

Contents

	page
1. Introduction	1
2. Review of literature	3
2.1. Soil properties	3
2.1.1. Soil bulk density	3
2.1.2. Soil porosity and pore size distribution	8
2.1.3. Soil aggregation and aggregate stability	12
2.1.4. Soil moisture retention and availability	17
2.1.5. Soil hydraulic conductivity	20
2.1.6. Soil mechanical properties	22
2.1.7. Soil erodibility	24
2.2. Crop production	25
3. Materials and methods	31
3.1. Experimental site	31
3.2. Method of waste composting	31
3.3. Field experiment	34
3.4. Field measurements	37
3.5. Methods of soil laboratory analysis.....	38
4. Results and discussion	41
4.1. Soil structural	41
4.1.1. Soil bulk density	41
4.1.2. Soil porosity and pore size distribution	51

a. Soil porosity	51
b. Soil pore size distribution	54
4.1.3. Soil aggregation and aggregate stability	59
4.1.4. Soil moisture retention and availability	70
4.1.5. Hydraulic conductivity	73
4.1.6. Soil mechanical properties	77
a. Soil penetration resistance	77
b. Soil shear strength	90
4.1.7. Soil erodibility	97
4.2. Crop production	97
4.2.1. Seed weights	111
4.2.2. Oil content	114
4.2.3. Shoot weights	115
4.2.4. Root weights	117
5. Summary and conclusion	123
6. References	110
7. Arabic summary	