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The Cocoa Industry in Malaysia*

by

Abdul Aziz Abdul Rahman**

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Table of Contents

	Page
1. Introduction	1
2. Public Policy on Cocoa	1
2.1 Pre-Independence	1
2.2 Post-Independence	4
3. Area, Production and Yields	13
3.1 Area	13
3.2 Production	17
3.3 Yields	18
4. Export, Import and Prices	20
4.1 Export	20
4.2 Import	22
4.3 Prices	22
5. Processing	24
6. Marketing	25
6.1 Marketing Channels	25
6.2 FAMA	27
6.3 Cocoa Pricing System	28
6.4 Grading and Specification	31
7. Research and Development	33
8. Policy Issues and Implications	35

1. Introduction

There has been a growing concern about the impact of economic policies on agriculture, especially among developing countries. This is primarily because these policies - including pricing, taxation and trade policies - directly and indirectly affect the profitability and level of prosperity in the agriculture sector.

It is with this in mind that the Kiel Institute of World Economics has embarked on a Research Project to evaluate how policies in developing countries affect their agriculture sectors. This is planned to be achieved using two approaches, namely, a qualitative cross-section analysis of agricultural protection for a fairly large number of developing countries, and a detailed analysis for three developing countries. Malaysia has been selected to represent one of the three developing countries which is to be analysed in greater detail.

This paper presents parts of the findings of the Subproject on "The Magnitude and Structure of Agricultural Price Protection in Malaysia". It traces the historical development of the cocoa industry in Malaysia, with emphasis on the policies which have been instrumental in moulding its growth.

2. Public Policy on Cocoa

2.1 Pre-Independence

Cocoa, or *Theobroma cocoa* L, is a native plant of South America (MARDI 1978). Its planting zone lies between 20° North and 20° South of the Equator. Cocoa requires a temperature of 21 C - 32 C and a rainfall of between 1,015 mm and 2,538 mm. Too much rain will bring on diseases and too little will make the soil too dry for the plant. It grows well in fertile, well-drained soil and requires some shading (Mohd. Yusof Hashim 1981). Cocoa does not grow well in areas that are too windy.

The early history of cocoa in Malaysia is rather vague. The plant is said to have been introduced in the country as early as 1600 (Mat Lani 1989a). In 1778, the Portuguese attempted to plant the crop on a large scale but failed. Cocoa was also brought in from Brazil by the British colonialists after they had successfully cultivated it in Africa (New Straits Times 19 July, 1989). However, it did not gain any economic importance, being grown mainly as a garden plant and in isolated traditional villages. Sir Stamford Raffles also tried to cultivate the crop in Singapore but this too did not meet with much success.

With the exception of a few trees in botanic gardens and traditional villages, the first cocoa in Malaysia was grown on a half-acre plot at the Government's Agricultural Research Station in Serdang (MARDI 1978). Some of this cocoa, which was of the Trinitario type, came into bearing in 1937, and seeds from its high yielding trees were used to establish plots at Cheras and Temerloh.

In 1947, the British colonial administration invited Professor E.E. Cheesman to investigate the potential of cocoa in this country (FAMA 1986). In a report to the 1948 Cocoa Conference, Professor Cheesman wrote:

"The position, put it very briefly, is that there are only about 500 bearing cocoa trees in the whole of Malaya, and probably less than a hundred in Borneo. Of these roughly half, and possibly more, are Crillio, which cannot be recommended for universal planting. The rest are Trinitarios with a narrow range of variation, all descended from a very few trees, probably introduced long ago from Ceylon."

Following Professor Cheesman's report there was a renewed interest in cocoa. Soon after, the Department of Agriculture initiated a programme on cocoa breeding and selection. The interest in the crop also became intensified by the greater world demand for cocoa and the lower yields being obtained from the West Indies and West Africa, mainly due to disease. This instigated a need to search for an alternative source of cocoa supply.

Between 1948 and 1950 a number of rubber estates in Peninsular Malaysia planted small plots of cocoa with seeds from Agricultural Department sources but little of this thrived, due mainly to unsuitable conditions, severe vascular dieback disease, and terrorist activity. Similar test plots were also planted in oil palm and coconut holdings. The latter plots showed more promise.

The first cocoa planting enterprise on a commercial scale was launched in 1950 at Jerangau in Trengganu. It was planted as a monocrop on a 50 acre area under thinned jungle on inland soil. The project was managed by Malayan Cocoa Limited, a joint venture company of Harrison and Crossfield, Cadbury of London and Commonwealth Development Corporation (Abdul Rahman Ismail 1989). The Department of Agriculture concomitantly set up a research station adjoining this estate to augment its activities in Serdang.

At the initial stage, the only planting material available at the Department of Agriculture's research stations was Trinitario but later, in 1953, seeds of the Amelonado type became available. While the Trinitario grew indifferently, the Amelonado showed great promise. Soon afterwards, a few more research stations were established in Johore and Kedah (FAMA 1984).

During this time, Amelonado cocoa was also introduced into Sabah from Peninsular Malaysia and West Africa. The first commercial planting in Tawau, in 1956, was derived from this importation (MARDI 1978). In any case the prospect for the industry then remained dampened by severe dieback disease.

Meanwhile, efforts to develop the cocoa industry continued unabated, especially in plant propagation. The foundation stock of the breeding and selection investigations undertaken by the Peninsular Malaysian Department of Agriculture initially comprised plantings of unimproved Crillio and Trinitario seedlings, but later this were complemented by importation of materials from, among other sources, West Africa, Ceylon, New Guinea, Samoa, Indonesia and Upper Amazon (MARDI 1978).

In a white paper introduced in 1955, the Government pronounced its policy on cocoa development. It advocated for a domestic cocoa industry based on an extensive planting on 121,500 ha in Peninsular Malaysia (Government of Malaya 1955).

2.2 Post-Independence

In 1957, the Department of Agriculture in Sabah established a cocoa research station near Quoin Hill. This constituted an important development in Malaysian cocoa industry. It considerably influenced the pace of cocoa cultivation in the country, particularly through its role in developing improved planting materials. Much of the initial cocoa breeding was based on the materials obtainable from the foundation stock of Peninsular Malaysia (Parsons and Ong 1976).

Around the mid-1960s the Quoin Hill research station successfully developed the "Sabah Hybrid" which had superior yielding properties and tolerance to disease. This hybrid cocoa was not only found to be conducive under local conditions but also proved to be suitable as an intercrop, especially with coconut. The availability of the planting material, and its suitability as an intercrop led a number of coconut estates, such as those in the Teluk Anson area of Lower Perak, to adopt inter planting of cocoa with coconut (Shaaban, Mamot and Md. Sharif 1986).

