
WELCOME
PROFESSOR JAYASHANKAR TELANGANA STATE AGRICULTURAL UNIVERSITY
HYDERABAD, INDIA

INTEGRATED NUTRIENT MANAGEMENT IN

SUMMER SESAMUM (*Sesamum indicum*)



PRESENTED BY

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Introduction

- **Sesamum is an important edible oil seed crop in India and it is called as " Queen of oil seeds" because its quality.**

- **Sesamum is low input cost oilseed crop getting a place of pride in agriculture across the socio-economical regimes due to its industrial and nutritional characteristics.**

- **Sesamum is cultivated for its seed, which contains 38-54% oil of very high quality and 18-25% protein.**

- **Globally- sesame cultivated in area of 6.57 m ha with a production and productivity of 2.94 m tonnes and 447 kg/ha.**
- **In India - area of 1.705 m ha with a production of 0.685 m tonnes and productivity of 402 kg/ha.**

Bottle necks for low production of sesame:

- **Lack of High Yielding Varieties.**
- **Gap in adopting crop management practices.**
- **Nutrient stress.**
- **Vagaries of monsoon during *Kharif* coupled with pest and diseases.**

- **Hence summer sesamum has recently been introduced in vast areas in India whereever irrigation facilities are available.**

- **Besides… proper and balanced fertilizer schedule is also important among the various technologies for high production of the crop especially Nitrogen fertilizers.**

- **Nitrogen fertilizers is most potent factor in crop production and costly input. Hence 'N' can be partially substituted with organic fertilizers like Farm yard manure, Vermicompost and Poultry manure.**

Objectives:

To evaluate the effect of organic manures and inorganic fertilizers on growth, yield and quality of summer sesamum.

Experimental details

Location	**: Student farm, College of Agriculture, RJNR, PJTSAU**
Season	**: Summer, 2013**
Variety	**: Swetha**
Seed rate	**: 5 kg/ha**
Sowing date	**: 30th January , 2013**
Spacing	**: 30 cm X 10 cm**
Plot size	**: 4.5 m X 4m**
Treatments	**: 9**
Replications	**: 3**
Experimental Design	**: Randomized Block Design**
Recommended dose of fertilizers	**: 60:20:20 kg NPK ha^{-1} (Rabi/ summer) 40 kg N /ha in *Kharif***

Treatmental details:

- T_1 - 100% RDN
- T_2- 100% RDN + 1% foliar spray- Humic acid (Branching+ Flwg)
- T_3- 100% RDN + 1% foliar spray- Fulvic acid (Branching+ Flwg)
- T_4- 75% RDN + 25 % N through FYM
- T_5- 75 % RDN + 25 % N through Vermicompost
- T_6- 75 % RDN + 25 % N through Poultry manure
- T_7- 50% RDN + 50 % N through FYM
- T_8- 50% RDN + 50 % N through Vermicompost
- T_9- 50% RDN + 50 % N through Poultry manure

Table 1: Growth parameters of summer sesamum as influenced by organic and inorganic fertilizers

Treatments	Plant height (cm)	Dry matter production (kg/ha)	Leaf area index
T_1- 100% RDN	111.80	2123.87	0.34
T_2- 100% RDN + 1% foliar spray- Humic acid	110.43	2089.10	0.32
T3-100% RDN + 1% foliar spray- Fulvic acid	107.07	2015.60	0.30
T4-75% RDN + 25% N through FYM	87.67	1629.02	0.16
T5- 75 % RDN + 25% N through Vermicompost	100.27	1891.53	0.22
T6-75 % RDN + 25% N through Poultry manure	94.50	1764.55	0.19
T7-50% RDN + 50 % N through FYM	69.60	1242.67	0.05
T8- 50% RDN + 50 % N through Vermicompost	81.33	1508.66	0.12
T9- 50% RDN + 50 % N through Poultry manure	75.45	1373.05	0.09
SEm±	2.30	40.52	0.01
CD (P %0.05)	5.64	115.48	0.024

