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OIL PALM: A PLANT THAT PROMISES PROGRESS FOR AMAZON

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The oil palm (Elaeis guineensis Jacq.) is a palm native to the West Coast of Africa, the Gulf of Guinea. Was brought to Brazil by black Africans, on the occasion of the slave trade to support the sugar cane crop in the 16th century. Adapted and bloomed spontaneously on the coast of Bahia and Rio de Janeiro, becoming known in Brazil as oil palm. Its importance is due to the oil extracted from its fruit, known as palm oil, which came to occupy a prominent place in the popular Brazilian cuisine, specifically at the cuisine of Bahia State (Müller et al., 2010).

This palm tree produces two types of oil: the pulp oil and palm kernel oil. The first, produced in greater quantity, is extracted from the mesocarp of the fruit, in a base of 4.5/6 tons per hectare. Palm kernel oil is extracted from the endosperm of the seed, and your productivity ten times lower with 450 kilos per hectare, both through physical process of pressing. Palm and palm kernel oils are participating with the offer of 35% of vegetable oil consumed in the world, edging out its largest competitor, the soybean oil (28%), offering in 2011 (FAO, 2010).

The cultivation of palm oil is one of the most promising investments within the agribusiness of perennials. It is found in over 50% of products sold in supermarkets around the world. Its cultivation is still booming and in the last four decades has increased by eight times its area planted, reaching 16 million hectares. The ten largest companies in the sector account for 22% of world production and together are worth $ 79.1 billion; produce 9.7 million tons/year from 2.3 million hectares of plantations. The culture involves the world over three million farmers. According to the USDA'S Foreign Agriculture Service, major producers of palm oil, in 2010, in millions of tons, and detaining 93% of world production were: Indonesia, 19.7; Malaysia, 17.4; Thailand, 1.4; Colombia, 0.83; Nigeria, 0.82.

In Brazil, domestic use of oil in cooking or in the fledgling industry of the middle of the last century was guaranteed by oil palm that grew so spontaneous or small plantations of the South of Bahia. The industrial cultivation of oil palm, with large and modern techniques, started, in Pará, today, the largest national producer, from 1968, through the support of the federal government within the National integration program, the tax incentives of SUDAM.

The Denpasa was the first company in the industry, with an initial planting of six thousand hectares. From the Decade of 1980 other companies entered this agribusiness and

remain successfully. Today, Agropalma is the company with the largest area planted, followed by a small group of other companies. More recently, large companies are settling in the region and have ambitious planting plans for the future. They have, in its entirety, about 140 thousand hectares planted in ten municipalities (Moju, Thailand, Acará, Tomé-Açu, Bonito, Igarapé-Açu, Santo Antônio do Tauá, Santa Izabel do Pará, São Domingos do Capim and Castanhal). Much of this area currently is under three years of age. The expectation of expansion is the order of 364 thousand hectares.

With this expansion, which is perfectly feasible, Brazil would third largest producer of palm oil in the world, surpassing Thailand. However, production not meeting national demand of palm oil and pulp oil would be away from the national needs of the addition of 20% biodiesel to fossil diesel, scheduled for 2020.

The national production of pulp oil is estimated at 240 thousand tons and palm kernel oil 20/23 thousand tons. In 2012, the national consumption of these oils was estimated at 520 thousand and 200 thousand tons for the Palm and palm kernel oils, respectively. The Brazil imports 180/177 and 290 thousand tons of pulp and palm oil, respectively, required to satisfy your demand. The pulp produced and imported oil is in 95%, intended for food use. To satisfy the total domestic demand (Palm oil and pulp oil) would require the planting of 445 thousand hectares, which should give a surplus of 1,700,000 tons of pulp oil that can be used for biodiesel production.

The cultivation of oil palm, on Amazon, took another perspective from the commitments entered into, by the Brazilian Government, with the reduction in the country, the emission of greenhouse gases, primarily carbon dioxide (CO2), as well as rising prices of a barrel of oil. Within this focus was created the national program for the production and use of Biodiesel-PNPB, through law No. 11,097 of 1/13/2005, which establishes the obligation of progressive addition percentage of biodiesel oil from petroleum diesel. Given the condition of the oil palm cultivation with higher productivity of vegetable oil known, it was included in the PNPB with the release in 2010, Tomé Açu, PA, by the President of the Republic, the plan of sustainable production of palm oil from Brazil. This program gives a wide range of advantages and incentives for entrepreneurs who want to invest in the region with this culture.

The State of Pará has been the great benefit from release of sustainable production of palm oil from Brazil, in view of the availability of suitable ecological conditions to develop a sustainable production system, the available infrastructure and deployment phase and, especially, the experience of the producers with more than four decades, with the Palm culture. The possibility of involving producers of family agriculture in this process is another added advantage, in that it contributes effectively to social inclusion.

