	735 564 *
		SINGAPORE	-		580 440	779 826
		ITALY	-		3 000	3 738
90A129 OTHER NUT MEG,SHELLED	752419		-	$1,340/MT	4 517 552	4 825 942 *
		JAPAN	-		186 566	256 061
		HONGKONG	-		10 000	16 084
		SINGAPORE	-		4 246 086	4 465 058
		AUSTRALIA	-		30 000	40 952
		U.S.A	-		35 000	30 223
		F.F.GERMANY	-		10 000	17 564
90A210 MACE WHOLE I	752421		-		74 500	152 645 *
		SINGAPORE	-		69 500	143 213
		U.S.A	-		5 000	9 432
90A220 MACE WHOLE II	752422		-		297 500	604 453 *
		JAPAN	-		1 500	4 144
		SINGAPORE	-	$2,160/MT	286 000	581 083
		U.S.A	-		10 000	19 426
90A230 MACE GRUIS I	752423		-		63 000	135 934 *
		SINGAPORE	-		63 000	135 934
90A240 MACE GRUIS II	752424		-		1 045 525	2 037 231 *
		SINGAPORE	-		1 027 475	2 000 494
		U.S.A	-		15 000	28 737
		CANADA	-		3 050	8 000
90A250 BLACK MACE	752425		-		35 700	66 771 *

NUTMEG

In shell

Shelled

Mace

TABLE 4. EXPORT BY COMMODITY BY COUNTRY OF DESTINATION (CONTINUED)

CCCN CODE	COMMODITY DESCRIPTION	SITC CODE	COUNTRY OF DESTINATION	QUANTITY	UNIT	NET WEIGHT (KG)	VALUE F O (US$)
906160	CASSIA VERA "VERA CR"	752216	MALAYSIA	-		10 000	9 200
			PAKISTAN	-		5 000	5 731
			IRAQ	-		20 000	14 277
			LEBANON	-		35 000	40 122
			OTH.OCEANIA	-		5 000	5 731
			U.S.A	-		1 513 000	1 721 346
			CANADA	-		198 000	217 751
			MEXICO	-		565 000	646 549
			VENEZUELA	-		85 000	97 439
			OTH.C.&S.AMERICA	-		75 000	85 979
			NETHERLANDS	-		148 000	166 055
			FRANCE	-		5 000	5 732
			R.F.GERMANY	-		450 000	505 506
			BELGIAN&LUXEMBURG	-		33 000	35 977
			DENMARK	-		45 000	51 582
			SWEDEN	-		70 000	80 244
			GREECE	-		58 000	66 928
			CZECHOSLOVAKIA	-		167 500	192 013
			HUNGARY	-		135 000	154 757
			BULGARIA	-		55 000	63 048
906170	CASSIA VERA "VERA KC"	752217		-		1 385 000	1 434 230 *
			JAPAN	-		130 000	155 424
			HONGKONG	-		120 000	124 338
			U.S.A	-		620 000	641 730
			CANADA	-		80 000	84 656
			MEXICO	-		190 000	196 864
			VENEZUELA	-		110 000	113 976
			OTH.C.&S.AMERICA	-		75 000	77 712
			NETHERLANDS	-		25 000	25 904
			R.F.GERMANY	-		15 000	13 626
906190	OTHER CINNAMON	752219		-		6 964 647	8 662 574 *
			JAPAN	-		33 500	45 681
			HONGKONG	-		130 000	188 711
			SOUTH KOREA	-		14 000	17 900
			SINGAPORE	-		115 750	134 763
			MALAYSIA	-		310 000	393 296
			LEBANON	-		5 000	6 392
			SYRIAN ARAB REP.	-		17 500	21 990
			MOROCCO	-		179 500	225 550
			SUDAN	-		60 000	76 718
			AUSTRALIA	-		14 000	17 900
			U.S.A	-		3 337 224	4 186 637
			CANADA	-		67 681	89 329
			MEXICO	-		847 442	1 003 179
			HONDURAS	-		2 000	4 938
			VENEZUELA	-		229 000	274 410
			BRAZIL	-		185 000	235 278
			PERU	-		25 000	27 005
			OTH.C.&S.AMERICA	-		110 000	133 817
			UNITED KINGDOM	-		5 000	6 393
			NETHERLANDS	-		221 050	278 436
			FRANCE	-		61 000	76 539
			R.F.GERMANY	-		403 000	490 772
			SWITZERLAND	-		35 000	40 120
			DENMARK	-		45 000	52 357
			SWEDEN	-		104 500	135 443
			SPAIN	-		5 000	6 392
			PORTUGAL	-		3 000	3 836
			GREECE	-		107 000	128 278
			GERMAN DEM.REP.	-		5 000	5 731
			HUNGARY	-		195 000	235 664
			RUMANIA	-		55 000	70 103
			BULGARIA	-		37 500	47 066
907100	CLOVES	752310		-		299 870	961 438 *
			JAPAN	-		2 000	16 993
			HONGKONG	-		5 000	12 000
			TAIWAN	-		2 900	20 000
			SINGAPORE	-		239 970	504 113
			SRI LANKA (CEYLON)	-		10 000	105 728
			OTH.WEST ASIA	-		40 000	293 000
			U.S.A	-		2 000	9 604
907900	OTHER CLOVES (WHOLE,FRUIT, STEMS)	752390		-		42 000	22 910 *
			HONGKONG	-		2 000	8 820
			SINGAPORE	-		40 000	14 090
911	NUT MEG IN SHELL, A.B.C.D. AVARAGES	752411		-		883 293	993 366 *
			THAILAND	-		3 000	2 700
			SINGAPORE	-		880 293	990 666
12	NUT MEG IN SHELL,SIMPLE	752412		-		531 134	669 102 *
			SINGAPORE	-		631 134	669 102
3	NUT MEG,IN SHELL B W P	752413		-		1 181 902	1 083 533 *

(6)

EXPORTS

NUTMEG

1,124/cr

917/MT

Best Available Document

TABLE 4. EXPORT BY COMMODITY BY COUNTRY OF DESTINATION (CONTINUED)

CCCN CODE	COMMODITY DESCRIPTION	SITC CODE	COUNTRY OF DESTINATION	QUANTITY	UNIT	NET WEIGHT (KG)	VALUE F O B (US$)
908113	NUT MEG,IN SHELL R W P	752413	SINGAPORE	-		1 171 902	1 074 783
			NETHERLANDS	-		10 000	8 750
908121	NUT MEG,SHELLED CN	752416		-	$1.369	603 390	829 054 *
			JAPAN	-		80 000	136 933
			HONGKONG	-		3 000	8 642
			SINGAPORE	-		520 390	683 479
908129	OTHER NUT MEG,SHELLED	752419		-	$1.060/kg	2 982 140	3 156 499 *
			JAPAN	-		194 840	274 142
			HONGKONG	-		23 500	36 692
			THAILAND	-		2 500	2 250
			SINGAPORE	-		2 661 300	2 751 432
			U.S.A	-		43 000	37 401
			R.F.GERMANY	-		55 000	54 582
908210	MACE WHOLE I	752421		-	$3,918/MT	21 550	86 435 *
			JAPAN	-		2 000	9 164
			SINGAPORE	-		18 900	73 159
			INDIA	-		650	2 112
908220	MACE WHOLE II	752422		-	3 592	142 201	510 835 *
			JAPAN	-		7 000	38 169
			SINGAPORE	-		134 601	470 776
			INDIA	-		600	1 890
908230	MACE GRUIS I	752423		-	4,933	3 600	17 760 *
			SINGAPORE	-		3 000	15 990
			INDIA	-		600	1 770
908240	MACE GRUIS II	752424		-	2,472	860 340	2 144 726 *
			SINGAPORE	-		831 540	2 108 873
			INDIA	-		1 800	4 590
			U.S.A	-		7 500	9 750
			R.F.GERMANY	-		19 500	21 513
908250	BLACK MACE	752425		-	1,795	91 125	163 981 *
			SINGAPORE	-		90 625	162 362
			U.S.A	-		500	1 619
908300	CARDAMOMS	752430		-		92 015	92 766 *
			HONGKONG	-		56 884	58 699
			SINGAPORE	-		35 131	34 067
910110	GINGER: FRESH	752610		-		6 499 815	771 458 *
			SINGAPORE	-		5 319 000	640 704
			MALAYSIA	-		1 59 215	128 162
			SAUDI ARABIA	-		21 600	2 592
910120	GINGER: DRIED	752620		-		599 535	393 961 *
			SINGAPORE	-		599 535	393 961
910300	SAFFRON	752820		-		10 100	4 707 *
			SINGAPORE	-		10 000	4 687
			R.F.GERMANY	-		100	20
910400	BAY LEAVES	752830		-		3 500	700 *
			NETHERLANDS	-		3 500	700
910990	OTHER SPICES	752899		-		9 500	9 200
			SINGAPORE	-		1 500	1 350
			NETHERLANDS	-		3 000	650
			BELGIA&LUXEMBURG	-		5 000	7 200
1003000	BARLEY	430000		-		64 373	6 340
			SOUTH KOREA	-		2 000	1 600
			SINGAPORE	-		62 373	4 740
1005900	OTHER MAIZE	440900		-		17 936 442	2 555 128
			JAPAN	-		1 951 018	387 627
			HONGKONG	-		3 600 000	506 299
			TAIWAN	-		2 000 000	285 773
			SINGAPORE	-		6 785 600	917 477
			MALAYSIA	-		3 599 824	457 952
1007310	SORGHUM: WHITE	459210		-		225 063	22 764
			SINGAPORE	-		225 063	22 764
1007390	SORGHUM: MIXTURE	459290		-		107 648	5 040

149

"CONTENTS" PAGE FROM PROCEEDINGS

(7)

3. KERTAS KERJA YANG DIBAHAS

Makalah yang telah dibahas adalah sebanyak 18 kertas kerja yang meliputi produksi dan pengolahan Pala-Fuli (6 makalah), sarana-dan prasarana (3 makalah), pemasaran Pala-Fuli (3 makalah) dan yang bersifat penyuluhan (6 makalah).

Judul makalah adalah sebagai berikut :

MAIN WORKING PAPERS

3.1. Kertas kerja Utama dalam Pekan Pala-Fuli :

Prospects of Supply of Nutmeg/Mace in 4th five-year plan (1984-

a. Prospek Supply Pala-Fuli Indonesia Dalam Pelita IV - (Dirjen Perkebunan Dekcan Jakarta); (Dir. Gen. of Estates)

Development Priorities for Nutmeg trees from Agronomic Point o

b. Prioritas Pengembangan Jenis-jenis Pala-Fuli Indonesia Vie Dari Sudut Agronomi (LPTI Bogor); by M.T. Mohammad

The handling of Post-Harvest Commodities such as spices in Gener.

c. Penanganan Lepas Panen Komoditi Rempah-rempah Umumnya- and Nutmeg in Particular dan Pala-Fuli Khususnya (Pusbangtepa Bogor); Ir. Develop. Atte. Roger

Comparison of Grading/Quality Standards for Nutmeg/Mace in

d. Perbandingan Penggolongan dan Standar Mutu Pala- Fuli Indo Indonesia dan Grenada and Grenada (BBIHP, Bogor);

Research into the Processing of Nutmeg and Mace

e. Penelitian Pengembangan Pengolahan Pala-Fuli (BBIHP - Bogor);

Program to Improve The Secondary Processing Industry for Nutmeg

f. Program Peningkatan Industri Pengolahan Sekunder Pala-Fuli (Kanwil Perindustrian, Manado);

The Capability of ~~Ocean F~~ Ocean Transport to support non-oil/gas

g. Kebijaksanaan Angkutan Laut Dalam Menunjang Ekspor Non Exports (Provincial Office Sea Communications) Migas (Kanwil Perhubungan Laut, Manado);

The ~~Capability~~ Policy of Credit to Support non-oil/gas Exports.

h. Kebijaksanaan Perkreditan Dalam Menunjang Ekspor Non Migas (Bank Indonesia, Manado);

The ~~Capability~~ Policy of Provincial Development Office (N. Sulawesi) to

i. Kebijaksanaan Pemda Tk. I Sulawesi Utara Dalam Menun - Support non-oil/gas Exports. jang Ekspor Non Migas (Pemda Tk. I Sulut);

The role of Singapore in Indonesia's Nutmeg Trade

j. Peranan Singapura Dalam Perdagangan Pala-Fuli Indonesia (Atperdag, Singapura); (Commercial Attache, Singapore)

Exports of Nutmeg/Mace from Menado

k. Ekspor Pala-Fuli Khususnya Dari Manado (ISTA, Manado);

A Marketing Strategy for Nutmeg/Mace from Indonesia

l. Strategi Pemasaran Pala-Fuli Indonesia (BPEN Depdag, Jakarta). (National Agency for Export Development)

..... 4/

150

Working Papers Supporting the Nutmeg - Mace Conference

3.2 Kertas Kerja Pendukung dalam Pekan Pala-Fuli :

The Export Trade of Nutmeg-Mace (Dept of Trade, JKT)

a Tata Niaga Ekspor Pala-Fuli Indonesia (Dektan Depdag, Jakarta);

The Impact of the Application of Standards for Nutmeg/Mace on Quality

b Dampak Penerapan Standar Pala-Fuli Terhadap Mutunya - (Distan Depdag, Jakarta);

Some Problems with Nutmeg-Mace (Sucofindo Company, JKT)

c. Komoditi Pala-Fuli dan Beberapa Permasalahan (Sucofindo, Jakarta).

Working Papers for Development and Stability of Strength of Exporters:

3.3. Kertas Kerja dalam Kegiatan Pengembangan dan Pemantapan - Kemampuan Eksportir :

Calculating the costs of Sea Freight and Service Information

a. Kalkulasi Pembiayaan Angkutan Laut dan Informasi Pelayanan (Pelni, Manado); State owned Shipping Company

The Function of Service Industries as an Instrument of Trade in the Development of Business

b. Fungsi Perusahaan-perusahaan Jasa Sebagai Sarana Perdagangan Didalam Pengembangan Dunia Usaha (Sucofindo, Jakarta);

~~The capability~~ Taxation Policy to Support Non oil/gas Exports

c. Kebijaksanaan Perpajakan Dalam Menunjang Ekspor Non Migas (Kanwil Pajak, Manado);

Procedures for obtaining credit and Payment for Exports

d Cara Memperoleh Kredit dan Tata Cara Pembayaran Ekspor (B.D N , Manado);

Ways of Entering Overseas Markets (NAFED)

e Cara-cara Memasuki Pasaran Luar Negeri (BPEN Depdag, - Jakarta);

Problems of Costs and Base Prices to Exporters/Traders

f Masalah Biaya & Harga Pokok Usaha Dagang/Eksportir (Unsrat, Manado).

4. METODE PEMBAHASAN

Pembahasan kertas kerja dilakukan dalam bentuk panel dan diskusi umum. Diskusi panel dimaksudkan untuk memberikan prioritas pertama kepada para panelis yang terdiri dari unsur-unsur perguruan tinggi, assosiasi dan tokoh-tokoh - eksportir untuk membahas kertas kerja yang disajikan oleh para penceramah. Sedangkan dalam diskusi umum seluruh peserta bebas mengemukakan pandangan dan tanggapan atas makalah yang disampaikan.

151

[illegible] PALA
DAN [illegible] PULI
[illegible] TERHADAP [illegible]

oleh

[illegible]
Balai Penelitian Tanaman Industri Bogor

P E N D A H U L U A N

Indonesia dikuasai dan dijajah berganti oleh bangsa-bangsa Portugis, Inggeris dan Belanda, pada permulaan abad 16 dimulai dengan perdagangan bahan rempah-rempah termasuk pala dan cengkeh di Maluku. Kedua komoditi ini dikatakan sebagai berasal dari kepulauan tersebut. Penduduk/rakyat di daerah pulau-pulau Rempah - rempah ini mempunyai cerita yang bersifat legendaris bahwa pala hanya diuntukkan bagi pulau Banda sedang cengkeh untuk pulau - pulau Maluku lainnya.-

Persaingan perdagangan pala dan cengkeh yang banyak dikuasai pedagang Cina pada waktu itu, ikut pula memperkenalkan rempah - rempah ini ke negara Eropa dan Timur Tengah meskipun pada waktu itu rempah-rempah ini di bawah kekuasaan Protugis selama hampir 100 tahun (Tahun 1511 - 1605), sebelum dikalahkan oleh VOC. Bangsa Portugis rupanya tidak banyak menaruh minat atas komoditi ini. VOC kemudian menyempurnakan dan dengan tipu muslihat mulai menguasai seluruh perdagangan dengan kekejaman-kekejamannya.

Makalah ini disajikan atas permintaan Departemen Perdagangan dalam rangka Pekan Nasional Komoditi Pala & Puli Dan Pemantapan Kemampuan Eksportir Di Sulawesi Utara pada tanggal 21 - 25 Nopember 1983, di Manado.-

Best Available Document

Comparison of the grading and quality standards for nutmeg/mace in Indonesia and Grenada

A.E. Dann

BBIHP Bogor/TDRI London

November 1983

153

Introduction

This paper will deal only with the production of nutmeg and mace as whole spice; nutmeg oil will not be considered.

It will be assumed that most, if not all, of those attending this meeting are thoroughly familiar with the post-harvest methods practiced in Indonesia and therefore no attempt will be made to record them in detail.

