

Executive Summary

The European Parliament and Council adopted Directive 2000/36/EC on 23 June 2000. The aim of the Directive was to allow the use of up to 5% of a limited number of vegetable fats in the production of chocolate. The objective of the Directive was to simplify Community provisions concerning chocolate, with a view to allowing the free movement of chocolate products within the Internal Market. The Directive was implemented by member states during 2003.

The vegetable fats that were permitted for use required strict technical characteristics and were limited to six (Illipe, palm oil, sal, shea, kokum gurgi, and mango kernel). Five of these (illipe, sal, shea, kokum gurgi and mango kernel) can be classed as exotic fats; that is, the fat is obtained from the seeds/nuts of trees that are mainly growing wild in the tropics. Enzymic modification of the fats was prohibited.

This study provides an evaluation of the impact of the Directive as required under the Directive. The aim of the evaluation is to:

- Determine the impact of Directive 2000/36/EC on the economies of those countries producing cocoa and vegetable fats other than cocoa butter; and
- Provide guidance to the Commission on whether or not to amend the list of vegetable fats other than cocoa butter that are permitted for use in chocolate. In this regard, three options are considered:
 - To maintain the list for a further period of time;
 - To shorten the list; or
 - To extend the list.

EU CHOCOLATE CONSUMPTION AND COCOA IMPORTS

EU-15 consumption of chocolate products is around 2.2 million tonnes. There has been little change in total consumption since the Directive was adopted in 2003. Four markets, UK, Germany, Italy and France account for close to 80% of EU-15 chocolate consumption.

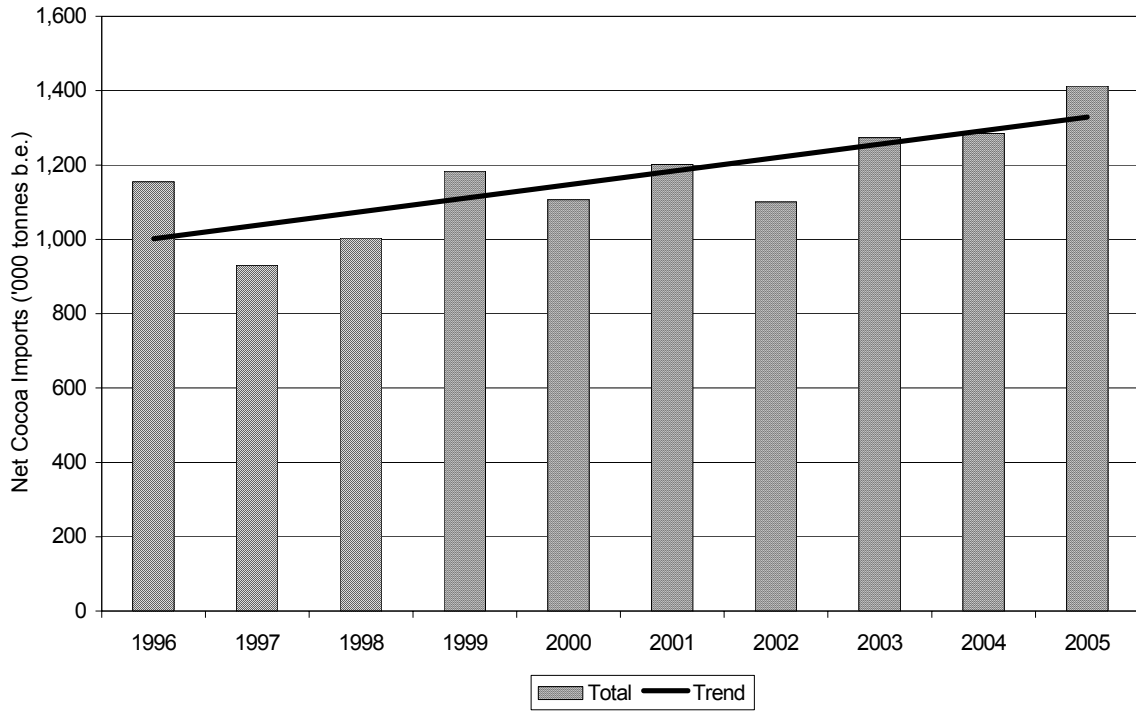
There are a number of reasons for the slow growth in consumption:

- Slow growth in income. Per capita consumption is related to per capita incomes, and the slow growth of incomes in recent years adversely affected demand;
- Market saturation in some of the mature markets; and
- Increasing concerns over obesity.