Extensive planting of cocoa in smallholdings commenced in the late 1960s. This stemmed from Government's agricultural development policy to improve the socioeconomic status of farmers, including coconut smallholders. As coconut smallholders constituted one of the poverty groups, efforts to increase their productivity and income were accorded high priority. In view of the suitability of cocoa as an intercrop, and its potentially high returns, the Government decided to promote it among the coconut smallholders (Ministry of Agriculture 1980).

Government support for cocoa cultivation in smallholdings took two main forms, namely, the Coconut Replanting and Rehabilitation Scheme and the Agricultural Input and Diversification Scheme. The major thrust of the Coconut Replanting and Rehabilitation Scheme is towards rehabilitation of areas under coconut to achieve an increase in income of smallholders by enhancing farm productivity. Towards this end intensive intercropping with more profitable crops like cocoa was stressed. In comparison, under the Agricultural Input and Diversification Scheme incentives were given in terms of agricultural inputs or cash to those farmers who wished to start cocoa cultivation or to rehabilitate their existing cocoa farms. Indeed, insofar as coconut smallholders were concerned, the national policy has been to interplant cocoa in all coconut areas where soil and other conditions are suitable.

The rapid development of the cocoa industry continued into the early 1970s. The national concern then was to broaden the base of the agricultural sector to ensure that its annual contribution to overall development will be less subject to the market vicissitudes confronting individual commodities, especially rubber (Samion 1971). In addition, one of the goals of the agricultural sector was to increase productivity and the scale of operation so that farm incomes can be increased. For this purpose, one of the programmes in the Second Malaysia Plan, 1971-1975, was to introduce cocoa as an intercrop and a target of 20,000 ac of coconut intercropping with cocoa had been established. Under the farmcrop subsidy scheme aid, in the form of fertilisers and planting materials, would be given.

During this period also more estates were intercropping with cocoa and smallholders' participation had grown significantly, especially in public land development schemes of the Federal Land Development Authority (FELDA). This growth was also stimulated by the prevailing poor performance of rubber, palm oil and pepper prices (Mat Lani 1989a). On the contrary, in 1974 the cocoa price reached an unprecedented high and this was sustained until 1979.

A major development in the marketing of smallholders' cocoa occurred with the introduction of the Cocoa Marketing Regulations 1980 by the Federal Agricultural Marketing Authority (FAMA). Under the Regulations all cocoa buyers have to be licenced. Also, all cocoa beans exported have to be graded and certified by FAMA. Concomitantly, FAMA implemented the Dry Beans Trading Programme. This programme aimed at providing an assured market outlet for smallholders' cocoa. Initially, FAMA started its trading activities in the major cocoa growing districts of Lower Perak, Sabak Bernam, Tanjung Karang and the First Division of Sarawak but these were later expanded to other areas. FAMA's trading programme has injected a high degree of competition into the marketing of smallholders' cocoa which in the past had been controlled by private sector intermediaries (Selvadurai 1989).

Subsequently, in 1981, FAMA launched its Wet Bean Marketing Programme. This programme aimed to improve the quality of smallholders' cocoa beans through direct processing and marketing activities. Processing facilities were installed at the existing FAMA trading centres at Bagan Datoh, Sabak Bernam and Tanjung Karang (Selvadurai 1989).

Notwithstanding the vigour with which the cocoa industry was progressing, a cautionary note was sounded by a Technical Committee which was set up to review its prospects (Ministry of Agriculture 1982). In particular, the committee has expressed its concern with the discernable secular decline in the price of cocoa, from \$2,006/t in 1978 to \$1,727/t in 1979, \$1,270/t in 1980, \$1,127/t in 1981 and \$1,033/t in 1982, caused largely by a sharp increase in the global supply of cocoa. The committee accordingly proposed a number of strategies to consolidate the local cocoa industry, including intensified research in plant breeding, identification of cocoa crop zones and product development.

The above-mentioned statement of the Technical Committee aside, the Government continued to accord a high priority on cocoa in its Fourth Malaysia Plan, 1981-1985. At the inception of the Plan cocoa has already emerged as the third significant export crop, after rubber and oil palm. Further expansion of the cocoa area was envisaged, much of which was to be undertaken by public agencies such as the Federal Land Development Authority (FELDA), the Federal Land Consolidation and Rehabilitation Authority (FELCRA), Integrated Agricultural Development Projects (IADPs), State Economic Development Corporations (SEDCs) and Regional Development Authorities (RDAs).

In 1983 FAMA launched the Cocoa Grading and Certification Scheme whereby all cocoa exported bears the Standard Malaysian Cocoa (SMC) label (FAMA 1986, 1987). This Scheme may be seen to be pertinent in view of the poor acceptance of Malaysian cocoa overseas due to its low quality (Mat Lani 1989a, 1989b, The Star 7 November 1989). For this purpose a grading scheme was specified by the Standards Industrial Research Institute of Malaysia (SIRIM). FAMA had proposed to set up 9 central cocoa grading, certification and trading depots throughout the country. For a start 3 grading centres were set up in Butterworth, Pasir Gudang and Port Klang and these became fully operational at the end of 1983 (FAMA 1989).

FAMA's grading and certification scheme has brought about a significant improvement in the quality of cocoa beans exported (Fatimah 1984). In view of its success FAMA thereafter introduced off-centre grading in five states in Peninsular. In 1987, these centres graded 41,000 t of cocoa beans (Selvadurai 1989). With the establishment of the SMC, an encouraging response has been the direct purchasing of cocoa by overseas buyers without going through the terminal markets (FAMA 1987). Sabah, in the meantime, established and adopted a voluntary grading scheme. The basis for the system was similar to the national requirement since it employed the same cocoa grades specified by SIRIM (Ti 1989). The grading and certification scheme was launched in April 1987 under the auspices of the Sabah Cocoa Grading Council (SCGC) (The New Straits Time 19 July 1989).

In January 1984 the National Agricultural Policy (NAP) was launched. The NAP constitutes an indicative planning framework for the long term growth of the agricultural sector. With respect to cocoa the development policy has been outlined as follows:

"Cocoa has considerable potential as an export earner and its cultivation on a large scale will be encouraged to ensure efficiency of production and quality of produce."

Commensurate with this pronouncement, operational plans for further development of the cocoa industry was promulgated (Ministry of Agriculture 1985). It has been envisaged that over 1985-2000 a total of 192,710 ha of cocoa will be developed, of which 60,700 ha will be in Peninsular Malaysia. This will be undertaken via three broad programmes: intercropping of existing coconut with cocoa, rehabilitation of existing cocoa under coconut, and replanting of both cocoa and coconut. To achieve these programmes agricultural support facilities including infrastructure, credit, production inputs and extension services will continue to be provided (Ministry of Agriculture 1986).

