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**UNIVERSITY OF AGRICULTURAL SCIENCES
BANGALORE**



**ALL INDIA CO-ORDINATED RESEARCH PROJECT ON
SUGARCANE**

ANNUAL REPORT

CROP PRODUCTION

2014-15

Compiled by

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VC. Farm, Mandya - 571405**

RESEARCH RESULTS CROP PRODUCTION-Sugarcane Agronomy

1. **Title:** AS 64. Response of sugarcane crop to different plant nutrients in varied agro-ecological situation

2. **Objectives:** To study the differential response of sugarcane crop to different nutrients

3. **Technical program**

- a) Design : RBD b) No. of treatments : 13
 c) No. of replications: 3 d) Date of planting : 02-01-2014
 e) Date of harvest : 15-01-2015

4. **Results:**

Table 1. Yield & yield attributes of sugarcane as influenced by different treatments

Treatment		Germination (%)	Cane weight (kg)	Cane length (m)	Cane girth (cm)	Inter nodal length (cm)	NMC ('1000 ha ⁻¹)	Cane yield (t/ha)	Purity (%)
T ₁	Control (No fertilizer)	55.2	1.24	1.79	2.59	7.96	38.15	58.80	79.67
T ₂	N	55.5	1.31	1.89	2.97	8.34	48.57	76.25	78.67
T ₃	NP	48.8	1.31	1.92	2.99	9.08	50.31	88.55	81.67
T ₄	NPK	49.1	1.42	2.09	3.07	9.55	54.33	97.96	80.00
T ₅	NPK + S	57.5	1.50	2.10	3.04	9.45	53.93	97.54	80.33
T ₆	NPK + Zn	52.3	1.38	2.23	3.00	10.41	60.99	100.96	81.67
T ₇	NPK + Fe	52.6	1.39	2.25	2.98	10.33	61.20	100.15	81.67
T ₈	NPK + Mn	53.9	1.44	2.36	3.09	11.25	61.20	102.36	80.67
T ₉	NPK + S + Zn	52.3	1.56	2.28	3.07	11.52	56.59	101.39	80.33
T ₁₀	NPK + S + Zn + Fe	57.7	1.57	2.32	3.27	11.82	59.95	106.51	80.33
T ₁₁	NPK + S + Zn + Fe + Mn	52.1	1.67	2.35	3.38	12.22	61.07	108.79	80.67
T ₁₂	Soil test based fertilizer application	53.2	1.70	2.36	3.42	12.43	63.23	109.85	80.67
T ₁₃	FYM / CPM	54.9	1.43	1.97	2.79	10.02	49.91	88.12	79.67
S.Em±		-	0.06	0.11	0.17	0.52	4.84	4.44	1.52
CD @ 5%		-	0.19	0.32	0.50	1.52	14.13	12.95	NS
CV (%)		-	7.64	8.84	9.82	8.70	15.07	8.01	3.27

5. **Inference:** Nutrients in isolation and different combinations were tried to identify the role of different nutrients. Sugarcane responded to combination of nutrients comprising all the primary nutrients significantly over the one or two primary nutrients only. Higher cane yield was recorded with application of nutrients based on soil test (109.85 MT ha⁻¹) which was significantly superior over control (58.80 MT ha⁻¹), N alone (76.25 MT ha⁻¹), NP only (88.55 MT ha⁻¹) but was on par with application of all the three primary nutrients in combination with secondary and micro nutrients.

6. **Scientists involved:** P. Thimme Gowda, Subhashree, K. S., T. E. Nagaraja, V. N. Patel, B. T. Ravindra Babu and Sunitha B. P.

Experiment -2.