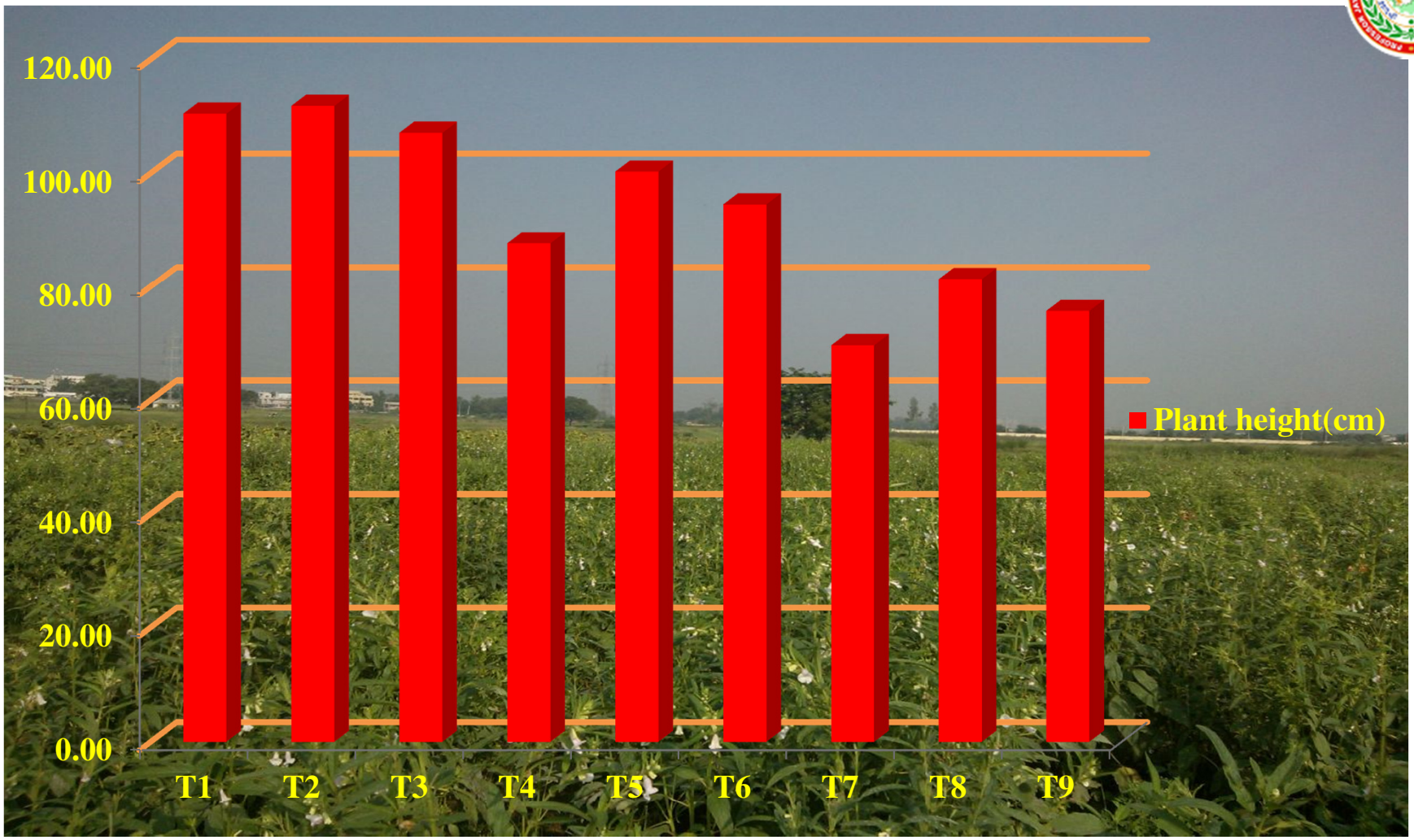


Fig 1: Plant height of summer sesamum as influenced by organic and inorganic fertilizers

