

Paid-up Trial

EVALUATION OF SASYA SYAMALA (Homoeo plant nutrient)

on Physiological and Productive efficiency of Rice Crop.



FUNDED BY

M/S Master Agro Products.,
MIG-62, OZP Colony,
Srikakulam-532001,
Andhra Pradesh (India)

TESTING CENTRE

DEPARTMENT OF PLANT PHYSIOLOGY

A.P. Rice Research Institute & R.A.R.S.,

MARUTERU – 534 122

West Godavari District (A.P)

SCIENTIST INCHARGE OF THE PROJECT

S. SIVARAMA PRASAD
SCIENTIST (Plant Physiology) (S.G)
A.P.R.R.I., RARS., MARUTERU.

Technical report on “**EVALUATION OF SASYA SYAMALA (Homoeo plant nutrient) - on Physiological and Productive efficiency of Rice Crop.**” during Rabi, 2006-07 and Kharif, 2007

1. Title of the project : EVALUATION OF SASYA SYAMALA (Homoeo plant nutrient) - on Physiological and Productive efficiency of Rice Crop.
2. Name of The Investigator : 1. Dr. S. Sivarama Prasad,
Scientist (Plant Physiology), APRRI, Maruteru
3. Objectives : To find out the effect SASYA SYAMALA on Physiological and Productive efficiency of Rice Crop.
4. Year of commencement : Rabi, 2006-07
5. Conducted by : A. P. Rice Research Institute & R.A.R.S.,
Acharya N.G. Ranga Agricultural University
Maruteru-534 122, West Godavari district, AP
6. Location : The study center was located in Krishna- Godavari zone of Coastal AP. The research center is situated at 16.38⁰ N latitude, 81.44⁰ E longitude with 5 MSL altitude
7. Sponsored by : M/S Master Agro Products.,
MIG-62, OZP Colony,
Srikakulam-532001
Andhra Pradesh (India)
8. PRODUCTS TESTED : Homoeo plant nutrient - SASYA SYAMALA

9. Climate and soils :

The climate conditions prevails in the region are typical subtropical humid to sub humid climate which are characterized by fairly hot summer, mild cold winter and more humid and warm monsoon. The average annual rainfall for the tract is ranging from 900-1300 mm. The rainfall distribution is fairly good with 60% rainfall will be received during June- September, 28% between October to December and 11% between January to May. The soils of the center are Black clay having poor drainage and good water holding capacity. The clay content in the soil ranges from 48-50%, with montmorillonite and illite type of clay minerals. The soil cracks vertically up to a depth of 40-80 cm in hot summer. The soil was ill drained having pH 6.5 and EC 3.4 ds/m. The salt content is very low.


22/3/08

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10. **DETAILS OF THE EXPERIMENT :**

RABI, 2006-07 :

Season : Rabi, 2006-07
Variety : Cotton Dora Sannalu (MTU-1010)
Duration : 120 days

Date of sowing : 16-12-2006
Date of transplanting : 10-01-2007
Date of harvest : 07-04-2007

Spacing : 15 x 15 cm

Plot size : Gross plot : 18.2 m²
Net Plot : 12.9 m²

Recommended NPK : 120 kg N, 60 kg P₂O₅ and 40 kg K₂O per hectare

Design : Randomised Block Design

Replications : Four (4)

KHARIF, 2007 :

Season : Kharif, 2007
Variety : MTU 1061 (Indra)
Duration : 150 days

Date of sowing : 02-07-2007
Date of transplanting : 31-07-2007
Date of harvest : 28-11-2007


Spacing : 20 x 15 cm

Plot size : Gross plot : 18.0 m²
Net Plot : 12.5 m²

Recommended NPK : 60 kg N, 40 kg P₂O₅ and 40 kg K₂O per hectare

Design : Randomised Block Design

Replications : Four (4)

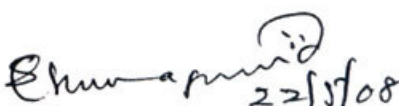

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Treatments: FIVE (5) are common for both Rabi and Kharif seasons as per the protocol.