Not all segments of the market have experienced the same growth rates; in particular there has been growth in whole bar (tablet) consumption over other products. This has been driven by campaigns highlighting the benefits of cocoa consumption (in particular, the presence of the antioxidant flavanol which has been found to reduce blood pressure) and the growth of speciality products such as single origin bars. Both of these types of products have a higher cocoa content.

Net imports of cocoa beans and cocoa products in bean equivalent (b.e.) terms from outside the EU-15 countries have increased from around 1.2 million tonnes in 1996 to over 1.4 million tonnes in 2005, recording an average annual growth rate of 2.1% over the last 10 years (Diagram EXEC 1). This is somewhat higher than the growth of chocolate production and consumption, which has grown by 0.6% per annum over the period. Over the last two years, since the adoption of the Directive, the rate of growth of net cocoa imports has accelerated to 3.5% despite a flat chocolate product market. This points towards the increased cocoa solids content of chocolate as well as the increased use of cocoa products for other food applications.

Diagram EXEC 1: Total EU-15 Net Imports of Cocoa Beans and Cocoa Products



VEGETABLE FAT IMPORTS AND CBE PRODUCTION

When converted to the raw materials that are used for CBE manufacture, exotic fat imports have increased from 8,000 tonnes in 1996 to 24,500 tonnes in 2005 (Table EXEC 1). Since the adoption of the Directive, imports of these exotic fat raw materials have increased by 25%.

Table EXEC.1: EU-15 Exotic Fat Imports (tonnes)

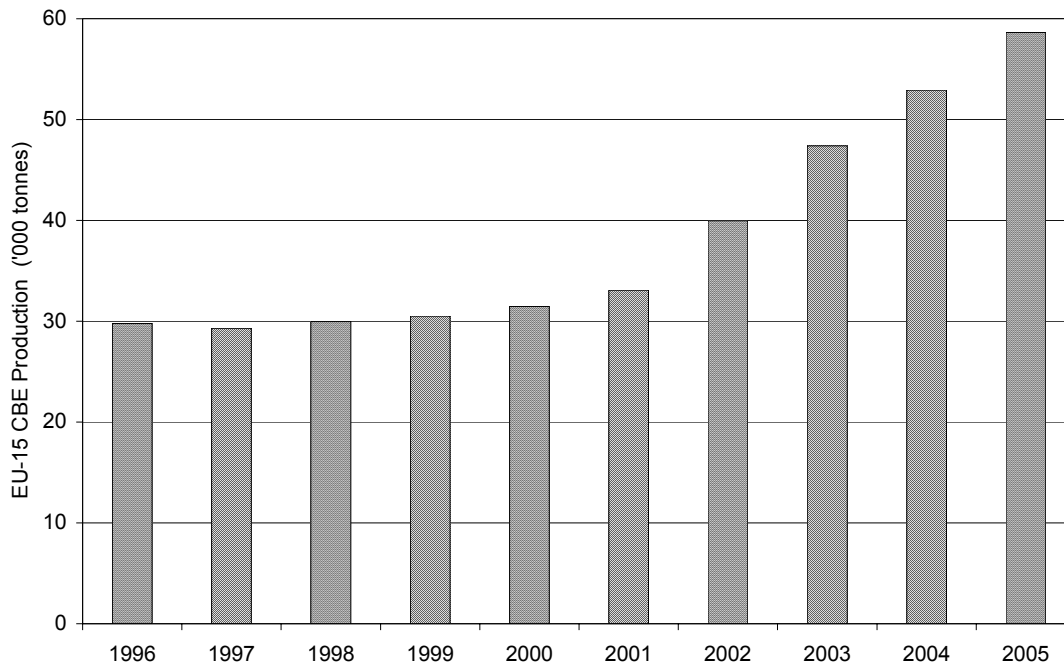
	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Sheanuts	31,938	24,856	52,757	30,155	29,396	59,575	48,787	80,802	67,626	85,040
Shea butter	138	241	1,542	3,543	1,590	2,177	7,502	10,358	7,049	15,397
Sal Oil	278	324	174	177	330	401	230	544	201	900
Sal Stearin	650	757	405	412	770	936	537	1,269	469	2,100
Mango Kernel Stearin	331	1,001	142	1,300	0	125	141	744	146	437
Illipe nuts	30	20	19	24	4	4	4,187	44	2	52
Illipe butter	1,688	857	327	47	31	9	121	646	193	1,446
CBE raw material	7,987	6,865	9,884	8,587	6,285	11,393	11,776	19,638	14,979	24,459

