

TABLES

TABLE - 1 : SOME OF THE MAJOR AIR POLLUTION EPISODES

Location	Year	Climatic conditions	Sources of pollutant	Pollutants	Effects
Donara U.S.A.	Oct., 1948	Anti-cyclonic weather, temp. inversion	Highly industrialized areas including steel and zinc plants	SO _x with particulates	17 persons died, and few 1000's were affected.
Poza Rica Mexico	Nov., 1950	--	Accidental mishandling of natural gas processing machinery	Accidental spillage of H ₂ S	22 persons died and 320 affected
London U.K.	Dec., 1952	Anti-cyclonic weather, temp. inversion, Fog	House-hold coal burning etc.	SO _x and solid matter in coal smoke	4000 persons died and many many 100's were affected
Bhopal India	Dec., 1984	Winter	Union Carbide	Methyl Isocyanate	More than 2000 persons died and 30,000 affected
Chernobyl U.S.S.R.	Apr., 1986	Strong wind currents	Nuclear plant	Radio-active emissions Volatile cesium iodine 131	31 persons died and 1000's were immediately affected

TABLE 2: VISIBLE SYMPTOMS PRODUCED BY DIFFERENT AIR POLLUTANTS
(Based on Heck and Brandt, 1977)

Pollutant	Symptoms
SO ₂	Initial water soaked appearance resulting in dry and papery bleached patches of ivory or tan colour, interveinal chlorosis, tip and marginal burning of leaf.
NO _x	Silvering of interveinal regions of upper surface at higher concentration of pollutant.
PAN	Glazing or bronzing of lower surface of leaf. Irregular collapsed banding of leaves in grasses.
Cl ₂	Tip and marginal burning at low concentration of pollutant, defoliation at higher concentration.
Flourides	Bronzing, necrosis, necrotic tissue surrounded by brown red band.
O ₃	Silvering of interveinal regions of lower surface of leaf, stippling and flecking on upper surface.
NH ₃	Collapse of tissue without subsequent loss of chlorophyll.
Ethylene	Epinasty, stimulation of lateral buds and roots, failure of blooming, loss of apical dominance. Abscission of leaves, young fruits and flowers by direct exposure or its production in stressed condition (eg. exposure to any other pollutant).

**TABLE - 3 : METEOROLOGICAL PARAMETERS RECORDED
IN THE STUDY AREA***

Month	Temperature °C		Wind Speed (Km/h)	Relative Humidity (%)
	Minimum	Maximum		
March	18.9	35.4	6.4	41
April	19.6	38.3	8.2	52
May	25.9	39.5	8.5	54
June	28.1	39.0	13.6	62
July	26.1	35.2	12.4	74
August	25.4	31.9	9.7	85
September	24.8	35.0	7.3	71
October	23.2	36.5	4.1	55
November	20.3	31.8	6.3	67
December	12.1	32.0	5.2	60
January	12.5	30.2	5.4	57
February	14.0	30.5	6.0	48

*Data given are monthly averages for the period 1983-1987; obtained from the Meteorological Observatory M.S. University, Baroda.

**TABLE 4 : MAJOR INDUSTRIES AND POLLUTANTS
OF THE STUDY AREA**

A. Large Scale Industries :		
Industry	Products	Pollutants
1. Oil Refinery	C ₁ - C ₄ Hydrocarbons (gas fuel), Gasolene (Aviation turbine fuel), Naphtha, Heavy Kerosene, Fuel Kerosene	Ethylene and other hydrocarbons, SO ₂ , CO
2. Petrochemicals complex	Orthoxylene, Mixed Xylene Paraxylene, Dimethyl tetraphthalate, Indothene, Ethylene dichloride, Polyethylene glycol, ethylene glycol, Ethylene oxide, acrylonitrile, Acrylic fibre, Vinyl chloride, Indovin PVC, Hydrocynic acid & Benzene etc	SO ₂ , CO ₂ , CO, NO _x , mixture of malodorous, gases including H ₂ S & hydrocarbons, Cl ₂ , SPM(Carbon)
3. Fertilizer complex	Diamonium phosphate, Amonium sulphate, Urea, Caprolectum, Liquid ammonia	SO ₂ , NO _x , NH ₃ , HF, SPM
4. Phenolics	Formaldehyde, Novalac, Phenolic resins	
5. Alkalies and Chemicals industries	Caustic soda, liquid chlorine, Mercury, Hydrochloric acid, Sodium Cynide	Cl ₂ , Hg,
B. GIDC Estate's (Nandesari) Medium scale Industries		
1. Deepak Nitrite Ltd.	Sodium nitrite, Nitric acid etc.	NO _x
2. Ashok Organic Industries Ltd.	Ethylene diamine tetra-acetic acid (EDTA) and its salts, Acetic acid, HCl, Methyl-dichloro acetate	Cl ₂
3. Benzo Chemicals Combines	Benzyl chloride, Acetyl chloride, Amomonium chloride	Cl ₂
4. Apex	Paranitro-chloro-benzene,	Cl ₂

Table 5 : AVERAGE AMBIENT AIR CONCENTRATION OF MAJOR POLLUTANTS**SO₂ and NO_x (µgm⁻³)**

ZONES	MONITORING POINTS	AVERAGE CONCENTRATION					
		ANNUAL		MONSOON		WINTER	
		SO ₂	NO _x	SO ₂	NO _x	SO ₂	NO _x
R ₁	1a	4.0 (1.4- 8.2)	32.7 (6.8-80.3)	3.0 (1.4- 6.9)	27.5 (6.8-67.2)	5.0 (1.6- 7.1)	33.9 (7.2-60.4)
R ₂	1b	2.5 (1.2- 4.3)	12.5 (3.6-18.5)	2.1 (1.2- 3.9)	10.1 (3.6-12.5)	2.6 (1.2- 4.2)	12.3 (3.9-17.4)
I	2	3.9 (1.2-15.4)	35.8 (11.2-70.1)	3.3 (1.2- 7.4)	21.7 (11.2-40.4)	5.7 (2.5-10.0)	46.6 (12.4-49.6)
II	3	5.1 (1.7-18.2)	31.8 (8.6- 91.4)	5.8 (1.7-16.2)	28.4 (8.6-72.4)	4.0 (1.4-11.9)	45.9 (10.4- 91.4)
III	4	12.7 (1.6-35.8)	30.3 (7.6-83.5)	8.9 (1.9-25.8)	33.0 (15.8-83.5)	3.6 (1.6-14.4)	30.3 (7.6-60.2)
IV	5	15.1 (1.6-76.1)	44.6 (7.3-116.3)	14.6 (3.2-35.1)	34.0 (7.3-35.1)	22.1 (4.5-76.1)	64.9 (8.3-116.3)
V	6	13.5 (1.6-96.4)	55.4 (7.8-157.6)	15.3 (3.5-96.4)	43.3 (7.8-76.8)	14.5 (1.6-45.1)	98.8 (22.1-157.6)
VI	7	21.8 (4.6-125.4)	61.2 (9.8-243.0)	22.8 (14.3-125.4)	50.9 (12.8-210.0)	10.0 (4.6-76.5)	46.4 (9.8-146.0)
VII							
VIII							

Values in paranthesis are minimum and maximum values of concentration recorded during the monitoring period.

FIELD SURVEY OF COMMON CROPS

(Tables 6 - 10)

R_1 = Reference zone 1

I - VIII = Polluted zones

ND = No damage

NR = Observations not recorded

Table 6 : IMPACT OF INDUSTRIAL AIR POLLUTION ON DIFFERENT CROPS

YIELD (% Reduction)

CROPS	ZONES							
	I	II	III	IV	V	VI	VII	VIII
Millet	12.0	-	15.0	8.0	18.0	-	43.0	-
Paddy	20.0	-	34.0	25.0	27.0	77.0	-	-
Maize	11.0	-	20.0	-	-	55.0	60.0	-
Wheat	20.0	28.0	35.0	70.0	85.0	71.0	74.0	-
Potato	-	-	0.0	30.0	45.0	35.0	-	-
Pigeonpea	0.0	-	5.0	30.0	48.0	-	-	70.0
Tobacco	5.0	0.0	10.0	20.0	28.0	40.0	42.0	44.0

- Crop not grown

Table 7 : *Nicotiana tabacum* Linn.

