

PAPER No. 285

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TABLE I

Moisture Estimations by Tensiometer and Direct Method.

Date	Depth from N. S. in feet 5.		Depth from N. S. in feet 10.		Depth from N. S. in feet 15.	
	Moisture Tensio- Meter	Direct Method	Percentage Tensio- Meter	Percentage Direct Method	By Weight Tensio- Meter	By Weight Direct Method
6-5-43	12.90	6.41	12.75	6.43	19.65	6.96
10-5-43	13.30	5.96	10.25	6.13	20.60	6.30
15-5-43	11.40	5.61	10.80	6.53	15.75	6.14
19-5-43	11.30	5.72	...	6.53	16.65	6.28
25-5-43	11.45	4.72	10.45	5.53	14.30	5.71
31-5-43	11.05	4.92	9.75	5.83	12.80	6.30

TABLE II.

Moisture percentage at different depths in 20.5 feet soil profile under 5 feet Water Head.

Dates.	4-5-43	6-5-43	7-6-43	8-7-43	17-9-43	9-10-43	9-11-43	8-12-43	13-1-44	4-2-44	15-3-44
Depth from N.S. in feet.											
1	5.43	6.21	17.53	24.20	21.11	24.00	24.37	24.06	29.13	27.6	24.70
2	9.69	8.52	11.71	19.93	18.29	20.20	23.31	22.88	24.16	23.22	23.60
3	7.35	6.12	5.13	16.76	18.0	18.00	20.94	19.35	22.23	21.50	21.10
4	7.29	6.35	4.61	6.08	16.70	17.22	20.50	20.26	21.13	21.25	20.10
5	7.3	...	...	...	14.57	13.69	17.05	16.97	18.23	19.00	20.10
6	7.47	6.47	5.25	6.75	5.37	7.00	10.54	14.28	17.60	17.51	19.30
7	7.14	6.11	5.19	7.14	6.2	6.79	7.93	9.51	10.85	12.78	11.90
8	6.25	5.74	4.52	6.01	13.33	12.02	12.28	12.18	13.41	13.41	14.40
9	7.65	6.08	5.21	6.05	16.84	14.10	...	11.77	14.27	12.83	11.90
10	7.2	...	...	...	...	11.47	9.15	11.44	13.62	12.31	12.02
11	7.18	7.05	5.83	7.37	6.42	8.03	8.88	7.97	10.93	11.28	10.10
12	8.03	7.54	5.89	7.19	8.27	8.19	8.25	9.77	8.95	7.73	7.80
13	7.38	7.32	5.99	7.71	6.40	7.86	7.63	8.55	9.00	8.09	8.00
14	7.62	6.97	5.96	7.90	6.30	6.80	6.91	8.25	8.37	7.83	7.30
15	...	...	...	...	...	8.38	7.44	8.37	11.53	11.97	12.60
16	6.56	6.96	5.43	7.35	11.12	12.77	14.27	13.07	16.04	19.50	18.40
17	7.10	7.71	9.20	17.94	18.35	18.62	18.92	17.83	21.00	19.05	18.50
18	6.96	7.19	10.68	18.55	18.92	18.93	19.0	18.98	21.28	21.43	17.80
19	7.50	10.65	17.10	20.40	19.29	20.48	21.35	22.88	25.70	24.10	21.40
20	13.36	15.94	18.68	22.52	20.95	20.94	22.69	24.06	26.46	24.45	22.60

Dates.	15-4-44	2-5-44	12-6-44	5-7-44	7-8-44	1-9-44	4-10-44	1-11-44	9-12-44	2-1-45	6-2-45
Depth from N.S. in feet.											
1	21.3	23.2	22.9	20.7	24.3	25.8	21.9	22.7	28.3	28.3	...
2	19.2	20.2	21.8	17.2	18.9	22.0	19.7	20.8	...	23.0	20.9
3	18.7	19.73	18.8	17.7	15.2	18.7	16.3	18.5	...	17.7	19.0
4	19.8	18.42	16.8	16.2	16.4	21.6	15.4	17.6	20.7	16.8	18.3
5	19.2	18.68	16.0	13.3	15.6	19.1	16.3	16.4	20.7	16.6	18.8
6	19.8	18.90	15.0	15.3	17.3	20.0	15.1	18.0	19.6	15.7	17.2
7	18.2	16.67	16.0	13.3	15.4	20.5	15.3	15.5	18.9	16.0	16.5
8	16.2	14.34	13.5	16.5	14.7	15.5	14.3	16.2	17.6	15.1	15.2
9	15.0	14.09	12.9	10.7	11.4	14.2	15.7	...	11.9	12.7	12.3
10	14.8	12.10	10.4	11.6	11.3	13.5	12.0	9.9	12.0	11.5	11.1
11	10.9	7.16	5.7	...	...	11.1	13.2	9.0	...	9.0	...
12	7.9	7.80	6.8	6.4	5.8	7.3	7.3	6.1	7.0	7.7	11.1
13	8.6	7.92	5.7	5.5	6.1	9.9	7.7	7.3	6.8	5.9	7.7
14	7.7	...	6.1	9.0	9.2	9.7	8.3	9.2	8.7	9.4	9.1
15	16.1	14.72	14.1	14.3	13.6	18.5	14.8	14.9	13.5	15.1	15.8
16	18.0	18.10	14.3	15.6	15.5	17.2	15.9	15.1	15.5	14.7	14.6
17	17.5	18.25	16.4	16.1	15.7	19.5	...	15.7	16.4	16.3	17.0
18	19.1	18.71	16.7	15.7	17.6	20.4	17.2	15.8	17.6	16.8	18.3
19	21.8	20.00	16.8	16.9	19.7	19.7	19.9	19.2	20.7	18.9	16.5
20	23.6	22.27	18.8	18.5	21.4	22.5	21.6	..	23.1	19.6	22.4

Dates.	6-3-45	11-4-45	3-5-45	4-6-45	4-7-45	14-8-45	5-9-45	3-10-45	5-12-45
Depth from N.S. in feet.									
1	31.4	33.0	27.8	26.2	24.5	30.2	28.04	25.8	30.8
2	20.4	23.1	21.6	18.9	17.5	25.4	24.9	20.0	22.7
3	19.4	18.3	18.5	17.4	16.0	19.2	20.2	17.2	17.9
4	20.0	18.1	17.4	18.4	16.5	18.9	17.6	16.9	19.8
5	17.3	17.6	16.1	14.3	16.6	17.7	17.3	16.8	16.9
6	20.0	17.4	17.8	15.9	16.5	17.5	18.4	14.9	18.3
7	16.6	18.0	18.6	15.0	16.2	...	17.1	14.9	17.5
8	13.3	17.2	16.3	14.9	15.0	15.9	16.4	13.5	14.4
9	11.3	12.2	11.9	11.1	...	12.4	18.4	14.6	11.1
10	10.8	10.9	10.5	...	...	11.6	9.8	9.9	11.3
11	...	7.8	6.5	6.0	10.1	9.6	7.4	6.2	8.8
12	7.5	5.6	4.3	5.3	4.2	9.2	5.9	5.1	7.7
13	6.2	7.2	6.9	...	3.5	8.2	7.3	7.5	11.3
14	9.2	9.3	6.5	6.8	9.9	11.4	14.9	13.9	16.4
15	...	14.8	15.4	13.2	12.9	19.6	18.4	17.	17.3
16	14.0	14.9	15.7	13.5	13.1	21.1	18.5	18.9	18.3
17	14.1	16.8	18.1	15.4	15.9	22.1	19.5	20.7	18.6
18	16.1	17.6	18.5	16.0	16.5	23.3	21.2	21.3	19.9
19	...	20.5	27.6	19.3	18.6	23.3	21.1	22.3	21.8
20	21.5	23.8	21.6	23.5	22.1	24.7	22.0	23.1	24.7

TABLE III.

