

Project Title: The effect of reduced nitrogen feeds on growth and yield of cucumber plants.

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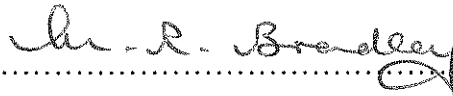


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INTRODUCTION

All of the results, excluding the nitrogen balances, have been issued in previous reports in June 1996 and April 1997. A full description of the experimental methods can be found in these two reports, apart from the nutrient balance samples, which are presented here.

METHODS

Solution measurements

The volume of applied solution was estimated by recording the volume applied in a set number of minutes to 4 plants on 5 or 6 occasions for each treatment in each crop. The number of waterings given was then multiplied by this figure. From the volume of feed applied and the average concentration of nitrogen from weekly samples the total amount of nitrogen applied to each treatment could be estimated. Run-off volume was measured daily from two plots in each nitrogen treatment and multiplied by the average nitrogen content from weekly samples.

Plant measurements

For each treatment 20 plants were selected for detailed recording.

All leaves and fruit removed from the plants were weighed. Each month samples of leaves and fruit were dried and the percentage dry matter calculated.

The Nitrogen content of these samples was analysed.

At the end of the trial the plants were separated into leaves, fruit and haulm. Weights were recorded and samples taken for calculation of dry matter percentage and nitrogen analysis.

In 1995 seven samples were analysed during the season and in 1996 nine samples were analysed.

RESULTS AND DISCUSSION

All the data used to calculate the nutrient balances is shown in Appendices 1-10 at the end of this report.

Dry Matter Percentage and Shelf Life

Shelf life is a very important aspect of fruit quality. The effects of the nitrogen treatments on shelf-life, firmness and percentage weight loss were discussed in the 1995 report pages 35-40 and the 1996 report pages 35-45. Figure 5b from the 1995 report and Figures. 10b-15b from 1996 are reproduced here for ease of comparison and referred to as 5b/1995 and 10b - 15b/1996.

Shelf life can be related to dry matter percentage. Fruit with a high dry matter content often have a longer shelf life than low dry matter fruit. In 1995 percentage dry matter was measured on fruit of variety Jessica from the 4 treatments, at 4 times for the first crop in April, May June and July, and twice in September and October from the replant crop. For both crops the highest dry matters were most often recorded from the 130 N plots (Appendix 3a & b and Figs 1a & b). The 230N fruit usually had equal or lower dry matters than the 130 and 180 N treatments. This did not correspond with the fruit firmness data where the low nitrogen fruit were the least firm after 6 days for both samplings.

In 1996 the fruit dry matter percentages in April were highest for the 70 and 130 N treatments, slightly lower for the 190 N and lowest at 250 mg/litre applied nitrogen (Fig. 2a). This pattern does not match with any of the corresponding figures for firmness or percentage weight loss.

In May 1996 the percentage dry matter for the 70 N treatment was higher than for the other three treatments (Fig. 2b). There was some correlation with fruit firmness at harvest (Fig. 10b/1996).

In July the 130 N treatment had the highest dry matter percentage (Fig. 2c). This pattern matches the percentage weight loss after seven days (Fig 15b/1996).

In September fruit dry matter percentage was very similar for all treatments, 80 N being slightly higher than the others. Weight loss percentage after seven days was also highest for the 80 N treatment (Fig. 15b/1996).

In general, dry matter percentage in fruit was higher for the two lower nitrogen treatments than the higher two levels in both years.

Harvest Index

Harvest index is the dry weight of fruit produced by the plants expressed as a percentage of the total dry matter. In the first crop in 1995 harvest index decreased with increasing applied nitrogen (Table 1). In the 1995 replant crop there was a slight increasing trend (Table 2).

Table 1. Harvest Index 1995 First Crop.

Dry Matter Yield (t/ha)	80	130	180	230 mg/l
All fruit (including waste)	9.19	9.62	9.21	9.53
Total (fruit, trimmings, haulm)	14.48	16.59	15.87	16.03
Harvest Index (%)	64	58	58	59

Table 2. Harvest Index 1995 Replant Crop.

Dry Matter Yield (t/ha)	80	130	180	230 mg/l
All Fruit (inc. waste)	3.92	4.36	4.22	4.51
Total (fruit, trimmings, haulm)	7.17	7.68	7.30	7.56
Harvest Index (%)	55	57	58	60

In 1996 there was no clear relationship between harvest index and nitrogen treatment (Tables 3 and 4).

Table 3. Harvest Index 1996 First Crop.

Dry Matter Yield (t/ha)	70	130	190	250 mg/l
All Fruit (including waste)	8.50	9.31	8.86	8.97
Total (fruit, trimmings, haulm)	12.27	14.57	14.19	13.31
Harvest Index (%)	69	64	62	67

Table 4. Harvest Index 1996 Replant Crop.

Dry Matter Yield (t/ha)	70	130	190	250 mg/l
All Fruit (inc. waste)	5.42	7.94	7.43	7.39
Total (fruit, trimmings, haulm)	7.90	12.01	10.41	11.10
Harvest Index (%)	69	66	71	67

Nitrogen Balances

These are shown in Figs. 3-6 and Tables 5-10. In general, the greater the total applied N, the higher the nitrogen concentration in the run-off and the smaller the percentage recovered by the crop.

1995 Crop

For the first crop, the largest nitrogen offtake (fruit plus trimmings and haulm) was from the 180N plot (637 kg N/ha) and not from the highest nitrogen treatment as might be expected (576 kg N/ha) (Fig 3; Table 5). A similar pattern was found in the replant crop: 304 kg N/ha for the 180 N treatment; 287 kg N/ha for the 230 N treatment (Fig. 4; Table 6). For both crops the highest percentage recovery of applied nitrogen was by the 80 N treatments and the lowest for the 230 N plots.

Table 5. Percentage of applied nitrogen recovered by first crop 1995.

	80	130	180	230 mg/l
N in crop	426	575	637	576
Total applied N	546	916	1011	1320
% recovered in crop	78	63	63	44

Table 6. Percentage of applied nitrogen recovered by replant crop 1995.

	80	130	180	230 mg/l
N in crop	203	237	304	286
Total applied N	312	579	613	899
% recovered in crop	65	41	50	32

For the first crop in 1995, the amount of nitrogen lost in the run-off increased from 52 kg N/ha at 80 mg/litre applied nitrogen to 644 kg N/ha at 230 applied nitrogen (Fig 3). A similar pattern was observed in the replant crop (Fig 4). Table 7 shows the combined amounts lost from both crops.

Over one tonne of nitrogen per ha was lost from both crops, equivalent to nearly 3 tonnes of ammonium nitrate fertiliser.

Table 7. Total amounts of nitrogen lost from both crops in 1995 (kg N/ha).

	80	130	180	230 mg/l
First crop	52	312	386	644
Replant crop	63	237	308	377
Total	115	549	694	1021

1996 Crop

For both crops in 1996, nitrogen offtake in fruit plus trimmings and haulm increased steadily as the amount of applied nitrogen increased (Tables 8 and 9; Figs. 5 and 6). The percentage of applied nitrogen recovered in the crop tended to decrease with increasing applied nitrogen (Tables 8 and 9).

Table 8. Percentage of applied nitrogen recovered by first crop 1996.

	70	130	190	250 mg/l
N in crop	281	497	502	528
Total applied N	373	740	1021	1314
% recovered in crop	75	67	49	40

Table 9. Percentage of applied nitrogen recovered by replant crop 1996.

	70	130	190	250 mg/l
N in crop	167	386	355	392
Total applied N	355	766	939	1002
% recovered in crop	47	50	38	39

Table 10. Total amounts of nitrogen lost from both crops in 1995 (kg N/ha).

	70	130	190	250 mg/l
First crop	83	270	521	639
Replant crop	57	196	287	418
Total	140	466	808	1057

The differences between 1995 and 1996 in the amounts of nitrogen lost in run-off can partly be explained by the changes in the applied nitrogen levels and partly by differences in run-off percentages :

Table 11. Run-off percentages, 1995 and 1996.

Applied N mg/litre	First crop 1995	Replant crop 1995	Applied N mg/litre	First crop 1996	Replant crop 1996
80	31	36	70	40	46
130	35	31	130	39	43
180	26	37	190	36	46
230	33	28	250	35	34
Mean	31	33		37	42

Thus the 70 mg/litre treatment in 1996 lost in total more nitrogen than the 80 mg/litre treatment in 1995 because the percentage run-off was greater. It is difficult to explain why the 130 N treatment lost less nitrogen in 1996 than 1995 despite the higher recorded run-off in 1996.

Denitrification

Denitrification is a biochemical process whereby nitrogen is lost in gaseous form from soils, usually as nitrous oxide (Brady, 1974). It commonly occurs at high temperatures from waterlogged soils, particularly those with a high organic matter content. It is not known whether denitrification has ever been measured under glasshouse conditions. In the present experiments, evidence of denitrification might have been suggested, if there were significant amounts of nitrogen not accounted for in crop plus runoff. It is not possible to be sure about the size of these balances since they are calculated as the difference between the calculated amounts of applied nitrogen and the amounts removed in the crop and in run-off (see methods section above). Although fruit yields are

very accurate, the weights of trimmings and haulm are estimated from a relatively small number of plants. Therefore, as stated above, the estimated amounts of nitrogen not accounted for by crop and run-off are not likely to be precise.

If the errors associated with all the measurements are just as likely to overestimate as to underestimate, the balances of nitrogen not accounted for should exceed the estimated amount of applied nitrogen as often as they fall short. In 1995, the balances range from -12 to +235 kg N/ha with a negative balance only for the 180 N treatment in the first crop (Figs. 3 and 4). In 1996, the balances range from -27 to +297 kg N/ha with two instances of negative balances in the first crop (Figs. 5 and 6). If denitrification were occurring, losses would be expected to be greater in the replant crops where temperatures are higher. Losses might also be expected to be greater from the high nitrogen treatments where soil nitrogen content will probably be higher. Therefore it is concluded that there is some evidence for denitrification from these results. Direct measurements of gaseous losses from rockwool crops would be needed in order to confirm this.

CONCLUSIONS

1. In general, dry matter percentage in fruit was higher for the two lower nitrogen treatments than the two higher levels in both years.
2. The greater the total applied N, the higher the nitrogen concentration in the run-off and the smaller the percentage recovered by the crop.
3. For the 230 N treatment in 1995 and the 250 N treatment in 1996, the total loss of nitrogen from both crops was over one tonne per ha per year, equivalent to nearly 3 tonnes of ammonium nitrate fertiliser.
4. There was some evidence of denitrification especially in the higher nitrogen treatments in the replanted crops.

REFERENCE

BRADY, N.C. (1974) *The nature and properties of soils*. New York. Macmillan. 639pp

Figure 5b/1995 from 1995 report
Fruit Firmness after 7 days under Shelf Life conditions