T. NO	Treatment	TREATMENTS & TIME OF APPLICATION
T 1	No Manure or Fertilizers	Control
T 2	Recommended chemical fertilizers	<u>Rabi, 2006-07 :</u> 120 kg N, 60 kg P ₂ O ₅ and 40 kg K ₂ O per hectare <u>Kharif, 2007 :</u> 60 kg N, 40 kg P ₂ O ₅ and 40 kg K ₂ O per hectare – Nitrogen applied in 3 split doses at Transplanting, 15 DAT and Panicle initiation stage
T 3	Homoeo nutrient SASYA SYAMALA @ 2 ml per lt.	Applied at four stages as basal spraying- 1. Transplanting 2. 15 DAT 3. 25 DAT 4. 50 DAT
T 4	Homoeo nutrient SASYA SYAMALA @ 3 ml per lt.	
T 5	Homoeo nutrient SASYA SYAMALA @ 4 ml per lt.	

Data to be collected :

1. Plant height
2. Tiller Number.
3. Leaf Area Index
4. Biomass production
5. Chlorophyll content – utilizing Chlorophyll meter
6. Tiller to Panicle conversion %
7. Panicle number / m²
8. 1000 grain weight
9. Spikelet number/panicle
10. Filled grain number/panicle
11. Spikelet sterility %
12. Grain yield kg.ha⁻¹


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11. METHODOLOGY :

The field experiments were laid out in a Randomized Block Design during **Rabi, 2006-07 and Kharif, 2007 seasons**. Normal agronomic practices were followed. The data on Physiological parameters like plant height, tiller number, LAI, and biomass production were recorded at 50 % flowering stage as per Laboratory manual for physiological studies of rice of IRRI. The grain yield, yield components were recorded at harvest stage. The data was subjected to statistical scrutiny and presented in tables 1 & 2.

Cultural practices

The experiment was received uniform plant protection and cultural management practices through out the period of crop growth. The entire dose of P & K was applied as basal and N was given in three equal splits at basal, at maximum tillering and PI stages. The schedule sprayings of SASYA SYAMALA treatments were given as per the protocol given above.

12. RESULTS :

Rabi, 2006-07 :

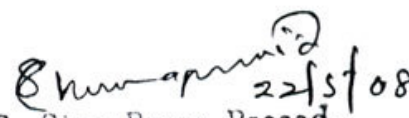
The SASYA SYAMALA treatments were evaluated in rice crop (variety MTU 1010) for their physiological traits and productive efficiency during Rabi, 2006-07 season and the results were presented in tables 1 and 2. Data on the physiological attributes at flowering stage were presented in table -1, while the data on productivity and other related parameters were presented in table – 2.

Plant Height (cm) : Sasya Syamala treatments have increased Plant height significantly over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF (recommended chemical fertilizers) were applied. (Table – 1)

Tiller Number & Panicle Number : Sasya Syamala treatments T-4 & T-5 have increased the Tillers and Panicles significantly over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table – 1)

Chlorophyll meter readings : Sasya Syamala treatments T-4 & T-5 have increased Chlorophyll significantly over the T-1 (no manure or fertilizer) (18.9) plots and are on par with T-2 (22.6) where RCF were applied. (Table – 1)

Leaf Area Index (LAI) : Sasya Syamala treatments T-4 (5.54) & T-5 (5.62) have increased LAI significantly over the T-1 (no manure or fertilizer) (4.78) plots and are on par with T-2 where RCF were applied. (Table – 1)


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Biomass Production (g.m^2) : Sasya Syamala treatments T-4 (1095) & T-5 (1112 g.m^2) have increased Biomass significantly over the T-1 (no manure or fertilizer) (926 g.m^2) plots and are on par with T-2 where RCF were applied. (Table – 1)

Spikelet Number and Filled grain number per Panicle: Sasya Syamala treatments T-4 & T-5 have increased the Spikelet Number and Filled grain number per Panicle significantly over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table – 2)

Spikelet Sterility : Sasya Syamala treatments have not showed any significant decrease in Spikelet sterility over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table – 2)