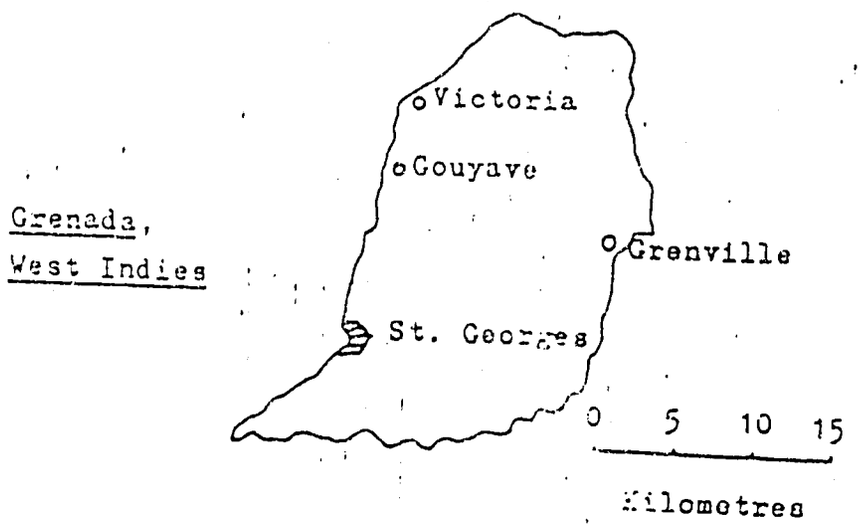
Rather, I would like to describe how nutmeg and mace are handled in Grenada, West Indies and to compare and contrast the differences between Indonesian & Grenadian methods and the resulting products, and in so doing make some suggestions as to how the quality of Indonesian nutmeg & mace may be improved.

Indonesia is the world's leading producer of nutmeg/mace, producing 70-75% of the total. The remainder is produced largely by Grenada, West Indies (20-25%). Together these two sources account for 95% of world production. If you turn to APPENDIX 1 at the end of this paper you will see a size comparison of Grenada to that of the Manado area. It will be appreciated in reading the rest of this paper that Grenada's small size is one of the keys to her being able to produce high quality & uniform quality nutmeg and mace.

In order to cover the subject of this talk properly I think that it will be useful for me to describe the processing procedures used in Grenada in some detail, you will then be able to compare and contrast them with those used in Indonesia.

GRENADA, West Indies

The island of Grenada is small, being about 307 sq. km. in area. It has a population of about 110,000.



Nutmeg/mace are one of the three major export crops of Grenada, the others are cocoa and bananas.

Grenada Processing Methods for Nutmeg/Mace

The nutmeg industry is controlled by the Grenada Co-operative Nutmeg Association (G.C.N.A.). Anyone who owns a nutmeg tree is eligible to become a member of the G.C.N.A. The G.C.N.A. operates 31 "Collecting Stations" and 3 "Processing Units" throughout the island.

The "Processing Units" are located at Grenville (which handles 50% of the crop), at Gouyave (which handles 35%) and finally at Victoria (which handles the remaining 15%). In each case the "Processing Units" are multi-storey, and the largest building in the town. They are well-ventilated and are all located next to the sea. A breeze is generally in evidence and so excellent drying conditions exist. The ground floor in each case is the reception, storage, sorting & fumigating area; the upper floors are used for drying nutmegs and "curing" mace. Rows of drying shelves for nutmegs are placed in tiers one above the other with about 0.5 m space between the shelves in a tier. There may be as many as six shelves in a tier. The extend to fill the whole of the upper floor areas. One floor is used for the wooden bins in which the mace is "cured".

The "Collecting Stations" are either small buildings operated by the G.C.N.A. or are the premises of agents who are registered with the G.C.N.A. as collectors. Trucks from the G.C.N.A. regularly visit the "Collecting Stations" to take the nutmegs & mace to the "Processing Units".

Because there are so many points at which nutmegs can be received, it means that a farmer has to travel no more than a few kilometres to reach his nearest Collecting Station to sell his produce to the Association. At this time he is paid what is called an "advance" for his nutmegs and mace; at the end of the financial year he will be paid a "bonus" which will depend on the difference between the average export price and the "advance" already paid to him. The administration costs of the G.C.N.A., which are relatively

modest, are deducted before the "bonus" is declared. The system works well and results in a high percentage of the export earnings from nutmegs and mace to be returned to the growers.

In order to obtain the maximum yield of high quality nutmeg/mace, the fruit should ideally be left on the tree until the pod (pericarp) has opened to expose the scarlet mace, and for the nutmeg mace to fall to the ground. In Grenada it is general practice to pick up the fallen nutmeg/mace from the ground, thus ensuring that only fully-mature nutmegs/mace are harvested. It is known from long experience that immature nutmegs yield an inferior quality spice. Nutmeg/mace is normally picked once per day from under the trees, but at times of a heavy crop, during the rainy season, collecting may be more frequent i.e. morning and evening.

Farmers are encouraged, by the G.C.N.A., not to keep their nutmegs and mace any longer than is necessary. By getting the nutmeg and mace early the G.C.N.A. are able to control the post-harvest handling completely and this in turn leads to a larger proportion of the crop being of higher quality, than would be the case if individual growers were to dry and store their own crop.

(i) MACE

Mace, being more valuable than nutmeg and more easily spoiled, is treated with great care. The mace is separated from the nutmeg-in-shell, in one piece, if possible (whole mace), and sun-dried on mats for several days. At this point the farmer delivers it to the G.C.N.A.

The dry mace is given a preliminary sorting and is then placed in wooden bins (ca. 1.5 m^3 capacity) in which it is stored ("cured") for several months during which time the original scarlet colour fades to a pale straw colour. Throughout the "curing" process the mace is transferred between storage bins from week to week, to ensure even "curing", and is regularly fumigated with carbon disulphide to prevent insect attack.

The carbon disulphide, which is very volatile having a boiling point of 46°C, is poured into small bottles e.g. beer or soft drink bottles, which are then placed in the top of the mace bins. The carbon disulphide evaporates slowly and the vapour, being heavier than air, sinks down inside the bin and is very effective in controlling insect attack on the mace.

The "cured" mace is finally hand-sorted and graded into:

(i) Whole pale mace - which consists of the complete (or almost complete) mace from a nutmeg and has no blemishes and is a uniform pale straw colour

(ii) No.1 broken mace - which consists of pieces of blemish-free mace of uniform pale straw colour

(iii) No.2 broken mace - consists of pieces of mace which have not assumed a uniform colour during "curing"

(iv) "Unassorted" - which needs no explanation

(v) Pickings - small pieces

The grades mentioned in (i) & (ii) are shipped in plywood cases and the other grades usually shipped in bags.

Before being shipped, mace is fumigated overnight using methyl bromide.

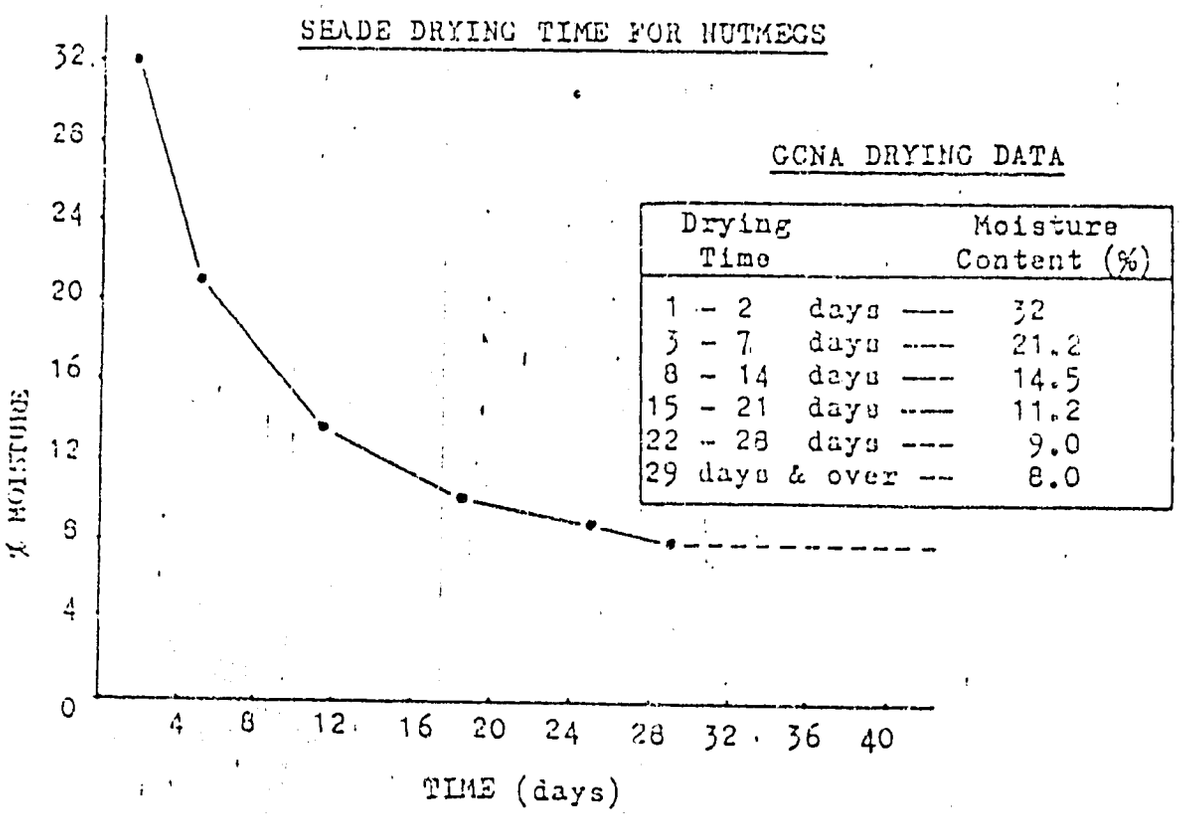
(ii) <u>NUTMEG</u>

Nutmegs are never piled into heaps when they are "wet" because of the danger of spoilage. Even in the GCNA "Collecting Stations" the nutmegs are spread out on shelves until they are bagged for transfer to a "Processing Unit". At the "Processing Unit" the nutmegs-in-shell are spread out in layers on shelves (no layer being more than 5 cm. deep) and shade-dried for about six weeks. The nutmegs-in-shell are agitated with rakes several times each day to ensure even drying.

Shade-drying is the preferred method of drying in Grenada. It has been that if the temperature is allowed to get too high during drying a shrivelled product may be obtained.

The graph in Figure 1. shows the drying curve for shade dried nutmegs in Grenada.

Figure 1.



More detailed results of drying experiments are shown on the graph in APPENDIX 2.

From drying data the stocktaking chart shown in Figure 2 has been constructed by the G.C.N.A.

Figure 2.

G.C.N.A. Stocktaking table for conversion of "green nutmeg" weights, at various stages during drying, to weights of "nutmegs-in-shell" and the weights of "shelled nutmegs" obtained when the nutmegs are fully dry.

Drying time	"Nutmegs-in-shell" (% of observed weight)	"Shelled Nutmegs" (% of observed weight)
1 - 2 days	75	50
3 - 7 days	85.8	57.2
8 - 14 days	92.51	61.67
15 - 21 days	95.77	63.85
22 - 28 days	98.01	65.34
29 days & over	99.05	66.03

Source: Grenada Co-operative Nutmeg Association.

It has been reported that when nutmegs rattle inside their shells they are dry. This is not always the case. It has been shown that nutmegs may rattle inside their shells after as little as one weeks shade-drying i.e. when they still contain 20% moisture. Conversely, some nutmegs never rattle inside their shell, even when they have been dried for six weeks. Therefore, the practice of rattling the nutmeg in its shell, as a test of dryness, is not reliable.

When they are dry (ca. 7% moisture) the nutmegs, still in their shells, are stored in sacks until required for export. When an export order is received, the nutmegs are removed from their shells and hand-sorted into "sound" and "defective" grades.

In the past, nutmegs were removed from their shells individu-

ally, but mechanical crackers of local design & manufacture are used for most of the crop nowadays.

"Sound" nutmegs are whole nutmegs of characteristic shape and size which show no shrivelling, bruising, mould or cracks, all others go to make up the "defective" grade. The "sound" nutmegs obtained by visual inspection & hand sorting are further graded by placing them in woven baskets which are then immersed in cold water. The nutmegs which float to the surface ("floats") are dried on wire mesh shelves overnight and are then added to the "defectives".

About 70% of Grenada's production of nutmegs are of the "SOUND" grade and the remaining 30% "DEFECTIVE" grade.

The results of two small-scale laboratory harvesting trials demonstrate the value of very careful harvesting and post-harvest treatment on nutmeg/mace. In the trials nutmeg/mace was only harvested from pods which had opened on the tree. After postharvest treatment 100% pale whole mace was obtained and 95% "SOUND" grade nutmegs.

In recent years Grenada has exported a "distillation" grade of nutmegs which consists of the "floats". "Floats" while not showing outward signs of being sub-standard are often found to be damaged internally e.g. insect attack or mould infestation, when they are cut open and examined carefully.

The "sound" nutmegs, which sink in water, are air dried overnight and comprise the "sound unassorted" grade. A small percentage of specific sized nutmegs are exported as, e.g. 60s, 80s or 110s - that is to say 60 nutmegs to the pound (weight), 80 nutmegs to the pound, etc.

The "defective" grade is freed from powdery material and dust before export, and these very sub-standard materials may be used to distil small quantities of nutmeg oil from time to time.

Both "sound" & "defective" nutmegs are fumigated, in special chambers, with methyl bromide immediately prior to leaving the processing factory for export.

It is possible to see, I think, even from this brief description that a great deal of care goes into the harvesting and post-harvest processing of nutmegs and mace in Grenada.

Comparison of Grenada & Indonesia grades

It has already been mentioned that 70% of Grenada's nutmeg is exported as the "SOUND" grade, that is to say the top grade, and the remaining 30% as the "DEFECTIVE" grade. Now let us consider the Indonesian grading scheme for export nutmegs. Here we have three main grades, ABCD, Rimpel & BWP. If we compare these to the Grenada scheme we obtain the following:

COMPARISON OF NUTMEG QUALITY PERCENTAGES - INDONESIA & GRENADA

Grade	INDONESIA	GRENADA
TOP GRADE	'ABCD' 40%	'SOUND' 70%
LOWER GRADE	Sound Shrivelled ('Rimpel') 25% } 60% 'BWP' 35%	'Defective' 30%

The actual percentages given for the Indonesian grades are not claimed to be accurate (in fact, it is very difficult to obtain accurate figures) but they are thought to be of the correct order and thus give an approximate breakdown of the Indonesian production.

The 'Rimpel' grade nutmegs are shrivelled and result largely from the processing of immature nutmegs. As no immature nutmegs are processed in Grenada, the 'Rimpel' grade is not known there.

During observations of nutmeg drying in Indonesia mould-covered nutmegs-in-shell were encountered on several occasions. This is rarely seen in Grenada.

If the Indonesian ABCD grade is subjected to the Grenadian flotation process, about 15% of the ABCDs are found to float and

would therefore be relegated to the defective grade.

A number of "distilling grades" of nutmeg are known in Sumatra e.g. BIA, BSL, ETBZ, ASWI, Padang & 'CC', but as this paper is concerned mainly with the production of nutmeg & mace for spice they will not be discussed here.

Mace, presumably because it represents only 10-15% of the weight of nutmeg processed, because it is more valuable and because it can be dried more quickly, does not present so many problems in grading and export terms.

SUMMARY

From observations made during visits to two of the main producing areas, namely Sumatra and North Sulawesi, it was noted that the overall post-harvest quality of Indonesian nutmegs and mace is lower than that of the West Indian product. West Indian nutmegs are in the main more carefully harvested & processed than are Indonesian and are thus of a higher quality and cleanliness.

When early harvesting is combined with careless drying and post-harvest practices the percentage of poor quality nutmegs will be high.

Even taking into account that the Indonesian production of nutmeg/mace is much more widely-spread than Grenada's there seems to be no good reason why the overall quality of Indonesian nutmeg/mace cannot improved if desired.

This can be simply be achieved by:

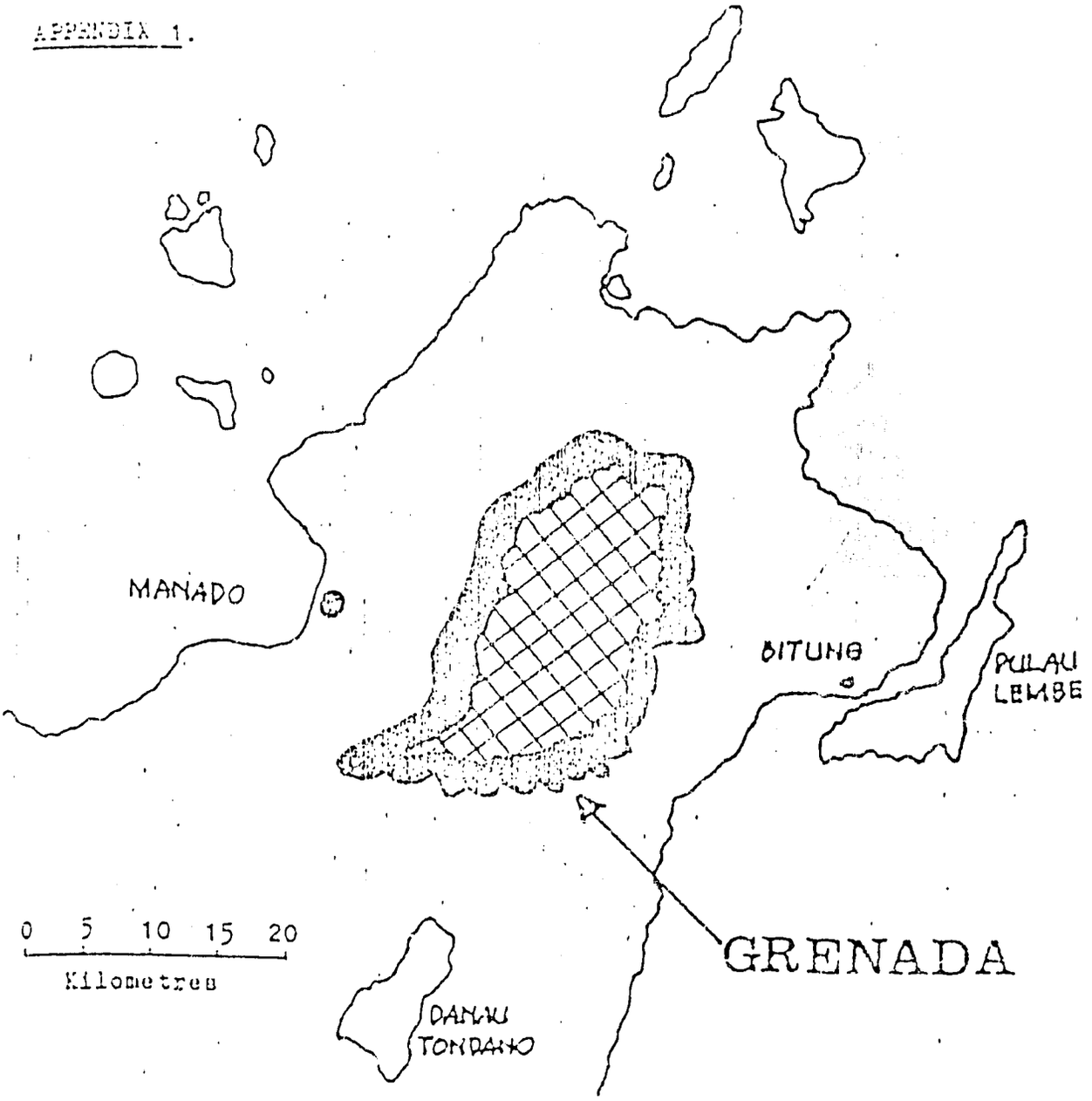
(i) harvesting at maturity
(ii) careful post-harvest treatment i.e. drying, grading, storage & fumigation.

