MIVENA
SPECIALTY FERTILIZER COMPANY

JULY 2025

Strawberry Tray Plant production

It's all about timing

Mivena B.V. | Author: Stefan Hoefnagel | August 2025

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About Mivena

Mivena is a Dutch family-owned enterprise that specializes in specialty fertilizers, emphasizing efficiency, precision, and sustainability.
An essential contribution to enhancing plant vitality and fostering a more biodiverse environment with minimal ecological impact and energy consumption.

Mivena operates across multiple sectors, including greenhouse horticulture, field cultivation, and professional peat management, with an emphasis on the European market.
Our team of twenty professionals operates from our headquarters in Waalwijk and our manufacturing facility in Maastricht.

Mivena currently maintains a selective partnership with over 50 distributors across approximately 40 countries, primarily in Europe.

What is the purpose of topdressing tray plants?

Topdressing with Horti-Cote Plus 16+6+13+2MgO+TE 2M is a prudent enhancement to the current fertilization strategy for strawberry tray plants in substrate. Particularly from September onward, it provides an effective means to meet the plant's growing nutrient requirements, complementing the application of water-soluble fertilizers.

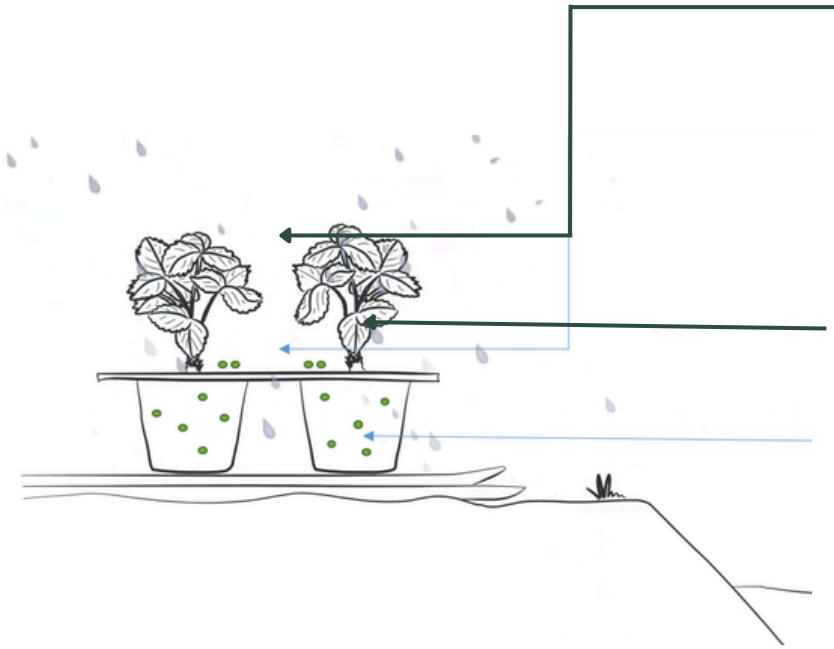
Key advantages:
Targeted nutrition when required: Two months of release effectively addresses the needs during the late cultivation phase, eliminating the risk of leaching.
Sustainable and future-ready: Horti-Cote® Plus CRF features a biodegradable coating (Durable CRF), compliant with forthcoming EU regulations.
Enhanced production potential in plants. 50-60% additional flower spikes.
Efficiency: Reduced labor, minimized losses, and enhanced nutrient utilization.

Topdressing is not a substitute; rather, it is a potent enhancement designed to achieve greater yields and promote sustainable cultivation during the critical autumn season.

Fundamental fertilization with Topdress application rate

Apply a base fertilizer in conjunction with a topdressing and fertigation schedule. (Refer to the fertigation schedule page)

Strawberry Trayplants



Application: Topdressing
16+6+13+2MgO+TE 2M

Tray 225cc
0,8 gram / plant (3,5kg / m3)

Mini-Tray 135cc
0,5 gram / plant (4,0kg / m3)

Application: Mixed
16+6+11+2MgO+TE 6M

Tray 225cc
0,8 gram / plant (3,5kg / m3)

Mini-Tray 135cc
0,5 gram / plant (4,0kg / m3)

**Trace elements: Mn - Fe Foliar | Granusol WSF*

Standard guidance for tray plants, including fundamental fertilization.

Horti-Cote Plus 16-6-11-2MgO-TE 6M

Recommendation: approximately 3 kg per cubic meter, contingent upon variety, indoor or outdoor conditions, and whether the plant is an everbearer or short day type.

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Low initial release/EC, optimal for propagating tray plants.

Horti-Cote Plus grain size of 2-3mm is optimal. It provides excellent EC distribution in the tray, even during topdressing.