1. **Title: AS 66. Priming of cane node for accelerating germination**
2. **Objectives:**
 - a. To find out suitable cane node priming technique.
 - b. To assess the effect of cane node on acceleration of germination.
3. **Technical program:**
 - a) Design: RBD
 - b) No. of replications: 4
 - c) No. of treatments: 6
 - d) Date of planting: 16-02-2014
 - e) Date of harvest: 16-02-2015
4. **Results:**

Table 2. Influence of cane node priming on yield & quality of sugarcane

Treatment	Germination (%)	Cane weight (kg)	Cane length (m)	Cane girth (cm)	NMC (*1000 ha ⁻¹)	Cane yield (t/ha)	Purity (%)
T ₁ : Un-primed cane node	33.5	1.2	1.8	2.3	55.3	76.1	77.0
T ₂ : Treating cane node in hot water at 50°C for 2 hours	35.6	1.1	1.9	2.4	70.4	87.3	79.0
T ₃ : Treating cane node in hot water (50° C) urea solution (3%) for 2 hours	-	-	-	-	-	-	-
T ₄ : Priming cane node with cattle dung, cattle urine and water in 1:2:5 ratio	38.0	1.1	2.1	2.1	82.1	90.6	75.8
T ₅ : Conventional 3-bud sett planting.	64.0	1.2	2.2	2.5	96.1	118.5	79.0
T ₆ : Primed and sprouted cane node (Incubated for four days after priming)	39.7	1.1	2.0	2.3	80.3	94.1	76.5
S.Em±	-	0.07	0.15	0.08	3.02	7.25	1.35
CD @ 5%	-	NS	NS	NS	9.30	22.34	NS
CV (%)	-	11.71	14.74	6.87	7.86	15.54	3.49

5. Inference: Planting of conventional three eye buded setts recorded significantly higher germination (64.0 %), number of millable cane (96,100 ha⁻¹), and cane yield (118.5 MT ha⁻¹) compared to all other treatments. The cane length, girth, weight, number of internodes and internodal length were statistically at par among the treatments. The next best treatment was primed and sprouted cane node (Incubated for four days after priming). Un-primed cane node recorded significantly lower germination (33.5%), NMC (55,300 ha⁻¹) and cane yield (76.1 MT ha⁻¹). Two years average data also followed similar trend.

6. Scientists involved: Dr. P. Thimme Gowda, Mrs. Subhashree, K. S., Dr. T. E. Nagaraja, Dr. V. N. Patel, Mr. B. T. Ravindra Babu and Ms. Sunitha B. P.

Experiment 3.

- 1. Title: AS – 68. Impact of integrated application of organics and inorganics in improving soil health and sugarcane productivity.**
- 2. Objective:** To develop nutrient management strategy for sustaining soil health and sugarcane production.
- 3. Technical program**
 - a) Design : RBD b) No. of treatments : 09 c) No. of replications: 3
 - d) Date of Planting: 02-01-2014 e) Date of harvest: 15-01-2015

4. Result:- Table 3. Growth and yield of sugarcane as influenced by integrated application of organics and inorganics.

Treatment	Germ ination %	Internodal length (cm)	No. of Internodes	Cane girth (cm)	Cane length (m)	Single cane weight (kg)	NMC (1000 ha ⁻¹)	Cane yield (kg/ha)	Purity %
T ₁ : No organic + 50% RDF	48.93	8.73	18.20	1.98	1.41	0.82	44.21	62.33	77.67
T ₂ : No organic + 100% RDF	55.27	8.11	20.00	2.63	1.69	0.88	52.15	75.33	78.00
T ₃ : No organic + soil test based recommendation	42.30	9.80	19.87	2.80	1.78	1.16	57.29	88.94	81.00
T ₄ : Application of FYM/Compost @ 20 tonnes / ha + 50% RDF (Inorganic source)	50.70	10.20	19.53	2.67	1.86	1.17	53.63	76.33	83.00
T ₅ : Application of FYM/Compost @ 20 tonnes / ha + 100% RDF (Inorganic source)	54.83	10.94	21.73	2.90	2.10	1.21	59.82	93.12	80.33
T ₆ : Application of FYM/Compost @ 20 tonnes / ha + in organic nutrient application based on soil test (Rating chart)	50.07	12.12	21.20	2.97	2.21	1.44	61.30	96.58	81.67
T ₇ : Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (<i>Azotobacter/Acetobacter</i> + <i>PSB</i>) + 50% RDF	42.77	8.60	18.00	2.79	1.61	0.92	52.93	78.31	80.00
T ₈ : Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (<i>Azotobacter/Acetobacter</i> + <i>PSB</i>) + 100% RDF	56.33	10.61	19.20	2.89	1.91	1.20	57.93	90.63	79.00
T ₉ : Application of FYM/Compost @ 10 tonnes / ha + biofertilizer (<i>Azotobacter/Acetobacter</i> + <i>PSB</i>) + soil test basis	56.17	9.80	20.60	2.80	1.85	1.21	57.95	88.73	79.00
S.Em. ±	–	0.61	0.82	0.15	0.14	0.09	4.50	4.87	1.35
CD @ 5 %	–	1.84	NS	0.44	0.42	0.26	13.49	14.59	NS
CV (%)	–	10.78	7.20	9.29	13.42	13.69	14.10	10.11	2.92

