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22 Mar. – 4 Aug. 2020

Demo Plot # 4

Crops : B e e f T o m a t o

**Location of Demo Plot : Cibodas, Lembang,
West Java – Indonesia**

by Google Maps

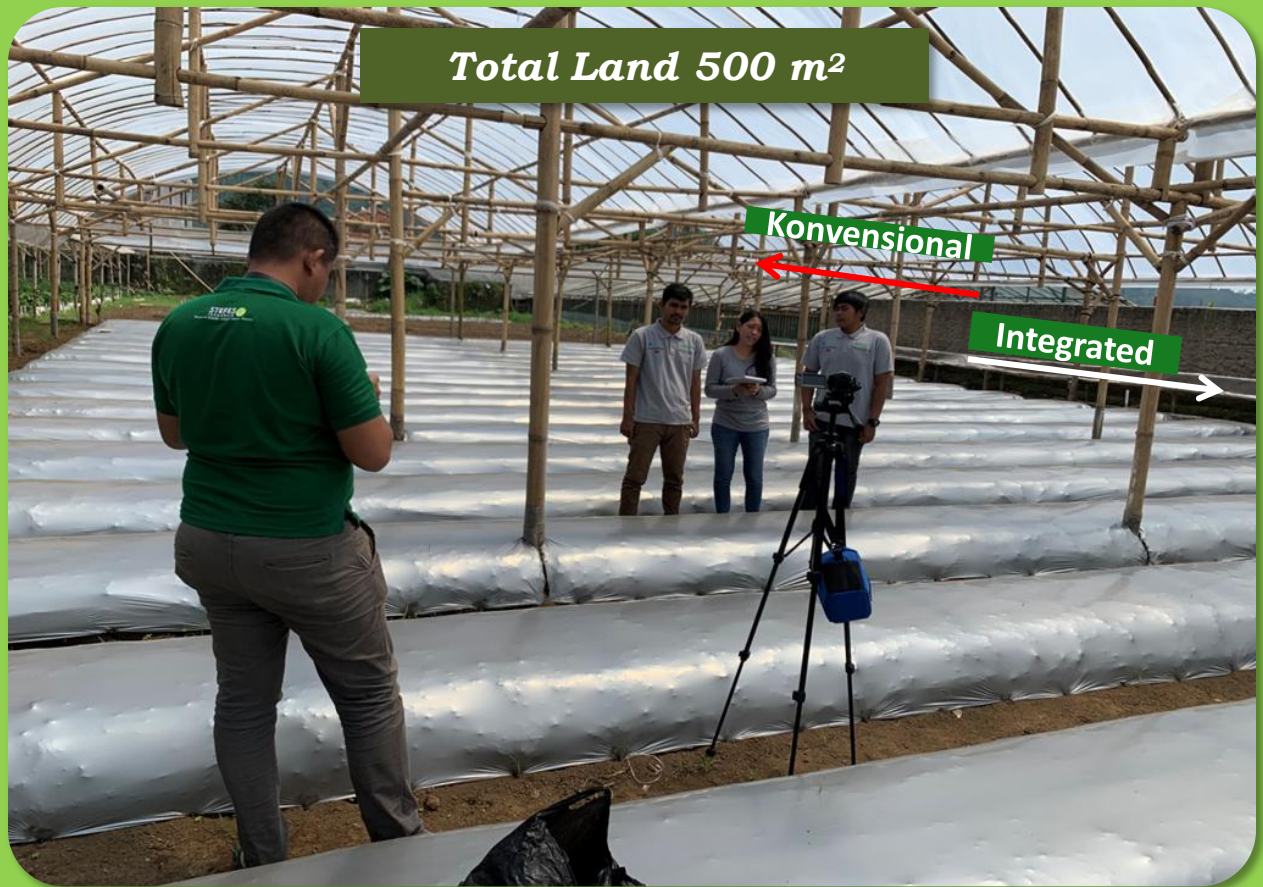
<https://maps.app.goo.gl/Tq9rQLNTuBJQSQR6>