A major concern of the Government pertaining to the cocoa industry has been the slow progress in cocoa processing activity (Selvadurai 1989, Fatimah 1989). For instance, in 1984 more than 80 percent of Malaysian cocoa were exported in the form of dry cocoa beans and only a small proportion of the cocoa produced was utilised for grinding into cocoa powder, paste, butter and chocolate. The inception of the Industrial Masterplan (IMP) in 1985 (MIDA-UNIDO 1985) marked a turning point for the cocoa processing industry in the country. The IMP formed the basis upon which a rapid and orderly growth of the industry is to be promoted. By 1987 seventeen companies have been approved to process cocoa beans into cocoa butter and powder (Selvadurai 1989). Grinding has thus become increasingly important; for instance, the export of cocoa products has grown from \$21 mn in 1977 to \$180 mn in 1987.

Cocoa futures trading made its debut on the Kuala Lumpur Commodity Exchange (KLCE) in August 1988. This is the fourth agricultural commodity and the fifth futures contract to be traded on the exchange after RSS 1, SMR 20, crude palm oil and tin. The objective of this futures trading in cocoa is to offer attractive investment opportunities to private speculators, fund managers, cocoa processors and dealers to hedge their production or purchases (Business Times 8 August 1989). Producers in Malaysia, and especially those in Sabah, who are operating on borrowed funds, can now hedge their future production under depressed market conditions. The introduction of cocoa futures in the KLCE provides a price determining mechanism which can be widely used as a benchmark for pricing cocoa in Malaysia and the surrounding region (Selvadurai 1989, Berita Harian 27 June 1989).

Another milestone in the development of the cocoa industry in this country is the launching of the Malaysian Cocoa Board (MCB) in July 1989. The establishment of MCB was approved by the Parliament in 1988. The Malaysian Cocoa Board (Incorporation) Act 1988 was subsequently gazetted and became effective in February 1989. The headquarters of the MCB is in Sabah and it has become fully operational in January 1990.

The establishment of the MCB was in response to a generally felt need for an orderly expansion of the cocoa industry (Ti 1989). Also, based on the good track record of the Rubber Research Institute of Malaysia (RRIM) as well as the Palm Oil Research Institute of Malaysia (PORIM), a similar formal body for cocoa was accepted as a move in the right direction to provide the orderly and enhanced development of the relatively young cocoa industry in the country. Moreover, public sector research in cocoa has hitherto been carried out by more than one government body. Thus, for better co-ordination and more cost-effective use of scarce resources, the setting up of a single research body for the crop is considered necessary.

The Board consists of a Chairman, four ex-officio public sector representatives, five members appointed to represent the cocoa industry, and six members from government linked agencies and departments (The Star 20 August 1989). Private sector representatives thus account for one-third of the total members of the Board and this provides an important avenue for its contribution to chart future research and development activities.

The MCB has a distinct difference from the research establishments for rubber and oil palm in that its activities extends further than research and development. It will also be responsible for registration, licencing, and market promotion since the size of the industry at the moment does not warrant a separate body to carry out these tasks. More specifically, MCB will conduct and promote all activities related to the cultivation, processing, marketing and consumption of cocoa.

The MCB has been given a launching grant of \$7 mn. Funding of its subsequent operations will be on the basis of annual federal budget allocations. It is envisaged that for the time being the Government will have to bear the full burden of funding research and development. Once the cocoa industry has reached an established footing, it is likely to be called upon to defray a part if not wholly the operating costs of MCB.

Under the MCB Act, there is a provision for the imposition of a cocoa cess. In principle such a cess to fund research and development is acceptable as in the rubber and oil palm industries. However, the cocoa industry has not reached maturity yet and a cess imposed at this stage can be counter productive. In Sabah there is already a cocoa cess imposed by the Local Authorities at the rate of 25 percent of the amount when the selling price of cocoa exceeds \$4,000/t. From all accounts, it appears that the cess has not been properly or widely enforced. In addition, the threshold cocoa price has never really been breached. There will be a need to rationalise these two cesses if they are to be imposed in the future.

The very recent steep decline in world cocoa prices has impelled the Government to have a re-think about the future prospects for the local cocoa industry. According to the Ministry of Agriculture (1990) the price of cocoa in London has plunged to its lowest level in 14 years. The equivalent futures price of dry cocoa beans in London quoted on 26th October 1989 for December 1989 and May 1990 are \$3,051 and \$3,023 respectively. In comparison, the price quoted on 26th October 1988 for December 1988 and May 1989 are \$3,717 and \$3,722 respectively.

The impact of the worsening of world cocoa prices is now being felt in the local cocoa industry. The Ghana Spot price equivalent in London of \$3,500 per t in September 1989 has been translated to a very low domestic price of dry cocoa beans of \$2,300 per t. Alternatively, this means a wet cocoa bean price of \$0.60 per kg.

The prevailing low producer price is expected to accentuate further (Ministry of Agriculture 1990). First, domestic production of cocoa is expected to reach 25,5000 t in 1990, an increase of 35,000 t over the previous year. Second, Ivory Coast, the largest cocoa producer in the world, is anticipated to produce 730,000 t in 1990. This, coupled with its termination of the price support to cocoa growers, would inevitably lead to cheaper world prices. Third, the existing high world cocoa stock of 231,000 t estimated by Gill and Duffus (1990), coupled with the ICCO holding stock of 250,000 t will also create a severe depressing effect on cocoa prices.

Several vital options are being considered by the Government to safeguard the local cocoa industry from the vagaries of international cocoa trade. A price support scheme for wet cocoa beans is being discussed. A direct income supplementation scheme constitutes another alternative measure.

Until today Malaysia is not yet a member of the International Cocoa Organisation (ICCO). (It has, however, joined the International Cocoa Alliance recently). Malaysia's stand of not joining the organisation stems from the latter's lack of progress

towards maintenance of international co-operation on world cocoa prices (The Star 19 August and 11 September 1989). Of late there has been increasing pressure urging Malaysia to be a member of ICCO and the International Cocoa Agreement (ICA). Various opinions have been expressed as to the merits or otherwise of Malaysia becoming an ICA signatory. During times of high world prices this does not constitute a matter of any great urgency; however, if there should be a steep fall in cocoa prices, as being experienced presently, a quota from the ICA could very quickly be invoked, making non-ICA cocoa difficult to sell to ICA members who are importers of the commodity (Mohammed Yusoff 1989).

Even though Malaysia has initially decided to stay away from the pact, the Government has repeatedly stated that it may reconsider its earlier decision if it finds joining ICCO a worthy move (The Star 22 August 1989). The main worry is that once Malaysia joins the ICCO there may be restrictions on production. Malaysia has a tremendous potential to increase its cocoa production in the future. Another fear is that Malaysia may not be allowed to sell to non-ICCO members who buy most of its cocoa. Nevertheless, presently Malaysia contributes indirectly to ICCO's buffer stock operation through the payment of levy on Malaysia's exports to ICA member countries (The Star 4 August and 16 August 1989).

