A young man with dark skin and short hair, wearing a white long-sleeved shirt, is shown from the chest up. He is carrying a wooden hoe on his right shoulder. He has a serious expression and is looking slightly to the right. The background is a dusty, unpaved street in a rural village with simple, low-rise buildings. The sky is filled with large, white, fluffy clouds. The overall tone is somber and documentary.

The real price of chocolate

Cocoa beans are dried on the main road at Kragui, Ivory Coast.

Cocoa beans are largely produced by farmers in West Africa who are only just able to scrape a living. The Netherlands wants to change that and has set a target of 100 percent sustainable, fair-trade chocolate on the market by 2025. It is not yet clear whether this will actually help cocoa farmers.

TEXT ASTRID SMIT PHOTOGRAPHY KADIR VAN LOHUIZEN/NOOR

ILLUSTRATION JENNY VAN DRIEL

Chocolate is a popular indulgence in the Netherlands. Who doesn't enjoy a box of chocolates, chocolate spread, Easter eggs, chocolate letters, or simply a chocolate bar or Mars bar as a snack? Some Dutch people claim they cannot get through a day without eating chocolate.

But what most consumers are not so aware of is that the production of that little chunk of pleasure often entails considerable pain and effort. Chocolate is made from cocoa beans (see box) that are largely grown by poor farmers in Ghana and Côte d'Ivoire. 'Most of these cocoa farmers are only just able to scrape a living. The entire family often has to help out just to earn a subsistence-level income, sometimes even the children,' says Verina Ingram, a cocoa researcher at LEI Wageningen UR.

Many farmers are trapped in a vicious circle. 'They don't have enough money or know-how to invest in their plantations. The soil becomes exhausted and the trees grow old. As a result, the yield from the cocoa trees falls and the farmers have to work even harder to make a living. Sometimes they clear woodland to plant new cocoa trees, which destroys the environment,' says Ingram. 'Another problem is that most farmers in these countries are relatively old, with an average age of 47, and don't have any successors. Their children see no future in cocoa farming.'

If this development continues, the production of cocoa in these West-African countries will collapse, even though the demand for cocoa is increasing. The West – Europe

'The entire family often has to help out just to earn a subsistence-level income'

and the United States – is consuming more chocolate every year and demand for chocolate is also increasing in countries like China, India and Brazil. The expectation is that one million tons more cocoa will be needed in the years to come; the current level of production is four million tons.

CHILD LABOUR

In addition, more consumers want their chocolate to be ethical, with the farmers being paid a fair price and not involving child labour.

This is why NGOs, often in collaboration with businesses, took the initiative a few years ago to encourage

sustainable cultivation of cocoa in West Africa. Their aim is cocoa cultivation that has a long-term future and yields more cocoa beans per hectare so that farmers can earn a decent income and satisfy global demand without damaging the environment. There are now three major sustainability labels on the market: UTZ (originally a Dutch organization), Fair Trade (a label of the Dutch Max Havelaar Foundation) and the Rainforest Alliance (an American environmental organization). While one may set the bar a little higher than another, they all aim for fair trade, good working conditions and protection of the environment in cocoa cultivation.

The Dutch government is supporting the import and sale of sustainable chocolate. It even wants all chocolate sold in the Netherlands to be certified by 2025. This is an ambitious goal that will undoubtedly be discussed at the World Cocoa Conference, to be held from 9 to 13 June in Amsterdam. Is it attainable? And what will it mean for the cocoa farmers in West Africa?

In 2010, a total of 30 Dutch supermarkets, other companies and NGOs undertook to work towards that goal. They included the Plus, Albert Heijn and C1000 supermarkets, the HEMA, Jamin and Kruidvat chains, Unilever, Verkade and even Mars, which has the largest chocolate factory in the world in Veghel and which produces 83 billion Mars bars every year. Major NGOs such as Solidaridad and Novib/Oxfam are also involved. The Sustainable Trade Initiative (IDH) is the organization driving this public-private partnership.