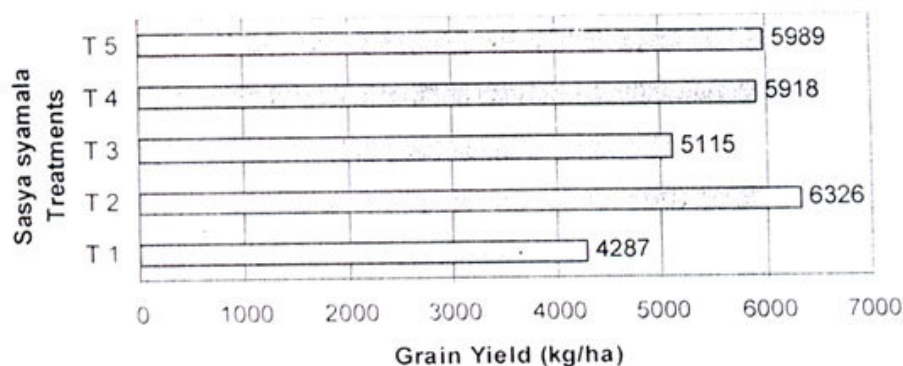
Tiller to Panicle conversion (%) : Sasya Syamala treatments have not showed any significant increase in Tiller to Panicle conversion over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table – 2)

1000 Grain Weight (g) : Sasya Syamala treatments T-4 & T-5 have increased 1000 grain weight significantly over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table – 2)

Grain Yield (kg.ha^{-1}) :

Sasya Syamala treatments T-4 (5918 kg.ha^{-1}) & T-5 (5989 kg.ha^{-1}) have increased Grain yield significantly over the T-1 (4287 kg.ha^{-1}) (no manure or fertilizer) plots and T-3 (5115 kg.ha^{-1}) and are on par with T-2 (6326 kg.ha^{-1}) where RCF were applied. (Table – 2)

**EFFECT OF SASYA SYAMALA ON GRAIN YIELD
(Rabi, 2006-07)**



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**Table No. : 1 EFFECT OF "SASYA SYAMALA" - Homoeo nutrient On
Physiological Efficiency Of Rice Crop (RABI, 2006-07)**

TREATMENTS		Plant Height (cm)	Tiller number per m ²	Panicle Number per m ²	Chloroph yll Meter readings	Leaf Area Index at fl.	Biomass Production (g/sq.m) at Fl.
T 1	No Manure or Fertilizers	91	410	371	18.9	4.78	926
T 2	Recommended chemical fertilizers	97	484	455	22.6	5.84	1194
T 3	Spraying of SASYA SYAMALA @ 2 ml per lt. (At 0, 15, 25 & 50 DAT)	94	432	401	19.7	5.19	986
T 4	Spraying of SASYA SYAMALA @ 3 ml per lt. (At 0, 15, 25 & 50 DAT)	95	466	442	21.4	5.54	1095
T 5	Spraying of SASYA SYAMALA @ 4 ml per lt. (At 0, 15, 25 & 50 DAT)	96	470	440	21.8	5.62	1112
MEAN		95	452	422	20.9	5.39	1063
C.V (%)		2.12	7.04	6.73	7.58	6.45	6.59
C.D at 5 %		3	48	43	2.3	0.52	106


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Table No. :2 EFFECT OF "SASYA SYAMALA" - Homoeo nutrient On Productive Efficiency Of Rice Crop (RABI, 2006-07)

TREATMENTS		Spikelet Number per Panicle	Filled Grain Number per Panicle	Spikelet Sterility (%)	Tiller to Panicle conversion (%)	1000 grain weight (gm)	Grain yield (kg.ha ⁻¹)
T 1	No Manure or Fertilizers	137	118	14.6	90.5	25.4	4287
T 2	Recommended chemical fertilizers	168	142	14.3	94.0	26.5	6326
T 3	Spraying of SASYA SYAMALA @ 2 ml per lt. (At 0, 15, 25 & 50 DAT)	146	125	14.4	92.8	25.9	5115
T 4	Spraying of SASYA SYAMALA @ 3 ml per lt. (At 0, 15, 25 & 50 DAT)	162	141	13.6	94.8	26.2	5918
T 5	Spraying of SASYA SYAMALA @ 4 ml per lt. (At 0, 15, 25 & 50 DAT)	160	138	13.8	93.6	26.3	5989
MEAN		155	133	14.1	93.2	26.1	5527
C.V (%)		7.23	7.09	6.85	6.77	1.85	7.33
C.D at 5 %		17	14	N.S	N.S	0.7	680


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Kharif, 2007 :

The SASYA SYAMALA treatments were evaluated in rice crop (variety MTU. 1061) for their physiological traits and productive efficiency during Kharif, 2007 season and the results were presented in tables 3 and 4. Data on the physiological attributes at flowering stage were presented in table -1, while the data on productivity and other related parameters were presented in table - 2.