7.1 : Height (cm/plant)

ZONES	Age of the Plants - in days			
	30	60	90	120
R ₁	5.20	12.20	41.20	62.30
I	5.15	12.00	40.50	60.67
II	5.48	13.01	44.47	68.16
IIIa	4.50	9.78	35.80	54.20
IIIb	5.00	11.20	36.60	56.00
IIIc	5.00	11.30	37.00	57.90
IV	4.69	10.73	32.90	47.90
Va	4.48	9.76	30.44	44.80
Vb	4.58	10.37	32.10	48.50
Vc	4.69	10.73	32.80	49.20
VI	3.76	7.56	27.10	42.36
VII	3.56	7.93	26.37	40.99
VIII	4.60	10.37	31.30	40.40

sd is not more than ± 1.5 7.2 : Total Leaf Area (cm²/plant)

ZONES	Age of the plants - in days				
	30	60	90	120	150
R ₁	225.20	3185.50	9835.20	18562.80	19431.50
I	221.80	3121.15	9540.14	17727.47	18557.08
II	231.73	3312.28	10277.78	19490.94	20694.55
IIIa	199.30	2770.11	8458.27	16520.89	17488.35
IIIb	200.41	2830.95	8654.98	16892.15	17795.37
IIIc	202.59	2866.63	8694.32	17036.94	17876.98
IV	193.67	2699.71	8261.57	14850.24	15195.43
Va	188.72	2611.79	8064.86	13922.10	14185.00
Vb	191.87	2707.36	8163.22	15407.12	15156.57
Vc	195.92	2739.21	8359.92	15592.75	15545.20
VI	144.13	2006.87	4917.60	10766.42	10881.64
VII	144.85	1975.01	4720.90	10395.17	10493.01
VIII	175.61	2516.23	7376.40	12622.70	12824.79

sd is not more than ± 11.6
all values are average of 25 replicates

Nicotiana tabacum Linn.**7.3 : Injury Index (%)**

ZONES	Age of the Plants - in days			
	30	60	90	120
I	ND	ND	ND	ND
II	ND	ND	ND	ND
IIIa	ND	ND	ND	ND
IIIb	ND	ND	ND	ND
IIIc	ND	ND	ND	ND
IV	ND	ND	ND	ND
Va	ND	ND	ND	3.50
Vb	ND	ND	ND	ND
Vc	ND	ND	ND	ND
VI	ND	2.00	3.00	4.20
VII	ND	3.00	3.60	4.70
VIII	ND	ND	3.20	4.50

sd is not more than ± 0.55 **7.4 : Biomass (gms/plant)**

ZONES	Age of the plants - in days				
	30	60	90	120	150
R ₁	2.52	15.71	27.41	48.57	48.98
I	2.48	15.19	26.07	45.70	45.62
II	2.60	16.35	28.66	51.68	52.72
IIIa	2.23	12.58	21.95	41.30	43.50
IIIb	2.24	13.31	22.48	42.20	44.46
IIIc	2.27	13.71	24.41	44.60	44.90
IV	2.09	12.04	20.28	35.46	34.78
Va	2.01	11.25	19.49	33.56	33.08
Vb	2.08	11.88	19.96	34.98	35.25
Vc	2.14	12.29	20.56	36.43	36.22
VI	1.59	9.14	13.66	27.20	27.06
VII	1.45	8.49	13.06	26.23	26.10
VIII	1.96	9.77	17.76	27.20	26.03

sd is not more than ± 2.1
all values are average of 25 replicates

Nicotiana tabacum Linn.

7.5 : RGR (mg/gm/day)

ZONES	Age of the plants - in days			
	30-60	60-90	90-120	120-150
R ₁	61.0012	18.5537	19.0699	0.2802
I	60.4204	17.9941	18.7140	-0.0545
II	61.2876	18.7166	19.6514	0.6633
IIIa	57.6808	18.5453	21.0692	1.7300
IIIb	59.3918	17.4778	20.9928	1.7402
IIIc	59.9563	19.2115	20.0983	0.2220
IV	58.3767	17.3675	18.6299	-0.6456
Va	57.4037	18.3294	18.1094	-0.4809
Vb	58.0737	17.3048	18.6970	0.2616
Vc	58.2532	17.1654	19.0699	-0.1942
VI	58.2219	13.3838	22.9610	-0.1692
VII	58.8692	14.3457	23.2469	-0.1609
VIII	53.5503	19.9135	14.2159	-1.4668

7.6 : NAR (mg/cm²/day)

ZONES	Age of the plants - in days			
	30-60	60-90	90-120	120-150
R ₁	0.3934	0.0661	0.0513	0.0007
I	0.3864	0.0630	0.0495	-0.0001
II	0.3956	0.0667	0.0532	0.0017
IIIa	0.3533	0.0612	0.0535	0.0043
IIIb	0.3713	0.0586	0.0533	0.0043
IIIc	0.3794	0.0678	0.0542	0.0005
IV	0.3488	0.0551	0.0450	-0.0015
Va	0.3339	0.0568	0.0437	-0.0011
Vb	0.3436	0.0541	0.0438	0.0006
Vc	0.3507	0.0547	0.0455	-0.0004
VI	0.3557	0.0463	0.0604	-0.0004
VII	0.3349	0.0483	0.0610	-0.0004
VIII	0.2961	0.0589	0.0322	-0.0030

all values are average of 25 replicates

Table 8 : *Solanum tuberosum* Linn.

8.1 : Height (cm/plant)

ZONES	Age of the plants - in days		
	30	60	90
R ₁	20.10	35.60	49.20
IIIa	20.70	36.96	51.18
IIIb	22.10	40.90	56.50
IIIc	21.00	37.30	51.60
IV	14.07	24.14	31.98
Va	12.00	19.60	25.20
Vb	14.00	24.20	34.50
VI	15.09	24.84	32.08

sd is not more than ± 1.2 8.2 : Total Leaf Area (cm²/plant)

ZONES	Age of the plants - in days		
	30	60	90
R ₁	125.60	1006.30	1812.20
IIIa	131.60	1066.58	1920.75
IIIb	152.60	1257.47	2312.73
IIIc	136.80	1096.67	1974.94
IV	85.53	623.60	1032.77
Va	71.28	482.72	724.88
Vb	82.98	553.26	978.59
VI	85.68	663.86	1036.40

sd is not more than ± 8.2

8.3 : Injury Index (%)

ZONES	Age of the plants - in days		
	30	60	90
R ₁	ND	ND	NR
IIIa	ND	ND	NR
IIIb	ND	ND	NR
IIIc	ND	ND	NR
IV	ND	ND	NR
Va	20.00	22.00	NR
Vb	17.00	12.00	NR
VI	10.00	15.00	NR

sd is not more than ± 0.66
all values are average of 25 replicates

Solanum tuberosum Linn.**8.4 : Biomass (gms/plant)**

ZONES	Age of the plants - in days		
	30	60	90
R ₁	1.13	9.14	16.30
IIIa	1.18	9.63	17.24
IIIb	1.37	11.25	20.07
IIIc	1.23	10.01	17.95
IV	0.74	5.37	8.28
Va	0.63	4.14	6.18
Vb	0.72	5.86	9.01
VI	0.76	5.75	9.01

sd is not more than ± 1.3 **8.5 : RGR (mg/gm/day)**

ZONES	Age of the plants - in days		
	0-30	30-60	60-90
R ₁	4.07392	69.68143	19.28349
IIIa	5.52459	69.99597	19.38768
IIIb	10.49398	70.18622	19.28620
IIIc	6.90367	69.89204	19.45648
IV	- 9.98939	66.04379	14.40864
Va	-15.18795	62.57728	13.31767
Vb	-10.90142	69.82737	14.35425
VI	- 8.97322	67.26913	14.98429

8.6 : NAR (mg/cm²/day)

ZONES	Age of the plants - in days		
	0-30	30-60	60-90
R ₁	1.44942	0.63087	0.17421
IIIa	1.45839	0.63069	0.17449
IIIb	1.50459	0.62867	0.16966
IIIc	1.47423	0.63485	0.17720
IV	1.28483	0.57022	0.11944
Va	1.26509	0.54395	0.11390
Vb	1.27980	0.69075	0.14091
VI	1.32279	0.58832	0.13003

all values are average of 25 replicates

Table 9: *Cajanus cajan* Spreng.

9.1 : Height (cm/plant)

ZONES	Age of the plants - in days				
	30	60	90	120	150
R ₁	35.00	45.00	170.00	160.00	260.00
I	33.50	42.00	160.00	140.00	223.99
IIIa	31.00	35.00	115.01	120.00	201.99
IIIb	31.29	39.00	135.00	138.99	232.44
IIIc	31.50	34.74	140.00	140.00	237.64
IV	29.00	32.04	123.08	108.00	173.99
VII	19.00	20.00	53.01	58.00	103.48

sd is not more than ± 7.8 9.2 : Total Leaf Area (cm²/plant)

ZONES	Age of the plants - in days				
	30	60	90	120	150
R ₁	20.00	60.90	3116.67	6420.00	7193.82
I	19.50	58.98	2944.32	6011.05	6563.64
IIIa	17.60	52.40	2700.28	5672.07	6512.57
IIIb	18.20	53.60	2815.60	5921.81	6911.82
IIIc	20.30	55.20	2845.52	6012.33	6933.40
IV	15.50	43.42	2177.62	3991.96	4970.93
VII	12.80	38.62	1131.66	2214.90	2791.20

sd is not more than ± 29.7

9.3 : Injury Index (%)

ZONES	Age of the plants - in days				
	30	60	90	120	150
R ₁	ND	ND	ND	ND	NR
IIIa	ND	ND	ND	ND	NR
IIIb	ND	ND	ND	ND	NR
IIIc	ND	ND	ND	ND	NR
IV	ND	ND	ND	ND	NR
VII	25.00	30.00	45.00	60.00	20.00

sd is not more than ± 0.89

all values are average of 25 replicates

Cajanus cajan Spreng.

9.4 : Biomass (gms/plant)

ZONES	Age of the plants - in days				
	30	60	90	120	150
R ₁	0.94	3.04	155.63	321.00	410.80
I	0.91	2.92	148.78	302.80	384.51
IIIa	0.83	2.62	135.01	283.51	369.72
IIIb	0.85	2.68	140.78	296.09	375.18
IIIc	0.95	2.76	150.03	300.62	380.61
IV	0.73	2.30	110.06	215.65	263.77
VII	0.59	1.23	57.83	111.71	151.17

sd is not more than ± 13.4

9.5 : RGR (mg/gm/day)

ZONES	Age of the plants - in days				
	0-30	30-60	60-90	90-120	120-150
R ₁	-2.0625	39.1244	131.1874	24.1319	8.2221
I	-3.1431	38.8478	131.0448	23.6862	7.9632
IIIa	-6.2366	38.3408	131.4072	24.7298	8.8502
IIIb	-5.4156	38.2770	132.0459	24.7815	7.8916
IIIc	-1.7110	35.5522	133.1860	23.1672	7.8643
IV	-10.6752	38.3825	128.9940	22.4202	6.7149
VII	-17.4742	24.4812	128.2445	21.9448	10.0848

9.6 : NAR (mg/cm²/day)

ZONES	Age of the plants - in days				
	0-30	30-60	60-90	90-120	120-150
R ₁	4.6933	1.9057	6.5502	1.2059	0.4402
I	4.6210	1.8770	6.8590	1.1950	0.4330
IIIa	4.5047	1.8711	6.5701	1.2362	0.4724
IIIb	4.5170	1.8613	6.6024	1.2390	0.4116
IIIc	4.6961	1.7293	6.9359	1.1857	0.4126
IV	4.2790	1.9309	6.5896	1.1756	0.3594
VII	3.9304	0.9151	5.8298	1.1132	0.5279

all values are average of 25 replicates

Table 10 : Yield (Kg/100 M² at harvest).

