UTILIZATION OF IMAGE PROCESSING
FOR QUALITY EVALUATION AND GRADING OF
BELL PEPPER (PAPRIKA)

By

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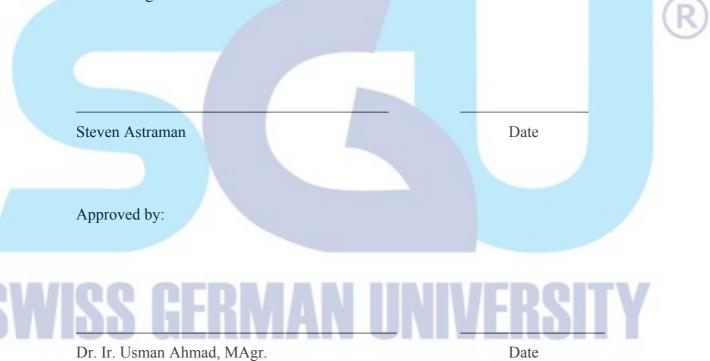WITH A MAJOR IN FOOD TECHNOLOGY

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STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, not material which to a substantial extent has been accepted for the award of may other degree or diploma at any educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

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Bell pepper's quality parameters from different grades are studied using image processing. The purpose of this research is to study and determine quality parameters of bell peppers using image processing then utilize image processing for evaluating quality and grading of bell peppers and finally validate the image processing for grading bell peppers based on the determined quality parameters.

There are several steps in this study: image acquisition, manual measurement which includes weight, dimensions, and firmness, image processing, analyses of data, determination of quality parameters for sorting and grading, and validation of programming rules in the image processing program for sorting and grading.

The statistical analyses show that for images captured from top angle, bell pepper's quality parameters that have correlations are area and weight, along with diameter by image processing and manual measurement while for images captured from side angle, quality parameters that have correlations are area and weight, diameter by image processing and manual measurement, as well as length by image processing and manual measurement.

Bell pepper's image processing quality parameters utilized for sorting and grading, for images captured from top angle, are area, diameter, and perimeter. While for images captured from side angle, quality parameters utilized are area, diameter, perimeter and length. However, although all quality parameters of image processing used show trends between

grades of bell peppers that are consistent to trends of manual measurements, results of bell pepper grading using the established threshold values of the quality parameters do not represent manual sorting and grading results.

DEDICATION

I dedicate this thesis to my family. Their understanding, support, encouragement, and love, made the completion of this work possible.

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Bumi Serpong Damai, 14 July 2008

Steven Astraman

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TABLE OF CONTENTS