Source: LMC.

While it is possible to get an impression of the level of exotic fat imports and use in CBEs, the level of palm oil (or more specifically palm mid-fraction) is more difficult to gauge owing to the large number of end uses. The use of palm mid-fraction (PMF) varies between 10% to 100% of the weight of a CBE, depending upon what the product is to be used for. A lower proportion of exotics are used in "soft" CBEs (up to 30% exotic) while a higher proportion is used in "hard" CBEs (greater than 30%). The choice of CBE depends on the market and application.

Typically, soft CBEs are used in the UK and Ireland, and hard CBEs are used elsewhere. Splitting exotic fat use this way, with the balance being made up of PMF gives total EU-15 CBE production of 58,600 tonnes in 2005. Production has grown by 11% per annum since 2000 and at a similar rate since the adoption of the Directive (Diagram EXEC 2).

Diagram EXEC 2: EU-15 CBE Production



While exotic fat imports and CBE production have increased, the key question is: “Is this due to increased demand from chocolate manufacturers in the EU-15 following the implementation of the Directive? Or, are there other explanations?”

The Use of CBEs in EU-15 Chocolate

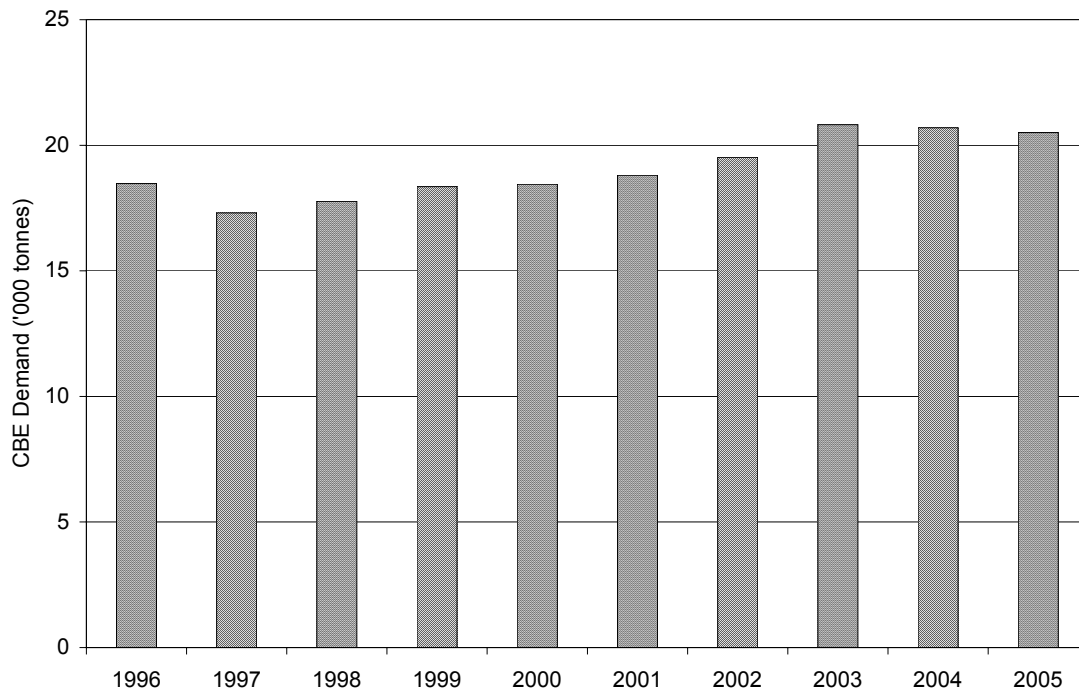
To determine the use of CBEs in EU-15 chocolate it is helpful to split the EU-15 market into two segments: those that permitted the use of CBEs in chocolate prior to 2000; and those that did not, and consider trends in each of these segments.

