

**REPORT ON PRODUCT TESTING**

**2011-12**

**TESTING  
ON**

**Silicon fertilizer - Agrosil for Sugarcane variety Phule -265  
Product of – Vedant Agrotech, Pune.**

**CONDUCTED  
BY  
CHIEF SCIENTIST  
WATER MANAGEMENT PROJECT  
MPKV, RAHURI**



**ALL INDIA CO-ORDINATED RESEARCH PROJECT ON  
WATER MANAGEMENT  
MAHATMA PHULE KRISHI VIDYAPEETH,  
RAHURI 413 722, DIST- AHMEDNAGAR  
(MAHARASHTRA)**

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MAHATMA PHULE KRISHI VIDYAPEETH,  
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(MAHARASHTRA)**

Sponsored by : M/s. Vedant Agrotech,  
Office No – 221, Mahalaxmi Market,  
2<sup>nd</sup> floor, opp. Krishi Panan Mandal,  
Market yard, Pune-411 037.

Title of the project : Testing of Silicon fertilizer for suru sugarcane (Agrosil) (Phule - 265)

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Office No – 221, Mahalaxmi Market,  
2<sup>nd</sup> floor, opp. Krishi Panan Mandal,  
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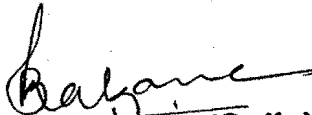
Conducted by : Chief Scientist,  
AICRP on Water Management Project,  
MPKV, Rahuri.

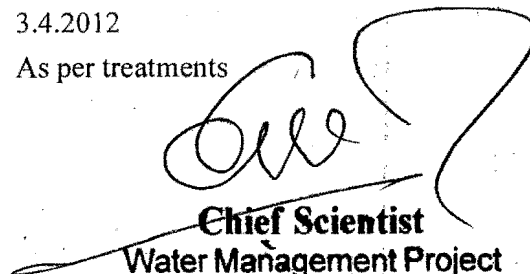
Location : Research Farm,  
Water Management Project  
MPKV, Rahuri 413 722

Name and Address of the Research Institute  
: Mahatma Phule Krish Vidyapeeth, Rahuri  
Dist- Ahmednagar, Maharashtra, India.

**DETAILS OF THE EXPERIMENT**

Year of conduct	:	2011-12
Crop and variety	:	Suru Sugarcane (Phule - 265)
Product Tested	:	Silicon fertilizer (Agrosil)
Plot size	:	8 x 3 m <sup>2</sup>
Design	:	Randomized Block Design (RBD)
Replications	:	4
Treatments	:	6
Recommended dose	:	300:140:140, N, P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O kgha <sup>-1</sup>
Planting material used	:	Two eye budded setts
Spacing	:	90 x 30 cm
Date of planting	:	4.2.2011
Date of Harvesting	:	3.4.2012
Application of fertilizer	:	As per treatments

  
**Sr. Scientist (Soils)**  
Water Management Project,  
M. P. K. V. Rahuri

  
**Chief Scientist**  
Water Management Project  
M.P.K.V., Rahuri

### **Treatment details :**

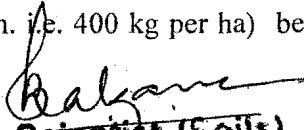
1. 100% RD of Silicon i.e. 400 kg per ha. (500 kg Vedant Agrosil)
2. 100 % RDF through N:P:K (300: 140:140)
3. 100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha (500kg Vedant Agrosil)
4. 75 % RDF through N: P:K + 100 % RD of Silicon i.e. 400 kg per ha. (500 kg Vedant Agrosil)
5. 50% RDF through N:P:K + 100% RD of Silicon i.e. 400kg per ha. (500 kg Vedant Agrosil)
6. 100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>.

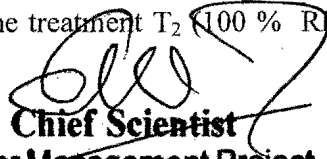
### **Results**

The experiment was conducted on testing of Silicon fertilizer (Agrosil) for suru sugarcane at AICRP on Water Management Project, MPKV, Rahuri during 2011-12. The data is presented in different table Nos.1 and 2.