Problems are said to occur in the country of destination because of mouldiness and/or insect infestation of nutmeg when they arrive after having been exported from Indonesia. This is a virtually unheard of occurrence in Grenada. If nutmegs are dried to a

sufficiently low moisture level and if they are regularly fumigated before export these problems should disappear.

Undoubtedly, Grenada's small area, with the ease of organisation that this allows goes a long way towards its ability to produce a high proportion of nutmeg and mace. But it must also be remembered that Indonesia has a long-established and successful nutmeg industry, and that although some improvements are certainly needed, a very close look should be taken at the industry as a whole and its relation to the world trade in nutmeg before any radical changes are recommended or embarked upon.

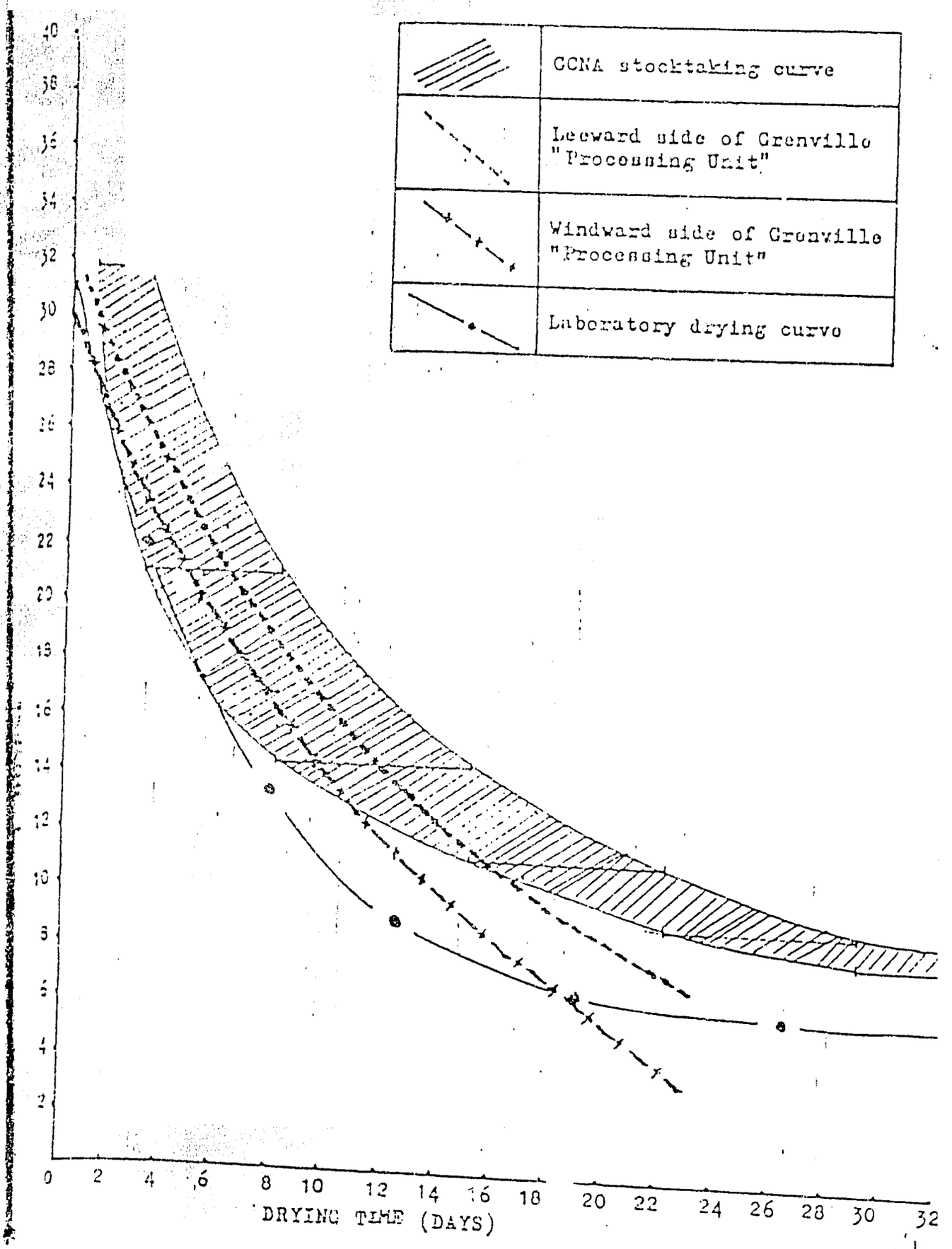
APPENDIX 1.



Size of Grenada to that of the Manado area

APPENDIX 2.

ACTUAL DRYING CURVES FOR GRENADA NUTMEGS



166

From the drying curves in APPENDIX 2 it can be seen that drying has always been found to be faster than assumed by the drying rates given in the GCNA stocktaking chart.

This indicates that the GCNA err on the side of caution both in their stocktaking conversion rates and in the length of time they allow their nutmegs to dry for i.e. ca. 6 weeks.

(8)

LIST OF INDONESIAN SPICE EXPORTERS

1980.

1. BLACK PEPPER
2. WHITE PEPPER
3. CASSIA / CINNAMON
4. NUTMEG & MACE
5. VANILLA BEANS
6. ~~PAPRIKA~~ Chillies
7. SESAME SEEDS wijen
8. G I N G E R
9. CARDAMON
10. RED ONIONS
11. TURMERIC
12. LONG PEPPER
13. CUBEB SEEDS Kemukus.
14. BAY LEAVES
15. CASHEW-NUT
16. CLOVES / STEMS

BADAN PENGEMBANGAN EKSPOR NASIONAL
DEPARTEMEN PERDAGANGAN DAN KOPERASI.

168

7. C.V. DANAU INTAN
   JL.ARAU 29
   TELP. 22645, 21663
   P A D A N G.

8. C.V. TROPICAL COMMODITIES CORP
   JL.PASAR HILIR 34
   TELP. 23846
   P A D A N G.

9. C.V. SURYA EMAS
   JL. NIAGA 163
   TELP. 22790, 22309
   P A D A N G.

10. C.V. HASIL BUMI RAYA
    JL. NIAGA 173
    TELP. 23610
    P A D A N G.

11. C.V. NAN ELOK
    JL. NIAGA 210
    TELP. 21712
    P A D A N G.

12. C.V. SISCO
    JL.HOS COKROAMINOTO 34
    TELP. 23490, 23491
    P A D A N G.

13. P.T. ANEKA NIAGA (LTD) CABANG
    JL. ARAU 23
    TELP. 23490, 23491
    P A D A N G.

14. C.V. GUNUNG
    JL.LETJEND. HARYONO M.T. 516
    TELP. 21491
    M E D A N.

IV. NUTMEG & MACE

1. C.V. KARIMUN & CO
   JL. KOL.SOGIONO 8 A
   TELP. 29167
   M E D A N.

2. P.T. INASARA
   JL. VETERAN 14 B
   TELP. 28995
   M E D A N.

3. C.V. GUNUNG
   JL. LETJEND. HARYONO M.T. 516
   TELP. 21491
   M E D A N.

4. C.V. SINAR MURNI. CAB. MEDAN
   Jl. AMEON 39
   TELP. 23265
   M E D A N.

5. C.V. DANAU INTAN
   JL.ARAU 29
   TELP. 22645, 21663
   P A D A N G.

6. C.V. REMPAH SARI
   JL. PULAU AIR 30
   TELP. 22854, 21803
   P A D A N G.

7. C.V. TROPICAL COMMODITIES CORP
   JL.PASAR HILIR 34
   TELP. 23846
   P A D A N G.

8. P.T. KERJA SEJAHTERA
   JL. JEND. A. YANI
   No. 149
   S E M A R A N G.

9. P.T. PERKEBUNAN XVIII
   JL. MUGAS DALAM ATAS
   TELP. 25471
   S E M A R A N G.

10. P.T. TIGA SERANGKAI TRAD COY
    JL. GG. BESEN 70
    TELP. 21278
    S E M A R A N G.

11. C. V. GEDONG BEDJO
    JL. A. YANI 149
    S E M A R A N G.

9. C.V. CAHAYA TIMUR
JL. KUNIR 11
SURABAYA.

10. JASA SETIA
JL. GAMBIR NO. 16
SURABAYA.

11. TRISILA LAUT
JL. SIDORAME 23
SURABAYA.

12. C.V. ANGIN TIMUR
JL. HUSNI THAMRIN 108
TELP. 2367, 3450
M E N A D O.

13. FA. ANGIN UTARA
JL. LEMBONG 18
TELP. 2939, 2667
M E N A D O

14. C.V. SINAR MURNI
JL. WORI 132
TELP. 4238
M E N A D O

15. C.V. CITA BARU UTAMA
JL. PIERE TENDEAN 1 - 3
TELP. 4149, 3138
M E N A D O

GLODOG PLAZA A 19
JL. PNANGSIA RAYA
TELP. 670302
JAKARTA - PUSAT

16. C.V. WAKTU JAYA
JL. BUDI DARMA 1
TELP. 3229
M E N A D O

17. C.V. ANGIN TIMUR
JL. SANGIR 71
TELP. 7383
UJUNG PANDANG.

18. P.T. GADA SAKI
JL. SUNGAI BAWAKARAENG 130
UJUNG PANDANG.

19. FA. MEMESA TRAD. CO
JL. LAMADU KALENG 20
UJUNG PANDANG.

20. P.T. CIPTA NIAGA
JL. NUSANTARA 106
UJUNG PANDANG.

21. P.T. ADUMA NIAGA
JL. L.E. MARTADINATA No. 8
TELP. 7919
UJUNG PANDANG.

22. P.T. TIWIKRAMA AGUNG
JL. SULTAN DAENG RAJA 18
TELP. 6903
UJUNG PANDANG.

23. C.V. BENTENG MAS
JL. A.Y. PATI 30
TELP. 2277, 2638
A M B O N

24. FA. MEGAH COMMERCIAL COY
JL. MR. J. LATUHARHARY 35
TELP. 3031, 3030, 3322
A M B O N

25. FA. SETIA KAWAN
JL. PAHLAWAN REVOLUSI 8
TELP. 190
T E R N A T E

26. C.V. ANGIN TIMUR
JL. CENGKEH NO. 37
TELP. 3359
A M B O N

27. P.T. SETIA KAWAN MAKMUR
JL. PAHLAWAN REVOLUSI 8
T E R N A T E.

170

32. PNP. XXVIII KEBUN MALUKU
JL. PANTAI
TELP. 3336
A M B O N.

33. FA. TANBERS
JL. IZAK TELUSA 1
TELP. 127
FAK - FAK.

34. P.T. USAHA RAJA MALUKU UTARA
JL. PANLAHAN REVOLUSI 46
TELP. 300
T E R N A T E.

35. P.T. TEBET INDRAYA SUPER MARKET (CAB)
JL. IZAK TELUSA 15
TELP. 137
FAK - FAK.

36. C.V. GEDUNG BEDJO
JL. A. YANI 149
S E M A R A N G.

37. FA. SINAR MENARA (CAB)
JL. IZAK TELUSA 30
TELP. 74
FAK - FAK.

38. P.T. BUMA KUMALA (CAB)
JL. IZAK TELUSA 16
TELP. 87
FAK - FAK.

39. P.T. RAMOI SORONG (CAB)
JL. IZAK TELUSA
TELP. 112
FAK - FAK.

40. FA. FAJAR CO
JL. IZAK TELUSA 33
TELP. 77 - 76
FAK - FAK.

41. C.V. KENANGAN RAYA
JL. IZAK TELUSA 48 - 50
TELP. 72
FAK - FAK.

V. VANILLA BEANS

1. P.T. ADI SAMPOERNA
JL. SUARI 20 A
S E M A R A N G.

2. P.T. JASULA WANGI
HEAD OFFICE : JL.GARUDA 99
TELP. 412808
JAKARTA.

BRANCH OFFICE: JL.LETJEN.SUPRAPTO 15
S E M A R A N G.

3. P.T. BANYU MUKTI
JL. KARANG SARU 1
S E M A R A N G.

4. N.V. H.M.S. & CO
JL. PEMUDA 20
S E M A R A N G.

5. C.V. SINAR KUMALA
GG. PINGGIR 75
S E M A R A N G.

6. P.T. EKA PRAYA
JL. BRANJANGAN 8
S E M A R A N G.

7. P.T. PANILI SARI
JL GUNUNG SAHARI IV/
JAKARTA.

8. P.T. EKA KENCANA
HEAD OFFICE : JL. DR.CIPTO 175
SEMARANG.

BRANCH OFFICE: JL.SULTAN AGUNG 18
TELP. 54166
JAKARTA.

9. P.T. CANDI MEGASARI
JL.M.T. HARYONO 182
S E M A R A N G.

10. RAJA WALI NUSINDO
JL. KEPODANG 25/27
S E M A R A N G.

11. P.T. WIRA AKSARA
JL.KLINCI 42. Telp.34270
JAKARTA.

12. FA. SINDORO
JL. JAKARTA 33
SURABAYA.

13. C.V. NUGROHO
GG. BESEN 34
S E M A R A N G.

171

(9)

From TRADE DIRECTORY 1982-83

Dept of Trade

EXPORTERS

North Sulawesi

N, CV
s Sudarso No. 14 Kendari
: 57/04
: BBD, BNI 1946
of Business : Logs

IMURA, CV
.H. Agus Salim Kendari
Address : Patmur Ujung Pandang
: 57/03
lished : 1958
: BNI 1946
of Business : Logs

DARI TIMBER TRD. COY,
end. Achmad Yani 33 Kendari
Address : Ebony Kendari
: 305
: 57/07/S
lished : 1973
: BNI 1946, BRI
of Business : Logs

6
NEER, PT
ojo No. 39 Kendari
: 57/05/S
lished : 1974
: BNI 1946
of Business : Logs

2077
ANGIN TIMUR, CV
Jl. Balai Kota 1
Cable Adress : Angin Timur
Phone : 2459, 3350
A.P.E. : 20/018
Established : 1964
Bank : B. Eksim Ind
Line of bUsiness : Agricultural Products Nutmeg Mace

2078
ANGIN UTARA, PT
Jl. Lembang 18 Manado
Cable Address : Utraco
Phone : 2939, 3667
A.P.E. : 20/133
Established : 1974
Bank : BDN
Line of Business : Nutmeg, Mace

2079
BIMOLI, PT
Jl. Yos Sudarso 129 Manado
Cable Address : Bimol Manado
Phone : 2923/2869
A.P.E. : 20/801
T.A.P.P.I. : 34035
Established : 1970
Bank : BBD
Line of Business : Crude Coconut Oil, Cooking Oil, Copra Pellets

2080
BUKIT ZAITUN MANADO, PT
Jl. H.A. Salim 24 Menado
Cable Address : Bukit Menado
Phone : 2645, 3759
A.P.E. : 20/101
T.A.P.P.I. : 3720 N
Established : 1969
Line of Business : Coconut Oil, Copra Cakes

2081
DANAU INTAN, CV
Jl. Trimurti Manado
A.P.E. : 20/039
Established : 1965
Bank : BDN
Line of Business : Nutmeg

2082
HASIKIN JAYA, PT
Jl. Yos Sudarso 68/SD-14 Bitung
Cable Address : Hasikincoy Bitung
Phone : 127
A.P.E. : 20/111
T.A.P.P.I. : 4573 N
Established : 1971
Bank : BNI 1946, BDN
Line Of Business : Fish

2083
INIMEXINTRA, PT
Jl. Sudirman 12 Manado
Cable Address : Imintra
Phone : 1020, 1070
A.P.E. : 20/097
Established : 1967
Bank : BDN
Line of Business : Coconut Oil, Copra Cakes

2084
INSPRODUC, PT
Jl. Letjen. Suprapto Manado
Cabel Address : Insproduct
Phone : 43, 1004
A.P.E. : 20/105
Established : 1971
Bank : B. Eksim Ind
Line of Business : Nutmeg, Mace

2085
INTOMAST UTAMA, PT
Jl. Teuku Umar 71 Manado
Cable Address : Intomast
Phone : 4248, 2620
A.P.E. : 20/803
Established : 1972
Bank : BNI 1946
Line of Business : Logs

2086
KAMANTA VEGETABLE PIL LTD, PT
Jl. Korengkeng No. 36A Manado
Cable Address : Kamang Manado
Phone : 2851, 2159
A.P.E. : 20/802
Established : 1959
Bank : B. Eksim Ind, BNI 1946
Line of Business : Coconut Oil, Copra

2087
KARYA UTAMA, CV
Jl. Soputan 7 Manado
A.P.E. : 20/143/S
Bank : BBD
Line of Business : Rattan

2088
KENCANA TULUS TRAD. CO. PT
Jl. Tikala Ares 42 Mando
Cable Address : Kencatraco Manado
Phone : 4065
A.P.E. : 20/142/S
T.A.P.P.I. : 4347N
Established : 1973
Bank : BDN, BRI
Line of Business : Agricultural Products