5.Inference: Application of FYM @ 20 t / ha + in organic nutrient application based on soil test results recorded significantly higher cane yield (96.58 MT ha⁻¹) compared to all other treatments. However, it was on par with application of FYM @ 20 t / ha + 100% RDF (93.12 MT ha⁻¹), application of FYM @ 10 t / ha + biofertilizer (*Azotobacter/Acetobacter* + *PSB*) + 100% RDF (90.63 MT ha⁻¹) and application of FYM @ 10 t / ha + biofertilizer (*Azotobacter/Acetobacter* + *PSB*) + soil test basis fertilizer application (88.73 MT ha⁻¹).

6.Scientists involved: Dr. P. Thimme Gowda, Mrs. Subhashree, K. S., Dr. T. E. Nagaraja, Dr. V. N. Patel, Mr. B. T. Ravindra Babu and Ms. Sunitha B. P.

PUBLICATIONS AND EXTENSION ACTIVITIES

Technical paper:

- K. V. KESHAVAIAH AND P. THIMME GOWDA, 2015, “PÁ^aÉĀj CZÄÄÑPÄIÄÖ ¥ÄæzÉĀ±ÄzÀ^oè PÀ©âfÀ CçüPÄ E¼ÄÄ^aÄjUÁV C£ÄÄ, Äj, Ä[·]ÉĀPÁzÄ GvÄázÄ£Á vÁAwæPÄvÉUÄ¼ÄÄ”. PÀ©âfÀ^oè RgÄ PÄÈ¶AiÄÄ vÄgÄ[·]ÉĀw PÉÈr. ¥ÄÄI ÄÄSÉÉ.09-25.
- K. V. KESHAVAIAH AND P. THIMME GOWDA, 2015, “PÁ^aÉĀj CZÄÄÑPÄIÄÖ ¥ÄæzÉĀ±ÄzÀ^oè PÀ©âfÀ CçüPÄ E¼ÄÄ^aÄjUÁV C£ÄÄ, Äj, Ä[·]ÉĀPÁzÄ GvÄázÄ£Á vÁAwæPÄvÉUÄ¼ÄÄ”. gÁ¶ÖçÄAiÄÄ D^oÁgÄ “sÄzÄævÁ C©üAiÄiÁ£Ä 2014-15, gÁdâ “ÄÄIÖzÄ PÄ§Äâ “É¼É vÄgÄ[·]ÉĀw, ç£ÄAPÄ: 26-03-2015 “ÄvÄÄÜ 27-03-2015, ÄÜ¼Ä: “ÉèzÄ ¥ÄPið, Ä^oÄAiÉÆÄUÄ: “Ä@AiÄÄ PÄÈ¶ ÄÄ±ÉÆÄzsÄ£Á PÉÄAzÄæ, PÄÈ¶ «eÁÖ£Ä PÉÄAzÄæ “ÄÄvÄÄÜ f⁻Äè PÄÈ¶ vÄgÄ[·]sÉĀw PÉÄAzÄæ, “ÄÄAqÄâ(¥ÄÄ: 6-16).
- M. N.THIMMEGOWDA, P.THIMMEGOWDA, K.V. KESHAVAIAH AND S.B. YOGANANDA, 2015 “ PÀ©âfÀ^oè Ä^aÄÄUÄæ RÄgÄÄ R^aÄð^oÄuÉ”. gÁ¶ÖçÄAiÄÄ D^oÁgÄ “sÄzÄævÁ C©üAiÄiÁ£Ä 2014-15, gÁdâ “ÄÄIÖzÄ PÄ§Äâ “É¼É vÄgÄ[·]ÉĀw, ç£ÄAPÄ: 26-03-2015 “ÄvÄÄÜ 27-03-2015, ÄÜ¼Ä: “ÉèzÄ ¥ÄPið, Ä^oÄAiÉÆÄUÄ: “Ä@AiÄÄ PÄÈ¶ ÄÄ±ÉÆÄzsÄ£Á PÉÄAzÄæ, PÄÈ¶ «eÁÖ£Ä PÉÄAzÄæ “ÄÄvÄÄÜ f⁻Äè PÄÈ¶ vÄgÄ[·]sÉĀw PÉÄAzÄæ, “ÄÄAqÄâ(¥ÄÄ: 28-31).
- M. N.THIMMEGOWDA, P.THIMMEGOWDA, S.B. YOGANANDA AND K.V. KESHAVAIAH, 2015 “ PÀ©âfÀ^oè CUÄ@ Ä^o£Ä £Än ¥ÄzÄPw °ÁUÄÆ AiÄiÁAwæÄPÄÈvÄ “ÉĀ, ÄAiÄÄ”. gÁ¶ÖçÄAiÄÄ D^oÁgÄ “sÄzÄævÁ C©üAiÄiÁ£Ä 2014-15, gÁdâ “ÄÄIÖzÄ PÄ§Äâ “É¼É vÄgÄ[·]ÉĀw, ç£ÄAPÄ: 26-03-2015 “ÄvÄÄÜ 27-03-2015, ÄÜ¼Ä: “ÉèzÄ ¥ÄPið, Ä^oÄAiÉÆÄUÄ: “Ä@AiÄÄ PÄÈ¶ ÄÄ±ÉÆÄzsÄ£Á PÉÄAzÄæ, PÄÈ¶ «eÁÖ£Ä PÉÄAzÄæ “ÄÄvÄÄÜ f⁻Äè PÄÈ¶ vÄgÄ[·]sÉĀw PÉÄAzÄæ, “ÄÄAqÄâ(¥ÄÄ: 28-31).