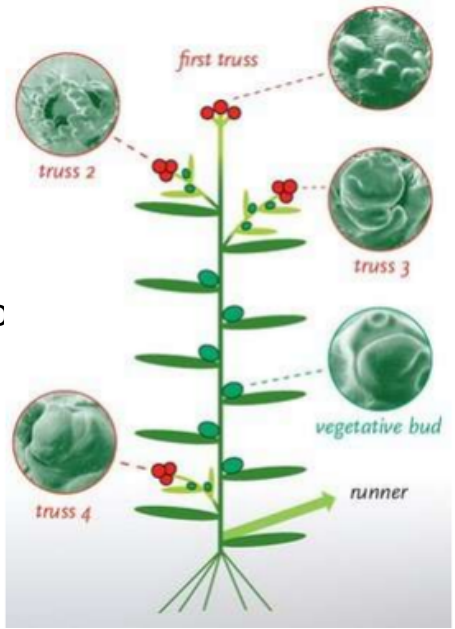
No exponential release occurs at elevated temperatures. It is safe for use.

Objective:

Vitale tray plant
- Begins with proper nutrition.

Preferred plan type
- Optimal management of cultivatic

Environmental and water quality
- O.a. REHABILITATION



Data & Statistics:

Topdressing with Horti-Cote® Plus 2M has demonstrated an enhancement in the production potential of tray plants, including both June-bearing and everbearing varieties, with minimal additional labor when executed properly.

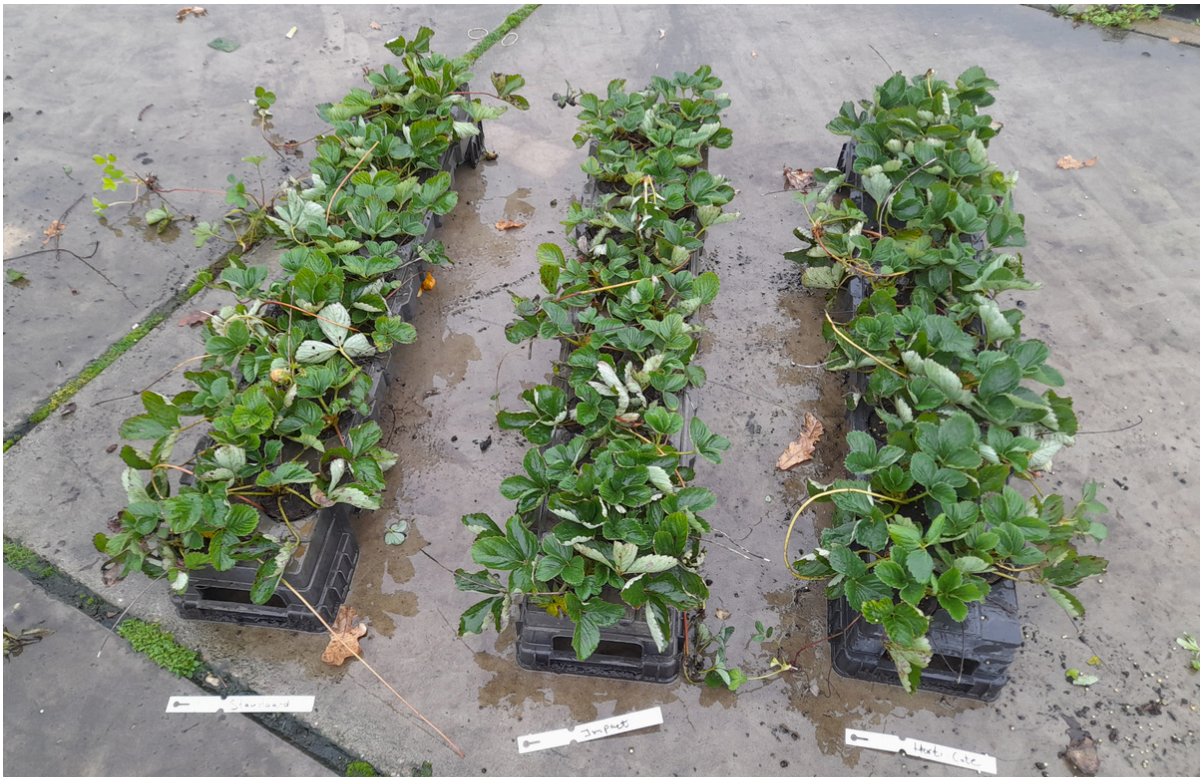
1. Hoogstraten Testing Facility
Sonsation

2. Pairing
Darselect, Dream, Magnum, Elsanta

3. Delphy
Favorite

Topdressing practical assessment

Verpaalen Soft Fruit 2024 Magnum – Elsanta



Left: Standard Schedule Middle: Standard Schedule + Mivena Org-Min Right: Standard Schedule with Horti-Cote Topdress 2M