ZONES	SPECIES		
	<i>Nicotiana tabacum</i> Linn.	<i>Solanum tuberosum</i> Linn.	<i>Cajanus cajan</i> Spreng
R ₁	21.28	44.00	13.50
I	20.16	-	12.63
II	22.55	-	-
IIIa	19.10	44.00	11.13
IIIb	19.50	53.90	11.20
IIIc	19.70	45.00	11.13
IV	15.79	35.20	8.77
Va	13.39	30.00	-
Vb	16.59	34.76	-
Vc	16.76	-	-
VI	11.27	34.98	-
VII	11.32	-	5.40
VIII	11.29	-	-
sd is not more than	±2.5	±2.9	±1.6

Values are average of 25 observations

- crops not grown

POTTED PLANT EXPOSURE

(Tables 11 - 26)

R_2 = Reference zone 2

I - VIII = Polluted zones

ND = No damage

DF = Defoliation

0.00 = Observation not recorded

U = Upper epidermis

L = Lower epidermis

Table 11 : H e i g h t (cm/plant).

11.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	8.12	15.00	54.79	83.60	91.75
I	8.00	14.70	53.29	80.59	88.10
II	8.17	15.65	57.64	88.70	97.63
III	6.63	11.33	40.42	64.82	76.77
IV	6.49	11.11	37.84	53.09	56.10
V	6.04	10.08	32.49	48.24	49.91
VI	5.81	9.94	25.00	46.82	53.03
VII	5.59	9.61	24.11	46.82	53.22
VIII	6.85	12.46	42.76	56.00	59.24

sd is not more than ± 2.50 11.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	12.67	29.01	37.40	40.13	40.68
I	12.68	29.30	37.83	39.96	40.67
II	11.55	26.50	32.25	36.42	36.60
III	11.56	25.40	31.62	35.90	37.10
IV	9.13	19.30	23.61	23.97	24.10
V	8.55	16.87	19.65	20.86	20.90
VI	7.95	14.90	16.18	19.17	21.14
VII	6.41	14.16	15.54	21.38	22.04
VIII	8.40	14.12	15.85	16.28	16.66

sd is not more than ± 1.5 11.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	14.51	39.50	58.74	60.06
I	13.70	37.05	54.24	55.73
II	13.37	36.25	51.56	53.88
IV	11.11	29.50	29.48	40.59
V	8.22	19.64	21.74	25.03
VI	11.21	21.17	29.25	29.30
VII	10.63	25.36	36.03	37.60
VIII	10.23	18.07	25.25	25.29

sd is not more than ± 1.30

all values are average of 8 replicates

Table 12 : Number Of Leaves (/plant).**12.1 : *Nicotiana tabacum* Linn.**

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	6.80	8.30	14.90	16.40	16.80
I	6.75	8.25	14.75	16.21	16.58
II	7.12	8.57	16.20	18.39	19.58
III	5.60	6.50	11.51	13.94	14.55
IV	5.14	6.00	10.50	11.26	11.49
V	4.70	5.70	10.10	10.75	10.88
VI	4.54	5.40	9.10	11.20	11.73
VII	4.20	5.30	8.80	10.64	11.93
VIII	5.92	7.27	11.13	12.12	11.27

sd is not more than ± 1.10 **12.2 : *Solanum melongena* Linn.**

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	6.20	8.40	18.40	27.90	28.50
I	6.30	8.50	18.67	26.99	27.50
II	4.86	6.22	13.12	20.60	21.00
III	4.76	6.12	12.67	20.00	20.77
IV	4.66	5.62	11.42	15.90	16.40
V	4.26	5.32	11.20	15.26	15.21
VI	3.86	5.19	8.67	14.44	15.01
VII	3.62	4.32	7.72	13.21	14.16
VIII	4.84	3.55	7.25	10.40	8.92

sd is not more than ± 1.08 **12.3 : *Solanum tuberosum* Linn.**

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	12.60	38.60	42.10	44.80
I	12.02	36.70	39.88	42.66
II	10.53	31.90	34.43	36.05
IV	7.78	24.57	24.50	31.10
V	6.57	20.89	20.10	23.09
VI	7.51	22.52	22.14	0.00
VII	8.40	24.45	26.68	29.44
VIII	7.24	19.19	17.37	0.00

sd is not more than ± 1.30
all values are average of 8 replicates

Table 13 : Total Leaf Area (cm²/plant).13.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	434.91	860.04	2948.59	3096.20	3968.00
I	433.91	852.64	2835.66	2993.10	3796.19
II	465.01	917.15	3167.38	3388.17	4330.28
III	386.94	699.90	2345.01	2700.20	3570.41
IV	369.06	705.15	2283.39	2378.19	2971.24
V	347.93	651.82	1987.64	1986.21	2454.60
VI	278.34	447.82	1397.04	1548.10	2506.98
VII	273.99	462.96	1069.16	1411.87	2560.38
VIII	383.72	692.33	1959.04	1851.53	2357.39

sd is not more than ± 10.16 13.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	166.04	551.25	945.99	1067.87	1116.56
I	168.33	559.96	969.88	1024.40	1071.90
II	138.81	420.33	633.60	820.84	876.61
III	138.84	360.24	568.99	781.23	828.15
IV	131.80	337.20	536.38	579.32	612.43
V	112.54	322.26	471.95	504.89	528.69
VI	90.91	244.59	323.56	485.56	524.22
VII	86.34	210.14	281.28	452.78	492.74
VIII	122.21	203.96	245.01	264.72	248.55

sd is not more than ± 9.80 13.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	196.90	652.80	1619.80	1732.40
I	188.63	621.47	1519.37	1635.39
II	177.49	515.06	1227.00	1418.32
IV	137.12	335.08	810.71	907.60
V	100.16	309.88	627.83	717.73
VI	112.37	329.08	718.38	0.00
VII	127.87	375.16	816.54	943.29
VIII	107.02	256.29	538.42	0.00

sd is not more than ± 7.60

all values are average of 8 replicates

Table 14 : Injury Index (%).**14.1 : *Nicotiana tabacum* Linn.**

ZONES	Age of the plants - in days			
	40	60	80	100
R ₂	ND	ND	ND	ND
I	ND	ND	ND	ND
II	ND	ND	ND	ND
III	ND	ND	ND	ND
IV	ND	ND	ND	ND
V	ND	ND	ND	3.50
VI	3.90	6.60	7.00	7.20
VII	5.20	7.80	9.40	9.50
VIII	ND	ND	ND	7.80

14.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days			
	40	60	80	100
R ₂	ND	ND	ND	ND
I	ND	ND	ND	ND
II	ND	ND	ND	ND
III	ND	ND	ND	ND
IV	ND	ND	ND	ND
V	ND	ND	ND	4.80
VI	5.20	7.20	11.00	9.20
VII	6.00	8.40	15.00	9.00
VIII	ND	DF	5.20	5.80

14.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days		
	20	40	60
R ₂	ND	ND	ND
I	ND	ND	ND
II	ND	ND	ND
IV	ND	ND	ND
V	5.00	4.80	12.00
VI	8.00	6.00	5.00
VII	7.50	4.30	9.60
VIII	8.80	8.40	15.20

sd is insignificant

Table 15 : Foliar Epidermal Structure

Species		Number of Stomata 0.1^{-1} mm^2	Number of epidermal cells 0.1^{-1} mm^2	Number of trichomes 0.1^{-1} mm^2	Stomatal index %
<i>Nicotiana tabacum</i> Linn. R_2 $\checkmark$	U	45.2	240.6	11.2	15.8
	L	78.1	201.4	8.1	27.9
	U	27.8	252.8	14.1	9.9
	L	43.8	231.2	10.4	18.9
	Sd was not more than ± 1.61				
<i>Solanum melongena</i> Linn. R_2 $\checkmark$	U	42.6	185.4	5.2	18.6
	L	59.2	165.8	6.4	26.2
	U	26.5	202.4	9.8	11.6
	L	36.8	198.6	12.4	15.5
	Sd was not more than ± 1.08				
<i>Solanum tuberosum</i> Linn. R_2 $\checkmark$	U	54.6	253.8	20.6	17.7
	L	68.1	232.2	13.8	22.6
	U	30.9	279.1	61.8	9.9
	L	38.2	252.4	30.6	13.1
	Sd was not more than ± 1.73				

Values are average of 25 observations

Table 16 : Biomass (gm/plant).