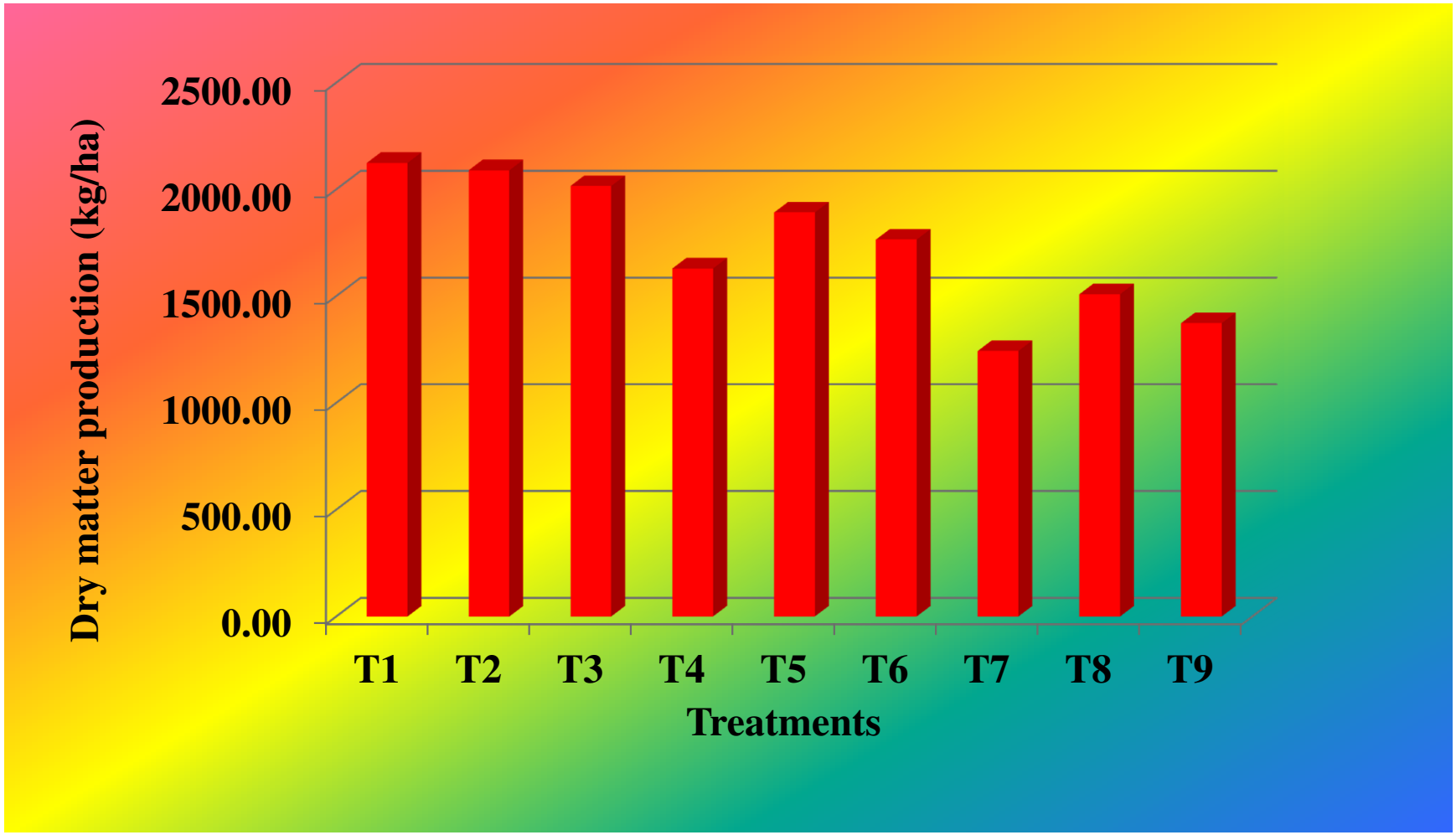


Fig 2: Dry matter production(kg/ha) of summer sesamum as influenced by organic and inorganic fertilizers