Clay and Dry-Bulk Density Variation in a Natural Soil Profile.

Depth.	Clay %	Density	Depth.	Clay %	Density.
1 ft.	9.98	1.5	12 ft.	10.96	1.4
2 ft.	6.80	1.6	13 ft.	13.64	1.4
3 ft.	22.54	2.0	14 ft.	7.48	1.5
4 ft.	12.96	1.7	15 ft.	9.94	1.7
5 ft.	13.94	1.6	15 ft.	13.48	1.7
6 ft.	14.70	1.5	16 ft.	13.52	1.7
7 ft.	16.58	2.1	16 ft.	6.68	1.9
8 ft.	21.46	1.9	17 ft.	10.20	1.9
9 ft.	10.32	1.8	18 ft.	4.66	1.9
10 ft.	11.84	1.8	19 ft.	5.98	1.7
11 ft.	9.68	1.6	20 ft.	5.48	1.6
			21 ft.	5.80	1.7

TABLE IV (A)

EFFECT OF CLAY (.002 mm. particles) on the Vertical Movement of Moisture
Clay = 16.85% Density = 1.5.

Irrigation in inches.	Date of Irriga- tion.	Date of disapp- earance.	Depth from N. S.	MOISTURE PERCENTAGE ON						
				6-3-44	8-4-44	19-4-44	5-5-44	18-5-44	10-6-44	19-6-44
6.0"	11-3-44	13-3-44	1.0'	10.90	21.50	23.17	21.80	20.9	21.5	21.5
1.5"	21-3-44	22-3-44	2.0'	10.20	20.70	21.47	21.00	21.0	21.4	21.7
3.0"	23-3-44	27-3-44	3.0'	8.07	19.30	21.38	19.00	19.7	21.5	23.0
3.0"	28-3-44	1-4-44	4.0'	8.70	20.70	22.92	21.1	20.4	21.8	22.3
3.0"	4-4-44	8-4-44	5.0'	8.90	20.00	25.09	19.6	19.9	21.0	22.2
3.0"	14-4-44	17-4-44	6.0'	8.1	10.10	21.90	18.8	18.5	20.9	22.6
3.0"	24-4-44	27-4-44	7.0'	8.3	7.80	16.12	15.8	...	18.0	21.8
3.0"	3-5-44	5-5-44	8.0'	8.00	10.50	9.59	11.2	9.9	17.0	20.2
3.0"	8-5-44	10-5-44	9.0'	8.50	9.60	11.80	11.8	11.7	14.2	18.7
3.0"	13-5-44	15-5-44	10.0'	8.1	12.10	15.72	16.5	15.6	16.0	18.8
3.0"	18-5-44	20-5-44	11.0'	8.3	17.30	18.12	18.6	19.8	18.2	19.0
3.0"	29-5-44	30-5-44	12.0'	8.5	19.10	25.15	20.2	22.1	19.1	20.7
3.0"	3-6-44	4-6-44	13.0'	8.0	23.30	25.66	20.9	22.3	20.5	21.4
3.0"	13-6-44	15-6-44	14.0'	8.0	23.80	27.88	25.7	22.6	22.0	25.4

TABLE IV (B)

Effect of Clay (.002 mm. particles) on the Vertical Movement of Moisture.

CLAY PERCENTAGE 9.43.

Irrigation in inches.	Date of irrigation	Date of disappea- rance.	Depth from N.S.	MOISTURE PERCENTAGE ON										
				5-4-44	12-4-44	19-4-44	1-5-44	5-5-44	11-5-44	16-5-44	19-5-44	1-6-44	10-6-44	19-6-44
6.0"	11-3-44	12-3-44	1'	23.25	20.5	22.64	22.25	22.3	23.5	26.0	26.9	24.4	25.2	23.5
1.5"	21-3-44	22-3-44	2'	20.65	21.1	21.92	21.72	21.8	21.8	24.9	26.8	24.3	24.4	24.6
3.0"	23-3-44	24-3-44	3'	...	22.8	22.12	23.47	21.7	21.7	23.2	24.5	21.9	22.1	24.8
3.0"	28-3-44	29-3-44	4'	20.89	...	23.02	20.70	21.2	22.5	23.6	24.7	23.1	22.9	24.2
3.0"	4-4-44	5-4-44	5'	17.40	20.5	22.57	22.6	22.0	20.6	23.0	20.5	23.1	23.4	24.7
3.0"	14-4-44	15-4-44	6'	9.36	17.9	19.89	18.71	18.61	17.9	21.1	20.9	21.3	22.0	23.8
3.0"	24-4-44	25-4-44	7'	7.53	13.1	17.80	17.7	17.5	17.1	20.1	20.0	20.0	21.1	20.6
3.0"	3-5-44	4-5-44	8'	8.16	13.5	18.25	17.58	19.1	17.2	...	20.6	21.8	21.4	20.4
3.0"	8-5-44	9-5-44	9'	8.24	8.6	10.70	11.50	12.0	13.0	12.4	15.2	18.0	17.5	20.3
3.0"	13-5-44	14-5-44	10'	7.74	7.4	10.78	9.96	11.8	...	12.5	14.6	19.8	19.6	20.7
3.0"	18-5-44	19-5-44	11'	12.62	13.3	20.06	6.3	19.1	18.0	18.1	18.5	19.5	20.1	20.9
3.0"	29-5-44	30-5-44	12'	15.25	17.1	...	18.51	21.5	19.9	19.9	21.3	22.5	22.7	25.8
3.0"	3-6-44	4-6-44	13'	20.52	20.3	24.79	23.2	23.8	23.9	22.0	22.8	25.3	26.1	24.7
3.0"	13-6-44	14-6-44	14'	22.80	23.7	25.20	25.54	24.3	27.0	27.7	24.7	28.4	27.5	25.5

TABLE IV (C)

*Effect of Clay (.002 mm. particles) on the Vertical Movement of Moisture.**CLAY PERCENTAGE 6.95.*

Irrigation in inches.	Date of irrigation.	Date of disappear- ance.	Depth from N. S.	MOISTURE PERCENTAGE ON										
				5-4-44	12-4-44	19-4-44	1-5-44	5-5-44	11-5-44	16-5-44	19-5-44	1-6-44	10-6-44	19-6-44
6.0"	11-3-44	12-3-44	1'	25.22	21.80	23.85	22.72	21.60	24.10	25.0	28.50	24.80	24.50	26.20
1.5"	21-3-44	22-3-44	2'	25.88	...	23.74	23.74	20.10	22.50	24.50	26.30	23.80	23.60	24.90
3.0"	23-3-44	24-3-44	3'	...	22.10	21.90	20.80	18.50	20.80	21.30	26.70	24.20	24.50	25.60
3.0"	28-3-44	29-3-44	4'	24.62	18.20	22.11	21.0	17.80	20.20	21.50	23.40	24.2	24.40	19.70
3.0"	4-4-44	5-4-44	5'	21.97	18.00	23.16	21.20	20.50	18.00	19.60	20.50	22.90	23.20	23.10
3.0"	14-4-44	15-4-44	6'	11.63	15.10	20.11	18.10	18.00	18.00	18.90	20.60	21.50	21.40	22.60
3.0"	24-4-44	25-4-44	7'	7.37	13.40	17.88	17.64	16.40	17.60	17.60	18.80	22.20	22.50	22.70
3.0"	3-5-44	4-5-44	8'	6.80	13.30	16.17	17.08	14.96	17.20	...	19.00	21.40	21.20	20.90
3.0"	8-5-44	9-5-44	9'	6.62	6.80	13.16	16.74	16.94	16.40	17.40	19.30	..	20.0	21.40
3.0"	13-5-44	14-5-44	10'	8.04	8.00	20.78	20.10	20.50	21.20	...	19.20	20.7	21.0	23.0
3.0"	18-5-44	19-5-44	11'	14.02	...	18.91	19.00	19.10	19.10	19.30	21.70	21.80	21.50	23.60
3.0"	29-5-44	30-5-44	12'	16.00	20.50	22.72	23.44	23.70	21.90	21.80	21.60	23.10	22.90	24.60
3.0"	3-6-44	4-6-44	13'	24.30	25.30	25.48	24.44	22.40	23.80	23.00	25.20	24.10	24.50	24.90
3.0"	13-6-44	14-6-44	14'	26.67	24.10	28.18	27.10	28.35	25.80	27.10	22.90	30.40	27.60	23.50