16.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	2.82	5.59	19.03	20.12	22.22
I	2.81	5.43	18.43	19.39	21.23
II	3.01	5.98	20.62	22.08	24.38
III	2.46	4.65	15.63	17.75	19.78
IV	2.36	4.58	14.08	14.16	15.53
V	2.24	4.23	13.46	13.03	14.00
VI	1.86	2.90	9.12	11.20	12.58
VII	1.78	2.44	7.88	11.65	13.31
VIII	2.49	4.50	12.85	12.03	11.87

sd is not more than ± 1.10 16.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	1.24	4.13	7.07	8.00	9.14
I	1.28	4.24	7.16	7.68	8.73
II	1.04	3.06	4.91	6.15	7.79
III	1.05	2.69	4.59	5.69	7.42
IV	0.99	2.64	4.36	4.74	5.29
V	0.91	2.22	3.39	3.54	3.93
VI	0.63	1.99	2.35	3.16	3.82
VII	0.59	1.50	2.10	2.99	3.60
VIII	0.90	1.03	1.27	1.33	1.43

sd is not more than ± 0.81 16.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	1.58	5.20	18.70	20.20
I	1.51	4.96	17.50	19.17
II	1.34	4.15	14.66	16.10
IV	1.13	2.72	9.54	10.98
V	0.71	1.77	5.46	6.75
VI	0.95	2.67	7.32	6.06
VII	0.98	2.99	8.06	10.32
VIII	0.86	1.67	4.03	4.22

sd is not more than ± 1.10

all values are average of 8 replicates

Table 17: Relative Growth Rate (mg/gm./day).**17.1 : *Nicotiana tabacum* Linn.**

ZONES	Age of the plants - in days			
	40-60	60-80	80-100	100-120
R ₂	34.2121	61.2519	2.7849	4.9639
I	32.9366	61.1024	2.5261	4.5366
II	34.3244	61.8881	3.4222	4.9594
III	31.9225	60.5866	6.3671	5.4152
IV	33.1136	56.1483	0.3048	4.6004
V	31.7698	57.8498	-1.6242	3.6021
VI	22.2050	57.2738	10.2505	5.8189
VII	15.9113	58.5600	19.5567	6.6619
VIII	29.6276	52.4454	-3.2712	-0.6865

17.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days			
	40-60	60-80	80-100	100-120
R ₂	60.2132	26.9243	6.2678	6.7310
I	59.8222	26.2115	3.5123	6.6624
II	54.2454	23.6667	11.3111	11.8123
III	47.3678	26.7456	10.7134	13.3784
IV	49.3124	25.0123	4.2101	5.5143
V	44.8879	21.1234	2.2162	5.2110
VI	57.3567	8.2198	14.8452	9.5243
VII	46.9123	16.7562	17.7123	9.2801
VIII	6.9234	10.2119	2.5111	3.8101

17.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days		
	20-40	40-60	60-80
R ₂	59.6123	64.0189	3.8580
I	59.4047	63.0408	4.5476
II	56.5084	63.0454	4.7055
IV	43.7511	62.7261	7.0089
V	45.5064	56.4572	10.5923
VI	51.7387	50.4434	-9.4266
VII	55.9216	49.5946	12.3826
VIII	32.9872	44.0384	2.3730

calculated from average values

Table 18: Net Assimilation Rate (mg/cm²/day).**18.1 : *Nicotiana tabacum* Linn.**

ZONES	Age of the plants - in days			
	40-60	60-80	80-100	100-120
R ₂	0.2221	0.3964	0.0180	0.0298
I	0.2113	0.3939	0.0164	0.0272
II	0.2231	0.4031	0.0223	0.0300
III	0.2079	0.4034	0.0421	0.0326
IV	0.2137	0.3536	0.0018	0.0256
V	0.2056	0.3851	-0.0108	0.0220
VI	0.1460	0.3728	0.0705	0.0347
VII	0.0924	0.3753	0.1530	0.0430
VIII	0.1924	0.3426	-0.0214	-0.0039

18.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days			
	40-60	60-80	80-100	100-120
R ₂	0.4501	0.2012	0.0465	0.0523
I	0.4545	0.2001	0.0272	0.0508
II	0.3995	0.1783	0.0862	0.0975
III	0.3551	0.2006	0.0826	0.1085
IV	0.3795	0.2003	0.0345	0.0466
V	0.3306	0.1496	0.0166	0.0386
VI	0.4386	0.0638	0.1028	0.0668
VII	0.3296	0.1225	0.1234	0.0643
VIII	0.0423	0.0527	0.0138	0.0219

18.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days		
	20-40	40-60	60-80
R ₂	0.4758	0.6343	0.0447
I	0.4750	0.6243	0.0528
II	0.4438	0.6403	0.0548
IV	0.3583	0.6337	0.0837
V	0.2840	0.4103	0.0959
VI	0.4264	0.4662	0.0000
VII	0.4378	0.4466	0.1289
VIII	0.0002	0.3101	0.0000

calculated from average values

Table 19: Chlorophyll 'a' (mg/gm. fresh wt.).

19.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	1.94	2.00	2.50	2.59	2.08
I	1.89	1.94	2.32	2.39	1.92
II	1.99	2.09	2.65	2.80	2.18
III	1.86	1.90	2.00	2.36	1.97
IV	1.73	1.61	1.91	1.72	1.27
V	1.45	1.41	1.58	1.48	1.11
VI	1.19	1.05	1.28	1.54	1.29
VII	1.11	1.01	1.26	1.60	1.35
VIII	1.89	1.86	2.18	1.39	1.07

sd is not more than ± 0.13 19.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	1.45	2.03	2.89	2.96	1.73
I	1.47	2.09	2.70	2.75	1.60
II	1.29	1.78	2.42	2.52	1.61
III	1.19	1.66	2.30	2.39	1.53
IV	1.09	1.28	1.77	1.61	0.94
V	0.80	1.04	1.33	1.21	0.71
VI	0.66	0.89	1.03	1.23	0.86
VII	0.62	0.77	0.97	1.41	0.89
VIII	0.76	0.59	0.81	0.73	0.42

sd is not more than ± 0.21 19.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	2.21	2.52	1.96	1.72
I	2.07	2.32	1.80	1.59
II	2.10	2.36	1.84	1.63
IV	1.72	1.86	1.43	1.31
V	1.28	1.13	0.88	0.86
VI	1.40	1.38	1.06	0.00
VII	1.55	1.50	1.08	0.98
VIII	1.19	0.88	0.62	0.00

sd is not more than ± 0.38

all values are average of 8 replicates

Table 20: Chlorophyll 'b' (mg/gm. fresh wt.).

20.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	2.16	2.32	2.96	2.64	2.23
I	2.11	2.26	2.81	2.49	2.12
II	2.22	2.44	3.13	2.85	2.36
III	2.10	2.25	2.60	2.47	2.13
IV	1.97	2.03	2.41	2.06	1.70
V	1.83	1.84	2.11	1.81	1.46
VI	1.50	1.49	1.88	1.72	1.52
VII	1.43	1.45	1.83	1.75	1.56
VIII	2.11	2.19	2.13	1.72	1.44

sd is not more than ± 0.16 20.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	1.68	2.21	3.13	3.24	2.16
I	1.71	2.28	2.99	3.03	2.02
II	1.53	2.00	2.80	2.97	2.04
III	1.51	1.99	2.74	2.89	1.97
IV	1.49	1.85	2.42	2.48	1.62
V	1.16	1.49	1.92	1.95	1.28
VI	1.06	1.35	1.77	1.92	1.45
VII	1.03	1.31	1.47	1.72	1.49
VIII	1.09	0.88	1.16	1.18	0.75

sd is not more than ± 0.19 20.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	2.31	2.62	2.13	2.00
I	2.20	2.48	1.98	1.88
II	2.23	2.51	2.00	1.91
IV	1.95	2.15	1.69	1.60
V	1.64	1.76	1.21	1.16
VI	1.72	1.89	1.27	0.00
VII	1.85	1.76	1.31	1.29
VIII	1.46	1.32	0.99	0.00

sd is not more than ± 0.25
all values are average of 8 replicates

Table 21 : Total Soluble Sugars (mg/gm dry wt.).

21.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	18.64	21.25	25.24	20.16	12.04
I	18.51	20.40	23.95	19.10	11.31
II	18.79	22.12	26.69	21.02	12.31
III	18.38	19.40	21.69	18.20	11.50
IV	17.91	19.40	21.88	17.30	9.28
V	16.78	18.60	17.96	13.38	7.67
VI	15.21	16.80	17.46	14.42	8.88
VII	14.35	14.60	15.96	13.95	8.98
VIII	16.90	17.90	18.17	14.19	8.24

sd is not more than ± 0.29 21.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	5.83	8.42	6.90	6.50	6.00
I	5.82	8.24	6.71	6.28	5.63
II	5.70	7.40	6.02	6.00	5.60
III	5.50	7.52	5.82	5.90	5.40
IV	4.80	6.90	5.25	4.85	4.20
VI	4.40	5.80	3.82	3.66	3.44
VII	4.10	5.20	3.50	3.85	3.70
VIII	4.58	4.90	3.32	3.00	2.71

sd is not more than ± 0.24 21.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	10.56	11.40	8.78	6.20
I	9.89	9.70	7.31	5.28
II	9.97	9.86	7.68	5.48
IV	9.58	8.86	6.62	4.74
V	8.44	7.82	4.53	6.80
VI	8.80	8.06	5.82	2.98
VII	9.00	9.50	6.24	6.90
VIII	8.88	8.66	3.57	2.64

sd is not more than ± 0.41
all values are average of 8 replicates

Table 22 : Sulphur Content (mg/gm dry wt.).