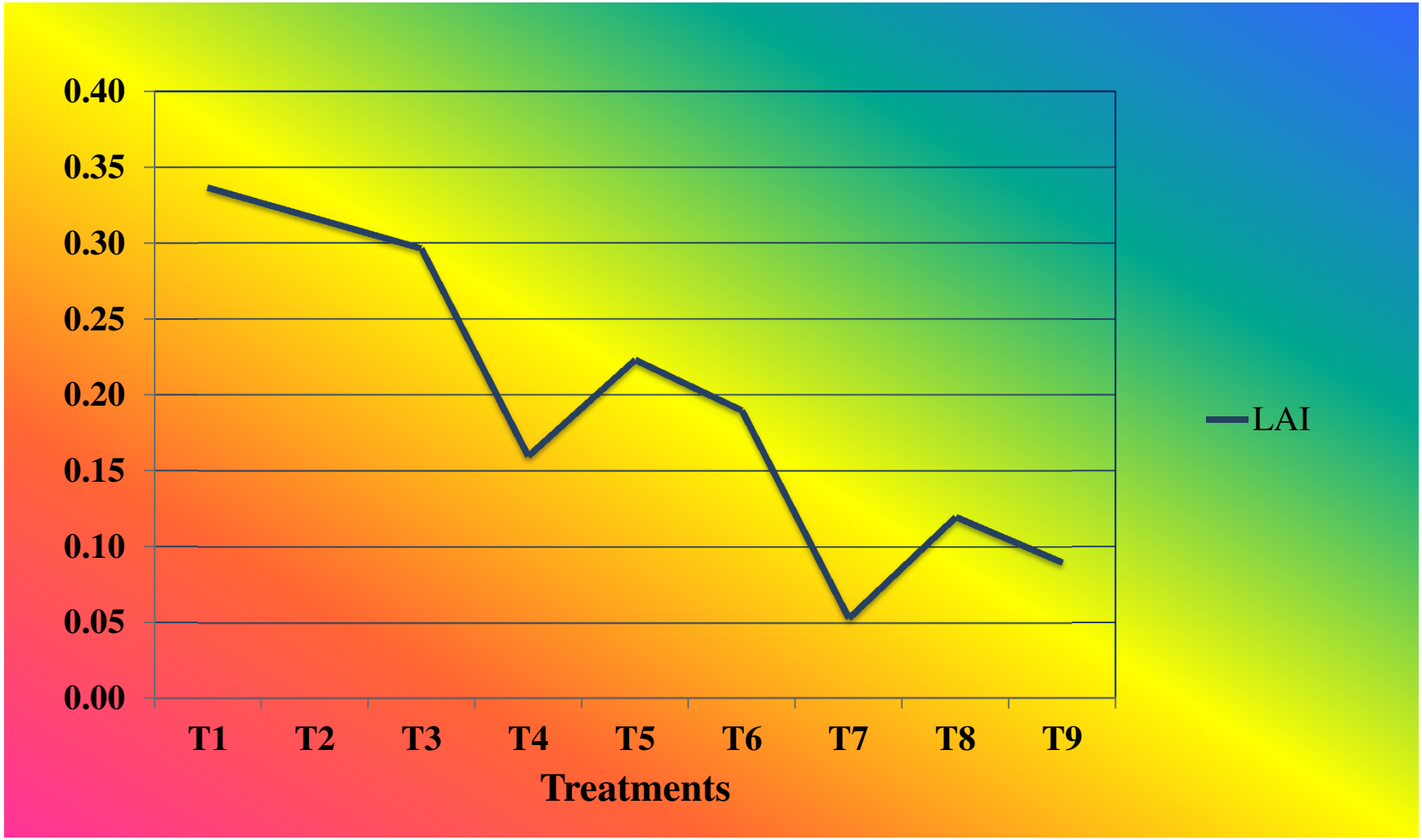


Fig 3: Leaf area Index (LAI) of summer sesamum as influenced by organic and inorganic fertilizers

Table 2: Yield parameters of summer sesamum as influenced by organic and inorganic fertilizers

Treatments	No. of Branches /Plant	No.of Capsules/ plant	No.of Seeds/Capsule
T_1- 100% RDN	5.93	65.37	57.63
T_2- 100% RDN + 1% foliar spray- Humic acid	5.50	62.43	52.80
T3-100% RDN + 1% foliar spray- Fulvic acid	5.20	59.60	51.67
T4-75% RDN + 25% N through FYM	4.07	36.47	34.37
T5- 75 % RDN + 25% N through Vermicompost	4.80	50.33	45.30
T6-75 % RDN + 25% N through Poultry manure	4.43	42.57	40.13
T7-50% RDN + 50 % N through FYM	3.00	20.07	20.80
T8- 50% RDN + 50 % N through Vermicompost	3.80	30.88	29.73
T9- 50% RDN + 50 % N through Poultry manure	3.43	25.57	25.27
SEm±	0.2	2.04	1.43
CD(P%0.05)	0.47	5.01	4.25

