

Lecture 2: What is Palm Oil?

Transcript

Slide 1: So, what exactly is it?

Slide 2: The African Oil Palm tree produces compact bunches of fruit weighing between 10-25 kg's each. 1000 to 3000 fruitlets per bunch. Each fruitlet consists of a hard kernel which is the seed, enclosed in a shell called the endocarp and surrounded by a fleshy mesocarp. Palm oil is the edible vegetable oil derived from the reddish flesh of the fruit. There are a few varieties but most of the oil comes from the tenera variety which is a hybrid.

Slide 3: Where in the world is Palm Oil from?

Slide 4: You guessed it! Oil palm trees originate from Africa. West Africa in particular.

Slide 5: During the sixteenth century it found its way with the slave trade to Brazil.

Slide 6: From Africa to Southeast Asia

Slide 7: The British brought it over to Malaysia in the early 1870's as an ornamental plant. In 1917 the first commercial plantation came into being and by the 1960's it really took off. The government encouraged the planting of oil palm to address poverty. By 2016 Indonesia and Malaysia had planted more than 15 million hectares of oil palm.

Slide 8:

4 million workers in Indonesia and Malaysia now produce over 85% of global palm oil. 42 other countries also produce palm oil. It grows best in high heat, high rainfall areas.

Slide 9: Here you can see some statistics on why Palm Oil is such a good crop.

Slide 10: 35% of all vegetable oil is grown on 10% of the land allocated to oil crops.

Slide 11: The oil palm is the most efficient oil-bearing crop in the world, requiring only 0.26 hectares of land to produce 1 tonne of oil while soybean, sunflower and rapeseed require much more land. The tenera variety yields about 4-5 tonnes of crude palm oil per hectare per year. As well as, 1 tonne of palm kernels. Trees begin to produce fruit 2-3 years after planting and will produce 12-14 bunches per year. They will continue to be highly productive for 20 to 30 years. The trees can grow up to 20 metres tall with leaves up to 5 metres long. They can live to over 100 years old but after 25 years the trees are cut down and replaced. This is due to them producing less fruit as they age. They also continue to grow in height making it difficult to harvest the fruit.

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Slide 12:

Palm oil plantations are intensively managed to generate the maximum yield. Bunches are harvested and collected in bulk quantity for transport to local mills. They are referred to at this stage, as Fresh Fruit Bunches (FFB) and sold by the tonne.

To preserve the freshness and quality of palm oil, the Fresh Fruit Bunches are sent to the mill for extraction within 24 hours of harvesting. The FFB are steamed under high pressure to sterilise, loosen, and soften the fruit before they are stripped from their stalks and mechanically pressed to extract the oil.

The palm kernels are separated at this stage and can be stored for up to 2 months before the oil is extracted.

Slide 13:

The extracted oil from the mill is a commodity called Crude Palm Oil (CPO).

Palm oil production is far more mechanized in Asia than in Africa. In a typical Malaysian Mill, 44 tons of fruit an hour is processed. That is 2.2 tons of crude palm oil and the mills run 24 hours a day.

The CPO is sent to a refinery where impurities, colours (by bleaching), and odours (by deodorising) are removed to produce Refined, Bleached and Deodorised (RBD) palm oil.

RBD oil can then be broken down or fractionated into solid (palm stearin) and liquid (palm olein) fractions oil to cater to a wide range of end users.

Slide 14:

The stability of the fat when used as deep-frying fat, is one of the most important benefits of Palm Oil.

It keeps fried products crispy and crunchy in texture and therefore its extensively used in the fast food and pre-cooked food industry.

Slide 15:

A combination of Palm Oil, Palm stearin and hydrogenated palm oil is used to produce shortening of excellent quality and diverse applications, such as making breads, cakes, pastries, cream and sweets.

Palm oil is semi-solid at room temperature and so it can keep spreads spreadable, and it is resistant to oxidation so it can give products a longer shelf-life.

Slide 16:

Palm Oil tastes similar to milk and keeps better.

It is also more economical than cocoa butter.

Slide 17:

Including Palm Oil in candle formulation helps prevent the candle from breaking so easily.

Palm Oil soaps hold perfume better as well.

Slide 18:

The market for palm oil has increase year on year since 2000.

In 2013 the world consumed 55 million tons of palm oil. 2019/2020 figures are up to 71 million tons already.

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Consumer demand through supermarket shopping and the need for biofuels is driving the market.

The future of the industry looks bright.

Slide 19: The problem is not palm oil itself ...

Slide 20: The problem is where and how it is produced!