22.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	5.69	6.44	7.33	8.14	8.68
I	6.83	7.79	9.08	10.26	11.03
II	7.74	8.96	10.26	10.98	11.72
III	8.25	9.54	10.63	11.64	12.45
IV	8.13	9.73	11.44	15.35	17.19
V	8.53	9.99	12.61	21.99	32.12
VI	9.45	11.02	15.40	23.78	35.61
VII	9.90	11.28	15.60	22.80	32.13
VIII	7.11	8.70	11.36	21.31	25.61

sd is not more than ± 0.14 22.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	4.42	5.16	6.62	7.11	7.66
I	5.22	6.29	8.22	8.93	8.88
II	5.35	7.48	9.86	9.81	10.34
III	5.84	7.53	9.86	11.52	12.87
IV	6.42	7.89	10.66	13.01	14.71
V	6.19	9.18	13.64	19.55	26.05
VI	7.08	9.39	15.56	20.12	26.12
VII	7.52	9.70	15.89	19.62	24.97
VIII	5.40	9.65	12.91	14.57	16.15

sd is not more than ± 0.22 22.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	3.92	4.21	4.56	5.11
I	4.23	4.84	5.34	6.38
II	4.18	4.64	5.27	6.08
IV	4.70	5.30	5.74	6.74
V	5.71	6.80	8.58	10.21
VI	5.52	6.52	8.27	10.11
VII	5.20	5.72	6.77	8.12
VIII	5.21	5.80	7.12	8.68

sd is not more than ± 0.15

all values are average of 8 replicates

Table 23 : Nitrogen Content (mg/gm dry wt.).

23.1 : *Nicotiana tabacum* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	6.83	7.24	7.67	7.45	7.02
I	8.00	8.66	9.60	9.43	9.01
II	8.28	9.39	10.02	9.80	9.31
III	8.51	9.60	10.40	9.70	8.80
IV	8.91	9.72	10.79	11.36	12.33
V	9.47	10.22	11.17	12.76	13.70
VI	9.96	11.56	13.05	14.89	15.47
VII	10.26	11.67	13.44	12.71	11.92
VIII	8.26	9.02	12.49	12.66	12.02

sd is not more than ± 0.13 23.2 : *Solanum melongena* Linn.

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	5.63	6.22	7.25	7.55	7.37
I	6.23	7.17	8.74	9.24	9.20
II	6.50	7.66	9.25	9.70	9.50
III	7.08	8.06	9.60	9.46	8.84
IV	7.34	8.25	10.38	11.00	11.25
V	7.64	9.24	10.89	12.17	13.01
VI	8.36	10.42	13.10	14.34	14.70
VII	8.81	10.73	13.43	13.64	13.24
VIII	6.32	8.49	10.85	11.53	12.25

sd is not more than ± 0.28 23.3 : *Solanum tuberosum* Linn.

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	4.21	5.61	6.81	6.01
I	4.52	6.20	8.20	8.77
II	4.47	6.16	8.14	8.69
IV	4.68	6.76	9.04	9.82
V	5.33	7.38	9.61	11.10
VI	5.40	7.61	10.98	11.35
VII	5.07	6.81	9.43	9.78
VIII	5.15	7.04	9.36	10.12

sd is not more than ± 0.12
all values are average of 8 replicates

Table 24 : Chloride Content (mg/gm. dry wt.).**24.1 : *Nicotiana tabacum* Linn.**

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	0.89	0.92	0.90	0.91	0.96
I	0.88	0.89	0.90	0.92	0.96
II	1.01	1.24	1.35	1.98	2.68
III	0.86	0.89	0.87	0.85	0.92
IV	0.82	0.85	0.89	0.92	0.94
V	0.86	0.90	0.92	0.95	0.96
VI	0.88	0.92	0.93	0.92	0.94
VII	0.83	0.86	0.90	0.91	0.95
VIII	1.84	2.00	2.25	2.67	3.45

sd is not more than ± 0.8 **24.2 : *Solanum melongena* Linn.**

ZONES	Age of the plants - in days				
	40	60	80	100	120
R ₂	1.10	0.98	0.95	1.20	1.23
I	1.00	0.97	0.96	1.20	1.24
II	1.25	1.28	1.34	1.96	2.21
III	1.00	0.97	0.91	1.10	1.22
IV	1.08	0.97	0.93	1.00	1.16
V	1.10	0.96	0.92	1.13	1.18
VI	1.09	0.98	0.91	1.18	1.20
VII	1.10	0.93	0.94	1.21	0.24
VIII	1.36	1.48	1.52	2.35	2.95

sd is not more than ± 0.06 **24.3 : *Solanum tuberosum* Linn.**

ZONES	Age of the plants - in days			
	20	40	60	80
R ₂	1.34	1.37	1.48	1.53
I	1.25	1.29	1.40	1.47
II	1.42	1.49	1.62	1.72
IV	1.30	1.34	1.45	1.51
V	1.32	1.37	1.48	1.51
VI	1.33	1.35	1.46	1.53
VII	1.33	1.35	1.46	1.52
VIII	1.76	2.17	2.72	3.51

sd is not more than ± 0.04
all values are average of 8 replicates

Table 25 : Y i e l d
(Quantitative & Qualitative)

Parameter	Zones								
	R ₂	I	II	III	IV	V	VI	VII	VIII
<i>Nicotiana tabacum</i> Linn.									
Nicotine content (of mature leaves gm/litre)	0.074	0.068	0.203	0.065	0.051	0.045	0.043	0.046	0.345
Yield (leaf dry wt. Kg/100 M ²)	17.77	17.00	19.16	14.04	12.24	11.38	10.59	11.00	9.28
<i>Solanum melongena</i> Linn.									
% Flowering	100.00	100.00	85.00	75.00	75.00	86.00	55.00	39.00	20.00
% Fruiting	100.00	100.00	59.50	73.30	40.00	53.30	39.90	33.30	13.40
Yield (fresh fruit wt. Kg/100 M ²)	50.40	47.36	29.39	20.80	18.14	18.63	17.76	16.80	7.45
<i>Solanum tuberosum</i> Linn.									
Starch content (of tubers mg/gm dry wt.)	624.29	591.82	582.67	-	514.69	408.62	264.20	387.90	169.30
Yield (fresh tuber weight Kg/100 M ²)	48.60	39.75	40.63	-	25.86	15.45	14.48	22.55	13.32

sd is not more than ± 0.01 for Nicotine content
sd is not more than ± 2.50 for % Flowering & fruiting
sd is not more than ± 2.30 for Starch content
sd is not more than ± 1.60 for Yield

r² calculated for sulphur and yield was negatively significant for all the three species

TABLE 26 : Analysis of variance for tobacco and egg plant
(Calculated F values)

SOURCE	Parameters			
	Degrees of freedom	Total leaf area	Biomass	Chlorophyll content
Due to zones (z)	8	19507.40	5273.00	1921.29
Due to species (sp)	1	820319.00	128415.64	1740.84
Due to seasons (s)	1	57694.70	4446.43	4177.02
Interaction z x sp	8	5007.93	809.09	156.45
Interaction z x s	8	1054.92	256.72	152.98
Interaction sp x s	1	30649.63	248.90	141.97
Errors	144	426.04	69.59	81.25
Totals	179			

F values are significant at $P < .05$ level

ARTIFICIAL FUMIGATION*Nicotiana tabacum* Linn.

(Tables 27 - 28)

UE = Unexposed plants

E = Exposed plants

ND = No damage

NR = Observations not recorded

Table 27 : GROWTH PARAMETERS

Parameter	Age of the plants - in days				
	40	60	80	100	120
Height (cm/plant)					
UE	5.70	19.50	49.70	72.60	83.80
E	4.50	13.60	25.60	43.20	49.80
No. of leaves (/plant)					
UE	6.20	9.10	12.20	16.40	18.20
E	4.60	5.90	6.80	9.40	10.70
Total leaf area (cm/plant)					
UE	450.80	712.90	1845.00	2756.00	3430.60
E	333.00	449.10	1110.60	1708.70	2181.40
Injury index (%)					
UE	-	-	-	-	-
E	ND	8.50	9.60	10.20	NR
Biomass (gm/plant)					
UE	2.70	4.30	15.00	16.50	16.80
E	2.00	2.80	8.60	9.90	10.60
RGR (mg./gm./day)					
UE	-	23.26	62.47	4.76	0.90
E	-	16.82	56.10	7.03	3.41
NAR (mg./cm ² /day)					
UE	-	0.140	0.449	0.033	0.005
E	-	0.103	0.397	0.047	0.018

Values are average of 5 observations

SD in Height is not more than ± 1.16
 No. of leaves is not more than ± 0.85
 Total leaf area is not more than ± 10.44
 Biomass is not more than ± 0.67
 Injury index, RGR & NAR is insignificant

Table 28 : BIOCHEMICAL PARAMETERS & YIELD

Parameters	Age of the plants - in days				
	40	60	80	100	120
UE Chlorophyll a (mg./gm.fr.wt)	1.43	1.53	1.06	0.88	0.52
E	1.08	1.04	0.70	0.55	0.36
UE Chlorophyll b (mg./gm.fr.wt)	1.24	1.41	1.12	0.80	0.42
E	0.99	1.00	0.78	0.58	0.32
UE Ascorbic acid (mg./gm.fr.wt)	4.60	5.70	5.40	4.80	3.50
E	3.10	3.40	2.90	2.60	2.00
UE Protein (mg./gm.fr.wt)	49.40	50.20	51.60	48.60	47.40
E	45.60	43.20	36.03	34.60	34.90
UE Soluble Sugar (mg./gm.dry wt)	17.32	20.02	24.30	21.60	15.40
E	16.50	18.60	19.80	17.00	11.80
UE Sulphur (mg./gm.dry wt)	5.01	5.99	6.58	7.83	8.13
E	6.01	8.60	11.29	14.82	16.18
UE Yield (At harvest) (Kg/100M ²)	165.80				
E	108.90				

Values are average of 5 observations

SD in : Biochemical Parameters is not more than ± 1.53
Yield is not more than ± 5.63
Total leaf area is not more than ± 10.44
Biomass is not more than ± 0.67
Injury index, RGR & NAR is insignificant

MITIGATION OF POLLUTION DAMAGE UNDER SIMULATED CONDITIONS

(Tables 29 - 32)

UTUE = Untreated and unexposed

T₁ = Treated with 0.005 M ascorbic acid & unexposed

T₂ = Treated with 0.0075 M ascorbic acid & unexposed

T₃ = Treated with 0.01 M ascorbic acid & unexposed

T₁E = Treated with 0.005 M ascorbic acid & exposed

T₂E = Treated with 0.0075 M ascorbic acid & exposed

T₃E = Treated with 0.01 M ascorbic acid & exposed

UTE = Untreated and exposed

ND = No damage

NR = Observation not recorded

Table 29 : *Nicotiana tabacum* Linn.

