

Production of coconut oil is on the rise in the lauric oil powerhouses of Southeast Asia, as its purported health benefits have attracted global interest. Charlotte Niemiec looks at the numerous uses of coconut and its oil and the worldwide market

Coconut oil has enjoyed a sudden surge in media interest of late, as news outlets tout its various health benefits. But are we to believe the hype? Despite its high level of saturated fat – around 90% – the popularity of the lauric oil is on the rise. Scientific evidence suggests coconut oil can offer a variety of health benefits, as it contains medium-chain triglycerides (MCTs), which may have therapeutic effects on brain disorders such as epilepsy and Alzheimer's.

The oil may also be effective at killing harmful pathogens in the body and help prevent infections; it may reduce appetite leading to weight loss; it could reduce seizures, improve blood cholesterol levels and lower the risk of heart disease; and it functions well in cosmetics, protecting hair against damage, moisturising skin and has shown a reasonable effectiveness as a natural sunscreen.

Health authorities have historically warned the public to avoid consuming large amounts of coconut oil due to its high level of saturated fat, but recent reports suggest saturated fat is not as bad for human health as we have believed. As previously reported in *Oils & Fats International* (see January 2014, *Comment*, p2), a two-year study by the independent Swedish Council on Health Technology Assessment found that a low-carbohydrate, high fat diet was the most effective weapon against obesity and diabetes. Since this study was reported, many others have come out of the woodwork, all suggesting that saturated fat is not the culprit for increased risk of cardiovascular disease, but *trans* fat, found in hydrogenated vegetable oil, is now the enemy to be avoided.

There appears to be little scientific evidence to suggest that consuming large amounts of coconut oil contributes negatively to health; the opposite would appear to be true. A 14 February 2011 *Huffington Post* article explains that scientists researching Pacific Island populations that received 30-60% of their calories from fully saturated coconut discovered these populations were exceptionally healthy.

The article notes: "Back in the 1930s, Dr Weston Price found South Pacific Islanders whose diets were high in coconut to be healthy and trim, despite high dietary fat, and heart disease was virtually non-existent. Similarly in 1981, researchers studying two Polynesian communities for whom coconut was the primary caloric energy source found them to have excellent cardiovascular health and fitness."

Furthermore, in the 1940s, the article says, farmers who tried to use inexpensive coconut oil to fatten their livestock were surprised to find it didn't work. Instead, coconut oil made the animals lean, active and hungry.

The theory that saturated fat contributes to heart disease does not, then, quite add up. The

Going nuts for coconuts



natural saturated fats found in coconut oil do not seem to be detrimental to health.

Another *Huffington Post* article, dated 22 April 2014, enlightens us further, explaining that the coconut oil most popularly enjoyed today is not the same coconut oil that was enjoyed in the 1980s. Back then, it was highly processed and full of *trans* fats.

The newspaper spoke to Tom Brenna, a professor of nutritional sciences at Cornell University's College of Human Ecology, who clarified: "The older refined/bleached/deodorised (RBD) coconut oil caused rapid and very unhealthy looking rises in cholesterol ... There is no evidence that this is the case for virgin coconut oil, which is available today but was not in the 1970s and 1980s, when people were using RBD coconut oil."

According to the United States Department of Agriculture (USDA), one tablespoon of coconut oil contains 117 calories, 13.6g of fat (11.8% saturated, 0.8% monounsaturated and 0.2% polyunsaturated), 0g of protein, 0g of fibre and 0g of sugar. It provides little to no minerals or vitamins.

Despite this quirky nutritional profile, coconut oil has never been more popular than it is today.

Industrial and other uses

But coconut oil's uses are not just limited to food. *The Indian Coconut Journal* explains in its August 2014 issue that coconut oil is widely applied in many industries. It helps keep tobacco moist and soft to prevent breaking and crumbling during processing, ensuring freshness in packaged cigarettes and other

tobacco products. It is used in the manufacture of alkyd resins, which are an important component of surface coatings. In the paper and printing industries, it is used as a plasticiser, humectant (a substance used to keep things moist), lubricant and used with other ingredients in producing grease-proof paper. Alkyd resins are also an important component of many printing inks.

It can be used as a general lubricant, due to its non-toxic character, in both food and in machinery where product purity is essential, and in plastics. In textiles, it is used as a conditioning agent to soften yarn and fabric. It lubricates many kinds of fibres in spinning, twist setting, knitting and weaving operations.