To summarise, the Malaysian cocoa industry has achieved a tremendous progress since its pioneer plantings in the early 1950s. The rapid increase in both area and production of cocoa has been made possible by a concerted effort in research and development which has been initiated by the British colonial administration and later continued by the Independent Government of Malaysia. The Government policy of planting cocoa as an alternative crop to the two traditional commodities of rubber and oil palm, and of promoting it as an intercrop in coconut small-holdings (including those in the land schemes) and in estates, has resulted in an extensive cultivation of the crop. The Government policy of planting cocoa as one of its agricultural diversification strategies has been explicitly pronounced in all of its Five-Year Development Plans to date.

However, the prevailing dampened state of affairs in the international cocoa market has generated severe repercussions to the Malaysia cocoa industry. The producer prices are at their lowest levels in 14 years, and these have serious ramifications on incomes and productivity. The Government has expressed its concern on this matter and it is presently formulating alternative strategies and programmes to overcome the problem. The policy now is to enhance the resilience of the cocoa industry and to make it more competitive.

3. Area, Production and Yield

3.1 Area

From a modest beginning over three decades ago the cocoa industry has now become an integral component of the Malaysian economy. The area under cocoa has recorded a rapid growth, from 577 ha in 1960 to 7,381 ha in 1970, 123,855 ha in 1980 and 322,334 ha in 1986. This is shown in Table 1. The tremendous pace of expansion has been brought about by a number of factors: conducive soil and climate, availability of good management and technology, and encouraging prices for most parts of the period. The advent of government encouragement and incentives has also contributed to the expansion. The poor performance of rubber, palm oil and coconut, and to a smaller extent, pepper during the late 1960s and early 1970s has also been instrumental in promoting the cocoa cultivation (Mat Lani 1989a, 1989b). Almost all of the cocoa planted presently comprise the high yielding, disease resistance hybrid variety (Selvadurai 1989).

In Peninsular Malaysia the area under cocoa has increased by approximately ten times between 1965 and 1971. The planted area has expanded from 7,492 ha in 1971 to 57,345 ha in 1980 and 105,908 ha by 1986. The crop is cultivated in estates, smallholdings and land schemes. The area under each component in 1985 may be seen in Table 2. Among the agencies involved in cocoa planting are FELDA, FELCRA, IADPs, SEDCs and RDAs. According to Selvadurai (1989) presently two-thirds of the coconut area in

Table 1: Malaysia: Area Under Cocoa, 1960-1987 (ha)

Year	Peninsular Malaysia	Sabah	Sarawak	Total
1960	577	n.a	n.a	577
1961	575	1,538	n.a	2,133
1962	585	1,942	n.a	2,527
1963	591	2,023	n.a	2,614
1964	664	2,145	n.a	2,809
1965	761	2,187	n.a	2,948
1966	822	2,643	n.a	3,465
1967	865	2,793	n.a	3,658
1968	1,124	3,117	n.a	4,241
1969	1,902	3,331	n.a	5,233
1970	3,362	4,019	n.a	7,381
1971	7,492	4,517	n.a	12,009
1972	8,984	5,447	880	15,311
1973	11,599	6,242	1,481	19,322
1974	13,634	8,126	2,313	24,073
1975	17,587	9,823	2,870	30,280
1976	20,796	11,673	3,342	35,811
1977	29,635	14,994	3,850	48,479
1978	34,286	22,467	4,557	61,292
1979	45,168	37,803	6,385	89,356
1980	57,345	57,984	8,526	123,855
1981	64,618	83,455	10,711	158,784
1982	82,185	114,474	12,740	209,399
1983	83,949	132,729	14,402	231,080
1984	89,163	159,288	17,059	265,510
1985	100,587	172,713	24,252	297,552
1986	105,908	184,477	31,949	322,334

Source: Department of Statistics, Oil Palm, Coconut, Cocoa and Tea Statistics, various issues.

private estates have been interplanted with cocoa. There is little intercropping of cocoa with oil palm or rubber. The major cocoa areas in Peninsular Malaysia are Bagan Datoh, Sabak Bernam, Kuala Selangor, Muar, Batu Pahat and Temerloh. The Bagan Datoh delta and the district of Sabak Bernam are a contiguous coconut belt in which cocoa cultivation by both estates and smallholders is very important.

In Sabah, the initial development of cocoa acreage was rather slow because of the more restricted range of soils suited to Amelonado variety (Selvadurai 1989). Thus, the area under cocoa grew from 1,538 ha in 1961 to only 4,019 ha in 1970. With the improvement of planting materials it was found that cocoa could be cultivated successfully on a much wider range of soils than was at first thought possible. This, together with the continuous and increasing supply of improved planting materials from the Quoin Hill research station encouraged a rapid expansion of the planted area. In 1980 the area under cocoa was 57,984 ha and by 1986 it was 184,471 ha.

The major cocoa growing areas in Sabah are the Residencies of Tawau, Sandakan, Kudat and the West Coast Division. The crop is grown principally in estates as a monocrop. The government agencies involved in organising the cocoa growing schemes include the Sabah Land Development Authority (SLDA) and FELDA. potential areas for cocoa include Labuk Sugut, Kinabatangan, Lahad Datu, Kunak and Kelabakan (Berita Harian 27 June 1989).

The main factor impeding further development in the State is the lack of infrastructure especially roads. However, this constraint will be overcome once the 1,066 km road joining the East and West Coast is completed.

The development of the cocoa industry has been accorded a high priority by the Sabah government. Currently, cocoa is the third most important commodity in the state after timber and petroleum. However, with the impending decline in timber production, a greater role could be expected from the cocoa industry.

Table 2: Malaysia : Area Under Cocoa, 1985 (ha)

State	Estates	Land Schemes	Small-holding	Total
Johor	5,575	3,480	11,677	20,732
Kedah and Perlis	486		-	486
Kelantan	31	62	852	945
Melaka	3,153		1,955	5,108
Negeri Sembilan	432		1,189	1,621
Pahang	1,637	8,416	7,920	17,973
Pulau Pinang	67		1,022	1,089
Perak	14,783	239	7,628	22,650
Selangor	6,380		21,024	27,404
Trengganu	989	68	1,522	2,579
Peninsular Malaysia	33,533	12,265	54,789	100,587
Sabah	125,800	6,710	40,203	172,713
Sarawak	1,376	2,910	19,966	24,252
Malaysia	160,709	21,185	114,958	297,552

Source: Department of Statistics, Oil Palm, Coconut, Tea and Cocoa Statistics 1985.

The development of the cocoa industry in Sarawak began only in the early 1970s. This is because of the prior devotion to the lucrative pepper production (Abdul Rahman Ismail 1989). The area planted with cocoa increased rapidly after 1975 following the rise in cocoa prices in the face of and falling pepper prices which resulted in the conversion of pepper to cocoa in some areas (Selvadurai 1989).