### **Yield and growth parameters –**

The data presented in table 1 regarding yield, quality and yield contributing characters revealed that the germination percentage was non-significant, the number of tillers were significantly highest under the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) but was at par with treatments T<sub>2</sub> (100 % RDF through N:P:K), T<sub>4</sub>(75 % RDF through N:P:K + 100 % RD of Silicon i.e. 400 kg per ha.) and T<sub>5</sub> (50% RDF through N:P:K + 100% RD of Silicon i.e. 400kg per ha.) and significantly lowest under treatment T<sub>1</sub>(100% RD of Silicon i.e. 400 kg per ha.). The millable cane height was highest under the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) being at par with the treatments T<sub>5</sub> (50% RDF through N:P:K + 100% RD of Silicon i.e. 400kg per ha.) and T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>). The data on number of internodes was non significant, even then the numerically highest internodes were observed under the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha). The data on girth of internodes revealed that the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) had highest girth of internodes but was at par with the treatments T<sub>4</sub>(75 % RDF through N:P:K + 100 % RD of Silicon i.e. 400 kg per ha.), T<sub>5</sub> (50% RDF through N:P:K + 100% RD of Silicon i.e. 400kg per ha.) and T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>). The length of internodes was highest under the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) being at par with the treatment T<sub>2</sub> (100 % RDF through

  
**Sr. Scientist (Soils)**  
Water Management Project,  
M. P. K. V. Rahuri

  
**Chief Scientist**  
Water Management Project  
M.P.K.V., Rahuri

N:P:K). The significantly highest cane yield of sugarcane was obtained in the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) and it was at par with the treatment T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>). The highest CCS yield was significantly highest in the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha), followed by the treatment T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>).

### **Quality:**

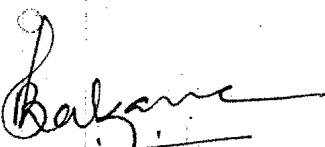
The data in table 1 regarding quality parameters revealed that all the juice quality parameters were not significantly influenced due to various treatments but even then it was observed that the Brix, Pol, Purity and CCS were numerically higher in the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha).

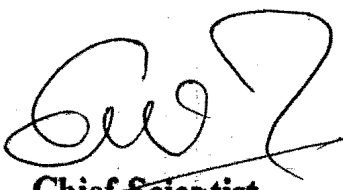
### **Soil Properties :**

The soil samples were analyzed after the harvest of sugarcane crop. The results presented in table 2 revealed that the data on pH and EC of soil was non significant but as such there was no difference as compared to the initial values. The organic carbon content was highest under the treatment T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>) but was at par with the treatments T<sub>2</sub> (100 % RDF through N:P:K), T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) and T<sub>4</sub>(75 % RDF through N:P:K + 100 % RD of Silicon i.e. 400 kg per ha.), the lowest organic carbon was obtained under the treatment T<sub>1</sub>(100% RD of Silicon i.e. 400 kg per ha.). The available N and P content were significantly highest under the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) being at par with the treatment T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>). The results of available K content were non significant. The data on Acetic Acid extractable silica revealed that available silica was significantly highest in the treatment T<sub>3</sub> (100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha) being at par with the treatments T<sub>1</sub>(100% RD of Silicon i.e. 400 kg per ha.) and T<sub>4</sub>(75 % RDF through N:P:K + 100 % RD of Silicon i.e. 400 kg per ha.) as compared to the treatments T<sub>2</sub> (100 % RDF through N:P:K) and T<sub>6</sub> (100% RDF through N:P:K + FYM 20T ha<sup>-1</sup>) where silica was not added.

### **Conclusion –**

It can be concluded from the above results that addition of 400 kg ha<sup>-1</sup> Silicon fertilizer i.e.500 kg Vedant Agrosil along with 100 per cent recommended dose of fertilizer can increase the yield and quality of suru sugarcane.

  
**Sr. Scientist (Soils)**  
Water Management Project,  
M. P. K. V. Rahuri

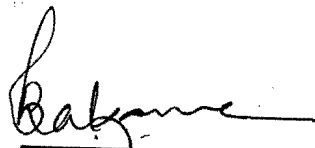
  
**Chief Scientist**  
Water Management Project  
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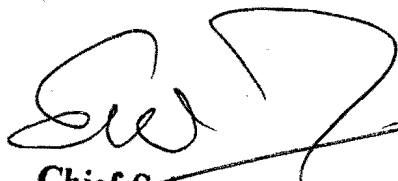
**Table: 1 - Yield, quality and yield contributing characters as influenced by silicon fertilizer – (Agrosil) for suru sugarcane**