Coconut oil is a fundamental chemical component of polyethers for urethane foams; it is widely employed in manufacturing electrolytes for electrolytic condensers, which are used for radio and neon lights, and in processes for electro disposition and treatment of metals. Finally, it is used to make nitroglycerine, which is the usual explosive in dynamite.

Southeast Asia production

Following the increase in popularity, the production and price of coconut oil is also on the rise. A September 2014 *Oil World* report explains that shipments of lauric oils, which include palm kernel oil (PKO) and coconut oil, were expected to climb in the 2014/15 period, as the industry rebounds from a year-earlier slide.

Exports of both oils were estimated to climb from



5.1M tonnes in 2013/14 to 5.4M tonnes in 2014, with Philippine coconut oil production predicted to climb to 1.34M tonnes, after slumping to 1.22M tonnes in 2013/14.

Southeast Asia is a powerhouse for coconut production and the world's top three coconut producers are Indonesia, the Philippines and India (see Table 1, below).

Indonesian coconuts are scattered over 5,000km from west to east countrywide and are the source of

income for approximately seven million households. The three major producing islands are Sumatra, with 31.8% of total plantation area, followed by Java (22.7%) and Sulawesi (20.8%). Coconut plantation area in 2014 was estimated to be around 3.79M ha. Low productivity hampers production in this country, but there was nevertheless a slight increase in plantation area of 0.28%, or 11,000ha in the period 2012/14 under a new planting programme supported by the Ministry of Agriculture.

The area under coconut in the Philippines – one of the world's major producers – was 3.55M ha in 2013, accounting for 26% of total agricultural land. There are an estimated 338M bearing coconut trees in the country and production reaches 15,344bn nuts/year on average, with an average productivity of 43 nuts/year.

However, when Typhoon Haiyan ripped through the country in November 2013, it damaged 33M coconut trees in the Eastern Visayas region – the major coconut growing region. The deadliest Philippine typhoon on record, it killed at least 6,300 people in the country and, in the Visayas region, affected more than 11M people – many of whom were left homeless – according to UN official figures. The typhoon caused damage to residential, commercial and agricultural properties to the tune of up to US\$14.5bn. Therefore, these estimated production figures are likely to be much lower and the country will take some time to recover from its loss.

In Malaysia, coconut is grown in Johor, Sarawak, Sabah, Puncak and Schingor states. Even though the area under coconut decreased from 106,312ha in 2011 to 98,533ha in 2013, nut production increased from 468.8M nuts in 2011 to 539M nuts in 2013. This was attributed to an increase in planting area with high yielding varieties, as well as increased involvement of the private sector in both upstream and downstream activities and strong support from the government in terms of financial and technical advisory services to the coconut industry.

Nevertheless, the area under coconut in Malaysia is only 1.8%, or 98,533ha, against a total agricultural area of 5,274,757ha, and just 0.3% of people are involved in the coconut industry.

Thailand depends heavily on coconuts for subsistence. It is one of the most important cash crops for 332,033 small farmers. Out of the total area of the country (321M ha), the area under coconut is around 213,000ha. The southern region of Thailand is the major coconut producing area, covering 114,000ha, while the central region – which includes the peninsular area – occupies 96,000ha.

Each year, 60% of total coconut production is used for domestic consumption, 35% for coconut milk manufacturing and just five percent for oil ▶

TABLE 1: AREAS UNDER COCONUT IN ASIA PACIFIC ('000 HA)

Country	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Indonesia	3,706	3,679	3,684	3,691	3,701	3,883	3,797	3,804	3,789	3,788	3,799
The Philippines	3,116	3,116	3,119	3,120	3,182	3,217	3,259	3,243	3,311	3,355	3,380
India	1,861	1,755	1,768	1,840	1,892	1,919	1,934	1,935	1,947	1,937	1,903
Sri Lanka	442	442	442	442	442	422	395	395	395	395	395
Thailand	376	372	325	326	327	328	343	344	226	225	247
Papua New Guinea	260	260	260	260	260	260	260	260	260	260	221
Vietnam	187	173	173	165	165	165	133	132	133	133	141
Malaysia	230	226	226	226	159	131	143	121	115	120	115
Vanuatu	96	96	96	96	96	96	96	96	96	96	96
Samoa	92	92	96	96	96	93	96	93	93	93	93
Fiji	54	54	54	65	54	60	61	60	60	60	60
Solomon Islands	59	59	59	59	59	59	59	59	59	59	59
Kiribati	26	26	25	25	25	25	27	27	28	29	29
FS Micronesia	17	17	17	17	17	17	17	17	17	17	17
Marshall Islands	0	0	0	8	8	8	8	8	8	8	8
Palau	14	14	14	14	0	0	0	0	0	0	0
APCC Total	10,536	10,381	10,358	10,450	10,678	10,654	10,628	10,594	10,782	10,575	10,563

Source: Coconut Research Institute (CRI) www.cri.gov.lk

► extraction. The gross domestic production of Thailand is 8,084,067M baht, to which the coconut industry contributes 0.3% of total export earnings.