Parameter	Age of the plants in days				
Treatment	40	60	80	100	120
29.1 : Height (cm/plant)					
UTUE	5.70	19.50	49.70	72.60	83.80
T ₁	6.04	20.90	54.27	80.44	92.18
T ₂	6.10	21.92	56.56	82.84	96.03
T ₃	6.20	22.31	57.25	84.14	96.37
UTE	4.50	13.60	25.60	43.20	49.80
T ₁ E	5.34	16.33	32.79	54.56	62.60
T ₂ E	5.45	17.19	36.89	60.78	70.47
T ₃ E	5.50	17.49	37.66	63.16	72.61
sd is not more than ± 1.20					
29.2 : Number of Leaves (/plant)					
UTUE	6.20	9.10	12.20	16.40	18.20
T ₁	6.73	9.97	13.43	18.22	20.22
T ₂	6.63	10.23	13.88	18.71	20.86
T ₃	6.83	10.36	14.43	19.99	22.24
UTE	4.60	5.90	6.80	9.40	10.70
T ₁ E	5.45	7.17	8.99	12.33	13.95
T ₂ E	5.59	7.50	9.45	12.92	14.57
T ₃ E	5.93	7.94	10.00	13.18	14.92
sd is not more than ± 0.91					
29.3 : Total Leaf Area (cm²/plant)					
UTUE	450.80	712.90	1845.00	2756.00	3430.40
T ₁	490.02	784.90	2070.09	3075.70	3797.45
T ₂	493.63	807.00	2132.82	3155.62	3924.38
T ₃	502.64	824.11	2173.41	3238.30	4013.57
UTE	333.00	449.10	1110.60	1708.70	2181.40
T ₁ E	404.93	582.93	1523.74	2330.67	2949.25
T ₂ E	424.24	591.02	1583.72	2422.94	3067.05
T ₃ E	430.24	617.06	1625.92	2484.45	3123.76
sd is not more than ± 5.6					
29.4 : Injury Index (%)					
UTUE	NR	NR	NR	NR	NR
T ₁	NR	NR	NR	NR	NR
T ₂	NR	NR	NR	NR	NR
T ₃	NR	NR	NR	NR	NR
UTE	ND	8.00	9.20	10.00	NR
T ₁ E	ND	ND	ND	4.10	NR
T ₂ E	ND	ND	ND	2.60	NR
T ₃ E	ND	ND	ND	3.40	NR

Table 30 : *Nicotiana tabacum* Linn.

Parameter	Age of the plants in days				
Treatment	40	60	80	100	120
30.1 : Biomass (gm/plant)					
UTUE	2.70	4.30	15.00	16.50	16.80
T ₁	2.93	4.75	16.94	18.56	18.68
T ₂	2.97	4.84	17.34	19.04	19.22
T ₃	3.03	4.93	17.91	19.64	19.66
UTE	2.00	2.80	8.60	9.90	10.60
T ₁ E	2.40	3.52	11.18	12.84	13.46
T ₂ E	2.51	3.63	11.53	13.26	14.11
T ₃ E	2.55	3.71	11.70	13.43	14.33
sd is not more than ± 0.88					
30.2 : RGR (mg/gm/day)					
UTUE	23.2682	62.4718	4.7655	0.9009	
T ₁	24.1362	63.5914	4.5880	0.3198	
T ₂	24.3464	63.8309	4.6789	0.4658	
T ₃	24.3264	64.5233	4.5977	0.0534	
UTE	16.8236	56.1071	7.0386	3.4160	
T ₁ E	19.0209	57.8287	6.9231	2.3641	
T ₂ E	18.5479	57.7367	6.9640	3.1163	
T ₃ E	18.6700	57.4485	6.9282	3.2314	
30.3 : NAR (mg/cm²/day)					
UTUE	0.1399	0.4494	0.0330	0.0049	
T ₁	0.1452	0.4598	0.0320	0.0017	
T ₂	0.1463	0.4582	0.0326	0.0025	
T ₃	0.1460	0.4665	0.0323	0.0003	
UTE	0.1031	0.3969	0.0468	0.0181	
T ₁ E	0.1139	0.3913	0.0437	0.0118	
T ₂ E	0.1120	0.3921	0.0437	0.0156	
T ₃ E	0.1115	0.3836	0.0429	0.0161	

Table 31 : *Nicotiana tabacum* Linn.

Parameter	Age of the plants in days				
Treatment	40	60	80	100	120
31.1 : Chlorophyll <i>a</i> (mg/gm fresh wt.)					
UTUE	1.43	1.53	1.06	0.88	0.52
T ₁	1.51	1.65	1.15	0.95	0.56
T ₂	1.52	1.68	1.18	0.97	0.57
T ₃	1.54	1.70	1.21	0.99	0.58
UTE	1.08	1.04	0.70	0.55	0.36
T ₁ E	1.18	1.20	0.84	0.66	0.43
T ₂ E	1.20	1.25	0.90	0.70	0.46
T ₃ E	1.22	1.28	0.91	0.71	0.46
sd is not more than ± 0.18					
31.2 : Chlorophyll <i>b</i> (mg/gm fresh wt.)					
UTUE	1.24	1.41	1.12	0.80	0.42
T ₁	1.30	1.64	1.14	0.95	0.56
T ₂	1.52	1.66	1.17	0.96	0.57
T ₃	1.55	1.67	1.19	0.99	0.58
UTE	0.99	1.00	0.78	0.58	0.32
T ₁ E	1.09	1.16	0.92	0.68	0.37
T ₂ E	1.14	1.20	0.94	0.70	0.38
T ₃ E	1.17	1.22	0.98	0.72	0.39
sd is not more than ± 0.20					
31.3 : Ascorbic acid (mg/gm fresh wt.)					
UTUE	4.60	5.70	5.40	4.80	3.50
T ₁	4.89	6.14	5.91	5.23	3.81
T ₂	4.96	6.25	6.12	5.43	3.95
T ₃	5.08	6.49	6.22	5.52	4.02
UTE	3.10	3.40	2.90	2.60	2.00
T ₁ E	3.50	4.10	3.66	3.27	2.50
T ₂ E	3.71	4.30	3.88	3.39	2.59
T ₃ E	3.79	4.41	3.93	3.50	2.67
sd is not more than ± 0.25					

Table 32 : *Nicotiana tabacum* Linn.

Name of the Parameter	Age of plants in days				
Treatment	40	60	80	100	120
32.1 : Protein (mg./gm. fresh wt.)					
UTUE	49.40	50.20	51.60	48.60	47.40
T ₁	50.98	52.61	54.44	51.13	49.77
T ₂	51.47	53.01	54.75	51.47	50.15
T ₃	51.82	53.26	55.11	51.81	50.34
UTE	45.60	43.20	36.03	34.60	34.90
T ₁ E	48.15	46.74	40.07	38.41	38.67
T ₂ E	48.52	47.30	41.29	39.51	39.75
T ₃ E	48.75	47.87	41.58	39.79	40.00
sd is not more than ± 0.56					
32.2 : Total soluble sugars (mg./gm dry wt.)					
UTUE	17.32	20.02	24.30	21.60	15.40
T ₁	18.50	21.70	27.02	23.98	17.06
T ₂	18.57	21.94	27.60	24.73	17.39
T ₃	19.02	22.54	28.04	24.84	17.68
UTE	16.50	18.60	19.80	17.00	11.80
T ₁ E	18.28	20.89	22.89	19.55	13.52
T ₂ E	18.91	21.99	28.23	24.11	14.09
T ₃ E	19.24	22.54	24.39	20.91	14.47
sd is not more than ± 0.66					
32.3 : Sulphur content (mg./gm dry wt.)					
UTUE	5.01	5.99	6.58	7.83	8.13
T ₁	4.98	5.94	6.50	7.69	7.93
T ₂	4.98	5.93	6.48	7.67	7.84
T ₃	4.97	5.93	6.46	7.63	7.80
UTE	6.01	8.60	11.29	14.82	16.18
T ₁ E	5.38	7.24	8.74	11.56	12.69
T ₂ E	5.08	6.90	8.20	10.97	12.01
T ₃ E	4.96	6.76	7.84	10.46	11.55
sd is not more than ± 0.23					
32.4 : Yield (Kg./100 M ²)					
UTUE	165.80	UTE	108.90		
T ₁	187.52	T ₁ E	136.34		
T ₂	191.33	T ₂ E	145.38		
T ₃	199.95	T ₃ E	147.02		
sd is not more than ± 1.8					

MITIGATION OF POLLUTION DAMAGE UNDER FIELD CONDITIONS

(Tables 33 - 46)

- C = Untreated with any chemical
- A₁ = Treated with 0.005 M ascorbic acid
- A₂ = Treated with 0.01 M ascorbic acid
- A₃ = Treated with 0.02 M ascorbic acid
- U₁ = Treated with 0.15 M urea
- U₂ = Treated with 0.30 M urea
- U₃ = Treated with 0.45 M urea
- ND = No damage

Table 33 : H e i g h t (cm/plant).