2089
MULTI FOOD, PT
Dendengan Dalam 33 Manado
Cable Address : Multifood Manado
Phone : 4053, 4344
Established : 1970
Bank : B. Eksim Ind
Line of Business : Food Products

2090
NUSANTARA TRAD. COY, CV
Jl. Yos Sudarso 1 Manado
Cable Address : Nusantara Manado
Phone : 3229
A.P.E. : 20/107
Established : 1971
Bank : BDN
Line of Business : Rubber

2091
PANTJA NIAGA, PT
Jl. Dotu lolong Lasurt Manado
A.P.E. : 20/138/S
Bank : BDN, BBD, BRI, BNI 1946
Line of Business : Coconut Oil, Copra

2092
PELOFOR TRADING COY LTD, PT
Jl. Wzlanda Maramis 40 Manado
Cable Address : Peltraco
Phone : 4048
A.P.E. : 20/134
Established : 1958
Bank : B. Eksim Ind BRI
Line of Business : Rattan, Agricultural Products

2093
PERKEBUNAN XXVIII RAYON II PN
Jl. Stadion Manado
Cable Address : Pnduadelapan
Phone : 6385, 7521
A.P.E. : 20/119
Established : 1968
Bank : B. Eksim Ind, BBD
Line of Business : Rubber

2094
SAHANG BANDAR LAMPUNG, PT
Jl. Raya Eyato Dati II Gorontalo
A.P.E. : 20/135
Established : 1969
Bank : BRI
Line of Business : Coconut Charcoal

2095
SINAR MURNI TRAD COY, CV
Jl. Wori 132 karang Ria Manado
Cable Address : Murnico Manado
Phone : 4238
A.P.E. : 20/145/S
Established : 1976
Bank : BDN
Line of Business : Nutmeg, Mace

2096
SIRSAN BARU, PT
Jl. Raya Tandurusa PO Box 21 Bitung
Cable Address : Sirsam Bitung
A.P.E. : 20/128
Established : 1974
Bank : BNI 1946, BBD
Line of Business : Fish

2097
SONELIA, PT
Jl. Datu Lonlong Lasut Manado
Cable Address : Sonelia
A.P.E. : 20/110
Established : 1969
Bank : BDN
Line of Business : Clove Leaf Oil

2098
SUCO INTRA, PT
Jl. Veteran Paal II Manado
Phone : 2259/3831
A.P.E. : 20/137
Established : 1958
Bank : BDN
Line of Business : Copra Cakes

EBUNAN XXVIII RAYON II

ion Manado
ddress : Pnduadelapan
: 6385, 7521
: 20/119
hed 1968
: B. Eksim Ind, BBD
Business : Rubber

NG BANDAR LAMPUNG,PT
i Eyato Dati II Gorontalo
: 20/135
hed : 1969
: BRI
Business : Coconut Charcoal

MURNI TRAD COY, CV
132 karang Ria Manado
ddress : Murnico Manado
: 4238
: 20/145/S
ned : 1976
: BDN
Business : Nutmeg, Mace

N BARU, PT
Tandurusa PO Box 21 Bitung
ddress : Sirsam Bitung
: 20/128
ned : 1974
: BNI 1946, BBD
Business : Fish

IA, PT
Lonlong Lasut Manado
ddress : Sonelia
: 20/110
ned : 1969
: BDN
Business : Clove Leaf Oil

NTRA, PT
an Paal II Manado
: 2259/3831
: 20/137
sd : 1958
: BDN
Business : Copra Cakes

SULATENGCO, PT
Jl. Sudirman 12 Manado
A.P.E. : 20/124
Established : 1973
Bank : BBD
Line of Business : Copra Cakes

2100
SURYA TRADING COY, CV
Jl. Wiraeskti No. 7 Manado
Phone : 4238
A.P.E. : 20/140/S
Established : 1974
Bank : BDN
Line of Business : Nutmeg, Mace

2101
TJIPTA BARU, CV
Jl. P. Tandean 1 Manado
Cable Address : Tjiptabaru
Phone : 4149
A.P.E. : 20/034
T.A.P.P.I. : 2654/N
Established : 1966
Bank : BDN
Line of Business : Nutmeg, Mace, Sea Product

2102
TULUS KENCANA AGUNG, CV
Jl. Maleung 67 Manado
A.P.E. : 20/132
Established : 1974
Bank : B. Eksim Ind
Line of Business : Rattan

2103
UNITED COCONUT TINA INDONESIA, PT
Airmadidi Dati II Minahasa
Cable Address : Unico Armadidi
Phone : 2
Telex : Jkt 46210
A.P.E. : 20/703
Established : 1972
Bank : B. Eksim Ind
Line of Business : Desiccated Coconut

2104
USAHA SWASTA INDONESIA SULAWESI SENTOSA, PT
Jl. Karombasan Manado
Cable Address : Usiss
Phone : 2963
A.P.E. : 20/117
T.A.P.P.I. : 4468S
Established : 1959
Bank : BBD, BDN, BDE
Line of Business : Koalin, Sulphur

2105
WAKTU JAYA, CV
Jl. Yos Sudarso I/1 Manado
Cable Address : Waja
Phone : 3229
A.P.E. : 20/141
Established : 1970
Bank : b...
Line of Business : Nutmeg, Mace

2106
WANASAKLAR RAYA, PT
Jl. Husni Thamrin 74 Wawanosa Manado
Phone : 744
A.P.E. : 20/701
Established : 1971
Bank : BBD
Line of Business : Logs

Maluku

EXPORTERS

2107
ANGIN TIMUR, CV
JL Kemakmuran Ambon
Phone : 2038
A.P.E. : 36/061
Line of Business : Nutmeg, Mace

2108
BENTENG MAS, FA
Jl. A.Y. Patty No. 30 Ambon
Phone : 2683
A.P.E. : 36/062
Line of Business : Sea Weed, Resin, Troca Shells, Nuap Shells

2109
CAPRI MALUKU, PT
JL Soya Kecil Ambon
Phone : 3511
A.P.E. : 36/068
Line of Busoness : Logs

2110
CHAKRAWALA SEMESTA LTD, PT
JL A.M. Sangaji No. 201 Ambon
Phone : 2797
A.P.E. : 36/077
Established : 1972
Bank : B. Eksim Ind
Line of Business : Handicraft

2111
CORA-CORA, PT
JL Pohon Puleh Ambon
Phone : 2356
A.P.E. : 36/084
Line of Business : Logs

2112
DJATI, FA
JL Pahlawan Revolusi Ambon
Phone : 3399
A.P.E. : 36/060
Line of Business : Logs

2113
EAST INDONESIA FISHERY, PT
Komplek Pohon Kelapa Ternate
A.P.E. : 51/704
Line of Business : Fresh Fish

2114
ERIHATU, PT
JL CHR. M. Tiahahu No. 75A Ambon
Cable Address : Erihatu Ambon
Ohone : 3065
A.P.E. : 36/089
Established : 1972
Bank : B. Eksim Ind, BNI 1946
Line of Business : Logs

2115
GEMA SANUBARI, PT
JL Anthong Rhebok Ambon
phone : 2505, 3285
A.P.E. : 36/094
Established : 1970
Bank : BNI 1946, B. Eksim Ind
Line of business : Logs

2116
GREEN TIMBER, PT
JL Nuku Ternate
A.P.E. : 51/057
Line of Business : Logs

2117
HASIL BUMI INDONESIA B.M.PT
Jl. Tanah Tinggi Ambon
Phone : 2727
A.P.E. : 36/081
Line of Business : Teak Wood

2118
HUNIMOKI, FA
JL A.M. Sangaji Ambon
Phone : 3313
A.P.E. : 36/096
Line of Business : Kuku Wood

2119
JAYA DARMA, CV
JL Said Perintah Ambon
A.P.E. : 36/091
Line of Business : Ornamental Animals, Ornamental Birds

2120
JINIL COPORATION, PT
JL Batumeja Skomdak XX Ambon
Phone : 3592
A.P.E. : 36/097
Line of Business : Scrap Iron

Spices — Maistre J. 1964. Les Plantes A Épices. Maisonneuve & Larose (Paris.)

General

Definition: ① Spices are plant substances of indigenous or foreign origin, aromatic or with a piquant flavor, used to intensify the taste of foods or to add to them the stimulating principles which they contain. ② Term "spices" is applied to natural plant products or mixtures, without foreign material, which are utilized, either entire or powdered, to give flavor and aroma and to season foods.

Difficult to classify spices by botanical family as too diverse, so perhaps best way is to treat them according to the organ which furnishes the drug utilized:

- Ginger and curcuma from underground parts.
- Cinnamon from bark of stems.
- Clove from floral buttons.
- Pepper from entire fruits.
- Nutmeg and mace from seeds or arils.

History: Pepper, cardamon, ginger introduced at time of Alexander the Great's conquests. Much traffic by Arabs from 950 BC on. Many spices brought back to Western Europe as result of Charlemagne's conquests and Crusades. Brought overland by sea, spices sold in Cairo or Alexandria to Venetians or Genoans — during Middle Ages, 1 lb ginger = price of 1 sheep, 1 lb mace = 3 sheep, pepper sold similarly. Since the of Marco Polo, then seamen of Portugal, Spain, England and Holland sought for spice routes to the East. In 1511, ~~Vasco da Gama~~ Pia Antonio de Abreu, under Vasco da Gama, ~~discovered~~ found Malacca Straits, then the Moluccas, to bring back cargo of clove, cinnamon, pepper, and nutmeg. Columbus discovered only pepper (Capsicum) and bay (Pimenta). In 17th cent., Holland had monopoly on spice trade until Peter Pepper brought plants of clove, cinnamon, nutmeg to Mauritius from the East Indies. Later, these plants were propagated in Réunion, Guiana, etc. (Seychelles, etc.)

and holes dug. The distance provided for between the plants is 8 to 9 m both directions, planting being sometimes laid out in a quincunx. The planting holes are large and nearly 1.20 m around and at least 0.90 m deep. Once the plants are set in place, it necessary to shade them at least until they are well established. Besides, nutmeg being of forests likes a certain amount of shade, even when they reach adult age, and lightly plantings, often by P. Trecolobium saman, generally have a better appearance than those dis posed to the solar rays. In Grenada, nutmeg plantings are very crowded and light form an uninterrupted cover over the soil; the trees are not planted in rows but simp in place in the spot where it seems a sufficient space for their development is found. Cul care (weeding) is limited to slashings to avoid invasion of weeds.

Pests and diseases — Roger mentioned only a few diseases of nutmeg; some poly parasitic (basidomycetes) common in equatorial (tropical) countries: a Rosellinia rot, diseases o twigs and leaves caused by Marasmius pulchrus and Corticium kolingo and, o branches, by Corticium salmonicolor. In Indonesia, they report Phytophthora palmivora and a rather injurious deterioration of fruits caused by Coccus Cocos mysticae.

Harvesting and Yield:

In Indonesia, the tree scarcely flowers before the eighth or ninth year. Nat only the female trees bear fruit then, but it is necessary however, for good pollina tion flowers, to preserve a certain proportion of the male trees: they generally estima that this should be a tenth. At flowering, less informed planters destroy the use trees while others, better informed, cut them back and graft them with scions prove female trees. If the trees begins to flower at 5 or 9 years of age, it does not reach f production (come into full bearing) until around an average of 25 years of age and then produce abundantly then up to 60 years or more.

Best Available Document

Nutmeg and Mace (Cont.)

Maturity takes place about 6 months after flowering; it is made manifest by ope of the fruit in 2 valves which allow the seed encircled with its aril appear. In Indo they sometimes let the fruits attain this stage and fall on the ground where they later co the nutmegs and mace; but, more generally, they harvest fruits on the branches before dehiscence using hooked bamboo poles to get fruits off from the upper branches. A worker can harvest 1000 to 1500 fruits a day.

Yield varies considerably according to the age and state of health of the tree. A good producer can yield an average of 1500 to 2000 nuts a year, which represents about 3.5 kg nuts and 450 g mace; certain trees yield much more. There is not, properly spoke a harvest season since the nutmeg yields fruits nearly year around in Indonesia; they c serve however peaks in May to June, then in Aug. and Sept.

In Grenada, the nutmeg begins to produce much earlier since it gives its first f 4 years after planting, but the first commercial harvest is not until around 10 year age. They estimate that the tree can continue later to produce for a century. Contrary what is generally done in Indonesia, they harvest most often, in Grenada, fruits after their fall to the ground. This harvest must be made without delay under pain of seeing nuts become dampened and germinate or be heavily attacked by insects. Here also, fruiting is year around but with peaks in Aug.-Sept and Feb. to Apr. The yield is, in Grenada an Indonesia, extremely variable, and a tree can produce from only a few kg up to 45 kg a more. Average production per tree could be 1000 nuts a year, and a tree in full productio would give 20 kilos of fresh nuts. The plantings being very crowded, a hectare can co from 220 to 250 trees of which many are young and others too old; in well cared for plantings where they eliminate the unproductive trees, the yield per ha is on the order of 1 kg fresh nuts which, shelled and dried, give around 900 kg of nuts. The average yield mace is on the order of 170 kg fresh mace per ha, being 35 to 45 kg prepared mace. The

generally figure that, per 100 kg fresh nuts, they obtain 2 kg fresh mace.

Technology —

(1) Fruit characters — The nutmeg fruit is a kind of fleshy capsule, long pedi[illegible] of variable shape (spherical, oval or slightly pyriform), apricot color measuring on the aver[illegible] 5 cm in diameter and pale yellow color at maturity. The pericarp, not very firm, con[illegible] contains an acid and astringent juice and possesses the aromatic odor of nutmeg. At f[illegible] maturity, it opens in 2 valves beginning at the top and exposes the brown seed and its more or less orange, fleshy and divided into flattened lobes which constitute the "nutmeg flower". Under the seed's woody husk is found the kernel or "nutmeg."

(2) Preparation — In Indonesia, the harvested fruits are carried immediately to the prepa[illegible] workshop where they are opened; they extract the seed and its aril. The latter is detached [illegible] the seed coat, to which it is adhered only at the base, flattened in the hand and spread [illegible] on mats or bamboo screens exposed to the sun. They expose it thus to the solar rays dur[illegible] 4 or 5 hottest hours of the day for 2 weeks; if the period is very dry, the drying will be [illegible] faster and be completed in only 2 or 3 days. In the evening, they carry the mats into shed[illegible] to avoid remoistening the product during the night and production of molds. In drying, t[illegible] color of the mace passes from bright orange red to orange then to yellow with age. Once the ma[illegible] removed, the seeds are likewise put on screens and exposed to the sun for several weeks. [illegible] natural drying is often completed by artificial drying above a fire, trying not to raise t[illegible] temperature too high which would shrivel the nuts and would deprecate them, but in the [illegible] kernels are well dried, they ring when the seed is shaken; one can then proceed to the [illegible] fraction, which is easily done by breaking the shell by striking it with a wooden ma[illegible] on the end of the seed, and never on the lateral wall. After this extraction from the [illegible] the kernels are exposed to attacks of various insects, particularly when they are stored [illegible] warehouses in which it is thus necessary to periodically disinfect. To avoid this atta[illegible]

Nutmeg and Mace (U.S.)

They sometimes have the custom of sprinkling the nutmegs with lime at the [illegible] of by means of powdered lime, but by soaking in lime water, sometimes they with insecticide fumigations; but the major part of the Indonesian nutmegs are not [illegible]

In Grenada, to avoid the preparation of immature nuts which give an inferior product, the Grenada Cooperative Nutmeg Association much recommends the use completely ripe fruits and those fallen on the ground. Collection must be done within hours after their fall, it is carried out by women and children; harvested fruits must be put in a pile to avoid fermentation. After removal on the spot of the soft covering fruit, the mace is separated from the seed and both are brought to the preparation workshops called "boucans" (= smoke house). There, women flatten the pieces of mace place them, ~~to a depth of~~ in a 2-3 cm layer, on screens which are then spread to sun for 2 or 3 days. After drying, the mace is put in cubical boxes 1.30 m on a side which they seal hermetically and in which they carry out periodic fumigations carbon bisulfide to disinfect the product and protect it against insect attack. After 5 months of treatment, the mace is become dark yellow, it is then cleaned with a machine screen then hand sorted by women into various categories and becomes ready for export. Concerning the seeds, their drying, to be satisfactory, must be carried out in the sun and shade. This can only done in special buildings possessing adequate aeration systems. The seeds are spread out on screens in layers not more than 7 cm thick, with risk of fermentation. These screens, of which some are 6 m long by 3 m wide, are placed under the sheds or "houses" whose dimensions are from 20 to 25 m long by 16 m wide. During the drying period, they must stir the seeds 2 or 3 times a day with a long handled rake; stirring is practiced thus rendered rather intricate by the manipulations which it imposes during the 6 weeks of its duration but, if it is done with great care, it allows to obtain excellent quality products. After about 6 weeks, drying over dried, the seeds are

put in bags and stored in that manner to protect them against the rats from [illegible]. It is not in proportion as to the shipments that they carry out the cracking, [illegible] with a wooden mallet. They then plunge the kernels into water, those which float are considered defective and are distilled, the others, which fall to the bottom of the [illegible] are reserved for use as spice. These latter are carefully dried, packed and exported from the port of St. George.

(3) Commercial Kinds —

(A) Nutmeg — In Indonesia, the producer sells the nutmegs to the [illegible] in the shelled state. From their arrival in the storage warehouse, they are subjected to a [illegible] trial; that simply consists of making them rebound one by one on a steel or plate, which [illegible] the separation, according to their return, the defective nuts or attacked by insects from nuts which they designate by the name of "sound nutmegs". They then proceed to a [illegible] tion on a function of shape and number of nuts per English pound. It is thus that [illegible] distinguish:

— "whole sound nutmegs", entire and well formed. They are classed as "[illegible]" which a pound contains 60 to 80 (135 to 175 per kg), "medium", 55 to 45 to the pound (210 per kg) and "small", 100 to 125 to the pound (220 to 275 per kg).

