

CONTENTS

I-INTRODUCTION.....	1
II- REVIEW OF LITERATURE	2
1-The effect of preceding crops on soil properties	2
2-Effect of preceding crops on sugar beet.	10
3-Effect of nitrogen fertilizers on sugar beet.....	15
4-Effect of the interaction between preceding crops and nitrogen fertilization on sugar beet.	32
III- MATERIALS AND METHODS.	36
IV-RESULTS AND DISSCUSSION	42
1. Soil properties	42
1.1.Effect of preceding summer crops on some physical and chemical properties of the soil.	42
1.1.1.Porosity	42
1.1.2.Total nitrogen	44
1.1.3.Total phosphorus	45
1.1.4.Total potassium	46
1.1.5.Total organic matter.....	47
1.1.6.pH value	47
1.2.Effect of preceding summer crops on biological properties of the soil.....	48
2.Growth parameters of sugar beet	50
2.1.Effect of preceding summer crops on some growth parameters of sugar beet at different growth stages.	50
2.1.1.Leaf area per plant (LA)	50
2.1.2.Leaf area index (LAI)	52
2.1.3.Total dry weight of plant (gm).	52
2.1.4.Crop growth rate (CGR).....	54
2.1.5.Net assimilation rate (NAR)	54
2.1.6.Relative growth Rate (RGR).....	56
2.2.Effect of nitrogen levels on some growth parameters of sugar beet at differences growth stages.	57
2.2.1.Leaf area per plant (AL).	57
2.2.2.Leaf area index (LAI)	57
2.2.3.Total dry weight (gm).....	59
2.2.4.Crop growth rate (CGR).....	59
2.2.5.Net assimilation rate (NAR)	61
2.2.6.Relative growth rate (RGR).....	61
2.3.Effect of the interaction between preceding summers crops and nitrogen levels on growth parameters	63
3.Root characters of sugar beet plants	64

3.1.Effect of preceding summer crops on root characters of sugar beet.....	64
3.1.1.Root length	64
3.1.2.Root diameter	66
3.1.3.Root weight	66
3.2.Effect of nitrogen levels on root characters of sugar beet.	67
3.2.1.Root length	67
3.2.2.Root diameter	69
3.2.3.Root weight	69
3.3. Effect of the interaction between preceding summer crops and nitrogen levels on root characters of sugar beet.	70
4.Yield.....	71
4.1.Effect of preceding summer crops on:	71
4.1.1.Top yield (tons/fad)	71
4.1.2.Root yield (tons/fad)	73
4.1.3.Biological yield (Tons/fad).....	74
4.1.4.Sugar yield (tons/fad).....	75
4.2.Effect of nitrogen levels on :	76
4.2.1.Top yield (tons/fad)	76
4.2.2.Root yield (tons/fad)	78
4.2.3.Biological yield (Tons/fad).....	79
4.2.4.Sugar yield (tons/fad).....	79
4.3.Effect of the interaction between preceding summer crops and nitrogen levels on :	80
4.3.1.Root yield (tons/fad)	81
4.3.2.Biological yield (Tons/fad).....	83
4.3.3.Sugar yield (tons/fad).....	83
5.Technological characters	86
5.1.Effect of preceding summer crops on some technological characters.....	86
5.1.1.Total soluble solids percentage (T.S.S.%)	86
5.1.2.Sucrose percentage	88
5.1.3.Purity percentage	89
5.2.Effect of nitrogen levels on some technological characters..	90
5.2.1Total soluble solids percentage (T.S.S.%)	90
5.2.2.Sucrose percentage	92
5.2.3.Purity percentage	93
5.3.Effect of the interaction between summer preceding crops and nitrogen levels on technological characters	94
V. SUMMARY.....	95
VI. LITERATURE CITED.....	101
VII. ARABIC SUMMARY	