



## Anwendungsbericht/User Application Report

**Produkt/Product:**

penergetic b  
penergetic p

**Fachberater/Consultant:**

Agrolmpex  
Tarun Keram

**Anwender/User:**

Regional Sugarcane Research Station  
Kolhapur  
Maharashtra/India

**Datum/Date:**

2014

### Application on Sugarcane in India

India has the largest area under sugarcane cultivation in the world and the world's second largest producer of sugarcane next only to Brazil. The yield has remained at the level of 71 tons/hectare for a long time. After the year 2000 it had rapidly declined and stood at 59 tons/hectare only in 2003-04 & declined further in recent years. In many parts, yield declined to 35 tons/hectare.

Main cause of this rapid decline is exhaustion of soils. Yields stand nowhere when compared with some of the best in the world where about 50% more sugarcane per hectare are produced. Lack of fertilizers, uncertain weather conditions, inadequate irrigation, poor varieties of cane, small and fragmented holdings and backward methods of cultivation are some of the major causes of low yield in India.

### Studying the effect on growth, yield and quality of Sugarcane

Trinity Agrolmpex Pvt. Ltd took the initiative to bring one of the most advance and effective technology to India in association with Penergetic AG, Switzerland.

penergetic b and penergetic p have been witnessed as key ingredients to enhance the soil fertility and increase the yield. Mr. Tarun Keram, Director of Trinity Agrolmpex Pvt. Ltd. has taken a large scale trial co-ordination with Mahatma Phule Krishi Vidyapeeth, Rahuri in Maharashtra, one of the top most institutes in India in respect to Sugarcane research.

Experiment design: Randomised block design  
 Replications 3  
 Variety: CoM 0265  
 Plot size: 5 x 8m<sup>2</sup>  
 Date of planting: 15/02/2013  
 Date of harvest: 20/02/2014

### Application schedule

Treatments	Soil application 14.02.2013	Seed treatment 15.02.2013	1 <sup>st</sup> leaf stage 18.03.2013	Tillering (6-8 leaf stage) 17.04.2013	Growth phase (10-14 leaf stage) 18.05.2013
<b>T1</b> 100% RDF	-	-	-	-	-
<b>T2</b> 100% RDF + Water Spray	-	-	Water spray	Water spray	Water spray
<b>T3</b> 1 0% RDF + 2% Urea Spray	-	-	Urea spray	Urea spray	Urea spray
<b>T4</b> 75% RDF + penergetic	300g/ha penergetic b	300g/ha penergetic p	300g/ha penergetic p	300g/ha penergetic p	300g/ha penergetic p
<b>T5</b> 100% RDF + penergetic	300g/ha penergetic b	300g/ha penergetic p	300g/ha penergetic p	300g/ha penergetic p	300g/ha penergetic p
<b>T6</b> 75%RDF + penergetic	400g/ha penergetic b	400g/ha penergetic p	400g/ha penergetic p	400g/ha penergetic p	400g/ha penergetic p
<b>T7</b> 100% RDF + penergetic	400g/ha penergetic b	400g/ha penergetic p	400g/ha penergetic p	400g/ha penergetic p	400g/ha penergetic p

Use of penergetic b on soil through spray before planting.

Use of penergetic p through foliage spray.

Recommended dose of chemical fertilizers (RDF): 250:115:115 kg of NPK/hectare applied as per treatment 75% or 100% RDF.

### Observations recorded

- Growth observations Various
- Yield Cane and CCS yield
- Quality parameters Brix % at harvest
- Soil study for chemicals Before planting and after harvest

### Results

The results pertaining to growth, yield and quality parameters and soil chemical properties are recorded and presented in tables no.1 to 4.

**Growth parameters:**

The growth parameters of sugarcane viz. germination % and tillering ratio in control plots were not influenced significantly due to different treatments. However, the germination percentage (57.46%) and tillering ratio (1.63) was higher in treatment **T7** where 400 g/ha penergetic b&p + 100% RDF application followed by treatment **T6** (400g/ha penergetic b&p +75% RDF) (Table.1)

In respect of yield contributing characters viz. number of millable canes/ha, millable height (cm), girth (cm) and single cane weight (kg) at harvest in control plots were not influenced significantly due to different treatments However, these yield contributing characters recorded highest in treatment **T7** (400 g/ha penergetic b&p +100% RDF.)

**Cane and CCS yield:**

From Table no.2 it was noticed that the cane and CCS yield in control plots were not influenced significantly due to different treatments. The highest cane yield (161.90 t/ha and CCS yield (22.72 t/ha) was recorded by treatment **T7** (400 g/ha penergetic b&p + 100% RDF) and followed by treatment **T6** (400 g/ha penergetic b&p + 75% RDF).