— "sound shrivels", not attacked by insects but wrinkled. They constitute [illegible] utilized for preparation of powdered nutmeg.

— "rejections" which serve for distillation.

— and, finally, "broken and wormy" nuts.

If they consider the source, they distinguish 5 commercial kinds among the [illegible]nesian nutmegs, that are:

— "Banda nutmeg", considered as the best in commerce and which will contain 5 [illegible] essential oil;

Nutmeg and Mace (Cont.)

— "Siangit nutmegs" almost as good as the "Banda" but containing only 6.5% essential oil;

— "Penang nutmegs", of good quality proper but which are often defective and usable only for distillation;

— "Papua nutmegs" which are not produced by *Myristica fragrans* but by *argentea* Warb.

— The fifth kind is constituted by the "Java nutmegs", produced in small amounts but of good quality, intermediate between the "Banda" and "Siangit".

There also exist other products, which, like the Papua nutmeg, are not true nutmegs because not produced by *Myristica fragrans* Houtt. This is the case with "Bali Mal nutmegs", produced by *M. succedanea* Bl. and which are comparable in quality to the "Banda".

The nutmegs of Grenada are likewise divided into 5 classes according to the number per pound being: 60's (132 per kg), 65's (143 per kg), 80's (176 per kg), 110 (242 per kg) and 130's (286 per kg). They also distinguish these "sound nutmegs" from "defectives". The quality of nutmegs from Grenada are improving little by little and certain shipments test 9% essential oil like the "Banda".

(B) Mace — A good mace should be offered in the form of whole double strands, flattened and of good dimensions, of horny texture but not breaking too easily and showing pretty clear, blue bright color. In Indonesia they distinguish:

— "Banda mace", considered as the best, because very well prepared and classified. It possesses a pretty bright orange color, excellent aroma and contains 13% essential oil.

— "Java mace" which comes from Semarang. It is also of excellent quality and recognized by its rounded shape and golden yellow color sprinkled with lighter bright zones. It contains 11 to 12% essential oil;

Nutmeg and Mace (Cont.)

— "Siaum" mace" coming from Celebes Islands, Ternate, Tabanda and San
color is clearer than "Banda" and, according to its color and size, they distinguish 2 g
of it. It contains in general 10% less essential oil than "Banda", being 10 to 11%;

— "Papua mace" produced by Mr. agenta and containing very little essenti
4%, which furthermore has a disagreeable odor of turpentine

Grenada mace is of inferior quality to that of Indonesian mace. It possesses a
yellow color but brittle and contains only 8 to 9% essential oil, which also has, like the
mace, a terebinthene odor.

(4) Description and composition —

(A) Nutmeg — "Nutmegs in shells" are rare in Europe. They are enclosed in a
brittle, brown, glossy ovoid shell, with, starting at the base, shallow, ramified, winding
furrows. The "nutmeg", constituted by the kernel, is ovoid, 20 to 25 mm by 15 to 20. Its s
is wrinkled and traversed by furrows. It is gray in its entirety and can be white in the fu
because of liming. Its consistency is rather hard, but it can however be sliced with a knif
The transverse section of the nut is characteristic: on the outside, a slightly winding
line represents the inner tegument; beneath, is found the albumen, a grayish mass,
marbled with meandering brown lines which are the prolongations of the inner tegu
since the albumen is ruminate. The aroma and flavor are very odd. The chemical
sition of the nutmeg varies according to its origin and its quality; on the average, it co
the following elements: Water 9.0%, nitrogenous materials 6.5%, fats 33.0%
essential oil 4.5%, starch 27.0%, non-nitrogenous extract 14.5%, cellulo
3.0%, ash 2.5%. The alcohol extract varies from 16.5 to 17.4% with an avera
of 16%.

The characteristic odor is mainly attributable to the presence of essential oil.
content varies between 3 and 8%. This content can even reach 15% in nuts selected by

insects which attack mainly starch in the albumen thereby inducing a rancid condition. The essential oil and fat yield from distillation of defatted nuts. The essential oil appears in the form of a colorless or slightly yellowish liquid which can be obtained by steam distillation whose aromatic odor and hot and glowing flavor are characteristic of the spice. Its physical chemical properties vary according to the origin of the material first distilled. Its density varies from 0.865 to 0.925. The essential oil is composed of a mixture of pinene and dipentene camphene (85%) with terpenic alcohols and various other compounds in small amount; one of the most important ~~compounds~~ compounds is "myristicine" ($C_{13}H_{12}O_3$) which is toxic and acts like a narcotic; absorbed in too large quantity it can cause fatty degeneration of the liver. Nutmeg contains 25 to 40% fat or "nutmeg butter" which is precisely in the form of an orange mass, of butter consistency and very aromatic. Once extracted by expression from fragmented nuts or extracted with volatile solvents, it is utilized in certain pharmaceutical preparations.

(B) Mace — Mace is present in the form of fragments from 30 to 40 mm long, orange yellow, shiny, nearly translucent, ramified and flat, ~~exceptionally~~ medium in thickness. The odor is strong and special, peculiar, the flavor is quite acrid. The chemical composition, variable, can be on the average the following: Water 9.5%, nitrogenous material 6.5%, fats 22.5%, essential oil 10.0%, starch 26.0%, non nitrogenous extract 20.0%, cellulose 3.5%, ash 2%. The alcoholic extract varies from 23 to 27% and the ethereal (ether) extract from 20 to 27%. The essential oil content ranges between 7 and 14% and this essential oil has the properties and composition very similar those of nutmeg.

In commerce, nutmeg and mace from the Indies are reputed of better quality than those of the Antilles. They have thus searched for a perfect method ~~from~~ ~~[illegible]~~ to distinguish the spices (and their essential oils) of the 2 origins. Mace

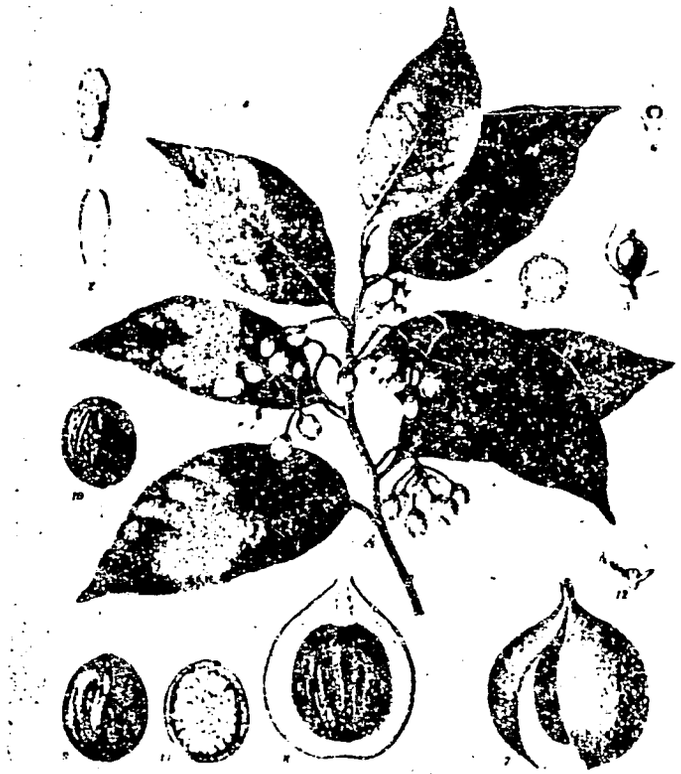
Studies

methods are based on the difference existing in phenolic content. [illegible] nutmeg or mace will contain, in fact, much more phenols than [illegible] of these [illegible] Measurement of the phenols can be made both by the spectrophotometric method [illegible] less rapidly, by paper chromatography.

(5) Adulterations — Adulterations are made especially with spoiled nutmegs or nutmegs not belonging to the species *Myristica fragrans*. They sometimes utilize the so-called "New Guinea nutmegs" or "Papua nutmeg" or still "Macassar nutmeg" (*M.* [illegible] Warb.), "Halmahera nutmeg" (*M. succedanea* Blume), "Bombay nutmeg" (*M. malabarica* Lam.), etc.

(6) Uses — Nutmeg and mace are used in pastries and to give aroma to confectioneries and sauces. Nutmeg essential oil is utilized in perfumery and in preparation of dentifrices and certain medications, but the principal use of nutmeg remains as a spice and it is practically never used for extraction of essential

***Myristica fragrans* Houtt.**



A. Flowering branch with male flowers
1. Column of stamens
2. Vertical section of column of stamens
3. Transverse section of column of stamens
4. Pollen grains
5. Vertical section of female flower
6. Vertical section of pistil
7. Fruit with fleshy covering partly opened
8. Vertical section fruit showing aril surrounding seed
9. Seed surrounded by aril (mace)
10. Seed without aril
11. Vertical section of seed
12. Embryo

NUTMEG AND MACE

Family: Myristicaceae

LATIN	• Myristica fragrans Houtt.
SPANISH	• Nuez Moscada
FRENCH	• Muscade
GERMAN	• Muskatnuss
SWEDISH	• Muskot
ARABIC	• Basbāsa
DUTCH	• Notemuskaat
ITALIAN	• Noce Moscata
PORTUGUESE	• Noz-Moscada
RUSSIAN	• Oryekh Muskatny
JAPANESE	• Nikuzuku
CHINESE	• Jou-Tou-K'ou

NUTMEG AND MACE

THE nutmeg tree, *Myristica fragrans*, indigenous to the Moluccas and other islands of the East Indian Archipelago, is truly remarkable in that it produces two separate spices, nutmeg and mace. It is a handsome, densely foliaged evergreen tree of the nutmeg family, with spreading branches, dark gray bark, and small, pale yellow, bell-shaped flowers. Its glossy oblong-ovate leaves, which resemble those of rhododendron or mountain laurel, are about 4 inches long, dark green above, paler beneath. Under cultivation it grows to a height of 40 to 60 feet and thrives at low elevations, in the warm and rainy tropics of both hemispheres.

The fleshy fruit, resembling an apricot, is globose in form, lemon yellow to light brown in color. When ripe, it splits in half, exposing the beautiful brilliant scarlet, netlike membrane, or aril, known as the *mace*, which closely enwraps a lustrous dark brown, brittle shell, inside of which is the single glossy brown, oily seed—the *nutmeg* of commerce. The ovoid, fragrant

NUTMEGS
From a seventeeth-century Dutch print.

nutmeg seeds are about 1¼ inches long and ¾ inch wide. The strongly aromatic, fragile, netlike mace is about 1½ inches long and 1/16 inch thick; when dried it is yellowish-brown in color.

Probably neither nutmeg nor mace was known to the ancients, although it is possible Pliny described them in the first century A.D. when he wrote about *comacum*, a tree with a fragrant nut and a perfume of two kinds. During the sixth century A.D. these spices were imported by Arab traders from the East Indies to Constantinople. By the end of the twelfth century both spices were well known in Europe from Italy to Denmark. It is recorded that in 1191 the streets of Rome were fumigated

with nutmegs and other aromatic spices prior to the coronation of Emperor Henry VI. By the fourteenth century mace was highly regarded in England, where one pound of this costly spice had a value equivalent to that of three sheep.

Chaucer in *The Canterbury Tales* mentioned the pungent fourteenth-century mixture of nutmeg and ale:

> ". . . gynebred that was so fyn and licorys, and eek comyn,
> with sugre that is trye, also of nutemuge put in ale."

The Portuguese discovery in 1512 that nutmeg trees were indigenous to the island of Banda in the Moluccas enabled them to dominate the nutmeg and mace trade for almost a century—until they were driven out by the Dutch in 1602. For many years the Dutch then ruthlessly controlled the production and sale of these products. Nutmeg cultivation was restricted to the islands of Banda and Amboina—systematic attempts were made to destroy all nutmeg trees growing elsewhere. The Dutch were thwarted in these monopolistic efforts, however, by fruit pigeons that swallowed fresh nutmeg seeds and voided them on nearby islands; and later by the French who, in 1770, introduced smuggled nutmeg plants into Mauritius.

An amusing incident concerning Dutch colonial administration during this period has been reported: Since prices for mace were higher than those for nutmeg, an Amsterdam official, unaware that both spices came from the same tree, is said to have sent strict orders to the Moluccas to reduce the number of nutmeg trees and plant more mace trees.

The British occupied the Moluccas from 1796 to 1802, and during that period introduced nutmeg cultivation first to Penang, later to Singapore—thus contributing to the collapse of the Dutch monopoly and helping to bring down the prices of nutmeg and mace.

Nutmeg culture was introduced to St. Vincent in the British West Indies in 1802. Experimental work started in Trinidad in 1806, followed by the development (commencing in 1843) of what were to be the most successful nutmeg plantations in the Western Hemisphere, on Grenada.

Connecticut is known popularly as "The Nutmeg State," owing to the tradition that slick Yankee peddlers of the early nineteenth century were wont to sell as the genuine spice whittled wooden imitation "nutmegs" to unsuspecting housewives.

The most important nutmeg-producing regions today are Indonesia, including Banda and other islands in the Moluccas where the spice originated; Grenada, in the West Indies; and Ceylon. Hurricane "Janet" destroyed about 90 percent of Grenada's nutmeg trees in 1955. New trees planted subsequently are now coming into bearing and Grenada is, after Indonesia, the main world supplier of nutmeg and mace. Annual world production amounts to about 7,000 tons of nutmeg and 1,000 tons of mace, 60 percent of which comes from Indonesia. The principal importing countries are the United States, West Germany, the Netherlands, and the United Kingdom.

The nutmeg tree thrives in sheltered valleys, on hot, moist tropical islands where it can "smell" the sea, at elevations from sea level to 1,500 feet. Friable, well-drained, sandy soils rich in humus are recommended, in addition to a well-distributed annual rainfall of 80 to 100 inches.

Propagation is usually carried out by planting fresh, selected seed in a well-watered nursery. Germination may require about six weeks. Young plants are transplanted to final field position when about six months old, spaced about 28 by 28 feet, in light shade.

The nutmeg tree is slow-growing, and the first small

crop may not be obtained until the seventh year. The yield increases with age, the most productive period being between the fifteenth and thirtieth years. Some trees may still be in production at the age of ninety. In full production, a good average annual yield per acre is about 500 pounds of dried shelled nutmeg and 75 pounds of dried mace. This comes out to about 10 pounds of dried shelled nutmeg and 1½ pounds of dried mace per tree.

The nutmeg tree is usually dioecious—that is, the male flowers are borne on one tree and the female flowers on another. Even though some so-called males may bear some fruit, the trees with only female flowers are the main crop producers. For efficient pollination and fertilization the male trees should be planted on the windward side of the plantation, and the traditional ratio of about one male to supply pollen for every ten females is still considered optimum on a nutmeg plantation. The natural excess of males causes an economic problem to the planter, for he cannot determine until about the sixth year which trees are male and which are female. To bring the proportion down to only 10 percent males, many male trees are either destroyed or are grafted with selected female scions.

The fruit ripens about six months after flowering, and the harvest continues throughout most of the year. In the East Indies some nuts are collected after they fall to the ground; others are harvested when the fruits burst open on the trees. Tree harvesting is accomplished by means of a long pole to which a basket, or *gai gai*, and prongs are attached; these disengage the fruit, allowing it to fall into the basket. In Grenada, however, fully ripened fruits that have fallen to the ground are harvested.

The collected fruits are brought back to the central drying area, where they are spread out to avoid fermentation. The nuts, including the mace, are carefully re-

moved from the husks. The mace is detached from the seed shell by hand or with a knife and flattened out to dry slowly in the sun for ten days to two weeks. Sometimes the mace is dried by artificial heat. During drying the mace gradually becomes brittle and horny, turning from scarlet to orange to yellowish-brown. It is during this curing that it acquires its characteristic pungent aroma.

Following the removal of the mace, the unshelled nutmeg seeds are dried separately for four to eight weeks, either in the sun or over smoldering fires, until the kernel rattles in the shell. The shell is then broken with a wooden mallet or in a specially constructed cracking machine, and the nutmegs are removed. To avoid damage by insects, shelled nutmegs are often treated with lime; similarly dried mace may be fumigated with carbon bisulfide or methyl bromide.

The two basic types of nutmegs in the spice trade are the East Indian and the West Indian. Whole nutmegs from the East Indies are graded according to size—"80's," "110's," and "130's" to the pound, for example. There is also a grade known as "ABCD" (mixed sizes) and one called "Shrivels" (wrinkled nutmegs). The West Indian nutmegs come in one size: "Unassorted" (all sizes).

The average price for nutmegs imported into the United States during 1971 was 40 cents per pound; for mace, it was 56 cents per pound.

The East Indian nutmegs, on steam distillation, yield a higher essential oil content and are more piquant in flavor than the milder West Indian. Most of the nutmegs used for oil distillation are processed from an East Indian grade designated in the trade as "B.W.P.'s," which stands for "Broken, wormy, and punks." Distillers of nutmegs prefer this grade not only because of its lower price, but also because the worm-eaten nutmegs generally give a higher yield of essential oil—the worms having eaten the starchy whitish parts, leaving behind the darker portions that are rich in essential oil.

Depending on their origin and condition nutmegs, on steam distillation, may yield from 5 to 15 percent of the essential oil. The yield of essential oil of mace may vary from 7 to 14 percent. These essential oils of nutmeg and mace are very similar in their chemical composition and aroma. They are used to flavor baked goods, table sauces, confectionery, dentifrices, perfumes, and cosmetics. Medicinally they are utilized as carminatives.

The East Indian mace is more brilliant orange in color than the pale yellow West Indian, and likewise has a higher essential oil content and richer flavor on steam distillation. Mace is generally graded as "No. 1 Whole," "No. 1 Broken," "No. 2 Whole," and "No. 2 Siftings."

