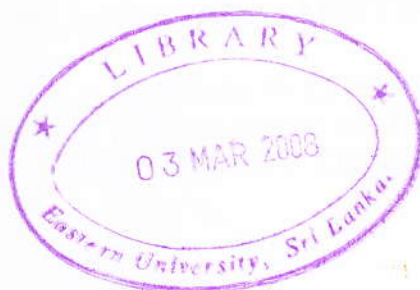


**STUDYING THE PERFORMANCE OF CHILLI
(*Capsicum annum* L.) CROP IN FARMERS' FIELDS AND
ANALYSING THE PRODUCTION AND MARKETING
POTENTIAL IN SECTOR-04 OF KALUTHAWALAI VILLAGE**



**RAJARETENAM SIVAPRIYA
EU/IS/2002/AG/40**



FAG248



Project Report
Library - EUSL

**FACULTY OF AGRICULTURE
EASTERN UNIVERSITY
SRI LANKA**

PROCESSED
PROJECT LIBRARY - EUSL
Multi Library - EUSL

Abstract

Chilli (*capsicum annum*) is considered to be a major commercial crop in Sri Lanka. Different varieties of chilli are grown to use as vegetables, spices, condiments, sauces and pickles. Both green and dried chillies are the important components of our routine diet.

This research has been conducted to study the morpho-agronomic characters, production potential and marketing potential of chill cultivation in sector-4 of Kaluthawalai, Manmuni South Erruvil Pattu in Batticaloa district. This experiment was conducted during the period 17th of March to September 20th, 2007.

The sector-4 Kaluthawalai area primarily grows a chilli population popularly called by the name PC, but it is not homogeneous in nature. Three farmers field were selected according to the plant growth stage. The plant population was in per flowering stage from each field 10 plants were randomly selected.

The qualitative and quantitative character of the selected plants was analyzed and questionnaire survey was performed to obtain additional details about farmer's experience and their cultivation information, production potential, and marketing potential.

The quantitative data on canopy height, primary branch number, leaf length and leaf width, fruit girth and fruit length, fruit weight, days to flowering, days to fruiting and total yield were measured in this experiment and correlation analysis was performed to determine the level of significance.

The correlation studies revealed that canopy height, primary branch number and fruit weight had significant positive correlation with total yield.

The above studies on character association suggested that characters such as canopy height, branch number and fruit weight should be considered to improve yield in chilli.

Canopy height at 50% flowering showed significant positive correlation with canopy height at 1st harvest, canopy height at 3rd harvest, fruit weight and total yield. It is found that early vigour appears to be an important attribute to the entire performance of a chilli crop.

Fruit yield showed significant positive correlation with canopy height at 50% flowering, canopy height at 1st harvest, canopy height at 3rd harvest, primary branch number and fruit weight: some other character were negatively correlated: they were leaf width, days to flowering and days to fruiting.

Qualitative characters such as stem colour, nodal anthocyanin, plant growth habit, branching habit, number of flowers per axil, flower position, corolla colour, etc. resembled with the characters of original PC variety. Certain percentage of deviation was observed in many of the other characters of the original PC cultivar. The above studies on characters showed that the locally grown chilli population in sector-4 Kaluthawala area was not homogeneous.

The farmers in Sector-4 Kaluthawalai in common did not follow the recommended cultivation practices. Spacing and fertilizer application differed from the recommendation. However through experience they adopt agronomic practices of their choice and high production. Yet the farmers face problem in marketing and transportation, because of the price fluctuation at harvesting period and the low price offered by the traders; Some times due to poor quality of fruit. It may be concluded the PC variety of chilli is the suitable crop in sector -4 of Kaluthawalai provide the construction marketing are overcome.

CONTENTS

	Page No
ABSTRACT	I
ACKNOWLEDGEMENT	III
CONTENTS	IV
LIST OF TABLE	XII
LIST OF FIGURES	XIII
LIST OF PLATES	XIV
ABBREVIATION	XV
CHAPTER 1	1
1.0 INTRODUCTION	1
1.1 Crop description of chilli	1
1.2 Origin and distribution	2
1.3 Chilli in Sri lanka	2
1.4 Nutrition important of chilli	3
1.5 Medicinal important	4
1.6 Objectives of the study	5
1.7 Suggestion for future study	6
CHAPTER 2	7
2.0 REVIEW OF LITERATURE	7
2.1 General history of capsicum	7
2.2 Centers of origin and distribution	7

2.3	Extent and production	8
2.4	Taxonomy description	10
2.5	Species description	10
2.5.1	<i>Capsicum Annuum</i>	10
2.5.2	<i>Capsicum Chinense</i>	11
2.5.3	<i>Capsicum Baccatum</i>	11
2.5.4	<i>Capsicum Frutescens</i>	12
2.5.5	<i>Capsicum Pubescens</i>	12
2.5.6	The Wild species	12
2.6	Recommended Varieties	12
2.6.1	MI - 1	12
2.6.2	MI - 2	12
2.6.3	KA - 2	13
2.6.4	Arunalu (BL - 39)	13
2.6.5	MI-HOT	13
2.7	Botany of the crop	14
2.7.1	Plant	14
2.7.2	Leaves	14
2.7.3	Flowers	14
2.7.4	Fruits	14
2.7.5	Seeds.	15
2.8	Pollination	15
2.9	Crossability and hybridisation	15
2.10	Asexual reproduction	16

