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# Impact of integrated nutrients management on soil quality, yield and quality of Chilli (*Capsicum annum* L.) under inceptisol

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**Abstract**
The field experiment was conducted during *Kharif* 2018-2019 at farm, Department of Soil Science and Agricultural Chemistry, College of Agriculture Latur. The experiment was laid out in RBD with ten treatments and three replications. The treatments $T_1$ (control), $T_2$ (100% RDF), $T_3$ (125% RDF), $T_4$ (150% RDF), $T_5$ (100% RDF+20 kg/ha $FeSO_4$) $T_6$ (100% RDF+20 kg/ha $ZnSO_4$), $T_7$ (100% RDF+ FYM 5 t/ha), $T_8$ (75% RDF+ Vermicompost @ 2.5 t/ha) $T_9$, (100% RDF + Neemcake @ 2.5 t/ha) and $T_{10}$ (100% RDF +Tank silt @ 5t/ ha +FYM @ 2.5 t/ha).The application of different doses of organic and inorganic fertilizer decreased the pH, EC and $CaCO_3$. Whereas, the organic carbon was significantly increased. The maximum availability of macro, micro nutrient and Chilli yield (q $ha^{-1}$) was found in 100% RDF+ Tank silt @ 5 t/ha + FYM @ 2.5 t/ha and significantly superior over rest of treatment after harvest of Chilli. The maximum yield was reported at 100% RDF+ Tank silt @ 5 t $ha^{-1}$ FYM @ 2.5 t $ha^{-1}$ and which was significantly superior over the rest of treatments. The maximum vitamin C (61.88 mg $100g^{-1}$) was noticed in 100% RDF + FYM @ 5 t $ha^{-1}$ Whereas, Capsaicin content in Chilli. (0.29%) in $T_{10}$ 100% RDF+ Tank silt @ 5t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$It is indicated that the application of 100% RDF+ Tank silt @ 5t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$ improve the yield and pungency test of chilli.

**Keywords:** Tank silt, neem cake, FYM, soil quality, yield and quality of chilli

## Introduction
Chilli (*Capsicum annum* L.) is one of the most important commercial crops of India which belongs to family Solanaceae. In India the most important chilli growing states are Karnataka, Tamil Nadu, Odisha, Maharashtra, Rajasthan and West Bengal. Andhra Pradesh is the largest producer of chilli in India, contributes about 30% to the total area under chilli, followed by Karnataka (20%), Maharashtra (15%), Odisha (9%), Tamil Nadu (8%) and other states contributing 18% to the total area under chilli (Kumar, 2013). The recycling of waste through earthworm increases the quality and contents of nutrient resulting in improvement of soil fertility, organic matter content, physical and biological properties of soil. Neem cake has adequate quantity of NPK in organic form for plant growth. Being totally botanical product it contains 100% natural NPK content and other essential micro nutrients. Tank sediments have 20% higher nutritive value over their respective cultivated catchment soil. (Anonymous, 2003 and Vaidya and Dhawan 2014) [1, 17]. Tank sediments can be used preferably in the fields of respective catchment to build up their productivity. Addition of tank sediments to cultivated fields improves the physic-chemical properties of the soil which results in good crop growth and higher yield (Kabir, 1991; Vaidya and Dhawan, 2015) [5].

