

KARAKTERISTIK PENGERINGAN GABAH PADA ALAT PENGERING VERTICAL DRYER

Farah Aisyah¹, Sukmawaty², Murad²

¹Mahasiswa Program Studi Teknik Pertanian, Fakultas Teknologi Pangan dan Agroindustri
Universitas Mataram

²Staf Pengajar Program Studi Teknik Pertanian, Fakultas Teknologi Pangan dan Agroindustri
Universitas Mataram

ABSTRAK

Tujuan dari penelitian ini adalah untuk mempelajari karakteristik pengeringan gabah menggunakan alat pengering vertikal kontinyu Rancangan alat pengering *vertical dryer* diujicobakan untuk operasi pengeringan gabah kering panen. Kondisi pengeringan gabah dengan kecepatan udara 7 m/s yang terjaga konstan dan suplai udara panas dari hasil pembakaran gas LPG. Penelitian ini menggunakan variabel massa gabah, dan suhu ruang pengering. Parameter kinerja *vertical dryer* adalah kadar air, laju pengeringan dan kadar air keseimbangan. Hasil pengeringan gabah diperoleh rerata kadar air awal gabah kering giling adalah 19-21%, sedangkan nilai kadar air keseimbangan sebesar 13,7-14,1 % (bb). Pada pengujian lapis tipis didapatkan bahwa kadar air gabah mengalami penurunan terhadap suhu ruang pengering, dimana dapat dilihat bahwa semakin tinggi suhu ruang pengering maka semakin cepat pula penurunan kadar air gabah. Laju pengeringan gabah pada pengering alat *vertical dryer* adalah laju pengeringan menurun, dimana laju pengeringan gabah paling besar pada massa 10 kg dan suhu 50°C dengan konstanta 0,09 per menit. Selanjutnya, nilai konstanta laju pengeringan paling kecil pada kondisi pengeringan massa gabah 20 kg dan suhu pengeringan 40°C sebesar 0,028 per menit.

Kata kunci: gabah, pengeringan lapis tipis, *vertical dryer*

GRAIN DRYING CHARACTERISTICS IN A VERTICAL DRYER

Farah Aisyah¹, Sukmawaty², Murad²

¹Student at Studies Program of Agricultural Engineering, Faculty of Food and Agroindustrial Technology, University of Mataram

²Lecturer at Studies Program of Agricultural Engineering, Faculty of Food and Agroindustrial Technology, University of Mataram

ABSTRACT

The purpose of this study was to study the grain drying characteristics using a continuous vertical dryer. The vertical dryer was tested for drying harvested grain drying operations. Grain drying conditions with a constant air speed of 7 m/s and supplied by hot air from the combustion of LPG gas. This study uses the variable grain mass and drying chamber temperature. Vertical dryer performance parameters were water content, drying rate and water balance. The results of grain drying obtained the average initial moisture content of milled unhusked rice was 19-21%, while the balance moisture value was 13.7-14.1% (bb). In thin layer testing, it was found that the grain water content experienced a decrease in the temperature of the drying chamber, which can be seen that the higher the temperature of the drying chamber the faster the grain water content decreased. Grain drying rate in a vertical dryer showed a decreasing trend, where the grain drying rate was greatest at a mass of 10 kg and a temperature of 50°C with a constant of 0.09 per minute. Furthermore, the constant value of the drying rate was the smallest under the grain mass drying conditions of 20 kg and a drying temperature of 40°C of 0.028 per minute.

Keywords: grain, thin layer drying, vertical dryer