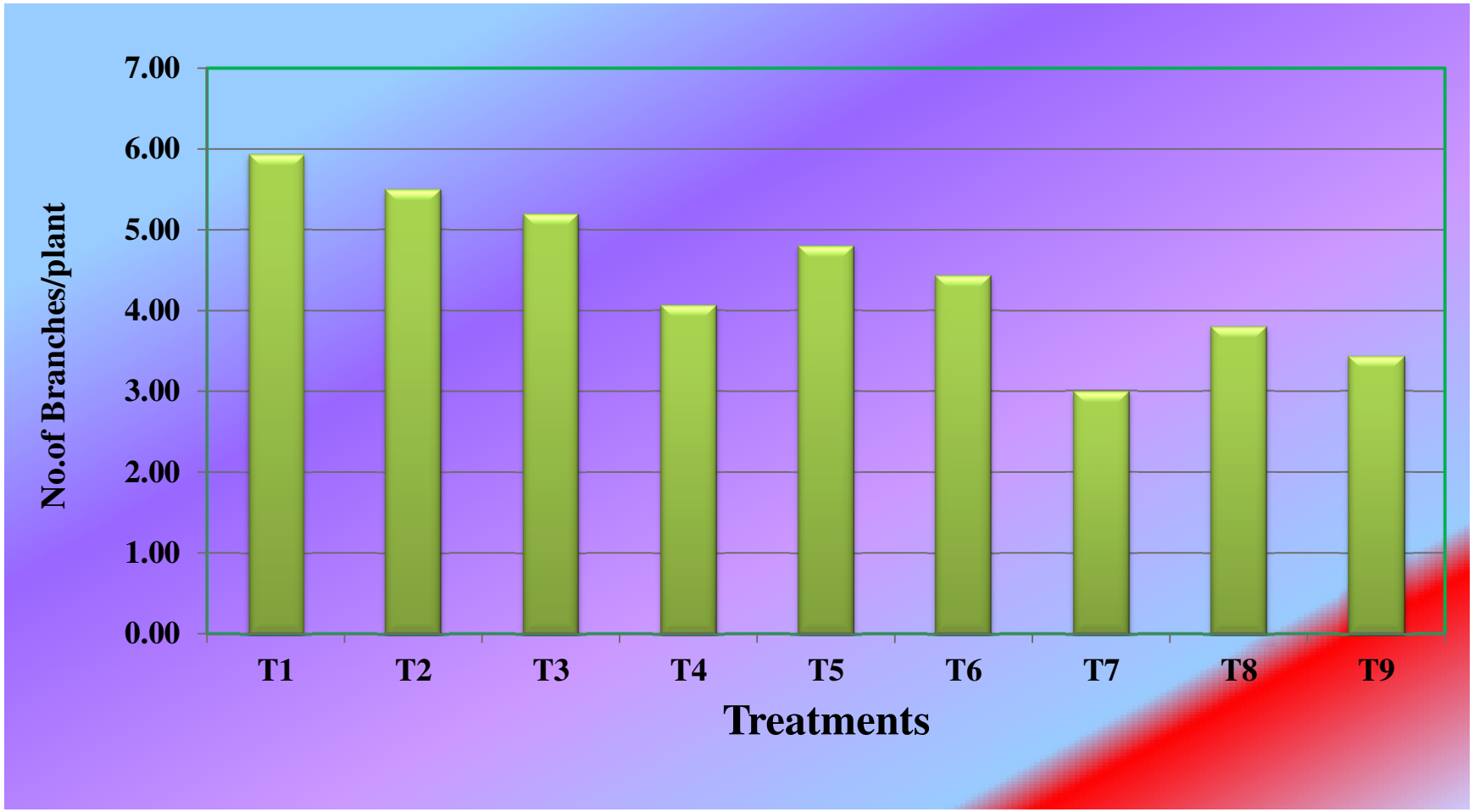


Fig 4: No. of branches/plant of summer sesamum as influenced by organic and inorganic fertilizers