Virtually all the cocoa in the state has been planted as a small-holder crop. Under the Agricultural Diversification Scheme of the Department of Agriculture in Sarawak cocoa has been interplanted with established coconut stands in the First (Asiajaya), Second (Limbang) and Sixth (Sri Aman) Division. Some cocoa planting has also been undertaken by the Sarawak Land Consolidation and Rehabilitation Authority (SALCRA).

3.2 Production

The production of cocoa beans in the 1960s was small, being less than 2,000 t annually. Cocoa output began to grow rapidly only after 1970. In 1974 the production of cocoa was 10,000 t and this quadrupled by 1980. In 1984 Malaysia's cocoa production was 88,000 t making it number five in the world (New Straits Times 17 October 1984). By 1987 Malaysia had become the fourth largest cocoa producer in the world, with an output of 200,000 t, after Ivory Coast, Brazil and Ghana (Selvadurai 1989). In the following year Malaysian production exceeded that of Ghana and thus gained the third place. The Malaysian share in the world cocoa production has risen from less than 1 percent in 1976 to almost 9 percent a decade later, as revealed in Table 3.

The sharp increase in cocoa production from the end of the 1970s is mainly due to larger areas coming into production. Of the total output of 200,000 t in 1987, Sabah's output was 122,100 t (giving a proportionate share of 66 percent), while Peninsular Malaysian share was 49,000 t (27 percent) and Sarawak's production was 13,000 t (7 percent). From a different viewpoint estate production of cocoa accounts for 54 percent of total out-

put, while land schemes and smallholdings account for 7 percent and 39 percent respectively.

3.3 Yields

There are great differences in yields between cocoa planted as a monocrop and cocoa planted as an intercrop and also under smallholding and estate management. Average yields also vary among the various states in Peninsular Malaysia, with the lowest being 0.26 t per ha. in Trengganu and the highest being 0.78 t per ha. in Malacca. Better yields are evidently achieved by estates located in areas having well drained and less acid soils (Selvadurai 1989). Higher yields have reportedly been obtained in Sabah compared to Sarawak or Peninsular Malaysia.

Smallholders' yields are much lower, being only about 40 percent of that achieved by estates but these are rising steadily with the improvement in cultivation practices and better management. The reasons for the lower smallholders' yields include poor husbandry techniques, low application of inputs, pests and diseases and inferior planting materials. According to FAMA (1984) estates on average produce between 1,000 kg and 1,350 kg dry cocoa beans per ha compared to 560 kg obtained in smallholdings. This yield gap between estates and smallholdings has to be reduced considerably. But even with yields of about 500 kg or less, the productivity in the smallholdings compares favourably with the known yields in major producing countries like Ghana and Nigeria.

The declining trend in national average cocoa yields since 1980 is a cause for concern. The average yield in 1980 was 0.80 t per ha but this has decreased to 0.52 t per ha in 1986. This may be attributed partly to the planting of large areas of unselected, disease prone and low yielding seedlings which gave non-uniform bean size following the shortage of planting materials during the 1970s when the high cocoa price resulted in a rush to cultivate the crop.

Table 3: Malaysia and World Cocoa Production ('000t)

Year	Malaysia	World	%
1960	0.4	1,042	0.038
1961	0.5	1,189	0.042
1962	0.5	1,140	0.044
1963	1	1,176	0.085
1964	1	1,234	0.081
1965	1	1,508	0.066
1966	1	1,226	0.082
1967	1	1,351	0.074
1968	2	1,354	0.148
1969	2	1,242	0.161
1970	2	1,435	0.139
1971	4	1,499	0.267
1972	5	1,583	0.316
1973	9	1,358	0.644
1974	10	1,448	0.691
1975	13	1,549	0.839
1976	15	1,509	0.940
1977	17	1,540	1.104
1978	18	1,502	1.198
1979	26	1,482	1.754
1980	37	1,536	2.409
1981	45	1,664	2.704
1982	66	1,728	3.819
1983	69	1,530	4.510
1984	88	1,510	5.828
1985	125	1,931	6.473
1986	164	1,855	8.841
1987	200	1,961	10.199

Source: Abdul Rahman Ismail (1989).

Cocoa is very graftable and by "top working" high yielding clones can take over from the older plants without a break in harvesting. Some well-managed estates in Sabah have yields exceeding 2 t per ha per year and this indicates the scope for increasing yields. MARDI has recently developed cocoa clones which can potentially yield up to 3,000 kg per ha which is 50 percent higher than the yield of the existing hybrids (Shaaban, Mamot and Md. Sharif 1986).

4. Export, Import and Prices

4.1 Export

The rapid development of the cocoa industry enables it to contribute significantly to the export earnings of the country. The industry is export-oriented and at least two-thirds of cocoa output is exported as either beans or as processed cocoa products. Table 4 shows that 9.3 t of cocoa was exported in 1960 but this rose markedly to 36,000 t in 1980 and 182,300 t in 1987. In 1987 the export earnings from the industry amounted to \$864 mn and cocoa beans contributed 79 percent to the total. This was followed by cocoa butter (18 percent), cocoa powder (2 percent) and cocoa paste and chocolate (1 percent). Export of cocoa beans amounted to 157,400 t in 1987.

The major export markets for Malaysia's cocoa are the European Community, Singapore, the Netherlands and West Germany. In 1987 about half of cocoa exports were destined for the European Community countries, and 41 percent went to Singapore. The large quantities of cocoa exported through Singapore is a reflection of its importance as a distributing agent for Malaysia's cocoa (Mat Lani 1989a, Selvadurai 1989).

Efforts are now being made to promote direct trading of cocoa with Malaysia's trading partners. Malaysia is a more reliable source of supply when compared to the traditional cocoa producers such as Ivory Coast and Ghana and therefore there are good prospects for the local industry. Presently Malaysian Cocoa is sub-