TABLE IV (D)

*Effect of Clay (.002 mm. Particles) on the Vertical Movement of Moisture.**CLAY PERCENTAGE=4.95.*

Irrigation in inches.	Date of irriga- tion.	Date of disappear- ance.	Depth from N. S.	MOISTURE PERCENTAGE ON						
				6-3-44	5-4-44	19-4-44	5-5-44	16-5-44	10-6-44	19-6-44
6.0"	11-3-44	12-3-44	1'	6.20	24.19	18.44	17.00	18.50	20.20	19.20
1.5"	21-3-44	22-3-44	2'	6.10	20.61	17.31	17.20	19.40	19.50	21.00
3.0"	23-3-44	24-3-44	3'	6.70	21.06	17.53	16.50	18.30	18.00	20.00
3.0"	28-3-44	29-3-44	4'	6.60	20.0	17.98	15.90	17.80	17.80	20.00
3.0"	4-4-44	5-4-44	5'	6.60	15.12	18.72	15.60	16.30	17.60	18.40
3.0"	14-4-44	15-4-44	6'	6.50	5.70	17.66	16.20	16.20	17.20	18.40
3.0"	24-4-44	25-4-44	7'	6.50	5.50	15.07	14.50	15.50	17.50	17.50
3.0"	3-5-44	4-5-44	8'	6.10	6.10	16.41	15.60	14.90	16.90	17.70
3.0"	8-5-44	9-5-44	9'	6.70	5.90	10.21	10.20	11.60	14.60	15.60
3.0"	13-5-44	14-5-44	10'	6.5	5.70	6.78	11.90	11.60	11.20	17.00
3.0"	18-5-44	19-5-44	11'	6.4	5.20	8.84	8.70	19.70	10.70	14.70
3.0"	29-5-44	30-5-44	12'	6.5	7.30	8.93	9.20	11.40	12.60	14.90
3.0"	3-6-44	4-6-44	13'	6.6	14.70	17.92	15.60	16.40	16.80	19.30
3.0"	13-6-44	14-6-44	14'	6.5	18.50	24.43	21.50	19.30	21.00	25.30

TABLE V (A)

*Effect of Dry-Bulk Density on the Vertical Movement of Moisture.**DRY-BULK DENSITY 1.80.**Wetting*

Irrigation in inches.	Date of irrigation	Date of disappea- rance.	Depth from N. S.	MOISTURE PERCENTAGE ON :								
				24-4-44	15-5-44	1-6-44	9-6-24	15-6-44	28-6-44	6-7-44	12-7-44	22-7-44
3.0"	26-4-44	27-4-44	1'	5.2	16.7	18.7	19.0	18.3	19.7	17.8	19.9	19.5
6.0"	28-4-44	29-4-44	2'	5.0	17.5	18.4	19.0	17.7	18.3	16.8	18.8	21.0
6.0"	3-5-44	4-5-44	3'	5.4	13.1	19.3	15.6	17.2	18.5	16.5	19.0	20.7
6.0"	8-5-44	9-5-44	4'	5.8	4.3	9.3	12.5	13.4	14.2	13.4	14.9	17.7
3.0"	13-5-44	14-5-44	5'	5.2	6.0	5.1	5.5	8.2	11.3	13.3	14.3	17.9
3.0"	18-5-44	19-5-44	6'	8.8	5.6	5.3	6.5	5.0	4.1	5.3	4.5	17.2
3.0"	23-5-44	24-5-44	7'	6.8	6.8	6.8	6.5	6.4	5.2	5.4	5.8	18.1
3.0"	29-5-44	30-5-44	8'	5.5	6.0	4.6	5.4	4.4	4.3	5.3	5.8	4.5
3.0"	3-6-44	4-6-44	9'	5.7	6.4	6.4	6.2	9.5	11.4	12.2	14.1	12.2
6.0"	13-6-44	14-6-44	10'	5.7	5.7	12.2	3.1	16.0	16.8	...	18.3	...
3.0"	19-6-44	20-6-44	11'	5.3	12.4	15.2	16.7	17.4	18.4	18.2	18.7	17.9
3.0"	14.7-44	15-7-44	12'	3.3	19.0	19.9	18.0	18.6	21.0	18.2	17.8	17.9
			13'	3.4	22.3	22.6	22.8	20.3	20.6	22.3	18.9	21.9
			14'	6.3	25.0	28.3	25.7	21.9	25.5	24.9	21.3	24.3
			15'	17.8	29.5	27.8	32.2	24.9	28.3	27.4	25.7	25.9

TABLE V (B)

Effect of Dry-Bulk Density on the Vertical Movement Moisture.
DRY-BULK DENSITY 1.60.

Irrigation in inches.	Date of irrigation.	Date of disappea- rance.	Depth from N. S.	MOISTURE PERCENTAGE ON								
				24-4-44	15-5-44	1-6-44	9-6-44	25-6-44	28-6-44	16-7-44	22-7-44	22-7-44
			1'	8.6	19.9	19.4	19.0	19.1	21.5	20.1	20.6	22.6
3.0"	26-4-44	27-4-44	2'	9.2	18.1	19.3	20.0	19.7	19.9	19.8	19.6	21.7
6.0"	28-4-44	29-4-44	3'	8.6	14.6	19.8	18.5	18.3	19.7	19.4	18.9	22.3
6.0"	3-5-44	4-5-44	4'	9.0	7.5	15.1	13.4	17.1	19.5	18.9	19.9	22.4
6.0"	8-5-44	10-5-44	5'	8.7	9.0	12.1	10.1	15.9	15.8	16.3	18.7	21.6
3.0"	13-5-44	14-5-44	6'	8.6	8.5	7.8	7.1	8.3	11.6	15.1	16.4	21.3
3.0"	18-5-44	19-5-44	7'	8.9	8.8	7.4	7.3	7.9	7.3	5.4	12.1	19.0
3.0"	23-5-44	24-5-44	8'	7.8	8.2	8.2	7.7	10.5	12.6	14.7	13.9	20.0
3.0"	29-5-44	30-5-44	9'	8.6	7.0	13.1	...	14.6	16.3	16.2	16.9	17.9
3.0"	23-6-44	4-6-44	10'	7.3	10.6	16.5	14.5	17.9	18.4	17.1	18.6	20.3
3.0"	13-6-44	14-6-44	11'	6.5	17.4	20.0	17.9	19.7	20.3	17.1	20.2	21.4
3.0"	19-6-44	20-6-44	12'	4.3	22.4	23.9	18.6	22.2	22.1	18.7	20.0	21.9
3.0"	14-7-44	16-7-44	13'	5.2	25.9	24.2	26.0	23.5	...	20.2	21.0	22.0
			14'	4.6	30.1	...	31.2	25.0	25.2	22.7	23.0	26.0

Wetting

TABLE V (C)

Effect of Dry-Bulk Density on the Vertical Movement of Moisture.