SUSTAINABLE CHOCOLATE LETTERS

So far, the share of sustainable cocoa on the Dutch market does seem to be increasing. In 2012, according to LEI, 20 per cent of the chocolate sold was certified. Indeed, all the chocolate letters sold in the supermarkets for the Santa Claus festivities were labelled as sustainable. That is quite an achievement for the Dutch government, but there is still a long way to go for the target of 50 per cent certified chocolate in 2015 – the interim milestone agreed by the 30 parties.

Even so, these initiatives are leading to big changes in Ghana and Côte d'Ivoire, according to cocoa researcher Ingram. More and more cocoa farmers are taking part in the certification programme for the UTZ label, for instance. In Côte d'Ivoire, 260 cooperatives took part in 2012 as opposed to only two in 2008. The growth was just as spectacular in Ghana. A total of 221 thousand cocoa farmers now have UTZ certification in West Africa according to UTZ's annual report, about 9 per cent of the 2.5 million farmers. They are taking part in a training programme or have completed training, and are farming in accordance with the label's standards. That means efficient use of pesticides and fertilizer, measures to protect woodland and water, no child labour and delivery of high-quality cocoa beans. ➤

FROM COCOA BEAN TO CHOCOLATE

Turning cocoa beans into chocolate is a long chain of processes: picking, fermenting, drying, transporting, roasting, grinding, pressing, blending, rolling, ripening and manufacturing.



Chocolate is made of cocoa beans, which grow in large pods on the trunk of the cocoa tree.



When the fruit is ripe, farmers remove the pod from the tree, cut it open and remove the cocoa beans by hand.



The cocoa beans are fermented – this improves their flavour and colour – and then laid out in the sun to dry.



The beans go to the cooperative in big jute sacks and most of them are then exported.



In the factory the beans are first pre-roasted to remove the skins.



The beans are then roasted: very precise work and decisive for the flavour of the cocoa.

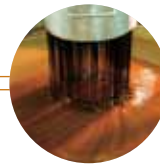


FOTO: BARRY CALLEBAUT

The roasted cocoa beans are ground into thick cocoa solids.



Some of the cocoa solids are pressed to produce cocoa powder and cocoa butter.



Some of the cocoa solids are used directly in chocolate production.



Chocolate is made of cocoa solids, cocoa butter, sugar, emulsifiers and milk powder.



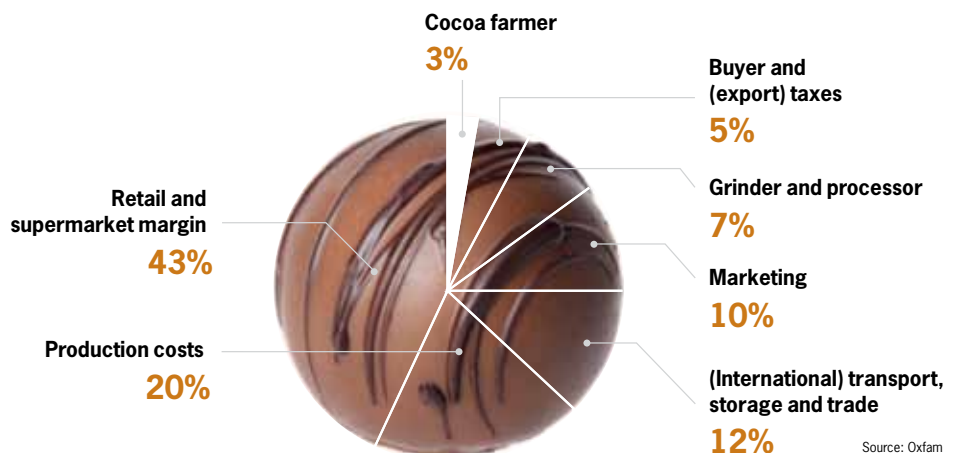
After a long process of blending, rolling, ripening and hardening, the result is chocolate, which is then packed and distributed.



The most chocolate is eaten in Europe. The Swiss are the biggest consumers, at 11.4 kg per person per year.

THE PRICE OF CHOCOLATE

Of the price paid for chocolate in the west, no more than 3 percent ends up with the cocoa farmers. Thirteen percent goes to the traders and processors of the cocoa beans and to pay local taxes. The rest of the price is made up of the costs of marketing, trading, production and retail margins.