Flower Bud Research, November 20, 2024, Planta-Logica

Verpaalen Soft Fruits Rijsbergen

	Average number of flower branches per plant	(% increase in flower branches)
Magnum		
Standard fertigation timetable	5,6	
September - Topdress Horti-Cote Plus 2M (1 gram per plant)	**8,4**	**+50%**
September Topdress Mivena Organic-Mineral (1 gram per plant)	8,6	+54%
Elsanta		
Standard fertigation timetable	4,2	
September - Topdress Horti-Cote Plus 2M (1 gram per plant)	**6,8**	**+62%**
September Topdress Mivena Organic-Mineral (1 gram per plant)	4,6	+10%

Applied research
Darselect & Dream 2023

🍓 *Verpaalen Rijsbergen (Darselect & Dream)*

Practical Application Topdress 2023

Objective: Conduct a practical assessment of topdressing Horti-Cote Plus 2M on June-bearing (Darselect) and everbearing (Dream) varieties.
Key findings:
Dream (ever-bearer): the highest number of flower clusters was observed with Horti-Cote Plus (6.0 per plant), surpassing other fertilizers.
Darselect (June-bearer): a comparable number of trusses to the control (4.6 vs 4.4); Horti-Cote produced significantly robust plants with excellent root development.
General appearance: consistent growth, robust roots, and vigorous plants when utilizing Horti-Cote Plus.
✅ ***Conclusion: Horti-Cote Plus 2M topdress fosters robust plants with significant yield potential for both June-bearing and everbearing varieties.***

Topdress Test: Darselect & Dream 2023

Object nr.	Ras	Omschrijving	Dosering Topdress
Mivena 1	Darselect	Horti-Cote Plus 16+6+13+2MgO+Te 2M	1 gr/plant
R&D 2	Darselect	R&D 19+04+12	1 gr/plant
R&D 3	Darselect	R&D Organisch 13-5-8	1 gr/plant
Controle 4	Darselect	Standaard bemesting	0 gr/plant

Object nr.	Ras	Omschrijving	Dosering Topdress
Mivena 5	Dream	Horti-Cote Plus 16+6+13+2MgO+Te 2M	1 gr/plant
R&D 6	Dream	R&D 19+04+12	1 gr/plant
R&D 7	Dream	R&D Organisch 13-5-8	1 gr/plant
Controle 8	Dream	Standaard bemesting	0 gr/plant

Plant	Ras	Aant. planten	Gewicht (gr.)	Cm2 blad*	Hoofdtros	1e natros	2de natros	Aant. Zijneuzen met bloem	Totaal trossen**
Mivena 1	Darselect	5	23.8	161.9	5.4	2.0	2.2	2.0	4.6
R&D 2	Darselect	0							
R&D 3 Organisch	Darselect	5	20.8	167.6	6.6	4.8	3.8	2.4	5.4
Controle 4	Darselect	5	24.2	153.5	6.5	5.6	3.8	1.6	4.4
Mivena 5	Dream	1	51.0	816.6	6.7	6.5	5.5	3.0	6.0
R&D 6	Dream	1	50.0	870.2	7.0	5.5	5.0	2.0	5.0
R&D 7 Organisch	Dream	1	46.0	780.7	7.0	6.5	5.0	1.0	4.0
Controle 8	Dream	0							

* Blad van Darselect was gemaaid voor inzending
**Gemiddeld aantal trossen per plant, inclusief trossen gevormd in zijneuzen

Organic objects 3 and 7 exhibit reduced rooting at the upper section of the tray.
Higher electrical conductivity was measured at the top of the tray for these two objects.

Hoogstraten Testing Facility
Sonsation

PROEFCENTRUM HOOGSTRATEN

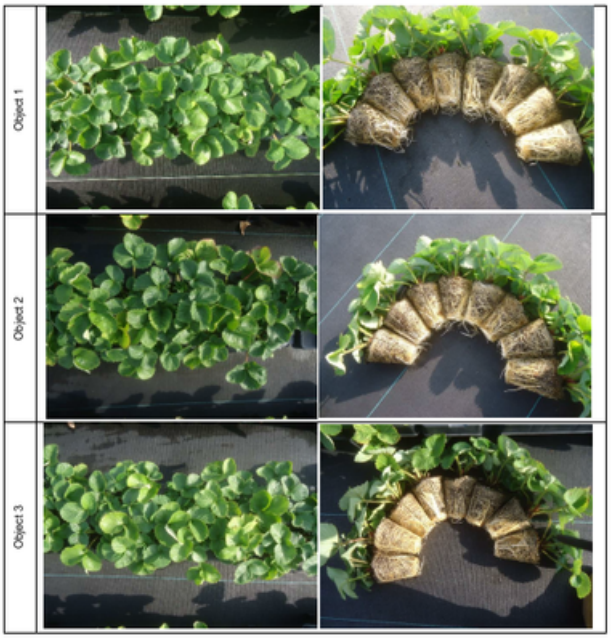
🔍 *Hoogstraten Testing Center (Sonsation)*