DRY-BULK DENSITY 1.45

Wetting.

Irrigation in inches.	Date of Irrigation	Date of disappear- ance.	Depth from N. S.	MOISTURE PERCENTAGE ON									
				24-4-44	15-5-44	1-6-44	9-6-44	15-6-44	28-6-44	6-7-44	12-7-44	22-7-44	
3.0"	26-4-44	27-4-44	1'	5.7	21.9	21.3	21.9	22.9	21.1	22.1	19.4	18.5	
6.0"	28-4-44	29-4-44	2'	6.3	21.7	22.1	20.7	22.1	21.2	22.7	20.5	20.6	
6.0"	3-5-44	4-5-44	3'	3.9	21.9	20.4	20.9	20.9	21.4	22.7	20.2	21.8	
6.0"	8-5-44	9-5-44	4'	4.3	19.4	20.5	21.1	20.2	20.8	21.5	20.0	21.5	
3.0"	13-5-44	14-5-44	5'	5.3	12.1	14.4	20.1	20.5	19.7	21.5	20.2	20.1	
3.0"	18-5-45	19-5-44	6'	6.4	6.4	5.6	17.4	18.9	18.8	16.7	20.8	22.4	
3.0"	23-5-44	24-5-44	7'	6.2	6.3	5.7	8.8	13.6	17.3	17.1	18.8	22.7	
3.0"	29-5-44	30-5-44	8'	5.5	6.2	5.5	6.5	6.0	5.8	15.1	14.4	19.8	
3.0"	3-6-44	4-6-44	9'	4.7	6.2	6.6	6.7	6.3	6.9	5.5	5.1	12.3	
3.0"	13-6-44	14-6-44	10'	6.0	5.8	14.5	—	11.1	12.3	14.8	14.3	15.3	
3.0"	19-6-44	20-6-44	11'	6.4	6.2	20.4	13.9	16.0	17.9	17.4	16.5	16.9	
3.0"	14-7-44	16-7-44	12'	6.4	18.4	20.2	17.9	18.7	19.9	22.6	20.1	20.8	
			13'	6.2	22.9	24.3	20.9	21.8	20.0	19.0	21.0	22.9	
			14'	9.5	25.8	26.0	26.5	20.8	21.7	21.7	21.3	24.6	
			15'	15.4	—	—	29.4	24.9	25.4	26.7	24.3	25.8	

TABLE VI

Showing the effect of intensity of irrigation on the depth up which the moisture moves in a Soil Profile.

Irrigation in inches.	1.0"	2.0"	3.0"	4.0"	6.0"
Depth from N.S. in inches.	Moisture percentages.				
0— 2.4	15.6	22.5	21.6	22.6	21.7
2.4— 4.8	13.3	19.7	20.3	22.6	21.5
4.8— 7.2	11.2	16.6	19.9	20.6	21.5
7.2— 9.6	8.7	15.8	19.1	19.9	20.9
9.6—12.0	6.7	12.7	15.9	19.9	21.1
12.0—14.4	6.8	8.9	16.5	18.9	...
14.4—16.8	6.6	5.8	14.7	17.6	20.6
16.8—19.2	5.8	5.7	11.7	16.4	19.9
19.2—21.6	5.8	4.6	7.5	15.4	19.0
21.6—24.0			6.1	12.6	18.4
24.0—26.4				6.3	18.0
26.4—28.8				6.0	16.4
28.8—31.2				6.7	14.9
31.2—33.6				5.6	8.3
33.6—36.0				5.7	5.5
36.0—38.4					

TABLE VII (A)

Showing the effect of surface evaporation and formation of pellicular zone in soil profiles.

CLAY = 16.85

Depth from N.S. in feet.	19-6-44	16-8-44	19-9-44	17-10-44	8-11-44	18-12-44	23-1-45	16-2-45	21-3-45	16-4-45	22-5-45	19-6-45	13-7-45	6-8-45	10-9-45	8-10-45	26-11-45	19-1
	Moisture Percentage																	
1	21.5	20.7	16.3	13.8	12.5	8.4	5.6	6.3	5.3	4.5	1.9	3.2	2.0	2.7	2.3	2.1	4.4	5
2	21.7	20.7	18.0	14.4	14.1	9.9	8.9	9.4	8.5	6.1	5.9	7.3	5.3	7.3	3.2	8.4	9.4	4
3	23.0	19.5	19.9	15.4	14.1	10.8	10.2	9.8	8.8	7.7	8.1	8.3	9.2	12.9	8.3	13.4	12.3	10
4	22.3	20.0	18.2	15.0	14.0	10.6	10.7	10.1	9.6	8.1	8.3	9.3	8.7	15.1	13.3	13.8	12.4	11
5	22.2	20.8	18.4	16.5	16.7	14.5	12.7	13.0	11.2	8.9	9.2	9.9	9.3	14.8	14.8	15.6	14.3	12
6	22.6	19.6	21.2	18.1	16.8	13.7	13.3	13.1	10.7	9.7	8.7	10.5	10.4	18.9	16.8	15.6	14.4	13
7	21.8	19.7	20.6	19.1	16.9	14.7	15.2	15.1	14.2	12.2	10.3	11.2	10.4	14.4	17.2	15.5	13.4	14
8	20.2	19.5	10.0	19.9	16.6	15.8	15.8	15.9	14.8	14.6	12.6	11.8	10.7	15.6	15.2	15.8	14.8	15
9	18.7	19.4	20.8	19.8	17.2	16.7	18.1	16.0	17.5	15.1	15.0	13.9	13.3	14.4	15.2	16.5	17.3	16
10	18.8	21.1	20.6	19.2	18.1	16.8	20.7	17.5	17.2	16.4	15.0	17.5	16.5	16.4	17.1	17.2	18.3	17
11	19.0	20.9	19.5	20.8	19.6	19.5	20.4	19.5	18.8	20.0	21.7	21.4	21.6	20.1	17.0	20.3	20.4	20
12	20.7	21.5	20.9	21.9	21.5	22.9	19.9	21.5	20.4	23.7	23.3	23.0	21.9	18.9	20.3	21.6	21.2	21
13	21.4	21.3	21.9	21.4	22.4	22.7	23.6	24.4	23.9	24.2	24.5	22.9	21.4	18.6	22.0	22.4	22.0	22
14	25.4	23.7	23.3	25.1	22.6	23.7	25.2	26.0	24.2	24.6	22.7	26.7	24.7	23.8	24.0	21.8	24.4	23

TABLE VII (B)

