

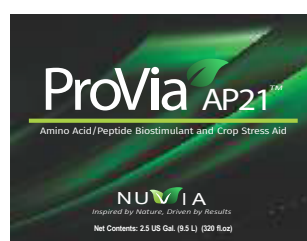
2014 CropSIL Rate Study on Thompson Seedless Grapes

Conducted by
National Research Center for Grapes
Pune, Maharashtra India (Year: 2013-14)



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STUDY:

- The experiment was conducted on 10yr old vines of Thompson Seedless Grapes
- CropSIL was evaluated at 3 different rates vs. Control.
- Foliar application 7 times at each pruning over the growing season.

RATES

CropSIL @ 0.5ml / Liter water	CropSIL @ 1ml / Liter water	CropSIL @ 1.5ml / Liter water
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TIMING

Treatments	FOUNDATION PRUNING	FRUIT PRUNING
FIRST SPRAY	6 -7 Leaf Stage	5-6 Leaf Stage
SECOND SPRAY	Sub Cane Pinching	Bunch Emergence
THIRD SPRAY	5 -7 Leaf Stage after sub cane pinching	Flowering
FOURTH SPRAY	Start of shoot maturity	Berry Setting
FIFTH SPRAY	Mature Shoot	8 - 10mm berry
SIXTH SPRAY	Mature Shoot	12mm berry
SEVENTH SPRAY	Mature Shoot	14 - 16mm berry

RESULTS

TABLE 1: Effect of CropSIL on growth parameters.

TREATEMENTS	SHOOT LENGHT (CM)	SHOOT DIAMETER (MM)	INTER NODAL LENGTH (CM)	LEAF AREA (CM ²)	DAYS TO MATURITY
CropSIL @ 0.5ml / Liter water	41.5	6.10	5.0	103.48	84
CropSIL @ 1ml / Liter water	47.20	5.77	4.7	102.05	83
CropSIL @ 1.5ml / Liter water	55.30	6.24	5.2	193.2	80
CONTROL	40.30	4.34	4.4	125.7	84

TABLE 2: Effect of CropSIL on berry quality and yield parameters

TREATEMENTS	# of Bunch/vine	# of Bunch per sq/m	# of Berries per bunch	Av Bunch wt(gm)	50 berry wt(gm)	Berry Dia (mm)	Berry Lenght (mm)	TSS (Brix)	TA (g/l)	pH	Yield/vine (kg)
CropSIL @ 0.5ml / Liter water	33	5.89	77	280.0	195	18.93	19.9	21.5	6.6	3.67	9.45
CropSIL @ 1ml / Liter water	38	6.7	74	275.1	202	17.34	21.4	22.3	7.1	3.61	12.1
CropSIL @ 1.5ml / Liter water	45	8.0	78	360.4	242	19.64	22.7	20.4	6.4	3.65	16.5
CONTROL	35	6.25	75	280.5	199	18.10	20.2	21.4	6.9	3.65	9.3

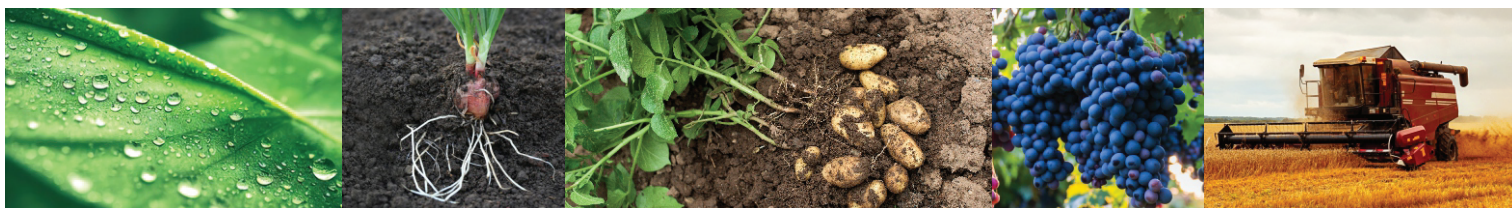


TABLE 3: Effect of CropSIL on Biochemical parameters

TREATMENT	TOTAL CARBOHYDRATE (mg/g)	REDUCING SUGAR (mg/g)	PROTEIN (mg/g)	STARCH (mg/g)	PHENOLS (mg/g)
CropSIL @ 0.5ml / Liter water	27.3	8.25	10.56	10.17	2.62
CropSIL @ 1ml / Liter water	40.10	5.35	4.06	4.61	1.59
CropSIL @ 1.5ml / Liter water	45.08	7.35	5.07	7.54	5.95
CONTROL	24.54	10.10	13.83	3.28	1.32

TABLE 4: Effect of CropSIL on leaf Chlorophyll and Photosynthesis

TREATMENTS	Chlorophyll a(mg/g)	Chlorophyll b(mg/g)	Total Chlorophyll (mg/g)	Photosynthesis ($\mu\text{mol}/\text{cm}^2/\text{s}$)	Transpiration rate ($\text{mmol H}_2\text{O m}^{-2} \text{s}^{-1}$)
CropSIL @ 0.5ml / Liter water	2.49	0.68	3.23	8.482	1.366
CropSIL @ 1ml / Liter water	2.22	0.66	2.97	8.764	1.891
CropSIL @ 1.5ml / Liter water	2.38	0.62	3.08	7.964	2.076
CONTROL	1.99	0.54	2.64	8.403	1.930

TABLE 5: Effect of CropSIL on Nutrient status in vine

TREATMENTS	N (%)	P (%)	K (%)	Na (%)	Ca (%)	Mg (%)	Mn (ppm)	Fe (ppm)	Cu (ppm)	Zn (ppm)
Nutrient Status in Leaf										
CropSIL @ 0.5ml / Liter water	0.73	0.21	2.02	1.89	2.88	1.35	95.2	57.9	14.5	86.2
CropSIL @ 1ml / Liter water	0.70	0.25	1.98	2.26	2.67	1.83	99.4	54.0	13.2	78.2
CropSIL @ 1.5ml / Liter water	0.70	0.27	1.77	2.33	2.44	1.74	113.3	68.3	15.1	83.4
CONTROL	0.64	0.22	1.70	2.34	2.59	1.70	104.2	78.8	16.5	89.6
Nutrient Status in Petiole										
CropSIL @ 0.5ml / Liter water	0.81	0.31	2.41	2.43	2.01	1.78	102.3	70.5	12.4	74.6
CropSIL @ 1ml / Liter water	0.87	0.34	2.53	2.57	2.05	1.76	94.64	76.3	16.1	91.2
CropSIL @ 1.5ml / Liter water	0.87	0.38	2.38	2.53	2.23	1.99	115.6	67.5	12.9	79.8
CONTROL	0.90	0.31	2.45	2.21	2.11	2.13	103.4	56.3	14.9	84.2

Conclusion:

The results showed that CropSIL at 1.5ml/L, significantly improved yield, total carbohydrates and phenols and also maturing 3-4 days earlier.