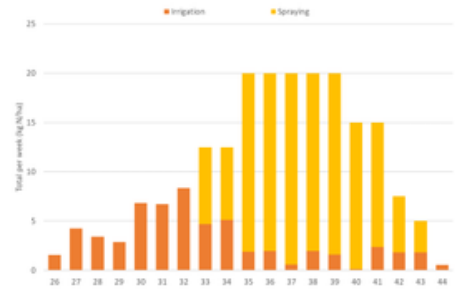
Objective: Substitute traditional fertigation with a single application of Horti-Cote Plus 2M after September. Following mid-September, objects 2 and 3 ceased to receive fertigation fertilizer.
Key findings:

Number of flower clusters: highest with Horti-Cote Topdress 2M at 3 kg/m³.
The quality of the fruit was outstanding across all samples, with 76–77% classified as large fruits.
Points of interest: The application necessitates precision (0.6 g/plant manually is labor-intensive yet effective).
Conclusion: 3 kg/m³ Horti-Cote Plus 2M serves as a comprehensive substitute for fertigation post-September, yielding superior harvest outcomes.

Table 3-1: Objects

Object nr.	Object	Description
1	Object 1	3 kg/m³ Horticote Plus 6M + full fertigation by spraying
2	Object 2	3 kg/m³ Horticote Plus 6M + fertigation by spraying until 3 September 2021 + 2 kg/m³ Horticiote Plus 2M on 6 September 2021
3	Object 3	2 kg/m³ Horticote Plus 6M + fertigation by spraying until 3 September 2021 + 3 kg/m³ Horticiote Plus 2M on 6 September 2021





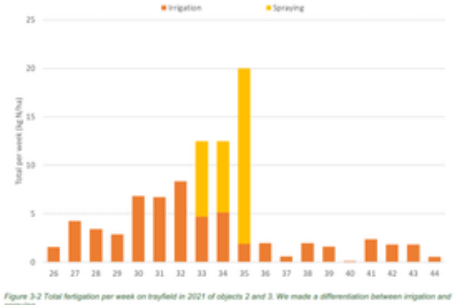


Table 4-1 Amount of flower trusses (21 March 2022)

Object	Amount of flower trusses per plant	
Statistics	*F(2,9)=3,798 p=0,064*	
Object 1	3,7	ns
Object 2	3,8	ns
Object 3	4,4	ns

Table 4-2: Yield (kg/pl and kg/m²) and grading (kg/m²)

Object	kg/plant		kg/m²		Large 2A	Large A	Small	Misshapen	Waste
Statistics	*F(2,9)=20,876 p=0,0004*		*F(2,9)=20,876 p=0,0004*		*F(2,9)=0,480 p=0,634*	*X^2(2)=3,231 p=0,199*	*F(2,9)=1,298 p=0,320*	*F(2,9)=1,080 p=0,380*	*X^2(2)=0,741 p=0,690*
Object 1	0,48	b	5,85	b	3,27 ns	1,19 ns	1,35 ns	0,03 ns	0,00 ns
Object 2	0,45	a	5,56	a	3,09 ns	1,14 ns	1,29 ns	0,03 ns	0,02 ns
Object 3	0,50	c	6,21	c	3,32 ns	1,46 ns	1,38 ns	0,05 ns	0,01 ns

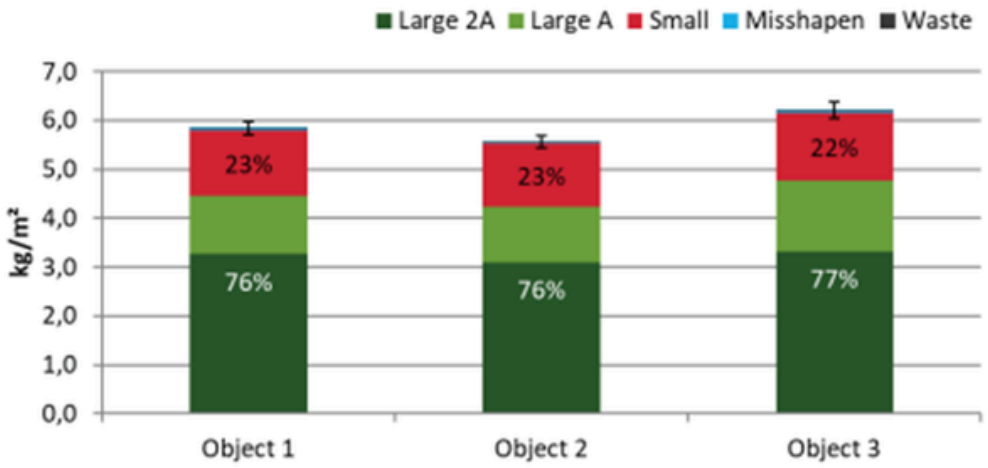


Figure 4-1: Yield and grading (kg/m²)