CLAY = 9.43

Depth from N.S. in feet.	19-6-44	16-8-44	19-9-44	17-10-44	8-11-44	18-12-44	25-1-45	19-2-45	21-3-45	16-4-45	22-5-45	19-6-45	13-7-45	6-8-45	10-9-45	8-10-45	20-11-45	19-1
	Moisture Percentage																	
1	23.5	21.4	12.7	9.3	7.9	4.7	5.7	6.8	2.7	2.9	1.1	1.5	0.9	1.6	1.1	1.3	1.4	1
2	24.6	24.0	13.2	9.7	8.7	5.9	4.5	6.8	4.7	3.8	3.7	3.9	3.0	3.6	3.5	3.1	2.8	2
3	24.8	24.4	17.7	12.9	10.1	8.0	6.9	6.3	5.6	4.4	4.6	5.4	3.9	4.9	5.0	5.2	4.7	3
4	24.2	25.4	18.2	13.1	9.7	7.6	7.4	7.3	4.2	4.2	5.1	4.7	5.0	4.9	4.3	6.0	4.8	4
5	24.7	25.2	19.2	13.2	12.5	8.1	8.5	8.0	6.0	5.6	4.3	5.5	5.4	5.4	5.9	6.4	5.4	5
6	23.8	26.6	21.5	15.6	13.1	8.8	10.9	11.1	6.9	7.7	4.9	7.4	5.5	6.1	6.2	6.3	6.2	6
7	20.6	25.6	20.0	17.3	13.8	10.2	11.9	9.3	6.6	5.8	6.0	8.0	6.3	7.1	8.5	7.4	7.2	7
8	20.4	22.7	20.8	17.4	14.4	10.2	12.8	11.8	9.9	6.0	6.3	8.6	7.5	7.7	9.1	8.5	7.8	8
9	20.3	23.9	19.4	18.5	16.6	13.9	16.2	13.0	8.3	10.1	9.4	10.4	12.0	10.7	11.8	10.5	10.4	9
10	20.7	24.8	20.5	19.2	16.3	14.0	16.6	11.9	10.7	10.4	10.1	12.1	11.8	11.0	12.2	11.0	10.7	10
11	20.9	24.6	21.2	19.9	18.9	16.9	16.5	17.0	10.3	13.6	11.4	14.2	13.6	15.0	13.7	15.0	11.6	11
12	25.8	23.6	24.9	23.6	17.1	18.5	18.9	18.9	16.0	16.1	14.8	17.1	15.6	16.6	13.3	17.2	14.1	12
13	24.7	23.8	26.2	25.6	25.9	19.2	20.1	20.5	19.1	18.1	15.0	20.5	18.6	17.1	17.5	19.2	17.2	13
14	25.5	28.9	30.8	28.0	28.8	20.3	25.9	19.5	21.4	21.2	22.6	23.4	21.2	18.6	22.8	20.1	22.3	14

TABLE VII (C)

Showing the effect of surface evaporation and formation of pellicular zone in soil profiles.

CLAY=6.95.

Depth from N.S. in feet.	19-6-44	16-8-44	19-9-44	17-10-44	8-11-44	18-12-44	25-1-45	19-2-45	21-3-45	16-4-45	22-5-45	19-6-45	13-7-45	6-8-45	12-9-45	8-10-45	20-11-45	11-2-45
	Moisture Percentage.																	
1	26.2	21.6	13.1	7.6	8.4	7.2	6.6	6.5	3.1	2.8	1.5	1.6	0.3	0.6	0.4	1.0	1.4	1.0
2	24.9	23.9	15.9	8.9	9.9	8.3	8.0	7.4	3.8	3.3	2.4	2.2	2.6	2.9	2.5	3.0	2.8	3.0
3	25.6	24.4	17.0	9.2	9.4	8.8	8.8	8.8	5.6	6.8	4.9	2.9	4.3	5.1	4.1	5.0	2.7	5.3
4	19.7	25.6	18.0	11.9	9.9	9.4	9.3	8.9	4.9	5.0	4.5	4.4	5.0	4.1	4.5	5.2	4.8	5.4
5	22.1	24.2	17.7	12.5	12.5	10.9	9.9	9.1	5.5	4.6	5.5	4.8	4.8	4.9	4.9	5.0	5.4	8.7
6	22.6	24.0	19.6	15.6	11.6	11.4	10.4	9.8	6.9	5.9	4.9	5.2	5.7	4.9	5.3	6.8	6.2	7.9
7	22.7	23.5	18.2	17.6	12.5	11.7	10.6	10.8	9.9	7.3	6.1	5.6	5.6	6.4	7.0	7.0	7.2	7.5
8	20.9	24.1	20.9	17.3	12.5	13.2	11.9	11.6	10.0	6.4	7.6	8.4	9.3	6.9	7.1	7.5	7.8	7.6
9	21.4	25.7	21.1	18.3	14.0	13.4	15.1	13.8	10.2	7.1	7.7	8.2	8.0	6.9	7.9	8.3	10.4	11.1
10	23.0	24.8	20.3	19.3	16.3	16.0	16.3	15.8	10.4	7.5	8.4	7.6	9.4	7.3	9.1	9.2	10.7	10.9
11	23.6	25.9	21.0	20.3	19.0	19.3	19.6	17.8	11.6	10.9	9.8	12.5	11.5	12.0	11.6	11.8	11.6	14.8
12	24.6	26.5	23.4	23.5	21.7	24.5	22.8	20.8	17.1	12.7	12.2	13.3	12.5	13.1	13.0	13.3	14.1	15.9
13	24.9	26.5	25.7	27.1	27.7	26.0	25.8	26.5	15.3	14.1	15.9	16.7	17.3	17.5	14.8	14.9	17.2	18.9
14	23.5	27.6	28.0	29.6	30.8	26.6	27.3	26.3	21.7	22.8	21.6	28.5	25.3	22.1	24.1	25.5	22.3	19.9

TABLE VII (D)

CLAY 4.9 %

	19-6-44	16-8-44	19-9-44	17-10-44	8-11-44	18-12-44	23-1-45	16-2-45	21-3-45	16-4-45	22-5-45	19-6-45	13-7-45	6-8-45	12-9-45	20-11-45	17-12-45
	Moisture Percentage.																
1	19.2	16.9	9.8	7.6	4.4	2.7	3.3	1.1	1.3	2.1	...	0.3	0.3	0.4	0.6	0.7	Nil.
2	21.0	18.9	12.0	9.9	5.6	4.9	5.0	3.5	3.6	2.4	0.9	0.7	0.4	0.7	0.5	0.8	0.2
3	20.0	20.3	14.0	10.2	9.4	6.3	5.1	5.0	4.1	3.8	2.1	0.6	1.2	1.2	1.2	1.8	1.0
4	20.0	21.1	14.2	13.3	9.0	6.4	5.3	5.2	4.7	3.6	2.3	2.2	1.9	1.3	1.4	2.0	1.8
5	18.4	20.0	13.6	13.6	8.5	6.3	5.6	5.2	5.8	3.6	3.1	3.1	4.4	2.7	2.6	3.9	1.4
6	18.4	19.5	13.6	12.4	9.9	5.8	6.3	5.9	5.4	3.7	2.9	2.2	2.8	3.7	2.6	3.3	2.3
7	17.5	19.9	15.6	13.6	12.3	7.2	5.5	5.0	7.1	6.0	2.9	2.0	2.4	2.8	2.6	2.5	2.7
8	17.7	21.1	15.5	14.7	11.5	8.7	6.9	7.2	5.3	4.9	3.1	2.1	3.1	4.6	3.4	4.1	3.8
9	15.6	18.3	16.1	13.9	11.9	9.0	7.7	6.6	7.4	5.1	4.2	3.9	6.6	3.9	3.9	5.1	4.2
10	17.0	18.2	16.3	15.8	11.9	8.9	8.0	8.1	7.0	5.4	4.9	4.0	2.6	4.3	4.2	5.5	4.1
11	14.7	18.3	19.9	17.3	13.3	11.9	8.9	9.5	11.3	7.2	6.6	6.3	5.3	6.5	5.9	7.6	6.8
12	14.9	20.3	20.2	18.7	16.8	14.0	11.7	11.2	11.9	7.4	8.1	6.9	9.3	5.7	6.8	7.7	9.7
13	19.3	27.2	30.3	22.3	21.9	15.5	12.7	12.7	12.9	10.9	9.6	7.7	10.2	8.3	7.7	9.0	7.5
14	25.3	28.1	31.8	27.7	27.1	20.5	12.5	14.4	19.6	13.2	11.1	9.6	10.0	9.8	8.7	11.3	8.4

TABLE VIII (A)

Showing the Effect of Dry-Bulk Density on the Movement of Moisture in a Soil Profile.