Kannada leaflets:

- T. E. NAGARAJA, V.N.PATEL, P.THIMMEGOWDA, S.N.SWAMYGOWDA, K.V. KESHAVAIAH, B.T.RAVINDRABABU AND SUNITHA. B.P, 2014, “ಕಬ್ಬಿನ ಕೂಳಿಬೆಳೆ ನಿ^aÄð^oç^o”. *University of Agricultural Sciences, Bangalore* .
- T.E.NAGARAJA, V.N PATEL, P. THIMMEGOWDA, S.N.SWAMY GOWDA, K. V. KESHAVAIAH, B.T.RAVINDRABABU AND SUNITHA. B.P., 2014, “ಕಬ್ಬಿನ ಸುಧಾರಿತ ಬೇಸಾಯ ಕ್ರಮಗಳು”, *University of Agricultural Sciences, Bangalore*.

		management practices	
8	17-07-2014	Improved Sugarcane Varieties and Agronomic Management Practices	Sri Dharmasthala Rural Development Project, Koppa, Maddur Taluk
9	22-07-2014	Improved Sugarcane Varieties And agronomic Management Practices	NSL Sugars, Koppa, Maddur (T)
10	04-08-2014	Improved Sugarcane Varieties And Agronomic Management Practices, Sustainable Sugarcane cultivation and pest and disease management	Sri Dharmasthala Rural Development Project, Shivalli, Mandya Taluk
11	18-08-2014	Given guest lecture on “sugarcane varieties, improved agronomic management practices, and intercrops in sugarcane”	DATC, V. C. Farm, Mandya
12	30-08-2014	Given guest lecture at one day state level workshop on “Sugarcane productivity and Value Addition – challenges and opportunities”	Kala Mandira, Mandya.
13	05-09-2014	Delivered a guest lecture on improved agronomic management practices in sugarcane for enhancing water productivity.	Bommanadoddi, Maddur Taluk
14	22-09-2014	Water management in sugarcane	KVK, Chamarajanagar
15	26-09-2014	Water management in sugarcane	Gowdahalli, Yalandur Taluk
16	11-10-2014	“Chemical free Jaggery production technologies”	Seminar on “Development of Mandya district” one day workshop organized by “Mandya Development Forum” at Raitha Sbhanganana, Mandya.
17	17-10-2014	Improved Sugarcane Varieties And Agronomic Management Practices, Sustainable Sugarcane cultivation and pest and disease management	Sri Dharmasthala Rural Development Project, Alur, Maddur Taluk
18	29-12-2014	Sustainable sugarcane cultivation for maximum profit	Dharmasthala Rural Development Project, Pandavapura, Pandavapura Taluk
19	21-01-2015	“Drip irrigation in Sugarcane”	RKVY on Precision Agriculture in Sugarcane” at Jaggery Park, V. C. Farm,