According to the Agroecological Zoning for Oil Palm Cultivation developed by Embrapa (Ramalho Filho, 2010), the State of Pará has 13.12 million hectares (10.5% of the State area) able to oil palm plantation, within the management system B (application capital

average and modest use of inputs and technology). In this total are excluded indigenous areas, military areas, official reserve areas, and forested areas. This area is subdivided into three levels of fitness, that is, 2.32 million hectares in the Preferred level (high potential); 10.45 million hectares in the Regular level (average potential) and 0.35 million hectares in the Marginal level (low potential).

Since it is a crop with high level of technological innovations in all its productive and industrial process, requires a relatively high amount of contribution of financial resources and the demand for skilled labor in the conduct of its industrial process.

Despite the strong incentive from the Government for this Program, some bottlenecks need to be overcome. These obstacles are linked to logistics, agrarian and environmental licensing, training and technological innovation.

Oil palm cultivation over the past eight decades amassed a high set of technological innovations that have made it a leader among oilseeds in oil production. Such detailed production process requires specific technical knowledge so that the plants can develop its full potential. Are details related to the spatial arrangement of plants in the field, planting of cover plants, formulas of fertilization, pest and disease control, harvesting, transportation and industrial processing of fruits, among others. Thus, it is imperative that the availability of skilled technicians to provide technical assistance to producers, mainly to small family agriculture related. It is important to establish a permanent program to train people to meet this demand.

With regard to technological innovations, although Embrapa may contribute to support research with this culture, as already has been performing since its beginning, there is an ongoing demand for technologies for the different problems that affect producers. It is important to the specific resource allocation for the care of these researches.

At the time, one of the main obstacles that concern producers is the existence of the syndrome known as "Deadly Yellowing" (AF in Portuguese). This anomaly of unknown Etiologic Agent takes the plant attacked quickly to death. During the past 30 years, this evil has been responsible for the extinction of thousands of plants. The six thousand hectares of Palm trees pioneer species belonging to the Denpasa Company were completely decimated and, although all the studies conducted by leading experts, involving international teams, to date, it has not been possible to define precisely the people causing the problem on your own (Boari, 2008).

There is a species of Amazonian origin oil palm known as "caiauê" (*Elaeis oleifera*, HBK, cuts). Since 1948 have been made crosses between these two species and their hybrids analyzed. Hybrid plants present a favorable growth slower, better quality of the oil, and great tolerance to pests and diseases, including the AF. Embrapa held in 1982 a wide

exploration and collection of the main existing caiauê populations in the Amazon region and promoted the detailed study of this material and their interspecific hybrids (Andrade,1984). Hybrids from this material have been recommended for commercial plantations with high resistance to AF and very good oil productivity. The drawback is the low production of pollen of these hybrids, which induces the need for assisted pollination, but the cost is fully offset by economic advantages in productivity made by hybrids.

It is necessary to remain alert about the possibility of other diseases that affect the palm oil in other regions. Among these are Vascular or Lethal Drying Marchetez, caused by the fungus *Fusarium oxisporium*, already detected in some plantations in Pará; the Marchetez sorpressiva, caused by a Protozoan plagued (*Fitomonas* sp); the Lethal Marchetez, still no definite causal agent, possibly transmitted by an insect; the Basal Stem Rot (*Ganoderma* sp) and the known red ring (*Bursaphelenchus cocophilus* (Cobb) Baujard) transmitted by beetles and lepidopterous, between the main (Freire, 1988).

The production of seeds is another basic activity of research, considering the high productivity of hybrid materials, which have been genetically improved, the last in the last six decades, by European institutions (France and UK), Asia (Malaysia and Indonesia) or in Central America (Costa Rica, Ecuador and Colombia) and, therefore, the most expressive national plantations, is formed with oil palm seeds from abroad.

Embrapa has in his Experimental Station of Urubu River, in Amazonas State, an excellent set of germplasm of African origin oil palm (*Elaeis guineensis*), elite material developed by the French, and Amazon (*Elaeis oleifera*). However, despite the qualified team of researchers and technicians, the financial resources available for this activity have been far short of needs. Is of the utmost importance for adequate resource allocation for this base of Embrapa can expand the range of intra-and inter-specific hybrids.

With the combined initiative of federal government programs National Program Production and Use of Biodiesel and the Sustainable Production of Palm Oil from Brazil, it is expected that this culture has a faster tempo and the oil palm development process can become a plan that promises progress for Amazon.

The deepening of this subject can be found on the link in this site IPADES publications, www.ipades.com.br with the same title of this article.

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