33.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	9.60	17.40	60.20	89.60	98.20
A ₁	9.60	18.44	64.41	95.69	104.58
A ₂	9.75	18.72	66.82	98.47	106.94
A ₃	9.76	19.23	65.32	96.59	105.57
U ₁	10.03	19.24	67.79	100.17	109.00
U ₂	10.16	19.70	70.13	103.94	112.54
U ₃	10.33	19.94	72.00	106.62	116.07

sd is not more than ± 1.5 33.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	7.91	15.20	19.00	19.51	19.83
A ₁	9.27	18.01	23.10	23.61	23.97
A ₂	9.33	18.64	24.40	24.93	25.08
A ₃	9.29	18.76	23.66	24.19	24.55
U ₁	9.71	19.06	24.72	25.15	25.38
U ₂	9.93	19.43	25.54	26.10	26.39
U ₃	10.00	20.00	28.42	28.72	29.11

sd is not more than ± 1.8 33.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days		
	40	60	80
C	24.30	30.10	33.30
A ₁	28.67	36.15	39.63
A ₂	30.38	37.99	41.29
A ₃	29.89	37.50	39.96
U ₁	30.76	38.56	41.96
U ₂	31.61	39.76	43.29
U ₃	34.97	43.43	47.35

sd is not more than ± 1.30

all values are average of 8 replicates

Table 34 : Number Of Leaves (/plant).**34.1 : *Nicotiana tabacum* Linn.**

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	7.40	10.60	17.60	19.50	20.10
A ₁	7.66	11.24	19.36	21.41	22.03
A ₂	7.88	12.40	21.14	23.28	23.92
A ₃	7.93	12.19	20.77	22.97	23.62
U ₁	8.18	12.67	21.56	23.79	24.44
U ₂	8.84	13.20	22.88	25.27	25.91
U ₃	8.95	14.05	23.76	26.29	27.05

sd is not more than ± 0.99 **33.2 : *Solanum melongena* Linn.**

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	4.01	4.92	10.88	14.79	14.60
A ₁	4.74	5.87	13.32	18.04	17.78
A ₂	4.87	6.23	14.09	19.08	18.76
A ₃	4.88	6.16	13.76	18.64	18.38
U ₁	4.94	6.28	16.47	22.33	21.84
U ₂	5.00	6.36	17.05	23.04	22.63
U ₃	5.06	6.67	17.85	24.24	23.80

sd is not more than ± 0.86 **33.3 : *Solanum tuberosum* Linn.**

TREATMENTS	Age of the plants - in days		
	40	60	80
C	23.80	33.20	36.40
A ₁	28.56	40.21	43.90
A ₂	31.18	44.55	48.05
A ₃	29.99	43.36	46.59
U ₁	31.65	47.18	51.32
U ₂	33.80	51.39	55.36
U ₃	35.72	54.32	58.68

sd is not more than ± 0.83

all values are average of 8 replicates

Table 35 : Total Leaf Area (cm²/plant).35.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	285.60	1034.80	8043.20	11502.80	14216.80
A ₁	302.74	1149.89	9490.74	13400.76	16491.48
A ₂	309.88	1162.16	9973.32	14205.96	17472.44
A ₃	311.30	1145.67	9732.00	13860.87	16846.90
U ₁	307.02	1159.11	10254.82	14436.01	17714.13
U ₂	315.59	1205.64	11099.34	15816.35	19391.71
U ₃	318.44	1234.59	11863.42	16909.12	20756.52

sd is not more than ± 10.21 35.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	99.61	261.42	389.25	421.64	429.24
A ₁	119.73	324.68	494.74	534.64	540.84
A ₂	128.32	342.98	532.49	573.43	580.33
A ₃	127.40	337.75	520.04	559.94	565.74
U ₁	132.28	372.78	602.56	645.95	656.31
U ₂	133.78	391.87	625.52	671.25	679.92
U ₃	135.07	397.88	655.89	702.87	712.97

sd is not more than ± 8.40 35.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days		
	40	60	80
C	310.50	483.90	514.60
A ₁	378.81	605.36	628.33
A ₂	404.65	655.30	694.42
A ₃	397.44	639.25	668.90
U ₁	434.70	731.17	762.64
U ₂	461.40	756.82	800.72
U ₃	473.20	811.98	846.25

sd is not more than ± 7.90

all values are average of 8 replicates

Table 36 : Injury Index (%).

36.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days			
	40	60	80	100
C	ND	ND	ND	4.00
A ₁	ND	ND	ND	2.00
A ₂	ND	ND	ND	0.50
A ₃	ND	ND	ND	1.50
U ₁	ND	ND	ND	ND
U ₂	ND	ND	ND	ND
U ₃	ND	ND	ND	ND

36.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days			
	40	60	80	100
C	ND	5.00	6.50	8.00
A ₁	ND	ND	4.00	4.30
A ₂	ND	ND	1.00	1.50
A ₃	ND	ND	2.90	3.20
U ₁	ND	ND	ND	ND
U ₂	ND	ND	ND	ND
U ₃	ND	ND	ND	ND

36.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days	
	40	60
C	6.00	8.00
A ₁	ND	4.60
A ₂	ND	3.80
A ₃	ND	5.20
U ₁	ND	1.00
U ₂	ND	1.50
U ₃	ND	2.00

sd is insignificant

Table 37 : Biomass (gm/plant).

37.1 : *Nicotiana tabacum* Linn.

TREATMENS	Age of the plants - in days				
	40	60	80	100	120
C	2.10	9.60	28.20	32.50	34.60
A ₁	2.32	10.81	33.84	38.84	40.90
A ₂	2.35	10.99	36.10	41.34	43.77
A ₃	2.37	10.85	35.25	40.56	42.97
U ₁	2.33	10.80	36.89	41.60	44.12
U ₂	2.30	11.21	40.04	45.57	48.44
U ₃	2.43	11.48	42.58	49.01	51.93

sd is not more than ± 1.10 37.2 : *Solanum melongena* Linn.

TREATMENS	Age of the plants - in days				
	40	60	80	100	120
C	0.85	1.94	2.78	3.12	3.61
A ₁	1.03	2.46	3.62	4.04	4.65
A ₂	1.04	2.49	3.79	4.24	4.88
A ₃	1.04	2.45	3.73	4.17	4.80
U ₁	1.10	2.88	4.30	4.80	5.53
U ₂	1.13	3.01	4.70	5.22	6.01
U ₃	1.17	3.16	4.82	5.39	6.18

sd is not more than ± 0.98 37.3 : *Solanum tuberosum* Linn.

TREATMENS	Age of the plants - in days		
	40	60	80
C	2.46	3.76	4.10
A ₁	2.98	4.82	5.00
A ₂	3.15	5.11	5.38
A ₃	3.10	5.00	5.30
U ₁	3.45	5.74	6.03
U ₂	3.64	6.22	6.56
U ₃	3.74	6.47	6.77

sd is not more than ± 0.88

all values are average of 8 replicates

F values are significant at $P < 0.05$ level

Table 38: Relative Growth Rate (mg/gm./day).**38.1 : *Nicotiana tabacum* Linn.**

TREATMENTS	Age of the plants - in days			
	40-60	60-80	80-100	100-120
C	75.991	53.878	7.096	3.131
A ₁	76.933	57.060	6.887	2.855
A ₂	77.095	59.451	6.782	2.855
A ₃	76.080	58.924	7.016	2.890
U ₁	76.662	61.414	6.014	2.935
U ₂	77.205	63.646	6.458	3.059
U ₃	77.735	65.534	7.030	2.898

38.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days			
	40-60	60-80	80-100	100-120
C	41.260	17.988	5.769	7.294
A ₁	43.436	19.273	5.538	6.984
A ₂	43.455	21.164	5.549	6.999
A ₃	43.114	20.945	5.582	7.069
U ₁	48.255	19.967	5.542	7.066
U ₂	49.108	22.315	5.263	7.054
U ₃	49.669	22.417	5.567	6.829

38.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days	
	40-60	60-80
C	21.213	4.328
A ₁	24.023	1.889
A ₂	24.244	2.494
A ₃	23.837	2.879
U ₁	25.486	2.459
U ₂	26.827	2.578
U ₃	27.394	2.281

calculated from average values

Table 39: Net Assimilation Rate (mg/cm²/day).**39.1 : *Nicotiana tabacum* Linn.**

TREATMENTS	Age of the plants - in days			
	40-60	60-80	80-100	100-120
C	0.644	0.272	0.022	0.008
A ₁	0.686	0.299	0.022	0.007
A ₂	0.680	0.312	0.022	0.008
A ₃	0.665	0.309	0.023	0.008
U ₁	0.675	0.321	0.019	0.008
U ₂	0.678	0.329	0.021	0.008
U ₃	0.687	0.336	0.023	0.008

39.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days			
	40-60	60-80	80-100	100-120
C	0.325	0.131	0.042	0.058
A ₁	0.348	0.143	0.041	0.056
A ₂	0.336	0.152	0.040	0.055
A ₃	0.328	0.151	0.041	0.056
U ₁	0.384	0.148	0.040	0.056
U ₂	0.391	0.169	0.040	0.058
U ₃	0.409	0.161	0.042	0.056