Our analysis suggests that the market for CBE use in chocolate in the EU-15 countries was 20,500 tonnes in 2005 (Diagram EXEC 3). This level of demand has been unchanged for three years, although this hides two changes:

- In countries permitting the use of CBEs in chocolate prior to 2000, CBE use as a proportion of chocolate weight has fallen by 3% since the adoption of the Directive. This is due to the Directive’s definition of milk chocolate. Under the definition, vegetable fat is not included in the calculation of total fat that must be a minimum of 25% for a product to be called milk chocolate. Thus for a typical low cost milk chocolate recipe with 28.3% fat, the maximum vegetable fat that can be added is 3.3%. If 5% was previously being used then the amount of permitted vegetable fat has fallen. Consequently, we estimate that CBE demand is some 600 tonnes lower than would have been the case in the absence of the Directive.
- In countries previously not permitting the use of CBEs in chocolate, there has been no increase in demand from branded and artisanal chocolate manufacturers. There has been an increase of some 1,000 tonnes amongst the industrial chocolate manufacturers producing product for the biscuit and ice cream industries.

Net, there has been a 400 tonne increase in CBE demand since the adoption of the Directive.

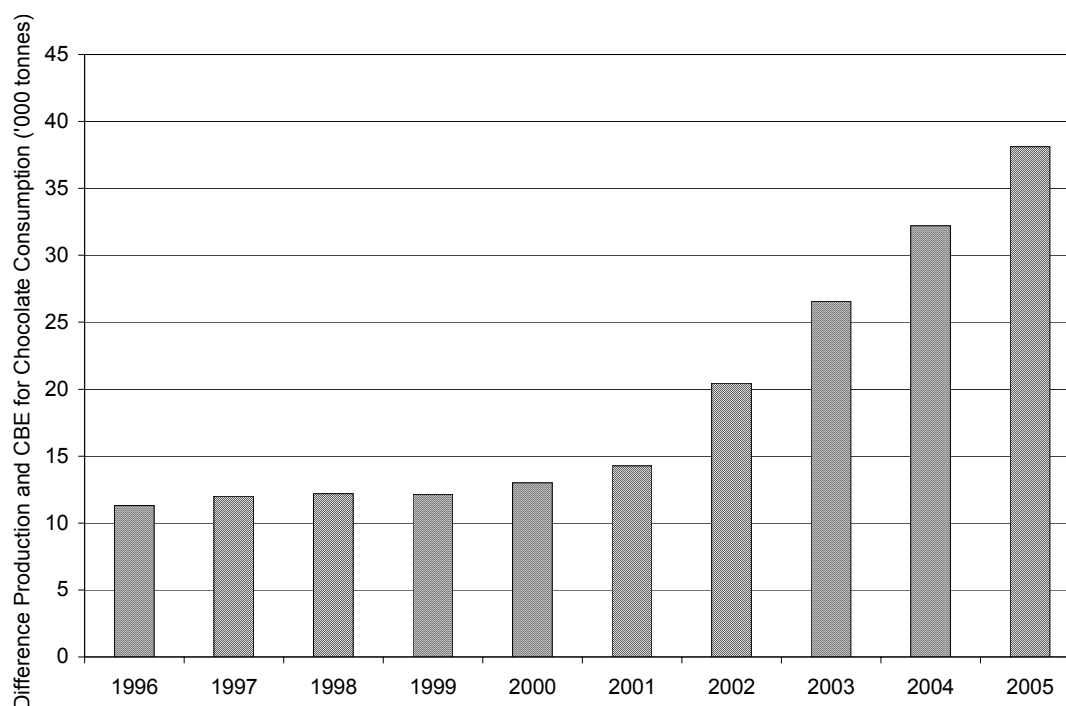
Diagram EXEC 3: EU-15 CBE Consumption for Chocolate Production



