



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات
لم ترد بالأصل

**FRUIT SET AND YIELD OF
WASHINGTON NAVEL ORANGE TREES IN RESPONCS TO
SOME TRETMENTS IN NEWLY RECLAIMED SOILS OF
ISMAILIA GOVERNORATE**



BY

MOHAMED AHMED FOUAD EL-SAYED SLIM

B. Sc. (Hort.) , Zagazig Univ.,1984

Thesis

Submitted in partial fulfillment of
the requirements for the degree of

Master of Science

In

Horticulture (Pomology)

Department of Horticulture,
Faculty of Agriculture Moshtohor
Zagazig University(Benha Branch)

(2002)

B
9909

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

**FRUIT SET AND YIELD OF
WASHINGTON NAVEL ORANGE TREES IN RESPONSE TO
SOME TRETMENTS IN NEWLY RECLAIMED SOILS OF
ISMAILIA GOVERNORATE**

**BY
MOHAMED AHMED FOUAD EL-SAYED SLIM
B. Sc. (Hort.) , Zagazig Univ.,1984**

Under the Supervision of

Prof.Dr.:Issam Azouz Hassaballa

**Professor of Fruit Science, Faculty of
Agriculture, Moshtohor, Zagazig University**

Prof.Dr.:Mohamed G.Mogheith

**Professor of Fruit Science, Faculty of
Agriculture, Moshtohor, Zagazig University**

Prof.Dr.:Fayez G.Nakhlla

**Research Chairman, Hoicual Research
Institute, (A.R.C) El-Gizah**

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100

APPROVAL SHEET

**FRUIT SET AND YIELD OF
WASHINGTON NAVEL ORANGE TREES IN RESPONSE TO
SOME TRETMENTS IN NEWLY RECLAIMED SOILS OF ISMAILIA
GOVERNORATE**

**BY
MOHAMED AHMED FOUAD EL-SAYED SLIM
B. Sc. (Hort.) , Zagazig Univ.,1984**

This Thesis for M.Sc. degree has been
Approved by:-

Prof. Dr.: Mohamed H. Saad-Alla
Vice-chairman of Hort. Res. Inst. & Head of
Citrus Research Department .
Horticultural Research Institute, Giza.

M. H. Saad-Alla

Prof. Dr.: Essam Azouz Hassaballa
Professor of Fruit Science, Faculty of
Agriculture, Moshtohor, Zagazig University.

E. A. Hassaballa

Prof. Dr.: Mohamed G. Mogheith
Professor of Fruit Science, Faculty of
Agriculture, Moshtohor, Zagazig University.

M. G. Mogheith

Prof. Dr.: Nabawy A.A. Hagagy
Prof. of Pomolgy Faculty of Agriculture,
Moshtohor, Zagazig University.

N. A. A. Hagagy

Date of examination: 5/1/2002

1911

1911

ACKNOWLEDGMENT

The author would like to express his appreciation and deep sense of gratitude to **Dr. Issam A. Hassaballa** and **Dr. Mohamed G. Mogheith** professors of fruit science Faculty of Agriculture, Moshtohor, Zagazig University, for their supervision, valuable guidance, concrete suggestions, encouragement and indulgence in the intellectual discussions.

Sincerely acknowledge and deeply grateful to **Prof. Dr. Fayez G. Nakhlla** Research Chairman, Horticultural Research Institute, (A. R. C), El-Gizah for his supervision, kind help, encouragement, constant guidance and suggestions throughout the whole period of investigation.

I am also indebted to **Prof. Dr. Mohamed H. Saad-Alla**, Head of Citrus Department Horticultural Research Institute, El-Gizah for his unlimited help during the experimental work.

Thanks are also offered to Head and staff members of the El - Kassasine Horticulture Research Station for their encouragement and useful help during the course of this study.

I am thankful to my **Parents, Wife, Sons** and all my family members for their encouragement and enthusiastic help.

CONTENT

	page
List of Tables	I
List of Figures	VII
1- INTRODUCTION.....	1
2- REVIEW OF LITERATURE.....	2
3- MATERIALS AND METHODS.....	38
4- RESULTS AND DISCUSSION.....	47
4. 1. Response of Washington navel orange trees to irrigation rates.....	47
4. 1. 1. Vegetative growth	47
4. 1. 1. 1. Tree canopy volume	47
4. 1. 1. 2. Increase in Shoot length and thickness....	47
4. 1. 1. 3. Leaf parameters	48
4. 1. 1. 3.a. Leaves number per shoot and leaf area.	48
4. 1. 1. 3.b Leaf dry matter contents	48
4. 1. 2. Leaf nutrients content	49
4. 1. 3. Fruit set and periodic fruit drop	51
4. 1. 3. 1. Fruit set	51

4. 1. 3. 2. Periodic fruit drop %.....	51
4. 1. 4. Yield parameters.....	53
4. 1. 5. Fruit physical properties	59
4. 1. 5. 1. Fruit weight	59
4. 1. 5. 2. Fruit dimensions	59
4. 1. 5. 3. Fruit peel thickness	60
4. 1. 6. Fruit chemical properties	60
4. 1. 6. 1. Total soluble solids (TSS)	60
4. 1. 6. 2. Juice acidity	61
4. 1. 6. 3. TSS/ acid ratio	61
4. 1. 6. 4. Ascorbic acid	63
4. 2. Response of Washington navel orange	
trees to fertilizer treatments.....	64
4. 2. 1. Effect of nitrogen	64
4. 2. 1. 1. Vegetative growth	64
4. 2. 1. 2. Leaf nutrients content	67
4. 2. 1. 3. Fruit set and periodic fruit drop	68
4. 2. 1. 3. 1. Fruit set	68
4. 2. 1. 3. 2. Periodic fruit drop %.....	68