Table 4: Malaysian Cocoa Exports, 1960-1987

Year	Cocoa Export (t)	Price (M\$ per t)	Value (M\$ mn)	Total Export (M\$ mn)	% Total Export (%)
1960	9	1,486	0.1	3,632.6	0.0038
1961	121	1,542	0.1	3,238.3	0.0057
1962	251	1,347	0.3	3,259.6	0.0103
1963	343	1,490	0.5	3,330.0	0.0154
1964	363	1,513	0.5	3,381.9	0.0162
1965	937	1,724	1.6	3,782.5	0.0427
1966	1,199	1,727	2.0	3,845.8	0.0538
1967	1,476	1,758	2.5	3,723.7	0.0697
1968	1,921	1,940	3.7	4,122.6	0.0904
1969	1,814	2,570	4.6	5,054.7	0.0922
1970	2,412	2,288	5.5	5,163.1	0.1069
1971	3,269	1,711	5.5	5,016.8	0.1115
1972	4,910	1,886	9.2	4,854.0	0.1908
1973	6,986	2,780	19.4	7,372.1	0.2635
1974	10,568	3,245	34.2	10,194.7	0.3364
1975	12,153	3,304	40.1	9,230.9	0.4351
1976	15,566	4,386	68.2	13,442.0	0.5079
1977	16,065	8,042	129.2	14,959.2	0.8637
1978	21,666	7,315	158.4	17,073.9	0.9282
1979	28,339	6,732	190.7	24,222.0	0.7876
1980	35,847	5,800	208.1	28,171.6	0.7387
1981	48,514	4,383	212.6	27,109.4	0.7845
1982	65,218	3,746	244.3	28,108.2	0.8693
1983	66,301	4,000	286.3	31,853.0	0.8991
1984	80,734	5,100	461.7	38,452.0	1.2001
1985	97,520	5,000	545.1	37,905.0	1.4382
1986	126,014	5,116	644.7	35,721.0	1.8050
1987	182,302	4,740	864.2	45,138.0	1.9146

Source: Abdul Rahman Ismail (1989).

ject to a European Community tariff of 3 percent, 11 percent and 8 percent for dry beans, cocoa powder and cocoa butter respectively. This compares with the West African cocoa which enjoys free access into the European Community as these countries are members of the LOME Convention.

4.2 Import

According to FAMA (1989) Malaysia's import of cocoa beans and products has declined steadily since 1970. For instance, in 1973 the country imported 1,152 t of cocoa beans but this declined to 166 t in 1981. Likewise, the importation of cocoa powder has also decreased, from 1,388 t in 1974 to only 316 t in 1981.

The steep decline in cocoa imports may be attributed largely to import-substitution of foreign cocoa. In the early years chocolate manufacturers who were the main users of cocoa had to make use of some imported cocoa beans mainly because of the unsuitably high acid content of local cocoa. At a later stage, beans from selected estates replaced the imported beans, and gradually, with improvements in fermentation and drying, Malaysia's beans have been more widely used (The Star 22 August 1989). Currently, Malaysian cocoa processors utilise one part of local cocoa for every 9 parts of imported cocoa. In order to encourage greater consumption of the local cocoa the Government has imposed levies on imported cocoa as shown in Table 5.

4.3 Prices

As in the case of rubber and palm oil, the price of Malaysia's cocoa is determined by the market fundamentals of supply and demand in the terminal markets, such as London and New York (Fatimah Mohd. Arshad 1984, Abdul Rahman Ismail 1989). These prices will then be transmitted to local prices.

FAMA, dealers and estates are well informed with market information, including the daily cocoa prices, in the terminal markets. These in turn will be used as a basis for making sales decisions

Table 5: Import Duties on Cocoa, 1989

Type of Cocoa	Duties
1. Cocoa bean, Whole or broken, raw or roasted	30% of CIF
2. Cocoa paste (in bulk or in block, whether or not defatted)	\$4.00/kg
3. Cocoa butter (fat or oil)	30% of CIF
4. Cocoa powder, unsweetened	30% of CIF
5. Cocoa powder, sweetened	\$5.00/kg
6. Chocolate and other preparations containing cocoa	\$5.00/kg

Source: FAMA 1989 Operation Plan and Policy for Commodity.

and short-run price determination (Fatimah Mohd. Arshad 1984). The latter function is specially important to FAMA and dealers who buy and sell cocoa.

The price of smallholders' cocoa is determined by FAMA. For this purpose FAMA will decide on the representative terminal market price too. From this price, its operating cost and discount are deducted. The resultant price thus constitutes the offer price for smallholders' dry beans.

Malaysian cocoa suffers a discount in the terminal markets when compared to the beans from West Africa because of its inferior quality. Nonetheless, in general the export price for Malaysian cocoa has risen. Between 1960 and 1970 the price increased from \$1,486 per t to \$2,288 per t. The cocoa export price then declined during the next two years as a result of global over-production. The shortfall in global cocoa supply compared to demand over 1976-1982 resulted in a high price for cocoa over that period. In 1984 and 1985 the price of cocoa was also fairly high at \$5,000 per t but this fell slightly to \$4,740 t by 1987 (Abdul Rahman Ismail 1989). In 1989, the price hovers around \$3,000 per t (Ministry of Agriculture 1990).

5. Processing

A small proportion of cocoa production is utilised locally for grinding into cocoa products such as cocoa powder, cocoa paste, cocoa butter and chocolate. In 1987, more than 80 percent of local cocoa were exported in the form of dry cocoa beans. Up to 1987, 17 companies have been approved to process cocoa beans into cocoa butter and cocoa powder. Of these 17 approvals, eight factories are in operation of which seven are located in Peninsular Malaysia and one in Sabah. Together they utilised 32,000 t of cocoa beans in 1987. A number of these factories are joint ventures with well-known chocolate manufacturers Cadbury, Van Houten and Nestle.

Cocoa grinding has become increasingly important as reflected by the rapid increase in the export of processed cocoa products, from \$20.8 mn in 1977 to \$180 mn in 1987. Among the processed cocoa products, cocoa butter is the most important item accounting for 13,000 t valued at \$148 mn in 1987. The export of cocoa powder, cocoa paste and chocolate is still low, being around 6,000-7,000 t.

The cocoa processing industry has been earmarked as one of the priority industries that will be promoted in the Industrial Masterplan (IMP). This is in view of the fact that Malaysia has an abundant supply of cocoa beans and that the cocoa products industry has a potential to become a major export earner.

The IMP has outlined several strategies for the cocoa products industry. First, large scale integrated cocoa processing projects would be established. This will be consistent with the National Agricultural Policy which envisages a great expansion of the cocoa acreage. Second, the establishment of joint ventures with overseas partners who can provide markets would be encouraged. The export market is competitive and it is presently dominated by a few multinational cocoa product manufacturers. Finally, research and development will be intensified to ensure the production of high quality products and to diversify the use of semi-finished cocoa products by end-user industries.

6. Marketing

6.1 Marketing Channels

Two parallel structures have developed in the marketing of cocoa, one for the estates and the other for smallholdings (FAMA 1986, 1989). The marketing links for the estates are direct and comparatively short. The estates normally process their own cocoa crop into dry beans for sale directly to local manufacturers, exporters or overseas buyers. They possess the required technology and expertise to produce high quality cocoa beans and obtain a good price for them. The well established organisational

structure of estates and their large volume of production enable them to deal directly with any buyer that is willing to offer the best prices.

The marketing of estate cocoa is thus fully integrated and centralised. It is conducted by the estate company headquarters. After successful negotiations with the buyers, a contract will be made on an f.o.b. basis. After the contract has been made the headquarters will issue the shipment orders to the estates. An independent surveyor will obtain samples of the consignment and thereon confirm their quality and grade.