DEMAND FOR CBES OUTSIDE EU-15 CHOCOLATE PRODUCTION

This suggests that the growth of EU-15 CBE production has not been due to CBE use in EU-15 chocolate but due to other factors. The evidence above suggests that there is a growing difference between EU-15 CBE production and the amount of CBE used for EU-15 chocolate manufacture. The difference has increased from around 11,000 tonnes in 1996 to its current level of around 40,000 tonnes (Diagram EXEC 4).

Diagram EXEC 4: Difference Between EU-15 CBE Production and that used for EU-15 Chocolate Manufacture



Two issues warrant consideration and can explain this trend:

- The use of CBE-type fats for coatings and fillings; and
- Export demand.

For many years, EU chocolate companies have used CBEs in their fillings, even if they are not using them in chocolate. The Directive does not cover this use of CBEs. Our analysis suggests that demand for CBEs for fillings and coatings in the EU-15 has grown to between 20,000 to 25,000 tonnes. Demand growth has been steady over the reporting period and is growing as the market for these products increases.

Export demand is in the order of 15,000 to 20,000 tonnes and has grown sharply in recent years. This is due to:

- Changes in legislation to allow the use of CBEs in chocolate (for instance, in Brazil and Oceania);
- Substitution of Cocoa Butter Replacers (CBRs) in compound chocolate by CBEs. This is because CBRs are high in transfats; and
- Increased demand for chocolate/compound chocolate containing CBEs.

IMPACT OF THE DIRECTIVE ON COCOA AND VEGETABLE FAT PRODUCERS

Cocoa Producers

- Cocoa typically accounts for over one third of total export earnings in Ghana and Côte d'Ivoire, and around 10% in the case of Cameroon. It is less important in

Nigeria and Togo. As would be expected, cocoa prices are a major determinant of cocoa's share of export earnings in Ghana and Côte d'Ivoire.

- As can be surmised from the above, the Directive has had little impact on cocoa producers to date. We have calculated the impact (and potential impact) of the Directive under three scenarios.
 - The **base case** scenario calculates the impact of the Directive on the market to date;
 - **Scenario 1** calculates what would have been the state of the market had the Directive not been implemented in 2003/04; and
 - **Scenario 2** calculates what would have been the impact of the Directive if it had been fully implemented in 2003/04, i.e., CBE usage in chocolate rose to 5% in the EU-8.

The forecast levels of prices under the different scenarios between 2003/04 and 2010/11 are shown in Table EXEC.2.

Table EXEC.2: Forecast Global Cocoa Prices, 2003/04-2010/11 (Real US\$ per tonne)

	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11
Base Case	1,431	1,419	1,439	1,554	1,649	1,604	1,559	1,531
Scenario 1	1,435	1,421	1,441	1,555	1,650	1,605	1,560	1,532
Scenario 2	1,311	1,344	1,384	1,521	1,625	1,561	1,514	1,490

Source: LMC.