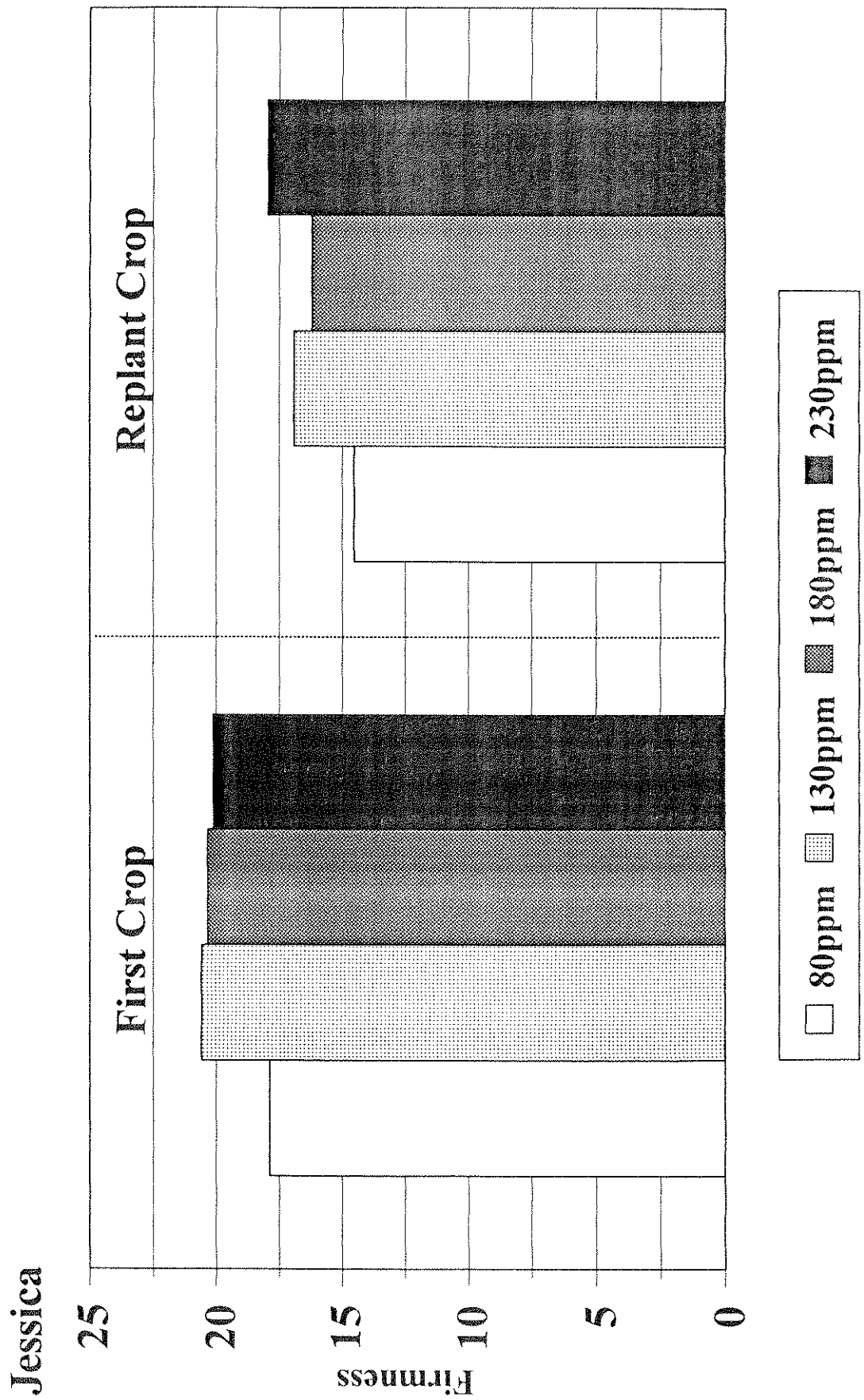


Figure 10b/1996 from 1996 report

1996 First & Replant Crop Fruit Firmness at Harvest

First Crop - Jessica

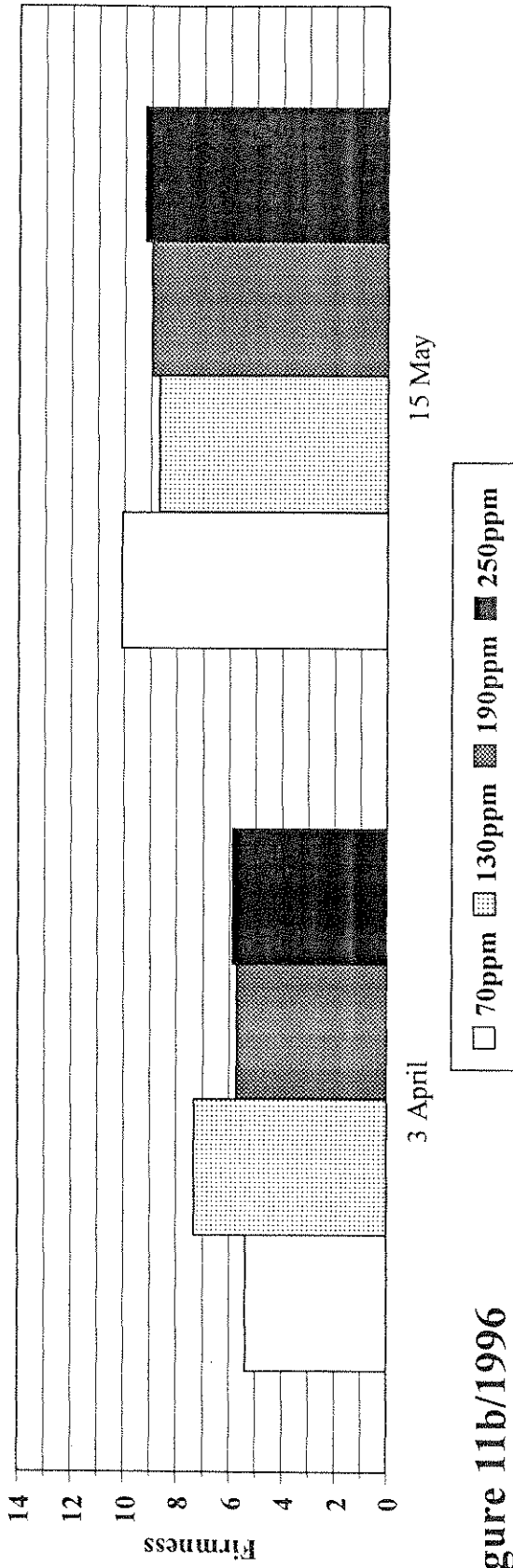


Figure 11b/1996

Replant Crop - Jessica

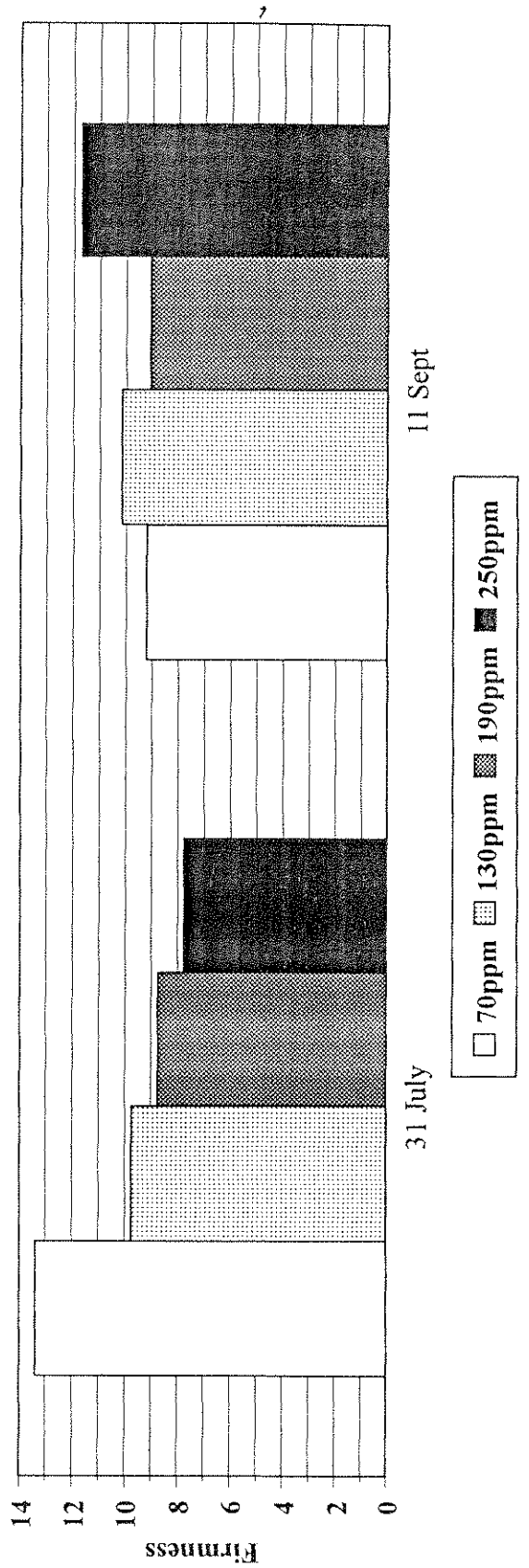


Figure 12b/1996 from 1996 report

1996 First & Replant Crop

Fruit Firmness after 7 days under Shelf Life conditions

First Crop - Jessica

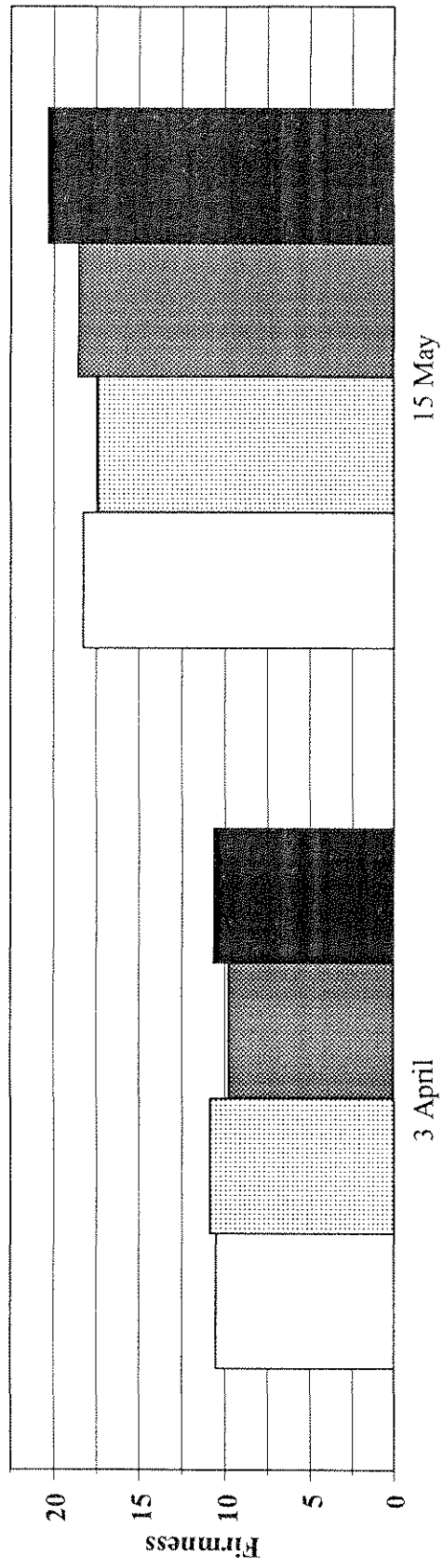


Figure 13b/1996

Replant Crop - Jessica

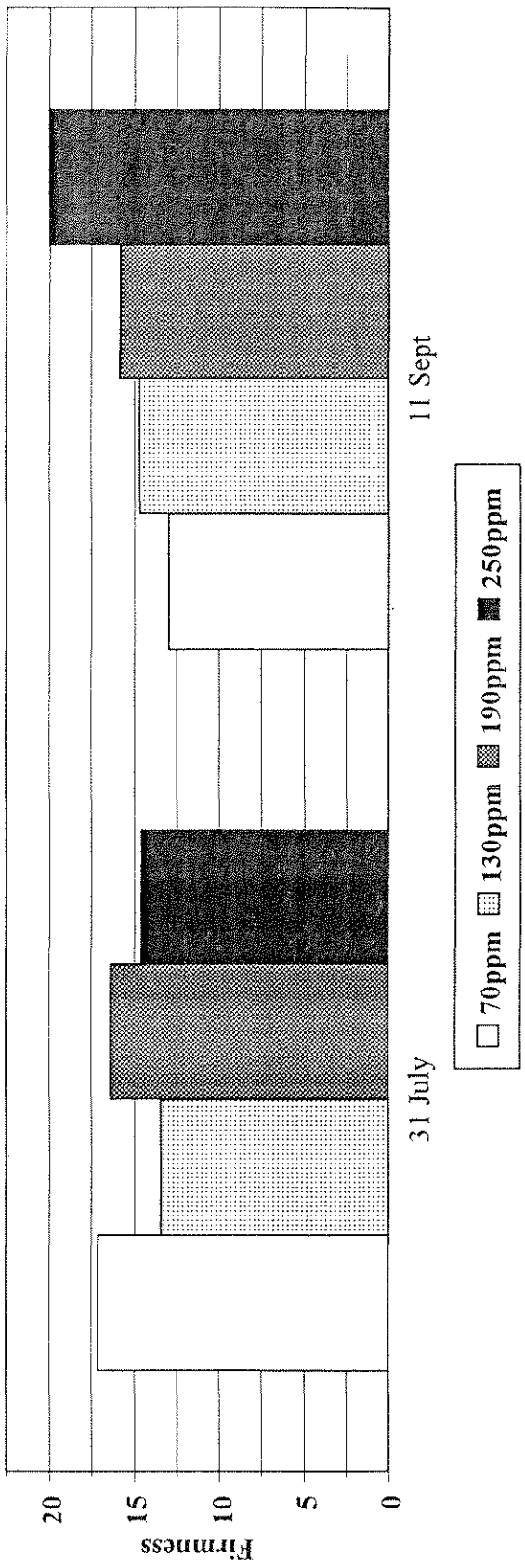


Figure 14b/1996 from 1996 report

1996 First & Replant Crop

% Weight Loss after 7 days under Shelf Life conditions

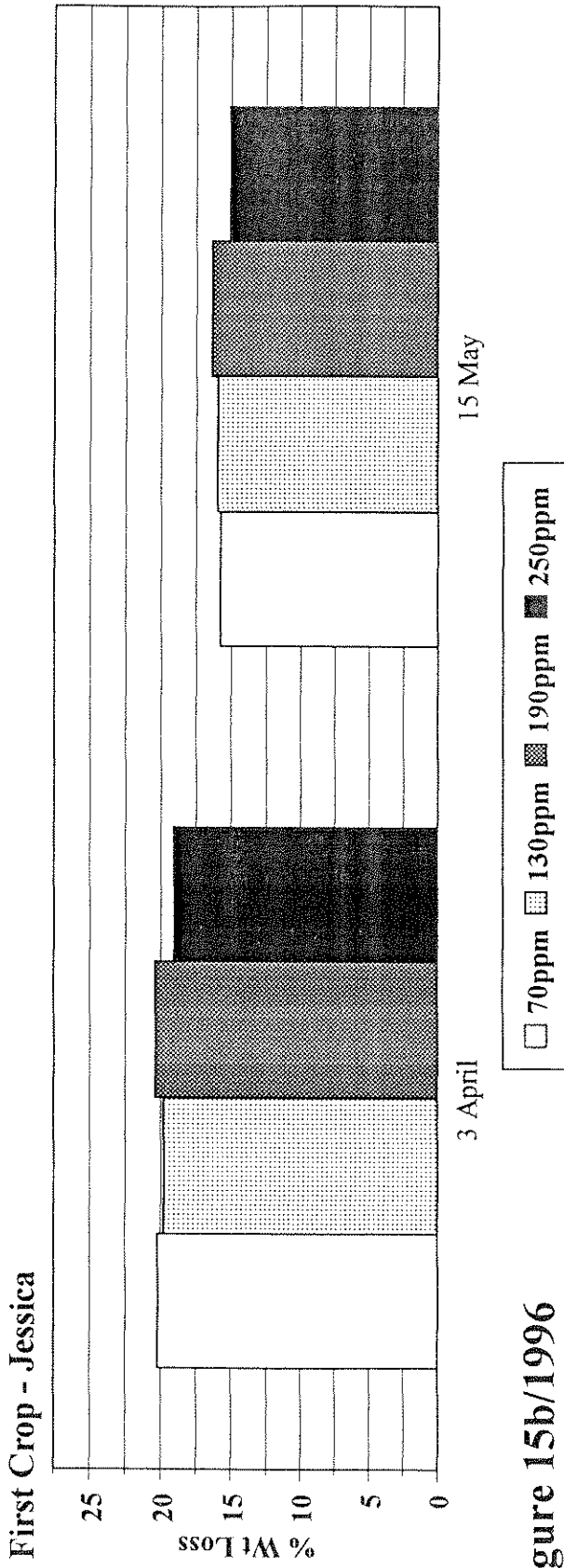


Figure 15b/1996

Replant Crop - Jessica

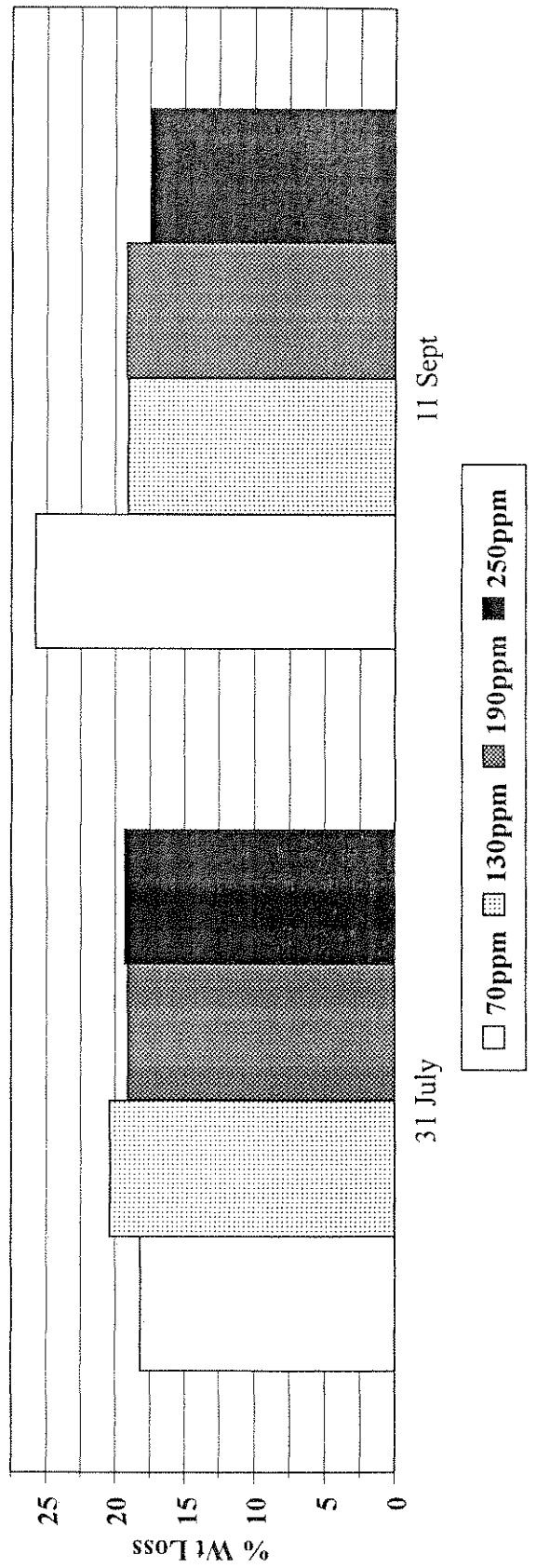


Figure 1a
1995 First Crop
% Dry Matter of Fruit June/July sampling

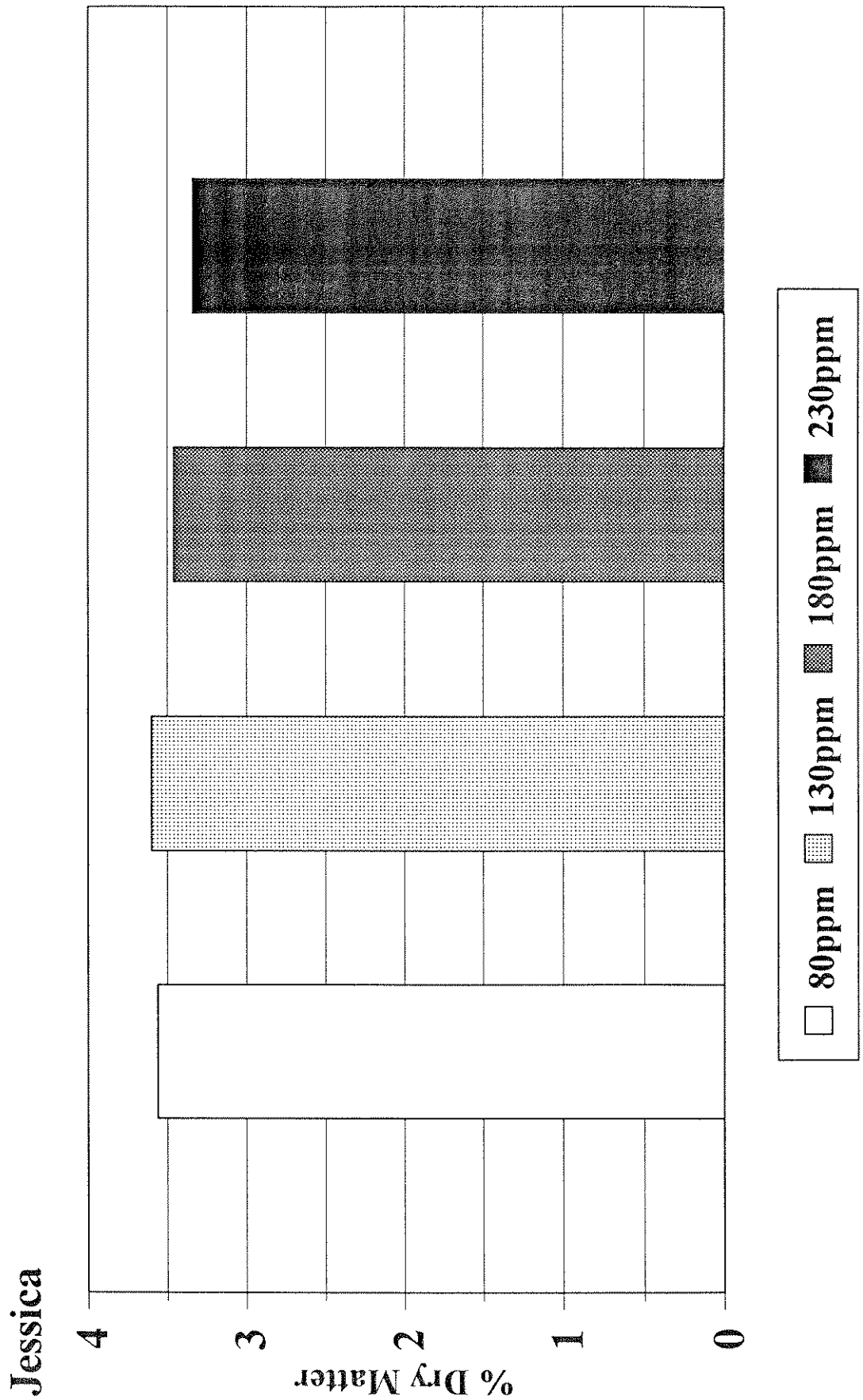
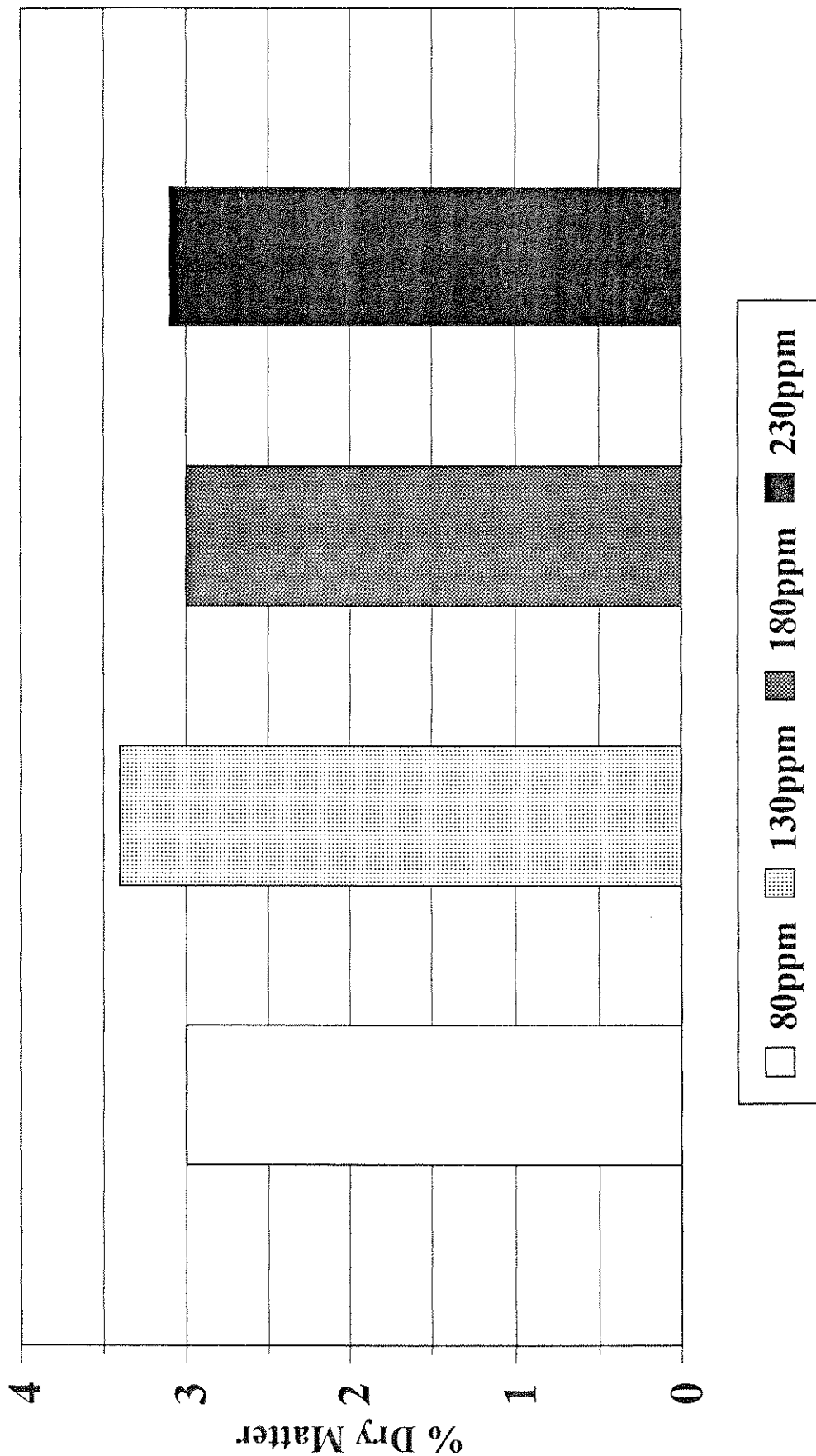


Figure 1b
1995 Replant Crop
% Dry Matter of Fruit Sept/Oct sampling

Jessica



1996 First Crop
 % Dry Matter of Jessica Fruit April & May sampling

Figure 2a

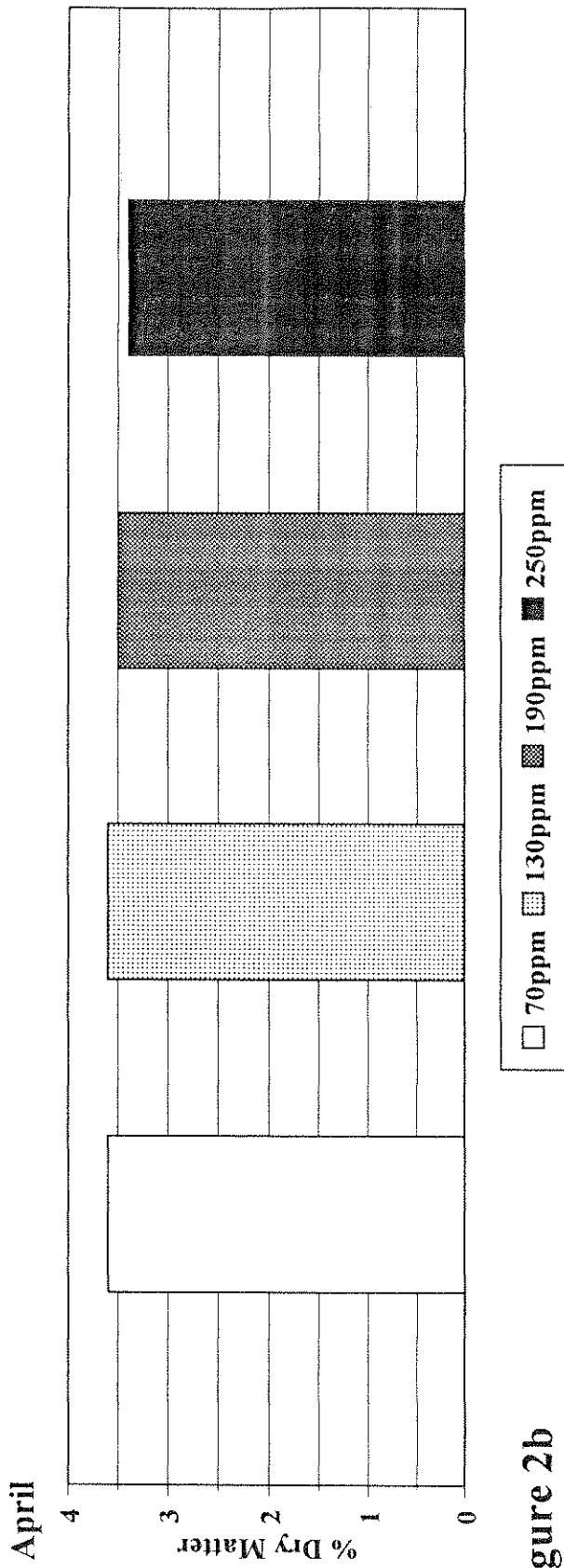
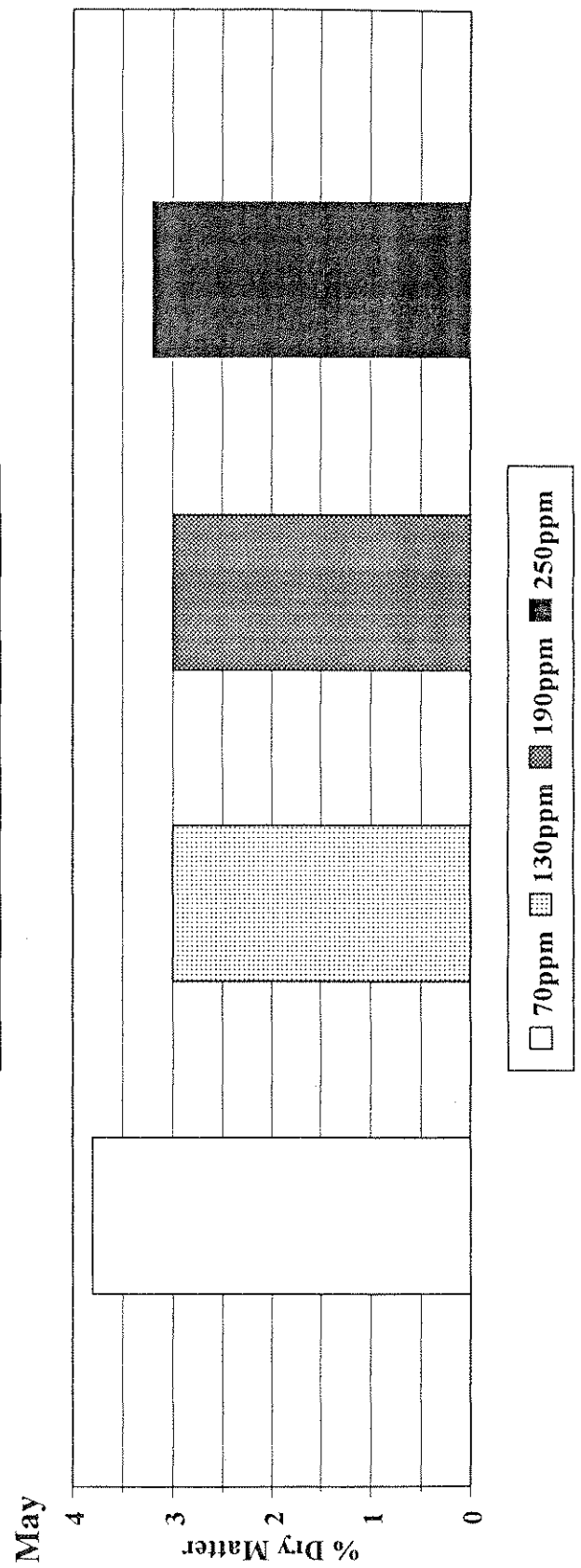