2.11 Breeding	16
2.12 Recommended cultural practices in Srilanka	17
2.12.1 Nursery Management	17
2.12.2 Land Preparation	18
2.12.3 Time of Planting	18
2.12.4 Planting	18
2.12.5 Irrigation	19
2.12.6 Weed Management	19
2.13 Uses	19
2.14 Pungency	21
2.15 Pigments	21
2.16 Crop ecology	22
2.17 Pest in chilli	23
2.17.1 Thrips	23
2.17.2 Cutworms	24
2.17.3 Leafminers	24
2.17.4 Aphids	24
2.18 Common chilli Diseases	24
2.18.1 Bacterial diseases	24
2.18.2 Fungal and related diseases	25
2.18.3 Viral diseases	26
2.18.4 Nematode diseases	25
2.18.5 Postharvest diseases	25
2.18.6 Abiotic Disorders	26

2.19 Chilli improvement programme in Srilanka	26
2.19.1 Hybrid of chilli	28
2.19.2 Resistant of chilli	28
2.19.3 Nitrogen fertilizer response study in chilli	29
2.19.4 Variety screening of chilli against Anthracnose	29
2.19.5 Control of chilli leaf curl complex	30
2.19.6 Plant density and nitrogen fertilizer level	30
2.20 AVRDC research progress	30
2.20.1 Seed production, observations for germplasm evaluation	30
2.20.2 Develop genetic resistant to disease, insect pests and abiotic stresses	31
CHAPTER 3	32
3.0 MATERIAL AND METHODS	32
3.1 Area and duration of the experiment	32
3.2 Location of experimental area	33
3.3 Variety of chilli used	34
3.4 Experimental design	34
3.4.1 Experimental field lay out	34
3.5 Characterizing and evaluating important traits of chilli	36
3.5.1 Quantitative Character	36
3.5.1.1 Plant height	36
3.5.1.2 Branch number	36
3.5.1.3 Leaf length	36
3.5.1.4 Leaf width	36

3.5.1.5 Fruit length	37
3.5.1.6 Fruit girth	37
3.5.1.7 Fruit weight	37
3.5.1.8 Days to flowering	37
3.5.1.9 Days to fruiting	37
3.5.1.10 Yield estimation	37
3.5.2 Qualitative Character	37
3.5.2.1 Stem colour	37
3.5.2.2 Nodal anthocyanin (Whole plant)	37
3.5.2.3 Plant growth habit	38
3.5.2.4 Branching habit	38
3.5.2.5 Leaf colour	38
3.5.2.6 Leaf shape	38
3.5.2.7 Number of flowers per axil	38
3.5.2.8 Flower position	38
3.5.2.9 Corolla colour	38
3.5.2.10 Anther colour	38
3.5.2.11 Calyx margin	38
3.5.2.12 Calyx annular constriction	38
3.5.2.13 Fruit colour at intermediate stage	39
3.5.2.14 Fruit set	39
3.5.2.15 Fruit colour at mature stage	39
3.5.2.16 Fruit shape	39
3.5.2.17 Fruit shape at pedicel attachment	39

3.5.2.18 Fruit shape at blossom end	39
3.5.2.19 Fruit surface	39
3.5.2.20 Seed colour	39
3.6 Questionnaire survey	39
3.7 Statistical analysis	40
CHAPTER 4	41
4.0 RESULTS AND DISCUSSION	41
4.1 Analyzing of measurable characters	43
4.1.1 Canopy Height at 50% Flowering	43
4.1.2 Canopy Height at 1 st harvesting	44
4.1.3 Canopy height at 3 rd harvesting	44
4.1.4 Mean canopy height after transplanting	45
4.1.5 Primary branch number at sixth harvest	46
4.1.6 Leaf length and leaf width	47
4.1.7 Fruit length and Fruit Girth	48
4.1.8 Fruit weight	49
4.1.9 Days to flowering and Days to fruiting	50
4.1.10 Total yield	51
4.2 Analyzing of qualitative character	53
4.2.1 Stem Colour	53
4.2.2 Nodal anthocyanin	54
4.2.3 Plant growth habit	54
4.2.4 Branch habit	54
4.2.5 Leaf colour	55

4.2.6 Leaf shape	55
4.2.7 Number of flower per axil	56
4.2.8 Flower position	56
4.2.9 Corolla colour	56
4.2.10 Anther colour	56
4.2.11 Calyx margin	57
4.2.12 Calyx annular constriction	57
4.2.13 Fruit colour at intermediate stage	57
4.2.14 Fruit set	58
4.2.15 Fruit colour at mature stage	59
4.2.16 Fruit shape	59
4.2.17 Fruit shape at pedicel attachment	59
4.2.18 Fruit shape at blossom end	60
4.2.19 Fruit surface	60
4.2.20 Seed colour	60
4.3 Questionnaire survey and analysis	61
4.3.1 Farmers experience and their cultivation	61
4.3.2 Production potential	64
4.3.3 Marketing Potential	65
CHAPTER 5	67
5.0 CONCLUSION	67
LITRATURE CITED	69
APPENDIX	74