39.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days	
	40-60	60-80
C	0.166	0.034
A ₁	0.190	0.015
A ₂	0.189	0.020
A ₃	0.186	0.023
U ₁	0.201	0.019
U ₂	0.217	0.021
U ₃	0.219	0.018

calculated from average values

Table 40 : Chlorophyll *a* (mg/gm. fresh wt.).40.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	1.35	1.41	1.00	0.72	0.50
A ₁	1.49	1.58	1.14	0.82	0.56
A ₂	1.55	1.68	1.26	0.90	0.63
A ₃	1.54	1.65	1.23	0.88	0.61
U ₁	1.58	1.74	1.26	0.91	0.63
U ₂	1.59	1.81	1.33	0.95	0.66
U ₃	1.63	1.83	1.38	0.99	0.68

sd is not more than ± 0.50 40.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	0.71	0.96	1.21	1.00	0.71
A ₁	0.79	1.14	1.48	1.22	0.85
A ₂	0.81	1.19	1.62	1.34	0.96
A ₃	0.80	1.16	1.58	1.30	0.91
U ₁	0.84	1.20	1.75	1.43	1.02
U ₂	0.86	1.23	1.80	1.47	1.05
U ₃	0.88	1.27	1.85	1.52	1.08

sd is not more than ± 0.43 40.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days		
	40	60	80
C	1.06	0.79	0.69
A ₁	1.22	0.96	0.81
A ₂	1.23	1.03	0.83
A ₃	1.20	1.02	0.82
U ₁	1.23	1.05	0.85
U ₂	1.25	1.09	0.97
U ₃	1.31	1.18	1.01

sd is not more than ± 0.46
 all values are average of 8 replicates
 F values are significant at P < 0.05 level

Table 41 : Chlorophyll *b* (mg/gm. fresh wt.).41.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	1.12	1.23	0.98	0.69	0.49
A ₁	1.21	1.35	1.12	0.78	0.55
A ₂	1.26	1.45	1.23	0.86	0.61
A ₃	1.23	1.41	1.22	0.86	0.61
U ₁	1.30	1.49	1.24	0.87	0.61
U ₂	1.32	1.56	1.28	0.89	0.63
U ₃	1.34	1.56	1.34	0.94	0.67

sd is not more than ± 0.48 41.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	0.65	0.89	1.00	0.96	0.67
A ₁	0.71	1.00	1.33	1.15	0.80
A ₂	0.74	1.08	1.41	1.22	0.86
A ₃	0.73	1.05	1.37	1.19	0.83
U ₁	0.78	1.09	1.52	1.32	0.92
U ₂	0.79	1.12	1.54	1.34	0.94
U ₃	0.81	1.44	1.65	1.43	0.99

sd is not more than ± 0.51 41.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days		
	40	60	80
C	0.32	0.11	0.70
A ₁	0.35	0.13	0.82
A ₂	0.37	0.14	0.88
A ₃	0.36	0.13	0.84
U ₁	0.37	0.14	0.89
U ₂	0.39	0.15	0.96
U ₃	0.41	0.16	1.03

sd is not more than ± 0.49

all values are average of 8 replicates

Table 42 : Ascorbic Acid(mg/gm. fresh wt.) .

42.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	3.50	4.80	4.60	4.00	3.00
A ₁	3.94	5.62	5.45	4.71	3.50
A ₂	4.00	5.84	5.96	5.14	3.83
A ₃	3.99	5.78	5.89	5.10	3.79
U ₁	4.02	5.84	5.90	5.11	3.81
U ₂	4.03	5.94	5.98	5.19	3.87
U ₃	4.07	6.02	6.09	5.28	3.95

sd is not more than ± 0.55 42.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	2.30	2.90	3.00	2.60	2.00
A ₁	2.75	3.51	4.04	3.48	2.68
A ₂	2.79	4.01	4.61	3.98	3.04
A ₃	2.76	3.95	4.51	3.89	2.98
U ₁	2.78	3.99	4.55	3.92	3.00
U ₂	2.91	4.14	4.78	4.13	3.16
U ₃	3.00	4.28	4.88	4.21	3.24

sd is not more than ± 0.48 43.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days		
	40	60	80
C	2.51	3.51	1.98
A ₁	2.98	4.61	2.58
A ₂	3.42	5.33	3.00
A ₃	3.37	5.09	2.87
U ₁	3.40	5.19	2.92
U ₂	3.53	5.48	3.08
U ₃	3.64	5.63	3.17

sd is not more than ± 0.43

all values are average of 8 replicates

Table 43 : Protein (mg/gm. fresh wt.).**43.1 : *Nicotiana tabacum* Linn.**

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	38.20	41.60	45.40	40.20	36.40
A ₁	39.80	44.26	48.99	43.09	33.90
A ₂	40.53	44.80	50.03	44.22	39.93
A ₃	40.34	44.51	49.30	43.42	39.13
U ₁	42.63	50.09	56.84	50.25	45.43
U ₂	43.24	51.75	60.20	53.14	48.05
U ₃	44.46	54.16	65.47	57.81	52.05

sd is not more than ± 0.96 **43.2 : *Solanum melongena* Linn.**

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	13.60	25.20	28.40	20.60	17.20
A ₁	14.74	27.82	31.98	23.15	19.25
A ₂	15.45	30.21	36.47	26.37	21.98
A ₃	15.29	29.69	34.25	24.80	20.62
U ₁	17.16	35.76	43.40	31.31	26.09
U ₂	17.42	37.09	44.50	32.18	26.83
U ₃	17.76	37.77	47.48	34.22	28.52

sd is not more than ± 0.89 **43.3 : *Solanum tuberosum* Linn.**

TREATMENTS	Age of the plants - in days		
	40	60	80
C	1.99	0.85	0.71
A ₁	2.13	0.94	0.78
A ₂	2.34	1.07	0.89
A ₃	2.29	1.01	0.84
U ₁	2.49	1.19	0.99
U ₂	2.54	1.31	1.09
U ₃	2.77	1.39	1.16

sd is not more than ± 0.84
all values are average of 8 replicates
F values are significant at $P < 0.05$ level

Table 44 : Total Soluble Sugars (mg/gm dry wt.).**44.1 : *Nicotiana tabacum* Linn.**

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	15.40	18.60	21.20	20.10	14.60
A ₁	16.76	20.91	24.85	23.48	16.99
A ₂	16.97	21.46	25.57	24.12	17.34
A ₃	16.85	21.17	25.06	23.62	17.10
U ₁	17.31	22.77	28.47	26.89	19.45
U ₂	18.11	23.34	28.98	27.34	19.77
U ₃	18.85	24.48	29.72	28.10	20.34

sd is not more than ± 0.56 **44.2 : *Solanum melongena* Linn.**

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	4.11	5.85	5.65	3.21	2.96
A ₁	4.53	6.81	6.87	3.88	3.55
A ₂	4.63	7.00	7.25	4.11	3.78
A ₃	4.58	6.87	7.01	3.98	3.64
U ₁	4.75	7.36	8.05	4.56	4.19
U ₂	4.90	7.64	9.02	5.10	4.68
U ₃	5.08	8.59	9.25	5.23	4.82

sd is not more than ± 0.53 **44.3 : *Solanum tuberosum* Linn.**

ZONES	Age of the plants - in days		
	40	60	80
C	8.31	7.61	6.21
A ₁	9.30	9.14	7.34
A ₂	9.67	9.54	7.65
A ₃	9.37	9.25	7.48
U ₁	9.98	10.33	8.17
U ₂	10.26	10.85	8.71
U ₃	10.70	11.79	9.55

sd is not more than ± 0.48

all values are average of 8 replicates

Table 45 : Sulphur Content (mg/gm dry wt.).

45.1 : *Nicotiana tabacum* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	7.10	9.96	12.80	19.61	27.98
A ₁	6.45	8.62	10.47	16.37	23.67
A ₂	6.29	8.29	10.01	15.69	22.78
A ₃	6.35	8.43	10.37	15.92	23.39
U ₁	6.21	7.45	8.95	14.04	20.37
U ₂	6.16	7.39	8.42	12.18	19.14
U ₃	6.01	7.09	7.20	12.08	16.89

sd is not more than ± 0.33 45.2 : *Solanum melongena* Linn.

TREATMENTS	Age of the plants - in days				
	40	60	80	100	120
C	6.33	9.56	11.41	14.61	21.21
A ₁	5.54	7.63	8.28	10.67	15.53
A ₂	5.34	7.32	8.03	10.36	15.10
A ₃	5.39	7.46	8.17	10.56	15.48
U ₁	5.36	7.28	8.01	10.40	15.27
U ₂	5.05	7.09	7.12	9.20	13.47
U ₃	4.86	6.63	6.57	8.50	12.56

sd is not more than ± 0.35 45.3 : *Solanum tuberosum* Linn.

TREATMENTS	Age of the plants - in days		
	40	60	80
C	2.51	5.26	6.18
A ₁	1.98	3.97	4.69
A ₂	1.92	3.72	4.39
A ₃	2.05	3.95	4.65
U ₁	1.97	3.78	4.46
U ₂	1.75	3.27	4.80
U ₃	1.62	3.09	3.97

sd is not more than ± 0.28

all values are average of 8 replicates

Table 46 : Yield (Kg/100 M² at harvest).

TREATMENTS	SPECIES		
	<i>Nicotiana tabacum Linn.</i>	<i>Solanum tuberosum Linn.</i>	<i>Cajanus cajan Spreng</i>
C	12.20	17.91	32.00
A ₁	14.69	21.78	38.43
A ₂	15.84	23.35	41.09
A ₃	15.30	22.78	40.51
U ₁	15.96	25.72	45.60
U ₂	17.69	28.37	49.72
U ₃	18.53	29.71	52.10
Sd is not more than	±1.23	±1.86	±2.0

Values are average of 8 observations