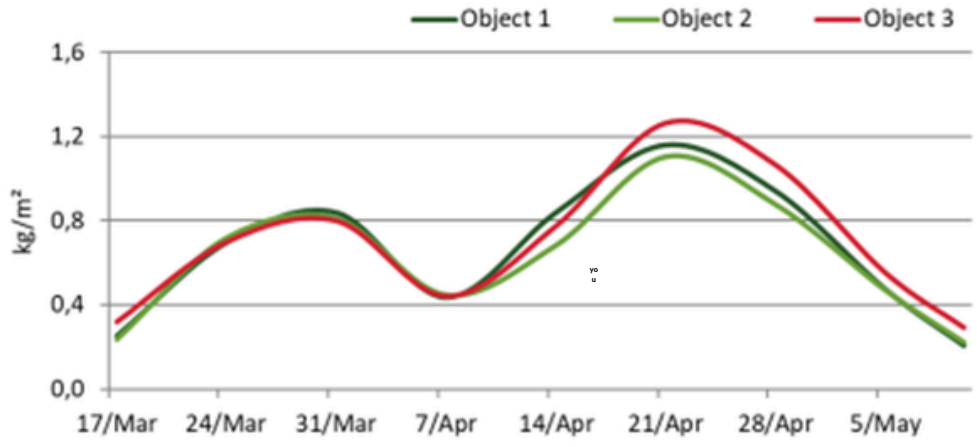


Figure 4-2: Harvest pattern (kg/m²)

Delphy – Berry Plaza Favorite

🌼 *3. Preferred (everbearing) trial Delphy*

Objective: To assess the impact of Horti-Cote Plus 2M on crown development and production potential in tray cultivation.

Objects:
Practical fertigation timetable
Practical fertigation schedule + 0.5 grams per tray of Horti-Cote Plus 16+6+13+2MgO+TE 2M
Practical fertigation schedule + 1.0 gram per tray Horti-Cote Plus 16+6+13+2MgO+TE 2M

Key insights:
The application of 1.0 g/plant yielded the majority of plants with either 2 or 3 crowns, specifically 92% exhibiting two crowns and 8% displaying three crowns.
Visually distinct, larger dark green plants at 1.0 g/plant.
Expected nitrogen application significantly increased from 71.5 kg N/ha to 109.9 kg N/ha at a rate of 1.0 g/plant.

Conclusion:
Horti-Cote Plus 2M serves as an excellent supplementary nitrogen source, leading to enhanced visual and physiological quality in plants.

🎯 ***Advice:***
Topdressing with 0.6–1.0 g/plant of Horti-Cote® Plus 2M in September fosters optimal vegetative growth and flower initiation. This method, while more labor-intensive, has demonstrated its effectiveness. If feasible, it can substantially enhance the production capacity of your tray plants.

Results of 0.5 and 1 gram per plant in the Favori mini tray.

Delphy

Specifications of the first plant date:

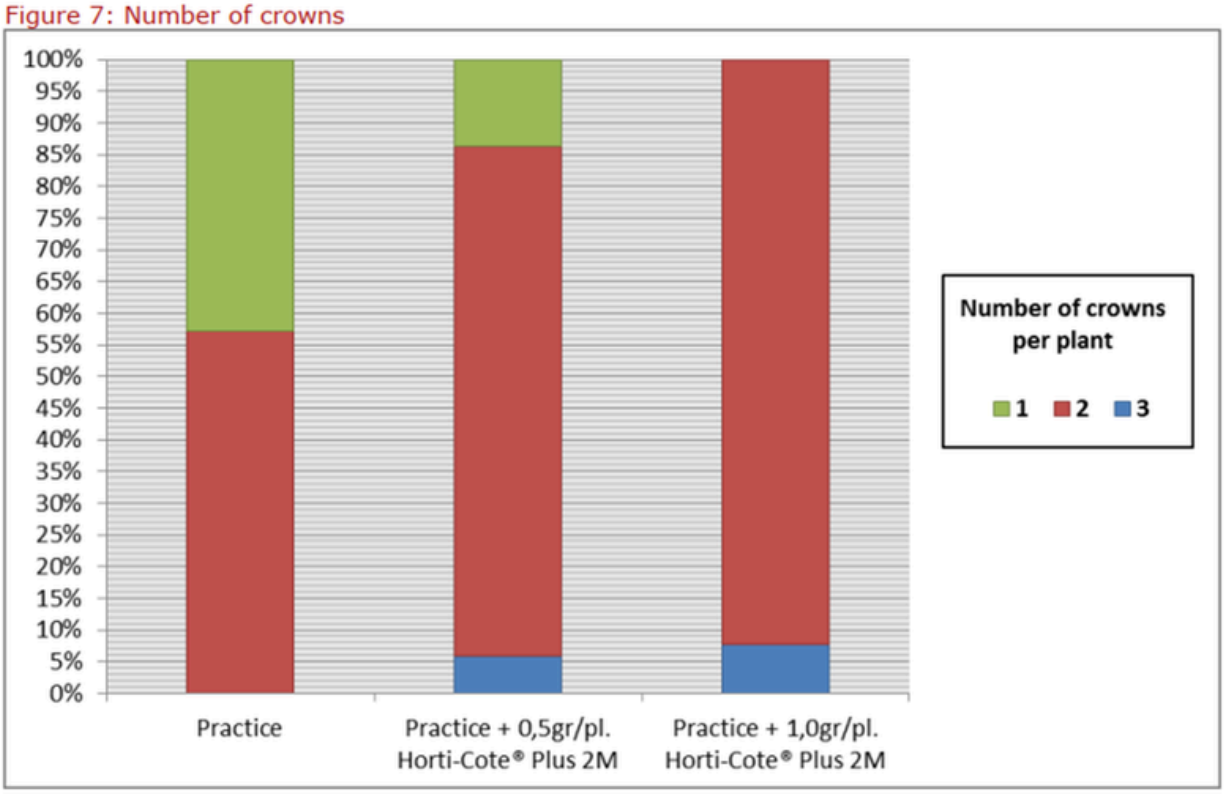
Start cultivation:	23-02-2019
End of cultivation:	..-..-2019
Variety:	Favori
Substrate:	Cocopeat
Plant density:	5 plants per running meter gutter
Planttype:	Minitray, cupsize 135cc
Objects:	Propagation strategy grower Berry Plaza
	Propagation strategy grower + 0,5gr. Horti-Cote Plus 2M
	Propagation strategy grower + 1,0gr. Horti-Cote Plus 2M
Response variables:	Yield (Class 1 big, class 1 small, class 2 and waste)
	Average fruit weight class 1 big
	Number of trusses after first flush
	Number of crowns after first flush
	Visual assessments (2018, 4x: week 34, 37, 41 & end propagation)
Plot size:	10m1 gutter (50 plants) per object