Source: Oxfam

‘I have serious doubts about the usefulness of certification’

In return, the cocoa farmers are paid a few percent extra per kilo of cocoa beans on top of the fixed price set by the local government authorities. The cooperatives can decide for themselves how to spend that extra percentage. Ingram: ‘In some cooperatives, part of that money is spent on the joint purchase of fertilizer or

pesticides or on social facilities such as a local hospital, a school or a water pump. In other cooperatives the extra percentage is passed on directly to the cocoa farmers.’

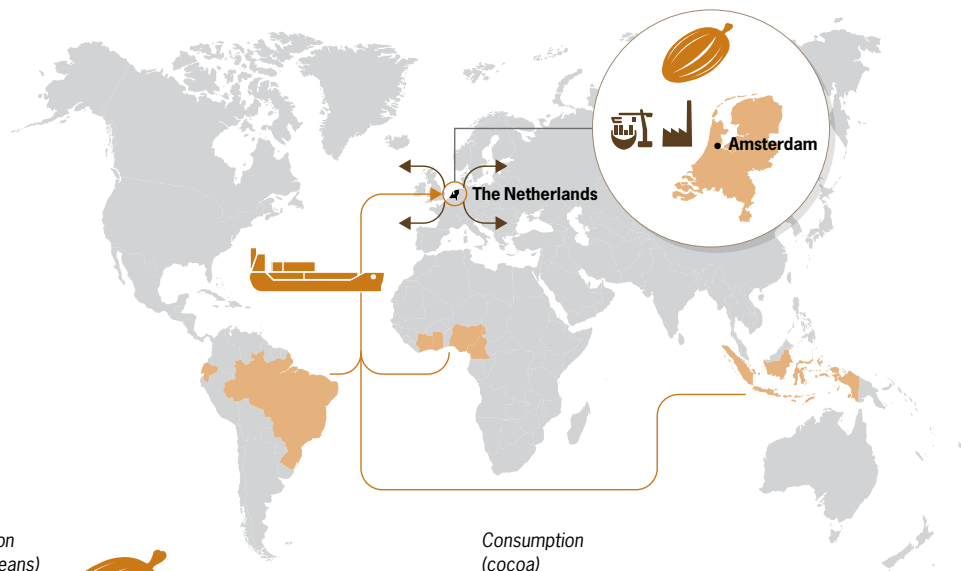
The additional percentage the farmers receive for certified production does not automatically lead to higher incomes as the farmers also have to invest more to meet the standards. They can no longer make use of the free labour of their own children for example, but have to pay adult workers instead, and they need to buy extra clothing for use when applying pesticides. ‘The great promise with certification is that farmers will see an increase in yields and income because they have more know-how and better resources. In theory, production could increase by a factor of two or three,’ says Ingram. That can be achieved not only by making optimum use of the existing know-how but also by developing new








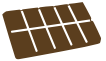
COCOA PRODUCTION AND CONSUMPTION WORLDWIDE

Most of the cocoa beans in the world are grown in West Africa. The region where the most chocolate is consumed is Europe.

Amsterdam harbour is one of the biggest transshipment hubs for cocoa. Most of the further processing into chocolate takes place in other countries.

Source: Cacao Barometer 2012



Continent	Production (cocoa beans)	Consumption (cocoa)
Africa	74%  3,232,000 tonnes	3%  128,000 tonnes
South America	13%  544,000 tonnes	9%  342,000 tonnes
Asia and Oceania	13%  537,000 tonnes	14%  503,000 tonnes
North America	-	25%  912,000 tonnes
Europe	-	49%  1,795,000 tonnes
Total worldwide	4,313,000 tonnes	3,680,000 tonnes

knowledge. However, the problem is that knowledge about cocoa is highly fragmented worldwide. What is more, there is little cohesiveness in the research, says Don Jansen of Plant Research International Wageningen UR. 'It would be good to have a research agenda, including a central coordination point, as that would help research institutes in both producer and consumer countries collaborate more.' That is why Jansen started a survey a few months ago along with Sietze Vellema of the Social Sciences group and Verina Ingram. They approached more than 60 parties involved in cocoa production – from researchers, policy makers and manufacturers to farmers' organizations – and asked them what research is needed, what should be given priority and who would be prepared to invest in a cocoa coordination point. This project kicked off on 23 May and will be presented to the international organizations and companies at the World Cocoa Conference in Amsterdam. 'We hope that we will soon be able to set up a sound research programme that gives even better support for the production of sustainable cocoa,' says Jansen.