Figure 2b



1996 Replant Crop
 % Dry Matter of Jessica Fruit July & September sampling

Figure 2c

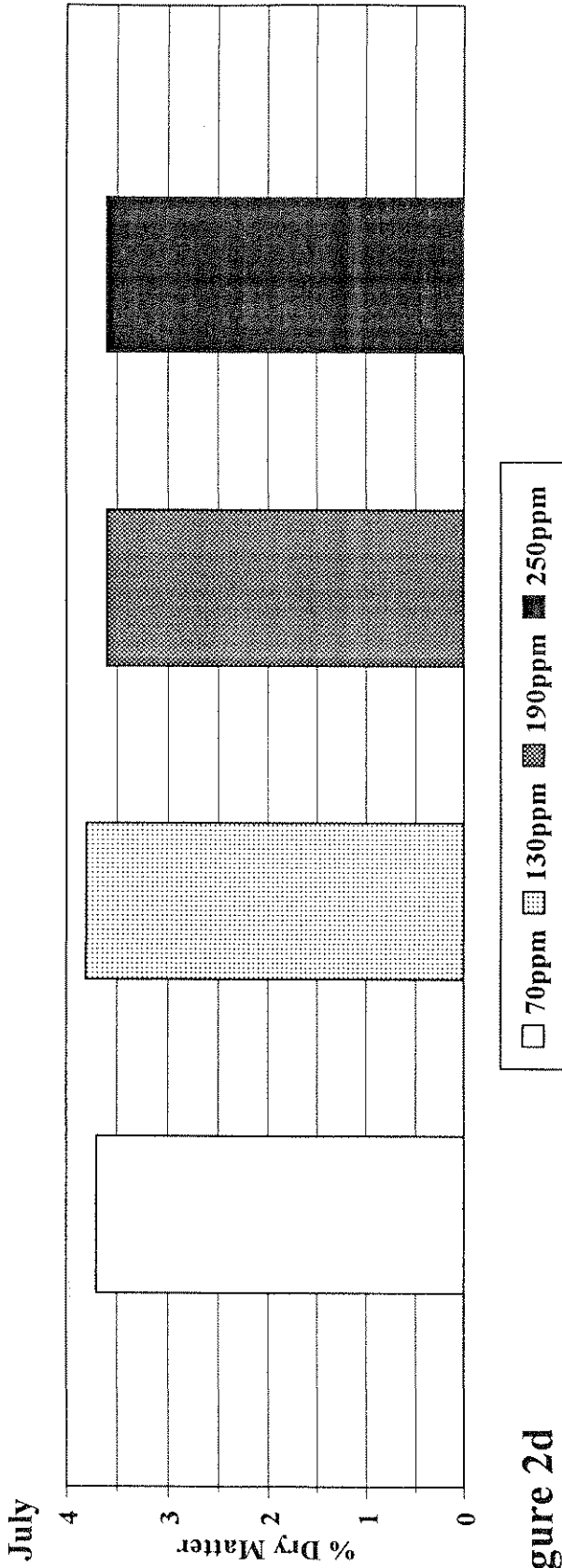


Figure 2d

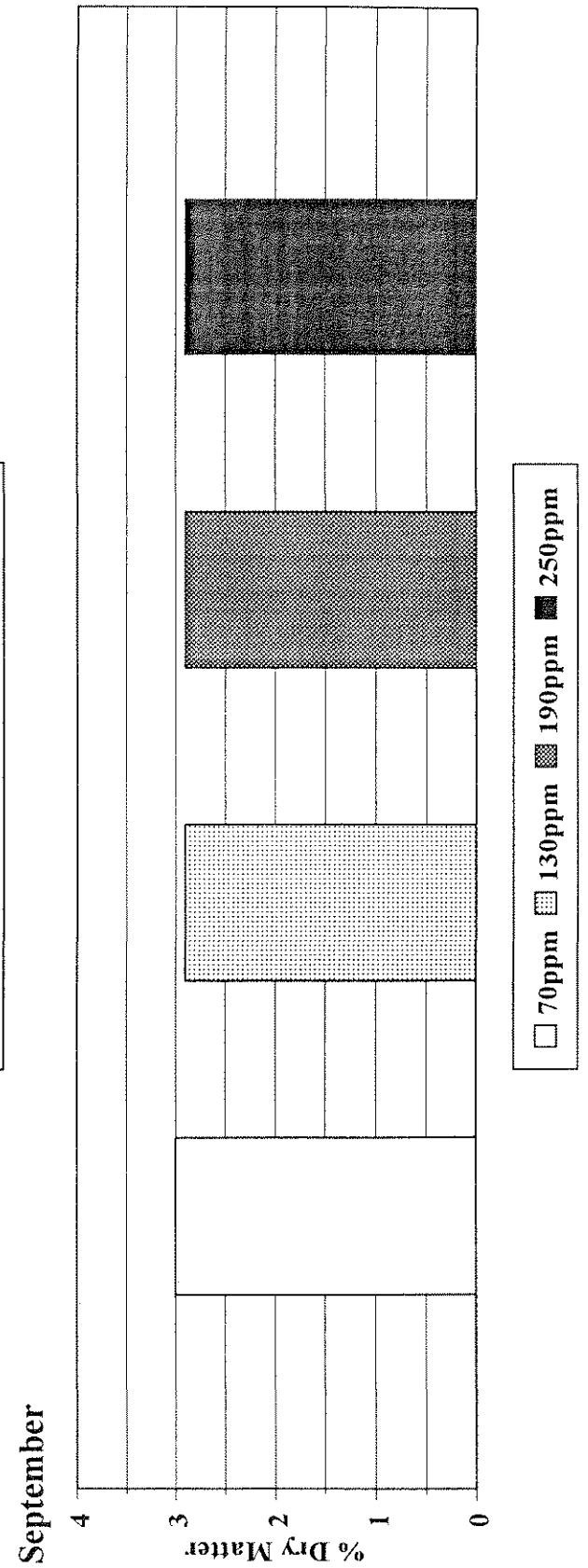


Figure 3
1995 First Crop Nitrogen Balance

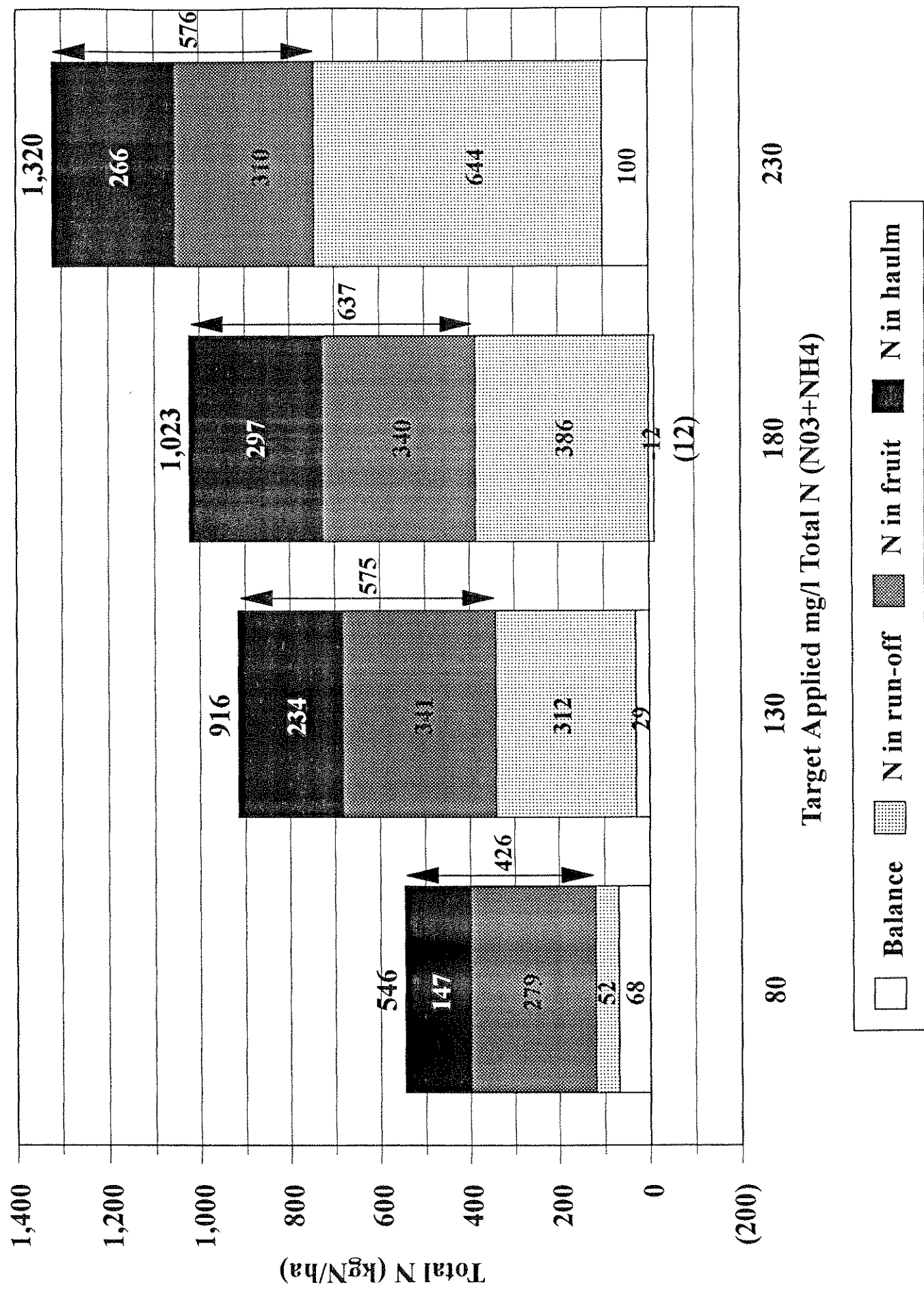


Figure 4
1995 Replant Crop Nitrogen Balance

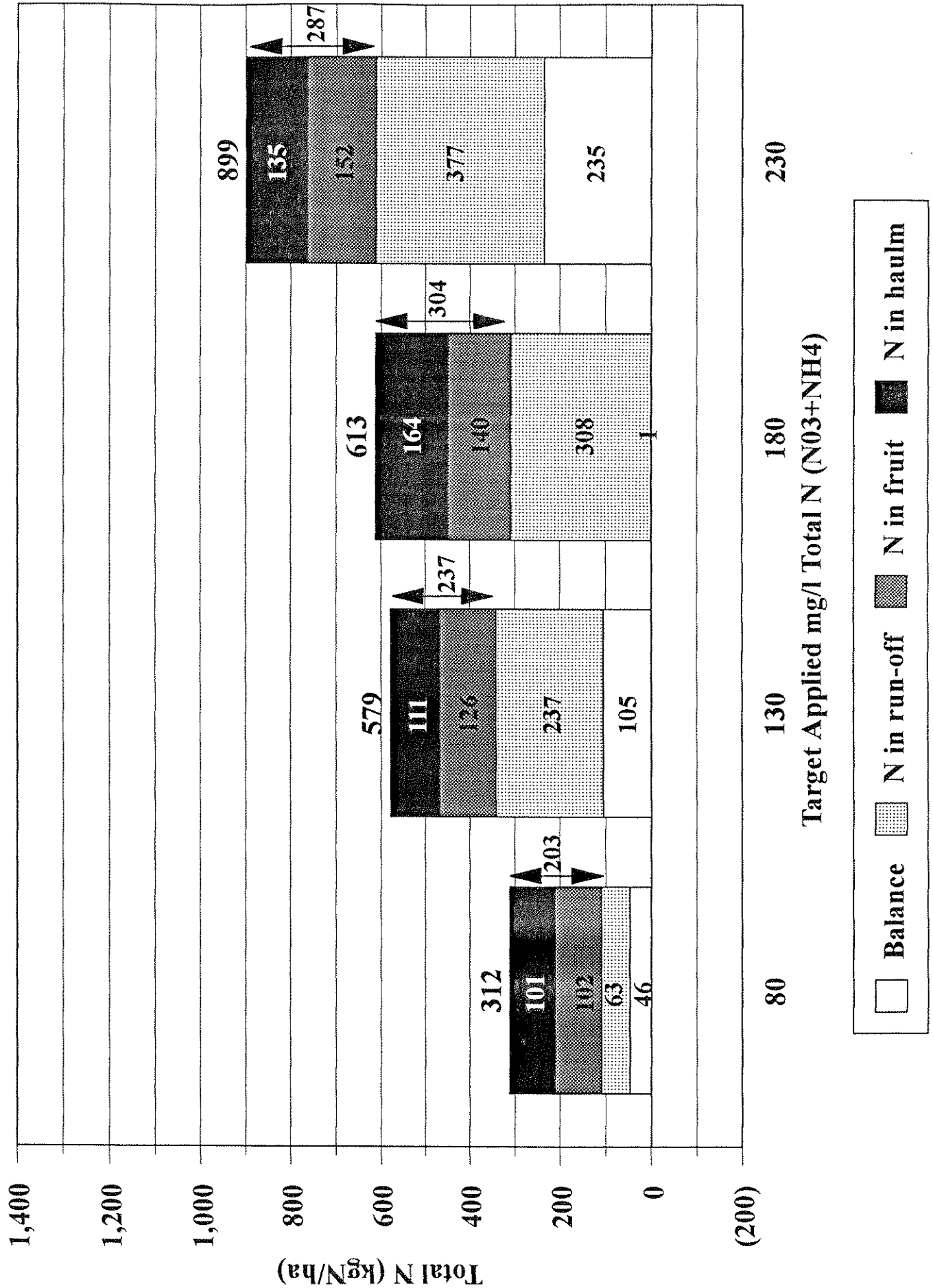


Figure 5
1996 First Crop Nitrogen Balance

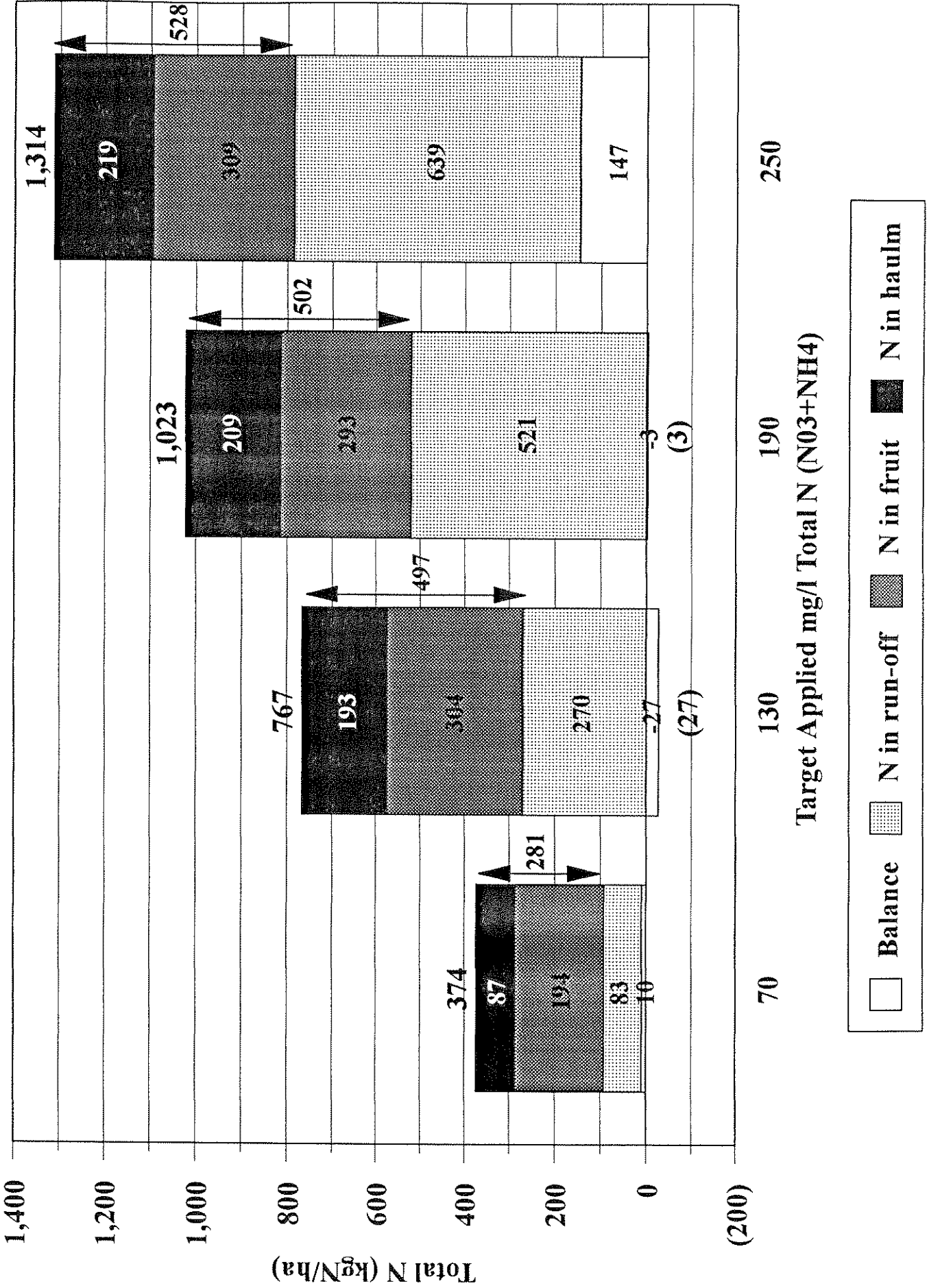
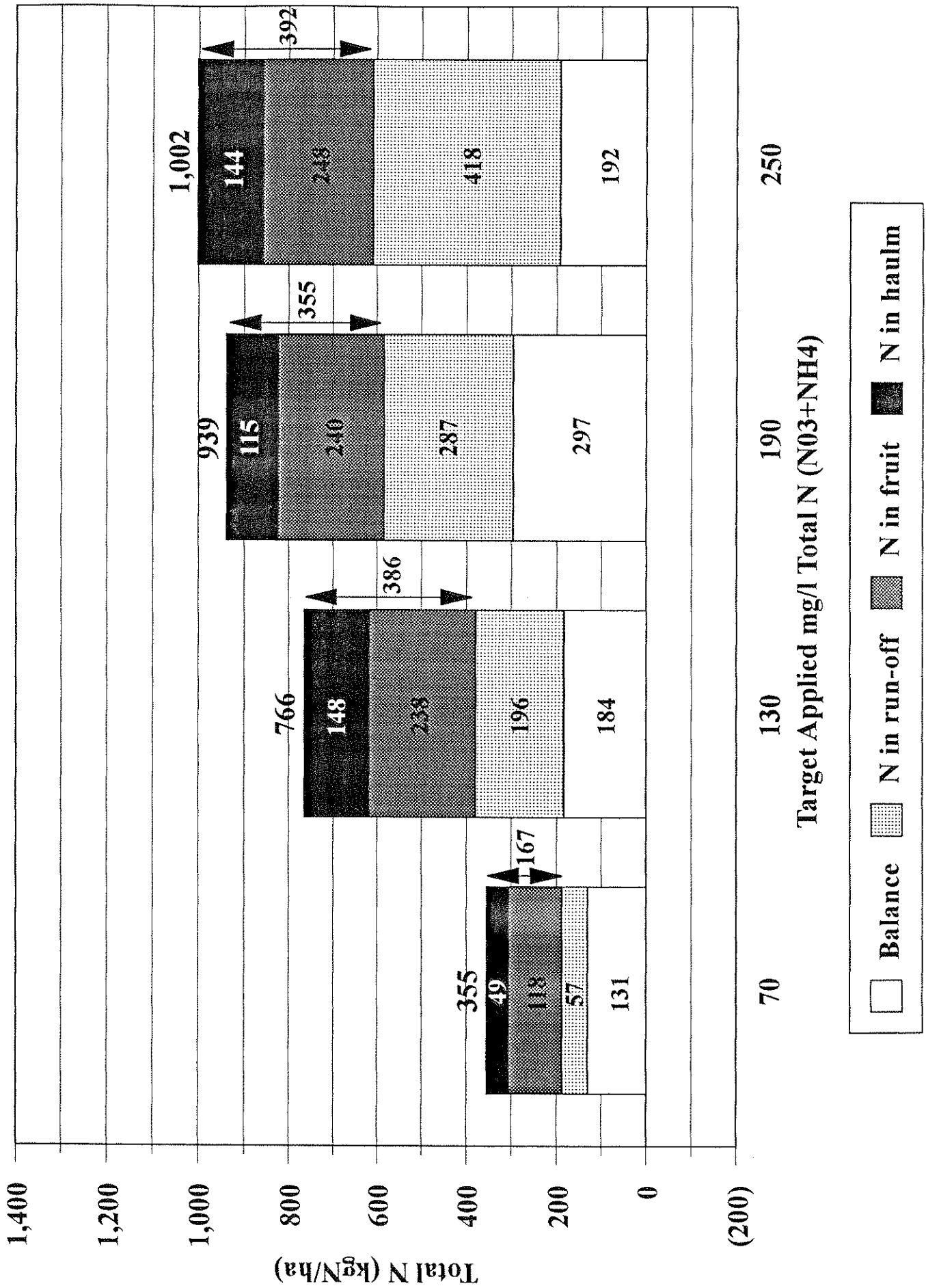


Figure 6
1996 Replant Crop Nitrogen Balance



APPENDICES

Appendix 1a
 HRI Stockbridge House
 House 10 (M20) HDC Cucumber Nutrition Trial 1995 - FIRST CROP



2G	38	37	15	16	2G	2G	Rep 3
	Pyralis 130ppm N	Jessica 130ppm N		Jessica 80ppm N		Pyralis 80ppm N	
	36	35	17	18		Jessica 180ppm N	
	Jessica 230ppm N	Pyralis 230ppm N		Pyralis 180ppm N			
	34	33	19	20		Pyralis 180ppm N	
	Jessica 130ppm N	Pyralis 130ppm N		Jessica 180ppm N			
	32	31	21	22		Jessica 230ppm N	Rep 2
	Pyralis 80ppm N	Jessica 80ppm N		Pyralis 230ppm N			
	30	29	23	24		Jessica 80ppm N	Rep 1
	Jessica 180ppm N	Pyralis 180ppm N		Pyralis 80ppm N			
	28	27	25	26		Pyralis 130ppm N	
	Pyralis 230ppm N	Jessica 230ppm N		Jessica 130ppm N			
2G	GUARDS		2G	GUARDS		2G	

NOTE : 2 GUARD PLANTS AT FRONT & BACK OF PLANT ROWS

Varieties	Nitrate Treatments	Nutrient Balance plots	Plot area
Jessica	80ppm Nitrate	31 (20 plants)	Length 6.8 x width 3.2 = 21.76m ²
Pyralis	130ppm Nitrate	34 (20 plants)	
	180ppm Nitrate	19 (20 plants)	
	230ppm Nitrate	22 (20 plants)	

Appendix 1b
HRI Stockbridge House
House 10 (M20) HDC Cucumber Nutrition Trial 1995 - REPLANT CROP



2G	2G						2G						2G						
	38	37	15	16	Rep 3				17	18	20	21	22	24	25	26	Rep 2		Rep 1
	Bronco 130ppm N	Jessica 130ppm N		Jessica 80ppm N	Bronco 80ppm N				Bronco 180ppm N	Jessica 180ppm N	Bronco 180ppm N	Jessica 230ppm N	Bronco 230ppm N	Jessica 80ppm N	Jessica 130ppm N	Bronco 130ppm N			
	Jessica 230ppm N	Bronco 230ppm N		Bronco 180ppm N	Jessica 180ppm N				Jessica 230ppm N	Bronco 180ppm N	Jessica 180ppm N	Bronco 230ppm N	Jessica 80ppm N	Bronco 80ppm N	Jessica 130ppm N	Bronco 130ppm N			
	Jessica 130ppm N	Bronco 130ppm N		Bronco 180ppm N	Jessica 180ppm N				Jessica 230ppm N	Bronco 180ppm N	Jessica 180ppm N	Bronco 230ppm N	Jessica 80ppm N	Bronco 80ppm N	Jessica 130ppm N	Bronco 130ppm N			
2G	2G						2G						2G						
	GUARDS						GUARDS						GUARDS						

NOTE : 2 GUARD PLANTS AT FRONT & BACK OF PLANT ROWS

<u>Varieties</u>	<u>Nitrate Treatments</u>	<u>Nutrient Balance plots</u>	<u>Plot area</u>
Jessica	80ppm Nitrate	31 (20 plants)	Length 6.8 x width 3.2 = 21.76m ²
Bronco	130ppm Nitrate	34 (20 plants)	
	180ppm Nitrate	19 (20 plants)	
	230ppm Nitrate	22 (20 plants)	

Appendix 2a
HRI Stockbridge House

House 10 (M20) HDC Cucumber Nutrition Trial 1996 - FIRST CROP

N
▲

2G		2G		2G		2G		2G		2G		2G		2G		2G		2G	
Jessica 190ppm N	24	Pyrallis 190ppm N	23	1	Jessica 250ppm N	2	Pyrallis 250ppm N	Rep 1											
Pyrallis 70ppm N	22	Jessica 70ppm N	21	3	Pyrallis 130ppm N	4	Jessica 130ppm N	Rep 2											
Pyrallis 190ppm N	20	Jessica 190ppm N	19	5	Pyrallis 250ppm N	6	Jessica 250ppm N	Rep 3											
Jessica 130ppm N	18	Pyrallis 130ppm N	17	7	Jessica 70ppm N	8	Pyrallis 70ppm N												
Pyrallis 250ppm N	16	Jessica 250ppm N	15	9	Pyrallis 130ppm N	10	Jessica 130ppm N												
Jessica 70ppm N	14	Pyrallis 70ppm N	13	11	Jessica 190ppm N	12	Pyrallis 190ppm N												
Jessica 190-70ppm N	28	Pyrallis 190-70ppm N	27	25	Jessica 190-70ppm N	26	Pyrallis 190-70ppm N												

NOTE : 2 GUARD PLANTS AT FRONT & BACK OF PLANT ROWS

Varieties	Nitrate Treatments	Nutrient Balance plots	Plot area
Jessica	70ppm Nitrate	7 (20 plants)	Length 6.8 x width 3.2 = 21.76m ²
Pyrallis	130ppm Nitrate	18 (20 plants)	(28 plants/plot)
	190ppm Nitrate	19 (20 plants)	
	250ppm Nitrate	6 (20 plants)	

Appendix 2b
 HRI Stockbridge House
 House 10 (M20) HDC Cucumber Nutrition Trial 1996 - REPLANT CROP



2G		2G		2G		2G		2G		2G		2G		2G	
Jessica 190ppm N	24	Bronco 190ppm N	23	1	Jessica 250ppm N	2	Bronco 250ppm N	Rep 1							
Bronco 70ppm N	22	Jessica 70ppm N	21	3	Bronco 130ppm N	4	Jessica 130ppm N	Rep 2							
Bronco 190ppm N	20	Jessica 190ppm N	19	5	Bronco 250ppm N	6	Jessica 250ppm N	Rep 3							
Jessica 130ppm N	18	Bronco 130ppm N	17	7	Jessica 70ppm N	8	Bronco 70ppm N								
Bronco 250ppm N	16	Jessica 250ppm N	15	9	Bronco 130ppm N	10	Jessica 130ppm N								
Jessica 70ppm N	14	Bronco 70ppm N	13	11	Jessica 190ppm N	12	Bronco 190ppm N								
Jessica 190-70ppm N	28	Bronco 190-70ppm N	27	25	Jessica 190-70ppm N	26	Bronco 190-70ppm N								
2G		2G		2G		2G		2G		2G		2G		2G	

NOTE : 2 GUARD PLANTS AT FRONT & BACK OF PLANT ROWS

Varieties	Nitrate Treatments	Nutrient Balance plots	Plot area
Jessica	70ppm Nitrate	7 (20 plants)	Length 6.8 x width 3.2 = 21.76m ² (28 plants/plot)
Bronco	130ppm Nitrate	18 (20 plants)	
	190ppm Nitrate	19 (20 plants)	
	250ppm Nitrate	6 (20 plants)	

Appendix 3a

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - FIRST & REPLANT CROP

Plant Nutrition - Monthly analysis

Trimmings

Treatment	Plot	Date	% Dry Matter of sample	Total Fresh Wt (g)	Total Dry Wt (g)	% ORG-N	NO3 - N ug/g	% P	Total Wt NO3 - N	Total Wt ORG - N	Total Wt N	Total Wt P
Jessica N80	31	April	7.1	5423	385.0	2.60		0.720		10.0		2.8
		May	6.6	5025	331.7	5.14		0.560		17.0		1.9
		July	9.3	13508	1260.3	3.53	1725	0.659	2.2	44.5	46.7	8.3
		First crop		23956	1977.0					71.5		12.9
		August	7.8	860	67.0	3.26		0.958		2.2		0.6
		Replant crop		860	67.0					2.2		0.6
		Total			24816	2044.0					73.7	
Jessica N130	34	April	7.5	6689	501.7	3.98		0.760		20.0		3.8
		May	6.5	6201	403.1	4.32		0.480		17.4		1.9
		July	7.3	18484	1345.6	3.41	4503	0.591	6.1	45.9	51.9	8.0
		First crop		31374	2250.4					83.3		13.7
		August	7.2	1939	140.4	4.40		0.902		6.2		1.3
		Replant crop		1939	140.4					6.2		1.3
		Total			33313	2390.8					89.4	
Jessica N180	19	April	7.6	6971	529.8	3.55		0.710		18.8		3.8
		May	6.5	6829	443.9	5.78		0.650		25.7		2.9
		July	8.1	20354	1644.6	3.22	13645	0.575	22.4	53.0	75.4	9.5
		First crop		34154	2618.3					97.4		16.1
		August	7.4	1527	112.8	3.84		0.935		4.3		1.1
		Replant crop		1527	112.8					4.3		1.1
		Total			35681	2731.1					101.8	
Jessica N230	22	April	7.8	8701	678.7	3.98		0.660		27.0		4.5
		May	6.6	6934	457.6	5.51		0.450		25.2		2.1
		July	7.4	19209	1411.9	2.81	7388	0.756	10.4	39.7	50.1	10.7
		First crop		34844	2548.2					91.9		17.2
		August	7.3	1293	94.0	2.60		0.722		2.4		0.7
		Replant crop		1293	94.0					2.4		0.7
		Total			36137	2642.2					94.3	

Fruit

Treatment	Plot	Date	% Dry Matter of sample	Total Fresh Wt (Kg)	Total Dry Wt (g)	% ORG-N	NO3 - N ug/g	% P	Total Wt NO3 - N	Total Wt ORG - N	Total Wt N	Total Wt P
Jessica N80	31	April	3.6	56.622	2038.4	2.75		0.620		56.1		12.6
		May	3.2	188.230	6023.4	2.78		0.460		167.4		27.7
		June/July	3.6	263.585	9383.6	3.24	1169	0.815	11.0	304.0	315.0	76.5
		First crop		508.437	17445.4					527.5		116.8
		August	3.3	112.994	3728.8	2.83	886	0.961	3.3	105.5	108.8	35.8
		Sept/Oct	3.0	139.290	4178.7	2.23	492	0.723	2.1	93.2	95.2	30.2
		Total			760.721	25352.9				5.4	198.7	204.1
Jessica N130	34	April	3.2	43.688	1398.0	3.49		0.690		48.8		9.6
		May	4.0	223.070	8922.8	2.87		0.580		256.1		51.8
		June/July	3.6	281.419	10131.1	3.71	1851	0.892	18.8	375.9	394.6	90.4
		First crop		548.177	20451.9					680.7		151.8
		August	3.5	116.518	4078.1	3.10	1448	0.877	5.9	126.4	132.3	35.8
		Sept/Oct	3.4	179.548	6104.6	2.48	600	0.761	3.7	151.4	155.1	46.5
		Total			844.243	30634.7				9.6	277.8	287.4
Jessica N180	19	April	3.2	65.972	2111.1	3.75		0.700		79.2		14.8
		May	4.4	228.484	10053.3	3.22		0.500		323.7		50.3
		June/July	3.5	298.882	10341.3	3.45	2223	0.922	23.0	356.8	379.8	95.3
		First crop		593.338	22505.7					759.7		160.4
		August	3.2	104.666	3349.3	3.49	3329	1.004	11.1	116.9	128.0	33.6
		Sept/Oct	3.0	184.440	5533.2	2.74	765	0.752	4.2	151.6	155.8	41.6
		Total			882.444	31388.2				15.4	268.5	283.9
Jessica N230	22	April	3.2	55.780	1785.0	3.92		0.710		70.0		12.7
		May	3.9	253.902	9902.2	3.21		0.620		317.9		61.4
		June/July	3.3	291.280	9728.8	3.53	3330	0.887	32.4	343.4	375.8	86.3
		First crop		600.962	21415.9					731.3		160.4
		August	3.3	107.880	3560.0	3.66	3132	0.955	11.2	130.3	141.4	34.0
		Sept/Oct	3.1	211.880	6568.3	2.68	642	0.818	4.2	176.0	180.2	53.7
		Total			920.722	31544.2				15.4	306.3	321.7

Appendix 3b

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - FIRST & REPLANT CROP

Plant Nutrition at termination - First Crop (20 plants/plot)

12.7.95

Treatment	Plot		% Dry Matter of sample	Total Fresh Wt (g)	Total Dry Wt (g)	% ORG-N	NO3 - N ug/g	% P	Total Wt NO3 -N	Total Wt ORG - N	Total Wt N	Total Wt P
Jessica N80	31	Fruit	3.4	25380	862.9	3.10		0.898		26.75		7.75
		Leaf	10.4	20340	2115.4	2.54		0.960		53.73		20.31
		Haulm	9.5	27760	2637.2	1.39		0.893		36.66		23.55
		Root	12.2	69.13	8.4	0.79	2097	0.382	0.02	0.07	0.08	0.03
		Total			73549.13	5623.9	7.82		3.133		117.20	
Jessica N130	34	Fruit	3.3	31780	1048.7	2.93		0.844		30.73		8.85
		Leaf	17.1	23840	4076.6	2.13		0.547		86.83		22.30
		Haulm	8.9	29640	2638.0	1.98		0.635		52.23		16.75
		Root	14.1	95.95	13.5	1.31	15717	0.590	0.21	0.18	0.39	0.08
		Total			85355.95	7776.8	8.35		2.616		169.97	
Jessica N180	19	Fruit	3.5	34040	1191.4	3.15		0.839		37.53		10.00
		Leaf	13.8	21250	2932.5	2.15		0.610		63.05		17.89
		Haulm	9.3	27720	2578.0	1.77		0.655		45.63		16.89
		Root	9.7	174.89	17.0	1.49	3744	0.593	0.06	0.25	0.32	0.10
		Total			83184.89	6718.9	8.56		2.697		146.46	
Jessica N230	22	Fruit	3.5	30260	1059.1	3.75		0.965		39.72		10.22
		Leaf	16.0	19510	3121.6	2.43		0.692		75.85		21.60
		Haulm	9.0	28640	2577.6	2.04		0.787		52.58		20.29
		Root	11.5	104.01	12.0	1.40	16137	0.632	0.19	0.17	0.36	0.08
		Total			78514.01	6770.3	9.62		3.076		168.32	

Plant Nutrition at termination - Replant Crop (20 plants/plot)

31.10.95

Treatment	Plot		% Dry Matter of sample	Total Fresh Wt (g)	Total Dry Wt (g)	% ORG-N	NO3 - N ug/g	% P	Total Wt NO3 -N	Total Wt ORG - N	Total Wt N	Total Wt P
Jessica N80	31	Fruit	3.0	10110	303.3	3.62	2558	1.135	0.78	10.98	11.76	3.44
		Leaf	30.9	9860	3046.7	2.73	3235	1.442	9.86	83.17	93.03	43.93
		Haulm	7.9	15500	1224.5	2.08	9691	1.012	11.87	25.47	37.34	12.39
		Root	7.7	169.43	13.0	1.34	592	0.847	0.01	0.17	0.18	0.11
		Total			35639.43	4587.5	9.77	2097	4.436	9.62	119.80	129.42
Jessica N130	34	Fruit	3.4	12120	412.1	4.45	3591	1.307	1.48	18.34	19.82	5.39
		Leaf	23.6	13000	3068.0	2.06	7126	0.903	21.86	63.20	85.06	27.70
		Haulm	6.1	19000	1159.0	2.17	19960	0.742	23.13	25.15	48.28	8.60
		Root	7.8	259.12	20.2	1.94	2382	0.650	0.05	0.39	0.44	0.13
		Total			44379.12	4659.3	10.62	2097	3.602	9.77	107.08	116.85
Jessica N180	19	Fruit	3.0	10910	327.3	4.03	3421	0.829	1.12	13.19	14.31	2.71
		Leaf	18.1	14530	2629.9	2.87	13399	0.868	35.24	75.48	110.72	22.83
		Haulm	7.5	18000	1350.0	1.92	22971	0.825	31.01	25.92	56.93	11.14
		Root	6.9	179.48	12.4	1.21	1129	0.618	0.01	0.15	0.16	0.08
		Total			43619.48	4319.6	10.03	2097	3.140	9.06	114.74	123.80
Jessica N230	22	Fruit	3.4	12500	425.0	4.85	6858	1.198	2.91	20.61	23.53	5.09
		Leaf	20.7	12900	2670.3	2.94	12718	1.040	33.96	78.51	112.47	27.77
		Haulm	7.4	15790	1168.5	2.45	21875	1.130	25.56	28.63	54.19	13.20
		Root	7.4	183.02	13.5	1.92	7614	0.594	0.10	0.26	0.36	0.08
		Total			41373.02	4277.3	12.16	2097	3.962	8.97	128.01	136.98