## Materials and Methods
The field experiment was conducted during *Kharif* season 2018 -19 at farm Soil Science and Agriculture Chemistry, College of Agriculture, Latur. The experiment under chilli with various treatments. $T_1$ (control), $T_2$ (100% RDF), $T_3$ (125% RDF), $T_4$ (150% RDF), $T_5$ (100% RDF+20 kg/ha $FeSO_4$) $T_6$ (100% RDF+20 kg/ha $ZnSO_4$), $T_7$ (100% RDF+ FYM 5 t/ha), $T_8$ (75% RDF+ Vermicompost @ 2.5 t/ha) $T_9$, (100% RDF + Neemcake @ 2.5 t/ha) and $T_{10}$ (100% RDF +Tank silt @ 5t/ ha +FYM @ 2.5 t/ha). The experiment was laid out in RBD design in all there were ten treatments and three replications. The soil was with pH (7.9), organic carbon content 0.52 percent, $CaCO_3$ content 6.4 percent and available NPK 132.9, 9.03, 538 kg $ha^{-1}$ respectively and the tank silt was clay, alkaline (7.4) and calcareous (12.3%) in nature and available NPK was 273, 23.5 and 445 kg $ha^{-1}$ respectively. The total NPK content in tank silt (0.65, 0.72 & 1.83%), vermicompost (1.12, 1.2 & 1.5%), FYM (0.62, 0.2 & 0.5%) and neemcake (2.0, 1.0 & 1.0%). Recommended dose of fertilizers (100:50:50 kg $ha^{-1}$) through urea, single super phosphate and murate of potash and organic manures through

FYM, Tank silt, Vermicompost and neemcake. The growth observation was recorded at 30, 60 and 90 DAS. Soil quality and quality of chilly were determined as per standard procedure.

## Results and Discussion

### Effect on chemical properties of soil

**Soil reaction (pH):** The results pertaining to the effect of organic and inorganic fertilizers on pH of soil after harvesting of chilli are presented in table 4.1 indicated that the pH value ranged from 7.6 to 7.8 and which was found non-significant. The maximum pH was noticed in treatment $T_2$ (100% RDF) and the minimum pH value was noticed in treatment $T_7$ (100% RDF + FYM @ 5t $ha^{-1}$). This indicated that the combination of inorganic fertilizers and organic manures reduced the pH of soil. Similar result was reported by Dutta *et al.* (2003) [4].

**Table 1:** Effect of organic and inorganic fertilizers on physical and chemical properties of soil under chilli

| Treatments | PH | EC ($dSm^{-1}$) | Organic Carbon (g $kg^{-1}$) | $CaCO_3$ (%) | Bulk density (Mg $m^{-3}$) |
|---|---|---|---|---|---|
| $T_1$- Control | 7.73 | 0.38 | 5.9 | 5.67 | 1.62 |
| $T_2$- 100% RDF (100: 50: 50 NPK kg $ha^{-1}$) | 7.87 | 0.37 | 6.3 | 4.80 | 1.44 |
| $T_3$- 125% RDF | 7.77 | 0.34 | 6.6 | 4.53 | 1.52 |
| $T_4$- 150% RDF | 7.70 | 0.33 | 6.5 | 5.43 | 1.51 |
| $T_5$- 100% RDF+20 kg $ha^{-1}$ $FeSO_4$ | 7.80 | 0.35 | 6.7 | 5.10 | 1.48 |
| $T_6$- 100% RDF+20 kg $ha^{-1}$ $ZnSO_4$ | 7.73 | 0.33 | 7.1 | 4.03 | 1.43 |
| $T_7$- 100% RDF+ FYM @ 5 t $ha^{-1}$ | 7.63 | 0.31 | 7.6 | 4.67 | 1.41 |
| $T_8$- 75% RDF+ Vermicompost @ 2.5 t $ha^{-1}$ | 7.67 | 0.34 | 7.2 | 4.67 | 1.46 |
| $T_9$- 100% RDF + Neemcake @ 2.5 t $ha^{-1}$ | 7.70 | 0.34 | 6.6 | 4.07 | 1.47 |
| $T_{10}$- 100% RDF + Tank silt @5t $ha^{-1}$ +FYM @2.5 t $ha^{-1}$ | 7.77 | 0.32 | 7.9 | 5.62 | 1.40 |
| Mean | 7.73 | 0.32 | 6.96 | 4.614 | 1.45 |
| S.E.(m)± | 0.109 | 0.0358 | 0.400 | 0.485 | 0.069 |
| C.D at 5% | NS | NS | 1.189 | NS | NS |
| Initial status | 7.9 | 0.47 | 5.5 | 6.4 | 1.59 |