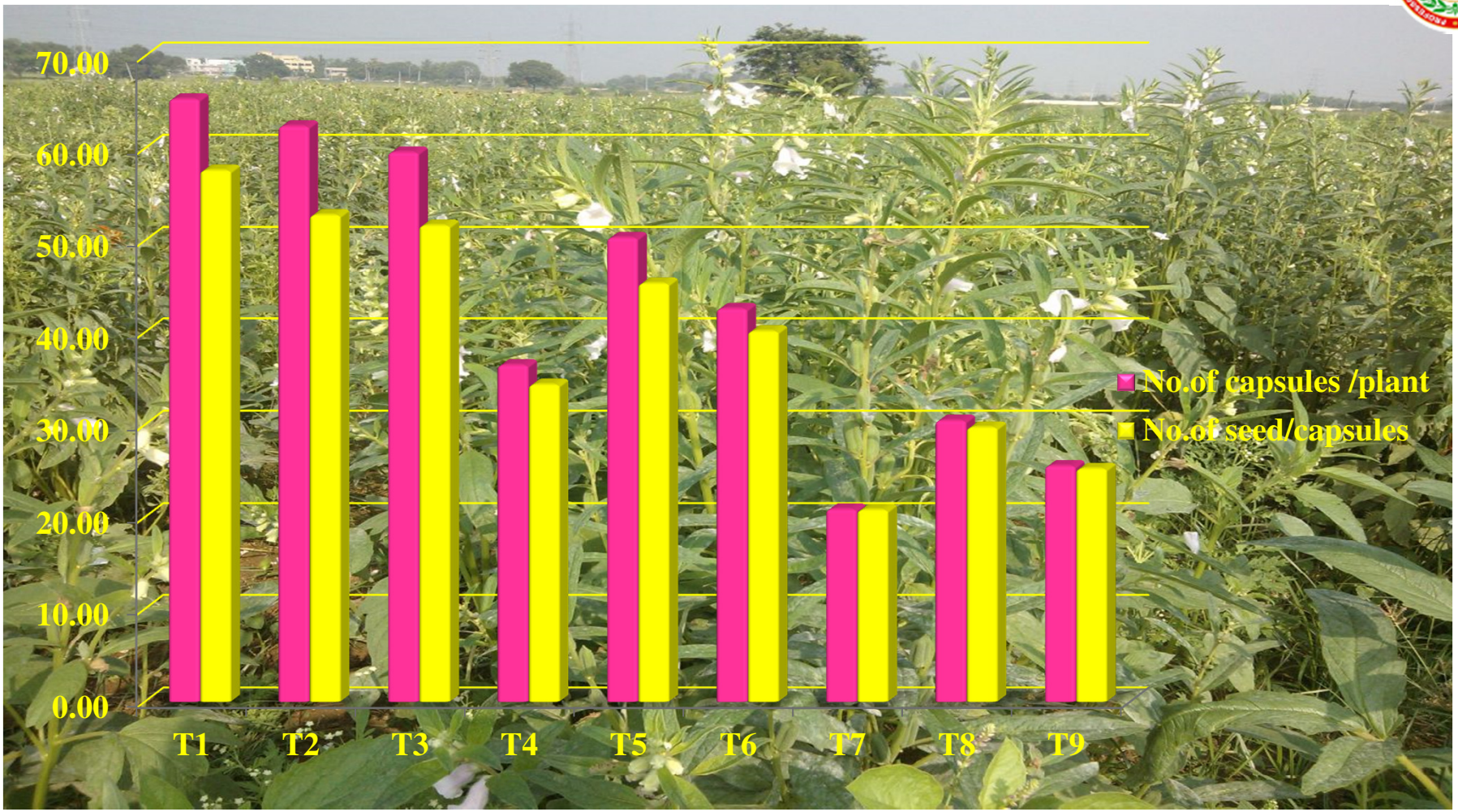


Fig 5: No.of capsules/plant and No.of seeds/capsule of summer sesamum as influenced by organic and inorganic fertilizers

Table 3: Seed yield, oil content and Oil yield of summer sesamum as influenced by organic and inorganic fertilizers

Treatments	Seed yield (kg/ha)	Oil content (%)	Oil yield (kg/ha)
T_1- 100% RDN	714.55	49.70	355.16
T_2- 100% RDN + 1% foliar spray- Humic acid	710.27	49.57	352.08
T3-100% RDN + 1% foliar spray- Fulvic acid	704.77	49.33	347.58
T4-75% RDN + 25% N through FYM	506.27	48.22	243.89
T5- 75 % RDN + 25% N through Vermicompost	619.88	48.67	295.74
T6-75 % RDN + 25% N through Poultry manure	567.63	48.50	274.63
T7-50% RDN + 50 % N through FYM	343.23	47.12	161.33
T8- 50% RDN + 50 % N through Vermicompost	449.39	47.89	215.20
T9- 50% RDN + 50 % N through Poultry manure	394.87	47.64	187.52
SEm±	17.17	1.89	8.23
CD(P %0.05)	48.17	NS	20.13