No.	Treatments	Germination %	No. of Tillers	Malleable cane height (cm)	No. of internodes	Girth of internode (cm)	Length of internode (cm)	Yield (t/ha)	Brix (%)	POL (%)	Purity (%)	CCS (%)	CCS yield (t/ha)
T1 :	100% RD of Silicon i.e. 400 kg per ha. (500 kg Vedant Agrosil)	88.75	6.2	251	21.95	11.53	13.49	151	21.39	19.82	91.42	11.37	17.15
T2 :	100 % RDF through N:P:K (300: 140:140)	91.00	6.8	301	22.80	11.58	14.30	162	21.74	20.22	93.01	11.16	18.06
T3 :	100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha (500kg Vedant Agrosil)	91.75	7.7	351	25.15	12.79	15.23	176	22.44	20.70	93.67	11.72	20.67
T4 :	75 % RDF through N:P:K + 100 % RD of Silicon i.e. 400 kg per ha. (500 kg Vedant Agrosil)	91.00	7.4	298	23.75	12.37	13.51	156	21.68	19.99	92.75	11.50	18.02
T5 :	50% RDF through N:P:K + 100% RD of Silicon i.e. 400kg per ha. (500 kg Vedant Agrosil)	90.00	6.8	331	23.00	12.14	13.79	159	20.97	19.51	92.51	11.16	17.76
T6 :	100% RDF through N:P:K + FYM 20T ha <sup>-1</sup>	91.25	6.7	315	23.13	12.15	13.92	167	21.73	19.88	92.73	11.29	18.88
SE		0.739	0.30	16.51	0.77	0.22	0.32	3.34	0.329	0.238	0.729	0.329	0.55
CD 5%		NS	0.92	49.76	NS	0.65	0.95	10.08	N.S.	N.S.	N.S.	N.S.	1.65

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Water Management Project,  
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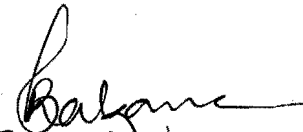
  
**Chief Scientist**  
Water Management Project  
M.P.K.V., Rahuri

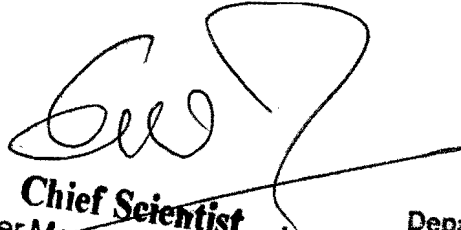
**Table:2- Soil properties as influenced by silicon fertilizer – (Agrosil) for suru sugarcane**

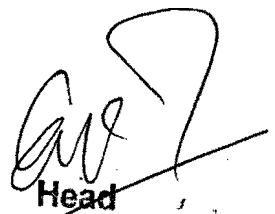
No.	Treatments	pH	EC (dSm <sup>-1</sup> )	Organic carbon (%)	Avail. N (Kg/ha <sup>-1</sup> )	Avail. P (Kg/ha <sup>-1</sup> )	Avail. K (Kg/ha <sup>-1</sup> )	Avail. Si (Acetic Acid extractable (mgkg <sup>-1</sup> ))
T1 :	100% RD of Silicon i.e. 400 kg per ha. (500 kg Vedant Agrosil)	8.19	0.25	0.64	165	14.52	454	69.85
T2 :	100 % RDF through N:P:K (300: 140:140)	8.20	0.24	0.68	180	15.52	484	66.25
T3 :	100% RDF through N:P:K + 100% RD of Silicon. i.e. 400 kg per ha (500kg Vedant Agrosil)	8.19	0.25	0.70	189	16.47	480	70.05
T4 :	75 % RDF through N:P:K + 100 % RD of Silicon i.e. 400 kg per ha. (500 kg Vedant Agrosil)	8.21	0.26	0.68	172	15.85	458	68.75
T5 :	50% RDF through N:P:K + 100% RD of Silicon i.e. 400kg per ha. (500 kg Vedant Agrosil)	8.20	0.24	0.64	165	15.45	476	68.25
T6 :	100% RDF through N:P:K + FYM 20T ha <sup>-1</sup>	8.18	0.24	0.71	184	16.15	459	67.30
SE		0.019	0.019	0.009	3.93	0.15	21.40	0.46
CD 5%		N.S.	N.S.	0.026	11.85	0.46	N.S.	1.38
Initial		8.15	0.22	0.63	155	13.60	440	65.6

Testing of Silicon fertilizer (Agrosil) for suru sugarcane (Phule 265)

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**Chief Scientist**  
Water Management Project  
M.P.K.V., Rahuri

  
**Head**  
Department of Agronomy  
Mahatma Phule Krishi Vidyapeeth  
Rahuri, Dist. Ahmednagar

**CERTIFICATE OF UTILIZATION**

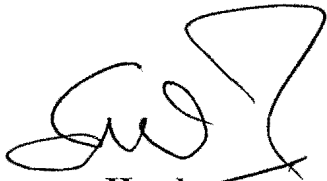
The grants received Rs. 80,000/- (Rs. eighty thousand only) from M/s. Vedant Agrotech, Manufactures of Silicon Fertilizer (Agrosil), Pune-37 for conduct of product testing trial on silicon fertilizer on suru sugarcane (Phule - 265) was fully utilized for the same purpose.



**Chief Scientist**

Water Management Project

MPKV, Rahuri



**Head**

Department of Agronomy

MPKV, Rahuri

**Director of Research**

MPKV, Rahuri