**Electrical conductivity (EC)**

The results pertaining to the effect of organic and inorganic fertilizers on electrical conductivity of soil after harvesting of chilli are presented in table 4.1 indicated that the electrical conductivity of soil varies from 0.31 to 0.38 $dSm^{-1.}$ The minimum electrical conductivity (0.31 $dSm^{-1}$) was noticed in treatment $T_7$ (100% RDF+ FYM @ 5t $ha^{-1}$) and the maximum electrical conductivity (0.38 $dSm^{-1}$) was found in $T_1$ (control) after harvest of chilli. This indicated that the application of organic and inorganic fertilizers reduced the electrical conductivity of soil due leaching of salts and some utilized by the crop. Mann *et al.* (2006) [9] observed that the decrease in EC of post-harvest soil samples with application of organic and inorganic fertilizers.

**Organic carbon**

The data pertaining to organic carbon presented in table 1 indicated that the organic carbon varies from 5.9 to 7.9 g $kg^{-1}$. The initial status of organic carbon in experimental site soil was 5.5 g $kg^{-1}$. After harvesting of chilli the maximum organic carbon (7.9 g $kg^{-1}$) was noticed in treatment $T_{10}$ 100% RDF + Tank silt @ 2.5 t $ha^{-1}$ + FYM @ 5 t $ha^{-1}$ which was significantly superior over rest of the treatment. The minimum soil organic carbon in treatment $T_1$ (control). Kadam *et al.* (2017) [7] reported that the application of tank silt in combination with FYM improve organic carbon in soil comparative than its alone application in soil similar observation also reported by improvement of organic carbon due to addition of tank silt and organic manure in soil Patil *et al.* (2017) [15].

**Calcium carbonate**

The data on soil calcium carbonate as influenced by the different treatments are presented in table 1. Among the all treatments maximum $CaCO_3$ (5.67%) was recorded in $T_1$ (control) and minimum $CaCO_3$ (3.67%) was recorded at treatment $T_9$ (100% RDF +Neemcake @ 2.5 t $ha^{-1}$) the $CaCO_3$ in soil was observed in non significant difference in treatment may be due to combination of organic sources and inorganic fertilizers. The initial status of $CaCO_3$ in experimental site soils was 6.4 per cent. Kadam *et al.* (2017) [7] reported that the effect of different doses of tank silt and FYM on $CaCO_3$ content in soil was found non-significant. The application of organic manure, FYM and Vermicompost reduced the $CaCO_3$ content in soil might be due to addition of sufficient organic matter in the soil.

**Bulk Density:** The data pertaining to bulk density of soil presented in table 1 indicated that it varies from 1.40 to 1.62 Mg $m^{-3}$ and the initial status of bulk density 1.59 Mg $m^{-3}$ after harvesting of chilli the maximum bulk density (1.62 Mg $m^{-3}$) was noticed in treatment T1 (control) and the minimum soil bulk density was recorded in T10 (100% RDF +Tank silt @ 5t $ha^{-1}$ + FYM 2.5 t $ha^{-1}$). Kadam *et al.* (2017) [7] reported that decrease the bulk density after harvest of chilli with the application of tank silt and FYM.

**Table 2:** Available N, P, K (kg $ha^{-1}$) as influenced by organic and inorganic fertilizers application in chilli.

| Treatments | Available N (kg $ha^{-1}$) | Available P (kg $ha^{-1}$) | Available K (kg $ha^{-1}$) |
|---|---|---|---|
| $T_1$- Control | 135.13 | 8.44 | 589.10 |
| $T_2$- 100% RDF (100: 50: 50) NPK kg $ha^{-1}$) | 178.61 | 9.08 | 680.97 |
| $T_3$- 125% RDF | 184.78 | 9.94 | 717.45 |
| $T_4$- 150% RDF | 193.31 | 10.15 | 740.17 |
| $T_5$- 100% RDF+20 kg $ha^{-1}$ $FeSO_4$ | 203.42 | 12.90 | 746.40 |
| $T_6$- 100% RDF+20 kg $ha^{-1}$ $ZnSO_4$ | 214.16 | 16.24 | 759.22 |
| $T_7$- 100% RDF+ FYM @ 5 t $ha^{-1}$ | 224.03 | 17.53 | 773.91 |
| $T_8$- 75% RDF+ Vermicompost @ 2.5 t $ha^{-1}$ | 216.75 | 17.71 | 770.17 |