The quality parameters of sugarcane juice (Table 3) viz. Brix (%), Sucrose (%), CCS (%) and purity (%) was recorded at harvest of sugarcane. These quality parameters show better performance in treatment **T6** (400 g/ha penergetic b&p + 75% RDF) followed by **T7** (400 g/ha Penergetic b&p +100% RDF).

**Soil Properties:**

The chemical properties of soil after harvest of sugarcane are recorded in Table no.4 and observed that there was not any effect on soil properties when compared with initial soil observations.



**Table 1**

Growth parameters of sugarcane as influenced by different treatments

Treatments	Germi- nation 8%) at 45 DAP	Tillering ratio at 60 DAP	NMC/ha at harvest	Mill. Height (cm) at harvest	Girth (cm) at harvest	No. of internodes per cane at harvest	Single cane weight (kg)
T1 100% RDF	50.10	1.29	95336	276.66	8.26	17.93	1.46
T2 100% RDF + Water Spray	46.20	1.35	94913	270.30	8.53	18.80	1.48
T3 100% RDF + 2% Urea Spray	49.66	1.40	96333	281.33	8.66	18.53	1.48
T4 75% RDF + 300g penergetic	52.20	1.46	97163	284.00	8.73	19.46	1.51
T5 100% RDF + 300g penergetic	51.43	1.30	99672	283.00	8.76	18.80	1.50
T6 75%RDF + 400g penergetic	56.10	1.50	102211	282.66	8.86	19.40	1.51
T7 100% RDF + 400g penergetic	57.46	1.63	104583	288.66	8.93	19.06	1.53
SE ±	4.48	0.03	2695	8.25	0.24	0.45	0.03
CD at 5%	NS	NS	NS	NS	NS	NS	NS
Mean	51.87	1.41	98601	280.94	8.67	18.85	1.49

**Table 2**

Yield of cane and CCS as influenced by different treatments

Treatments	Cane yield (t/ha)	CCS yield (t/ha)
T1 100% RDF	143.86	19.33
T2 100% RDF + Water Spray	145.02	19.75
T3 100% RDF + 2% Urea Spray	148.19	20.17
T4 75% RDF + 300g penergetic	151.77	21.11
T5 100% RDF + 300g penergetic	153.63	21.39
T6 75%RDF + 400g penergetic	155.19	21.91
T7 100% RDF + 400g penergetic	161.90	22.72

**Table 3**

Quality parameters of sugarcane juice at harvest as influenced by different treatments

Treatments	Brix (%)	Sucrose (%)	CCS (%)	Purity (%)
T1 100% RDF	19.83	18.95	13.44	93.43
T2 100% RDF + Water Spray	19.83	19.10	13.59	94.14
T3 100% RDF + 2% Urea Spray	20.16	19.20	13.61	93.2
T4 75% RDF + 300g penergetic	20.33	19.54	13.90	93.99
T5 100% RDF + 300g penergetic	20.5	19.62	13.93	93.64
T6 75%RDF + 400g penergetic	20.50	19.82	14.15	94.67
T7 100% RDF + 400g penergetic	20.50	19.71	14.03	94.07
SE ±	0.32	0.27	0.20	0.80
CD at 5%	NS	NS	NS	NS
Mean	20.23	19.42	13.80	93.87

**Table 4**

Soil chemical properties after harvest of sugarcane as influenced by different treatments

Treatments	pH	EC (dsm)	OC (%)	Available nutrients (kg/ha)		
				N	P	K
T1 100% RDF	7.20	0.30	0.66	286	19.03	274
T2 100% RDF + Water Spray	7.17	0.28	0.68	285	18.10	271
T3 100% RDF + 2% Urea Spray	7.17	0.30	0.67	288	18.10	270
T4 75% RDF + 300g penergetic	7.16	0.31	0.68	283	19.02	275
T5 100% RDF + 300g penergetic	7.16	0.29	0.67	285	20.14	278
T6 75%RDF + 400g penergetic	7.18	0.29	0.70	283	19.08	274
T7 100% RDF + 400g penergetic	7.18	0.30	0.66	285	20.00	280
SE ±	0.10	0.009	0.011	5.08	0.43	5.87
CD at 5%	NS	NS	NS	NS	NS	NS
Mean	7.17	0.29	0.67	285	19.06	274
Initial	7.20	0.32	0.68	290	20.54	288

## Conclusion

In Table 1 to Table 4, all parameters show that use of Penergetic products are beneficial to increase the yield in sugarcane.