Plant Height (cm) : Sasya Syamala treatments and the RCF (recommended chemical fertilizers) have not increased the Plant height and are on par with T-1 (no manure or fertilizer) plots. (Table - 3)

Tiller Number & Panicle Number : Sasya Syamala treatments T-4 & T-5 have increased the Tillers and Panicles significantly over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table - 3)

Chlorophyll meter readings : Sasya Syamala treatments T-4 & T-5 have increased Chlorophyll significantly over the T-1 (no manure or fertilizer) (19.8) plots and are on par with T-2 (22.7) where RCF were applied. (Table - 3)

Leaf Area Index (LAI) : Sasya Syamala treatments T-4 (8.01) & T-5 (7.98) have increased LAI significantly over the T-1 (no manure or fertilizer) (6.99) plots and are on par with T-2 where RCF were applied. (Table - 3)

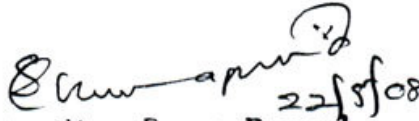
Biomass Production (g.m²) : Sasya Syamala treatments T-4 (1274) & T-5 (1267 g.m²) have increased Biomass significantly over the T-1 (no manure or fertilizer) (1130 g.m²) plots and are on par with T-2 where RCF were applied. (Table - 3)

Spikelet Number & Filled grain number per Panicle: Sasya Syamala treatments T-4 & T-5 have increased the Spikelets and Filled grain per Panicle and are on par with T-1 (no manure or fertilizer) plots and it is increased significantly in T-2 plots where RCF were applied. (Table - 4)

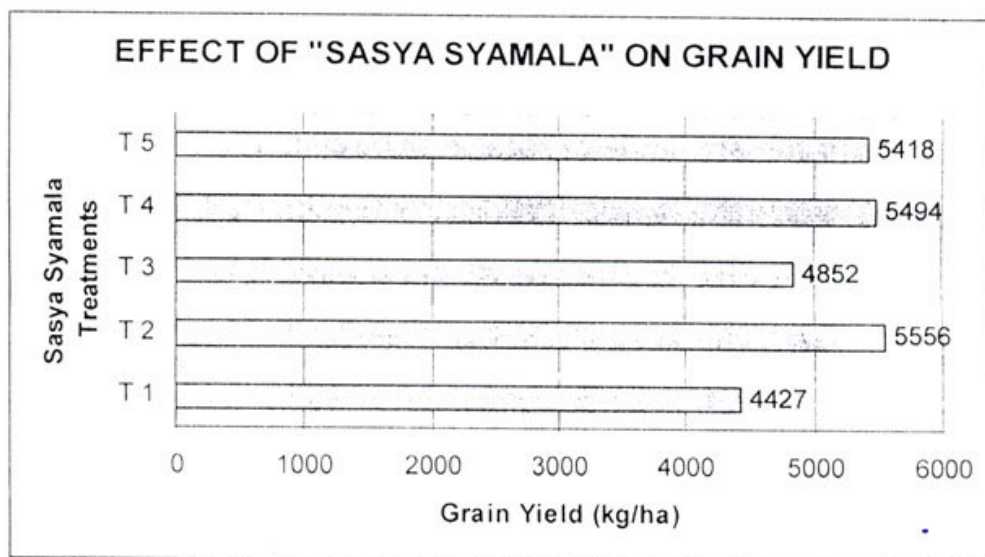
Spikelet Sterility : Sasya Syamala treatments have not showed any significant decrease in Spikelet sterility over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table - 4)

Tiller to Panicle conversion (%) : Sasya Syamala treatments have not showed any significant increase in Tiller to Panicle conversion over the T-1 (no manure or fertilizer) plots and are on par with T-2 where RCF were applied. (Table - 4)

1000 Grain Weight (g.) : 1000 Grain weight did not differ among the treatments.


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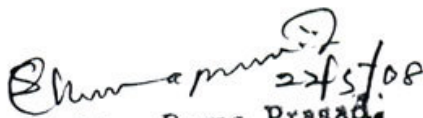
Grain Yield (kg.ha^{-1}) : Sasya Syamala treatments T-4 (5494 kg.ha^{-1}) & T-5 (5418 kg.ha^{-1}) have increased Grain yield significantly over the T-1 (4427 kg.ha^{-1}) (no manure or fertilizer) plots and T-3 (4852 kg.ha^{-1}) and are on par with T-2 (5556 kg.ha^{-1}) where RCF were applied. (Table – 4)