Beef Tomato

Land Preparation

2 – 21 Mar. 2020

Konventional		Integrated
	<u>Basic fertilizer :</u>	
1800 kg	Chicken Manure	1800 kg
0 kg	Vermicompost	250 kg
5 kg	Pospat (TSP)	5 kg
50 kg	Dolomit	50 kg
0 kg	Soil Conditioner	0.1 kg





Konventional

Maintenance fertilizer :

24 kg	AB - MIX	18 kg
5 kg	Urea (ZA)	0 kg
5 kg	KNO - White	0 kg
5 kg	KCL	3.8 kg
5 kg	MKP	4 kg
10 kg	Boron	0 kg
0 kg	Organic Fertilizer	1.5 kg
	Pesticide	



Integrated

Beef Tomato

Planting

22 March 2020

Seeds - Grafting : Rijwan
Plant. Dist. : 50 x 50 CM
Konventional : 500 Plants
Integrated : 500 Plants

Beef Tomato
Observation Data
30 March 2020 (8 DAP)

8 DAP	Konv. Plant High (cm)	Integ. Plant High (cm)
1.	34.0	36.0
2.	29.0	29.0
3.	23.0	30.5
4.	24.0	27.0
5.	27.0	34.0
6.	26.0	23.0
7.	22.0	28.0
8.	25.0	28.0
9.	29.0	32.0
10.	30.0	28.0
	26.9	29.6

Early Growth :
Integrated Plot are faster than konventional plot

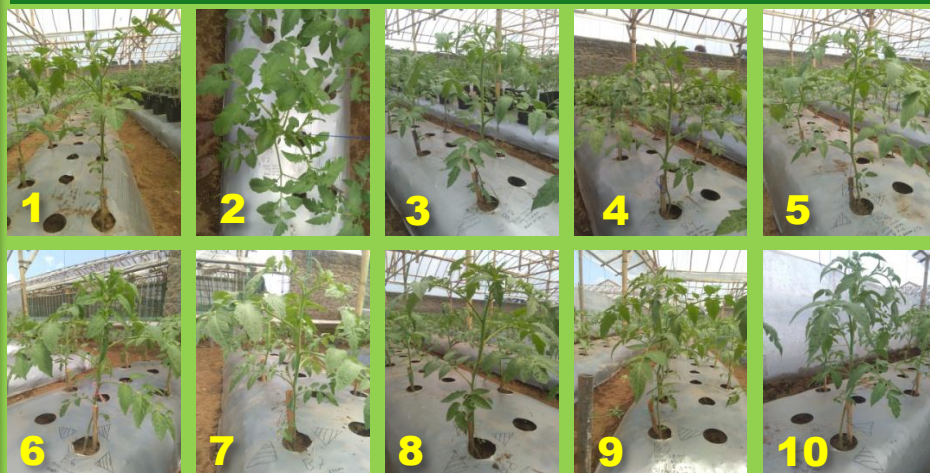


B e e f T o m a t o

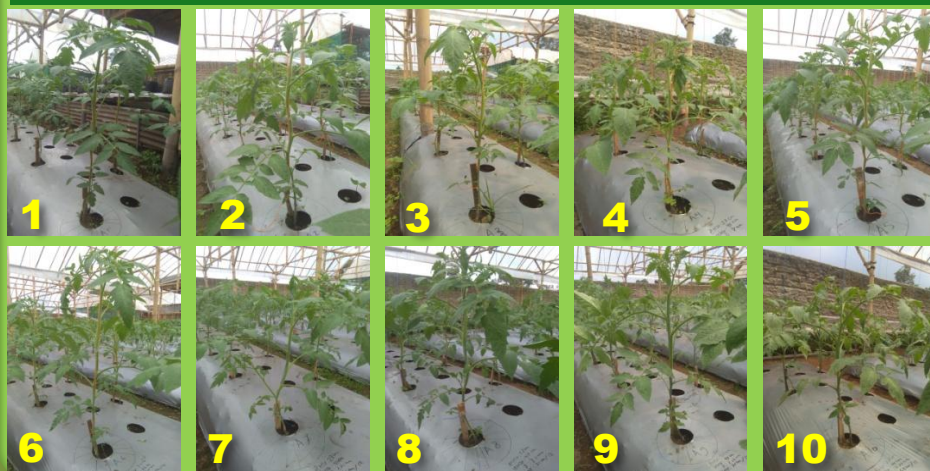
Observation Data

6 April 2020 (15 DAP)

Konventional (sampling 1 – 10)