| | | | |
|---|---|---|---|
| $T_9$- 100% RDF + Neemcake @ 2.5t $ha^{-1}$ | 187.23 | 10.17 | 728.90 |
| $T_{10}$- 100% RDF + Tank silt @5t $ha^{-1}$+FYM @2.5 t $ha^{-1}$ | 226.55 | 19.03 | 778.06 |
| Mean | 196.39 | 13.119 | 728.43 |
| S.E.(m)± | 2.098 | 0.713 | 33.204 |
| C.D at 5% | 6.23 | 2.119 | 69.660 |
| Initial status | 132.9 | 9.02 | 538.00 |

**Available N**

The data regarding to effect of different doses of organic and inorganic fertilizer on availability of nitrogen in soil after harvest of chilli crop presented in table 2 indicated that the available N in soil was found in the ranged of 135.13 to 226.55 kg $ha^{-1}$. Among the all various treatment application of $T_{10}$ (100% RDF + Tank silt @ 5t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$) showed significantly higher N (226.55 kg $ha^{-1}$) and at par with the $T_7$ (100% RDF+ FYM @ 5 t $ha^{-1}$) and superior over the rest at the treatments. Patil *et al.* (2017) [17] reported that ammonical nitrogen ($NH_4$) formed from the mineralized organic matter is adsorbed on clay complexes or oxidized to $NO_3^-$ or immobilized by soil microbes but very little of it leaches down. The result are in conformity with these earlier reported by Kadam *et al.* (2016) [6] result found that significant increases available N was found maximum in tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$ + RDF. Similar result reported by Kadam *et al.* (2017) [7].

**Available P**

The effect of organic and inorganic fertilizers application on availability of phosphorous in soil after harvest of chilli crop presented in table 2 indicated that the available phosphorous varies from 8.44 to 19.03 kg $ha^{-1}$. among all treatments $T_{10}$ (100% RDF +Tank silt @ 5t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$) showed maximum P (19.03 kg $ha^{-1}$) and which was at par with $T_7$ (100% RDF + FYM @ 5 t $ha^{-1}$) and $T_8$ (75% RDF + Vermicompost @ 2.5 t $ha^{-1}$) and significantly superior over rest of treatment. The minimum P (8.44 kg $ha^{-1}$) was noted in treatment T1 (control). Prasad and Rokima (1998) [16] reported that combination of inorganic fertilizers with FYM might have helped in the solublization of fixed P to soluble from making it easily available to the plant. These findings were closely similar with Shahi *et al.* (2009).

**Available K**

The result pertaining to available K as influenced by organic and inorganic fertilizers after harvesting of chilli presented in table 2 indicated that the available K varies from (589 to 778.0 kg $ha^{-1}$). The highest available K (778.06 kg $ha^{-1}$) was observed in treatment $T_{10}$ (100% RDF +Tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t/ha) which was at par with treatment $T_7$ (100% RDF+ FYM @ 5 t $ha^{-1}$) $T_8$ (75% RDF + Vermicompost @ 2.5 t $ha^{-1}$) and $T_6$ (100% RDF 20 kg $ZnSO_4$ $ha^{-1}$) lowest (589.10. kg $ha^{-1}$) in treatment $T_1$ (control). Similar result were observed by Bhanavase *et al.* (2011) [3] that the tank silt application improved $K_2O$ from 232.6 to 283.4 kg $ha^{-1}$ in soil.

