

SILVOPASTORAL SYSTEM WITH MACAUBA PALM: ALTERNATIVE TO SUSTAINABLE LIVESTOCK PRODUCTION

SISTEMA SILVIPASTORIL COM MACAÚBA: ALTERNATIVA PARA UMA PECUÁRIA SUSTENTÁVEL

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The agriculture of the future should have less dependence on agrochemicals, inputs and water, make less use of machines and plowing the land and contribute to mitigation of greenhouse gases. This is the path of sustainability that guides the agenda of heads of state of the world's most important countries in meetings where goals of reducing CO₂ emissions are agreed upon. The Brazilian commitment assumed at COP21 is to reduce CO₂ emissions by 37% by 2035. Agriculture plays a fundamental role in this difficult mission. Greenhouse gas emissions from agriculture, forestry and fishing have almost doubled over the last 50 years and by 2050 this volume is expected to grow by 30% if the sector's expansion is not reduced, according to the FAO report published on 11/04 of 2014. Part of the solutions to greenhouse gas mitigation converge both to reduce emissions and to sequester excess CO₂. Thus, an important contribution to this sustainability is in the cultivation of forests, given that the annual amount of carbon captured by the trees is, on average, 1 ton for every 6 trees planted, according to calculation by the Brazilian Forest Institute. Considering the size of the area occupied and the socioeconomic importance of livestock farming in the country, the adoption of silvopastoral systems is in line with the sustainable agriculture we seek to develop. Thus, we present the macaúba palm, native species, pioneer and widely found throughout the south-central region of the country as an important option for consortium with pastures. Two types of oil can be extracted from macaúba: fine, extracted from the almond, with potential for noble use in the food, pharmaceutical and cosmetic industries; and pulp oil, with up to 80% oleic acid in its composition, which guarantees it special interest in food and biodiesel. The macaúba (*Acrocomia* spp.) can be included in the silvopastoral models with *Brachiaria decumbens*, in the densification of up to 357 plants/macaúba/ha (7x4m) without detriment to the nutritional quality and the photosynthetic and growth yields at similar levels to the monoculture brachiaria. In addition, it acts as an efficient atmospheric carbon sequestrator, offering ideal conditions for rest, leisure and animal rumination. The macaúba grassland consortium avoids erosion, improves soil chemical and CTC quality, increasing its organic fraction and microbial biomass. With this density per hectare, we estimate a production of 28 tons of fruits.ano-1, which can yield 2 to 3 tons of oil from the pulp and 0.8 tons of oil from the almond. The pie produced from the processing of pulp (7.5 tons) and almond (0.5 ton), as well as fruit peel (7.5 tons) can be used for animal feed. The pulp cake can contain up to 8.5% protein, 57% fiber and 8% lignin, almond up to 50% protein, 64% fiber and 22% lignin and the shell contains 3% protein, 45% fiber and up to 29% lignin, co-products for ruminant and non-ruminant feed. Therefore, the macaúba palm presents bioeconomic value capable of contributing to an agriculture of the future, reconciling innovation and environmental sustainability.

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