Integrated (sampling 1 – 10)



15 DAP	Konventional			Integrated		
	Plant High (cm)	Branch	Stem D. (mm)	Plant High (cm)	Branch	Stem D. (mm)
1.	48.0	10	6.3	54.0	10	7.7
2.	48.0	10	7.0	43.0	11	7.6
3.	40.0	11	7.5	43.0	10	7.9
4.	44.0	11	7.0	42.0	10	8.0
5.	43.0	12	7.0	52.0	12	8.4
6.	41.0	10	7.5	55.0	12	9.7
7.	36.0	10	5.9	41.0	10	7.7
8.	46.0	10	6.8	47.0	12	8.1
9.	46.0	11	6.5	49.0	11	8.2
10.	45.0	10	6.8	44.0	10	7.8
	43.7	10.5	6.8	47.0	10.8	8.1



Beef Tomato

Observation Data

12 April 2020 (21 DAP)

Konventional (sampling 1 – 10)



Integrated (sampling 1 – 10)



21 DAP	Konventional		Integrated	
	Plant High (cm)	Branch	Plant High (cm)	Branch
1.	72.0	13	80.0	11
2.	71.0	12	69.0	12
3.	60.0	12	67.0	13
4.	68.0	13	65.0	13
5.	66.0	13	75.0	14
6.	62.0	12	84.0	14
7.	55.0	10	60.0	12
8.	60.0	13	71.0	13
9.	62.0	13	73.0	12
10.	63.0	12	63.0	11
	63.9	12.3	70.7	12.5





Konventional



Integrated



Length Root (cm)