Appendix 4a

House 10 (M20) HDC Cucumber Nutrition Trial 1996 - FIRST & REPLANT CROP

Plant Nutrition - Monthly analysis

Jessica N70

FIRST CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
March		2.00	3.1	2.99	0.96	715
April		7.83	3.6	2.54	0.76	593
May		6.81	3.8	1.93	0.86	351
June		5.50	3.2	2.00	0.80	107
Fruit (waste% of total yield)						
March		0.5%	3.1	2.99	0.96	715
April		5.0%	3.6	2.54	0.76	593
May		10.9%	3.8	1.93	0.86	351
June		12.1%	3.2	2.00	0.80	107
Trimmings						
Feb	0.709		6.6	4.76	1.44	
March	0.687		4.5	3.98	1.23	3556
April	3.306		4.5	4.26	1.02	2340
May	1.884		6.6	3.60	1.18	2407
June	0.990		6.0	4.12	1.16	663
At termination						
Fruit	18.40		4.5	2.72	0.88	953
Leaf	10.94		18.5	2.27	0.77	456
Haulm	25.36		8.6	1.55	0.89	1472

REPLANT CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
July		3.67	3.7	1.77	0.70	49
Aug		6.51	3.6	2.17	0.75	369
Sep		3.44	3.0	2.38	0.91	1150
Oct		0.81	3.0	2.38	0.91	1150
Fruit (waste% of total yield)						
July		2.0%	3.7	1.77	0.70	49
Aug		3.9%	3.6	2.17	0.75	369
Sep		17.3%	3.0	2.38	0.91	1150
Oct		31.5%	3.0	2.38	0.91	1150
Trimmings						
July	2.672		7.6	4.05	1.05	2721
Sep	6.206		8.6	2.98	1.39	8149
At termination						
Fruit	10.88		2.9	2.74	1.11	2949
Leaf	8.62		15.4	2.53	1.15	3294
Haulm	13.28		8.9	1.26	0.93	5544
Root	90.59		5.2	1.23	0.55	908

Appendix 4b

House 10 (M20) HDC Cucumber Nutrition Trial 1996 - FIRST & REPLANT CROP

Plant Nutrition - Monthly analysis

Jessica N130

FIRST CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
March		2.00	3.0	3.49	1.02	1101
April		8.66	3.6	3.37	0.79	1026
May		8.51	3.0	2.85	0.97	1047
June		7.40	3.0	3.15	0.97	1351
Fruit (waste% of total yield)						
March		0.6%	3.0	3.49	1.02	1101
April		4.6%	3.6	3.37	0.79	1026
May		12.2%	3.0	2.85	0.97	1047
June		12.4%	3.0	3.15	0.97	1351
Trimming						
Feb	0.919		6.8	4.80	1.50	
March	0.833		6.2	4.76	1.35	4505
April	4.788		5.5	5.42	1.08	5029
May	2.388		7.2	3.74	0.99	10655
June	1.688		5.8	4.69	1.20	13125
At termination						
Fruit	25.76		4.3	3.23	0.97	2298
Leaf	15.08		22.3	2.66	0.80	3858
Haulm	29.60		8.2	2.19	0.85	19670

REPLANT CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3N ug/g
Fruit (marketable only)						
July		5.77	3.8	3.10	0.87	1870
Aug		8.27	3.9	2.32	0.69	387
Sep		5.04	2.9	3.38	1.04	2597
Oct		1.17	2.9	3.38	1.04	2597
Fruit (waste% of total yield)						
July		0.9%	3.8	3.10	0.87	1870
Aug		5.0%	3.9	2.32	0.69	387
Sep		20.3%	2.9	3.38	1.04	2597
Oct		32.3%	2.9	3.38	1.04	2597
Trimming						
July	5.034		7.1	5.47	0.82	6622
Sep	8.596		7.0	3.50	1.53	20435
At termination						
Fruit	9.02		3.8	2.93	1.08	4210
Leaf	11.00		28.6	1.84	1.20	9388
Haulm	18.00		7.9	1.75	0.90	15261
Root	121.54		3.7	1.61	1.01	1273

Appendix 4c

House 10 (M20) HDC Cucumber Nutrition Trial 1996 - FIRST & REPLANT CROP

Plant Nutrition - Monthly analysis

Jessica N190

FIRST CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
March		1.82	3.0	3.70	1.03	1280
April		8.35	3.5	3.11	0.80	1044
May		8.57	3.0	3.08	0.97	1891
June		7.16	2.8	2.98	1.01	3855
Fruit (waste% of total yield)						
March		1.0%	3.0	3.70	1.03	1280
April		4.5%	3.5	3.11	0.80	1044
May		12.4%	3.0	3.08	0.97	1891
June		13.5%	2.8	2.98	1.01	3855
Trimming						
Feb	0.893		6.8	5.57	1.45	
March	0.705		5.8	4.69	1.25	5892
April	5.508		4.3	3.73	0.93	1967
May	2.106		9.2	4.10	1.15	9041
June	3.722		6.4	4.34	1.18	11704
At termination						
Fruit	26.34		3.5	3.28	0.88	2294
Leaf	15.20		23.4	2.84	0.77	8044
Haulm	29.16		8.2	2.13	0.81	20876

REPLANT CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
July		6.00	3.6	3.21	0.84	2263
Aug		7.43	3.6	2.73	0.69	486
Sep		5.24	2.9	3.32	1.08	2519
Oct		1.18	2.9	3.32	1.08	2519
Fruit (waste% of total yield)						
July		1.2%	3.6	3.21	0.84	2263
Aug		6.7%	3.6	2.73	0.69	486
Sep		19.2%	2.9	3.32	1.08	2519
Oct		31.5%	2.9	3.32	1.08	2519
Trimming						
July	5.964		7.0	5.16	1.10	6961
Sep	5.552		6.9	3.14	1.03	26889
At termination						
Fruit	8.24		3.7	3.56	1.10	4464
Leaf	11.24		15.8	2.92	1.09	8451
Haulm	15.12		9.3	1.70	0.75	11317
Root	123.06		3.8	2.51	0.49	10630

Appendix 4d

House 10 (M20) HDC Cucumber Nutrition Trial 1996 - FIRST & REPLANT CROP

Plant Nutrition - Monthly analysis

Jessica N250

FIRST CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
March		2.10	3.0	3.86	1.05	1404
April		8.11	3.4	3.42	0.80	1417
May		8.09	3.2	2.99	0.91	1722
June		7.18	3.1	3.32	0.94	1911
Fruit (waste% of total yield)						
March		0.3%	3.0	3.86	1.05	1404
April		5.0%	3.4	3.42	0.80	1417
May		11.1%	3.2	2.99	0.91	1722
June		11.6%	3.1	3.32	0.94	1911
Trimming						
Feb	0.672		7.1	4.21	1.13	
March	0.859		5.6	5.01	1.35	5325
April	3.718		4.2	4.11	1.09	2276
May	3.334		6.5	4.24	1.15	13197
June	2.884		3.0	4.26	1.20	12160
At termination						
Fruit	18.24		3.7	3.28	0.72	2085
Leaf	13.82		19.2	3.14	0.55	7159
Haulm	29.62		8.0	2.45	0.62	43279

REPLANT CROP

Plant Part	Fresh Weight(Kg) 20 plants per plot	Fresh Weight Kg/m ²	Dry Matter %	Organic N %	Potassium %	NO3 N ug/g
Fruit (marketable only)						
July		5.79	3.6	3.61	0.79	1998
Aug		7.29	3.9	2.63	0.64	642
Sep		4.88	2.9	3.49	1.00	3172
Oct		1.15	2.9	3.49	1.00	3172
Fruit (waste% of total yield)						
July		1.1%	3.6	3.61	0.79	1998
Aug		6.0%	3.9	2.63	0.64	642
Sep		22.7%	2.9	3.49	1.00	3172
Oct		25.1%	2.9	3.49	1.00	3172
Trimming						
July	6.372		7.6	5.49	1.12	7727
Sep	4.964		6.3	3.84	0.88	25103
At termination						
Fruit	5.48		3.6	4.16	1.16	6375
Leaf	9.52		27.9	2.08	0.87	9833
Haulm	17.90		9.4	1.86	0.66	21254
Root	115.99		4.6	1.81	0.49	5743

Appendix 5a

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis FIRST CROP

N80 Slab (H10N80SLAB)

	DATE :	11 Apr	25 Apr	9 May	23 May	6 Jun	4 Jul
	Optimum						
pH	5.5-6.5	6.7	6.2	6.8	5	6.1	5.9
Cond	2000	1620	3030	1979	2340	2366	2474
NO3-N	160-220	8.3	15.4	29.4	60.4	43	61
NH4-N	0-10	0.2	0.7	0.2	0.3	0.7	0.4
K	200-300	59	225	233	253	258	129
Ca	140-200	196	334	220	253	244	265
Mg	20-40	55	196	70	69	53	46
P	30-50	28	41	25	49	28	50
Fe	1.5-3.0	2.96	6.04	2.56	3.67	2.63	3.11
Zn	0.2-2.0	0.95	1.33	0.46	0.78	0.67	0.9
Mn	0.3-1.0	0.45	0.61	0.38	0.54	0.53	1.05
Cu	0.05-1.0	0.62	0.19	0.12	0.14	0.09	0.07
B	0.2-1.5	0.96	0.57	0.24	0.8	0.31	0.22
Na	0-100	41	49	26	34	33	28
Cl	0-100	371	867	517	572	516	535
S	30-150	84	114	80	80	36	32
HCO3	0-50	85	43	51	12		0.05
Mo		0.28	0.1	0.2	0.32		28

N80 Drip (H10N80DRIP)

	DATE :	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
	Optimum														
pH	5.5-6.5	6.2	6.3	6.1	6.2	6.1	6.2	6	6	6.2	6.1	6	5.7	5.7	5.7
Cond	2000	1962	1780	2320	2.23	2250	2130	2400	2120	2020	1950	2089	2263	2071	2016
NO3-N	160-220	157	75	95.4	89.6	101	87.2	73.2	85.2	77.8	89	89	88	98	95
NH4-N	0-10	10.2	5.1	12.5	15.5	16.2	9.5	5.5	14.8	10.2	12.3	8.1	12.9	12.3	8.5
K	200-300	210	225	242	284	276	255	379	229	205	184	260	254	112	111
Ca	140-200	166	199	245	213	217	210	142	183	160	216	182	226	211	195
Mg	20-40	44	50	46	58	50	61	66	49	42	28	35	34	32	34
P	30-50	40	46	47	49	40	45	61	44	38	35	49	46	40	36
Fe	1.5-3.0	1.37	1.72	1.14	2.06	2.33	1.97	1.54	2.14	1.61	2.24	1.61	2.89	1.76	1.8
Zn	0.2-2.0	0.98	0.75	0.75	0.65	0.74	0.44	0.6	0.65	0.57	0.56	0.79	0.67	0.79	0.51
Mn	0.3-1.0	0.47	0.57	0.37	0.5	0.48	0.52	0.7	0.55	0.43	0.37	0.27	0.87	0.62	0.57
Cu	0.05-1.0	0.33	0.62	0.11	0.11	0.8	0.11	0.32	0.1	0.58	0.05	0.08	0.07	0.06	0.06
B	0.2-1.5	0.71	0.91	0.45	0.34	0.8	0.18	0.68	0.74	0.59	0.21	0.18	0.19	0.14	0.18
Na	0-100	30	31	18	22	23	18	20	24	19	32	36	30	21	21
Cl	0-100	226	284	433	420	395	440	349	486	363	364	312	378	409	379
S	30-150	59	54	61	67	49	69	90	59	49	17	15	20	19	18
HCO3	0-50	49	55	49	55	49	49	49	43	55		0.06	0.05	0	0.04
Mo		0.15	0.25	0.11	0.14	0.18	0.2	0.25	0.4	0.26		65	27	23	17

N80 Runoff (H10N80RO)

	DATE :	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
	Optimum														
pH	5.5-6.5	6.8	7.1	6.9	6.5	6	6.6	6.6	6.3	6.2	6.4	7	4.9	6.6	6.7
Cond	2000	1898	1720	2270	3330	3330	3260	2240	2140	3060	2754	2254	4269	3179	3152
NO3-N	160-220	71.1	64	59.4	8.44	9.12	6.02	22.7	45.2	4.93	5	10	57	102	21
NH4-N	0-10	3.5	1.3	0.3	0.7	0.2	0.2	0.1	2.8	0.2	2.1	0.2	3.3	0.5	0.6
K	200-300	149	147	27	103	184	183	332	248	259	246	225	408	180	116
Ca	140-200	190	209	293	426	385	404	145	217	304	291	221	537	361	330
Mg	20-40	46	61	74	127	132	119	70	67	102	76	50	91	66	66
P	30-50	32	35	9	20	30	28	50	38	32	25	33	92	51	31
Fe	1.5-3.0	1.14	2.38	4.09	6.46	6.53	5.38	1.3	2.66	4.02	3.22	2.87	10.84	5.16	4.57
Zn	0.2-2.0	0.76	0.87	1.12	1.68	2.79	1.04	0.86	0.64	1.24	1.03	0.9	1.39	1.33	0.86
Mn	0.3-1.0	0.39	0.42	0.26	0.6	0.87	0.74	0.4	0.37	0.64	0.52	0.17	1.38	1.39	0.84
Cu	0.05-1.0	0.34	0.6	0.16	0.21	0.41	0.22	0.34	0.12	0.63	0.11	0.07	0.16	0.12	0.1
B	0.2-1.5	0.64	1.01	0.59	0.7	0.9	0.42	0.73	0.78	0.82	0.46	0.19	0.37	0.28	0.2
Na	0-100	35	41	53	61	48	47	28	34	43	46	58	88	35	47
Cl	0-100	296	288	704	972	1061	880	516	543	886	868	566	1034	890	923
S	30-150	72	77	80	123	143	138	94	83	123	53	20	55	46	35
HCO3	0-50	67	85	43	43	37	43	61	37	37		0.06	0.05	0.06	0.02
Mo		0.11	0.3	0.06	0.13	0.13	0.22	0.19	0.35	0.21		70	5	63	55

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis FIRST CROP

N130 Slab
(H10N130SLAB)

	DATE : Optimum	11 Apr	25 Apr	9 May	23 May	6 Jun	4 Jul
pH	5.5-6.5	6.9	6.1	7.1	4.8	5.3	5.2
Cond	2000	1540	3180	3830	3870	4189	3756
NO3-N	160-220	10	126	97.3	248	304	184
NH4-N	0-10	0.1	2.1	0.2	9	9	3.1
K	200-300	79	331	357	374	507	242
Ca	140-200	184	338	436	369	441	385
Mg	20-40	50	93	133	115	78	67
P	30-50	29	72	23	73	54	45
Fe	1.5-3.0	4.11	6.57	7.42	7.17	5.87	7.34
Zn	0.2-2.0	0.57	0.41	0.31	0.47	0.48	0.34
Mn	0.3-1.0	0.38	0.75	0.56	0.78	0.94	1.14
Cu	0.05-1.0	0.62	0.17	0.18	0.22	0.21	0.1
B	0.2-1.5	0.98	0.62	0.59	1.15	0.56	0.3
Na	0-100	52	69	69	86	85	51
Cl	0-100	279	683	776	486	780	703
S	30-150	67	117	192	143	61	46
HCO3	0-50	98	43	104	12		0.01
Mo		0.28	0.09	0.3	0.4		7

N130 Drip
(H10N130DRIP)

	DATE : Optimum	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
pH	5.5-6.5	6.2	5.8	5.9	5.9	5.7	5.9	5.8	5.7	5.8	5.7	5.9	5.5	5.2	5.7
Cond	2000	1889	2080	2520	2670	2780	2560	2480	2580	2400	2510	2281	2318	2189	2254
NO3-N	160-220	81.4	118	146	167	167	171	188	225	164	189	148	134	154	150
NH4-N	0-10	10.4	8.2	15.5	18.7	18.4	14.4	17.1	23.8	15.6	15.7	9.7	12	14.5	11.4
K	200-300	213	238	278	335	312	335	296	315	275	308	398	380	146	136
Ca	140-200	189	235	206	242	224	253	189	230	209	237	136	138	199	193
Mg	20-40	48	52	51	59	58	67	52	58	57	45	35	32	25	37
P	30-50	38	47	52	57	57	56	50	51	49	46	49	44	46	39
Fe	1.5-3.0	1.47	2.84	2.02	2.8	3.15	2.67	2.3	2.98	2.19	1.99	1.65	2.06	2.13	1.85
Zn	0.2-2.0	0.7	0.47	0.51	0.42	0.82	0.41	0.52	0.39	0.45	0.37	0.4	0.45	0.39	0.29
Mn	0.3-1.0	0.52	0.61	0.47	0.62	0.65	0.64	0.57	0.6	0.53	0.57	0.27	0.86	0.7	0.6
Cu	0.05-1.0	0.36	0.59	0.14	0.12	0.38	0.12	0.49	0.11	0.59	0.09	0.06	0.05	0.05	0.03
B	0.2-1.5	0.69	0.93	0.53	0.42	0.63	0.24	0.73	0.9	0.69	0.34	0.13	0.16	0.16	0.14
Na	0-100	19	40	34	34	35	31	31	42	32	36	40	42	19	21
Cl	0-100	293	310	319	394	351	336	191	224	297	271	247	281	300	308
S	30-150	50	62	65	74	58	76	70	70	53	29	15	18	21	20
HCO3	0-50	49	37	37	37	37	31	37	31	37		0.03	0.04	0.02	0.03
Mo		0.1	0.28	0.13	0.1	0.11	0.2	0.23	0.38	0.32		44	17	11	16

N130 Runoff
(H10N130RO)

	DATE : Optimum	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
pH	5.5-6.5	6.8	6.7	7.3	6.5	5.4	6.2	5.2	4.9	5.6	5.8	6.5	5.5	6.3	5.8
Cond	2000	1898	2030	2550	4070	3740	5390	3520	3350	3890	4262	3298	5698	4462	4407
NO3-N	160-220	61.5	72	24.4	83.5	181	157	212	278	216	283	149	221	167	192
NH4-N	0-10	5.3	4	0.8	0.2	2.8	0.2	2.1	13.9	0.2	2	0.7	6.3	0.6	6.4
K	200-300	175	196	288	301	368	446	386	388	316	450	390	992	318	252
Ca	140-200	218	246	226	480	333	615	321	366	416	474	301	363	439	340
Mg	20-40	54	60	74	131	100	188	87	99	109	104	76	103	84	83
P	30-50	34	40	15	45	71	79	60	63	47	40	31	113	74	61
Fe	1.5-3.0	0.73	3.29	4.81	9.77	5.64	9.37	4.75	5.3	6.22	6.38	4.9	10	8.53	5.33
Zn	0.2-2.0	0.86	0.66	0.52	0.66	0.72	0.66	0.61	0.46	0.6	0.49	0.38	0.67	0.58	0.5
Mn	0.3-1.0	0.42	0.48	0.09	0.72	1.05	1.26	0.85	0.88	0.93	0.87	0.28	1.31	1.43	1.15
Cu	0.05-1.0	0.37	0.64	0.12	0.2	0.51	0.29	0.51	0.17	0.58	0.18	0.12	0.16	0.16	0.1
B	0.2-1.5	0.76	1	0.65	0.9	0.89	0.78	0.96	1.07	1	0.61	0.24	0.42	0.4	0.29
Na	0-100	31	51	72	107	60	114	58	72	79	101	86	188	70	56
Cl	0-100	343	427	731	946	722	1113	524	458	674	840	556	939	1010	839
S	30-150	81	78	92	153	131	226	112	108	148	71	36	67	64	45
HCO3	0-50	55	55	79	61	24	67	18	12	24		0.06	0.12	0.15	0.06
Mo		0.1	0.3	0.07	0.11	0.16	0.3	0.23	0.35	0.21		49	26	62	0

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis FIRST CROP

N180 Slab
(H10N180SLAB)

	DATE :	11 Apr	25 Apr	9 May	23 May	4 Jul
	Optimum					
pH	5.5-6.5	7.3	7.1	5.7	5.2	5.2
Cond	2000	1770	4190	4420	3310	3610
NO3-N	160-220	33	165	259	277	334
NH4-N	0-10	0.2	0.4	0.5	0.6	2.6
K	200-300	130	323	457	334	113
Ca	140-200	170	380	438	339	451
Mg	20-40	64	153	167	104	63
P	30-50	29	49	99	66	30
Fe	1.5-3.0	2.91	12.31	11.74	6.66	5.87
Zn	0.2-2.0	0.68	0.98	0.97	0.55	0.52
Mn	0.3-1.0	0.29	0.21	0.62	0.66	0.93
Cu	0.05-1.0	0.63	0.3	0.34	0.23	0.11
B	0.2-1.5	0.98	0.98	0.73	1.09	0.24
Na	0-100	58	170	112	82	55
Cl	0-100	310	578	492	372	316
S	30-150	93	213	215	112	41
HCO3	0-50	171	153	37	18	0.06
Mo		0.32	0.16	0.25	0.35	6

N180 Drip
(H10N180DRIP)

	DATE :	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
	Optimum														
pH	5.5-6.5	6.4	6.5	6.3	6.3	6.2	6.2	6.2	6.1	6.3	5.9	6.1	5.7	5.8	5.6
Cond	2000	2210	1910	2280	2440	2630	2310	2500	2580	2300	2546	2080	2272	2144	2153
NO3-N	160-220	122	156	127	228	216	173	201	246	186	238	180	200	184	193
NH4-N	0-10	14.3	5.8	2.9	21.4	19.2	7.5	13.5	19.6	12.4	14.5	7.8	13	9.2	7.3
K	200-300	236	229	412	260	258	422	275	322	293	332	260	228	168	143
Ca	140-200	246	183	82	254	196	181	219	231	166	235	186	219	150	173
Mg	20-40	56	48	66	54	50	87	51	58	51	44	37	36	33	42
P	30-50	54	45	78	42	44	75	45	51	53	54	43	36	53	47
Fe	1.5-3.0	2.62	1.75	0.02	6.02	4.52	2.16	2.67	3.29	1.81	2.27	1.42	2.17	1.05	1.26
Zn	0.2-2.0	0.57	0.5	0.21	0.51	0.54	0.46	0.45	0.38	0.35	0.4	0.36	0.35	0.46	0.32
Mn	0.3-1.0	0.62	0.52	0.73	0.44	0.5	0.78	0.56	0.64	0.56	0.64	0.23	0.55	0.91	0.8
Cu	0.05-1.0	0.38	0.44	0.12	0.12	0.44	0.2	0.46	0.12	0.52	0.08	0.08	0.07	0.1	0.07
B	0.2-1.5	0.72	0.76	0.63	0.43	0.57	0.27	0.7	0.87	0.65	0.36	0.13	0.14	0.18	0.16
Na	0-100	36	33	17	38	36	29	35	41	31	39	30	48	17	18
Cl	0-100	288	129	179	210	149	207	143	157	164	146	118	168	177	164
S	30-150	76	57	86	67	50	96	63	76	58	31	19	19	24	22
HCO3	0-50	67	61	61	61	61	55	61	61	67	31	0.03	0.02	0.03	0.03
Mo		0.11	0.18	0.18	0.07	0.11	0.17	0.18	0.4	0.21		61	28	32	17

N180 Runoff
(H10N180RO)

	DATE :	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
	Optimum														
pH	5.5-6.5	6.6	6.4	8.1	8.4	7.1	6.6	6.3	6.1	6.3	6.9	7	5.8	5.8	5.6
Cond	2000	2070	1850	1707	3290	4630	6640	3640	3150	4750	4081	3161	5689	5442	4553
NO3-N	160-220	158	166	20.7	127	336	385	295	288	270	349	259	462	459	369
NH4-N	0-10	7.3	3.3	0.3	0.7	17.6	0.8	1.1	12	0.1	0.9	0.5	8.3	4.8	3.4
K	200-300	235	238	67	273	425	558	338	353	720	498	360	608	238	218
Ca	140-200	202	156	140	272	409	700	359	341	322	443	333	650	686	480
Mg	20-40	54	56	61	114	139	250	97	90	176	113	79	152	111	120
P	30-50	42	47	6	3	21	60	48	53	126	40	25	72	69	64
Fe	1.5-3.0	0.58	1.51	3.16	6.72	15.1	16.78	7.3	5.29	4.26	5.82	4.01	8.05	8.22	5.31
Zn	0.2-2.0	0.56	0.42	0.55	0.83	1.35	1.72	0.77	0.49	0.89	0.76	0.49	0.91	1.06	0.71
Mn	0.3-1.0	0.48	0.49	0.02	0.17	0.37	0.62	0.5	0.53	0.96	0.46	0.13	1.17	1.97	1.38
Cu	0.05-1.0	0.37	0.48	0.13	0.15	0.65	0.52	0.57	0.17	0.69	0.22	0.14	0.22	0.22	0.17
B	0.2-1.5	0.7	0.79	0.6	0.86	1.24	1.14	0.98	1	1.45	0.69	0.24	0.45	0.43	0.37
Na	0-100	37	31	81	136	136	186	76	70	96	112	78	166	86	67
Cl	0-100	145	176	279	525	525	828	357	260	606	503	272	587	513	465
S	30-150	81	52	96	173	202	366	128	101	186	88	41	89	81	66
HCO3	0-50	61	55	226	183	85	92	49	49	104		0.08	0.13	0.14	0.07
Mo		0.14	0.2	0.15	0.12	0.14	0.25	0.28	0.36	0.34		67	44	35	29

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis FIRST CROP

N230 Slab
(H10N230SLAB)

	DATE :	11 Apr	25 Apr	9 May	23 May	6 Jun	4 Jul
	Optimum						
pH	5.5-6.5	7	6.2	5.9	5.5	5.2	4.4
Cond	2000	1490	3330	2560	3000	3702	3298
NO3-N	160-220	120	360	261	323	449	358
NH4-N	0-10	0.2	0.6	0.5	2.1	7.3	9
K	200-300	74	334	198	233	396	178
Ca	140-200	164	307	301	291	418	311
Mg	20-40	52	117	100	104	95	69
P	30-50	20	63	36	61	47	50
Fe	1.5-3.0	3.2	7.32	4.86	7	6.45	3.87
Zn	0.2-2.0	0.25	0.07	0.07	0.12	0.34	0.29
Mn	0.3-1.0	0.27	0.27	0.4	0.52	0.7	0.66
Cu	0.05-1.0	0.5	0.17	0.1	0.15	0.12	0.06
B	0.2-1.5	0.68	0.64	0.2	1.14	0.5	0.24
Na	0-100	40	93	62	81	83	41
Cl	0-100	134	262	153	157	172	189
S	30-150	54	49	59	66	35	21
HCO3	0-50	98	61	18	24		0.01
Mo		0.23	0.14	0.09	0.38		1