Production worldwide

Fiji's coconut production has been declining in terms of copra – the dried meat or kernel of the coconut – over the past 40 years. In the 1950s, over 40,000 tonnes/year was produced. Today, that figure has fallen to less than 20,000 tonnes/year. This is due to the age of trees, low prices for copra, high production and freight costs, and competition from more lucrative cash crops. Around 70% of Fiji's coconut palms are more than 100 years old, while a further six percent of trees are around 50 years old. The total value of coconut that indirectly benefits the subsistence sector is estimated to be around US\$20.2M/year.

Coconut covers an area of around 60,085ha of arable land. In 1991, the area under coconut was 49,512ha, with 4,350ha planted as scattered crops. It is estimated that around 65%, or 107M nuts, is available for copra processing, which yields approximately 18,000 tonnes of copra.

Coconut production in Kiribati, in the central tropical Pacific Ocean, contributed 46% in 2010, 76% in 2011 and 59.6% in 2013 to the export earnings of the country. The country is focusing on organic coconut production and has set a target to replant 422.5ha/year. To achieve this target, a major national replanting project was extended in 2014.

Located in the Central Pacific region with a total land area of 181.3km², the Marshall Islands



COCONUT TREES TAKE AN AVERAGE OF EIGHT YEARS TO MATURE BUT CAN PRODUCE NUTS FOR OVER 100 YEARS

dedicate a total area of around 8,000ha to coconuts, which produce over 35M nuts or around 7,000 tonnes/year of copra equivalents. It is estimated that over 30% of the total population of the country depends on the coconut industry. Total copra production for 2013 reached over 7,200 tonnes or an average of around 600 tonnes/month, which is higher compared to 2012 production figures of 4,800 tonnes. In 2011, production was slightly less than 4,800 tonnes. In the first quarter of 2014,

copra collected was around 1,300 tonnes.

It is estimated that copra meal export of over 2,000 tonnes and crude coconut oil of more than 3,200 tonnes/year earns the Marshall Islands' government approximately US\$3M/year.

In Tonga, an archipelago located in the southern Pacific, comprising 176 islands over 700,000km², around 51,093ha, or 74% of the land, is under coconut. The total nut production required to meet local consumption needs is 23.4M nuts, requiring one million plants. The total estimated nut production is 122.6M nuts/year, equivalent to 24,525 tonnes of copra.

Further west, the area under coconut cultivation in Sri Lanka is estimated at 417,000ha and coconut production in 2012 was recorded at 2,940M nuts. In 2013, due to the severe drought experienced in the latter part of 2012, coconut production was reduced to 2,550M nuts. The country aimed to achieve production of 3,300 nuts in 2014.

Over in the Caribbean, 14,700ha of Jamaica's land is under coconut cultivation – approximately six percent of the island's agricultural land. It is traditionally grown on a commercial basis in the eastern and northern coastal areas of the island, as well as in isolated pockets in the interior of the central region.

A total of 96.4M nuts/year, equivalent to 16,067 tonnes/year of copra, are produced and around 93.9M used for domestic consumption. Just two million nuts are converted to oil and 19 tonnes of seed nuts exported to the USA. Coconut palms of bearing age of seven years and over comprised 79% of the island's palm population.

Charlotte Niemiec is OFI's assistant editor



21 - 22 April 2015
Hyderabad International
Convention Centre (HICC)
Hyderabad, India

**THE PERFECT OPPORTUNITY
TO GIVE YOUR COMPANY THE
BUSINESS EDGE IN A HIGHLY
COMPETITIVE MARKET**

Align your company with one of the most highly regarded events on the industry calendar and put your brand in front of the most influential decision makers



WWW.OFIEVENTS.COM/INDIA
WWW.OILSANDFATSINTERNATIONAL.COM

ORGANISED BY:   