**Table 3:** Available micronutrient as influenced by organic & inorganic fertilizers application in chilli.

| Treatments | Available Fe (mg $kg^{-1}$) | Available Mn (mg $kg^{-1}$) | Available Zn (mg $kg^{-1}$) | Available Cu(mg $kg^{-1}$) |
|---|---|---|---|---|
| $T_1$- Control | 5.21 | 2..99 | 0.91 | 0.33 |
| $T_2$- 100% RDF (100: 50: 50) NPK kg $ha^{-1}$) | 5.58 | 3.00 | 1.01 | 0.36 |
| $T_3$- 125% RDF | 6.44 | 3.20 | 1.17 | 0.46 |
| $T_4$- 150% RDF | 6.67 | 4.23 | 1.04 | 0.40 |
| $T_5$- 100% RDF+20 kg $ha^{-1}$ $FeSO_4$ | 9.20 | 3.66 | 1.38 | 1.37 |
| $T_6$- 100% RDF+20 kg $ha^{-1}$ $ZnSO_4$ | 6.51 | 3.26 | 2.14 | 1.59 |
| $T_7$- 100% RDF+ FYM @ 5 t $ha^{-1}$ | 8.22 | 3.30 | 1.23 | 2.21 |
| $T_8$- 75% RDF+ Vermicompost @ 2.5 t $ha^{-1}$ | 7.68 | 4.84 | 1.83 | 2.49 |
| $T_9$- 100% RDF + Neemcake @ 2.5 t $ha^{-1}$ | 6.76 | 3.68 | 1.06 | 2.25 |
| $T_{10}$- 100% RDF + Tank silt @ 5t $ha^{-1}$ +FYM @ 2.5 t $ha^{-1}$ | 8.87 | 5.05 | 1.46 | 2.52 |
| Mean | 7.11 | 3.72 | 1.24 | 1.39 |
| S.E.(m)± | 0.417 | 0.453 | 0.279 | 0.149 |
| C.D at 5% | 1.24 | 1.34 | 0.83 | 0.44 |

**Available Fe**

Effect of organic and inorganic fertilizers on availability of Fe in soil after harvest of chilli crop presented in table 3 indicated that the available Fe was ranged from 5.21 to 9.20 mg $kg^{-1}$. The maximum Fe content was found in treatment $T_5$ (100% RDF+ 20 kg $ha^{-1}$ $FeSO_4$) and which was at par with $T_{10}$ (100% RDF + Tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$), $T_7$ (100% RDF+ FYM @ 5t $ha^{-1}$). The minimum Fe content (5.21 mg $kg^{-1}$) was noted in treatment $T_1$ (control). Parmar *et al.* (2009) [14] reported that the application of inorganic fertilizers in combination with micronutrient showed better result than the without micronutrient treatment.

**Available Mn**

Availability of Mn in soil after harvest of chilli influenced due to application of organic and inorganic fertilizers presented in table 3 indicated that it was ranged from 2.99 to 5.05 mg $kg^{-1}$. Among all treatment $T_{10}$ (100% RDF+Tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$) showed higher available Mn (5.05 mg $kg^{-1}$) in soil and which was significantly superior over rest of treatments whereas the lower value (2.99 mg $kg^{-1}$) in treatment $T_1$ (control).

**Available Zn**

The result regarding to effect of organic and inorganic fertilizers on availability of Zn in soil after chilli crop presented in table 3 indicated that the range from 0.91 to 2.14 mg $kg^{-1}$.The maximum available Zn (2.14 mg $kg^{-1}$) was observed in treatment $T_6$ (100% RDF + 20 kg $ha^{-1}$ $ZnSO_4$) which was at par with treatment $T_5$ (100% RDF+20 kg $ha^{-1}$ $FeSO_4$), $T_{10}$ (100% RDF + Tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$) and $T_8$ (75% RDF + Vermicompost @ 5 t $ha^{-1}$) and significantly superior over the rest of treatments. The minimum Zn (0.91 mg $kg^{-1}$) was noticed in treatment $T_1$

(control). Kondapa *et al.* (2009) [8] reported that the application of organic and inorganic fertilizer improves the availability micronutrients in soil.