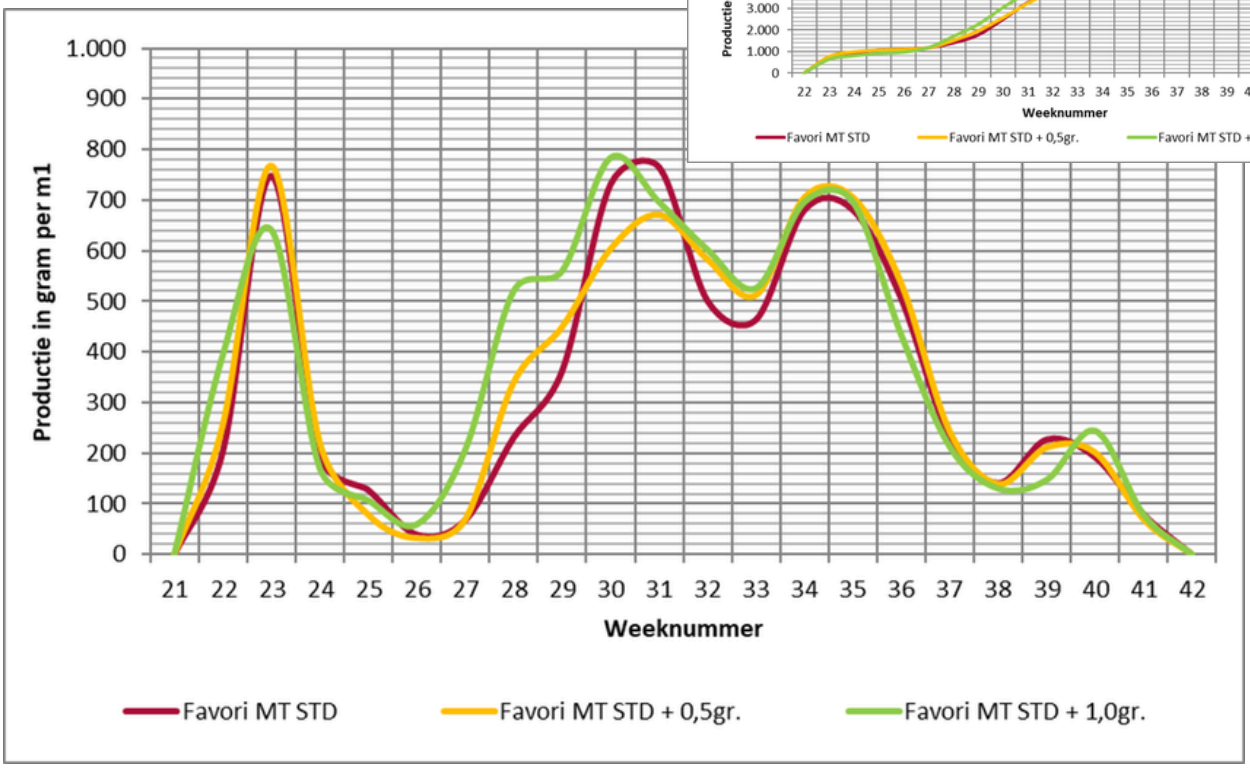
B

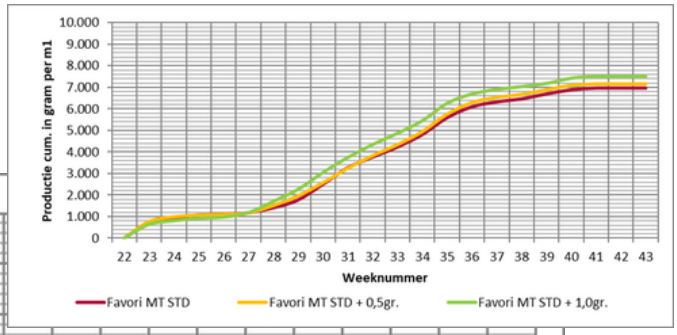
Specifications of the second plant date:

Start cultivation:	01-04-2019
End of cultivation:	21-10-2019
Variety:	Favori
Substrate:	Cocopeat
Plant density:	5 plants per running meter gutter
Planttype:	Minitray, cupsize 135cc
Objects:	Propagation strategy grower Berry Plaza
	Propagation strategy grower + 0,5gr. Horti-Cote Plus 2M
	Propagation strategy grower + 1,0gr. Horti-Cote Plus 2M
Response variables:	Yield (Class 1 big, class 1 small, class 2 and waste)
	Average fruit weight class 1 big
	Number of trusses after first flush
	Number of crowns after first flush
	Labor requirement crop maintenance
	Visual assessments
Plot size:	35m1 gutter/1 row (175 plants) per object

Figure 7: Number of crowns







N-release per week Horti-Cote Plus Topdress 2M

Release N - 100 L-m3 per ha substraat 225cc tray

Horti-Cote Plus CRF 16+6+11+2MgO+TE 6M (basis bemesting)					Horti-Cote Plus CRF 16+6+13+2MgO+TE 2M (Topdress toepassing)						
Dosering:	3 kg / L-m³ Basis				0,90 Gram / plant						
	4 kg / L-m³ Topdress										
	Tray 225cc 100 L-m³ / ha				Tray 225cc 100 L-m³ / ha				Totaal-N Tray 225 CC 100L-M³ / ha		
Week	Gem.	Temp +	Temp -	1 kg / L-m³	Gem.	Temp +	Temp -	1 kg / L-m³		Temp +20%	Temp -20%
25	2,25	2,70	1,80	0,75	0,00	0,00	0,00	0,00	2,25	2,70	1,80
26	2,46	2,95	1,97	0,82	0,00	0,00	0,00	0,00	2,46	2,95	1,97
27	2,79	3,35	2,23	0,93	0,00	0,00	0,00	0,00	2,79	3,35	2,23
28	3,18	3,82	2,54	1,06	0,00	0,00	0,00	0,00	3,18	3,82	2,54