Konventional

Integrated

34

32

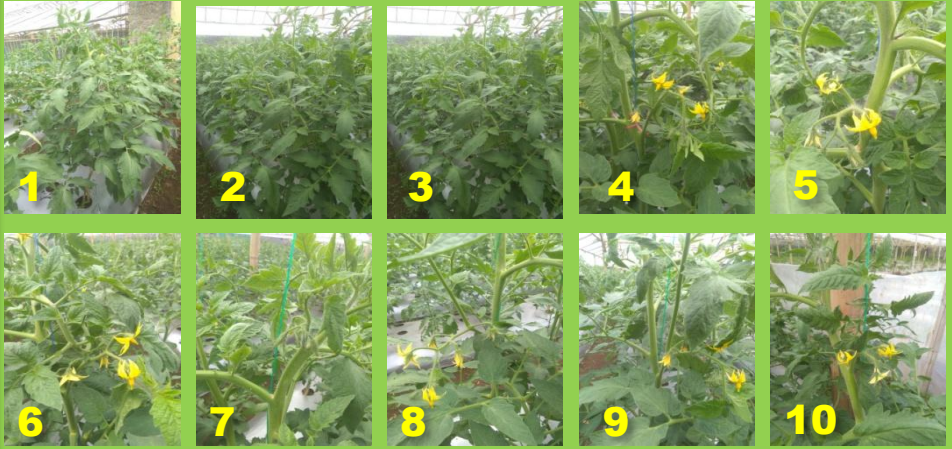
Beef Tomato

Observation Data

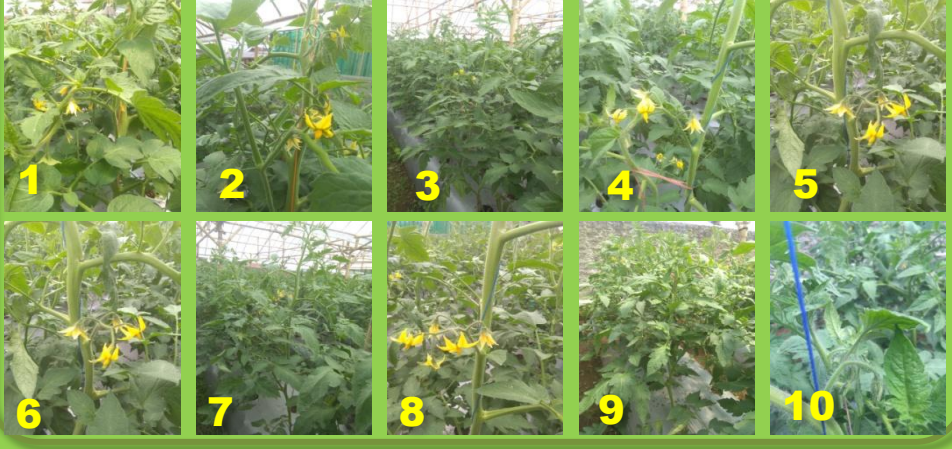
14 April 2020 (21 DAP)

B e e f T o m a t o
M a i n t e n a n c e
21 April 2020 (30 DAP)

Konventional (sampling 1 – 10)



Integrated (sampling 1 – 10)



30 DAP	Konventional		Integrated	
	Branch	Young Fruits	Branch	Young Fruits
1.	17.0	19	19.0	11
2.	15.0	19	17.0	16
3.	17.0	11	17.0	5
4.	22.0	16	17.0	16
5.	18.0	20	17.0	11
6.	16.0	15	17.0	11
7.	18.0	18	20.0	4
8.	16.0	11	17.0	11
9.	17.0	11	21.0	10
10.	15.0	6	16.0	11
	17.1	14.6	17.8	10.6

Young Fruits : 1 - 1.5 cm



Beef Tomato

Maintenance

21 April 2020 (30 DAP)



Phytophthora light attack :

- *Konventional Plot, overcome with pesticides*
- *Integrated Plot resolved with Herbagreen Protect F*



Light Shoots Curly Attack (virus) :

- *Konventional Plot treated with pesticides*
- *Integrated Plot resolved with Herbagreen Z20 and Herbagreen Protect V*





Konventionel



Integrated

Beef Tomato

Maintenance

11 May 2020 (50 DAP)



Shot on realme C2



Beef Tomato

Observation data

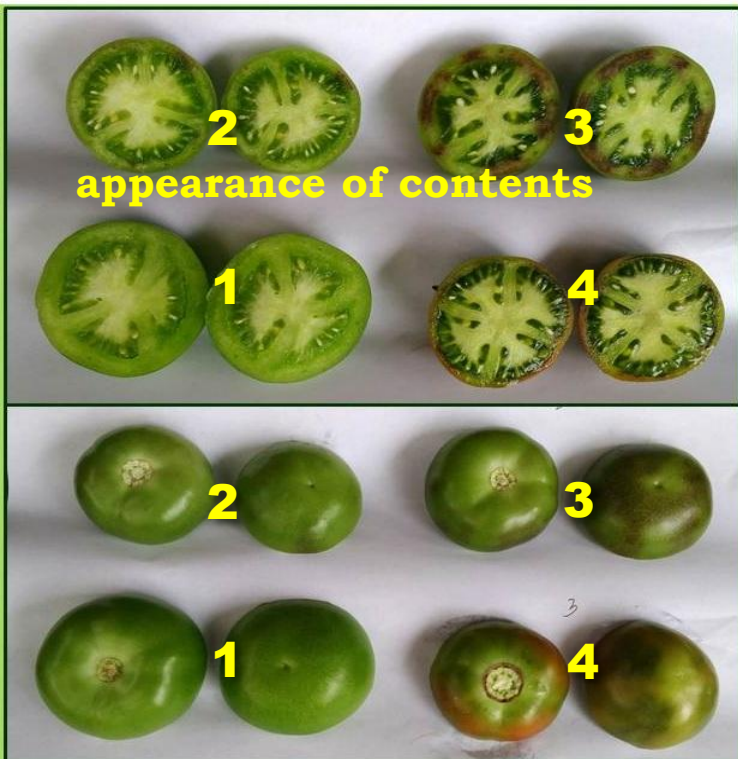
11 May 2020 (50 DAP)



caterpillars



minor damage to advanced damage



1 : Normal Fruit

Fruit abnormal :