- Comparing the prices forecast under the base case scenario with those forecast under Scenario 1 suggests that the impact of not implementing the Directive in 2003/04 would have been modest i.e. a price difference of less than \$5 per tonne.
- Were the Directive to have been implemented fully in 2003/04, the results suggest that the price impact would have been more pronounced.

Vegetable Fat Producers

- In terms of the total economy, the importance of the exotic fats is relatively small. However, in the regions where they are collected, they are very important for employment and income generation. In the case of shea, collection is primarily by women, while for illipe and the Indian exotics, collection is by tribal people living off non-timber forest products.
- For sheanuts, demand is from both the local market and for export. The other exotics are primarily export orientated, the only exception being for sal when production is higher than that which can be absorbed by the export market. In this case, the balance is used domestically.
- For all the exotics, with the exception of kokum, there can be extreme fluctuations in production between years. This is due to the uncultivated nature of production.

- There has been an increase in demand for exotics from the European CBE manufacturers: for shea since 2000, sal since 2003 and illipe in 2005.
- Trends in prices follow the supply-demand balance of the individual crops, thus in years of high production there is a tendency for prices to fall and vice-versa.
- For the Indian exotic fats and illipe, almost all processing occurs at origin and processed products are exported. This is not the case with sheanuts where the export is more of nuts than products.
- Both shea and the Indian exotics remain underdeveloped in terms of their potential. In both cases, there is scope to increase collection and improve the quality of the product, although whether this occurs is partly dependent upon the price paid to collectors. In the case of shea, some governments have recognised the crop's potential and are seeking to increase the development of the crop as part of a diversification strategy. For illipe, production potential is declining as palm oil development reduces the illipe forests.
- Palm oil production has grown dramatically since the adoption of the Directive. However, the growth of CBE demand is small in relation to the total volumes of palm oil produced and marketed.

The increase in demand for these products, although beneficial for the sector, cannot be attributed to the Directive.

CONCLUSIONS

Our analysis suggests that the Directive has had very little impact on the global cocoa market as very few EU-15 chocolate manufacturers have incorporated CBEs into their recipes. The same is true of the vegetable fat producers, although increased demand for CBEs from outside of the EU-15 chocolate market has increased demand for their products. However, although the Directive was passed in 2000, it was only implemented in 2003. Hence the market has only had two years to adjust to the new realities.

On the basis of this evidence, there is no need to change the list of permitted fats and our recommendation is to maintain the list for a further period of time, until the impact of the use of vegetable fats other than cocoa butter on the economies of developing countries can be further assessed.

There are a number of additional considerations:

- Two years is a very short time period for end users to make wholesale changes to recipes. A further review of the market in five to ten years time would be useful. This would allow time for manufacturers to work through the implications of the Directive and test consumer perceptions of products containing CBEs. As yet, this has not been possible, as no one has changed recipes.
- The shortage of shea and sal during 2005/06 has reduced exotic availability and led to a run down in exotic fat stocks. This has increased exotic prices and placed pressure on CBE manufacturers. This highlights the dangers of restricting the number of fats, as it reduces the scope for substitution. Any reduction in the list of permitted fats would create a worse situation.

- With the global market for CBEs increasing and the variability of annual exotic fat production, in the longer term there is potential for a shortage of exotic fats. This suggests that in the longer term, consideration could be given to one or all of the following:
 - **Crop development for the permitted exotics.** At present shea, sal and mango kernel are all underdeveloped wild crops. There is scope, in the longer term, to increase crop potential. For instance, in West Africa the local production of shea butter could be enhanced through the provision of basic hand expellers. This would reduce the time needed to produce local shea butter and increase processing efficiency. In both cases, the provision of nuts would increase: first, by allowing more time for nut collection; and, second, by reducing the quantity of nuts required to yield a certain volume of butter. Additionally it could be possible to reduce the gestation period for the trees. In the case of sal, the proportion of the crop collected is small in relation to total production.
 - **Expanding the list of permitted fats.** However, the number of possible fats is limited, with aceituno oil probably the largest.