29	3,36	4,03	2,69	1,12	0,00	0,00	0,00	0,00	3,36	4,03	2,69
30	3,42	4,10	2,74	1,14	0,00	0,00	0,00	0,00	3,42	4,10	2,74
31	3,54	4,25	2,83	1,18	0,00	0,00	0,00	0,00	3,54	4,25	2,83
32	3,48	4,18	2,78	1,16	0,00	0,00	0,00	0,00	3,48	4,18	2,78
33	3,42	4,10	2,74	1,14	0,00	0,00	0,00	0,00	3,42	4,10	2,74
34	3,36	4,03	2,69	1,12	0,00	0,00	0,00	0,00	3,36	4,03	2,69
35	3,30	3,96	2,64	1,10	0,00	0,00	0,00	0,00	3,30	3,96	2,64
36	3,27	3,92	2,62	1,09	0,00	0,00	0,00	0,00	3,27	3,92	2,62
37	3,15	3,78	2,52	1,05	7,44	8,93	5,95	1,86	10,59	12,71	8,47
38	3,12	3,74	2,50	1,04	7,64	9,17	6,11	1,91	10,76	12,91	8,61
39	2,94	3,53	2,35	0,98	7,92	9,50	6,34	1,98	10,86	13,03	8,69
40	2,82	3,38	2,26	0,94	8,16	9,79	6,53	2,04	10,98	13,18	8,78
41	2,64	3,17	2,11	0,88	8,32	9,98	6,66	2,08	10,96	13,15	8,77
42	2,58	3,10	2,06	0,86	8,20	9,84	6,56	2,05	10,78	12,94	8,62
43	2,04	2,45	1,63	0,68	8,08	9,70	6,46	2,02	10,12	12,14	8,10
44	1,62	1,94	1,30	0,54	7,92	9,50	6,34	1,98	9,54	11,45	7,63
45	1,20	1,44	0,96	0,40	7,44	8,93	5,95	1,86	8,64	10,37	6,91
46	1,08	1,30	0,86	0,36	6,92	8,30	5,54	1,73	8,00	9,60	6,40
47	0,84	1,01	0,67	0,28	3,32	3,98	2,66	0,83	4,16	4,99	3,33
48	0,66	0,79	0,53	0,22	2,48	2,98	1,98	0,62	3,14	3,77	2,51
49	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
50	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
51	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
52	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00	0,00
	62,52	75,02	50,02	20,84	83,84	100,61	67,07	20,96	146,36	175,632	117,088

