



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
على هذه الأفلام قد أعدت دون أية تغيرات

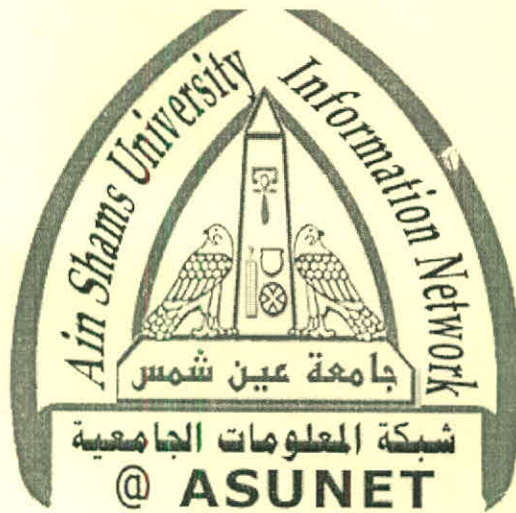


يجب أن

تحفظ هذه الأفلام بعيدا عن الغبار

في درجة حرارة من 15-25 مئوية ورطوبة نسبية من 20-40%

To be Kept away from Dust in Dry Cool place of
15-25- c and relative humidity 20-40%



شبكة المعلومات الجامعية التوثيق الالكتروني والميكرو فيلم

**A STUDY ON MACHINERY USED IN
FORMING OF GRAIN CHAFF BY PRESSING
AND BONDING**

BY

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of
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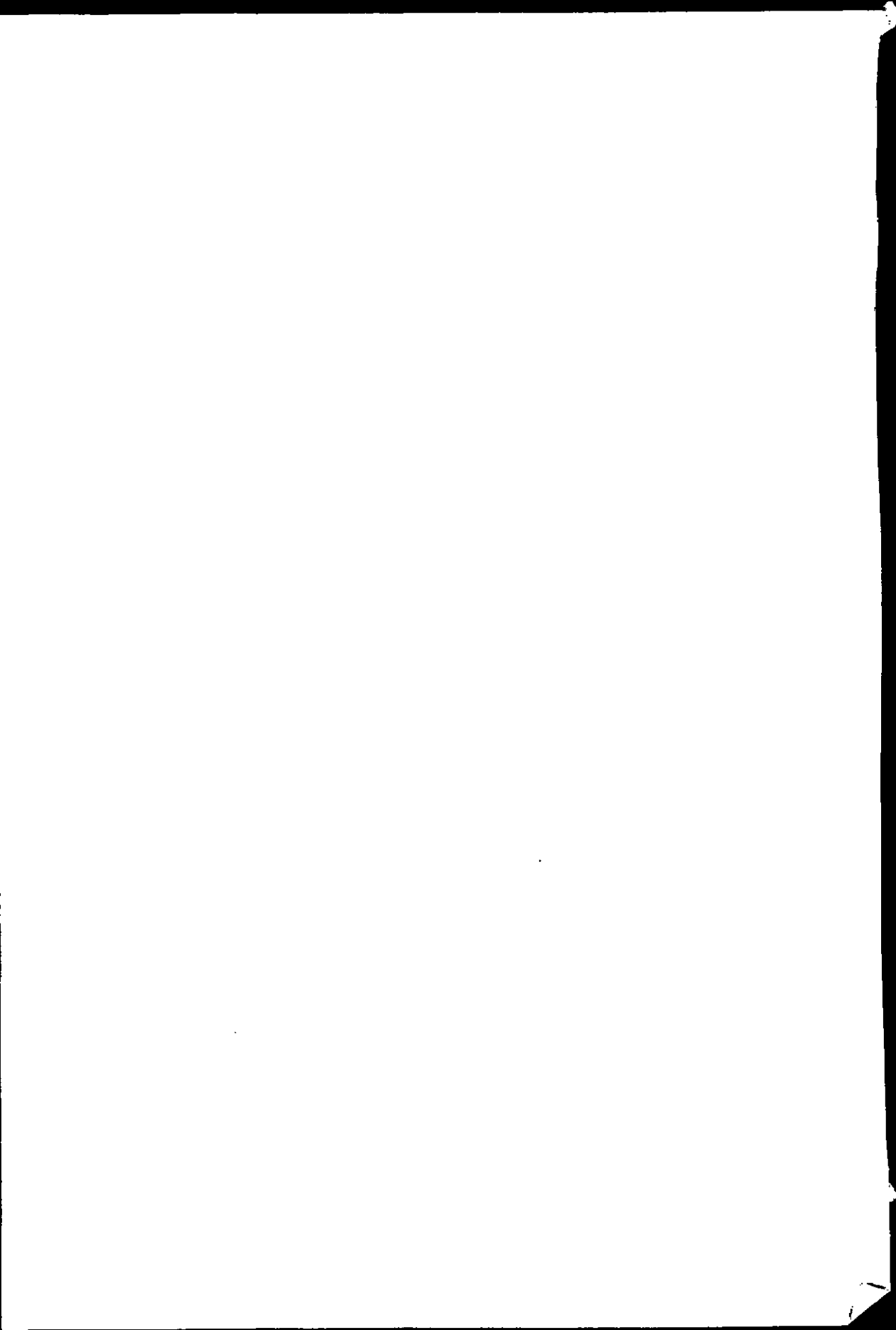
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ABSTRACT

Yousef Ahmad Watfa . A study on machinery used in forming of grain chaff by pressing and bonding. Unpublished Master of science, University of Ain Shams, Faculty of Agriculture, Department of Agricultural Mechanization, 1999.

This investigation was about mechanism used in forming of grain chaff by pressing and bonding into pellets.

A screw-manual pelletizer was used with wheat dust conditioned with water. Pelleting pressure determining device and four dies were constructed.

Pelleting with no heating made incoherent pellets.

Pellets durability was measured by determining the percent weight of the undamaged pellets after being dropped (10) times of 2m height on a hard surface. Bulk density of the air-dried pellets rated (391-460) kg/m³. Pelleting pressure was limited with maximum of 4.1 bar.

The addition of lignosulfonate, molasses, glue binders into dust-water mixture improved the pellets durability. Pellet lengths were (2 – 4) cm for fat added mixture ,and (5 – 11) cm for mixtures containing other binding agents.

Increasing pelleting temperature from 65 to 110°C increased the durability index by 11% and decreased the specific energy from 8.08 to 4.44 kW.h/ton.

Increasing die hole from 4 to 8 mm reduced specific energy by 42 %, pelleting pressure by 35% and bulk density by 15%.

Cost analysis of this prototype pelletizer operation showed 0.48 L.E. per kg dust pelleting cost.

Extension of the pelletizer through dimensional analysis showed 2.51% L.E. per kg dust pelletization cost by using 0.5 ton/h capacity pelletizer driven by 13 kW engine with steamed dust mixed with 5% vinas from "Sugar Cane Co.".

Key words

Wheat dust, binders, pelleting (pellets formation), screw pelletizer, multi-hole protrusion plate, pelleting pressure, dimensional analysis.

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-ARABIC SUMMARY	