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Sorghum in Brazil: market perspectives for uses in food, feed, and biomass for soil conditioning and bioenergy

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Sorghum, in its various types (grain, forage, energy and broom), presents high potential for expansion for grain and forage production, biomass for bioenergy, edible starch and bioactive compounds in the grains, besides presenting resistance to environmental stresses when compared to other cereals. Grain sorghum is an alternative for the food and feed industry, forage sorghum is associated for regions with technological development of beef and dairy cattle, sweet sorghum has high potential for the production of 1G ethanol and the biomass presents expansion potential for cogeneration and 2G ethanol. In Brazil, the dynamics of this cereal is associated with the maize production evolution, but with the advantage of high productive potential as a second crop, does not compete with other food crops, has a lower cost of production and marketing value of about 80 -85 % of the price of maize. Sorghum adds value to the agro industrial business and is an alternative for the gluten free and functional food market niches, bioethanol niche, especially as an alternative to expand processing period of ethanol plants using sugarcane, energy cogeneration and as a soil conditioner in no-till planting systems. 1,865 thousand tons of grain sorghum was produced on 629,00 hectares in the 2016/17 season. The net revenue derived from the hybrid sorghum seed market in this season was US$ 50 million (grain and forage) and there was an expansion in this market around 151% for forage sorghum and 128% for energy sorghum seed. Our research is focused on opportunities for advances and uses of different types of sorghum with improvement in the genetics of cultivars, sustainable production systems, agro industrial arrangements, and seeking to leverage funding and research collaboration with public-private participation and the expansion of technology-based businesses.