DRY-BULK DENSITY=1.80.

Depth from N.S. in feet.	22-7-44	24-8-44	19-10-44	10-11-44	20-12-44	22-1-45	16-2-45	21-3-45	17-4-45	23-5-45	22-6-45	12-7-45	7-8-45	14-9-45	26-11-45	17-12-45
1	19.5	14.4	9.0	5.2	2.0	4.6	3.4	4.3	5.3	1.9	2.7	1.6	2.2	1.9	3.3	1.4
2	21.0	18.4	12.5	7.6	2.6	9.1	7.2	6.1	7.8	6.3	6.4	5.6	5.2	4.7	6.0	1.9
3	20.7	17.5	14.4	12.2	8.5	10.9	9.8	8.8	9.3	7.5	7.4	7.4	6.2	4.9	7.3	3.3
4	17.7	20.0	14.2	12.4	10.9	11.6	13.6	7.9	9.8	6.6	7.7	8.7	8.5	8.3	8.7	4.8
5	17.9	20.7	12.0	11.1	11.5	12.1	14.6	11.6	11.0	9.4	8.4	9.5	10.9	12.2	10.2	11.0
6	17.2	18.3	14.7	14.6	13.6	13.5	15.6	13.8	11.9	9.6	9.1	10.5	12.0	13.4	11.5	12.9
7	18.1	16.5	16.4	15.9	13.1	15.0	16.3	14.2	13.3	14.2	11.9	12.5	13.6	14.8	14.8	14.3
8	4.5	19.9	17.3	16.5	16.1	16.5	17.0	15.9	16.4	15.5	15.0	15.7	15.6	15.6	18.1	16.5
9	12.2	19.6	16.8	16.5	16.5	17.7	17.2	17.9	18.2	16.7	16.7	17.1	18.1	16.8	20.0	17.9
10		17.7	18.0	18.5	17.0	19.3	17.9	18.5	19.1	16.7	19.2	17.9	18.0	18.9	21.0	18.8
11	17.9	20.9	19.1	17.6	20.2	21.2	18.6	20.3	21.3	20.2	20.5	21.1	21.3	18.3	20.5	19.8
12	17.9	21.9	20.1	20.2	23.1	23.1	20.6	22.2	23.4	22.6	21.1	22.2	20.9	18.8	20.6	21.2
13	21.9	20.9	22.2	21.6	23.5	22.5	23.9	22.6	26.0	25.8	25.0	23.3	22.3	21.8	22.1	24.1
14	24.3	25.7	23.4	23.4	24.8	26.5	23.0	25.5	27.5	29.5	25.4	23.5	24.3	23.6		25.4

TABLE VIII (B)

DRY-BULK DENSITY=1.60

	22-7-44	24-8-44	19-10-44	10-11-44	20-12-44	22-1-45	16-2-45	21-3-45	17-4-45	23-5-45	22-6-45	12-7-45	7-8-45	14-9-45	21-11-45	17-12-45
	Moisture Percentage															
1	22.6	22.6	12.9	11.7	5.2	7.7	6.5	5.4	4.3	1.2	1.0	2.0	2.2	1.9	1.3	2.5
2	21.7	20.5	13.3	13.3	9.2	9.2	9.8	6.6	7.3	3.0	3.4	5.2	7.0	4.8	2.4	4.7
3	22.3	22.6	14.2	13.9	10.8	10.9	10.5	7.9	5.2	4.1	6.4	6.5	7.5	2.8	4.1	6.2
4	22.4	22.6	14.1	14.1	12.4	11.6	11.1	9.4	8.1	6.6	5.5	6.4	7.3	6.4	7.9	6.0
5	21.6	24.3	15.6	15.1	14.0	14.7	12.3	9.9	10.2	9.7	9.9	11.2	11.2	9.0	11.1	8.8
6	21.3	24.8	17.0	15.7	13.3	14.2	13.8	11.9	12.4	9.7	9.5	10.0	10.8	10.3	12.3	8.9
7	19.0	24.7	16.4	16.7	16.4	13.2	15.3	12.6	14.6	12.5	13.2	15.2	15.0	13.5	15.2	14.2
8	20.0	24.3	17.0	16.6	17.5	15.6	17.8	14.0	17.3	14.0	14.8	15.9	16.0	15.6	16.6	15.5
9	17.9	23.8	18.1	17.6	19.6	18.0	18.0	15.4	16.8	14.8	16.7	16.6	16.5	15.4	16.6	18.1
10	20.3	24.9	18.9	20.4	21.7	18.7	19.5	19.2	22.2	16.9	18.6	17.5	18.3	17.1	18.2	20.0
11	21.4	23.9	19.5	19.5	21.8	22.7	21.1	22.1	22.1	20.3	19.4	19.0	20.6	19.8	19.5	29.4
12	21.9	23.4	22.6	22.4	23.5	20.2	21.2	23.4	24.2	21.6	21.4	20.0	20.6	21.8	20.2	20.6
13	22.0	25.9	22.9	22.9	25.2	22.9	21.4	22.4	24.5	24.5	23.1	21.9	21.2	22.6	21.6	22.2
14	26.0	28.3	25.9	25.5	26.6	24.7	24.5	24.4	28.1	26.3	24.6	22.6	23.9	22.6	24.4	24.6

TABLE VIII (C)

Showing the effect of Dry-Bulk Density on the movement of Moisture in a Soil Profile.

DRY-BULK DENSITY=1.45

	22-7-44	24-8-44	19-10-44	10-11-44	20-12-44	22-1-45	16-2-45	21-3-45	17-4-45	23-5-45	22-6-45	12-7-45	7-8-45	14-9-45	21-11-45	18-12-45
	Moisture Percentage															
1	18.5	17.0	12.1	11.8	6.7	6.8	5.5	4.5	3.1	1.2	2.2	1.6	1.9	1.5	1.7	1.9
2	20.6	18.0	13.1	12.9	7.8	9.3	7.4	5.8	5.1	2.8	2.3	4.9	2.6	2.0	2.1	2.4
3	21.8	21.2	14.6	14.8	8.0	8.8	8.1	6.5	5.4	4.2	4.9	4.4	4.9	3.3	2.8	2.8
4	21.5	19.8	14.1	12.0	8.8	10.3	8.8	7.2	6.5	4.6	5.1	4.7	4.8	4.3	3.7	4.4
5	20.1	19.7	15.7	12.9	10.0	11.2	9.2	8.2	7.1	5.2	7.2	7.6	8.9	6.9	5.2	4.4
6	22.4	20.2	18.4	13.6	10.4	12.1	10.2	8.9	11.8	9.7	10.5	10.2	11.3	9.5	9.7	5.9
7	22.7	20.2	18.7	13.9	13.2	17.1	13.9	12.2	13.0	12.9	13.9	15.0	15.8	14.1	13.2	9.6
8	19.8	19.6	18.3	14.6	15.1	16.4	14.9	13.7	14.9	14.1	14.0	15.1	15.7	14.8	14.3	14.4
9	12.3	18.8	18.8	15.8	15.9	17.1	16.4	16.6	16.5	15.4	15.9	16.8	17.2	16.6	15.0	16.5
10	15.3	19.7	20.9	16.9	17.2	18.3	18.5	17.0	18.4	16.6	17.4	16.8	17.2	17.1	15.8	16.4
11	16.9	19.3	21.7	16.8	18.7	20.6	19.4	18.3	22.8	20.1	19.3	16.2	18.1	17.1	15.8	16.4
12	20.8	20.4	21.7	19.9	20.9	23.1	20.5	19.6	22.8	21.6	21.0	20.2	20.6	18.4	18.9	18.6
13	22.9	22.6	21.2	21.8	23.9	25.7	22.6	22.1	25.2	24.8	24.1	22.5	23.9	19.7	21.6	23.5
14	24.6	22.5	23.5	24.2	24.8	25.2	26.4	27.5	29.6	27.1	24.7	25.2	23.8	25.0	26.8	26.1