2 : Minor Damage

3 : Medium Damage

4 : Advanced Damage

Beef Tomato

Observation data

17 May 2020 (57 DAP)

Pest - disease problems and fruit problem

	Konventional	Integrated
Virus (plant)	22	24
Fruit Abnormal (plant)	4	20
Caterpillar (plant)	2	15

Fruit Comparison

	Konventional			Integrated		
	small	medium	big	small	medium	big
1	6	5	4	7	8	4
2	6	2	6	11	4	5
3	4	3	0	6	1	4
4	5	10	5	1	5	3
5	3	4	3	6	8	4
6	9	7	3	3	2	6
7	8	3	0	3	5	4
8	10	7	0	6	3	4
9	5	5	3	3	5	4
10	3	8	1	8	2	3
	5.9	5.4	2.5	5.4	4.3	4.1

Small : < 2 cm ; medium : 2 – 4 cm ; big : > 4 cm





Konventional



Integrated

Harvest (DAP)

Konventional

Integrated

70

72

Beef Tomato

Harvest

1 - 3 June 2020 (70 - 72 DAP)



Grade C

Grade A - B

Example :
Sorting fruit by grade per
Plot

Beef Tomato

Harvest Data

1 June 2020 (70 DAP)

Date	Konventional			Integrated		
	Grade			Grade		
	A - B	C	Off Grade	A - B	C	Off Grade
..... Kg Kg			
1-Jun-20	16.0	-	-	-	-	-
2-Jun-20	10.0	2.0	-	-	-	-
4-Jun-20	10.2	-	2.1	2.9	-	20.3
7-Jun-20	9.0	7.0	2.5	8.0	3.0	20.0
9-Jun-20	9.0	4.0	11.0	15.0	4.0	13.5
10-Jun-20	21.0	6.0	12.0	16.0	5.5	14.0
13-Jun-20	-	-	-	-	5.0	-
14-Jun-20	52.0	17.0	14.0	40.0	15.0	20.0
15-Jun-20	23.0	-	-	22.0	-	-
16-Jun-20	22.0	5.0	3.0	18.0	4.0	12.0
18-Jun-20	53.0	16.0	4.0	40.0	9.0	18.0
21-Jun-20	28.0	-	-	39.0	18.0	15.0
23-Jan-00	103.0	35.0	31.0	56.0	18.0	25.0
25-Jan-00	67.0	19.0	16.0	15.0	8.0	7.0
26-Jan-00	17.0	5.0	5.0	10.0	6.0	7.0
28-Jan-00	49.0	14.0	12.0	23.0	6.0	7.0
29-Jan-00	23.0	6.0	7.0	29.0	19.0	18.0
30-Jun-20	50.0	24.0	14.0	61.0	25.0	29.0
2-Jul-20	68.0	15.0	7.0	-	-	-
3-Jul-20	50.0	18.0	10.0	49.0	10.0	14.0
6-Jul-20	78.0	52.0	36.0	54.0	26.0	22.0
8-Jul-20	49.0	27.0	15.0	64.0	43.0	26.0
10-Jul-20	74.5	-	-	42.5	-	-
12-Jul-20	26.0	9.0	12.0	48.0	21.0	22.0
14-Jul-20	42.0	23.0	22.0	29.0	14.0	13.0
16-Jul-20	34.0	16.0	11.0	25.0	13.0	12.0
18-Jul-20	37.0	14.0	11.0	26.0	16.0	11.0
20-Jul-20	22.0	15.0	7.0	20.0	15.0	16.0
22-Jul-20	16.0	13.0	7.0	20.0	14.0	11.0
24-Jul-20	50.0	25.0	10.0	40.0	20.0	15.0
26-Jul-20	17.0	20.0	18.0	11.0	19.0	17.0
28-Jul-20	12.0	12.0	9.0	12.0	12.0	7.0
30-Jul-20	6.0	10.0	12.0	5.0	10.0	13.0
4-Aug-20	15.0	7.0	10.0	4.0	9.0	14.0
	1,158.7	436.0	330.6	844.4	387.5	438.8
	60.2 %	22.6 %	17.2 %	50.5 %	23.2 %	26.3 %
Total	1,925.3			1,670.7		

Grade A-B = 150 – 400 gr / fruit
Grade C = 110 – 150 gr / fruit

OFF Grade :

- < 110 gr / fruit
- Fruit is not normal, fruit skin is damaged, etc

The problem of fruit damage and caterpillar attack before harvest resulted in lower integrated plot yields than konventional plot.