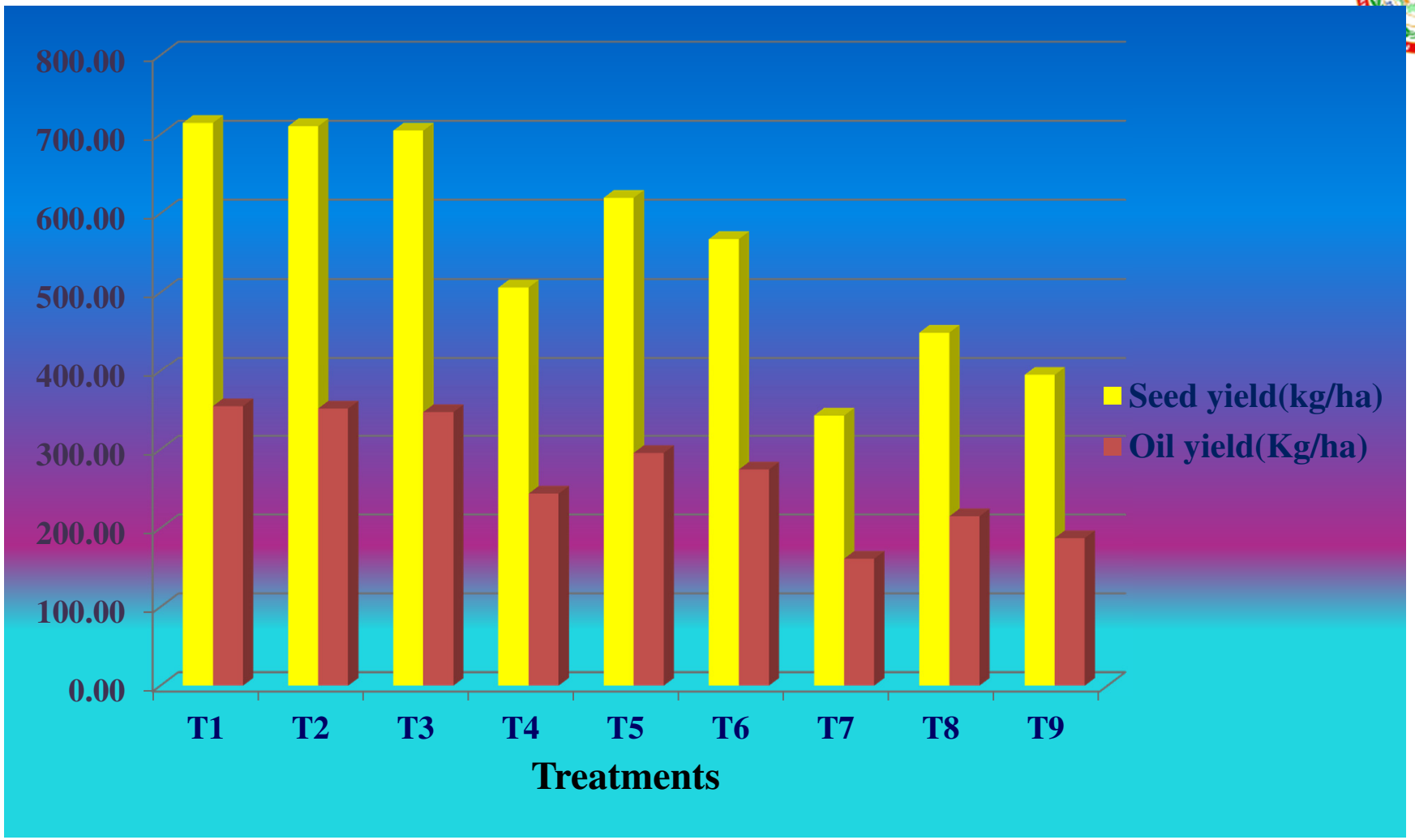


Fig 5: Seed yield (kg/ha) and Oil yield (kg/ha) of summer sesamum as influenced by organic and inorganic fertilizers