N230 Drip
(H10N230DRIP)

	DATE :	5 Apr	11 April	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
	Optimum														
pH	5.5-6.5	6	5.9	6	5.9	5.7	6.2	5.9	5.6	5.7	5.7	5.9	5.3	5.1	4.9
Cond	2000	1871	1870	2220	2350	2310	2240	2280	2270	2180	2194	2199	2135	1887	2025
NO3-N	160-220	191	184	230	251	247	226	212	260	227	252	237	229	219	242
NH4-N	0-10	11	2.6	12.2	12.4	12.7	8.4	8.4	14.3	11.2	10.7	7	10.5	10.4	12.3
K	200-300	157	294	243	288	258	320	287	251	235	258	267	195	101	61
Ca	140-200	198	137	192	200	180	197	190	205	187	224	185	202	178	234
Mg	20-40	39	60	49	57	52	68	60	53	54	42	41	39	30	29
P	30-50	26	55	47	51	45	53	47	43	41	41	44	29	35	18
Fe	1.5-3.0	2.02	1.25	2	2.06	2.37	1.75	2.42	2.61	2.19	2.27	2.07	1.77	1.59	2.61
Zn	0.2-2.0	0.25	0.25	0.13	0.16	0.2	0.16	0.38	0.13	0.27	0.24	0.2	0.22	0.2	0.22
Mn	0.3-1.0	0.33	0.63	0.38	0.48	0.48	0.57	0.55	0.48	0.42	0.51	0.24	0.35	0.46	0.3
Cu	0.05-1.0	0.38	0.49	0.1	0.08	0.5	0.07	0.47	0.09	0.52	0.06	0.04	0.04	0.04	0.03
B	0.2-1.5	0.53	0.77	0.45	0.77	0.69	0.07	0.77	0.92	0.62	0.34	0.17	0.14	0.12	0.11
Na	0-100	28	25	31	33	34	29	32	39	30	35	38	40	18	20
Cl	0-100	61	95	76	66	89	80	77	83	82	73	75	86	74	72
S	30-150	35	48	36	34	17	53	62	39	37	20	11	10	10	9
HCO3	0-50	24	31	37	61	24	67	31	24	31		0.05	0.03	0.02	0.03
Mo		0.14	0.16	0.08	0.17	0.07	0.1	0.22	0.37	0.26		30	7	6	5

N230 Runoff
(H10N230RO)

	DATE :	5 Apr	11 Apr	18 Apr	25 Apr	2 May	9 May	16 May	23 May	30 May	6 Jun	13 Jun	27 Jun	4 Jul	11 Jul
	Optimum														
pH	5.5-6.5	6.4	7.3	7.8	7.4	6	7.6	5.8	6.3	6.3	6.9	6.7	5.7	5.8	5.5
Cond	2000	1844	1520	1709	2530	3260	2960	3440	2810	2440	3982	3830	7348	4901	3619
NO3-N	160-220	160	126	120	266	341	295	341	306	366	483	429	871	517	412
NH4-N	0-10	2.9	0.2	0.7	1	2.7	0.2	1.5	3.1	4.2	1.9	0.3	11.8	2.6	7.4
K	200-300	187	102	45	199	282	100	335	257	244	314	377	874	266	166
Ca	140-200	199	164	168	253	274	354	314	314	358	493	366	689	491	363
Mg	20-40	54	49	61	95	101	133	102	106	108	104	106	200	116	86
P	30-50	35	19	9	18	40	10	48	36	32	16	38	117	61	28
Fe	1.5-3.0	1.02	2.55	4.58	5.95	5.69	7.43	4.77	5.53	5.05	8.92	5.63	9.09	6.91	4.93
Zn	0.2-2.0	0.54	0.26	0.02	0.07	0.12	0.06	0.28	0.1	0.62	0.32	0.3	0.53	0.4	0.24
Mn	0.3-1.0	0.38	0.2	0.07	0.18	0.39	0.31	0.57	0.45	0.45	0.57	0.16	1.58	0.94	0.77
Cu	0.05-1.0	0.4	0.49	0.1	0.1	0.52	0.08	0.47	0.1	0.56	0.09	0.07	0.2	0.13	0.08
B	0.2-1.5	0.59	0.72	0.46	0.94	0.84	0.32	1.04	1.13	0.86	0.57	0.27	0.54	0.36	0.23
Na	0-100	28	42	56	78	69	72	64	76	70	116	117	208	73	44
Cl	0-100	64	92	119	152	168	223	188	163	207	272	233	456	363	208
S	30-150	80	51	61	58	42	75	94	76	69	40	23	47	38	19
HCO3	0-50	43	67	134	67	37	98	24	43	43		0.09	0.11	0.07	0.05
Mo		0.11	0.21	0.13	0.24	0.22	0.14	0.21	0.37	0.28		66	63	33	15

Appendix 5b

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis REPLANT CROP

N80 Slab
(H10N80SLAB)

	DATE :	1 Aug	15 Aug	29 Aug	12 Sept	26 Sept	10 Oct	24 Oct
	Optimum							
pH	5.5-6.5	6.6	6.2	5.9	5.9	4.5	6.8	5.9
Cond	2000	2593	1982	2474	2188	3310	2069	2474
NO3-N	160-220	14	19	65	54	7	38	13
NH4-N	0-10	0.2	0.5	3.9	3.6	0.3	2	0.3
K	200-300	252	215	304	220	264	204	260
Ca	140-200	260	189	212	184	361	161	210
Mg	20-40	49	48	57	42	80	41	53
P	30-50	44	42	46	36	32	33	40
Fe	1.5-3.0	2.71	1.93	2.12	1.98	6.49	1.88	2.87
Zn	0.2-2.0	0.74	0.69	0.76	0.59	1.22	0.62	0.8
Mn	0.3-1.0	0.67	0.6	0.84	0.59	1.03	0.38	0.54
Cu	0.05-1.0	0.12	0.08	0.09	0.06	0.09	0.07	0.11
B	0.2-1.5	0.22	0.19	0.18	0.16	0.35	0.19	0.26
Na	0-100	44	36	35	34	77	38	54
Cl	0-100	600	419	479	402	834	403	536
S	30-150	28	24	27	25	52	21	32
HCO3	0-50	0.08	0.03	0.02	0.01	0	0.06	0.01
Mo		62	26	26	16	0	3	29

N80 Drip
(H10N80DRIP)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	5.6	5.9	5.8	6.1	5.9	6	6.1	5.8	6.8	6.5	6.5	6.3	6.1
Cond	2000	2391	2391	2190	2019	1964	1986	1982	1876	1894	1959	1800	1997	1906
NO3-N	160-220	120	103	92	67	62	72	73	72	53	81	80	82	64
NH4-N	0-10	6.9	6.9	5.1	11	5.1	8.4	7.5	6.5	7.1	6.4	6.2	6.1	7.4
K	200-300	320	268	251	247	232	230	258	222	234	226	230	110	242
Ca	140-200	201	248	213	174	161	168	158	164	171	169	145	166	166
Mg	20-40	60	27	36	36	15	37	40	36	30	41	33	42	31
P	30-50	88	28	39	41	38	40	36	38	41	39	34	36	34
Fe	1.5-3.0	1.4	1.77	1.38	1.26	1.13	1.34	1.13	1.36	1.5	1.42	1.11	1.29	1.26
Zn	0.2-2.0	0.81	0.42	0.42	0.5	0.5	0.49	0.54	0.54	0.5	0.5	0.44	0.47	0.5
Mn	0.3-1.0	1.37	0.44	0.6	0.66	0.62	0.57	0.57	0.61	0.52	0.5	0.45	0.52	0.46
Cu	0.05-1.0	0.11	0.06	0.06	0.05	0.07	0.05	0.06	0.04	0.06	0.05	0.04	0.05	0.05
B	0.2-1.5	0.33	0.12	0.15	0.13	0.17	0.17	0.21	0.15	0.16	0.19	0.14	0.18	0.13
Na	0-100	22	32	28	24	26	23	22	24	26	21	29	24	29
Cl	0-100	363	374	343	343	358	268	292	336	360	355	316	301	325
S	30-150	29	17	16	11	9	10	17	18	18	16	14	18	15
HCO3	0-50	0.12	0.04	0.05	0.02	0.02	0.04	0.1	0.02	0.03	0.05	0	0.07	0
Mo		40	16	29	27	27	39	38	16	0	88	86	79	43

N80 Runoff
(H10N80RO)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	6.1	6.5	6.6	6.5	6.2	6.1	6.1	6.4	5.5	6.6	7.3	6.8	6.6
Cond	2000	2565	3023	2803	2464	2862	2391	2853	2054	3154	2087	2170	1475	2299
NO3-N	160-220	98	44	3	0	41	25	45	10	127	34	39	24	10
NH4-N	0-10	5.4	0.4	0.3	0.4	0.3	0.3	1	0.2	0.7	0.1	0.2	0.4	0.3
K	200-300	368	340	221	268	366	294	422	194	264	206	270	99	266
Ca	140-200	208	328	294	230	237	203	237	169	350	202	181	168	175
Mg	20-40	80	66	633	63	23	59	66	50	73	45	49	46	55
P	30-50	100	56	21	39	40	42	38	19	36	22	19	21	24
Fe	1.5-3.0	1.53	2.7	3.84	2.45	2.69	2.5	2.89	2.63	5.7	2.83	1.97	2.19	2.19
Zn	0.2-2.0	0.78	0.82	0.69	0.82	0.79	0.71	0.87	0.71	0.41	0.82	0.59	0.55	0.61
Mn	0.3-1.0	1.38	0.86	0.21	0.48	0.66	0.57	0.77	0.44	0.74	0.38	0.22	0.19	0.23
Cu	0.05-1.0	0.12	0.13	0.13	0.09	0.08	0.07	0.09	0.05	0.1	0.06	0.06	0.06	0.08
B	0.2-1.5	0.38	0.28	0.22	0.2	0.22	0.19	0.25	0.18	0.28	0.18	0.15	0.17	0.17
Na	0-100	32	50	76	52	51	39	55	48	88	43	41	32	56
Cl	0-100	470	670	733	545	705	427	821	501	621	556	496	422	524
S	30-150	39	34	25	18	35	30	34	26	38	26	23	22	19
HCO3	0-50	0.16	0.1	0.05	0.04	0.02	0.02	0.09	0	0	0.07	0.04	0.06	0
Mo		51	44	35	38	34	19	16	22	5	27	23	19	37

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis REPLANT CROP

N130 Slab
(H10N130SLAB)

	DATE :	1 Aug	15 Aug	29 Aug	12 Sept	26 Sept	10 Oct	24 Oct
	Optimum							
pH	5.5-6.5	7.1	6.1	5.8	4.5	4.1	5.6	4.8
Cond	2000	3582	2436	2400	3162	4303	2363	3078
NO3-N	160-220	119	24	92	175	222	167	165
NH4-N	0-10	0.3	9.2	0.8	4.1	2.4	0.6	3
K	200-300	308	192	1190	174	386	288	312
Ca	140-200	426	280	277	392	496	263	310
Mg	20-40	60	46	50	69	94	51	60
P	30-50	20	28	21	13	43	38	39
Fe	1.5-3.0	4.75	3.58	516	5.81	7.12	3.29	3.82
Zn	0.2-2.0	0.23	0.23	0.14	0.23	0.54	0.34	0.41
Mn	0.3-1.0	0.58	0.48	0.48	0.76	0.79	0.55	0.62
Cu	0.05-1.0	0.05	0.08	0.04	0.05	0.18	0.18	0.18
B	0.2-1.5	0.14	0.12	0.1	0.14	0.32	0.23	0.21
Na	0-100	88	56	65	78	106	63	66
Cl	0-100	744	408	415	548	782	440	455
S	30-150	32	11	20	33	47	30	18
HCO3	0-50	0.26	0.01	0.01	0	0	0	0
Mo		80	18	21	0	0	2	4

N130 Drip
(H10N130DRIP)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	5.6	5.5	5.4	5.8	5.8	6	6.2	5.7	6.5	6.3	6.4	5.9	5.8
Cond	2000	2611	2675	2593	2149	2066	1995	2195	2046	2041	2060	2188	2184	2107
NO3-N	160-220	200	170	170	133	123	131	133	133	118	142	139	140	125
NH4-N	0-10	7.6	6.1	5.8	18.9	10.5	14.5	14.1	9.4	8.5	7.1	7.3	6.7	8.7
K	200-300	283	283	285	204	190	172	187	208	234	224	226	120	216
Ca	140-200	278	300	270	214	187	207	224	187	194	209	181	180	212
Mg	20-40	39	30	35	37	7	33	35	33	30	41	32	42	32
P	30-50	33	34	31	30	28	27	25	31	38	39	35	41	36
Fe	1.5-3.0	2.06	1.84	1.52	1.91	1.83	2.28	2.5	1.94	1.52	1.6	1.39	1.52	1.73
Zn	0.2-2.0	0.37	0.34	0.3	0.23	0.21	0.21	0.34	0.26	0.29	0.3	0.22	0.3	0.3
Mn	0.3-1.0	0.51	0.55	0.52	0.46	0.49	0.43	0.41	0.49	0.49	0.51	0.46	0.56	0.47
Cu	0.05-1.0	0.04	0.05	0.05	0.03	0.04	0.03	0.04	0.03	0.08	0.09	0.09	0.1	0.11
B	0.2-1.5	0.11	0.14	0.11	0.09	0.09	0.09	0.11	0.11	0.14	0.15	0.13	0.17	0.13
Na	0-100	36	36	34	36	37	34	33	33	33	31	31	30	34
Cl	0-100	352	291	325	260	268	233	258	241	260	256	250	244	269
S	30-150	15	19	15	15	4	14	13	17	18	17	15	17	9
HCO3	0-50	0.05	0.05	0.02	0.02	0	0.03	0.06	0.01	0.01	0.01	0	0.01	0
Mo		54	10	11	15	18	19	14	27	2	69	72	67	28

N130 Runoff
(H10N130RO)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	6.6	6.7	7.7	6.3	5.8	5.5	5.8	5.3	5.7	6.6	6.6	6.8	6
Cond	2000	3142	3536	4480	3057	3187	2216	3483	3242	2942	2804	3025	2501	4141
NO3-N	160-220	209	175	93	145	174	187	402	201	15	138	146	126	204
NH4-N	0-10	7.8	0.4	0.4	7.4	5	10.3	2.6	6.9	0.3	0.3	0.3	0.4	0.9
K	200-300	380	344	448	262	282	266	391	278	188	272	258	112	388
Ca	140-200	314	430	446	329	340	327	318	370	335	305	270	277	408
Mg	20-40	57	66	88	55	26	56	92	63	81	70	61	71	90
P	30-50	27	24	1	29	27	31	36	33	27	31	24	13	32
Fe	1.5-3.0	2.58	2.95	2.64	3.92	4.35	4.96	1.65	5.51	5.84	4.99	361	4.81	5.54
Zn	0.2-2.0	0.28	0.26	0.21	0.18	0.23	0.26	0.22	0.31	0.95	0.4	0.35	0.23	0.8
Mn	0.3-1.0	0.62	0.4	0.22	0.4	0.69	0.64	0.61	0.82	0.98	0.56	0.41	0.34	0.65
Cu	0.05-1.0	0.06	0.06	0.03	0.05	0.05	0.05	0.06	0.05	0.08	0.15	0.15	0.15	0.3
B	0.2-1.5	0.15	0.21	0.2	0.13	0.16	0.11	0.25	0.15	0.28	0.26	0.22	0.25	0.35
Na	0-100	60	72	126	70	72	63	88	71	78	76	70	78	147
Cl	0-100	549	600	1120	565	519	378	185	511	765	577	485	521	891
S	30-150	25	31	36	14	14	27	12	30	49	38	30	32	23
HCO3	0-50	0.11	0.08	0.08	0	0.01	0.02	0.02	0	0	0.13	0.06	0.04	0
Mo		44	33	122	29	15	27	32	2	0	34	29	24	38

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis REPLANT CROP

N180 Slab
(H10N180SLAB)

	DATE :	1 Aug	15 Aug	29 Aug	12 Sept	26 Sept	10 Oct	24 Oct
	Optimum							
pH	5.5-6.5	6.6	6.5	5.6	4.9	5.5	6.7	5.6
Cond	2000	3087	2510	2777	3510	2703	3172	2171
NO3-N	160-220	152	155	255	326	208	255	152
NH4-N	0-10	0.2	0.6	3.9	3.5	0.4	0.2	0.2
K	200-300	317	267	306	354	228	400	214
Ca	140-200	352	224	271	357	277	259	189
Mg	20-40	60	66	66	79	55	65	49
P	30-50	37	34	38	43	31	40	29
Fe	1.5-3.0	2.99	3.41	3.48	5.75	5.71	3.49	3.26
Zn	0.2-2.0	0.37	0.2	0.26	0.65	0.57	0.38	0.35
Mn	0.3-1.0	0.53	0.2	0.64	0.91	0.65	0.55	0.41
Cu	0.05-1.0	0.13	0.1	0.11	0.17	0.12	0.09	0.08
B	0.2-1.5	0.24	0.26	0.17	0.21	0.2	0.26	0.22
Na	0-100	62	76	73	89	72	69	58
Cl	0-100	475	293	220	318	275	262	202
S	30-150	29	20	27	40	35	33	15
HCO3	0-50	0.09	0.4	0.01	0	0.05	0.1	0
Mo		54	33	31	0	1	9	15

N180 Drip
(H10N180DRIP)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	5.7	6	6	6.2	5.9	6.3	6.3	5.9	6.7	6.7	6.5	6.1	6.3
Cond	2000	2373	2400	2611	2612	1982	2005	2195	2063	2050	2106	2078	1711	1720
NO3-N	160-220	188	158	208	180	171	202	187	182	172	168	198	157	125
NH4-N	0-10	6	3.8	4.1	14.9	9.9	15	9.9	6.4	7	5.6	10.1	7.3	3.4
K	200-300	279	301	320	261	188	95	234	232	248	310	206	55	242
Ca	140-200	222	240	253	198	199	247	204	184	194	192	229	189	117
Mg	20-40	32	42	41	42	13	27	36	35	22	55	33	30	32
P	30-50	37	45	42	41	29	16	33	37	35	58	32	17	37
Fe	1.5-3.0	1.46	1.34	1.49	1.78	1.93	2.72	2.05	1.94	1.78	1.82	2.21	1.72	0.9
Zn	0.2-2.0	0.35	0.35	0.29	0.33	0.28	0.24	0.35	0.39	0.31	0.39	0.31	0.37	0.28
Mn	0.3-1.0	0.62	0.74	0.56	0.63	0.46	0.23	0.54	0.6	0.5	0.68	0.41	0.24	0.45
Cu	0.05-1.0	0.14	0.14	0.1	0.09	0.07	0.06	0.07	0.1	0.05	0.07	0.07	0.06	0.05
B	0.2-1.5	0.11	0.2	0.15	0.13	0.1	0.08	0.12	0.15	0.14	0.2	0.12	0.06	0.13
Na	0-100	34	32	34	36	38	56	33	35	36	32	36	32	27
Cl	0-100	292	240	236	134	118	90	126	125	140	157	132	97	133
S	30-150	5	22	14	19	6	11	16	18	8	24	15	10	7
HCO3	0-50	0.05	0.06	0.03	0.03	0.01	0.04	0.06	0.03	0.02	0.04	0	0	0
Mo		30	29	43	34	26	37	42	29	70	118	109	92	51

N180 Runoff
(H10N180RO)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	6.3	6.8	7.1	6.6	5.9	5.6	6.3	5.5	5.9	7.5	7.2	6.9	6.7
Cond	2000	3005	3271	3069	2807	3585	3467	2408	2126	4377	2685	3457	2072	2171
NO3-N	160-220	217	150	125	180	291	287	200	292	294	224	289	156	134
NH4-N	0-10	4.2	0.5	0.2	0.9	2	3.8	4.7	2.3	0.5	0.2	0.2	0.3	0.1
K	200-300	348	348	276	301	430	376	245	354	258	252	453	127	190
Ca	140-200	276	352	314	259	320	328	229	310	516	303	293	167	193
Mg	20-40	37	62	66	74	31	76	43	65	127	80	81	64	65
P	30-50	34	25	35	37	52	53	31	40	26	10	22	10	15
Fe	1.5-3.0	1.87	1.91	3.93	3.23	3.69	3.51	2.83	4.66	11.92	5.54	3.97	3.5	3.76
Zn	0.2-2.0	0.42	0.43	0.16	0.29	0.31	0.39	0.47	0.47	1.39	0.55	0.34	0.27	0.43
Mn	0.3-1.0	0.57	0.34	0.2	0.2	0.63	0.9	0.36	0.92	1.16	0.42	0.21	0.14	0.16
Cu	0.05-1.0	0.07	0.14	0.11	0.11	0.14	0.14	0.1	0.13	0.28	0.09	0.07	0.07	0.09
B	0.2-1.5	0.15	0.27	0.19	0.25	0.26	0.24	0.14	0.19	0.44	0.23	0.29	0.22	0.23
Na	0-100	52	72	86	78	86	66	73	175	90	94	70	77	77
Cl	0-100	403	618	545	316	303	224	193	262	596	322	315	252	252
S	30-150	8	35	26	17	24	34	22	32	79	39	38	29	22
HCO3	0-50	0.06	0.09	0.06	0.04	0.02	0.03	0.06	0.01	0.07	0.12	0.09	0.05	0
Mo		33	43	154	51	23	48	48	2	7	70	66	63	29

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - Nutrient Analysis REPLANT CROP

N230 Slab
(H10N230SLAB)

	DATE :	1 Aug	15 Aug	29 Aug	12 Sept	26 Sept	10 Oct	24 Oct
	Optimum							
pH	5.5-6.5	6.9	6.1	5	4.5	6.4	5.5	4.1
Cond	2000	2272	2056	3862	3500	2455	4174	2391
NO3-N	160-220	213	218	431	448	277	509	270
NH4-N	0-10	0.2	0.6	4.1	4.4	1	2.8	1.6
K	200-300	167	136	402	336	117	426	242
Ca	140-200	290	216	323	344	277	396	231
Mg	20-40	63	52	101	88	65	109	51
P	30-50	33	17	58	37	9	40	37
Fe	1.5-3.0	3.81	3.56	4.41	3.66	4.66	5.45	2.88
Zn	0.2-2.0	0.16	0.06	0.2	0.14	0.07	0.15	0.2
Mn	0.3-1.0	0.37	0.34	0.61	0.77	0.31	0.42	0.35
Cu	0.05-1.0	0.08	0.06	0.09	0.08	0.07	0.16	0.07
B	0.2-1.5	0.2	0.17	0.3	0.26	0.2	0.26	0.13
Na	0-100	44	50	78	72	64	85	47
Cl	0-100	152	112	167	148	138	188	111
S	30-150	22	7	11	11	7	9	4
HCO3	0-50	0.13	0	0	0	0	0	0
Mo		71	11	9	0	12	15	0

N230 Drip
(H10N230DRIP)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	5.8	5.7	5.9	5.9	5.5	5.9	6.1	5.6	6.4	6.1	6.5	6.3	6.1
Cond	2000	1748	2245	2199	2140	2325	2207	2205	2144	1977	2234	2437	1863	2162
NO3-N	160-220	201	238	194	228	247	238	234	241	222	264	275	237	241
NH4-N	0-10	3.9	4.7	5	14.1	7.7	7.5	8.6	6.3	7.6	5.7	10.3	5.8	8.4
K	200-300	163	255	212	250	294	256	249	240	210	252	260	134	240
Ca	140-200	194	228	229	201	175	177	179	184	201	208	233	185	176
Mg	20-40	31	42	33	42	18	43	34	38	28	45	39	41	26
P	30-50	19	41	28	38	43	39	31	34	33	37	42	41	36
Fe	1.5-3.0	1.25	1.85	1.64	1.72	1.4	1.37	0.52	1.33	1.78	0.83	2.04	1.49	1.71
Zn	0.2-2.0	0.12	0.27	0.16	0.19	0.2	0.15	0.2	0.11	0.13	0.16	0.19	0.15	0.15
Mn	0.3-1.0	0.21	0.52	0.37	0.49	0.51	0.39	0.39	0.41	0.34	0.38	0.39	0.38	0.33
Cu	0.05-1.0	0.03	0.07	0.04	0.06	0.07	0.05	0.05	0.04	0.04	0.05	0.07	0.06	0.05
B	0.2-1.5	0.03	0.16	0.11	0.12	0.21	0.13	0.18	0.13	0.11	0.16	0.12	0.16	0.07
Na	0-100	18	28	34	32	34	35	33	30	33	34	34	29	35
Cl	0-100	74	74	169	74	70	79	86	64	72	80	74	77	81
S	30-150	10	17	11	9	10	8	8	8	8	8	7	6	2
HCO3	0-50	0.04	0.04	0.02	0.03	0.04	0.02	0.08	0.01	0	0.04	0.01	0.05	0
Mo		20	8	13	17	7	20	19	5	0	24	27	32	33

N230 Runoff
(H10N230RO)

	DATE :	25 Jul	1 Aug	8 Aug	15 Aug	22 Aug	29 Aug	5 Sept	12 Sept	26 Sept	3 Oct	10 Oct	17 Oct	24 Oct
	Optimum													
pH	5.5-6.5	6.6	6.8	8.9	6.5	5.9	5.8	6	5.8	5.6	6.7	6.6	6.4	5.9
Cond	2000	2382	2410	1906	2529	3659	3706	2279	2367	5241	3089	3016	3042	2959
NO3-N	160-220	262	232	104	262	416	448	116	276	603	370	345	333	342
NH4-N	0-10	2.2	0.5	0.2	0.5	4.5	4.4	2.2	5.1	3.7	3	3.8	2.6	2.8
K	200-300	192	201	85	234	394	442	146	284	418	306	302	149	288
Ca	140-200	277	279	187	253	270	330	264	210	542	289	281	253	256
Mg	20-40	43	54	67	68	15	99	43	42	133	79	61	77	65
P	30-50	15	23	1	29	37	54	19	40	44	26	31	28	32
Fe	1.5-3.0	2.42	2.49	1.84	3.34	3.4	3.34	3.61	1.36	7.76	3.44	3.07	3.08	3.4
Zn	0.2-2.0	0.18	0.17	0.04	0.1	0.1	0.15	0.19	0.11	0.21	0.11	0.14	0.11	0.1
Mn	0.3-1.0	0.25	0.2	0.05	0.16	0.42	0.57	0.46	0.47	0.91	0.3	0.23	0.26	0.3
Cu	0.05-1.0	0.05	0.06	0.04	0.06	0.07	0.09	0.05	0.05	0.15	0.06	0.07	0.07	0.07
B	0.2-1.5	0.05	0.21	0.2	0.2	0.23	0.27	0.13	0.16	0.36	0.21	0.19	0.21	0.17
Na	0-100	36	54	86	60	76	77	55	35	140	76	60	62	66
Cl	0-100	140	202	229	327	161	142	343	75	360	192	138	155	138
S	30-150	14	22	18	13	4	15	18	9	22	1	8	8	8
HCO3	0-50	0.07	0.07	0.04	0.02	0	0	0.06	0	0	0.07	0.03	0.01	0
Mo		27	34	239	32	15	33	37	10	2	40	37	31	19

