

7. APPENDICES

Appendices table 1 of Daily soil moisture balance

Day	Stage	Rain	Ks	Eta	Depl	Net Irr	Deficit	Loss	Gr. Irr	Flow
		mm	fract.	mm/day	%	mm	mm	mm	mm	l/s/ha
1	Init	0	1	2.3	26	49.5	0	0	70.7	8.18
2	Init	0	1	2.3	2	0	3.1	0	0	0
3	Init	18.3	1	2.3	1	0	2.7	0	0	0
4	Init	0	1	2.3	3	0	5.3	0	0	0
5	Init	0	1	2.3	4	0	8	0	0	0
6	Init	0	1	2.3	5	0	10.7	0	0	0
7	Init	0	1	2.3	6	0	13.3	0	0	0
8	Init	0	1	2.3	8	0	16	0	0	0
9	Init	0	1	2.3	9	0	18.8	0	0	0
10	Init	10.8	1	2.3	5	0	10.7	0	0	0
11	Init	0	1	2.3	6	0	13.5	0	0	0
12	Init	0	1	2.3	7	0	16.2	0	0	0
13	Init	0	1	2.3	8	0	18.9	0	0	0
14	Init	10.8	1	2.3	5	0	10.9	0	0	0
15	Init	0	1	2.3	6	0	13.6	0	0	0
16	Dev	0	1	2.3	7	0	16.3	0	0	0
17	Dev	0	1	2.3	8	0	19	0	0	0
18	Dev	0	1	2.9	9	0	22.3	0	0	0
19	Dev	0	1	2.9	10	0	25.6	0	0	0
20	Dev	5.3	1	2.9	10	0	23.7	0	0	0
21	Dev	0	1	2.9	11	0	27	0	0	0
22	Dev	0	1	2.9	12	0	30.3	0	0	0
23	Dev	0	1	2.9	13	0	33.6	0	0	0
24	Dev	5.3	1	2.9	12	0	31.6	0	0	0
25	Dev	0	1	2.9	13	0	34.9	0	0	0
26	Dev	0	1	2.9	14	0	38.2	0	0	0
27	Dev	0	1	2.9	15	0	41.5	0	0	0
28	Dev	0	1	3.6	17	0	45.5	0	0	0
29	Dev	0	1	3.6	18	0	49.5	0	0	0
30	Dev	5	1	3.6	17	0	48.5	0	0	0
31	Dev	0	1	3.6	19	52.5	0	0	75	8.68
32	Dev	0	1	3.6	1	0	4	0	0	0
33	Dev	0	1	3.6	3	0	8	0	0	0
34	Dev	5	1	3.6	2	0	7	0	0	0
35	Dev	0	1	3.6	4	0	11	0	0	0
36	Dev	0	1	3.6	5	0	15	0	0	0

37	Dev	0	1	3.6	6	0	19	0	0	0
38	Dev	0	1	4.1	8	0	23.4	0	0	0
39	Dev	0	1	4.1	9	0	27.9	0	0	0
40	Dev	4.9	1	4.1	9	0	27	0	0	0
41	Mid	0	1	4.1	10	0	31.1	0	0	0
42	Mid	0	1	4.1	11	0	35.1	0	0	0
43	Mid	0	1	4.1	13	0	39.2	0	0	0
44	Mid	4.9	1	4.1	12	0	38.3	0	0	0
45	Mid	0	1	4.1	14	0	42.4	0	0	0
46	Mid	0	1	4.1	15	46.4	0	0	66.3	7.67
47	Mid	0	1	4.1	1	0	4.1	0	0	0
48	Mid	0	1	4	3	0	8.1	0	0	0
49	Mid	0	1	4	4	0	12.1	0	0	0
50	Mid	3.9	1	4	4	0	12.1	0	0	0
51	Mid	0	1	4	5	0	16.1	0	0	0
52	Mid	0	1	4	7	0	20.1	0	0	0
53	Mid	0	1	4	8	0	24.1	0	0	0
54	Mid	3.9	1	4	8	0	24.2	0	0	0
55	Mid	0	1	4	9	0	28.2	0	0	0
56	Mid	0	1	4	10	0	32.2	0	0	0
57	Mid	0	1	4	12	0	36.2	0	0	0
58	Mid	0	1	4.1	13	0	40.3	0	0	0
59	Mid	0	1	4.1	14	0	44.3	0	0	0
60	Mid	4.2	1	4.1	14	0	44.2	0	0	0
61	Mid	0	1	4.1	16	48.3	0	0	69	7.98
62	Mid	0	1	4.1	1	0	4.1	0	0	0
63	Mid	0	1	4.1	3	0	8.1	0	0	0
64	Mid	4.2	1	4.1	3	0	8	0	0	0
65	Mid	0	1	4.1	4	0	12.1	0	0	0
66	Mid	0	1	4.1	5	0	16.1	0	0	0
67	Mid	0	1	4.1	7	0	20.2	0	0	0
68	Mid	0	1	4.1	8	0	24.3	0	0	0
69	Mid	0	1	4.1	9	0	28.4	0	0	0
70	Mid	0	1	4.1	11	0	32.6	0	0	0
71	Mid	4.6	1	4.1	10	0	32.1	0	0	0
72	Mid	0	1	4.1	12	0	36.3	0	0	0
73	Mid	0	1	4.1	13	0	40.4	0	0	0
74	Mid	0	1	4.1	14	0	44.6	0	0	0
75	Mid	4.6	1	4.1	14	0	44.2	0	0	0
76	Mid	0	1	4.1	16	48.3	0	0	69	7.99
77	Mid	0	1	4.1	1	0	4.1	0	0	0

