635.652 G 51 1991

PERFORMANCE OF BUSH SMAP BEARS TO SAFFERENT LEVELS OF AVAILABLE MOISTURE

PRISCILA G. GLORIANI

Department of Engineering and Agro- Industrial Technology DON SEVERING AGRICULTURAL COLLEGE Indang, Cavite April 1993

TO DIFFERENT LEVELS OF AVAILABLE MOISTURE

An Undergraduate Thesis

presented to the Faculty of the

Don Severino Agricultural College

Indang, Cavite

In Partial Fulfillment
of the Requirements for the Degree of
Bachelor of Science in Agricultural Engineering
Major in Soil and Water Management



Performance of bush snap beans to different levels of available moisture 635.652 G51 1991 T-1193

PRISCILA G. GLORIANI

April 1991

Don Severino Agricultural College Indang, Cavite

Thesis of: PRISCILA GALLARDO GLORIANI

T i t l e : <u>PERFORMANCE OF BUSH SNAP BEANS</u>

TO DIFFERENT LEVELS OF

AVAILABLE MOISTURE

APPROVED:

English Critic

Note:

Original to be filed in the Library and one copy to be distributed to each of the following: Adviser, Technical Critic, Department Chairman, Director of Higher Education, Director of Research and Thesis Student.

ABSTRACT

GLORIANI, PRISCILA GALLARDO. Don Severino Agricultural College, Indang, Cavite, April, 1991. "PERFORMANCE OF BUSH SNAP BEANS TO DIFFERENT LEVELS OF AVAILABLE MOISTURE". Adviser: Engr. Cesar C. Carriaga.

A 100 square meter land at the New Acquired Land of the Don Severino Agricultural College, Indang, Cavite, was used in the experiment to know the performance of bush snap beans to different levels of available moisture.

The performance of bush snap beans to different of available moisture was measured in terms of plant height, yield and rooting depth. Results showed that bush snap beans having available moisture between 50 to 75 percent during the vegetative, flowering and maturity stages turned out the tallest and gave the highest yield compared to the other plants whose available moisture was between 25 to 50 percent and 75 to 100 percent during the vegetative, flowering, maturity stages. To maintain the 50 to 75 percent available moisture during the vegetative stage, the plants were irrigated five times with a total depth of 11.18 centimeters; the 50 to 75 percent during the flowering stage, six times irrigation was applied with a total 22.64 centimeters and the 50 to 75 percent during maturity stage, four times irrigation was made with a total depth of 20.05 centimeters.

In general, 50 to 75 percent available moisture was the optimum level of available moisture needed by bush snap beans during vegetative, flowering, and maturity stages for maximum crop yield.

TABLE OF CONTENTS

	PAGE
BIOGRAPHICAL SKETCH	iii
ACKNOWLEDGMENT	iv
ABSTRACT	vi
LIST OF TABLES	>
LIST OF FIGURES	×i
LIST OF APPENDIX TABLES	×ii
LIST OF APPENDIX FIGURES	xiii
INTRODUCTION	1
Importance of the Study	2
Objectives of the Study	
Time and Place of the Study	2
REVIEW OF LITERATURE	3
	4
MATERIALS AND METHODS	8
Materials	8
Methods	8
Field Preparation	8
Preparation of the Planting Materials	10
Planting	10
Treatments	10
Cultural Management	10
Soil Moisture Determination	11
Irrigation	1 1

Harvesting	14
Data Gathered	14
Experimental Design	15
RESULTS AND DISCUSSION	16
Climatological Data	16
Plant Height of Bush Snap Beans	16
Yield of Bush Snap Beans	21
Final Rooting Depth of Bush Snap Beans	24
Total Depth and Number of Irrigation Done	28
Phenology Clock of Bush Snap Beans	30
SUMMARY, CONCLUSION AND RECOMMENDATIONS	31
Summary and Conclusion	31
Recommendations	33
LITERATURE CITED	34
APPENDICES	35

LIST OF TABLES

TABLE		PAGE
1	Weekly Average Climatological Data, DSAC, 1991	17
2	Plant Height of Bush Snap Beans as Affected by the Different Amounts of Available Moisture at Different Growth Stages	19
3	Yield of Bush Snap Beans as Affected by the Different Amounts of Available Moisture at Different Growth Stages	22
4	Root Depth of Bush Snap Beans as Affected by the Different Amounts of Available Moisture at Different Growth Stages	26
5	Number of Irrigation and Total Depth of Water Applied to Different Treatments	29
6	Phenology Clock for Bush Snap Beans, DSAC, Indang, Cavite	30

LIST OF FIGURES

FIGURE		PAGE
1	Field Layout	9
2	Plant Height of Bush Snap Beans	20
3	Yield of Bush Snap Beans	23
4	Rooting Depth of Bush Snap Beans	27

LIST OF APPENDIX TABLES

APPENDIX	TABLE		PAGE
1a		Plant Height of Bush Snap Beans as Affected by Different Amounts of Available Moisture at Different Growth Stages	37
1b		Analysis of Variance of the Height of Bush Snap Beans as Affected by Different Amounts of Available Moisture at Different Growth Stages	38
2a		Yield of Bush Snap Beans as Affected by the Different Amounts of Available Moisture at Different Growth Stages	39
2b		Analysis of Variance of the Yield of Bush Snap Beans to Different Amounts of Available Moisture at Different Growth Stages	40
За		Rooting Depth of Bush Snap Beans as Affected by the Different Amounts of Available Moisture at Different Growth Stages	41
ЗЪ	:	Analysis of Variance of the Rooting Depth of Bush Snap Beans as Affected by Different Amounts of Available Moisture at Different Growth Stages	42

LIST OF APPENDIX FIGURES

APPENDIX	F I GURE	PAGE
1	Weekly Windspeed, Relative Humidity and Temperature in DSAC from December 1990-February 1991	44
2	General View of the Experimental Field	45

PERFORMANCE OF BUSH SNAP BEANS TO DIFFERENT LEVEL OF AVAILABLE MOISTURE 1/

PRISCILA G. GLORIANI

1/An Undergraduate Thesis presented to the faculty Don Severino Agricultural College, Indang, of Cavite partial fulfillment of the requirements for the degree Bachelor of Science in Agricultural Engineering (BSAE), and Water Management. major in Soil Contribution A.E. no.91046-019. Prepared in the Department of Engineering and Agro-Industrial Technology under the supervision of Cesar C. Carriaga.

INTRODUCTION

Snap beans, locally known as "Habitchuelas", is one of the most important leguminous plants. It grows well in a place with good drainage and soil Ph ranging from 5.5 to 6.5.

There are many factors which affect the plant growth and development. Some of these are the cultural management practices like application of fertilizer, pesticides, weeding and selection of good quality seeds.

The amount of water applied, soil, climatic limitations and the kind of technology used by the farmers determine the level of production of this kind of beans. Low production