XVII[th] World Congress of the International Commission of Agricultural and Biosystems Engineering (CIGR)

Hosted by the Canadian Society for Bioengineering (CSBE/SCGAB)
Québec City, Canada June 13-17, 2010

EVALUATION OF COFFEE DRYING COSTS: PRE-DRYING ON A CONCRETE TERRACE AND COMPLEMENTARY DRYING IN A CONCURRENT AND COUNTERCURRENT FLOW DRYER

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CSBE100966 – Presented at Section VI: Postharvest Technology, Food and Process Engineering Conference

ABSTRACT The study of drying costs is an important tool to be considered when deciding on an adequate drying system, which considers energy needed to heat the air, electrical energy needed to run the fans, energy to transport the product, labor costs, maintenance costs, depreciation, interest rates and breakdown costs. The objective of this study was to determine the total drying cost per sac of dry coffee beans, by means of the drying of processed coffee in the form of pulped cherries, with pre-drying on a cement terrace followed by complementary drying in a developed prototype dryer with concurrent and countercurrent flows. Two treatments were applied: a) Treatment 01: 12 hours of intermittent drying with intermittent rotation and 12 hours of rest, with drying air temperature of 45 °C and rotation of the grain mass at every 90 minutes of drying (for a period of 10 minutes each); b) Treatment 2: 12 hours of intermittent drying with continuous rotation and 12 hours of rest, with a drying air temperature of 70 °C. The utilized methodology was described by Young and Dickens. It was concluded that: 1. The fixed cost of the multiple flow dryer was the principal component in the total cost of drying, principally since it was treated as a prototype. 2. Increase in the drying capacity of the system with application of treatment 02 (with continuous rotation), in relation to treatment 01 (with intermittent rotation), drastically reduced total drying costs. 3. The results obtained for treatment 01 demonstrated that its not an economic feasibile application, due to the elevated drying costs encountered for the proposed system under the conditions in which this study was performed.

Keywords: Coffea arabica, post-harvesting, drying costs