House 10 (M20) HDC Cucumber Nutrition Trial 1996 - Nutrient Analysis REPLANT CROP

	N130 Drip														
	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct	mean
pH	5.7	4.2	4.6	5.3	5.2	5.1	5.2	5.1	5	5.1	5.1	5	5.2	5.4	5.4
Conductivity	1915	2077	2322	2447	2153	2325	2329	1955	2001	1813	1886	1825	2212	1955	2086.79
Nitrate (as N)	111	154	155	126	126	126	134	128	127	127	125	125	225	119	136.29
Ammonium (as N)	8.8	4.7	7.7	4.3	5.5	4.5	5.1	6.4	6	6.4	6	6	6.1	7.1	5.58
Nitrogen	119.8	158.7	162.7	130.3	131.5	130.5	139.1	133.3	133	133.4	131	125.6	231.1	126.1	
Potassium	246	292	312	290	316	334	330	280	274	272	268	246	258	134	
Calcium	204	218	221	178	183	196	193	183	193	177	189	183	199	166	
Magnesium	18	37	37	34	33	31	25	24	21	20	21	22	22	17	
Phosphorus	4	58	55	72	76	76	74	54	52	49	45	39	45	51	
Iron	2.7	1.24	1.93	1.79	1.51	1.84	2.14	2.86	3.19	3.04	2.51	3.39	3.65	2.71	
Zinc	0.07	0.72	0.72	0.52	0.53	1.03	1	0.63	0.68	0.59	0.58	0.6	0.54	0.51	
Manganese	0.05	0.72	0.73	0.88	0.9	0.96	0.9	0.55	0.61	0.57	0.5	0.46	0.54	0.52	
Copper	0.04	0.16	0.15	0.16	0.16	0.21	0.23	0.15	0.16	0.14	0.14	0.14	0.16	0.16	
Boron	0.03	0.39	0.39	0.46	0.49	0.45	0.43	0.31	0.35	0.29	0.48	0.45	0.51	0.58	
Sodium	4.5	31	35	35	34	39	36	31	32	31	29	32	32	31	
Chloride	282	262	292	347	313	314	315	278	263	2.64	280	286	300	284	
Sulphate (as S)	11	24	25	25	25	20	20	16	18	16	20	17	19	21	
Molybdenum	0	0.05	0.07	0.08	0.08	0.08	0.085	0.04	0.06	0.01	0.06	0.05	0.07	0.06	
Carbonate	5	1	5	5	6	3	6	1	5	0	0	7	2	5	

	N130 Slab														
	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct	mean
pH	6.3	6.9	6.9	5.3	5.1	4.7	5.1	5.1	4.7	5	5	5.9	5.2	4.5	4.5
Conductivity	2005	1608	3102	3102	3247	3247	2728	2728	2001	2001	2583	2583	2251	2251	2440.63
Nitrate (as N)	103	1	62	62	108	108	131	131	91	91	25	25	117	117	79.75
Ammonium (as N)	1.8	0.2	0.7	0.4	0.7	0.7	1.5	1.5	0.4	0.4	0.4	0.4	0.4	0.4	1.45
Nitrogen	104.8	1.2	62.4	62.4	108.7	108.7	133.7	133.7	92.5	92.5	25.4	25.4	120.9	120.9	
Potassium	190	64	336	336	404	404	382	382	214	214	214	214	145	145	
Calcium	200	187	231	231	268	268	247	247	205	205	273	273	200	200	
Magnesium	21	46	61	61	51	51	30	30	30	30	34	34	16	16	
Phosphorus	10	9	115	115	101	101	82	82	39	39	25	25	47	47	
Iron	3.43	5.36	7.43	7.43	6.97	6.97	7.04	7.04	5.62	5.62	12.34	12.34	4.38	4.38	
Zinc	0.02	1.07	0.95	0.95	0.99	0.99	1	1	0.94	0.94	1.25	1.25	0.76	0.76	
Manganese	0.15	0.32	0.9	0.9	0.68	0.68	0.68	0.68	0.69	0.69	0.58	0.58	0.58	0.58	
Copper	0.04	0.17	0.28	0.33	0.28	0.28	0.3	0.3	0.26	0.26	0.41	0.41	0.21	0.21	
Boron	0.06	0.46	0.85	0.85	0.64	0.64	0.47	0.47	0.42	0.42	0.84	0.84	0.69	0.69	
Sodium	53	68	129	129	100	100	53	53	52	52	109	109	42	42	
Chloride	330	400	381	381	566	566	489	489	389	389	800	800	370	370	
Sulphate (as S)	12	28	42	42	27	27	33	33	19	19	33	33	24	24	
Molybdenum	0.05	0.08	0.01	0.01	0.01	0.01	0.05	0.05	0	0	0.07	0.07	0.02	0.02	
Carbonate	6	51	10	10	3	3	3	3	1	1	18	18	2	2	

	N130 Run-off														
	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct	mean
pH	6.5	6	5.7	5.9	5.8	5.2	5.3	4.9	4.5	5.7	4.5	5.7	5.2	5.7	5.7
Conductivity	2188	2077	2609	2622	2349	2633	4398	3638	3001	2147	2607	2419	3367	3206	2804.36
Nitrate (as N)	1.4	124	136	38	35	63	37	162	112	65	107	60	92	128	90.93
Ammonium (as N)	3.1	5.3	9.3	0.6	0.3	0.6	1	8.6	0.5	1.2	0.4	0.4	0.6	1.2	2.36
Nitrogen	117.1	129.3	145.3	38.6	35.3	63.6	38	170.6	112.5	66.2	107.4	60.4	92.6	129.2	
Potassium	206	248	306	264	274	420	616	506	440	248	304	214	312	190	
Calcium	242	213	243	242	204	317	377	340	306	209	291	289	357	333	
Magnesium	22	38	42	63	44	55	47	45	39	29	35	40	53	36	
Phosphorus	7	48	52	89	88	82	163	77	63	20	43	18	38	50	
Iron	3.65	3.05	3.64	6.99	5.03	8.42	13.36	8.85	10.67	9.1	8.33	10.35	10.93	9.03	
Zinc	0.06	0.74	0.99	1.12	0.97	0.8	2.96	1.17	1.1	0.84	1.09	1.28	1.66	1.44	
Manganese	0.15	0.55	0.63	0.84	0.74	0.98	0.99	0.84	0.54	0.33	0.82	0.53	0.83	0.74	
Copper	0.04	0.14	0.18	0.36	0.3	0.3	0.89	0.36	0.42	0.28	0.34	0.42	0.49	0.43	
Boron	0.08	0.45	0.47	0.86	0.8	0.74	1.27	0.49	0.66	0.46	0.61	0.84	1.15	1.03	
Sodium	49	46	53	129	106	130	178	74	89	77	66	75	84	81	
Chloride	351	308	390	681	515	795	1220	586	687	502	568	782	872	668	
Sulphate (as S)	13	31	37	46	37	44	67	34	39	32	31	30	37	38	
Molybdenum	0.03	0.07	0.08	0.11	0.11	0.01	0.203	0.02	0.03	0.01	0.04	0.12	0.09	0.11	
Carbonate	17	15	14	24	19	12	12	4	1	14	4	8	2	10	

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N190 Drip

	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct
pH	4.1	5.3	4.7	5	5.2	5.3	5.9	6	4.1	4.1	4.3	4.2	4.8	4.2
Conductivity	2028	1876	2047	2207	2175	2194	2458	2046	1914	1792	1823	1784	2092	1910
Nitrate (as N)	160	171	154	182	182	165	178	158	153	146	149	149	205	168
Ammonium (as N)	4.1	4.7	6.3	3.4	5.1	3.4	4.8	4	4.3	3.6	4.8	4.7	4.2	4.9
Nitrogen	164.1	175.7	160.3	178.4	187.1	168.4	182.8	162	157.3	158.6	150.8	133.7	209.2	172.9
Potassium	186	182	168	178	220	168	246	178	166	164	164	160	142	79
Calcium	161	161	151	162	200	175	182	164	158	140	151	142	163	143
Magnesium	24	25	24	24	21	28	20	25	23	21	19	19	21	17
Phosphorus	36	33	30	35	46	37	45	36	34	37	34	37	22	34
Iron	2.35	1.24	1.52	2.24	2.05	1.61	2.24	2.04	2.51	1.96	1.85	2.29	2.53	2.03
Zinc	0.52	0.48	0.3	0.47	0.3	0.4	0.41	0.39	0.77	0.8	0.94	0.81	0.45	0.64
Manganese	0.5	0.45	0.39	0.44	0.52	0.46	0.49	0.4	0.46	0.43	0.47	0.5	0.29	0.54
Copper	0.13	0.1	0.07	0.08	0.1	0.09	0.09	0.07	0.09	0.09	0.11	0.14	0.07	0.11
Boron	0.21	0.2	0.19	0.23	0.34	0.23	0.25	0.23	0.25	0.21	0.26	0.25	0.19	0.26
Sodium	135	136	143	145	144	109	168	141	128	123	123	130	129	134
Chloride	258	242	268	274	290	268	319	278	248	230	241	249	239	259
Sulphate (as S)	12	11	12	11	14	10	12	12	12	11	13	12	12	12
Molybdenum	0.02	0.03	0.03	0.03	0.05	0.04	0.043	0.02	0.02	0	0.02	0.02	0.04	0.03
Carbonate	0	1	5	1	4	3	12	8	2	0	0	9	0	7

N190 Slab

	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct
pH	6.4	6.2	6.4	6.8	6.4	6.4	6.8	6.8	6.8	5.8	6.8	6.9	5.8	5.3
Conductivity	1803	1630	1630	2600	3159	2677	3277	3410	3393	2751	2365	2050	2371	2365
Nitrate (as N)	103	101	117	158	106	167	106	106	106	1.4	0.2	0.4	1.4	1.4
Ammonium (as N)	103.3	101.1	117.2	117.2	167.3	167.3	106.2	106.2	106.2	159.4	67.4	67.4	172.4	172.4
Nitrogen	92	74	242	29	242	242	154	154	154	40	28	2	24	24
Potassium	142	128	128	165	218	218	145	145	131	214	131	131	163	163
Calcium	25	24	42	32	42	42	35	35	40	40	28	2	21	21
Magnesium	26	18	7	7	22	22	6	6	9	9	2	2	24	24
Phosphorus	2.5	3.21	4.97	5.78	4.97	4.97	5.88	5.88	6.19	6.19	5.58	5.58	3.32	3.32
Iron	0.39	0.41	0.66	0.66	0.66	0.67	0.67	0.67	1.49	1.04	1.49	1.04	0.75	0.75
Zinc	0.24	0.33	0.31	0.32	0.31	0.31	0.18	0.18	0.44	0.12	0.12	0.12	0.51	0.51
Manganese	0.13	0.09	0.16	0.09	0.16	0.16	0.11	0.11	0.33	0.33	0.23	0.23	0.19	0.19
Copper	0.25	0.2	0.41	0.35	0.41	0.41	0.39	0.39	0.46	0.46	0.43	0.43	0.34	0.34
Boron	158	175	262	321	262	277	285	277	285	301	214	214	415	415
Sodium	276	291	539	539	512	512	493	493	565	565	564	564	14	14
Chloride	10	10	10	13	10	16	14	14	12	12	7	7	14	14
Sulphate (as S)	0.04	0.03	0.04	0.03	0.04	0.04	0.02	0.02	0.05	0.05	0.01	0.01	0.03	0.03
Molybdenum	21	20	29	33	29	29	30	30	34	5	5	34	1	1
Carbonate														

N190 Run-off

	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct
pH	6.3	6.4	6	7.6	7.4	7.1	6.6	7	6.1	6.8	6.7	5.9	7.1	7
Conductivity	1960	1831	2406	4020	2436	2677	3277	3410	3393	2168	2543	2214	3271	3729
Nitrate (as N)	118	124	161	71	53	61	142	190	188	145	149	145	218	215
Ammonium (as N)	1.1	0.2	3.2	0.3	0.2	0.2	0.6	1.1	1.3	0.1	1	0.2	0.3	0.4
Nitrogen	119.1	124.2	164.2	71.3	53.2	63	142.6	191.1	216.3	88.1	150	145.2	218.3	215.4
Potassium	129	102	138	29	24	138	162	282	258	68	67	102	93	104
Calcium	151	139	182	192	136	167	221	211	256	165	235	222	234	234
Magnesium	26	26	30	38	21	31	37	42	49	35	32	30	44	30
Phosphorus	28	24	29	3	3	3	10	7	6	3	7	13	1	8
Iron	2.2	2.48	2.88	5.77	1.69	1.05	8.63	5.99	6.43	4.8	4.92	4.33	7.41	5.54
Zinc	0.51	0.47	0.64	0.64	0.42	0.31	0.92	1.0	0.97	0.88	1.22	0.91	1.56	1.25
Manganese	0.2	0.21	0.35	0.13	0.07	0.08	0.25	0.15	0.24	0.2	0.38	0.43	0.2	0.27
Copper	0.13	0.12	0.08	0.13	0.13	0.11	0.2	0.14	0.17	0.11	0.17	0.19	0.15	0.24
Boron	0.25	0.22	0.24	0.54	0.45	0.32	0.52	0.41	0.4	0.31	0.39	0.32	0.41	0.45
Sodium	172	168	212	651	407	303	394	335	338	481	549	229	364	416
Chloride	316	287	366	1040	547	561	772	575	592	800	800	439	800	751
Sulphate (as S)	14	12	15	25	16	15	17	24	24	8	17	9	12	20
Molybdenum	0.05	0.02	0.03	0.07	0.05	0.01	0.04	0.01	0.01	0	0.01	0.01	0.03	0.03
Carbonate	21	20	15	118	89	62	34	37	18	37	14	9	7	20

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N250 Drip	DATE:	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct	mean
pH		6	6.1	6.5	5.9	5.6	5.8	5.8	5.7	6	5.5	5.4	6.3	5.5	5.4	2078.86
Conductivity		1938	2054	2153	2272	2327	2238	2415	1955	2131	1730	1780	1804	2261	2046	194.07
Nitrate (as N)		165	198	141	141	177	228	224	196	208	189	188	186	268	208	3.96
Ammonium (as N)		5	3.4	5.7	3.3	3.2	3.7	4.2	3.5	3.5	3.5	3.9	4.9	4.9	4.9	
Nitrogen		170	201.4	146.7	143.3	180.2	231.7	228.2	198.3	211.5	192.5	191.9	190.9	272.9	212.9	
Potassium		108	108	160	178	212	222	238	192	202	196	188	188	206	103	
Calcium		168	192	162	158	170	171	160	154	160	147	144	149	164	149	
Magnesium		25	30	20	26	25	27	18	27	17	23	18	21	27	19	
Phosphorus		41	38	13	38	31	33	39	38	21	40	31	30	42	42	
Iron		2.33	0.86	0.87	1.07	0.91	1.25	1.39	1.54	1.9	1.69	1.37	2.15	2.2	2.11	
Zinc		0.49	0.5	0.33	0.91	0.94	0.57	0.67	0.63	0.35	0.63	0.5	0.51	0.79	0.67	
Manganese		0.17	0.47	0.16	0.54	0.4	0.47	0.42	0.42	0.19	0.41	0.34	0.33	0.47	0.47	
Copper		0.17	0.15	0.06	0.13	0.14	0.11	0.14	0.12	0.06	0.1	0.09	0.1	0.13	0.12	
Boron		0.29	0.28	0.14	0.26	0.25	0.33	0.38	0.35	0.29	0.31	0.34	0.37	0.49	0.46	
Sodium		186	177	160	160	133	133	140	108	124	107	107	123	113	123	
Chloride		211	215	327	320	322	172	159	138	157	142	129	133	168	173	
Sulphate (as S)		13	12	12	12	12	12	12	13	13	12	15	13	18	16	
Molybdenum		0.05	0.04	0.02	0.04	0.04	0.03	0.044	0.03	0.02	0	0.03	0.03	0.06	0.04	
Carbonate		5	15	20	9	8	9	11	3	8	6	3	27	3	7	
N250 Slab	DATE:	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	9 Oct	mean	
Conductivity		1758	1697	7	7.4	7.4	7	6.1	3820	7.3	1876	2747	7	7	5.8	2546.00
Nitrate (as N)		127	53	118	118	118	133	344	344	128	128	250	250	267	177.50	
Ammonium (as N)		127.2	53.1	118.3	118.3	118.3	133.3	344.4	344.4	128.3	128.3	250.2	250.2	268.3	0.39	
Nitrogen		38	4	23	23	23	50	412	412	88	88	184	184	129		
Potassium		152	79	184	184	184	129	259	259	98	98	199	199	205		
Calcium		24	15	35	35	35	27	62	62	19	19	32	32	22		
Magnesium		34	13	5	5	5	3	62	62	3	3	3	3	30		
Phosphorus		2.74	5.55	5.32	5.32	5.32	4.73	5.47	5.47	5.47	5.47	5.09	5.09	3.68		
Iron		0.39	0.77	1.34	1.34	1.34	1.16	1.26	1.26	1.52	1.52	1.1	1.1	0.95		
Zinc		0.34	0.1	0.2	0.2	0.2	0.1	0.37	0.37	0.11	0.11	0.36	0.36	0.24		
Manganese		0.15	0.26	0.33	0.33	0.33	0.2	0.33	0.33	0.2	0.2	0.24	0.24	0.24		
Copper		0.29	0.41	0.4	0.4	0.4	0.42	0.71	0.71	0.52	0.52	0.59	0.59	0.62		
Boron		195	332	470	470	470	324	320	320	313	313	253	253	213		
Sodium		234	359	800	800	800	361	378	378	368	368	286	286	286		
Chloride		15	14	15	15	15	31	31	31	8	8	17	17	19		
Sulphate (as S)		0.06	0.05	0.05	0.05	0.05	0.02	0.06	0.06	0	0	0.03	0.03	0.01		
Molybdenum		26	102	67	67	67	56	21	21	59	59	35	35	8		
Carbonate																
N250 Run-off	DATE:	10 Jul	17 Jul	24 Jul	31 Jul	7 Aug	14 Aug	21 Aug	28 Aug	4 Sept	11 Sept	18 Sept	26 Sept	2 Oct	9 Oct	mean
Conductivity		1893	2144	2946	3452	2523	3071	3752	3911	4089	2751	2586	2214	3078	3229	2974.21
Nitrate (as N)		149	186	153	74	85	198	347	335	389	250	246	175	399	293	234.21
Ammonium (as N)		3.1	3.4	1.8	0.3	0.2	0.2	0.5	0.5	0.5	0.2	0.3	0.2	0.4	0.6	0.87
Nitrogen		152.1	189.4	154.8	74.3	85.2	198.2	347.5	335.5	389.5	250.2	246.3	175.2	399.4	293.6	
Potassium		71	98	110	18	49	160	296	266	344	170	178	102	121	102	
Calcium		160	163	199	178	147	157	245	217	294	209	208	145	209	269	
Magnesium		26	26	21	38	22	31	57	52	53	47	39	42	40	42	
Phosphorus		36	32	11	7	6	7	28	17	7	5	23	3	3	17	
Iron		2.37	2.56	5.63	6.17	3.54	4.75	5.66	5.74	7.15	5.35	3.95	4.33	5.84	5.51	
Zinc		0.37	0.53	0.89	1.87	0.98	1.26	1.47	1.31	1.67	1.53	1.03	1.03	1.67	1.35	
Manganese		0.26	0.27	0.22	0.13	0.15	0.07	0.43	0.1	0.2	0.15	0.34	0.13	0.2	0.24	
Copper		0.15	0.17	0.16	0.28	0.16	0.2	0.36	0.3	0.35	0.19	0.21	0.13	0.2	0.26	
Boron		0.36	0.29	0.26	0.54	0.39	0.4	0.75	0.72	0.83	0.58	0.63	0.55	0.8	0.87	
Sodium		195	224	406	544	388	421	368	384	447	309	224	257	282	315	
Chloride		234	238	538	854	542	449	417	428	509	368	277	349	392	398	
Sulphate (as S)		0.06	0.04	0.03	0.07	0.05	0.01	0.058	0.06	0.07	0	0.03	0.03	0.06	0.04	
Molybdenum		22	21	68	89	62	47	20	36	23	50	11	39	13	14	

Appendix 7a

House 10 (M20) HDC Cucumber Nutrition Trial 1995 - % Run-off Calculations - FIRST CROP

Date Measured	No. starts	8L ppm			13L ppm			18L ppm			23L ppm						
		Total Applied (l)	Run-off (l)	% Runoff	Total Applied (l)	Run-off (l)	% Runoff	Total Applied (l)	Run-off (l)	% Runoff	Total Applied (l)	Run-off (l)	% Runoff				
Drip Rates 07/04/95	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	
	Trt	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230
	Drip rate	617	675	569	858	617	675	569	858	617	675	569	858	617	675	569	858
	(TOTAL ml FOR FOUR PLANTS PER WATERING)																
Drip Rates 26/04/95	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	
	Trt	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230
	Drip rate	760	1080	792	972	760	1080	792	972	760	1080	792	972	760	1080	792	972
	(TOTAL ml FOR FOUR PLANTS PER WATERING)																
Drip Rates 02/05/95	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	
	Trt	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230
	Drip rate	770	964	818	944	770	964	818	944	770	964	818	944	770	964	818	944
	(TOTAL ml FOR FOUR PLANTS PER WATERING)																
Drip Rates 04/05/95	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	
	Trt	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230
	Drip rate	940	920	940	932	940	920	940	932	940	920	940	932	940	920	940	932
	(TOTAL ml FOR FOUR PLANTS PER WATERING)																
Drip Rates 22/05/95	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	Plot No 24/32	26/38	20/30	22/36	
	Trt	80	130	180	230	80	130	180	230	80	130	180	230	80	130	180	230
	Drip rate	1238	1212	1152	1227	1238	1212	1152	1227	1238	1212	1152	1227	1238	1212	1152	1227
	(TOTAL ml FOR FOUR PLANTS PER WATERING)																

