

EVALUATION OF WHEAT TEMPERING AND BLENDING METHODS
OF HARD RED WINTER WHEATS UNDER
EXPERIMENTAL CONDITIONS

by 4589

ELIESER SALMAN POSNER

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Approved by:


Major Professor

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TABLE OF CONTENTS

	Page
INTRODUCTION	1
LITERATURE REVIEW	7
MATERIALS AND METHODS	13
RESULTS AND DISCUSSION	29
Statistical analyses	43
Extensograph studies	45
Two way analysis of variance	47
Regression analysis	52
Protein loss in milling	53
SUMMARY AND CONCLUSIONS	57
SUGGESTIONS FOR FUTURE WORK	59
ACKNOWLEDGEMENTS	60
REFERENCES CITED	61
APPENDIX	64

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INTRODUCTION

Objectives of the Study

The objectives of this study are threefold; find linear relationships that will help in predicting characteristics of the wheat in the milling process and its flour qualities; to study the usage of the linear related variables in making up wheat blends; and to establish the optimal method of wheat blending during its preparation for milling.

Problem Statement

A wheat lot is a certain amount of wheat, of a certain variety, from one area, in which all the wheat characteristics are the same throughout the lot. Lots are wheat quantities still on the country elevator basis, usually brought as such into the terminal or mill elevator.

A wheat blend is composed according to certain ratios from different lots, to achieve certain desired stable properties of raw materials and end products in the milling process. This blending is usually done in the mill, but this service is also given by some terminal elevators for whom economical considerations are some times more important than the consideration of correct blending.

Scott (24) summarizes factors to be taken into account in making up a blend;

- (1) Quantities and kinds of wheat available.
- (2) Relative capabilities of the wheats to give flour suitable for requirements.
- (3) Relative wheat cost.
- (4) Possible need to limit percentage of one or more wheats because of some defect.

(5) Relative milling value.

(6) Special conditions to meet customers' requirements.

With a prepared blend the miller has the following objectives in the milling process;

- (1) To obtain a maximum of high quality flour by endosperm reduction, after the maximum of it was separated from the bran with a minimum production of bran powder.
- (2) To separate the maximum amount of whole germ from the wheat kernel.
- (3) Conduct the separation and reduction action with minimum alternation of material characteristics so expected results could be reached.

Blending depends on the multiple characteristics of the wheats, such as varieties, sources, and growing conditions. Although the miller and the wheat blender know a great deal about the wheat characteristics from the different tests results, and much more from their experience and familiarity with the milling operation, they are never sure of the performance of the total wheat composite or the blend in the mill. During the milling process the components of the blend might react differently than when milled separately on the experimental mill. The performance of a blend on a commercial mill might differ from its performance on a laboratory mill.

Besides being interested in the commercial factors in wheat blending, which are not the main concern of this paper, the processing-man is concerned mainly with qualities and deficiencies of the wheat. He is interested in knowing the optimal ratio of wheats in the blend so they will be compatible and give the end products the characteristics closest to those desired. In this study the relations between the wheat lots and wheat blends