Precaution have been taken to prevent further fruit damage by

- Adding Boron and calcinite to the integrated plot
- reducing application of Protect F and Humic Acid to suppress Vegetative



Beef Tomato

Summary of Results Data

Selling Price (Rp)	Konvensional	Integrated
Grade A - B (Rp. 11,000)	Rp. 12,747,700	Rp. 9,288,400
Grade C (Rp. 6,000)	Rp. 2,616,000	Rp. 2,322,000
Off Grade (Rp. 3,000)	Rp. 991,800	Rp. 1,316,400
Total	Rp. 16,355,500	Rp. 12,926,800

Harvest & Cost Data	Konvensional	Integrated
Population (plants)	500	500
Total Yield (kg)	1925.3	1670.7
Yield per ha (ton)	77.0	66.8
Income = 29,282,300.-		
Land Preparation Costs (Rp.)	3,300,000	3,700,000
Maintenance Costs (Rp.)	1,437,500	2,162,500
Total Cost (Rp.)	4,737,500	5,862,500
Yield per plant (kg)	3.9*	3.3
Cost per Plant (Rp.)	9,475	11,725
Cost (Rp./ha/year)		
Profit (Rp./ha/year)		

* Normal production :
in condition such as during the Demonstration plot reached 4.2 kg per plant



Land Preparation - Planting costs (without leasing land & labor)

4											
beef tomato											
500 M2											
1000 plants											
konvensional 250 M2				integrated 250 M2				TOTAL			
Q		hrg	Rp.	Q		hrg	Rp.	Q		Rp.	
seed / Nursery	500.0	Plants	4,500.0	2,250,000.0	500.0	Plants	4,500.0	2,250,000.0	1,000.0	Plants	4,500,000.0
Mulsa	0.5	roll	650,000.0	325,000.0	0.5	roll	650,000.0	325,000.0	1.0	roll	650,000.0
Vermicompost	-	kg	-	-	250.0	kg	1,000.0	250,000.0	250.0	kg	250,000.0
chicken manure	1,800.0	kg	333.3	600,000.0	1,800.0	kg	333.3	600,000.0	3,600.0	kg	1,200,000.0
Dolomit	50.0	kg	2,000.0	100,000.0	50.0	kg	2,000.0	100,000.0	100.0	kg	200,000.0
humic acid	-	kg	-	-	0.1	kg	600,000.0	60,000.0	0.1	kg	60,000.0
TSP	5.0	kg	5,000.0	25,000.0	5.0	kg	5,000.0	25,000.0	10.0	kg	50,000.0
Seed Treatment :											
humic acid	-	kg	-	-	0.1	kg	600,000.0	60,000.0	0.1	kg	60,000.0
herbagreen Protect F	-	kg	-	-	0.1	kg	600,000.0	30,000.0	0.1	kg	30,000.0
			3,300,000.0					3,700,000.0		7,000,000.0	

Maintenance Costs (without labor)