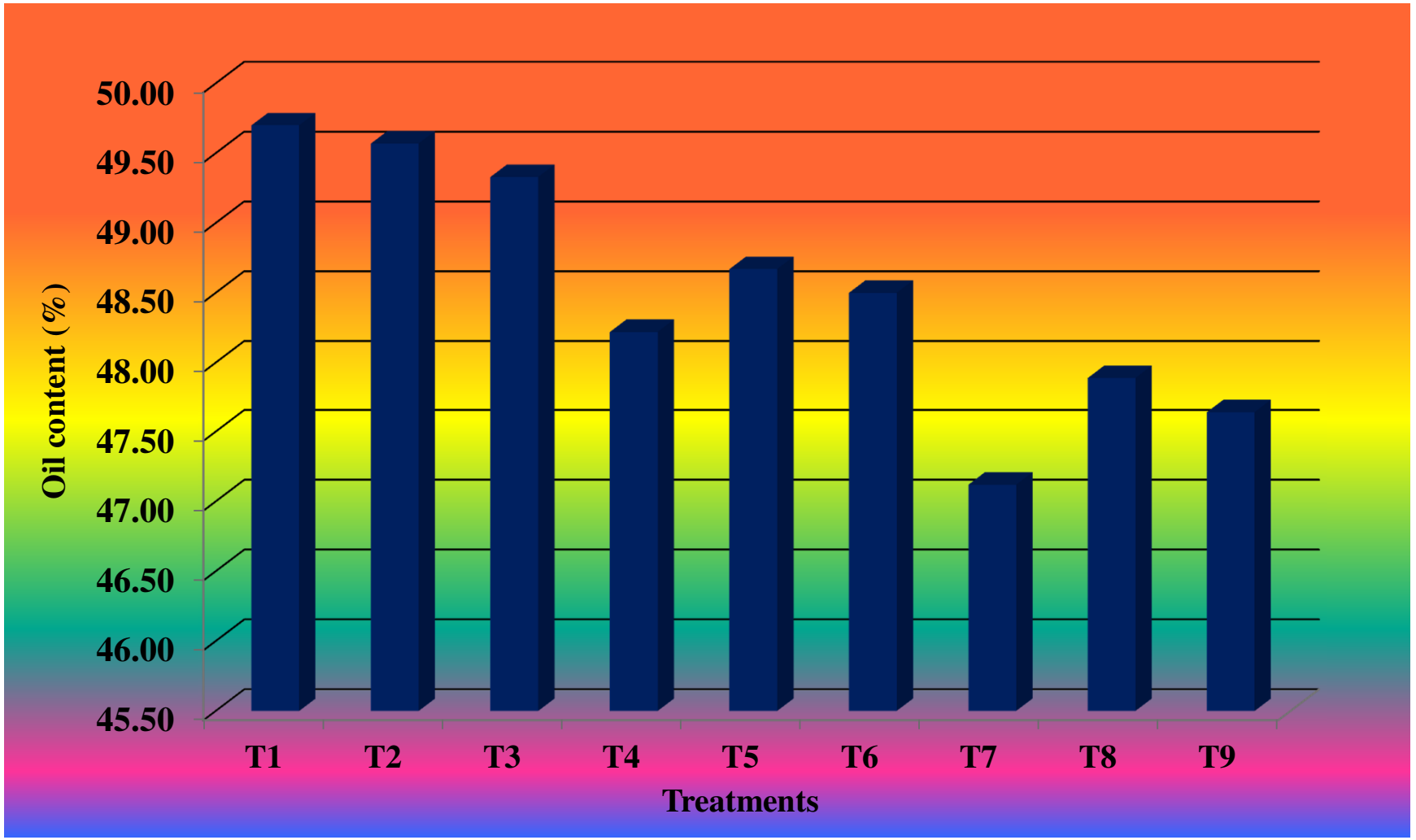


Fig 6: Oil content (%) of summer sesamum as influenced by organic and inorganic fertilizers

Conclusions

- **Among the three levels of nitrogenous fertilizers used 100 % RDN had given the best results (growth and yield).**

- **Of the three organic manures viz., FYM, Vermicompost and Poultry manure, Vermicompost @ 25% substitution had resulted higher growth parameters, maximum seed yield and oil content.**

- **Among the two foliar sprays, Humic acid @1% was found to be better in terms of growth and yield.**


Thank you