			Mandya
20	08-03-2015	‘Drip irrigation in sugarcane and commercial crops’	NSS camp of Govt. Polytechnic College, K. R. Pet. Doddayachenahalli, K. R. Pet Taluk
21	09-03-2015	“Sustainable sugarcane Initiative” – Sugarcane Varieties, agronomic management practices and integrated pest and disease management.	SDRDP, K. M. Doddi, Maddur Taluk.
22	13-03-2015	“Drip Irrigation in sugarcane”	GOK project on up scaling drip irrigation in sugarcane. at Jaggery Park, V. C. Farm, Mandya
23	26-03-2015	zÀQët PÀ£ÁðIPÀPÉÌ ,ÀEPÀÛªAzÀ PÀ©â£À ,ÀÄzsÁjvÀ vÀ½UÀ¼ÄÄ	Two days training programme organized by Dept. of Agriculture, GOK at Jaggery Park
24	26-03-2015	“Drip irrigation in Sugarcane”	
25	27-03-2015	“Mechanization in Sugarcane”	

c. Krishi-mela attended as a resource person

Sl. no	Date	Name	Place
2	29-09-2014	Mysore Dasara Krishimela - 2014	Mysore
3	19-11-2014	UAS, Bangalore, Krishimela - 2014	UAS, Bangalore, GKVK
5	02 & 03-12-2014	ZARS, V. C. Farm, Mandya Krishimela - 2014	ZARS, V. C. Farm, Mandya
6	29-12-2014	Pandavapura Krishi Ustava -2014	Dharmasthala Rural Development Project, Pandavapura, Pandavapura Taluk
7	19-01-2015	Shree Kshethra Suttur Krishimela	Shree Kshethra Suttur
8	05-02-2015	Ramanagara Krishimela-2015	Ramanagara
9	21-02-2015	Mandya Krishimela-2015	Mandya

d. Workshops/Conferences/seminars attended

Sl.no	Date	Name	Place
1	10-08-2014	Attended one day brain storming session on “Enhancing Water Productivity in Cauvery Command Area”	Organized by water Technology centre at ZARS, V. C. Farm, Mandya

2	30-08-2014	Attended one day state level workshop on “Sugarcane productivity and Value Addition – challenges and opportunities”	Kala Mandira, Mandya.
3	11-10-2014	Attended one day workshop on “Development of Mandya district”	Organized by “Mandya Development Forum” at Raitha Sbhagana, Mandya.
4	1 st and 2 nd November	Attended 30 th Biennial Workshop of AICRP on Sugarcane	Held at IISR, Lucknow, UP.
5	18-02-2015	Participated two days seminar “Krishi Vichara Sankirana”	Organized by DOA, Mandya on the eve of Golden jubilee Celebration of Mandya District at Raitha Sbhagana, Mandya.
6	20-02-2015	One day Conference on “Drip Irrigation for Sugarcane”	Organized by GOK, water Source Dept and 2030 Water Resource Group at Taj Vivanta, M. G. Road, Bangalore.

Sl. no	Date of recording	Date of broadcasting	Topic	Place
03	09-02-2015	13-02-2015	Drip Irrigation in Sugarcane	AIR Mysore

e. Radio programme :

f. Field visits Visited: Visited around 30 problematic and drip irrigation plots

g. Consultancy: Given information regarding improved sugarcane cultivation practices and sub-surface drip irrigation to around 60 farmers.

h. Visit Raitha samparka Kendra

Visited to raitha samparka Kendra for consultancy, Kollegala District.