In contrast, there is a large number of intermediaries in the marketing of smallholders' cocoa. Smallholders sell both wet and dry cocoa beans. Selvadurai (1989) has estimated that about two-thirds of smallholders' cocoa crop are sold as wet beans, largely due to their lack of knowledge and facilities to carry out fermentation and drying. Generally, these beans are sold at the farm to wet bean collectors, processors or government agencies, particularly FAMA and Farmers Associations (FAs). Approximately 70 percent of the beans are handled by the collectors and processors. The remaining 20 percent are handled by FAMA and 10 percent by FAs. The popularity of collectors may be attributed to the fact that they are widely distributed and they provide loans and credit to the farmers.

The wholesalers collect, sort, pack and transport the beans that have been processed. They have reasonably good storage facilities and are well informed about the prevailing cocoa price movements and market prospects. Their area of operation is quite large and they normally have assured suppliers.

The exporters of cocoa beans may either be local representatives of large trading houses from the importing countries, firms with interest in cocoa production and processing or commodity trading firms. The trading practices of these exporters are more sophisticated, and they trade in both physical and futures. Sometimes their sales to overseas merely represent "title" flows,

in which case the physical cocoa is actually transported to local manufacturers who have contracts with the foreign buyers.

6.2 FAMA

FAMA's involvement in the marketing of smallholders' cocoa commenced in the mid-1970s. The marketing role of FAMA is to provide an outlet for smallholders to sell their crop at a 'fair' price. A number of measures have hitherto been taken in line with this objective.

FAMA provides a ready market for smallholders' cocoa beans. By obliging to purchase any quantity of beans from the smallholders at any time, some bargaining power is instituted. FAMA's offer prices can be employed as bench-marks for the purchase price of collectors and middlemen. Smallholders are strongly encouraged to sell their wet beans to FAMA because they can then be properly fermented.

As part of its effort to promote an orderly marketing system, FAMA introduced the Cocoa Marketing Regulations in 1980. The Regulations provide for the licencing of all cocoa buyers. This aims to control the buyers from indulging in marketing malpractices. It is also to ensure that collectors and processors have adequate and proper facilities and know-how to process the wet beans.

The Regulations also provide for all exported cocoa beans to be graded and certified by FAMA. For this purpose Statutory Standard Malaysian Cocoa (SMC) grades have been established to be applied to all exported of cocoa beans. To implement the scheme, FAMA has proposed to set up nine grading, certification and storage depots at Butterworth, Port Klang, Pasir Gudang, Kuantan, Kuching, Serikei, Miri, Tawau and Kota Kinabalu. The first three of these centres are now fully operational.

6.3 Cocoa Pricing System

The pricing mechanism of the individual intermediaries in the cocoa marketing chain varies, as outlined below.

(a) Pricing by FAMA

A primary function of FAMA is to support the prices received by the cocoa smallholders. FAMA undertakes this price supporting role in the following way. First, it determines some "fair" price on the basis of the prevailing world cocoa prices, and their trend. From this FAMA will set its farm gate price, which for a period of time, will be adhered to. A major difficulty in this exercise is to decide on a price which can last for a long time and which will not be too costly to maintain.

Since FAMA is not subsidising the cocoa smallholders, it will necessarily have to change its offer price once the international price trend changes.

Fundamentally FAMA does not support the price since it will invariably lower its offer price in a falling market and will not maintain it. Actual price support only begins when prices fall to extremely low levels. The lowest offer price has been \$0.99 per kg under the prevailing severely depressed price regime.

As a matter of routine, FAMA studies the London and New York daily price fluctuations over three previous months. Once it holds that the prevailing smallholders farm gate offer price cannot be supported, it will concomitantly establish an alternative offer price to commensurate with the observed price trend.

The calculation of the offer price is fairly straightforward. FAMA initially decides on the terminal market price to adopt. From this price, FAMA's operating cost and c.i.f charge (since the farm sale is at f.o.b while the quoted price is at c.i.f) as well as a discount are deducted. The resultant price is taken as the offer price for smallholders' dry beans not exceeding 110

beans per 100 g. From this the wet bean equivalent price can be determined.

(b) Pricing by Collectors

Wet bean collectors practically buy from the smallholders only. They invariably represent the final price determinants of smallholders' cocoa. In view of their large number, competition is intense. Nevertheless, these collectors seldom involve in speculation.

The pricing procedure employed by collectors is similar to that of the wholesalers. A typical collector makes daily inquiries at his buyers concerning their offers. From the lowest offer, a margin for marketing cost and profit is deducted to arrive at the price for 110 beans per 100 g to be offered to the smallholders.

Collectors attempt to maximise their profit by offering the lowest farm-gate price as possible. However, this is somewhat difficult because of the intense competition among them.

(c) Pricing by Wholesalers

Wholesalers buy wet and dry cocoa beans mainly from collectors, and to a small extent, from smallholders. Unlike exporters, the wholesalers do not hedge their physical cocoa. However, they still normally seek information on price trends from the local and Singapore futures trading houses. Based on the information obtained, the wholesalers speculate by holding or storing cocoa beans for some period of time before selling them off.

The competition among wholesalers is great. Therefore any pricing decision must take into consideration the prices of both their competitors and buyers. However, the wholesalers generally compute the relevant prices based on the prices quoted by their buyers.

Typically, a wholesaler makes daily inquiries to his buyers for price quotations. He then takes the lowest quoted price and deducts from it the marketing and profit margins. The resulting price is accordingly taken to be the reference price for dry beans of 110 beans per 100 g and less and of moisture content of 8.5 percent. In general, for beans of 111-115 beans per 100 g a discount of 20 cents per kg is applied.

Because of the speculation activity by the wholesalers, their offer prices can be higher than their guideline prices, particularly when the price trend is rising. However, a wholesaler rarely changes his price once he has quoted it to the bean collectors. In other words, there is little price bargaining between a wholesaler and his immediate suppliers other than the prescribed discounts.

(d) Pricing by Exporters

The cocoa exporters do not only deal with physical cocoa but also with futures. Since the amount of cocoa bought by an exporter is large, the risk due to price fluctuations in the world cocoa market is accordingly high. Therefore, the exporter normally hedges his physical purchases on the cocoa terminal markets through the local futures trading houses.

However, for their daily transactions the exporters will monitor the daily world market prices to determine the price for the dry cocoa beans. The price calculation is similar to that of FAMA but in addition to the deduction for marketing charges and discounts, a profit margin is also included. This price determination activity is done every day. Therefore the wholesalers and collectors necessarily have to make daily enquiries with the exporters on their quotations.

Owing to the speculative activity of the exporters, their price quotations vary significantly from one another. Such speculative activity also leads them to trade with each other in order to take advantage of the prices prevailing at the time of delivery

of physical cocoa. Sometimes dealers have to buy at prices higher than the market price to make their delivery obligations.