TABLE IX

Showing the redistribution of moisture in a soil column containing higher moisture at the top.

	Original Moisture %	Final Moisture %	Increase (+) or Decrease (-) %
Top	21.5	19.8	-1.7
Bottom	18.7	20.5	+1.8
Top	19.7	18.5	-1.2
Bottom	15.1	16.5	+1.4
Top	18.1	17.5	-0.6
Bottom	15.1	16.1	+1.8
Top	15.9	15.2	-0.7
Bottom	10.0	12.6	+2.6
Top	12.0	10.8	-1.2
Bottom	7.5	9.5	+2.0
Top	12.2	10.1	-2.1
Bottom	6.6	7.8	+1.2

TABLE X

Showing the redistribution of moisture in a soil column containing lower moisture at the top

	Original Moisture %	Final Moisture %	Increase (+) Decrease (-)
1. Top	15.1	17.6	+2.5
Bottom	19.7	17.7	-2.0
2. Top	15.1	15.8	+0.7
Bottom	18.1	16.7	-1.4
3. Top	10.0	12.2	+2.2
Bottom	15.9	14.7	-1.2
4. Top	7.5	9.4	+1.9
Bottom	12.0	10.7	-1.3
5. Top	6.6	7.9	+1.3
Bottom	12.2	10.1	-2.1

TABLE XIII

Effect of the Thickness of soil Blocks on the moisture redistribution.

Thickness of Soil Block (Cm.)	Position of block.	Original Moisture percentage.	Final Moisture percentage.	Decrease or increase of moisture percentage.
A. Soil at a higher moisture content placed at the top.				
.0	Top	16.4	15.1	- 1.3
	Bottom	11.8	13.0	+1.2
.0	Top	16.4	15.6	- 0.8
	Bottom	11.8	13.2	+1.4
.0	Top	17.0	15.8	- 1.2
	Bottom	11.1	13.1	+2.0
B. Soil at a lower moisture content placed at the top.				
.0	Top	11.8	12.5	+0.7
	Bottom	16.4	15.1	- 1.3
.0	Top	11.8	12.8	+1.0
	Bottom	16.4	15.2	- 1.2
.0	Top	11.1	13.1	+2.0
	Bottom	17.0	15.5	- 1.5

TABLE XI.

Effect of time on redistribution of moisture in a soil column containing higher moisture % at the top and lower moisture % at the bottom.

	One Day.		Two days.		Three days.		Four days.		Five days.		Six days.		Seven days.	
	Moisture %		Moisture %		Moisture %		Moisture %		Moisture %		Moisture %		Moisture %	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
Initial moisture percentage	20.24	15.92	20.69	16.07	19.86	16.02	21.12	16.00	21.02	15.73	21.08	15.52	20.72	15.50
0-1.2" ...	19.60	17.40	19.50	17.04	16.24	16.90	19.44	18.41	18.60	17.11	18.56	17.50	19.22	17.50
1.2-2.4" ...	19.40	17.10	19.30	17.56	18.31	17.43	19.25	18.32	18.90	17.90	18.90	17.80	19.35	17.70
Increase in moisture ...	-0.74	+1.33	-1.29	+1.23	-1.58	+1.15	-1.77	+2.37	+2.27	+1.77	-2.35	+3.13	-1.43	+2.10

TABLE XII.

Effect of time on redistribution of moisture in a soil column containing lower moisture % at the top and higher moisture % at the bottom.

	One day.		Two days.		Three days.		Four days.		Five days.		Six days.		Seven days.	
	Moisture %		Moisture %		Moisture %		Moisture %		Moisture %		Moisture %		Moisture %	
	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
Initial moisture percentage	15.92	20.24	16.07	20.69	16.02	19.86	16.00	21.12	15.73	21.02	15.52	21.08	15.50	20.72
0-1.2" ..	16.80	19.70	18.50	19.80	17.10	18.50	16.90	20.50	17.60	19.40	17.10	19.50	16.80	18.00
1.2-2.4" ...	16.80	19.30	18.10	20.10	17.10	19.50	17.10	19.60	17.70	19.10	17.20	19.70	16.70	19.10
Increase in moisture ...	+0.88	-0.74	+2.23	-0.74	+1.08	-0.86	+1.00	-1.07	+1.92	-1.77	+1.63	-1.43	+1.25	-2.17

TABLE XIV.

Values of 'K' as determined from the relation $I - p S^2$ in soil blocks compacted to varying Dry-Bulk densities.
 $I + p T$