INTERVIEWING COCOA FARMERS

Ingram's research group has been interviewing farmers in Ghana and Côte d'Ivoire over the past few years in an effort to monitor the impact of certification on cocoa farmers. The interviews in Ghana were commissioned by Solidaridad and UTZ and those in Côte d'Ivoire by the cocoa manufacturer Cargill Cacao, from the Zaan region, as well. What is the added value of this certification for the farmers when compared to the farmers who do not take part? And what is the programme achieving? Her research group interviewed 944 cocoa farmers in Côte d'Ivoire and 385 farmers in Ghana. They were asked about their production and income, the quality of the beans and the know-how and experience they had acquired.

In Ghana, farmers who took part in the training programme said they now knew more and were more likely to swap information with each other, but their yields and income were no higher, nor was their cocoa of a better quality, when compared to the farmers who did not take part in certification. Ingram: 'This was the first baseline measurement. The groups were incredibly diverse with huge differences in income and productivity, regardless of whether they were certified. That makes it difficult to find a significant difference. And perhaps it was still too early to see any effect from certification. Many of them had only just started.'

Her team will soon be going back to Ghana for a second monitoring session. 'I'm expecting us to find differences this time. The farmers will be two years further and some will have been certified for four years or so by then. On average, it does take a few years before you can

THE FLAVOUR OF COCOA BEANS

Each individual cocoa bean is different. Like coffee beans, cocoa beans can vary a great deal in terms of quality and flavour, depending on the variety, region they come from, season in which they were grown or the fermentation process. These quality variations are closely monitored in the cocoa factory. Taste panels make sure the right beans are mixed in every time to get constant quality and flavour of the cocoa mass and ultimately the chocolate. In the past these panels operated mainly on the basis of know-how and experience. But soon they will also have the aid of metabolomics, a technique for the analysis of the substances present in a plant. In a project commissioned by a major cocoa manufacturer, the research group led by newly appointed professor Robert Hall at Plant Research International Wageningen UR used a mass spectrometer to investigate exactly which aroma and taste substances can be found in cocoa beans. They detected hundreds of compounds and were able to relate them to differences in flavour. The research will soon be published in a scientific journal. 'Metabolomics will let manufacturers screen cocoa beans faster and more accurately,' says Hall. But the technology can also help plant breeding companies that want to develop a cocoa variety with a specific flavour.

measure an effect; that's what we have seen with other crops that have been certified.'

The results of the study in Côte d'Ivoire are fairly similar. The certified farmers saw rises in their yields but it is too early to tell whether this was due to the certification programme or to other factors such as the favourable weather conditions of the past few years; there were no significant differences between the certified farmers and those who were not certified. One striking finding is that the farmers who had been taking part in the programme for several years had higher incomes than those who had only just started with the programme.

Ingram is not the only researcher tracking certification in West Africa. Doctoral student Enrique Uribe Leitz of the Social Sciences group is also doing that. He is looking at the social and economic aspects of the certification of cocoa in West Africa. 'Certification requires a huge amount of training, investments by farmers and monitoring of course, often deep in the bush. The question is whether it is worth all that,' says his supervisor, Kees Burger, who carried out research himself as an economist ten years ago in Côte d'Ivoire. 'I have serious doubts about the usefulness of certification. There are an awful lot of cocoa farmers who don't take part in certification and are still doing well.'

'I think it's going to be a lengthy process,' concludes Ingram. So socially conscious consumers will have to remain patient for the next few years. Buying sustainable chocolate seems like a good choice but the jury is still out on the impact. ■

www.wageningenur.nl/en/cacao