Watering every 2 h or 150l
 *NO STARTS X MEASURED DRIP RATE / 1000

9	13.700	8.0	6.0	14.0	7.0	51.09	14	14.584	7.0	5.0	12.0	6.0	41.37	14	12.446	6.0	12.0	6.0	48.21	14	14.112	5.0	4.0	9.0	4.5	31.89	
10	12.722	5.0	3.0	8.0	4.0	31.44	13	13.468	5.0	4.0	9.0	5.0	33.41	13	11.557	5.0	10.0	5.0	47.25	13	13.104	3.0	2.0	5.0	2.5	19.08	
11	7.829	4.0	2.0	6.0	3.0	38.32	8	8.288	4.0	1.0	5.0	4.5	30.16	8	7.112	2.0	4.0	6.0	47.18	8	8.064	2.0	0.5	2.0	1.3	15.50	
12	11.466	6.0	3.0	9.0	4.5	39.25	13	12.155	6.0	3.0	9.0	4.0	37.02	12	9.636	3.0	4.0	7.0	3.5	36.32	12	10.920	3.0	2.0	5.0	2.5	27.89
13	9.702	4.0	2.0	6.0	3.0	30.92	11	10.285	4.0	2.0	6.0	3.0	29.17	11	8.833	3.0	4.0	7.0	3.5	39.62	11	10.010	3.0	2.0	5.0	2.5	24.98
14	7.938	4.0	2.0	7.0	3.5	44.09	8	8.415	4.0	2.0	6.0	3.0	35.65	9	7.227	2.0	4.0	4.0	2.0	27.67	8	8.190	2.0	2.0	4.0	2.0	28.42
15	7.056	4.0	2.0	6.0	3.0	42.52	8	7.480	4.0	2.0	6.0	3.0	40.11	8	6.434	4.0	2.0	6.0	3.0	46.70	8	7.280	4.0	2.0	6.0	3.0	41.21
16	8.820	4.0	2.0	6.0	3.0	34.03	10	9.350	4.0	4.0	8.0	4.0	42.78	10	8.030	4.0	4.0	8.0	4.0	49.81	10	9.100	2.0	3.0	5.0	2.5	27.47
17	7.938	2.0	2.0	4.0	2.0	25.20	10	9.350	2.0	2.0	4.0	2.0	21.39	9	7.227	4.0	2.0	6.0	3.0	41.51	9	8.190	2.0	1.0	3.0	1.5	18.32
18	7.938	3.0	2.0	5.0	2.5	31.49	9	8.415	3.0	0.3	3.3	1.6	19.31	9	7.227	2.0	4.0	2.0	27.67	9	8.190	2.0	1.0	3.0	1.5	18.32	
19	9.702	3.0	2.0	5.0	2.5	25.77	11	10.285	3.0	0.3	3.3	1.6	15.80	11	8.833	2.0	2.0	4.0	2.0	22.64	11	10.010	2.0	1.0	3.0	1.5	14.99
20	10.584	3.0	2.0	5.0	2.5	23.62	12	11.220	3.0	0.5	3.5	1.8	15.60	12	9.636	3.0	2.0	5.0	2.5	25.94	12	10.920	2.0	2.0	4.0	2.0	18.32
21	10.584	4.0	2.0	6.0	3.0	28.34	8	7.480	4.0	1.0	5.0	2.5	22.28	12	9.636	3.0	2.0	5.0	2.5	25.94	12	10.920	3.0	2.0	5.0	2.5	21.89
22	7.056	3.0	1.0	4.0	2.0	28.34	8	7.480	3.0	1.0	4.0	2.0	26.74	8	6.424	3.0	2.0	5.0	2.5	38.92	8	7.380	3.0	1.0	4.0	2.0	27.47
23	10.584	2.0	1.0	3.0	1.5	14.17	10	9.350	2.0	1.0	4.0	2.0	17.83	12	9.636	2.0	2.0	4.0	2.0	20.76	10	9.100	2.0	1.0	3.0	1.5	13.74
24	8.820	1.0	0.3	1.3	0.6	7.09	9	8.415	1.0	0.5	1.5	0.8	8.02	9	7.227	0.5	0.5	2.5	1.3	15.57	9	8.190	1.5	0.3	1.8	0.9	10.68
25	7.938	2.0	0.5	2.5	1.3	15.75	9	8.415	1.5	0.3	1.8	0.9	10.40	9	7.227	0.5	1.0	0.5	6.92	9	8.190	1.5	0.3	1.8	0.9	10.68	
26	10.584	6.0	4.0	10.0	5.0	47.24	12	11.220	3.0	0.3	3.3	1.6	14.48	11	8.833	3.0	4.0	7.0	3.5	39.62	12	13.128	4.0	2.0	4.0	2.0	24.42
27	12.720	6.0	3.0	9.0	4.5	35.38	12	12.432	5.0	0.5	5.5	2.8	22.12	12	11.592	5.0	2.0	7.0	3.5	30.19	12	13.128	4.0	2.0	4.0	2.0	30.47
28	10.600	5.0	2.0	7.0	3.5	33.02	9	9.324	3.0	1.0	4.0	2.0	25.34	10	9.660	4.0	2.0	6.0	3.0	31.06	9	8.190	2.0	1.0	3.0	1.5	16.48
29	9.540	4.0	1.0	5.0	2.5	26.21	9	9.324	3.0	1.0	4.0	2.0	21.45	9	8.694	2.0	1.0	3.0	1.5	17.25	9	9.846	3.0	2.0	5.0	2.5	25.39
30	10.600	6.0	5.0	11.0	5.5	51.89	10	10.360	5.0	0.5	5.5	2.8	26.54	10	9.660	4.0	2.0	8.0	4.0	41.41	10	10.940	4.0	4.0	8.0	4.0	36.56
1	11.660	6.0	4.0	10.0	5.0	42.88	11	11.396	5.0	0.3	5.3	2.6	23.03	11	10.626	4.0	2.0	6.0	3.0	28.23	11	12.034	4.0	4.0	8.0	4.0	33.24
2	8.480	5.0	2.0	7.0	3.5	41.27	8	8.288	4.0	0.3	4.3	2.1	25.64	8	7.728	3.0	2.0	5.0	2.5	32.35	8	8.752	3.0	2.0	5.0	2.5	28.56
3	10.600	6.0	4.0	10.0	5.0	47.17	10	10.360	6.0	2.0	8.0	4.0	38.61	10	9.660	4.0	2.0	6.0	3.0	31.06	9	9.846	3.0	2.0	5.0	2.5	28.56
4	9.540	6.0	2.0	8.0	4.0	41.93	9	9.324	3.0	0.5	3.5	1.8	18.77	9	8.694	3.0	2.0	5.0	2.5	28.76	9	9.846	3.0	2.0	5.0	2.5	28.56
5	11.660	6.0	2.0	7.0	3.5	30.02	11	11.396	3.0	0.5	3.5	1.8	18.77	11	10.626	3.0	2.0	5.0	2.5	28.76	11	12.034	3.0	3.0	6.0	3.0	24.93
6	8.480	6.0	2.0	8.0	4.0	47.17	8	8.288	4.0	1.0	7.0	3.5	37.54	8	7.728	4.0	4.0	8.0	4.0	51.76	8	8.752	4.0	4.0	8.0	4.0	45.70
7	11.660	6.0	3.0	9.0	4.5	53.07	8	8.288	4.0	3.0	7.0	3.5	42.23	8	7.728	4.0	3.0	7.0	3.5	45.29	8	8.752	4.0	4.0	8.0	4.0	45.70
8	8.480	6.0	3.0	9.0	4.5	38.59	8	8.288	4.0	4.0	8.0	4.0	35.10	11	10.626	4.0	4.0	8.0	4.0	37.64	8	8.752	4.0	4.0	8.0	4.0	45.70
9	11.660	6.0	3.0	9.0	4.5	38.59	11	11.396	4.0	4.0	8.0	4.0	35.10	11	10.626	4.0	4.0	8.0	4.0	37.64	11	12.034	4.0	4.0	8.0	4.0	45.70
10	11.660	6.0	2.0	8.0	4.0	34.31	11	11.396	4.0	4.0	8.0	4.0	35.10	11	10.626	4.0	4.0	8.0	4.0	37.64	11	12.034	4.0	4.0	8.0	4.0	45.70
11	9.540	4.0	2.0	6.0	3.0	31.45	8	8.288	3.0	2.0	5.0	2.5	30.16	9	8.694	3.0	2.0	5.0	2.5	32.94	8	8.752	3.0	2.0	5.0	2.5	28.56
12	10.600	6.0	2.0	8.0	4.0	37.74	10	10.360	4.0	4.0	8.0	4.0	38.61	11	10.626	2.0	2.0	4.0	2.0	28.76	10	10.940	4.0	3.0	7.0	3.5	31.99
13	8.480	8.0	4.0	12.0	6.0	70.75	8	8.288	3.0	2.0	5.0	2.5	30.16	11	10.626	2.0	2.0	4.0	2.0	28.76	8	8.752	3.0	2.0	5.0	2.5	28.56
14	8.480	8.0	6.0	14.0	7.0	82.55	8	8.288	3.0	2.0	5.0	2.5	30.16	8	7.728	6.0	4.0	10.0	5.0	64.70	8	8.752	6.0	4.0	10.0	5.0	57.13
15	8.480	6.0	6.0	12.0	6.0	70.75	8	8.288	4.0	2.0	7.0	3.5	42.23	8	7.728	6.0	6.0	12.0	6.0	77.64	8	8.752	6.0	5.0	11.0	5.5	62.84
16	8.480	6.0	4.0	10.0	5.0	58.96	8	8.288	4.0	3.0	6.0	3.0	36.20	8	7.728	2.0	4.0	6.0	3.0	38.82	8	8.752	2.0	4.0	6.0	3.0	34.28
17	10.600	6.0	5.0	11.0	5.5	51.89	10	10.360	4.0	4.0	8.0	4.0	42.23	10	9.660	6.0	2.0	5.0	2.0	25.88	8	8.752	2.0	4.0	6.0	3.0	34.28
18	10.600	7.0	4.0	11.0	5.5	51.89	10	10.360	4.0	4.0	8.0	4.0	38.61	10	9.660	6.0	5.0	11.0	5.5	56.94	9	9.846	6.0	4.0	10.0	5.0	50.78
19	8.480	6.0	4.0	10.0	5.0	58.96	8	8.288	5.0	4.0	9.0	4.5	54.30	10	9.660	4.0	6.0	10.0	5.0	51.76	10	10.940	4.0	2.0	6.0	3.0	27.42
20														8	7.728	4.0	6.0	12.0	6.0	38.82	8	8.752	4.0	2.0	6.0	3.0	34.28

3 June	14	14,938	8.0	9.0	17.0	8.5	56.90	14	13,678	2.0	4.0	6.0	3.0	21.93	14	16,464	15.0	14.0	29.0	14.5	88.07	14	15,820	4.0	4.0	8.0	4.0	25.28
4 June	17	18,139	15.0	15.0	30.0	13.0	82.69	17	16,609	11.0	15.0	26.0	13.0	78.27	17	19,992	15.0	14.0	29.0	14.5	72.53	17	19,210	15.0	14.0	29.0	14.5	73.48
5 June	24	25,608	9.5	15.0	24.5	12.3	47.84	24	23,448	11.0	15.0	26.0	13.0	55.44	22	23,872	15.0	15.0	30.0	15.0	57.98	24	27,120	15.0	14.5	29.5	14.8	54.39
6 June	23	24,541	11.5	14.5	26.0	13.0	52.97	23	22,471	7.0	10.0	17.0	8.5	37.83	23	27,048	15.0	15.0	30.0	15.0	55.46	23	25,990	10.0	7.0	17.0	8.5	32.70
7 June	11	11,737	4.0	4.0	8.0	4.0	34.08	11	10,747	1.5	2.0	3.5	1.8	16.28	13	15,288	10.0	12.0	22.0	11.0	71.95	12	13,560	2.0	2.0	4.0	2.0	14.75
8 June	17	18,139	5.0	9.0	14.0	7.0	36.59	17	16,609	1.0	1.5	2.5	1.3	7.53	16	18,816	14.0	15.0	29.0	14.5	77.06	17	19,210	1.0	0.5	1.5	0.8	3.90
9 June	14	14,938	5.0	7.0	12.0	6.0	40.17	14	13,678	0.0	0.0	0.0	0.0	0.00	16	18,816	15.0	15.0	30.0	15.0	79.72	14	15,820	0.0	0.0	0.0	0.0	0.00
10 June	11	11,737	5.0	6.0	11.0	5.5	46.86	11	10,747	0.5	0.5	1.0	0.5	4.65	11	12,936	12.0	9.0	21.0	10.5	81.17	11	12,430	2.0	0.0	2.0	1.0	8.05
11 June	9	9,603	5.0	6.0	11.0	5.5	57.27	9	8,793	3.0	2.0	5.0	2.5	28.43	9	16,584	7.0	7.0	14.0	7.0	66.14	9	10,170	4.0	0.5	4.5	2.3	22.12
12 June	15	16,005	6.0	7.0	13.0	6.5	40.61	15	14,655	0.5	2.0	2.5	1.3	8.53	18	21,168	14.0	14.0	28.0	14.0	66.14	15	16,950	4.0	1.0	5.0	2.5	14.75
13 June	18	19,206	10.0	10.0	20.0	10.0	52.07	18	17,586	2.0	5.0	7.0	3.5	19.90	15	17,640	2.0	0.0	2.0	1.0	5.67	16	18,080	5.0	0.0	5.0	2.5	13.83
14 June	18	19,206	10.0	10.0	20.0	10.0	52.07	18	17,586	2.0	4.0	6.0	3.0	17.06	18	21,668	6.0	4.0	10.0	5.0	23.62	18	20,340	9.0	4.0	13.0	6.5	31.96
15 June	23	24,541	14.0	15.0	29.0	14.5	50.08	23	22,471	4.0	7.0	11.0	5.5	24.48	23	27,048	12.0	8.5	20.5	10.3	37.90	23	25,990	14.0	6.0	20.0	10.0	38.48
16 June	19	20,273	12.0	12.0	24.0	12.0	59.19	19	18,563	4.0	3.0	7.0	3.5	18.85	18	21,168	8.0	5.0	13.0	6.5	30.71	19	21,470	12.0	5.0	17.0	8.5	39.59
17 June	20	21,340	14.0	14.0	28.0	14.0	63.60	20	19,548	6.0	10.0	16.0	8.0	48.94	20	23,520	11.0	7.0	18.0	9.0	38.37	20	22,600	15.0	7.0	22.0	11.0	48.67
18 June	17	18,139	12.5	13.0	25.5	12.8	70.29	17	16,609	7.0	10.0	17.0	8.5	51.18	17	19,992	11.0	8.0	19.0	9.5	47.52	17	19,210	13.0	9.0	22.0	11.0	57.26
19 June	13	13,871	8.0	8.0	16.0	8.0	57.67	13	12,701	3.0	5.0	8.0	4.0	31.49	13	15,288	6.5	4.0	10.5	5.3	34.34	13	14,690	9.0	4.0	13.0	6.5	44.25
20 June	16	17,072	12.0	13.0	25.0	12.5	73.22	16	15,632	4.0	7.0	11.0	5.5	33.18	16	18,816	10.0	9.0	19.0	9.5	50.49	16	18,080	13.0	9.0	22.0	11.0	60.84
21 June	20	21,340	13.0	14.0	27.0	13.5	63.26	20	19,540	6.0	10.0	16.0	8.0	46.94	20	21,168	11.0	10.0	21.0	10.5	49.60	20	22,600	13.0	10.0	23.0	11.5	50.88
22 June	13	13,871	6.0	6.0	12.0	6.0	43.26	13	12,701	4.0	8.0	12.0	6.0	47.24	13	15,288	6.0	8.0	14.0	7.0	45.79	13	14,690	6.0	4.0	10.0	5.0	34.04
TOTALS		1578,930					778.7		1,461,535				652.9		1,604,425				788.0				1,627,546					557.9

Appendix 8b

House 10 (MGD) HDC Cucumber Nutrition Trial 1996 - % Run-off Calculations - REPLANT CROP

Drip rates (mean total ml per watering from 4 run-off plants)

Pilot No	4/10	12/24	6/16
Tot	70	130	190
Drip rate	582	548	578
Drip rate (2 minutes)	873	822	867
Drip rate (3 minutes)	1164	1096	1156
Drip rate (4 minutes)	1310	1233	1301
Drip rate (4 min, 30 secs)	970	913	963
Drip rate (3 min, 20 secs)	1019	959	1012
Drip rate (3 min, 30 secs)	1358	1279	1349
Drip rate (4 minutes)	1528	1439	1517
Drip rate (4 min, 30 secs)	2037	1918	2023

Watering every 2 h or 150'

* (NO STARTS X MEASURED DRIP RATE / 1000)

Date	70 ppm			130 ppm			190 ppm			250 ppm		
	No. starts	Run-off (l)	% Run-off	No. starts	Run-off (l)	% Run-off	No. starts	Run-off (l)	% Run-off	No. starts	Run-off (l)	% Run-off
4 July	32	18.624	4.0	6.0	10.0	5.0	26.85	9.864	6.0	60.83	10.404	5.0
5 July	32	18.624	7.0	10.0	12.0	8.5	45.64	17.536	12.0	65.58	19.652	11.0
6 July	28	16.296	7.0	13.0	22.0	11.0	67.50	15.344	14.5	96.13	15.606	13.0
7 July	23	13.386	8.0	13.0	21.0	10.5	78.44	12.604	12.0	91.24	12.716	10.0
8 July	26	15.132	6.0	14.0	20.0	10.0	66.09	14.796	14.0	81.24	15.028	12.0
9 July	19	11.058	7.0	10.0	17.0	8.5	76.87	10.960	12.0	69.88	10.404	8.5
10 July	39	22.698	15.0	15.0	30.0	15.0	66.09	23.016	15.0	88.29	21.964	15.0
11 July	21	12.222	7.0	8.0	15.0	7.5	61.36	11.508	10.0	73.86	12.138	12.0
12 July	17	9.894	3.0	6.0	9.0	4.5	45.48	9.316	6.0	53.67	9.248	3.0
13 July	19	11.628	6.0	6.0	12.0	6.0	54.26	10.412	9.0	62.43	13.294	15.0
14 July	32	18.624	10.0	11.0	21.0	10.5	56.38	12.604	14.0	88.54	13.294	14.0
15 July	18	10.476	5.0	5.0	10.0	5.0	47.73	9.864	6.0	45.52	10.404	5.0
16 July	19	11.058	3.0	5.0	8.0	4.0	36.17	10.412	9.0	52.82	11.560	5.0
17 July	24	13.968	5.0	6.0	11.0	5.5	39.38	13.152	8.0	52.14	13.294	8.0
18 July	21	12.222	6.0	10.0	16.0	8.0	63.46	11.508	8.0	58.02	16.473	11.0
19 July	16	13.968	6.0	7.0	13.0	6.5	46.53	13.152	6.0	39.54	16.473	8.0
20 July	20	17.460	7.0	8.0	15.0	7.5	42.96	16.440	11.0	60.41	16.473	8.0
21 July	20	17.460	6.0	5.0	11.0	5.5	31.59	16.440	9.0	30.41	16.473	6.0
22 July	18	15.714	10.0	8.0	18.0	9.0	57.27	14.796	8.0	40.55	15.606	11.0
23 July	18	15.714	8.0	8.0	16.0	8.0	50.91	13.974	5.0	42.94	14.739	6.5
24 July	16	13.968	10.0	9.0	19.0	9.5	68.01	13.152	8.0	42.94	13.005	4.0
25 July	22	25.608	14.5	12.0	26.5	13.3	51.74	24.112	11.0	57.03	25.432	7.5
26 July	10	11.640	4.0	6.0	10.0	5.0	42.96	10.960	4.0	27.37	11.560	3.0
27 July	15	17.460	10.0	10.0	20.0	10.0	57.27	18.440	8.0	39.40	18.496	6.0
28 July	11	12.864	6.5	6.0	12.5	6.3	48.81	12.056	5.5	48	12.716	4.0
29 July	11	12.864	7.0	6.0	13.0	6.5	50.77	12.056	5.5	48	11.560	3.0
30 July	13	17.030	8.5	10.0	18.5	9.3	54.32	14.796	8.0	55.30	15.612	5.0
31 July	11	14.410	9.0	9.5	18.5	9.3	64.19	13.363	8.0	50.69	14.311	6.0
1 August	12	15.720	8.0	10.0	18.0	9.0	57.25	14.796	10.0	52.48	16.473	7.0
2 August	17	22.270	11.0	14.0	25.0	12.5	56.13	20.961	12.0	60.83	20.816	7.0
3 August	11	14.410	8.0	7.0	15.0	7.5	52.85	13.363	7.0	47.92	14.311	6.0
4 August	18	23.580	10.0	10.5	20.5	10.3	43.47	22.194	12.0	67.09	22.117	7.5
5 August	20	19.400	12.0	10.0	22.0	11.0	56.70	18.260	12.5	72.94	17.334	8.0
6 August	6	5.820	4.0	4.0	8.0	4.0	68.73	6.478	3.0	40	5.778	3.0
7 August	9	8.730	5.0	5.0	10.0	5.0	57.27	8.217	6.0	69.23	8.867	6.0
8 August	9	8.730	5.0	3.5	8.5	4.3	43.81	9.130	5.0	60.24	9.630	6.0
9 August	9	8.730	4.0	6.5	14.5	7.3	57.49	8.217	4.0	54.76	8.667	5.0
10 August	9	8.730	4.0	4.0	8.0	4.0	45.82	11.869	6.5	56.87	12.519	8.0
11 August	17	16.490	5.0	6.0	11.5	5.8	34.87	15.521	6.0	55	15.408	6.0
12 August	13	12.864	4.0	3.5	7.5	3.8	42.96	8.217	2.0	29.21	7.704	3.5
13 August	14	14.266	5.0	6.0	11.0	5.5	38.55	14.266	6.0	50	14.168	6.0
14 August	15	15.285	6.0	6.5	12.5	6.3	40.89	15.285	6.0	44.76	15.180	6.0
15 August	15	15.285	6.0	6.5	12.5	6.3	40.89	15.285	6.0	44.76	15.180	6.0

Appendix 9 1995 Nitrogen Balance

1995 FIRST CROP				
	80	130	180	230
FRUIT:total fresh yield (kg/m ²) (including waste)	26.63	26.30	26.53	27.38
% Dry matter in fruit	3.45	3.66	3.47	3.48
FRUIT:total dry matter yield (t/ha)	9.19	9.62	9.21	9.53
HAULM & TRIMMINGS : total dry matter yield (t/ha)	5.29	6.97	6.66	6.50
TOTAL DRY MATTER (t/ha)	14.48	16.59	15.87	16.03
Harvest Index	63.47	57.99	58.03	59.45
N % in fruit	3.04	3.55	3.69	3.25
N OFFTAKE IN FRUIT (kg/m ²)	279.32	341.18	339.70	309.67
N OFFTAKE IN HAULM&TRIMMINGS	147.08	233.90	296.94	266.37
TOTAL N OFFTAKE (kg/m ²)	426.40	575.08	636.64	576.04
FEED APPLIED (litres/m ²)	526	532	502	552
RUN-OFF %	31	35	27	32
TOTAL N APPLIED (kg/ha)	546	916	1011	1320
TOTAL N IN RUN-OFF kg N/ha	52	312	386	644
N IN RUN-OFF AS % OF APPLIED	10	34	38	49
PLANT N OFFTAKE AS % OF APPLIED	78.10	62.78	62.97	43.64
N APPLIED - (N OFFTAKE+N IN RUNOFF kg N/ha	68	29	-12	100
1995 REPLANT CROP				
	80	130	180	230
FRUIT:total fresh yield (kg/m ²) (including waste)	12.44	12.63	13.62	14.10
% Dry matter in fruit	3.15	3.45	3.10	3.20
FRUIT:total dry matter yield (t/ha)	3.92	4.36	4.22	4.51
HAULM & TRIMMINGS : total dry matter yield (t/ha)	3.25	3.32	3.08	3.05
TOTAL DRY MATTER (t/ha)	7.17	7.68	7.30	7.56
Harvest Index %	54.67	56.77	57.81	59.66
N % in fruit	2.60	2.89	3.32	3.36
N OFFTAKE IN FRUIT (kg/m ²)	101.88	125.93	140.17	151.60
N OFFTAKE IN HAULM&TRIMMINGS	100.91	111.05	163.71	134.98
TOTAL N OFFTAKE (kg/m ²)	202.79	236.98	303.88	286.58
FEED APPLIED (litres/m ²)	365	379	332	370
RUN-OFF %	44	36	42	32
TOTAL N APPLIED (kg/ha)	312	579	613	899
TOTAL N IN RUN-OFF kg N/ha	63	237	308	377
N IN RUN-OFF AS % OF APPLIED	20	41	50	42
PLANT N OFFTAKE AS % OF APPLIED	65	41	50	32
N APPLIED - (N OFFTAKE+N IN RUNOFF kg N/ha	46	105	1	235

NITROGEN BALANCE FOR CUCUMBERS 1995 1st CROP

PC 111

80 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	25.02	3.45	8.63	59.67	3.04	262.43	2.92	0.12
Fruit (waste)	1.61	3.45	0.56	3.84	3.04	16.89	2.92	0.12
Trimmings :				9.50				
April	0.38	7.10	0.27		2.77	7.42	2.60	0.17
May	0.35	6.60	0.23		5.31	12.25	5.14	0.17
July	0.94	9.33	0.88		3.53	30.92	3.53	0.17
Haulm :								
fruit	1.76	3.4	0.60	4.14	3.22	19.25	3.10	0.12
leaf	1.41	10.4	1.47	10.14	2.71	39.78	2.54	0.17
stem	1.93	9.5	1.83	12.67	2.04	37.40	1.39	0.65
roots	0.0048	12.2	0.01	0.04	1.00	0.06	0.79	0.21
Total	33.40		14.47	100.00		426.39		

Notes :

- Fruit yield is that recorded from all 80N first crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
- Fruit waste calculated from Tables 3 and 12 e.g. 6.06% of total yield is waste, therefore 93.94% marketable.
93.94% of total yield =25.02, therefore total yield = (25.02/93.94)*100=26.63 and waste = 6.06% of 26.63=1.61
- Weight of trimmings - based on 20 plants sampled from 80N first crop Jessica plots. (but was crop only trimmed 3 times?)
- Haulm figures are based on 20 plants sampled from 80N first crop Jessica plots.
- Plant population = 5,620/acre = 1.39 plants/m²
- Dry matter figures are based on average of figures for April, May and June/July (20 plants)
- Organic N% for marketable fruit is an average as per dry matter; the same value is used for waste fruit.
- Organic N% for trimmings is an average as per dry matter.
- Nitrate-N was measured for the fruit and trimmings samples in June/July and for the root samples on the first crop.
The values for the fruit and trimmings samples have been used for the haulm fruit and leaves samples at the end of the crop
The NO₃ value for the stem has been estimated from the corresponding replant figure.
- Nutrient balance plots =20 plants/plot

Total applied feed for 4 plants	1514 litres
Total applied feed per m ² (1461.52/4*1.39)	526 litres/m ²
Total applied feed per ha	5,261,150 litres
Average total-N content of applied feed	104 mg/litre
Average total-N (NH ₄ +NO ₃) applied	546 kg/ha
Total run-off for 4 plants	470 litres
Total run-off per m ²	163 litres/m ²
Total run-off per ha	1,633,250 litres
Average total-N conc. in run-off	32.03214 mg/litre
Average total-N content of run-off	52 kg/ha

INPUT	OUTPUT	BALANCE
	Crop offtake	426
	Run-off	52
Applied feed	546	479
		68

NITROGEN BALANCE FOR CUCUMBERS 1995 1st CROP

PC 111

130 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	24.71	3.66	9.04	54.50	3.55	320.61	3.36	0.19
Fruit (waste)	1.59	3.66	0.58	3.50	3.55	20.57	3.36	0.19
Trimmings :				9.43				
April	0.46	7.5	0.35		4.43	15.45	3.98	0.45
May	0.43	6.5	0.28		4.77	13.36	4.32	0.45
July	1.28	7.28	0.94		3.86	36.10	3.41	0.45
Haulm :								
fruit	2.21	3.3	0.73	4.39	3.12	22.71	2.93	0.19
leaf	1.66	17.1	2.83	17.07	2.58	73.11	2.13	0.45
stem	2.06	8.9	1.83	11.05	3.98	72.90	1.98	2.00
roots	0.01	14.1	0.01	0.06	2.88	0.27	1.31	1.57
Total	34.41		16.59	100.00		575.08		
Total fruit	26.29562626							

Total applied feed for 4 plants	1532 litres
Total applied feed per m ² (1461.52/4*1.39)	532 litres/m ²
Total applied feed per ha	5,323,700 litres
Average total-N content of applied feed	172 mg/litre
Average total-N (NH ₄ +NO ₃) applied	916 kg/ha
Total run-off for 4 plants	537 litres
Total run-off per m ²	187 litres/m ²
Total run-off per ha	1,866,075 litres
Average total-N conc. in run-off	167 mg/litre
Average total-N content of run-off	312 kg/ha

INPUT	OUTPUT	BALANCE
	Crop offtake	575
	Run-off	312
Applied feed		887
		29

NITROGEN BALANCE FOR CUCUMBERS 1995 1st CROP

PC 111

180 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	24.75	3.47	8.59	54.15	3.69	316.91	3.47	0.22
Fruit (waste)	1.78	3.47	0.62	3.89	3.69	22.79	3.47	0.22
Trimmings :				11.41				
April	0.48	7.60	0.36		4.91	17.91	3.55	1.36
May	0.47	6.50	0.31		7.14	21.81	5.78	1.36
July	1.41	8.08	1.14		4.58	52.18	3.22	1.36
Haulm :								
fruit	2.37	3.00	0.71	4.48	4.37	31.07	4.03	0.34
leaf	1.48	18.10	2.68	16.89	4.21	112.78	2.87	1.34
stem	1.93	7.50	1.45	9.13	4.22	61.08	1.92	2.30
roots	0.01	6.90	0.01	0.05	1.32	0.11	1.21	0.11
Total	34.68		15.86	100.00		636.64		

Total applied feed for 4 plants	1445 litres
Total applied feed per m ² (/4*1.39)	502 litres/m ²
Total applied feed per ha	5,021,375 litres
Average total-N content of applied feed	201 mg/litre
Average total-N (NH ₄ +NO ₃) applied	1011 kg/ha
Total run-off for 4 plants	389 litres
Total run-off per m ²	135 litres/m ²
Total run-off per ha	1,350,038 litres
Average total-N conc. in run-off	286 mg/litre
Average total-N content of run-off	386 kg/ha

INPUT

OUTPUT
Crop offtake
Run-off

BALANCE

Applied feed

1011

637
386

1023

-12

NITROGEN BALANCE FOR CUCUMBERS 1995 1st CROP

PC 111

230 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	25.80	3.48	8.98	56.05	3.25	291.80	2.92	0.33
Fruit (waste)	1.58	3.48	0.55	3.43	3.25	17.87	2.92	0.33
Trimblings :				11.10				
April	0.61	7.80	0.48		4.72	22.46	3.98	0.74
May	0.48	6.60	0.32		6.25	19.80	5.51	0.74
July	1.34	7.35	0.98		3.55	34.96	2.81	0.74
Haulm :								
fruit	2.10	3.50	0.74	4.59	4.44	32.63	3.75	0.69
leaf	1.36	16.00	2.18	13.58	3.70	80.51	2.43	1.27
stem	1.99	9.00	1.79	11.18	4.23	75.76	2.04	2.19
roots	0.01	11.50	0.01	0.07	2.16	0.25	1.40	0.76
Total	35.27		16.02	100.00		576.04		