78	Mid	0	1	4.1	3	0	8.3	0	0	0
79	Mid	0	1	4.2	4	0	12.5	0	0	0
80	Mid	0	1	4.2	5	0	16.7	0	0	0
81	Mid	4.7	1	4.2	5	0	16.2	0	0	0
82	Mid	0	1	4.2	7	0	20.4	0	0	0
83	Mid	0	1	4.2	8	0	24.6	0	0	0
84	Mid	0	1	4.2	9	0	28.8	0	0	0
85	Mid	4.7	1	4.2	9	0	28.3	0	0	0
86	End	0	1	4.2	11	0	32.5	0	0	0
87	End	0	1	4.2	12	0	36.7	0	0	0
88	End	0	1	4.2	13	0	40.9	0	0	0
89	End	0	1	4	15	0	45	0	0	0
90	End	0	1	4	16	0	49	0	0	0
91	End	5.3	1	4	15	0	47.8	0	0	0
92	End	0	1	4	17	0	51.8	0	0	0
93	End	0	1	4	18	0	55.9	0	0	0
94	End	0	1	4	19	0	59.9	0	0	0
95	End	5.3	1	4	19	0	58.7	0	0	0
96	End	0	1	4	20	0	62.7	0	0	0
97	End	0	1	4	22	0	66.8	0	0	0
98	End	0	1	4	23	0	70.8	0	0	0
99	End	0	1	4	24	0	74.9	0	0	0
100	End	0	1	3.8	25	0	78.7	0	0	0
101	End	0	1	3.8	27	0	82.5	0	0	0
102	End	5.4	1	3.8	26	0	80.9	0	0	0
103	End	0	1	3.8	27	0	84.7	0	0	0
104	End	0	1	3.8	29	0	88.6	0	0	0
105	End	0	1	3.8	30	0	92.4	0	0	0
106	End	5.4	1	3.8	29	0	90.8	0	0	0
107	End	0	1	3.8	31	0	94.6	0	0	0
108	End	0	1	3.8	32	0	98.4	0	0	0
109	End	0	1	3.8	33	0	102.3	0	0	0
End	End	0	1	0	33					

Appendix table 2:- Analysis of variance (ANOVA) for days to maturity, plant height and number of leaf per plant of onion

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Plant Height	6	244.9	40.81666667	49.76566667
Leaf number	6	35.9	5.983333333	0.341666667

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	3640.083333	1	3640.083333	145.291441	2.80127E07	4.964602744
Within Groups	250.5366667	10	25.05366667			
Total	3890.62	11				

Appendix Table 3. Analysis of variance (ANOVA) for number of leaf length and bulb height of onion

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Bulb Height	6	244.9	40.81666667	49.76566667
leaf length	6	186.27	31.045	27.95683

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	286.4564083	1	286.4564083	7.371261105	0.021745919	4.964602744
Within Groups	388.6124833	10	38.86124833			
Total	675.0688917	11				

Appendix Table 4. Analysis of variance (ANOVA) for average bulb diameter and average bulb weight per plant of onion

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Bulb Diameter(cm)	6	36.94	6.156666667	0.737666667
Average bulb weight(Kg)	6	1.14	0.19	0.0003552

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	106.8033333	1	106.8033333	289.431352	1.03692E-08	4.964602744
Within Groups	3.690109333	10	0.369010933			
Total	110.4934427	11				

Appendix Table 5. Analysis of variance (ANOVA) for bulb dry matter and leaf dry matter of onion

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Bulb Dry matter (%)	6	93.33	15.555	8.09687
Leaf Dry matter (%)	6	80.5	13.41666667	5.446266667

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	13.71740833	1	13.71740833	2.025735791	0.185095616	4.964602744
Within Groups	67.71568333	10	6.771568333			
Total	81.43309167	11				

Appendix Table 6. Analysis of variance (ANOVA) for marketable bulb yield, unmarketable bulb yield and total bulb yield of onion