Serial No.	Initial moisture percentage.		Final moisture percentage.		Density	M (initial mean moisture	dM mean difference of initial moisture	Increase or decrease (1-p) dM	K'	Mean value of 'K'	Temperature °C.
	Upper	Lower	Upper	Lower							
1	M+dM 10.1	M-dM 5.5	M+pdM 8.4	M-pdM 6.6	1.5	7.80	2.30	-1.7 +1.1	.44	...	15.0
2	14.6	10.1	13.9	10.4	1.5	12.35	2.25	-0.7 +0.3	.12	...	15.0
3	15.3	6.0	12.3	8.5	1.5	10.65	4.65	-3.0 +2.5	.41	...	15.0
4	17.5	11.1	15.6	13.0	1.5	14.30	3.20	-1.9 +1.9	.42	...	15.0
5	19.3	14.6	18.3	15.5	1.5	16.95	2.35	-1.0 +0.9	.17	...	15.0
6	8.1	5.4	7.7	6.8	1.5	6.75	1.35	-0.4 +1.4	.50	...	20.0
7	10.4	5.0	9.1	6.8	1.5	7.70	2.70	-1.3 +1.8	.40	...	20.0
8	10.3	8.1	9.5	8.4	1.5	9.20	1.10	-0.8 +0.3	.33	...	20.0
9	12.4	8.1	11.3	8.6	1.5	10.25	2.15	-1.1 +0.5	.23	...	20.0
10	12.4	10.4	11.6	11.0	1.5	11.40	1.00	-0.8 +0.6	.54	...	20.0
11	13.4	10.5	12.9	10.9	1.5	11.95	1.45	-0.5 +0.4	.15	...	20.0
12	15.1	10.4	13.9	11.5	1.5	12.75	2.35	-1.2 +1.1	.32	...	20.0
13	15.1	12.8	14.7	13.5	1.5	13.95	1.15	-0.4 +0.7	.32	...	20.0
14	17.0	12.4	16.3	13.0	1.5	14.70	2.30	-0.7 +0.6	.17	...	20.0
15	18.4	15.1	16.8	15.9	1.5	16.75	1.65	-1.6 +0.8	.57	...	20.0
16	19.6	15.1	18.7	16.0	1.5	17.35	2.25	-0.9 +0.9	.25	...	20.0
17	21.8	17.0	20.0	17.7	1.5	19.40	2.40	-1.8 +0.7	.35	...	20.0
18	21.8	19.3	20.9	19.8	1.5	20.55	1.25	-0.9 +0.5	.39	...	20.0
19	15.9	6.0	12.6	8.1	1.5	10.95	4.95	-3.3 +2.1	.38	.34	25.5
20	14.9	5.4	12.5	7.8	1.5	10.15	4.75	-2.4 +2.4	.34	...	25.5
21	14.8	6.1	12.1	8.1	1.5	10.45	4.35	-2.7 +2.0	.37	...	25.5
22	14.1	5.4	11.1	8.0	1.5	9.75	4.35	-3.0 +2.6	.36	...	25.5
23	10.8	5.1	9.1	7.1	1.5	7.95	2.85	-1.7 +2.0	.48	...	27.5
24	10.1	5.3	8.3	6.1	1.5	7.70	2.40	-1.8 +0.8	.37	...	27.5
25	10.0	5.1	8.1	5.9	1.5	7.55	2.45	-1.9 +0.8	.38	...	27.5
26	9.8	5.4	7.8	6.2	1.5	7.60	2.20	-2.0 +0.8	.47	...	27.5
27	16.3	10.2	13.2	11.9	1.5	13.25	3.05	-3.1 +1.7	.59	...	27.5
28	13.9	9.2	11.9	9.8	1.5	11.55	2.35	-2.0 +0.6	.38	...	27.5
29	13.4	9.1	11.9	9.8	1.5	11.25	3.15	-1.5 +0.7	.34	...	27.5
30	14.6	9.1	13.5	9.5	1.5	11.85	2.75	-1.1 +0.4	.18	...	27.5
31	11.6	7.4	10.4	9.6	1.6	9.50	2.10	-1.2 +2.2	.40	...	30.0
32	11.6	7.7	10.3	8.3	1.6	9.65	1.95	-1.3 +0.6	.32	...	30.0
33	10.7	6.8	9.4	8.1	1.6	8.75	1.95	-1.3 +1.3	.50	...	30.0
34	11.6	7.4	9.3	8.1	1.6	9.50	2.10	-2.3 +0.7	.31	...	30.0
35	12.0	7.2	10.5	8.7	1.6	9.60	2.40	-1.5 +1.5	.16	...	30.0
36	12.1	6.6	10.1	7.7	1.6	9.35	2.75	-2.0 +1.1	.39	...	30.0
37	11.5	6.9	9.5	8.0	1.6	9.20	2.30	-2.0 +1.1	.51	...	30.0
38	13.1	9.1	12.4	10.3	1.6	11.10	2.00	-0.7 +1.2	.31	...	32.5
39	12.9	8.8	11.6	10.2	1.6	10.85	2.05	-1.3 +1.4	.42	...	32.5
40	13.2	9.0	12.1	9.8	1.6	11.10	2.10	-1.1 +0.8	.29	...	32.5
41	13.0	8.1	10.9	9.9	1.6	10.55	2.45	-2.1 +1.6	.66	...	32.5
42	15.5	11.0	14.9	12.9	1.6	13.25	2.25	-0.6 +1.9	.38	...	32.5
43	16.8	11.4	15.6	13.1	1.6	14.10	2.70	-1.2 +1.7	.37	0.40	32.5
44	10.2	5.0	7.4	5.8	1.7	7.60	2.60	-2.8 +0.8	.53	...	35.5
45	9.5	5.1	6.8	6.2	1.7	7.30	2.20	-2.7 +1.1	.76	0.64	35.5
46	9.2	4.7	7.7	5.9	1.8	6.95	2.25	-1.5 +1.2	.43	...	35.5
47	9.8	5.0	8.2	6.6	1.8	7.40	2.40	-1.6 +1.6	.50	...	35.5
48	9.9	4.5	8.1	6.9	1.8	7.20	2.70	-1.8 +2.4	.64	.52	35.5

TABLE XV*Showing the value of Capillary Potential (K) at increasing.***DRY-BULK DENSITY**

Dry-Bulk Density	Value of K
1.5	0.34
1.6	0.40
1.7	0.64
1.8	0.52

TABLE XVI

Values of 'K' for soils containing different amounts of Clay.

Clay Percentage.	Mean Moisture Percentage.	Density.	'K'	Mean value of 'K'
16.8	10.95	1.5	.38	
16.8	7.95	1.5	.48	
16.8	13.25	1.5	.58	0.48
9.4	10.15	1.5	.34	
9.4	7.70	1.5	.37	
9.4	11.55	1.5	.38	0.36
7.0	10.45	1.5	.37	
7.0	7.55	1.5	.38	
7.0	11.25	1.5	.34	0.36
5.0	9.75	1.5	.36	
5.0	7.60	1.5	.47	
5.0	11.85	1.5	.18	0.34
16.8	13.25	1.6	.38	
16.8	9.50	1.6	.40	
16.8	9.50	1.6	.16	
16.8	11.10	1.6	.31	0.31
9.4	9.65	1.6	.32	
9.4	9.35	1.6	.39	
9.4	10.85	1.6	.42	
9.4	14.65	1.6	.53	0.42
7.0	8.75	1.6	.50	
7.0	11.10	1.6	.29	
7.0	14.10	1.6	.37	0.39
5.0	9.50	1.6	.31	
5.0	9.20	1.6	.51	
5.0	10.55	1.6	.66	0.49
9.4	7.60	1.7	.53	0.53
5.0	7.30	1.7	.76	0.76
9.4	6.95	1.8	.43	0.43
7.0	7.49	1.8	.50	0.50
5.0	7.20	1.8	.64	0.64

TABLE XVII

Showing the rate of absorption of Moisture by Calcium Chloride.

Interval in Hours.	Moisture absorbed by 1.6 gms of calcium chloride	Temperature	Remarks
1	0.0098 gms.	32.5 °C	} Calcium chloride remained in solid state
2	0.1306 gms.	32.5 C	
3	0.2040 gms,	32.5 C	
4	0.2588 gms.	32.5 C	
20.25	1.0832 gms.	32.5 C	Change to liquid.

TABLE XVIII

Showing data for the determination of Value 'K' in Moisture Transmission for Soils.

Depth from natural surface in centimeters.	UNSUCCESSFUL		SUCCESSFUL			
	Original Moisture %	Final Moisture %	Original Moisture %	Final Moisture % (after 72 hours)	Original Moisture %	Final Moisture % (after 24 hours)
10	20.7	25.5	21.1	19.3	18.8	16.5
9	20.0	17.6	20.3	18.9	17.9	17.1
8	18.6	17.3	19.4	19.3	17.6	17.9
7	17.6	18.5	18.3	18.3	15.5	16.5
6	15.2	18.5	16.8	17.1	16.4	15.8
5	15.7	21.7	15.8	16.3	13.4	15.5
4	14.8	18.5	15.1	15.3	13.0	14.3
3	13.5	10.5	14.8	14.6	13.0	13.1
2	12.9	18.5	13.0	12.9	12.2	11.5
1	11.8	17.7	12.1	10.5	10.2	9.9
VALUE OF K :			0.41			0.32