13. CONCLUSIONS :

The Sasya Syamala – a Homoeo plant nutrient was evaluated for its Physiological and productive efficiency on Rice crop during Rabi, 2006-07 and Kharif, 2007 at APRRI., and RARS., Maruteru, Acharya N.G.Ranga Agricultural University, and the following conclusions were given :

1. In both the seasons there was a significant increase in Grain yield in two Sasya Syamala treatments T 4 (SASYA SYAMALA @ 3 ml per lt.) and T 5 (SASYA SYAMALA @ 4 ml per lt.) over the T-1 (no manure or fertilizer) and T-3 (SASYA SYAMALA @ 2 ml per lt.) and are on par with T-2 where RCF (recommended chemical fertilizers) were applied. (Table – 2 & 4)
2. The main contributing factors for this increase in productivity by these Sasya Syamala treatments (T 4 & T 5) are due the increased Physiological efficiency (Tiller number, Leaf area index, Biomass production and Chlorophyll content) and Productive efficiency (Panicle number, Spikelet number and filled grain number).
3. Since the Sasya Syamala treatments T 4 (Sasya Syamala @ 3 ml per lt.) and T 5 (Sasya Syamala @ 4 ml per lt.) on par with each other. Hence, the T 4 i.e., Sasya Syamala @ 3 ml per liter can be preferred.


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**Table No. : 3 EFFECT OF "SASYA SYAMALA" - Homoeo nutrient On
Physiological Efficiency Of Rice Crop (KHARIF, 2007)**

TREATMENTS		Plant Hight (cm)	Tiller number per m ²	Panicle Number per m ²	Chlorop hyll Meter readings	Leaf Area Index at fl.	Biomass Producti on (g/sq.m) at Fl.
T 1	No Manure or Fertilizers	120	298	264	19.8	6.99	1130
T 2	Recommended chemical fertilizers	124	338	310	22.7	8.26	1300
T 3	Spraying of SASYA SYAMALA @ 2 ml per lt. (At 0, 15, 25 & 50 DAT)	121	309	275	21.1	7.41	1209
T 4	Spraying of SASYA SYAMALA @ 3 ml per lt. (At 0, 15, 25 & 50 DAT)	123	332	306	22.1	8.01	1274
T 5	Spraying of SASYA SYAMALA @ 4 ml per lt. (At 0, 15, 25 & 50 DAT)	123	327	299.2	22.4	7.98	1267
MEAN		122	321	291	21.62	7.73	1236
C.V (%)		2.28	7.45	6.76	7.41	6.82	7.02
C.D at 5 %		N.S	36	30	2.4	0.79	131

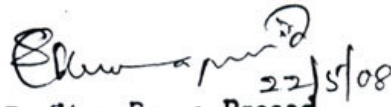
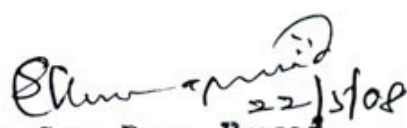

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Table No. : 4 EFFECT OF "SASYA SYAMALA" - Homoeo nutrient On Productive Efficiency Of Rice Crop (KHARIF, 2007)

TREATMENTS		Spikelet Number per Panicle	Filled Grain Number per Panicle	Spikelet Sterility (%)	Tiller to Panicle conversion (%)	1000 grain weight (gm)	Grain yield (kg.ha ⁻¹)
T 1	No Manure or Fertilizers	179	155	13.2	88.6	19.3	4427
T 2	Recommended chemical fertilizers	202	178	12.0	91.8	19.5	5556
T 3	Spraying of SASYA SYAMALA @ 2 ml per lt. (At 0, 15, 25 & 50 DAT)	186	162	12.7	89.0	19.4	4852
T 4	Spraying of SASYA SYAMALA @ 3 ml per lt. (At 0, 15, 25 & 50 DAT)	196	172	12.2	92.1	19.6	5494
T 5	Spraying of SASYA SYAMALA @ 4 ml per lt. (At 0, 15, 25 & 50 DAT)	194	170	12.4	91.5	19.5	5418
MEAN		191	167	12.5	90.6	20	5149
C.V (%)		7.38	6.87	7.08	6.55	1.84	7.14
C.D at 5 %		21	17	N.S	N.S	N.S	554


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