4											
beef tomato											
500 M2											
1000 plants											
konvensional 250 M2				integrated 250 M2				TOTAL			
Q		hrg	Rp.	Q		hrg	Rp.	Q		Rp.	
AB MIX	24.0	kg	20,000.0	480,000.0	18.0	kg	20,000.0	360,000.0	42.0	kg	840,000.0
ZA	5.0	kg	5,000.0	25,000.0	-	kg	-	-	5.0	kg	25,000.0
KCL	5.0	kg	8,000.0	40,000.0	3.8	kg	8,000.0	30,000.0	8.8	kg	70,000.0
MKP	5.0	kg	35,000.0	175,000.0	4.0	kg	35,000.0	140,000.0	9.0	kg	315,000.0
KNO Putih	5.0	kg	24,000.0	120,000.0	-	kg	-	-	5.0	kg	120,000.0
BORON	10.0	kg	9,000.0	90,000.0	-	kg	-	-	10.0	kg	90,000.0
Humic Acid	-	kg	-	-	1.5	kg	600,000.0	900,000.0	1.5	kg	900,000.0
Spraying :											
Herbagreen Z20	-	kg	-	-	0.2	kg	600,000.0	105,000.0	0.2	Kg	105,000.0
Herbagreen Protect F	-	kg	-	-	0.3	kg	600,000.0	180,000.0	0.3	kg	180,000.0
Herbagreen Fluisan	-	kg	-	-	0.0	Ltr	4,000,000.0	40,000.0	0.0	Ltr	40,000.0
Pesticides :											
1. Bazooka 80 WP, 1 Kg	1.0	kg	85,000.0	85,000.0	1.0	Kg	85,000.0	85,000.0	2.0	Kg	170,000.0
2. Score 250 EC, 250 ML	1.0	Btl	165,000.0	165,000.0	-	Btl	-	-	1.0	Btl	165,000.0
3. Ammate 150 EC, 50 ML	0.5	Btl	75,000.0	37,500.0	0.5	Btl	75,000.0	37,500.0	1.0	Btl	75,000.0
4. Prevaton 50 SC, 100 ML	1.0	Btl	70,000.0	70,000.0	-	Btl	-	-	1.0	Btl	70,000.0
5. Ridomil Gold, 500 gr	0.5	Pack	150,000.0	75,000.0	0.5	Pack	150,000.0	75,000.0	1.0	Pac k	150,000.0
6. Herbagreen Protect V	-	Ltr	-	-	0.2	Ltr	600,000.0	135,000.0	0.2	Ltr	135,000.0
6. BOOSTER	1.0	Btl	75,000.0	75,000.0	1.0	Btl	75,000.0	75,000.0	2.0	Btl	150,000.0
			1,437,500.0					2,162,500.0		3,600,000.0	

Beef Tomato

Post Harvest Data



25 June 2020



27 June 2020



4 July 2020



	Integrated	Konventional
25 June 2020	322	296
27 June 2020	319	292
4 July 2020	307	283
Lose Weight	4.7 %	4.4 %



Application of Planting - Harvesting

Konventional = 250 M2

Time		Fertilization - Spraying			Immersed / Flush the Fertilizer	Spraying of Pesticide - Fertilizer
Date	DAP	Immersed	Flush	Spray		
22 Mar. 2020	0					
24 Mar. 2020	2			Pesticides		Endure + Amistartop
30 Mar. 2020	8		AB Mix		1.2 Ltr per 100 ltr of water	
				Pesticides		Endure + Amistartop
2 Apr. 2020	11		AB Mix		1.2 Ltr per 100 ltr of water	
6 Apr. 2020	15		AB Mix		1.2 Ltr per 100 ltr of water	
				Pesticides		Score + Prevathon
9 Apr. 2020	18		AB Mix		1.2 Ltr per 100 ltr of water	
13 Apr. 2020	22		AB Mix		1.2 Ltr per 100 ltr of water	
				Pesticides		Score + Prevathon + Demolish
16 Apr. 2020	25		AB Mix		1.0 Ltr per 100 Ltr of Water	
23 Apr. 2020	32		AB Mix		1.0 Ltr per 100 Ltr of Water	
24 Apr. 2020	33		KNO		KNO : 5 Kg	
			Boron		Boron : 5 Kg	
			TSP		TSP : 5 Kg	
					Mix Kompos	
3-May-20	42		AB Mix		AB Mix : 1.2 Ltr	
			Boron		Boron : 2.5 kg	
			MKP		MKP : 2.5 Kg	
			KCL		KCL : 2.5 Kg	
				Pesticides		Bazoka + Amistartop+ Prevathon
10-May-20	49		AB Mix		AB Mix : 1.0 Ltr	
			Boron		Boron : 0.5 Kg	
			MKP		MKP : 0.5 Kg	
			NPK Glower		NPK Grower : 0.5 Kg	
				Pesticides		Bazoka + Amistartop+ Ridomil
			AB Mix		AB Mix : 1.0 Kg	This application was repeated until the application on August 2, 2020 and Pesticides countinued
			Boron		Boron : 0.5 Kg	
			MKP		MKP : 0.5 Kg	
			NPK Glower		NPK Grower : 0.5 Kg	
17-May-20	56					
24-May-20	63					
7-Jun-20	70					
14-Jun-20	77					
21-Jun-20	84					
28-Jun-20	91					
5-Jul-20	98					
12-Jul-20	105					
19-Jul-20	112					
26-Jul-20	119					
2-Aug-20	126					