**Available Cu**

The data on available Cu as influenced by the organic and inorganic fertilizers on soil after harvest of chilli crop presented in table 3 indicated that the Cu varies from 0.33 to 2.52 mg $kg^{-1}$. The maximum availability of Cu was noted in treatment $T_{10}$ (100% RDF+ Tank silt @ 5t $ha^{-1}$ +FYM @ 2.5 t $ha^{-1}$) and at par with treatment $T_7$ (100% RDF + FYM @ 5t $ha^{-1}$) and significant superior over rest of the treatments. The lowest Cu was in treatment $T_1$ (control). Kadam *et al.* (2017) [7] reported that the application of tank silt in the soil helps in retention of nutrients in soil and increase the fertility status of soil. The application of inorganic fertilizer (NPK) in combination with organic manures has non-significantly reduced the pH, EC and $CaCO_3$. The maximum content and uptake of nutrients N, P and K was found at the treatment 100% RDF +Tank silt @ 5t $ha^{-1}$ +FYM @ 2.5 t $ha^{-1}$ and which was significantly superior over rest of the treatments.

**Yield of Chilli:** The data on yield quintal per hector of chilli was influenced by different treatment and presented in table 4 and depicted in fig 1.The maximum yield (88.40 q $ha^{-1}$) was observed in treatment $T_{10}$ (100% RDF+Tank silt @ 5t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$) and was at par with $T_7$ (100% RDF+ FYM @ 5t $ha^{-1}$) which was significantly superior over the other treatment. Kadam *et al.* (2017) [7] reported that application of Tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$ + RDF has maximum fruit yield (102.29 q $ha^{-1}$) similar observations were noticed by Osman (2007) [12] studied on tank silt application and observed that yield of cotton 40% increase over control. Barekar *et al.* (2000) [2] reported that observed that application of organic and inorganic fertilizer combination gave maximum yield (96.60 q $ha^{-1}$) in chilli. Vaidya and Dhawan (2014) [17] reported that the application of tank silt improves the yield and soil quality.

**Table 4:** Yield and quality as influenced by organic and inorganic fertilizers in chilli.

| Treatment | Yield (q $ha^{-1}$) | Vitamin C (100 mg $g^{-1}$) | Capsaicin (%) |
|---|---|---|---|
| $T_1$- Control | 58.00 | 28.94 | 0.14 |
| $T_2$- 100% RDF (100: 50: 50NPK kg $ha^{-1}$) | 68.15 | 36.69 | 0.18 |
| $T_3$- 125% RDF | 75.72 | 43.20 | 0.21 |
| $T_4$- 150% RDF | 78.17 | 41.97 | 0.15 |
| $T_5$- 100% RDF+20 kg $ha^{-1}$ $FeSO_4$ | 78.19 | 49.22 | 0.17 |
| $T_6$- 100% RDF+20 kg $ha^{-1}$ $ZnSO_4$ | 79.74 | 43.93 | .0.21 |
| $T_7$- 100% RDF+ FYM @ 5 t $ha^{-1}$ | 87.88 | 61.88 | 0.24 |
| $T_8$- 75% RDF+ Vermicompost @ 2.5 t $ha^{-1}$ | 85.72 | 52.79 | 0.22 |
| $T_9$- 100% RDF + Neemcake @ 2.5 t $ha^{-1}$ | 77.29 | 47.13 | 0.19 |
| $T_{10}$- 100% RDF + Tank silt @ 5t $ha^{-1}$+FYM @2.5 t $ha^{-1}$ | 88.40 | 51.00 | 0.29 |
| Mean | 74.16 | 45.13 | 0.191 |
| S.E.(m)± | 3.618 | 2.779 | 0.0322 |
| C.D at 5% | 10.752 | 8.258 | 0.095 |