The essential oils of nutmeg and mace contain about 4 per cent of a highly toxic substance, myristicin, which, taken in excessive amounts, can cause a fatty degeneration of the liver cells. For this reason the oils are used in very small amounts, with great caution. Large doses of nutmeg spice are said to have a powerful narcotic effect and to be stupor-inducing. In an attempt to escape from reality at "nutmeg parties," beatniks and hippies sometimes eat two or three tablespoonfuls of powdered nutmeg as a hallucinogenic drug for "kicks." Its narcotic use is said to be frequent among prison inmates. Following these nutmeg "jags," serious hangovers, headaches, nausea, dizziness, and other toxic side effects have been reported by the nutmeg-eaters.

Nutmegs, frequently referred to in the ancient sacred Vedic literature of India, have been prescribed since early times by Hindu physicians as a cure for headaches, fevers, bad breath, and intestinal disorders. Since the

ninth century this spice has been recommended i Arabian medical writings as a carminative, aphrodisia and for treatment of various ailments of the kidney and stomach. During the sixteenth and seventeent centuries European physicians and herbalists praise nutmeg as a virtual therapeutic cure-all. Today, how ever, although an important spice and condiment, nut meg plays a very minor role in Western medicine.

Nutmegs contain from 25 to 35 percent of fixed o fatty oils sometimes known as "nutmeg butter," o "banda soap," obtained by subjecting the nuts to hy draulic pressure under heat. The West Indian nutmegs have a higher fixed oil content than the East Indian. Fixed oil of nutmeg is used in the manufacture of soap and perfumes.

The flavor of both nutmeg and mace is sweet, warm, and highly spicy. Nutmeg in general tends to be sweeter and more delicate in aroma than mace, since the essential oils of the two spices are found in two different structures in the same fruit and thus have slightly different chemical compositions.

Nutmeg is available whole or ground. Whole mace, known as "blades of mace," is not usually found in retail stores, but ground mace is readily available. Ground nutmeg is tan in color, as compared to the orange hue of ground mace.

Because both blend well with such sweet foods as cakes and cookies, nutmegs and mace are used mainly as mild baking spices. They are also used to flavor frankfurters, sausages, various other meat products, soups, prepared sauces, and preserves. Nutmeg is a popular condiment in such dairy products as eggnog, junkets, puddings, and fruit pies, including Lemon Nutmeg Bavarian Pie. Mace is favored for flavoring pound cakes, fish sauces, meat stuffings, and oyster stew. Mace makes doughnuts taste like doughnuts.

Lemon Nutmeg Bavarian Pie

1 package unflavored gelatin
4 eggs, separated
1 cup sugar
½ cup lemon juice
½ teaspoon salt
1 teaspoon grated lemon peel
½ teaspoon ground nutmeg
⅓ cup heavy cream, whipped
1 9-inch baked pie shell
Lemon slices
Ground nutmeg *for garnish*

Sprinkle gelatin over ¼ cup cold water; set aside. Beat egg yolks until thick and lemon-colored. Gradually beat in ½ cup of the sugar, lemon juice, and salt. Cook over hot water until custard coats a metal spoon, about 10 minutes, stirring constantly. Remove from heat and stir in softened gelatin, mixing until gelatin has dissolved. Blend in lemon peel and *nutmeg*. Chill until mixture is as thick as unbeaten egg whites. Beat egg whites until they stand in soft peaks; gradually beat in the remaining ½ cup of sugar. Fold into gelatin mixture. Fold in the whipped cream. Pour into baked 9-inch pie crust. Chill until firm and ready to serve. Garnish with whipped cream, if desired, lemon slices, and *ground nutmeg*.

Yield: One 9-inch pie

Pears With Lemon Pudding Sauce

1 package (3 oz.) lemon pudding
3 cups milk
½ teaspoon ground nutmeg
1½ teaspoons pure vanilla extract
6 cooked pear halves
Ground nutmeg *and shaved semisweet chocolate for garnish*

Make lemon pudding according to package directions, using the 3 cups of milk. Add *nutmeg* and vanilla and chill. Just before serving, drain pear halves and place one half in each of 6 dessert dishes, rounded side up. Pour lemon pudding sauce over each serving. Garnish with *ground nutmeg* and shaved semisweet chocolate.

Yield: 6 servings

Ag 50 (13)
1968 (?)
(12)

III. 6 SPICES

		Pages
1.	Introduction	1 - 6
2.	Pepper	7 - 29
3.	Nutmeg and Mace	30 - 38
4.	Cassia	39 - 49
5.	Cloves	50 - 63
6.	Vanilla	64 - 67

US.AID/Indonesia
Information Center

3. NUTMEG AND MACE

General

Nutmeg and mace are the dried products of the same tree, Myristica fragrans, the nutmeg being the seed and the mace the dried nut-like wrapper surrounding the seed. Their relative importance, however, is quite different; whereas world trade in nutmeg and mace together amounts to some US $8.5 million, mace only accounts for about one-fifth of that amount.

The major source of the world's supplies is Indonesia, with the West Indies (Grenada) supplying the greater part of the balance.

Nutmeg is used for flavouring sweets, pies and sauces, and in the seasoning of processed meats. Mace is used in baking, for flavouring meat dishes, and in condiments, pickles and sauces. Both nutmeg and mace yield an essential oil used in perfumery and as a flavouring agent in dentifrices and medicines.

Production

Data on nutmeg and mace production in Indonesia is limited to a few years after World War II. Official statistics show that plantations are mainly concentrated in the Provinces of North Celebes and North Maluku and output in 1967 amounted to 3,400 tons from 14,300 hectares. However, this production figure appears to be on the low side if one compares it with the trade figures based on imports from Indonesia into the major importing countries (which have averaged 4,500 tons in the 1960's). One explanation could be that output of mace has not been taken into account.

Indonesia's major rival in this spice is Grenada, where production has recovered its previous level during the last two or three years (production dropped considerably after the destruction of nutmeg trees by hurricane 'Janet' in 1955). As trees planted after the hurricane are coming into bearing with rising yields, production in Grenada is continuing to increase. During the period of scarcity prices were stable but with the availability of greater supplies the price level has fallen substantially during 1967 and 1968.

Trade

Trade statistics of the principal exporting and importing countries are given in the appended tables. The volume of trade in nutmeg and mace in the sixties, though recovering from the low levels of 1957-58, is still well below the pre-war years and that in 1954-56. Following the disastrous effects of the hurricane in Grenada, exports from that source fell sharply, but with production gradually going up again, signs of recovery were apparent in 1965-67. Exports from Indonesia have been fairly even since 1963, judging from the trade returns of importing countries.

The importance of Singapore as a re-exporter of nutmeg and mace has declined since the confrontation with Indonesia, and in 1966 the volume handled was about a third of that in 1960. The Netherlands also re-export small quantities. The major importers are the United States (the bulk of the imports into that country come from Indonesia), West Germany, the Netherlands and the United Kingdom (mainly from Grenada).

TABLE 7 Production of Nutmeg and Mace in Indonesia and Grenada

'000 metric tons

Crop Years	Indonesia (Nutmeg and Mace)	Grenada Nutmeg	Grenada Mace	Total
1953/54	3.90	2.36	0.32	2.68
1954/55	3.95	2.31	0.32	2.63
1955/56	4.26	0.64	0.09	0.73
1956/57	..	0.68	0.09	0.77
1957/58	..	0.32	0.05	0.37
1958/59	..	0.54	0.09	0.63
1959/60	..	..	..	..
1960/61	..	0.55	0.09	0.64
1961/62	..	..	..	..
1962/63	..	0.07	0.10	0.80
1963/64	..	0.76	0.11	0.87
1964/65	..	0.82	0.13	0.95
1965/66	..	1.03	0.15	1.18
1966/67	3.40 a	1.15	0.18	1.33

a Official figure for calendar year 1967.

.. Not available.

TABLE 8 Distribution of Exports of Nutmegs and Mace from Certain Countries

(thousand cwt.)

Exporters / Importers	Indonesia (a			Grenada			Singapore (b	
	1965	1966	1967	1965	1966	1967	1965	1966
United Kingdom	2.2	2.0	2.1	5.2	2.6	2.7	2.5	1.1
Canada	..	..	..	1.2	0.8	1.1	-	0.1
Australia	0.2	0.4	0.3	-	-	-	2.3	2.1
Malaysia	5.8	6.4	..	-	-	-	0.2	0.2
Singapore			..	-	-	-	-	-
United States	37.9	34.9	30.9	12.8	2.7	3.0	8.4	0.7
West Germany	20.2	25.0	21.0	7.1	1.3	0.7	3.4	0.6
Netherlands	5.8	13.2	13.7	4.5	10.8	1.7	2.7	0.8
Belgium	1.6	2.5	3.1	0.4	-	0.1	2.4	0.4
France	2.2	2.5	3.5	0.1	-	-	1.8	0.3
Italy	1.1	2.1	3.1	0.1	-	-	2.3	1.4
Japan	3.9	2.5	3.4	-	-	-	5.1	4.8
Other Countries	..	..	..	2.0	0.8	0.9	10.7	10.3
Total	92.0	96.0	81.1	33.4	19.0	10.2	41.8	22.8

a Figures are direct imports from Indonesia, totals are estimates which include imports via Singapore.

b Mainly re-exports; includes some cardamoms

TABLE 9 Values of Nutmegs and Mace Exports from Major Producing Countries

	1960	1961	1962	1963	1964	1965	1966
	thousand U.S. dollars						
Grenada	1,787	1,053	1,058	1,321	1,135	3,349	2,416
Ceylon	119	67	47	214	156	93	139
Indonesia	6,719	3,657	2,519	2,300*	4,800*	4,600*	5,900*
Total	8,625	4,777	3,624	3,835	6,091	8,042	8,455

* estimated

Unit Value							
	U.S. cents per Kg.						
Grenada	259	215	141	149	212	198	250
Indonesia	132	94	60	..	..	..	..

.. not available

196.

(13)

PROSPECTIVE PRODUCTION AND MARKETING OF SPICES IN WEST-SUMATRA PROVINCE

USAID / Indonesia
Information Center
2477

I. Introduction

1. The Indonesian Government cooperates with the Federal Republic of Germany in agricultural development of the Province of West Sumatra through the German Technical Cooperation Team.

2. West Sumatra, one of the eight provinces of Sumatra, is located on the West Coast, south and north of the equator. The topography is determined by the Barisan Mountain range which traverses the province from north to south.

3. The total area of West Sumatra is about 42.000 sq.km, the population amounts to about 2.8 million, or an average of 66,1 inhabitants per sq.km. About 60 % of the population are smallholders and involved in agriculture.

4. Some agriculture products demand attention for expansion of production and marketing and in this respect the spices are second in importance to rubber.

5. The German Technical Cooperation Team intends to formulate a project to strengthen this production sector at smallholder level. This report presents an evaluation of the feasibility of such project.

II. Terms of Reference

6. The major objective of the project will be the improvement of smallholder spice production efficiency in different areas of West Sumatra Province. With regard to this objective the terms of reference of this report are described as follows:
   - improvement of selected and appropriate smallholders' spice crops with due consideration to the world market prospects and conditions of production.
   - increase in volume and value of the spice exports of West Sumatra.
   - improvement of local marketing systems and introduction of international standards for export quality.

in 1970, '71 and '72. Yields per individual tree may vary from 1 to 12 kg per year in consecutive years and yields per ha may differ from location to location within or between years. It was observed that the clove trees currently tended to extent a considerable new flush of leaves.

23. Traditionally the commercial products obtained from the clove tree consists of the dried flower buds and the dried clove stems. Both products are used in the manufactoring of kretek cigarettes. After harvesting the flower bunches are brought to the farm, where the stems are seperated from the buds. Both products are spread out on seperate mats and exposed to sunarying for a number of days until the colour has turned to an even dark brown. Regularly headless cloves are removed in the drying proces and collected on a seporate mat. Depending on weather-conditions the cloves and clove stems should be properly dried to some 10 - 15 % moisture, but usually a much higher moisture level is left. The turn-out from fresh to dried clove buds and clove stems is usually 20 - 25 % and 7 - 8 %, respectively. The prepared cloves and clove stems are usually sold shortly after drying. Dry clove leaves which have been shed from the canopy contain usually some 2 - 3 % of essential oil. This oil can be extracted and sold as clove leaf oil.

Present Situation in Nutmeg Production

24. In the Padang/Pariaman region nutmeg trees are usually grown on alluvial soils, on regosols of alluvial origin, and on latosols of volcanic origin. The plantings in this region may be found on poorly drained flat areas, but also on hilly outcrops up to a height of 350 m. In Kab. Agam nutmeg cultivation is concentrated on the Western coast of Lake Manindjau on litosols derived from acid lava. In Kab. Tanah Datar and the Lake Singkarak region nutmegs are almost exclusively grown on the West coast of the lake on latosols. In both kabu-

patens the nutmeg trees are planted at the foot and onto the lower slopes of protecting mountains. In other areas of West Sumatra single trees or groups of trees are grown on different soils, developed on volcanic bedrock or alluvial deposits. In the coastal region of Padang/Pariaman little or no new planting is carried out. This is probably due to the essentially food crop economy in this region, whereas in the lake regions the planting of open spaces in existing plots, and some new expansion takes place.

25. Approximately half the nutmeg trees are grown under conditions of high and evenly distributed rainfall, sometimes exceeding 3000 mm per year in the coastal plain. Some 40 % of the trees have been planted on the West coasts of Lake Manindjau and Lake Singkarak. In both areas a rainfall of 1600 - 2400 mm, a relatively dry period of 2 - 3 months from June to August, and absence of months without at least some 75 - 100 mm of rain, present conditions comparable to those in other nutmeg growing areas in the world. On the lake-coasts the nutmeg plantings are also protected from northern and north-westerly winds, unduely low temperatures, and tree damage by heavy winds. This protection is required at altitudes of 300 - 400 m. In these areas monocultures of nutmegs are commonly observed (cash crop economies) as against usually scattered cultivation on farm compounds in the coastal region (food crop economies). The remaining 10 % of the trees are distributed over the province under various conditions of rainfall. Broadly speaking, the average size of a nutmeg holding may be estimated at 0.2 ha.

26. When replanting, interplanting or new planting is considered some kind of land selection is carried out, particularly in the case of regularly established gardens. Poor and unsuitable locations are avoided; this consideration may at times prevent expansion of gardens if land is at a premium, and it may favour

interplanting and dense planting of existing mature gardens. Due to this practice gardens tend to consist of trees of a range of ages, which can be observed in the lake Manindjau region. Prior to the actual planting activity the land may be cleared or patch clearing may be carried out of places marked for tree planting. Subsequently, planting holes are prepared on many occasions and they are sometimes provided with manure if this is available. No other practices have been observed.

27. The initial material for planting of nutmegs is usually obtained from two different sources. Most common is that farmers prepare seedlings from seeds which become available on their trees. Seeds are usually germinated in small, protected nursery beds and the seedlings are maintained to an age of 18 - 24-month old. Germination rates are usually relatively low. The strongest seedlings are sold at an age of 17 - 18 months; the weaker ones are kept to an age of 24 months old when they should have reached an acceptable size. Sometimes selection of mother trees with regard to production, vigour, and health is carried out as a basis for the seed sollection. At the beginning of the planting season the seedlings are transplanted into baskets and sold for Rp 3o - 5o per piece. A second, but limited source of planting material constitutes the Dinas Perkebunan Rakyat. In this case seed is collected from apparently good gardens and planted in one or more nurseries. After 9 - 12 months the seedlings are ready for transplanting and usually only the best 5o % of the total of germinated seedlings are distributed to farmers free of charge. In 1971/72 some 42.ooo seedlings were distributed to farmers for replanting and expansion.

28. The planting density in nutmegs appeared basically systematic. In Lake Manindjau area, where mature trees show a very close spacing, the density varies from 4oo to 5oo trees/ha or 4.5 to [illegible] square. In contrast, in Lake

Singkarak region old trees as well as the relatively young trees have been planted at a density of 15o to 2oo trees per ha at a spacing of 7 - 8 m square. Usually existing vacancies in mature plantings, due to death or removal of trees, are filled by planting new seedlings. The replants are not necessarily fitted in the original spacing pattern. On occasions vacancies were filled by fruit trees or other tree crops. Shade for freshly replanted trees was provided by the existing mature trees or by maintaining high grass protection around the replant. Excessively dense planting tends to leave the nutmeg trees relatively thin and without lower branches. Development of this condition was observed in particular in the Lake Manindjau area and can be attributed to self-pruning by canopy competition. This causes considerable loss of conveniently harvestible lower branches. In the much wider spaced plantings of Singkarak area canopies were much better in this respect.

29. Planned systematic maintenance and husbandry practices are usually absent, but incidental clearing of weeds or ringweeding practices once or twice a year does occur. Other common maintenance practices such as mulching, use of cover crops, application of fertilizer, and stem-cleaning have not been observed. One essential practice constitutes the thinning of male trees in view of the dioecious nature of the crop. The initial population consists of roughly 5o % male or male-oriented trees and 5o % female trees, and this ratio is reduced to a density of usually 1 male to 1o females. On occasions it was found that farmers thinned to a ratio of 1 male to 5o females. The males are usually irregular and unevenly distributed over the female population. This thinning procedure is usually started when the trees show a good proportion of inflorescences, and it was observed that farmers tend to have problems in differentiating male from female trees in a proper way. Significant was the fact that farmers

101

tend in general to recognize the need for crop maintenance. They appear to be insufficiently motivated to do so by, amongst others, tight time schedules in other agricultural activities, shortage of labour and cash funds, and absence of appropriate motivation with regard to the long-term effects of agronomic and plant protection treatments on yield and returns.

30. Diseases in nutmegs appeared to be of limited importance. In Manindjau area some cases of threadblight have been observed on the leaves. Secondary invasion of some fungi was found in trees wounded by accidental damage and by borers. The stands in this area were found to be very dense and most of the trees were covered by mos and algae; there was some incidence on the branches and other parts of the trees of parasitic plants. In the Singkarak area disease incidence was very little and in many cases absent. Major damage in the Manindjau area was caused by stem borers and most of the trees were affected to a serious extent; secondary invasion by fungi was commonly observed. In the Singkarak area there was hardly any borer damage present in the stands. Ants seem to be a nuisance in both these areas. In other areas it was reported that borer damage prevailed, but also the presence of parasitic plants on branches was observed.

