

**International Energy Journal, Volume 3, Number 1, June 2002**[HOME](#) | [ABOUT](#) | [LOG IN](#) | [REGISTER](#) | [SEARCH](#) | [CURRENT](#) | [ARCHIVES](#)[Home](#) > [Volume 3, Number 1, June 2002](#) > [Thararux](#)

## Performance and Financial Analysis of a Rotary Drum Longan Dryer

*C. Thararux, T. Kiatsiroat*

### Abstract

A prototype longan dryer designed for a full capacity of 300 kg longan per batch consisted of a 5 to 25 kW LPG burner; a 0 to 9 m<sup>3</sup>/min-air blower and a 0 to 1 rpm adjustable speed driving system. The experiments were carried out with forced hot air circulation and conducted with different operating conditions to determine the drying performance. The effects of drying temperature (80°C to 90°C), airflow rate (2.00 to 5.62 m<sup>3</sup>/min) and drum rotational speed (0.50 to 1.00 rpm) on fresh longan drying were considered. Higher drying temperature, airflow rate and rotational speed resulted in higher drying performance. With 90°C drying temperature, 4.50 m<sup>3</sup>/min airflow rate and 0.75 rpm drum rotational speed, the final dried whole longan produce was about 95 kg with average efficiency of 68% and average drying rate of 5.64 kg water evaporated/h. The average specific energy consumption (SEC) was about 3.37 MJ/kg of water evaporated. The operating energy cost was 2.70 baht/kg dried produce (1 baht=US\$ 0.0227) compared with 4.87 baht/kg of the conventional fixed bed dryer. The quality of the dried whole longan was acceptable to the consumers.

Full Text: Subscribers Only