How to properly apply to the tray:

The most significant challenge lies in the proper application of Horti-Cote Plus to the tray. It is essential to apply it centrally, ensuring uniform distribution across both rows.

There are several methods to apply Horti-Cote Topdress to the tray.

1. *Mechanically operated doser mounted on wheels.*
2. *Doser on Afrang machine*
3. *Doser mounted on crop cart.*
4. *Wide-throw (least efficient)*

Technical Data Sheet – TDS
Horti-Cote Plus 16-6-13-2MgO-TE 2M

The specialist in **specialty fertilizers**

MIVENA
SPECIALTY FERTILIZER COMPANY

EN Technical Data Sheet Version: 2.3 Version Date: 2024-10-02

Horti-Cote®Plus CRF 16+6+13+2MgO+TE, 2M

PFC 1 (C)(I)(a)(ii)
Controlled Release NPK mineral macronutrient fertilizer with magnesium and micronutrients.

Analysis & declared nutrient contents by mass:

Component	Unit	Typical	
N, total	%	**16.00**	
NH_4	%	8.80	
NO_3	%	7.20	
urea	%	-	
P_2O_5	%	**6.00**	3% water-soluble phosphorus pentoxide 3% phosphorus pentoxide soluble in neutral ammonium citrate
K_2O	%	**13.00**	water-soluble potassium oxide, low in chloride
CaO	%	-	
MgO	%	**2.32**	water-soluble magnesium oxide
SO_3	%	16.80	water-soluble sulphur trioxide
B	%	0.004	water-soluble boron
Cu	%	0.080	water-soluble cupper
Fe	%	0.330	100% EDTA
Mn	%	0.130	water-soluble manganese
Mo	%	0.011	water-soluble molybdenum
Zn	%	0.080	water-soluble zinc

Benefits of Mivena Durable®CRF biodegradable coating:

- No swelling or leaching granules
- No exponential release at higher temperatures
- Optimal, unique and consistent low-start, high-end release
- Highest release (>90%) effectiveness within longevity period
- Minimal level of ammonium volatilization

Durable®CRF

Horti-Cote®Plus CRF
Controlled Release Fertilizer

Typical packaging: 20kg PE bag
Granules: typical size 1-3mm,
95% of which pass through 4.5mm sieve

Coated	Unit	Typical
N	%	100
P	%	100
K	%	100
TE	%	100

Application – General recommendations

	Low feeding	Average feeding	High feeding
Container Nursery stock	1-3 g/l	2-4 g/l	3-5 g/l
Pot & bedding plants	1-2 g/l	2-3 g/l	3-4 g/l
Soft-fruits substrate	1-2 g/l	2-4 g/l	4-5 g/l

The rate of nutrient releases can vary according to the temperature of the substrate. An adjustment of fertilisation may be necessary. Please contact us for specific recommendations and avoid over-fertilisation. To be used only where there is a recognized need. Do not exceed the application rate.

Transport, storage & packaging

- Delivered on pallets in 20kg PE bags with UV-cover or in 500 / 1000kg big bags.
- Transport and store between 5°C and 40°C. Avoid large temperature changes. Keep dry and in a well-ventilated place. Protect against frost, moisture and direct sunlight. Keep in original packaging.
- After opening, re-cover any unused bags with original UV-cover for optimal protection

Conclusion

Topdressing tray plants has demonstrated considerable effectiveness. Attaining the desired nutrient enhancement in September poses challenges with water-soluble fertilizers. In this context, topdressing with fertilizers proves to be significantly more effective. While growers are not yet fully equipped for this application, its adoption appears to be on the rise.
Pros and cons in succession.

1. Enhance the potential for plant production effectively.
Practical and official test results indicate that topdressing plants exhibit a greater proportion of flowering branches.

2. Enhance nutritional efficiency.
By strategically applying nutrients and minimizing leaching, you can substantially enhance yield. This approach conserves nutrients and reduces the risk of leaching into surface water.

3. Labor efficiency
Utilizing Topdress minimizes the need for fertigation or foliar feeding.

Any enhancement should be executed gradually, ensuring control, reliability, and user-friendliness are preserved.

MIVENA

SPECIALTY FERTILIZER COMPANY

Neem contact op met onze teeltspecialisten voor advies op maat.

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