31. The juvenile period which preceeds production of nutmegs ranges from 5 - 7 years after planting. Considering the present smallholder practices this is a normal period. Good production is reached when the trees are 15 - 25 years old. The trees generally flower throughout the year, but small peaks of flowering and production do occur. Harvesting standardsare low and fruits are usually beaten off the branches by using long bamboo sticks. Sometimes, in particular in the mature and old producing trees, harvesters climb the trees, remove the fruits and drop them to the ground. It is common to harvest fruits unripe, before the

flesh has split open. Not infrequently, and in particular when the smallholder is in need of money, very small and barely developed fruits were harvested. Consequently most nuts are harvested in unripe condition with mace showing white, yellow and orange colour shades. Rarily fruits are harvested at the proper ripe stage when the fruit has split open spontaneously with the dark red mace showing. Subsequent preperation on the farm is rather primitive and is usually limited to partial drying only. In the Manindjau and Singkarak area the nut with surrounding mace is removed from the fleshy part and dried for some 3 days in the sun and subsequently sold. The moisture content of these nuts is usually high. In Kab. Pesisir Selatan undried nuts with mace attached are sold, while some farmers dry their nuts over a small, smoking fire for one or two days, followed by 2 - 3 days sundrying. The quality of these nutmegs is very low and the great majority of them are only suitable for extraction of nutmeg oil. The presence of some 15 - 20 % of essential oil in these unripe nutmegs as compared to 7 - 8 % for nutmegs of consumptive quality constitutes a favourable factor with regard to oil extraction.

Present Situation in Cassia Production

32. Cassia vera is commercially grown usually in gardens and plots located on the slopes of or on land in close proximity of active or inactive volcanoes. Major cultivation takes place on the eastern slopes of Gunung Merapi, the north and south slopes of Gunung Sago and on the north-north-east side of Gunung Talang. A new major growing area has been developing on the northern side of Gunung Kerintji over the past 12 - 15 years. The soils of both important growing areas are usually red andosols with a shallow to deep profile, depending on the location. In the Kerintji areawell-developed, deep profiles are the rule, whereas in the other areas

-- The traditional system for supply of credits may render actual farm-gate prices as low as 1/2 of the quoted prices, but this system is an integrated part of the economical structure and marketing patterns of the smallholders' crops; there are hardly alternative and acceptable channels of credit supply at present. Direct interference with or changes in this deeply rooted credit system could meet with considerable, if not insurmountable problems.

-- The present marketing system for smallholders' spices at farm-gate does not recognize a difference in qualities of produce that might be offered by the farmers. Smallholders receive no price incentive at present for special efforts to produce high grades of produce; only a single uniform price is paid for inferior mixtures of various grades of each spice and mutual distrust of farmers and traders prevails.

-- The delivery and marketing of inferior batches of raw produce at farm-gate demands preparation of final export grades. The produce undergoes multiple upgrading and sometimes downgrading, processes down the trade line to the exporter; this pattern of treatment tends to affect the flavour and quality of the final produce.

Services

-- Present research efforts are primarily directed to the control and prevention of "Sumatra disease" in cloves. Investigations into problems with this crop and those in cassia vera and nutmegs have been planned and await implementation.

-- The extension, marketing, and technical services of Dinas Perkebunan Rakyat have at present insufficient staff, inadequate funds, and not enough transportation and technical equipment to cope effectively with their considerable and multiple tasks in the province of West Sumatra. Despite these handicaps some very useful work is in progress regarding clove

(14)

(Translation/summary of 4 March 1983 article in Kompas newspaper)

NUTMEG TRADE IN SOUTH ACEH TO BE REORGANIZED
in order to ensure better farmgate prices

Tapak Tuan, Kompas. The strong-willed Regent of South Aceh, Drs. Ridwansyah, is going to restructure the nutmeg trade in his area. The current trade provides an opportunity for a monopoly by the oil factory owners in Tapak Tuan when the price of nutmeg falls.

This was mentioned by Ridwansyah only six hours after he was installed as the new Regent of South Aceh, replacing Drs. Soekardi Is, whose term of office expired. Ridwansyah was installed in his position by Governor of Aceh, Mr. Hadi Thayeb, in a special session on February 23rd in South Aceh.

Speaking about his capability to govern South Aceh, Ridwansyah said more attention should be paid to the agricultural sector. "We must think again what agricultural commodities in South Aceh can guarantee the livelihood of the people and thus increase the income of the area and the nation," said Ridwan.

Ridhwan explained that the nutmeg trade in South Aceh until now has worked against the farmers. This is shown by the fall in exchange value between rice and nutmeg. About four years ago the farmers could exchange 1 bambu (2 liters) of nutmeg for 2 bambu's of rice. But now the farmers must exchange 2 or 3 babmu's of nutmeg in order to get 1 bambu of rice.

According to the farmers, a few years ago they could make a good living raising nutmeg. They could sell their harvest freely in the marketplace. The nutmeg was purchased by factories outside of the district and from Padang or North Sumatera.

But now some farmers claim that since the passing of new laws a few years ago, farmers have no choice but to sell their nutmeg to the nutmeg oil industry in Tapak Tuan. Since that time, the price of nutmeg has declined.

"Since the price of nutmeg fell, the farmers have lost the volition to take care of their nutmeg plots. This continues to worry us," said an informant in Tapak Tuan.

(OVER)

Tata Niaga Pala di Aceh Selatan akan Dirombak

— Agar Harga Jual Untungkan Petani

Tapak Tuan, Kompas

Bupati Aceh Selatan, Drs. Ridwansyah bertekad akan merombak kembali tata niaga pala di daerahnya. Tata niaga yang berlaku selama ini telah membuka peluang monopoli bagi industri pengolahan minyak pala di Tapak Tuan sehingga harga pala menjadi merosot.

Hal ini dikemukakan Ridwansyah enam jam setelah ia dilantik menjadi Bupati Aceh Selatan yang baru, menggantikan Drs. Soekardi Is yang habis masa jabatannya. Ridwansyah dilantik oleh Gubernur Aceh Hadi Thayeb dalam sidang istimewa DPRD Aceh Selatan 23 Februari.

Mengemukakan garis kebijaksanaannya dalam memimpin Aceh Selatan, Ridwansyah mengatakan, lebih menitikberatkan perhatiannya ke sektor pertanian. "perlu dipikirkan kembali bagaimana komoditi pertanian di Aceh Selatan bisa menjamin kehidupan rakyat dan sekaligus meningkatkan penghasilan daerah dan negara," ujar Ridwan.

Monopoli

Ridwan menilai, tata niaga pala di Aceh Selatan belakangan ini telah memukul kehidupan petani. Ini ditandai dengan merosotnya nilai tukar pala dengan beras. Sekitar empat tahun lalu para petani dapat menukar 1 bambu pala dengan dua bambu beras. (1 bambu = 2 liter). Tetapi akhir-akhir ini para petani terpaksa menyerahkan 2 atau 3 bambu pala untuk memperoleh 1 beras.

Apa yang dikemukaka diakui oleh sejumlah peta beberapa kecamatan Aceh Selatan. Menurut pa beberapa tahun yang mereka menggantungkar nya pada pala. Merek menjual dengan bebas par nya di pasaran. Pala dibel saha dari luar daerah dan ke Padang atau Sumatera

Tapi, demikian kata b petani, semenjak diberl nya peraturan baru b tahun lalu, petani hanya kan menjual pala kepada industri pengolahan miny di Tapak Tuan. Sejak it pala secara berangsur me

Pada tahap permulaan p an berlangsung menuru pasar. Namun lama k harga menjadi merosot ole gai alasan.

"Sejak merosotnya har para petani telah keh gairah merawat tanaman p ini amat mencemaska semua," ujar seorang peng Tapak Tuan.

Sementara itu Kepala Perkebunan Kabupaten Selatan, Saifuddin A mengemukakan pendap tentang komoditi pala. K kemerosotan harga pala d kan rendahnya harga pala nesia sehingga minyak pa diolah di Aceh Selatan s pasarkan.

Karena itu ia tidak sepe kalau dikatakan keme harga pala Aceh Selatan di kan oleh "monopoli" pen perusahaan minyak pala te Kehadiran perumahan itu Saifuddin, merupakan usa merintah daerah untuk me kan tata niaga pala itu ser

Perusahaan itu mendapat cam proteksi untuk menar hasil pala Aceh Selatan diolah langsung menjadi m dalam kualitas ekspor. Pi diberikan dengan adany putusan Gubernur Aceh beberapa tahun lalu.

Ketika masalah ini diten kepada Bupati Aceh Selata Ridwansyah, dengan nada t menjawab "bagaimanapun tata niaga pala sekarang ini dirombak. Setidaknya, tata pala harus berlangsung bebas dan justru kepada pet yang harus diberikan prot

Pengolahan minyak pala bahnya, harus juga bisa dila oleh petani untuk dapat di kan di dalam negeri.

Luas tanaman pala di Selatan meliputi 3.735 dengan tingkat produksi kering 1.604 ton tahun. Seda produksi bunga pala mera disebut "foeli" 64.16 ton Biasanya, foeli diolah oleh duk menjadi bahan kue langsung diolah menjadi m bunga pala. Penduduk Aceh an sekarang ini mencapai 3 jiwa, mendiami daerah 8.910 km². Sebagian besar duk terdiri dari petani yang

Standar Mutu Pala Ekspor Direvisi Untuk Tingkat Produksi

JAKARTA — Direktorat Standardisasi, Normalisasi dan Pengendalian Mutu departemen Perdagangan dan Koperasi berhasil menurunkan standar mutu pala dan fuli (kembang pala) untuk ekspor.

Menurut Humas departemen Perdagangan dan Koperasi, standar pala tersebut disusun berdasarkan survei yang dilakukan di daerah sentra produksi pala (terutama di Sulawesi Utara, Sulawesi Selatan dan Maluku) serta mengingat persyaratan konsumen pala di luar negeri.

Standar pala tersebut meliputi syarat mutu, cara pengujian mutu, cara pengambilan contoh dan pengemasannya.

Pala Indonesia kualitas ekspor terdiri atas empat jenis, yaitu mutu Calibrated Nutmed (CN), *ABCD*, *average*, *Rimpel* dan *BWP*.

Jenis pala ABCD Average adalah kumpulan biji pala dengan ukuran biji yang umumnya tidak seragam, jenis *calibrated nutmed* adalah kumpulan biji pala dengan ukuran yang umumnya seragam dan jenis *BWP* adalah jenis pala yang pecah (*broker* berlubang *wormy*) rapuh (*punky*) dan berjamur.

Cara pengemasan, pala dimasukkan kedalam karung goni yang baik dan bersih atau kemasan lain yang sesuai kemudian dijahit dengan berat bersih antara 50-90 Kg per karung, kemudian difumigasi sebelum dikapalkan.

Pada bagian luar goni harus ditulis dengan cat yang tidak mudah luntur, yang bertuliskan produk Indonesia, nama eksporter, mutu barang negara tujuan, nomor karung dan berat bersih.

Standar Fuli

Stadar fuli disusun berdssarkan survei yang dilakukan di daerah sentra produksi fuli, terutama di Sulawesi Utara, Sulawesi Selatan dan Maluku.

Mutu fuli terdiri atas lima jenis yaitu mutu utuh I (whole I), mutu utuh II (whole II), mutu pecah I (broken I), mutu pecah II (broken II) dan fuli hitam (blcak mace).

Cara pengemasan, setelah fuli difumigasi kemudian dimasukkan ke dalam peti kayu berukuran 70 Cm x 50 Cm x 50 Cm dengan berat bersih maksimum 85 kg, atau peti kayu lapis ukuran 40 x 40 x 60 Cm dengan berat bersih 50 kg.

Khusus untuk jenis pecah dan fuli hitam dapat dikemas dalam karung goni yang baru, bersih dan kering dengan berat bersih maksimum 60 kg.

Merek ditulis pada salah satu bagian luar peti dengan cat yang tidak mudah luntur, yang isinya antara lain produksi Indonesia, mutu barang, nama eksporter, negara tujuan dan berat bersih. (Aut)

(15) REP 2.

VZCZCJAI #
RR RUEVDFL
DE RUEHJA #6005 100 **
ZNR UUUUU ZZH
R 0925127 APR 84
FM AMEMBASSY JAKARTA
TO USDA/FAS WASHDC
BT
UNCLAS JAKARTA 06005

CLASS: UNCLASSIFIED
CHRGE: AGRI 04-09-84
APPRV: FAS:RMMCCONNELL
DRFTD: FAS:IGNEXAWIRYA
CLEAR: NONE
DISTR: ~~FAS~~-3 AMB DCM
CERON
6

TOFAS 92

FOR SINDELAR, FAS/W

E.O. 12356: N/A
TAGS: N/A
SUBJ: INDONESIAN NUTMEG SITUATION

REF: FASTO 50

1. PRODUCTION:

1982 - 18,801 MT; 1983 - 18,923 MT; 1984 - 19,100 MT.

2. EXPORTS:

1982 - IN SHELL 2,621 MT; SHELLED 5,101 MT; MACE 1,517 MT;
1983 (JAN-NOV) - SHELLED 8,338 MT. NO RECORDED SHIPMENTS
OF IN SHELL OR MACE.

3. AVERAGE PRICE OF SHELLED NUTMEG:

1982 - DOLS 1,340/MT; 1983 - DOLS 1,250/MT.

4. ACCORDING TO NATIONAL AGENCY FOR EXPORT DEVELOPMENT
OF THE DEPARTMENT OF TRADE, EXPORT PROSPECTS FOR 1984
INDICATE THAT SALE OF SHELLED NUTMEG WILL BE 5 TO 10
PERCENT ABOVE 1983 LEVEL WITH AVERAGE PRICE OF DOLS
1,300/MT.
BT
#6005

NNNN

208

VOL. 2, I. H. BURKILL, 196

In Java the nuts of *M. argentea* replace them (K. Heyne, Nutt. Plant. Ned. Ind. ed. of 1927 p. 640).

Ridley (in Journ. Straits Med. Assoc. 5, 1897 p. 124, and Agric. Bull. Straits and F.M.S. 5, 1906 p. 197) says that nuts of *M. fatua*, imported from the Moluccas, pounded and mixed with senna, are used as a purgative in the Peninsula. In the latter publication he adds that the nuts may be used for adulterating cacao butter.

7. **M. fragrans**, Linn. The NUTMEG TREE; *Buah pala* (the nut), *Bunga pala* (the mace).

Nutmeg. The home of this tree is somewhere in the east of Malaysia. When Europeans first began to exploit the trade it was known to occur in the Ternate Moluccas, the Amboina Moluccas, and the western parts of New Guinea. Over this area it received care and sufficient cultivation to keep its limits rather artificial. It was, and is, hardly ever seen wild, but it had undoubtedly not travelled far from its original home, which is not only its home but the home of its nearest allies; for Warburg, in his monograph of the Myristicaceae (Nova Acta Kaiserl. Leop.-Carol. Akad. Naturforscher, 67 1897 p. 378) admits into his 'series fragrans' only three species, and the other two are natives of Halmaheira and New Guinea.

History of trade. There are half a dozen races of *M. fragrans* differing in small points, such as the shape and character of their nuts, which led to a classification in trade, at one time, into eight kinds. But on the markets now they are simply graded roughly by size and appearance.

The first arrival in India, by way of commerce, of spice derived from the tree may have been during the sanskritic period, but as it was a long time before the nut reached the Levant, supplies must then have been very inadequate, if available at all. It is, however, a circumstance that the nut is known in all the more important languages of modern India, including Burmese, by a word derived from the Sanskrit, and this word is met with in the *Susruta Sanhita* of about A.D. 600, but that it was originally applied to the nutmeg is by no means certain.

The nutmeg came to Europe about the sixth century, through trading Arabs who used for it a name of Indian origin, and there can be no doubt regarding its sale in India at that time. But it is possible that India, from using such a *Myristica* as *M. malabarica* in the early centuries of the Christian era, had turned to *M. fragrans*, and had relegated the 'jai phal' first known, to second place as the 'wild jai phal'.

India must have got its supplies of the true nutmeg from Java, which again got its supplies from eastern Malaysia, and so there were two entrepôts in the course of the trade to Europe.

Throughout most of Malaysia the nutmeg is called by the name 'pala', or by a name akin to 'pala'. This name is supposed to have come from the sanskritic word for the fruit, i.e. the second part of the name 'jai phal' just mentioned; thus the nutmeg is 'the fruit',

and if that is so, when a Malay says 'buah pala' he says 'the fruit-fruit'.

On the supposition that this derivation of 'pala' is correct, the Hindu conquerors of Java may have created the trade, and that would be in the centuries immediately after Christ. But is 'pala' from 'palam'? The sanskritic names which some of the Molucca islands bear, do, however, strongly support the idea that Java developed the nutmeg trade under Hindu leadership.

The Arabs gave it out in Europe that India was the source of the nutmegs that they traded in, and so it would have been if they traded in the produce of *M. malabarica*. But in the tenth century they traced them to eastern Malaysia, and in 1200 they were carrying them to China (Hirth and the Rockhill's Chau Ju-kua p. 116). Chau Ju-kua states (p. 210) that the nutmegs came from certain islands which were dependencies of Java, and it is evident that Malaysian traders, chiefly Bugis, brought them to entrepots in Java, where the Arabs were able to buy them, and whence they took them both westwards and northwards.

When the Portuguese broke into the Indian Ocean, Cabral, in 1501, brought home on his return nutmegs which he had procured in India, but as soon as possible that nation developed a trade in nutmegs with Malacca as an emporium. The price of the nuts in Europe was more than ten times their price in the East. This quickened the Portuguese to more enterprise than the Arabs, so that in 1512, having proved their source, they established an annual voyage from Malacca to Banda to fetch a cargo of nutmegs and mace, cutting out from the trade any intermediate entrepôt, either in Java or at Macassar. Caesar Frederick, who sailed from Venice in 1563, tells us this (Hakluyt's Voyages, 2, ed. of 1810 p. 356).