Application of Planting - Harvesting

INTEGRATED = 250 M2

Time		Fertilization - Spraying			Immersed / Flush the Fertilizer	Spraying of Pesticide - Fertilizer
Date	DAP	Immersed	Flush	Spray		
22 Mar. 2020	0			Humic Acid		Humic Acid : 0.100 kg
24 Mar. 2020	2			HG Protect F (1) Single		HG Protect F : 0.050 kg
30 Mar. 2020	8		AB Mix, KCL, MKP		AB Mix : 1.2 Ltr KCL : 0.25 Kg	
			Humic Acid		MKP : 0.27 Kg	
				HG Z20 + Pest.	Humic acir : 0.200 kg	HG Z20 : 0.025 Kg
						Mix Pesticides
6 Apr. 2020	15		AB Mix, KCL, MKP		AB Mix : 1.2 Ltr KCL : 0.25 Kg	
			Humic Acid		MKP : 0.27 Kg	
				HG Fluisan	Humic acir : 0.200 kg	HG Fluisan : 0.0055 Ltr, Single
13 Apr. 2020	22		AB Mix, KCL, MKP		AB Mix : 1.2 Ltr KCL : 0.25 Kg	
			Humic Acid		MKP : 0.27 Kg	
				HG Protect F Mix Pest.	Humic acir : 0.200 kg	HG Protect F : 0.038 Kg
20 Apr. 2020	29		AB Mix, KCL, MKP		AB Mix : 1.2 Ltr KCL : 0.25 Kg	
			Humic Acid		MKP : 0.27 Kg	
				HG Z20	Humic acir : 0.200 kg	HG Z20 : 0.025 Kg
				Mix HG Protect V		HG Protect F : 0.038 Ltr
27 Apr. 2020	36		AB Mix, KCL, MKP		AB Mix : 1.2 Ltr KCL : 0.25 Kg	
			Humic Acid		MKP : 0.27 Kg	
				HG Protect F Mix Pest.	Humic acir : 0.200 kg	HG Protect F : 0.038 Kg
						Mix Pesticides
3-May-20	42		AB Mix, KCL, MKP		AB Mix : 1.2 Ltr KCL : 0.25 Kg	
			Humic Acid		MKP : 0.27 Kg	
				HG Z20	Humic acir : 0.200 kg	HG Protect F : 0.025 Kg
				Mix HG Protect V		HG Protect V : 0.038 Ltr
10-May-20	49		AB Mix, KCL, MKP		AB Mix : 2 Ltr KCL : 0.5 Kg	
			Humic Acid		MKP : 0.5 Kg	
				HG Protect F Mix Pest.	Humic acir : 0.100 kg	HG Protect F : 0.038 Kg
						Mix Pesticides
			AB Mix, KCL, MKP		AB Mix : 2 Ltr KCL : 0.5 Kg	This application was repeated until the application on August 2, 2020, HG Protect F was stopped, HG Z20 and HG Protect Vand Pesticides countinued
			Humic Acid		MKP : 0.5 Kg	
					Humic acir : 0.100 kg	
17-May-20	56					
24-May-20	63					
7-Jun-20	70					
14-Jun-20	77					
21-Jun-20	84					
28-Jun-20	91					
5-Jul-20	98					
12-Jul-20	105					
19-Jul-20	112					
26-Jul-20	119					
2-Aug-20	126					