

LIST OF CONTENTS

Chapter	Title	Page
	Acknowledgements.....	v
	Contents	vii
	List of Tables	x
	List of Figures.....	xvi
	Appendix.....	xvii
	List of Abbreviations.....	xviii
	Abstract.....	xix
Chapter 1	INTRODUCTION	1
Chapter 2	REVIEW OF LITERATURE.....	5
	2.1. Maize.....	5
	2.1.1. History and Importance	5
	2.1.2. Morphology.....	5
	2.1.3. Cultivation and Economic Value.....	6
	2.1.4. Constraints in Maize production.....	7
	2.2. Drought Stress.....	7
	2.1.1. Effects of Drought Stress on Crop Plants.....	8
	2.3. Effect of Drought on Various growth stages of maize plant.....	13
	2.4. Maize Production in Drought Stress Environment.....	15
	2.4.1. Improvement of Drought Tolerance in Maize.....	16
	2.5. Potassium for Drought Tolerance.....	18
	2.5.1. Role of Potassium in Plant Growth and Development.....	19
	2.5.2. Role of Potassium in Plant Physiology.....	19
	2.5.3. Role of Potassium in Mitigation of Stresses.....	21
	2.5.4. Role of Potassium on Yield Enhancement.....	22
Chapter 3	MATERIALS AND METHODS.....	24
	3.1. Site geography	24
	3.2. Meteorological Data	24
	3.3. Seeds Collection	24
	3.4. Soil Physical and Chemical Analysis	27
	3.5. Experiment 1: Screening of Maize Hybrids against Drought Stress.....	27
	3.5.1. Soil Analysis.....	28
	3.5.2. Experimental Detail.....	28
	3.5.3. Parameters Recorded	30
	3.5.3.1. Morphological Parameters.....	30
	3.5.3.2. Physiological Parameters.....	31
	3.6. Experiment 2: Optimization of Potassium Levels for Maize Hybrids Grown under Drought Conditions.....	32
	3.6.1. Soil Analysis.....	32
	3.6.2. Experimental Detail.....	32
	3.6.3. Parameters Recorded.....	33
	3.6.3.1. Morphological Parameters.....	33
	3.6.3.2. Physiological Parameters.....	33

Chapter	Title	Page
	3.6.3.3. Biochemical Analysis.....	34
	3.7. Experiment 3: Morphological and Physiological Response of Maize Hybrids under Drought Imposed from Various Growth Stages to Potassium Application.....	34
	3.7.1. Experimental Detail.....	34
	3.7.2. Observations Recorded.....	35
	3.7.2.1. Morphological Parameters.....	35
	3.7.2.2. Physiological Parameters.....	35
	3.7.2.3. Agronomic Parameter.....	35
	3.7.2.4. Biochemical Parameters.....	35
	3.8. Experiment 4: Response of Maize Hybrids under Drought Imposed from Various Growth Stages to Potassium Application Grown in Spring Season.....	37
	3.8.1. Soil Analysis	37
	3.8.2. Experimental Detail.....	37
	3.8.3. Parameters Recorded.....	38
	3.8.3.1. Morphological Parameters.....	38
	3.8.3.2. Physiological Parameters.....	39
	3.8.3.3. Agronomic Parameter.....	40
	3.8.3.4. Biochemical Analysis.....	41
	3.9. Experiment 5: Response of Maize Hybrids under Drought Imposed from Various Growth Stages to Potassium Application Grown in Autumn Season.....	41
	3.9.1. Soil Analysis.....	41
	3.9.2. Experimental Detail.....	41
	3.9.3. Parameters Recorded.....	42
	3.10. Statistical Analysis.....	42
Chapter 4	RESULTS AND DISCUSSION.....	43
	Experiment 1: Screening of Maize Hybrids against Drought Stress...42	42
	4.1. Results and Discussion	43
	Experiment 2: Optimization of Potassium Levels for Maize Hybrids Grown under Drought Conditions.....	64
	4.2. Results and Discussion	64
	Experiment 3: Morphological and Physiological Response of Maize Hybrids under Drought Imposed from Various Growth Stages to Potassium Application.....	83
	4.3. Results and Discussion.....	83
	Experiment 4: Response of Maize Hybrids under Drought Imposed from Various Growth Stages to Potassium Application Grown in Spring Season.....	112
	4.4. Results and Discussion	112
	Experiment 5: Response of Maize under Drought Imposed from	

Chapter	Title	Page
	Various Growth Stages to Potassium Application Grown in Autumn Season	143
	4.5. Results and Discussion	143
Chapter 5	SUMMARY	174
	LITERATURE CITED.....	180
	APPENDIX.....	211
