

ABSTRACT

The present investigation was carried out at the Rice Technology Training Centre (RTTC), Field Crops Research Institute, Agricultural Research Center, Alexandria, Egypt, during 2004 and 2005 seasons to study the effect of some storage conditions on grain quality characters of three rice varieties namely Sakha 104, Egyptian Yasmine and Giza 177. Four experiments were conducted to accomplish the aim of the investigation. These experiments were:

Experiment I : The effect of initial moisture content (12, 14, 16, 18 and 20 %) on grain quality characters of rice.

Experiment II : The effect of storage period (3, 6, 9 and 12 months) on grain quality characters of rice

Experiment III: The effect of storage places (Warehouse, Open shed, and Silo) on grain quality characters of rice.

Experiment IV : The effect of storage packages (Jute sacks, Paper packs, and Plastic sacks) on grain quality characters of rice.

Finally it could be concluded that:

- 1- Level of 14 % moisture content was the best among all levels in order to obtain the high percentage of milling out- turn.

- 2- Level of 14 % moisture content proved to be the best moisture content for storing paddy grains for about one year in respect to grain appearance characters.
- 3- Cooking and eating quality characters declined dramatically by increasing grain moisture content and the best results could be achieved by storing paddy rice with 14% moisture content.
- 4- The best milling out-turn could be achieved by storing paddy rice till 6 months when the other storage conditions were well controlled.
- 5- No significant differences in most studied characters mean values were found up to 6 months storage period for grain appearance and cooking and eating quality characters. After that, storage period had a significant impact on virtually all measured character.
- 6- Warehouse proved to be the best storage places compared with the other two places. Sakha 104 was the less affected variety by different storage places, in regard to milling out-characters.
- 7- Storing paddy in warehouse caused the lowest degradation in grain appearance characters while the highest degradation was found in case of open-shed storing.

-III-

- 8- Ware-house storage place was the best among the other storage places since it caused the lowest degradation in cooking and eating quality characters.
- 9- Jute sacks proved to be the best type of storage bags. It was noted that this type caused the minimum decrease in all milling characters.
- 10- Grain appearance characters were deteriorated differently as affected by different storage bags and minimized in case of jute sacks while they maximized when stored in plastic sacks.
- 11- The variety Sakha 104 was the less affected variety by different storage bags and the lowest deterioration in the cooking and eating quality characters occurred when jute sacks were used.

CONTENTS

Page

INTRODUCTION	1
REVIEW OF LITERATURE	3
MATERIALS AND METHODS	39
RESULTS AND DISCUSSION	51
Experiment 1: The effect of grain moisture content on rice grain	
Quality characters.....	51
A-Milling characters.....	51
B- Grain appearance characters	55
C- Cooking and eating quality characters.....	59
Experiment II: The effect of storage period on rice grain	
quality characters	63
A-Milling characters.....	63
B- Grain appearance characters	67
C- Cooking and eating quality characters.....	71
Experiment III: The effect of storage places on rice grain	
quality characters	75
A- Milling characters.....	75
B- Grain appearance characters	78
C-Cooking and eating quality characters.....	83
Experiment IV: The effect of storage bags on rice grain	
quality character	88
A-Milling characters	88
B-Grain appearance characters	91
C- Cooking and eating quality characters.....	95
SUMMARY	100

ACKNOWLEDGMENT.....

REFERENCES..... 108

..... الملخص العربي