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Marketable yield(qu/ha)	6	283.15	47.19166667	136.6832967
Unmarketable yield(qu/ha)	6	0.02246	0.003743333	5.01107E-07
Total Bulb Yield(qu/ha)	6	283.15	47.19166667	136.6832967

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	8906.800434	2	4453.400217	48.87283579	2.69113E-07	3.682320344
Within Groups	1366.832969	15	91.12219794			
Total	10273.6334	17				

Appendix Table 7. Analysis of variance (ANOVA) for available water, water use efficiency, crop water use efficiency and irrigation water use efficiency of onion

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
AW	6	2995	499.1667	4423.767
WUE(Kg/m3)	6	64.39	10.73167	0.160297
CWUE (Kg/m3)	6	64.39	10.73167	0.160297
IWUE (Kg/m3)	6	46.75	7.791667	1.603777

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	1077906.264	3	359302.1	324.7421	3.97793E-17	3.098391
Within Groups	22128.45518	20	1106.423			
Total	1100034.72	23				

Appendix Table 8. Analysis of variance (ANOVA) for number of Bulb length and Neck diameter of onion

Anova: Single Factor

SUMMARY

<i>Groups</i>	<i>Count</i>	<i>Sum</i>	<i>Average</i>	<i>Variance</i>
Bulb Length(cm)	6	37.52	6.253333	0.546787
Neck Diameter	6	16.75	2.791667	0.110817

ANOVA

<i>Source of Variation</i>	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i>	<i>F crit</i>
Between Groups	35.94940833	1	35.94941	109.3346	1.05442E-06	4.964603
Within Groups	3.288016667	10	0.328802			
Total	39.237425	11				

Appendix Table 9:- Sample of plant heights when it was taken the treatments with and without mulch

Treatments (T)	Descriptions	Onion's Sample		Plant height (cm)
		Sample number	Plant height in cm	
T ₁	100% of crop water requirement NM.(Control)	1	38	38.2
		2	39	
		3	36	
		4	37	
		5	36	
		6	40	
		7	39	
		8	41	
		9	36	
		10	40	
		Average	38.2	
T ₂	80 % of crop water requirement NM.	1	32	
		2	31	
		3	34	
		4	33	
		5	32	
		6	32	

		7	37	34.3
		8	36	
		9	36	
		10	40	
		Average	34.3	
T ₃	70 % of crop water requirement NM	1	30	33.1
		2	32	
		3	33	
		4	33	
		5	36	
		6	32	
		7	35	
		8	36	
		9	34	
		10	30	
		Average	33.1	
T ₄	100 % of crop water requirement WSM.(Control)	1	55	
		2	50	
		3	49	
		4	52	
		5	47	
		6	52	

		7	60	51.9
		8	55	
		9	52	
		10	47	
		Average	51.9	
T ₅	80 % of crop water requirement WSM	1	44	44.2
		2	45	
		3	44	
		4	43	
		5	42	
		6	44	
		7	41	
		8	43	
		9	49	
		10	47	
		Average	44.2	
T ₆	70 % of crop water requirement WSM	1	44	
		2	46	
		3	45	
		4	42	
		5	43	
		6	45	

		7	42	43.2
		8	44	
		9	41	
		10	40	
		Average	43.2	

Appendices Table 10:- Sample Leaf number when it was taken the treatments with and without mulch

Treatments (T)	Descriptions	Onion's Sample		Leaf number
		Sample number	Leaf number	
T ₁	100% of crop water requirement NM.(Control)	1	5	5.7
		2	6	
		3	5	
		4	7	
		5	6	
		6	5	
		7	5	
		8	5	
		9	6	
		10	7	
		Average	5.7	

T ₂	80 % of crop water requirement NM.	1	4	5.3
		2	6	
		3	5	
		4	7	
		5	6	
		6	5	
		7	5	
		8	5	
		9	4	
		10	6	
		Average	5.3	
T ₃	70 % of crop water requirement NM	1	4	5.7
		2	6	
		3	5	
		4	7	
		5	6	
		6	7	
		7	5	
		8	7	
		9	4	
		10	6	
		Average	5.7	

T ₄	100 % of crop water requirement WSM.(Control)	1	4	6.2
		2	5	
		3	6	
		4	8	
		5	7	
		6	8	
		7	7	
		8	6	
		9	6	
		10	5	
		Average	6.2	
T ₅	80 % of crop water requirement WSM	1	8	7
		2	9	
		3	7	
		4	8	
		5	6	
		6	5	
		7	6	
		8	7	
		9	6	
		10	8	
		Average	7	

T ₆	70 % of crop water requirement WSM	1	8	6
		2	6	
		3	5	
		4	7	
		5	6	
		6	5	
		7	5	
		8	5	
		9	6	
		10	7	
		Average	6	



Appendices figures 1:- the none mulch used yields of onions crop