

**Table 2.3** Objectives of the main cocoa certification schemes (Heise, 2010).

	<b>Rainforest Alliance</b>	<b>Fairtrade International</b>	<b>UTZ certified</b>
Goal of the initiative	To promote efficient agriculture, biodiversity conservation and sustainable community development by creating social and environmental standards. To foster best management practices across agricultural value chains by encouraging farmers to comply with standards and by motivating consumers to support sustainability.	To improve the position of the poor and disadvantaged producers in the developing world, by setting fair-trade standards and by creating a framework that enables trade to take place at conditions favourable to these producers.	To create an open and transparent marketplace for agricultural products. To achieve sustainable agricultural supply chains where farmers are professionals implementing good practices, which lead to better businesses, where the food industry takes responsibility by demanding and rewarding sustainably grown products, and where consumers buy products which meet their standard for social and environmental responsibility.
Inspection and Certification	Third party certification. Three-year farm certification audit cycle with annual surveillance audits. Certification of the whole farm. Farmers are charged annual certification fee based on the size of the farm.	Third party certification done by FLO-CERT. Control of the entire supply chain. Three-year certification cycle with annual surveillance audits in producer countries. Costs for producer organization: initial application fee and certification costs according to their size, kind of organization and inspection days needed.	Third party certification done by independent, approved certification companies. Annual certification inspections of producers against the code of conduct. Group certification. Annual chain of custody certification.

Even though the main focus of the different programmes vary, most of the schemes supported by the industry aim at developing a sustainable cocoa supply chain through a common approach structured around three pillars:

- 1 Increasing the productivity: by improving planting material (yield, disease resistance), teaching and implementing good agricultural practices (GAPs), improving the access to fertilisers and the use of irrigation where required.
- 2 Improving the living standards of cocoa producing communities: by focusing on education, women's empowerment, the elimination of child labour, access to clean water, hygiene and health services.

- 3 Optimising the supply chain: by making it more transparent and shorter, so that farmers receive a higher part of the cocoa price, and to ensure the required traceability of cocoa beans.

The quantity of cocoa produced under these schemes has seen enormous growth in recent years. In the season 2012/2013 an estimated 1 438 000t was produced (Fountain and Hütz-Adams 2015). From the statistics it appears that less than half of this cocoa is actually sold as certified cocoa. However, consumption is seeing similar growth, with several companies committing to using 100% sustainable cocoa by 2020 or thereabouts.

The World Cocoa Foundation (WCF), several chocolate manufacturers and the governments of Côte d'Ivoire and Ghana have started to join forces under a common initiative (CocoaAction) in order to build on the strengths and the experience developed through the various individual programmes. This will allow harmonising the companies and private-public partnerships and developing a coordinated strategy.

The challenge for the future is to measure and demonstrate the impact of these programmes for the communities in a harmonised and comprehensible way. Another challenge is also to achieve a sustainable development across the whole of the cocoa supply chain without encouraging over-production of cocoa, by managing production versus demand and thus the price of cocoa beans. This has traditionally been a role of the International Cocoa Organisation (ICCO).

## 2.6 Quality assessment of cocoa

### 2.6.1 Composition of cocoa beans

Cocoa beans are essentially comprised of the cotyledons which are protected by the shell. Broken fragments of cotyledon are called nib. The shell is usually considered to be a waste material and is either used as a fuel or composted and sold as garden mulch. However, it can be treated, ground to a powder and sold as cocoa fibre products. These materials can be used as a substitute for cocoa powder or incorporated into chocolate (depending on local regulations).

The nib is the most valuable part of the bean. Roasted ground nib (cocoa mass or cocoa liquor) is used directly in chocolate manufacturing. Alternatively it can be pressed to extract the fat, cocoa butter, an essential ingredient in chocolate (see Chapters 3 and 7). The residue from the pressing stage, the press cake, is then ground into cocoa powder which is used mainly in beverages, baking, ice cream and desserts. Table 2.4 shows the composition of cocoa beans, nib and shell.

### 2.6.2 Cocoa beans: quality aspects and contracts

Good quality beans are a prerequisite for the production of a good quality chocolate. The quality aspects of cocoa beans can be divided into three areas:

- 1 *Food Safety*. These are absolute standards. Some of these limits are covered by the national food legislation in the country where the factory is located or