Total applied feed for 4 plants

1590 litres

Total applied feed per m²

552 litres/m²

Total applied feed per ha

5,523,513 litres

Average total-N content of applied feed

239 mg/litre

Average total-N (NH₄+NO₃) applied

1320 kg/ha

Total run-off for 4 plants

512 litres

Total run-off per m²

178 litres/m²

Total run-off per ha

1,780,243 litres

Average total-N conc. in run-off

362 mg/litre

Average total-N content of run-off

644 kg/ha

INPUT

OUTPUT

BALANCE

Crop offtake

576

Run-off

644

Applied feed

1320

1220

100

NITROGEN BALANCE FOR CUCUMBERS 1995 Replant Crop

PC 111

80 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	11.53	3.15	3.63	50.67	2.60	94.43	2.53	0.07
Fruit (waste)	0.91	3.15	0.29	4.00	2.60	7.45	2.53	0.07
Trimblings : August	0.06	7.79	0.05	0.65	3.43	1.60	3.26	0.17
Haulm :								
fruit	0.70	3.00	0.21	2.93	3.88	8.15	3.62	0.26
leaf	0.69	30.90	2.13	29.74	3.05	65.03	2.73	0.32
stem	1.08	7.90	0.85	11.90	3.05	26.02	2.08	0.97
roots	0.01	7.70	0.01	0.11	1.40	0.11	1.34	0.06
Total	14.98		7.17	100.00		202.79		

Total applied feed for 4 plants	1049 litres
Total applied feed per m ² (4*1.39)	365 litres/m ²
Total applied feed per ha	3,645,623 litres
Average total-N content of applied feed	86 mg/litre
Average total-N (NH ₄ +NO ₃) applied	312 kg/ha

Total run-off for 4 plants	460 litres
Total run-off per m ²	160 litres/m ²
Total run-off per ha	1,598,066 litres
Average total-N conc. in run-off	39.23 mg/litre
Average total-N run-off	63 kg/ha

INPUT

OUTPUT

BALANCE

Applied feed

312

Crop offtake
Run-off

203
63

265

46

NITROGEN BALANCE FOR CUCUMBERS 1995 Replant Crop

PC 111

130 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	11.56	3.45	3.99	51.92	2.89	115.26	2.79	0.10
Fruit (waste)	1.07	3.45	0.37	4.81	2.89	10.67	2.79	0.10
Trimmings :								
August	0.13	7.24	0.09	1.23	4.85	4.56	4.40	0.45
Haulm :								
fruit	0.84	3.40	0.29	3.72	4.81	13.74	4.45	0.36
leaf	0.9	23.60	2.12	27.65	2.77	58.83	2.06	0.71
stem	1.32	6.10	0.81	10.48	4.17	33.58	2.17	2.00
roots	0.02	7.80	0.02	0.20	2.18	0.34	1.94	0.24
Total	15.84		7.68	100.00		236.98		

Total applied feed for 4 plants

1092 litres

Total applied feed per m² (/4*1.39)

379 litres/m²

Total applied feed per ha

3,794,353 litres

Average total-N content of applied feed

152 mg/litre

Average total-N (NH₄+NO₃) applied

579 kg/ha

Total run-off for 4 plants

393 litres

Total run-off per m²

137 litres/m²

Total run-off per ha

1,365,258 litres

Average total-N conc. in run-off

173.69 mg/litre

Average total-N run-off

237 kg/ha

INPUT

OUTPUT

BALANCE

Crop offtake

237

Run-off

237

Applied feed

579

474

104

NITROGEN BALANCE FOR CUCUMBERS 1995 Replant Crop

PC 111

180 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	12.51	3.1	3.88	53.10	3.32	128.75	3.12	0.20
Fruit (waste)	1.11	3.1	0.34	4.71	3.32	11.42	3.12	0.20
Trimming : August	0.11	7.39	0.08	1.11	5.20	4.23	3.84	1.36
Haulm :								
fruit	0.76	3.00	0.23	3.12	8.06	18.38	4.03	4.03
leaf	1.01	18.10	1.83	25.03	5.74	104.93	2.87	2.87
stem	1.25	7.50	0.94	12.84	3.84	36.00	1.92	1.92
roots	0.01	6.90	0.01	0.09	2.42	0.17	1.21	1.21
Total	16.76		7.30	100.00		303.88		

Total applied feed for 4 plants

955 litres

Total applied feed per m² (4*1.39)

332 litres/m²

Total applied feed per ha

3,320,154 litres

Average total-N content of applied feed

185 mg/litre

Average total-N (NH₄+NO₃) applied

613 kg/ha

Total run-off for 4 plants

403 litres

Total run-off per m²

140 litres/m²

Total run-off per ha

1,399,556 litres

Average total-N conc. in run-off

219.92 mg/litre

Average total-N run-off

308 kg/ha

INPUT

OUTPUT

BALANCE

Crop offtake

304

Run-off

308

Applied feed

613

612

1

NITROGEN BALANCE FOR CUCUMBERS 1995 Replant Crop

PC 111

230 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)	13.07	3.2	4.18	55.34	3.36	140.53	3.17	0.19
Fruit (waste)	1.03	3.2	0.33	4.36	3.36	11.07	3.17	0.19
Trimming : August	0.09	7.27	0.07	0.87	3.34	2.19	2.60	0.74
Haulm :								
fruit	0.87	3.40	0.30	3.91	5.54	16.39	4.85	0.69
leaf	0.90	20.70	1.86	24.65	4.21	78.43	2.94	1.27
stem	1.10	7.40	0.81	10.77	4.64	37.77	2.45	2.19
roots	0.01	7.40	0.01	0.10	2.68	0.20	1.92	0.76
Total	17.07		7.56	100.00		286.58		

Total applied feed for 4 plants 1066 litres
 Total applied feed per m² (/4*1.39) 370 litres/m²
 Total applied feed per ha 3,704,350 litres
 Average total-N content of applied feed 243 mg/litre
 Average total-N (NH₄+NO₃) applied 899 kg/ha

Total run-off for 4 plants 340 litres
 Total run-off per m² 118 litres/m²
 Total run-off per ha 1,181,952 litres
 Average total-N conc. in run-off 318.81 mg/litre
 Average total-N run-off 377 kg/ha

INPUT

OUTPUT

BALANCE

Applied feed

899

Crop offtake
Run-off

287
377

663

236

Appendix 10 1996 Nitrogen Balance

1996 FIRST CROP				
	70	130	190	250
FRUIT:total fresh yield (kg/m ²) (including waste)	24.15	29.23	27.02	26.42
FRUIT:total dry matter yield (t/ha)	8.50	9.31	8.86	8.97
HAULM & TRIMMINGS : total dry matter yield (kg/m ²)	3.77	5.26	5.33	4.34
TOTAL DRY MATTER (t/ha)	12.27	14.57	14.19	13.31
Harvest Index	69.27	63.90	62.44	67.39
N OFFTAKE IN FRUIT (kg/m ²)	193.65	304.29	293.41	309.06
N OFFTAKE IN HAULM&TRIMMINGS	86.64	193.02	209.31	218.98
TOTAL N OFFTAKE (kg/m ²)	280.29	497.31	502.72	528.04
FEED APPLIED (litres/m ²)	549	508	558	566
RUN-OFF (litres/m ²)	271	227	274	194
RUN-OFF %	49	45	49	34
TOTAL N APPLIED (kg/ha)	373	740	1021	1314
TOTAL N IN RUN-OFF	83	270	521	639
N IN RUN-OFF AS % OF APPLIED	22	36	51	49
PLANT N OFFTAKE AS % OF APPLIED	75.14	67.20	49.24	40.19
N APPLIED - (N OFFTAKE+N IN RUNOFF)	10	-27	-3	147
1996 REPLANT CROP				
	80	130	180	230
FRUIT:total fresh yield (kg/m ²) (including waste)	14.80	20.81	20.39	19.50
% Dry matter in fruit				
FRUIT:total dry matter yield (t/ha)	5.42	7.94	7.43	7.39
HAULM & TRIMMINGS : total dry matter yield (kg/m ²)	2.48	4.07	2.98	3.71
TOTAL DRY MATTER (t/ha)	7.90	12.01	10.41	11.10
Harvest Index	68.61	66.11	71.37	66.58
N OFFTAKE IN FRUIT (kg/m ²)	118.47	237.90	239.83	248.38
N OFFTAKE IN HAULM&TRIMMINGS	49.09	148.41	115.06	143.96
TOTAL N OFFTAKE (kg/m ²)	167.56	386.31	354.89	392.34
FEED APPLIED (litres/m ²)	575	540	552	506
RUN-OFF (litres/m ²)	250	210	205	178
RUN-OFF %	43	39	37	35
TOTAL N APPLIED (kg/ha)	355	766	939	1002
TOTAL N IN RUN-OFF	57	196	287	418
N IN RUN-OFF AS % OF APPLIED	16	26	31	42
PLANT N OFFTAKE AS % OF APPLIED	47	50	38	39
N APPLIED - (N OFFTAKE+N IN RUNOFF)	130	184	297	192
TOTAL N LOSS (both crops) kgN/ha	140	466	808	1057

NITROGEN BALANCE FOR CUCUMBERS 1996 1st CROP

PC 111

70 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
March	2.00	3.1	0.62	5.05	3.06	18.97	2.99	0.07
April	7.83	3.6	2.82	22.97	2.60	73.29	2.54	0.06
May	6.81	3.8	2.59	21.08	1.97	50.98	1.93	0.04
June	5.50	3.2	1.76	14.34	2.01	35.38	2.00	0.01
Mean		3.425						
Fruit (waste)								
March	0.01	3.1	0.00	0.03	3.06	0.09	2.99	0.07
April	0.41	3.6	0.15	1.20	2.60	3.84	2.54	0.06
May	0.83	3.8	0.32	2.57	1.97	6.21	1.93	0.04
June	0.76	3.2	0.24	1.98	2.01	4.89	2.00	0.01
Trimmings :								
February	0.05	6.6	0.03	0.27	4.76	1.57	4.76	
March	0.05	4.5	0.02	0.18	4.33	0.97	3.98	0.35
April	0.22	4.50	0.10	0.81	4.49	4.45	4.26	0.23
May	0.13	6.60	0.09	0.70	3.84	3.29	3.60	0.24
June	0.07	6.00	0.04	0.34	4.19	1.76	4.12	0.07
Haulm :								
fruit	1.28	4.5	0.58	4.69	2.82	16.24	2.72	0.10
leaf	0.76	18.5	1.41	11.46	2.32	32.62	2.27	0.05
stem	1.76	8.6	1.51	12.33	1.70	25.73	1.55	0.15
roots								
Total	28.47		12.27	100.00		280.29		

Notes :

1. Fruit yield is that recorded from all 70N first crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 70N first crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 70N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1579 litres
Total applied feed per m ² (1461.52/4*1.39)	549 litres/m ²
Total applied feed per ha	5,486,782 litres
Average total-N content of applied feed	68 mg/litre
Average total-N (NH ₄ +NO ₃) applied	373 kg/ha
Total run-off for 4 plants	779 litres
Total run-off per m ²	271 litres/m ²
Total run-off per ha	2,705,983 litres
Average total-N conc. in run-off	30.54 mg/litre
Average total-N content of run-off	83 kg/ha

INPUT	OUTPUT	BALANCE
	Crop offtake	280
	Run-off	83
Applied feed		363
		10

NITROGEN BALANCE FOR CUCUMBERS 1996 1st CROP

PC 111

130 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
March	2.00	3.00	0.60	4.12	3.60	21.60	3.49	0.11
April	8.66	3.60	3.12	21.40	3.47	108.18	3.37	0.10
May	8.51	3.00	2.55	17.53	2.95	75.31	2.85	0.10
June	7.40	3.00	2.22	15.24	3.29	73.04	3.15	0.14
Mean		3.15						
Fruit (waste)								
March	0.01	3.00	0.00	0.02	3.60	0.11	3.49	0.11
April	0.42	3.60	0.15	1.04	3.47	5.25	3.37	0.10
May	1.18	3.00	0.35	2.43	2.95	10.44	2.85	0.10
June	1.05	3.00	0.32	2.16	3.29	10.36	3.15	0.14
Trimmings :								
February	0.06	6.80	0.04	0.28	4.80	1.96	4.80	
March	0.06	6.20	0.04	0.26	5.21	1.94	4.76	0.45
April	0.33	5.50	0.18	1.25	5.92	10.74	5.42	0.50
May	0.17	7.20	0.12	0.84	4.81	5.89	3.74	1.07
June	0.12	5.80	0.07	0.48	6.00	4.18	4.69	1.31
Haulm :								
fruit	1.79	4.30	0.77	5.28	3.46	26.63	3.23	0.23
leaf	1.05	22.30	2.34	16.08	3.05	71.42	2.66	0.39
stem	2.06	8.20	1.69	11.60	4.16	70.27	2.19	1.97
roots								
Total	34.87		14.57	100.00		497.32		
Total applied feed for 4 plants						1462 litres		
Total applied feed per m ² (1461.52/4*1.39)						508 litres/m ²		
Total applied feed per ha						5,078,834 litres		
Average total-N content of applied feed						146 mg/litre		
Average total-N (NH ₄ +NO ₃) applied						740 kg/ha		
Total run-off for 4 plants						653 litres		
Total run-off per m ²						227 litres/m ²		
Total run-off per ha						2,268,828 litres		
Average total-N conc. in run-off						119.22 mg/litre		
Average total-N content of run-off						270 kg/ha		

INPUT

Applied feed 740

OUTPUT

Crop offtake
Run-off

BALANCE

497
270

768 -28

NITROGEN BALANCE FOR CUCUMBERS 1996 1st CROP

PC 111

190 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
March	1.82	3.00	0.55	3.85	3.83	20.91	3.70	0.13
April	8.35	3.50	2.92	20.60	3.21	93.81	3.11	0.10
May	8.57	3.00	2.57	18.12	3.27	84.07	3.08	0.19
June	7.16	2.80	2.00	14.13	3.37	67.56	2.98	0.39
Mean		3.075						
Fruit (waste)								
March	0.02	3.00	0.01	0.04	3.83	0.23	3.70	0.13
April	0.39	3.50	0.14	0.96	3.21	4.38	3.11	0.10
May	1.21	3.00	0.36	2.56	3.27	11.87	3.08	0.19
June	1.12	2.80	0.31	2.21	3.37	10.57	2.98	0.39
Trimmings :								
February	0.06	6.80	0.04	0.29	5.57	2.27	5.57	
March	0.05	5.80	0.03	0.20	5.28	1.53	4.69	0.59
April	0.38	4.30	0.16	1.15	3.93	6.42	3.73	0.20
May	0.15	9.20	0.14	0.97	5.00	6.90	4.10	0.90
June	0.26	6.40	0.17	1.17	5.51	9.17	4.34	1.17
Haulm :								
fruit	1.83	3.50	0.64	4.51	3.51	22.48	3.28	0.23
leaf	1.06	23.40	2.48	17.48	3.64	90.29	2.84	0.80
stem	2.03	8.20	1.66	11.73	4.22	70.25	2.13	2.09
roots								
Total	34.46		14.19	100.00		502.72		

Notes :

1. Fruit yield is that recorded from all 190N first crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 190N first crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 190N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1604 litres
Total applied feed per m ² (1461.52/4*1.39)	558 litres/m ²
Total applied feed per ha	5,575,377 litres
Average total-N content of applied feed	183 mg/litre
Average total-N (NH ₄ +NO ₃) applied	1021 kg/ha
Total run-off for 4 plants	788 litres
Total run-off per m ²	274 litres/m ²
Total run-off per ha	2,738,300 litres
Average total-N conc. in run-off	190.14 mg/litre
Average total-N content of run-off	521 kg/ha

INPUT		OUTPUT		BALANCE	
		Crop offtake		503	
		Run-off		521	
Applied feed	1021			1023	-2

NITROGEN BALANCE FOR CUCUMBERS 1996 1st CROP

PC 111

250 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
March	2.10	3.00	0.63	4.73	4.00	25.20	3.86	0.14
April	8.11	3.40	2.76	20.71	3.56	98.16	3.42	0.14
May	8.09	3.20	2.59	19.44	3.16	81.81	2.99	0.17
June	7.18	3.10	2.23	16.72	3.51	78.13	3.32	0.19
Mean		3.175						
Fruit (waste)								
March	0.01	3.00	0.00	0.02	4.00	0.12	3.86	0.14
April	0.43	3.40	0.15	1.10	3.56	5.20	3.42	0.14
May	1.01	3.20	0.32	2.43	3.16	10.21	2.99	0.17
June	0.94	3.10	0.29	2.19	3.51	10.23	3.32	0.19
Trimmings :								
February	0.05	7.10	0.04	0.27	4.21	1.49	4.21	
March	0.06	5.60	0.03	0.25	5.54	1.86	5.01	0.53
April	0.26	4.20	0.11	0.82	4.34	4.74	4.11	0.23
May	0.23	6.50	0.15	1.12	5.56	8.31	4.24	1.32
June	0.20	3.00	0.06	0.45	5.48	3.29	4.26	1.22
Haulm :								
fruit	1.27	3.70	0.47	3.53	3.49	16.40	3.28	0.21
leaf	0.96	19.20	1.84	13.84	3.86	71.15	3.14	0.72
stem	2.06	8.00	1.65	12.38	6.78	111.73	2.45	4.33
roots								
Total	32.96		13.31	100.00		528.04		

Notes :

1. Fruit yield is that recorded from all 250N first crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 250N first crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 250N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1628 litres
Total applied feed per m ² (1461.52/4*1.39)	566 litres/m ²
Total applied feed per ha	5,655,722 litres
Average total-N content of applied feed	232 mg/litre
Average total-N (NH ₄ +NO ₃) applied	1314 kg/ha
Total run-off for 4 plants	558 litres
Total run-off per m ²	194 litres/m ²
Total run-off per ha	1,938,700 litres
Average total-N conc. in run-off	329.53 mg/litre
Average total-N content of run-off	639 kg/ha

INPUT	OUTPUT	BALANCE
	Crop offtake	528
	Run-off	639
Applied feed		1167
		147

NITROGEN BALANCE FOR CUCUMBERS 1996 REPLANT CROP

PC 111

70 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
July	3.67	3.70	1.36	17.19	1.77	24.10	1.77	0.005
August	6.51	3.60	2.34	29.68	2.21	51.79	2.17	0.04
September	3.44	3.00	1.03	13.07	2.50	25.80	2.38	0.12
October	0.81	3.00	0.24	3.08	2.50	6.08	2.38	0.12
Mean		3.325						
Fruit (waste)								
July	0.07	3.70	0.03	0.33	1.77	0.46	1.77	0.005
August	0.26	3.60	0.09	1.19	2.21	2.07	2.17	0.04
September	0.72	3.00	0.22	2.74	2.50	5.40	2.38	0.12
October	0.37	3.00	0.11	1.41	2.50	2.78	2.38	0.12
Trimmings :								
July	0.19	7.60	0.14	1.83	4.32	6.24	4.05	0.27
September	0.43	8.60	0.37	4.68	3.79	14.02	2.98	0.81
Haulm :								
fruit	0.75	2.9	0.22	2.75	1.40	3.05	1.11	0.29
leaf	0.6	15.4	0.92	11.70	1.48	13.68	1.15	0.33
stem	0.92	8.9	0.82	10.37	1.48	12.12	0.93	0.55
roots		5.2					0.55	0.09
Total	18.74		7.90	100.00		167.57		

Notes :

1. Fruit yield is that recorded from all 70N replant crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 70N replant crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 70N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1655 litres
Total applied feed per m ² (1461.52/4*1.39)	575 litres/m ²
Total applied feed per ha	5,751,650 litres
Average total-N content of applied feed	62 mg/litre
Average total-N (NH ₄ +NO ₃) applied	355 kg/ha
Total run-off for 4 plants	721 litres
Total run-off per m ²	250 litres/m ²
Total run-off per ha	2,504,780 litres
Average total-N conc. in run-off	22.6 mg/litre
Average total-N content of run-off	57 kg/ha

INPUT		OUTPUT		BALANCE
		Crop offtake	168	
		Run-off	57	
Applied feed	355		224	130

NITROGEN BALANCE FOR CUCUMBERS 1996 REPLANT CROP

PC 111

130 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
July	5.77	3.80	2.19	18.25	3.29	72.14	3.10	0.19
August	8.27	3.90	3.23	26.85	2.36	76.12	2.32	0.04
September	5.04	2.90	1.46	12.17	3.64	53.20	3.38	0.26
October	1.17	2.90	0.34	2.82	3.64	12.35	3.38	0.26
Mean		3.375						
Fruit (waste)								
July	0.05	3.80	0.02	0.16	3.29	0.63	3.10	0.19
August	0.44	3.90	0.17	1.43	2.36	4.05	2.32	0.04
September	1.28	2.90	0.37	3.09	3.64	13.51	3.38	0.26
October	0.56	2.90	0.16	1.35	3.64	5.91	3.38	0.26
Trimmings :								
July	0.35	7.10	0.25	2.07	6.13	15.23	5.47	0.66
September	0.60	7.00	0.42	3.50	5.54	23.27	3.50	2.04
Haulm :								
fruit	0.63	3.8	0.24	1.99	7.14	17.09	2.93	4.21
leaf	0.76	28.6	2.17	18.10	2.78	60.43	1.84	0.94
stem	1.25	7.9	0.99	8.22	3.28	32.39	1.75	1.53
roots		3.7					1.61	0.13
Total	26.17		12.01	100.00		386.31		

Notes :

1. Fruit yield is that recorded from all 130N replant crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 130N replant crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 130N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1554 litres
Total applied feed per m ² (1461.52/4*1.39)	540 litres/m ²
Total applied feed per ha	5,400,824 litres
Average total-N content of applied feed	142 mg/litre
Average total-N (NH ₄ +NO ₃) applied	766 kg/ha

Total run-off for 4 plants	605 litres
Total run-off per m ²	210 litres/m ²
Total run-off per ha	2,100,640 litres
Average total-N conc. in run-off	93.29 mg/litre
Average total-N content of run-off	196 kg/ha

INPUT		OUTPUT		BALANCE
		Crop offtake	386	
		Run-off	196	
Applied feed	766		582	184

NITROGEN BALANCE FOR CUCUMBERS 1996 REPLANT CROP

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190 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
July	6.00	3.60	2.16	20.75	3.44	74.30	3.21	0.23
August	7.43	3.60	2.67	25.70	2.78	74.36	2.73	0.05
September	5.24	2.90	1.52	14.60	3.57	54.25	3.32	0.25
October	1.18	2.90	0.34	3.29	3.57	12.22	3.32	0.25
Mean		3.25						
Fruit (waste)								
July	0.07	3.60	0.03	0.24	3.44	0.87	3.21	0.23
August	0.53	3.60	0.19	1.83	2.78	5.30	2.73	0.05
September	1.25	2.90	0.36	3.48	3.57	12.94	3.32	0.25
October	0.54	2.90	0.16	1.50	3.57	5.59	3.32	0.25
Trimmings :								
July	0.41	7.00	0.29	2.76	5.86	16.82	5.16	0.70
September	0.39	6.90	0.27	2.59	5.83	15.69	3.14	2.69
Haulm :								
fruit	0.57	3.7	0.21	2.03	4.01	8.46	3.56	0.45
leaf	0.78	15.8	1.23	11.84	3.77	46.46	2.92	0.85
stem	1.05	9.3	0.98	9.38	2.83	27.63	1.70	1.13
roots		3.8					2.51	1.06
Total	25.44		10.41	100.00		354.89		

Notes :

1. Fruit yield is that recorded from all 190N replant crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 190N replant crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 190N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1589 litres
Total applied feed per m ² (1461.52/4*1.39)	552 litres/m ²
Total applied feed per ha	5,522,835 litres
Average total-N content of applied feed	170 mg/litre
Average total-N (NH ₄ +NO ₃) applied	939 kg/ha
Total run-off for 4 plants	589 litres
Total run-off per m ²	205 litres/m ²
Total run-off per ha	2,045,040 litres
Average total-N conc. in run-off	140.15 mg/litre
Average total-N content of run-off	287 kg/ha

INPUT	OUTPUT	BALANCE
	Crop offtake	355
	Run-off	287
Applied feed		939
		642
		298

NITROGEN BALANCE FOR CUCUMBERS 1996 REPLANT CROP

PC 111

250 N Treatment

Plant part	Fresh weight kg/m ²	Dry matter %	Dry matter tonnes/ha	Weight of plant part as % of total dry matter	Total N %	N-offtake kg N/ha	Organic N %	Nitrate-N %
Fruit (marketable)								
July	5.79	3.60	2.08	18.78	3.81	79.42	3.61	0.20
August	7.29	3.90	2.84	25.61	2.69	76.48	2.63	0.06
September	4.88	2.90	1.42	12.75	3.81	53.92	3.49	0.32
October	1.15	2.90	0.33	3.00	3.81	12.71	3.49	0.32
Mean		3.325						
Fruit (waste)								
July	0.06	3.60	0.02	0.19	3.81	0.82	3.61	0.20
August	0.47	3.90	0.18	1.65	2.69	4.93	2.63	0.06
September	1.43	2.90	0.41	3.74	3.81	15.80	3.49	0.32
October	0.39	2.90	0.11	1.02	3.81	4.31	3.49	0.32
Trimmings :								
July	0.44	7.60	0.33	3.01	6.26	20.93	5.49	0.77
September	0.34	6.30	0.21	1.93	6.35	13.60	3.84	2.51
Haulm :								
fruit	0.38	3.6	0.14	1.23	4.80	6.57	4.16	0.64
leaf	0.66	27.9	1.84	16.59	3.06	56.35	2.08	0.98
stem	1.24	9.4	1.17	10.50	3.99	46.51	1.86	2.13
roots							1.81	0.57
Total	24.52		11.10	100.00		392.34		

Notes :

1. Fruit yield is that recorded from all 250N replant crop plots of both varieties (Table 3 in report).
(no sig. difference between varieties).
2. Dry matter, N% and weight of trimmings and haulm are based on 20 plants sampled from the 250N replant crop Jessica plot.
3. Plant population = 5,620/acre = 1.39 plants/m²
4. Dry matter, organic N% and NO₃-N were measured on a sample of marketable fruit from the 250N Jessica plot ;
the same values were used for waste fruit

Total applied feed for 4 plants	1456 litres
Total applied feed per m ² (1461.52/4*1.39)	506 litres/m ²
Total applied feed per ha	5,060,684 litres
Average total-N content of applied feed	198 mg/litre
Average total-N (NH ₄ +NO ₃) applied	1002 kg/ha
Total run-off for 4 plants	512 litres
Total run-off per m ²	178 litres/m ²
Total run-off per ha	1,780,243 litres
Average total-N conc. in run-off	235.08 mg/litre
Average total-N content of run-off	418 kg/ha

INPUT

OUTPUT

BALANCE

Applied feed

1002

Crop offtake

392

Run-off

418

811

191