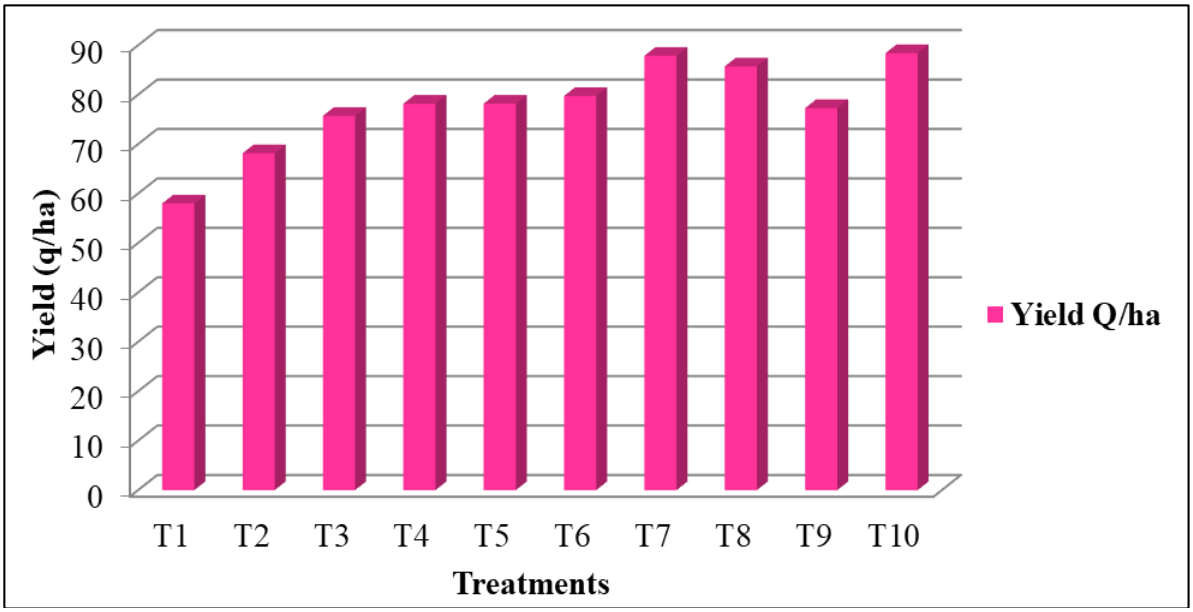


**Fig 1:** Yield (q/ha) as influenced by organic and inorganic fertilizers in chilli.

**Quality of chilly**

**Vitamin C content in fresh fruit (mg 100 $g^{-1}$)**

Nutritive value of the fruit was determined by the vitamin C content in the fruit. The differences existed between the treatment with respect to vitamin C content in fresh fruits of chilli are present table 4 indicated that the maximum vitamin C content (61.88 mg 100 $g^{-1}$) was recorded in treatment $T_7$ (100% RDF+ FYM @ 5 t $ha^{-1}$) and which was significantly superior rest of the treatment. The minimum vitamin C content (28.94 mg 100$g^{-1}$) was recorded in treatment $T_1$ (absolute control). Similar result observed by Nathakumar (2001) [11] application of organic and Inorganic fertilizers enhance microbial population activity and humic acid content which might have helped and improved vitamin C content.

Mondal *et al.* (2005) [10] reported that the application of organic nutrients along with inorganic fertilizers recorded maximum vitamin C (14.02 mg 100 $g^{-1}$) in chilli.

**Pungency**

Nutritive value of the chilli fruit was determined by the capsaicin content in the fruit. The differences existed between the treatment with respect to capsaicin content in fresh fruits of chilli are presented in table 4 indicated that the maximum capsaicin content (0.29%) was recorded in treatment $T_{10}$ (100% RDF+ Tank silt @ 5 t $ha^{-1}$ + FYM @ 2.5 t $ha^{-1}$). The minimum capsaicin content (0.14%) was recorded in treatment $T_1$ (absolute control). Anathi *et al.* (2004) observed that potassium influenced quality attributes of chilli i.e. with the application of 75 kg $ha^{-1}$ and they recorded that highest capsaicin content in chilli. Pariari and Khan (2013) [13] reported that application of organic manures in combination with inorganic nitrogenous fertilizers (urea) has highest content of capsaicin (114.20 mg $g^{-1}$) in fruit of chilli.

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