Linschoten (Hist. Navig. ed. of 1610 p. 61), when he was in Goa from 1583 to 1589, obtained a little information regarding the market for them in Malacca. At that time it was rumoured that the nutmeg tree was in cultivation in Ceylon. The nutmeg tree begins to travel.

In 1650 the Dutch, having then ousted the Portuguese, adopted a policy of restricting by force the supply of nutmegs to what they could themselves hold under control. It was by this policy, for instance, that they devastated the Island of Pulau Way, when, by treaty, they were forced, in 1652, to surrender it to Britain. In 1669, having extended their power from Java to Macassar, the great port of the Bugis, they were able to make this restriction effective by destroying trees growing outside a very limited area, and had done so by 1680, strengthening the power of the Bugis to carry them. Yet, their strength in Moluccan waters was not always enough for control, so that at times traders broke into their trading monopoly, buying and carrying off the spice; but these traders were not able to establish the nutmeg-tree elsewhere until after a long time. However, in 1769, the French succeeded in getting it into Mauritius and also into French Guiana; furthermore, it seems to have reached

Malacca in a solitary tree, sex unrecorded, of the Banda race, to which Oxley attributed an age of about seventy years in 1856, carrying its arrival back to, say, 1786 (Logan's Journ. N.S. 1, 1856 p. 139). Finally, the monopoly was completely broken when the British East India Company, in 1796, was able, by right, to send their botanist Christopher Smith to the Moluccas with the object of collecting seedling plants of nutmegs and cloves, and establishing plantations on British soil.

Smith propagated and extracted 70,000 nutmeg-trees from the Moluccas, chiefly from Amboina, making new homes for them in different parts of Penang, while a few trees were sent to Kew, Calcutta, and Madras. An old tree of this period was reported recently as still fruiting freely at Peradeniya, Ceylon, at an age of over a hundred years. The first nutmeg fruited in Penang in 1802.

The Government policy in planting in Penang wavered, and the plantations were sold. But, from about 1812, nutmeg raising was made a success by David Brown and his son George, and it became the premier crop of that island, retaining its lead until 1866, and spreading to Province Wellesley.

Raffles had anxiously encouraged planting in Bencoolen, Sumatra: but the plantations ultimately passed into the hands of the Dutch and were little encouraged by them. He had also caused trees to be planted in Singapore in 1819, where they fared, perhaps, better than those at Bencoolen, and became productive enough, from 1836 forwards, to provide, by the sale of the nuts, the local Agricultural and Horticultural Society with the means of maintaining a small acclimatization garden. A little planting took place also in Malacca.

The London merchants found the Penang nutmegs superior to those of the Moluccas, whence the chief supply of the Dutch continued to come, though Celebes, Java, and Sumatra contributed a small number of nuts.

The great catastrophe to the plantations

In the middle of the nineteenth century a catastrophe overtook the plantations. Low, in a paper in Logan's Journal (5, 1851 p. 478) mentions that some few years before 1851 disease had broken out in the rather neglected Bencoolen plantations—'a worm had attacked them'. In 1859 disaster came to the Malayan plantations. A disease, the nature of which we do not know, attacked them both in Penang and Singapore. Ridley (Agric. Bull. Mal. Penins. 5, 1896 p. 92, and Spices, 1912 p. 125) attributes it to a beetle. Jagor, whose travels in the East extended over five years from 1857, saw the beginning of the disaster in 1859. He says (Reiseskizzen, 1866 p. 21) it had wiped out the Singapore estates by 1864 and destroyed most of those in Penang. He says that in almost all stages of the event various insects were in evidence attacking the trees.

The disease was described as appearing suddenly: 'in the night a tree would be attacked and the morning light would show its topmost branches withered; the leaves fell off, the disease spread slowly downwards, chiefly at one side of the tree; the tree became one unsightly mass of bare and whitened twigs. No situation was exempt from its ravages', and for a time the industry was ruined, but the wreck of the plantations was not so complete in Penang as in Singapore. After 1870 there was a renewal of planting. Shortly before the disaster there had been about fifty-six thousand trees in the Island of Singapore; afterwards, at any time, they seem never to have numbered more than a few hundreds. In Penang and Province Wellesley there were 14,500 acres under nutmegs. Malacca had only a few acres and the disaster did not fall there, though it fell heavily in Penang. One writer thought that intensive manuring had much to do with it, and attributed the escape of Malacca to indifferent cultivation, as the estates there were not highly manured.

Renewed planting and decline.

Planting was slowly renewed in Penang, and there was, in the eighties, a little planting in Singapore and Malacca where, however, the poor soil eventually arrested any hopes which had been held; while in Singapore only one plantation developed, though many people grew a few trees. Finally, from the beginning of the present century the area under the crop in Penang slowly diminished (see Gard. Bull. S.S. 1, 1914 p. 233).

The nutmeg is usually a small tree, but may grow to 70 feet. It has the sexes separated, but, hermaphrodite trees occur, and the sex sometimes changes. Oxley (Logan's Journ. N.S. 1, 1856 p. 134) reported that up to 30 per cent. of the trees proved to be male in Banda, but a greater proportion in the Straits. This may be racial: and he continues, describing the race grown in Banda, 'the fruit in Banda hangs on longer and more slender stalks than that in the Straits, the skin is more free from all blemish, more thin relatively to the fruit and of more uniform proportion. You neither observe such differences of shape nor such extremes of size', which last character he attributed to the heavy occasional manuring practised in the Straits, in such a way as to make the trees unevenly fed.

It is reasonable to keep down the number of male trees in plantations as one in ten is considered enough, but, according to Ridley (Agric. Bull. Mal. Penins. 6, 1897 p. 105), Chinese cultivators are apt to destroy every tree which does not fruit, and then there is no proper fertilization of the female tree except from occasional hermaphrodite individuals.

The fruit, when it is ripe, splits in halves, and through the split is seen the coral red mace and the purplish-brown seed. Aromatic substances pervade both these parts, and are present in the fruit-wall in small quantities.

Europe employs the nutmeg as a condiment more than the East.

There is a considerable contrast between the Oriental and European uses of the nutmeg. In the East it is much less a condiment than a drug; in Europe it is much less a drug than a condiment.

The European demand seems to have made the trade, and if this is rightly the case, it is somewhat easy to understand why the clove came to Europe long before the nutmeg. In early times the radius of traders was very limited—one group traded from India to Europe,

while another group traded from Malaysia to India. The second group carried cloves to India, where they were in demand, but they did not carry nutmegs, as it is supposed that India was satisfied with its home-grown inferior nutmegs, which did not repay transport to Europe. Thus traders of the first group met with the clove in India and traded in it westwards, but they did not know the true nutmeg until, at a later date, chance threw it in their way, when, recognizing in it a possible article of trade, they introduced it to European markets and created the demand. It is, however, to be asked how, under these circumstances, the nutmeg came to be given such a name as 'the fruit'.

Nutmegs are quickly attacked by insects, and are often limed in trade by way of preserving them. Fallen nutmegs, picked up after lying on the ground and of faulty appearance, are withheld from the spice trade and are used for extraction of oil.

Use of fruit-wall. The fruit-wall is commonly used as a sweetmeat, or 'manisan'. Such crops as are still raised in Singapore are chiefly for this purpose. In preparation, the fruit-wall is soaked for 24 hours in salt and water to withdraw the tannin; boiled; drained and boiled again with sugar (Mrs. Bland in Agric. Bull. Straits and F.M.S. 2, 1903 p. 23). Slightly unripe fruits make a hard preparation. Half-ripe fruits are often used by the Malays, and formerly were candied in large quantities and sent to Europe, much as ginger is now sent. The candying was done by pricking the fruit all over with needles, as the Chinese do *Euphorbia* leaves, and soaking for 8 to 10 days in water before a double boiling in syrup. Apparently, eating much of this sweetmeat is not good for the stomach.

The fate of part of the fruit-walls where crops of nuts are grown, is to be thrown away. In Banda the decaying heaps of these supply a mushroom, greatly relished, and called 'kulat pala' in the local Malay. In Malaya there is often a bigger demand for the fruit-walls than the supply can meet.

Nutmeg fat. Nutmegs have a strong aromatic odour, and a warm and somewhat bitter taste due to the volatile oils in them. They contain 25 to 30 per cent. of fixed oils, three-quarters of which can be pressed out of the nuts with the aid of heat. This expressed oil consists chiefly of myristin with some palmitin and olein; with it is some resin, and it carries the volatile oils, among which is the myristicin. The fixed oil is solid at ordinary temperatures, and, as commonly handled, consists of a yellowish-brown mottled mass, aromatic in odour and taste. It is manufactured commercially from nutmegs that are not of good enough appearance to sell as a spice; it can be made also from the mace. It is used in medicine externally, in perfumery, and enters also a little into liqueurs.

The trade in it is old; the Portuguese used to deal in it in Malacca in the sixteenth century.

The oil has been extracted experimentally in Singapore, and was

at one time made for trade in Penang (Ridley in Agric. Bull. Straits and F.M.S. 5, 1906 p. 317).

Volatile oil When nutmegs are distilled with steam the volatile oil is passed over. It consists largely of pinene with eugenol, linalol, geraniol, borneol, safrol, myristicin, and other substances, and is variable in exact composition.

Myristicin, one of the less abundant substances, is, nevertheless, the most important. It has an intense odour of mace and is poisonous: taken into the intestine or subcutaneously it causes degeneration in the liver and inflammation in the intestine (see Kobert, Lehrbuch d. Intoxikationen, 1906 p. 527), and to it have been due various cases of poisoning by excessive use of nutmegs.

There is a little volatile oil in the bark and leaves. It is described as colourless with a pleasant smell and the taste of nutmegs, so that it can replace the volatile oil from the nut.

Essentially, the same oil can be obtained by distilling the mace. Oil can also be distilled from the flowers (see Gildemeister, Aether. Oele, 2, ed. of 1929 p. 596).

Medicinal. In medicine nutmegs have stimulant and carminative properties. But in large doses they are toxic, producing convulsions. The use as an abortifacient is reported, but that it is effective is not proved, however excessive the amount taken.

In Mohammedan medicine nutmegs and mace are held as a stimulant digestive, tonic as well as aphrodisiac. In India they are used in electuaries and tonics, and particularly for dysentery.

In Malay medicine they are used in tonics, particularly in those given after childbirth (Ridley in Journ. Straits Med. Assoc. 5, 1897 p. 137; Skeat, Mal. Magic, 1900 p. 347; Notes on Sarawak trade, Brit. Emp. Exhib. 1924 pp. 53, 54; Burkill and Haniff in Gard. Bull. S.S. 6, 1930 p. 242; Med. Book of Mal. Med. in Gard. Bull. S.S. 6, 1930 pp. 350 and 400). In the Dutch Indies they are used in the same way.

The nutmeg enters into mixtures for indigestion and other complaints of the stomach; and the *Medical Book of Malayan Medicine* employs it for over-eating (p. 356), stomach-ache (p. 362), distended stomach (p. 388), and to stimulate the appetite (p. 375). It is one of a dozen substances commonly put into the Singapore tonic for indigestion. In the *Medical Book*, it enters into tonics for the male (pp. 327, 336, and 343), for malaria (p. 332), rheumatism and sciatica (pp. 349 and 352) and the early stages of leprosy (p. 412). Nutmegs are used externally in applications for various pains. The *Medical Book of Malayan Medicine* prescribes them for these and for madness (pp. 352, 356, 365, and 379).

The dried flowers and leaves are also medicinal in Java under the name 'kĕmbang pala diluar', but no such use is recorded for them in the Peninsula (K. Heyne, Nutt. Plant. Ned. Ind. ed. of 1927 p. 642).

The astringent fruit-wall is prescribed in the *Medical Book of Malayan Medicine* (p. 397) in a draught for ulceration of the bones;

and according to Rumpf it was used in the Moluccas for sprue (K. Heyne, p. 643).

Kris-making.

A curious use for a nutmeg is given by Wray (Perak Mus. Notes, no. 3 of vol. 1, 1894 p. 43). For colouring the blade of a kris prepare 'warang masak' thus: take 12 cloves, 15 peppercorns, 6 bird peppers, 1 nutmeg and a piece of the root of *Plumbago rosea* of the size of half a nutmeg. Grind them and put them into a cup with the juice of 1½ limes. Allow to stand and then strain, and add the fluid to a half drachm of powdered arsenic, boil and then apply. The effect of the nutmeg, if any, must be insignificant.

(17) (17)

DEVELOPMENT ALTERNATIVES, INC.

REGIONAL OFFICE : ASIA

Menado, 30th April 1981.-

To
Mr.Masri Ardi
Supervision Department Head ☎ 354621 : JKT
East Region - UPPINDO
Jl.Abdul Muis 28
P.O.Box 24/Jkt
J a k a r t a .

Dear Mr.Masri Ardi,

Nutmeg Oil Factory P.T.Essomindo Ambon.

I write with reference to my visit to the above factory on the 6th April 1981 accompanied by your goodself, Mr Sonny Waplau, Mr Karma Alwi and Mr Munawar Djama and our telephone conversations on the 22nd and 24th instant at Jakarta. The purpose of my visit was to determine why the factory of P.T.Essomindo coul not fulfill its obligations to Uppindo (Usaha Pembiayaan Pembangunan Indonesia and also inspect the buildings and machinery. The factory was in operation dur my visit on the 7th April 1981.

- Factory buildings, steel structures, brickwalls and galvanised roofs and cladding.

  The buildings are in reasonable condition, however the maintenance could be improved especially the office and laboratory.

  The buildings are divided in:

  A. Store in which the desintegrater is located.
  B. The distallation room in which the two distallation kettles are located.
  C. Laboratory and office.
  D. Power room in which the two powerpacks are located.
  E. Boiler room in which the automatic boiler is located.
  F. Two water tanks for boiler and distallation kettles.
  G. Small work shop.

- Machinery

  A. 2 x Distallation kettles, make Tournair SA-France 1975
     Capacity 3000 liters.
     The kettle platform should be fenced to avoid accidents.

ARTHALOKA BUILDING, 2nd. FLOOR
TELEPHONE : 583477 - 583478
JL. JENDERAL SUDIRMAN 2
CABLE : DEVALT
JAKARTA, INDONESIA
TELEX : 46829 SAGITA IA, 46441 FRANKI JKT

B. 2 x 75 KVA AVK Generators 1500 Rpm 380/440 Volts, 50 cycles, 3 phase driven by MWM aircooled engines of 100 HP each with oil supply tank.

C. 1 x Tenhorn Automatic Boiler working pressure 7 kg/□" fitted with a Weishaupt automatic burner with oil supply tank. The boiler usess treated water.

D. Small workshop with maintenance equipment, such as drilling machine, work bench, vice, welding equipment etc.

E. Desintegrater

F. Laboratory equipment such as filter, moisture teller etc, see enclosed photographs.

The machinery is in good condition. The watertanks should be covered with wire mesh covers to avoid accidents and dirth contaminating the water We suggest that an additional desintegrator be installed, because, should the present desintegrator breakdown, then the whole factory will cease to operate.

Processing:

The factory processess:

- Nutmeg seed and shell
- Nutmeg seed only
- Mace (flowers)

The kettles are filled with about 500 kg raw material for a 12 hour distallation process.

The recovery rate is:

. Nutmeg seed and shell	4-5 o/o)	waste and evaporation	96-95 o/o
. Nutmeg seed only	7-8 o/o)		93-92 o/o
. Mace (flower)	12-14 o/o)		88-86 o/o

Two kettels will process 1000 kg rawmaterials in 12 hours.

We understand that the waste materials after oilextraction are thrown away. We suggest that this waste be examined in one of the Gouvernment laboratori to determine what this waste contains that could be used commercially.

The rawmaterials are bought from private sources. PNP XXVIII operates in Banda and produsess about 150 tons of dry nutmeg with shells per annum. This may be negociated by P.T.Essomindo for processing in the factory.

We had discussions with the representative of PNP XXVIII in Ambon.
The factory working at full production would require about 500 tons PER ANNUM of nutmeg seed with shells, Nutmeg seed only and mace, ratio nutmeg-mace= 60 to 40.
The oils could be mixed but not the raw materials.
The present cost of the rawmaterials is Rp.300,- per kg and the selling price C.F.New York is US$ 13.- per kg or Rp.8.060,- Last year the price was US$ 20.- or Rp.1.240,- per kg. There is no export duty, however the present cost besides cost of production is:

180 liter Drums	Rp. 90.000,- per ton	
Certificates	Rp. 70.000,- per ton	
Freight	Rp. 350.000,- per ton	Ambon/New York.
Handling charges	Rp. 50.000,- per ton	
Total	Rp. 560.000,- per ton or US$903.-	

It will be appreciated that with a selling price of US$ 13.- per kg C&F New York the profitability is very close to the break even point.
The reason for this in our opinion is that about 90 o/o of the raw materials are thrown away.

Personnel presently employed

- Plant Manager
- Technician
- Distallation Supervisor
- 7 x Labourers

Mr Sonny Waplau supervisess the whole operation. Present debt to Uppindo Rp.218.000.000,- including interest on capital.
Share ratio Uppindo 49 o/o Private 51 o/o.

CONCLUSION.

We suggest that an appraisal report be prepared by Development Alternatives Inc This report would deal with all aspects of the factory operation and marketing of the oil and waste products, also the processing of oleo resins.

Development Alternatives Inc would be prepared to enter in a technical assistance agreement with P.T.Essominio to help this company to turn the factory into a profitable operation.

Yours faithfully
for
Development Alternatives Inc

Ing.W.G.Heyneker.-
FBIM,FIIM,FIMS,FIManf.

cc: 1. Mr.Karma Alwi
2. Mr.Sonny Waplau
3. Mr.Munawar Djama

ARTHALOKA BUILDING, 7nd FLOOR
TELEPHONE 583477 - 583478
JL JENDERAL SUDIRMAN 7
CABLE DEVALT.
JAKARTA, INDONESIA
TELEX . 46829 SAGITA IA, 46441 FRANKI JK

216