6.4 Grading and Specification

Quality is the most important aspect which must be considered in the marketing of cocoa beans. The value of cocoa lies in its appealing flavour which depends on the quality of the cocoa beans. Therefore, poor quality cocoa beans do not only acquire a lower value, but they are also less marketable, especially when their supply is in excess of demand.

The quality of cocoa is generally evaluated by the manufacturers in two ways. These are the economic yields of the beans and the flavour obtained after processing the beans. Economic yields refer to the valuable portion of the cocoa bean that can be derived after processing. This can be objectively evaluated. The unused portion of the cocoa beans comprise moisture, shell, flat beans and cocoa waste. Adulterations indirectly cause the economic yield of cocoa beans in any given consignment to drop.

The other quality aspect of cocoa beans is their flavour which may be subjectively assessed. Flavour depends largely on the genetics of the cocoa beans and the method of processing them. However, factors such as over or under fermentation, bean acidity, insect infestation and chemical contamination can produce an unpleasant flavour. The factors affecting the quality of cocoa and their effects may be summarised as follows:

- a) Bean size - Large beans have a greater percentage of fats to shell than small beans. Accordingly, larger beans produce higher economic yields. A variable bean size invariably causes problems in roasting, a crucial process whereby the flavour of the cocoa bean is brought out. A variable bean size does not allow an even roasting of the beans, and as a result an optimum flavour cannot be obtained.

- b) Slaty beans - These generally comprise the insufficiently fermented beans. The extent of slaty beans can be determined by a cut test. Slaty beans are greyish purple in colour; well fermented beans are dark brown. They have little flavour, and they are bitter and astringent. As a general rule over-fermentation of cocoa beans is preferred to under-fermentation.
- c) Mouldy beans - These are also regarded as defective beans. The overall flavour of cocoa can be severely affected by mouldy beans. Mouldy beans also give rise to a higher free fatty acid content in the cocoa butter. This reduces its shelf life.
- d) Moisture content - The moisture content directly affects the bean weight. A high moisture content causes a loss in economic yield. In addition, a moisture content of greater than 8.0 percent encourages mould growth.
- e) Insect infested cocoa beans - These beans are not only bad for health but are also bland and lack flavour. They may also detract the overall cocoa flavour.
- f) Acidity - The ideal acidity of cocoa beans is between pH 5.2 and pH 5.6. Any level of acidity above or below this range will affect both the economic yield and flavour of the cocoa beans. This is because the butter yield is reduced in the process of neutralising acidic beans. Also, acidic beans add unwanted flavours to the cocoa produced. To remove the acidity would increase the processing cost further.
- g) Contaminated flavour - Stored cocoa beans can at times pick up a foreign odour or flavour. The most common flavour contamination is smoke which gives rise to smoky beans. A smoky flavour is extremely difficult to remove.
- h) Flat beans - Flat beans are unsuitable to manufacturers because they lack any cotyledon. Thus, they are often considered as cocoa waste which has little or no economic value.

- i) Germinated beans - These are beans which develop internal mould or are infested by insects during storage.

The above constitute the quality criteria of cocoa beans adopted by the cocoa manufacturers. In addition, adulteration of the beans is also considered. Even though adulteration is essentially not a quality aspect of cocoa beans, it represents an economic loss to manufacturers receiving the consignment of the cocoa beans. Generally, the average quality standards of cocoa beans that a local manufacturer would expect are shown in Table 6.

7. Research and Development

Research in cocoa is undertaken by FELDA, MARDI and the large estates. FELDA's research is carried out at the 2,400 ha Tun Razak Agricultural Research located at the fringe of the Jengka Triangle. MARDI's research in coconut and cocoa is undertaken in the Central Research Station in Hilir Perak. Recently, MARDI has embarked on several joint research programmes, for instance with Braunschweig Technical University Research findings have shown that yield, tolerance to disease and quality can be improved through the adoption of clonal technology (Shaaban, Mamot and Md. Sharif 1986). MARDI has recently developed five types of clones which have sustained high annual yields of between 1.5 t ha and 2.5 t per ha when intercropped with coconuts and 2.0 t ha and 2.5 t per ha when grown as a monocrop. These clones are also resistant to major pests and diseases, early maturing and have good growth, vigour and uniformity.

With increased production there is an urgent need to improve the quality of Malaysian cocoa for the export market. Recent research has shown that the acidity of Malaysian cocoa can be reduced to levels which are acceptable in the world market. MARDI, Sabah Department of Agriculture, and other organisations have already developed a new processing technique that produces cocoa beans with flavour comparable to that of Ghana's cocoa.

Table 6: Average Quality Standards of Malaysian Cocoa Beans

Bean Count	110/100 g max
Shell Content	14.0%
Moisture Content	6.0%
Fat Content	55.5%
Fermentation:	
Well Fermented (Brown, Brown/Purple)	94%
Slaty	1%
Mouldy	1%
Insect Infested	1%
Germinated	1%
Flat/garlings	1%
Cocoa Waste/Rice	1%
pH	4.8 - 5.6

Source: Upali Malaysia Sdn. Bhd. (private communication).

8. Policy Issues and Implications

With the rapid increase in cocoa production a number of problems have emerged though the favourable price trend over the years has tended to play them down. The recent steep decline in commodity prices, however, makes it urgent to resolve these problems to enable the industry to be competitive with other major producers. With increasing world supplies, consumers are being more selective in their purchases and Malaysia must be able to supply good quality cocoa at competitive prices. The industry is faced with challenges, both domestically as well those arising from international factors.

One problem is that there is little co-ordination of efforts among the various government and private sector agencies are currently involved in the development of the industry. Although co-ordination exists within a limited framework, there is no agency to review and co-ordinate the various activities. The Malaysian Cocoa Board which has just been established fills this gap.

Another problem is the low productivity of smallholders. Smallholders should adopt improved cultivation practices so as to increase productivity and lower the cost of production, particularly during periods of poor cocoa prices. The cocoa beans produced by smallholders are of poor quality and have to be sold at a discount in the terminal markets.

There is also an urgent need to improve marketing efficiency. There are far too many market intermediaries. Further, market information is generally not efficiently transmitted to the smallholders. There is also considerable collusion among buyers of cocoa beans. Some of the marketing practices such as fermentation and drying are inferior and these result in poor quality beans. The smallholders are partly to be blamed because through their practice of adulterating the cocoa beans. Another reason for the low quality of the beans is the inadequacy of drying and fermentation equipment among smallholders and first level collectors.

Malaysian cocoa is subjected to preferential tariffs and import levies in the consuming countries. For example, the EEC imposes a 3 percent import duty on Malaysian cocoa. It is imperative that new markets for the rapidly expanding industry be found. Concomitantly research on the end-uses of cocoa has to be intensified to suit particular markets niches.

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