# Effect of Integrated Nutrients Management Practices on Growth Parameters of Pointed Gourd (*Tricosanthes dioica*)


## Abstract

**Introduction and Aim**: Pointed gourd (*Trichosanthes dioica* Roxb) is one of the most profitable and nutrient-rich summer crops. The present investigation entitled "Effect of Integrated Nutrients Management Practices on Growth and Yield of Pointed gourd (*Tricosanthes dioica*) cv. Papdi & Rudra'' was carried and conducted at open field condition located at Horticulture Research Centre (HRC), at Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut U.P India during *Kharif* season of 2022-2023. **Method**: The experiment was carried out in randomized block design keeping two varieties i.e. Papdi and Rudra with three replications. The experimental trial consists 10 different treatment. **Discussion and Conclusion**: All the treatments showed significant differences for most of the traits under study, the combination of $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/ha + Jivamrita @ 8% sprays) was best suited for the growth attributes of pointed gourd.: Hence, the above treatment can be suggested as a combination for getting higher growth of pointed gourd.



**Key Words:** INM, Growth, Pointed Gourd, Papdi, Rudra and Organic Fertilizers


## 1. Introduction

Pointed gourd (*Trichosanthes dioica* Roxb is one of the most profitable and nutrient dense summer crops. It is a fruit-type vegetable that is dioecious and vegetatively propagated. It has 11 basic chromosomes (2n=2x=22) **(Kumar and Singh, 2012).** An annual or perennial herb found in tropical Asia and Australia belongs to the genus *Trichosanthes* in the family Cucurbitaceae. According to **Kirtikar *et al.*, (2001),** *T. dioica* is grown all over the northern Indian plain, including Assam and East Bengal.

According to **Singh and Whitehead (1999)**, it is indigenous to the Indian subcontinent and has the ability to be grown in temperate climates. The family Cucurbitaceae includes the pointed gourd (*Trichosanthes dioica* Roxb.), which has its origins in the Indo-Malayan region. The Cucurbitaceae family of plants includes 640 species spread across 110 genera. The most significant genera (more than 30 species) are *Cucurbita, Cucumis, Ecballium, Citrullus, Luffa, Bryonia, Momordica, Trichosanthes*, etc. **Khare *et al.* (2004).** An annual or perennial herb, *Trichosanthes* is part of the Cucurbitaceae family and is found in Australia, Polynesia, and tropical Asia. Two of the species, *T. anguina* and *T. dioica*, are grown as vegetables out of the over 20 species that have been identified in India. Other significant species include *T. palmata, T. cordata, T. nervifolia, and T. nervosa*. T. cucumerina, T. wallichiana, T. cuspida, T. incisa, T. laciniosa, T. kirilowii, etc.

The plant's edible portions are the fruits and leaves, which can be prepared in a variety of ways either on their own or in conjunction with other vegetables or meats. The pointed gourd is highly valued in the food industry for use in pickles, jams, and jellies. The pointed gourd is beneficial medically. It is simple to digest, diuretic, and laxative, and it helps with circulatory system disorders **(Malek, 2007).** According to studies **(Chandrasekar *et al*., 1988; Sharma and Pant, 1988; Sharma *et al*., 1988),** pointed gourd has the therapeutic ability to lower blood sugar and total cholesterol.

Integrated nutrients management is dependent on farming inputs like pesticides, artificial fertilizers, additives, and genetically modified organisms, integrated nutrition management is centred on regulating the agro-ecosystem Allard in 1960. Natural resources should be exploited to boost productivity and incomes, particularly for low-income people, without eroding the natural resource base, according to the theory behind sustainable agricultural production. INM contends that soils serve as reservoirs for plant nutrients necessary for vegetative growth in this context. In order to boost agricultural productivity in a cost-effective and ecologically friendly manner without compromising the soil productivity of future generations, INM aims to integrate the use of all natural and artificial sources of plant nutrients. INM depends on a variety of elements, including the transfer of knowledge, proper fertilizer application, and conservation researchers and farmers on INM practises.

## 2. Material and Methods

The present investigation entitled title “Effect of Integrated Nutrients Management Practices on Growth and Yield of Pointed gourd (*Tricosanthes dioica*) cv. Papdi & Rudra’’was carried and conducted at open field condition, Horticulture Research Centre (HRC), at Sardar Vallabhbhai Patel University of Agriculture & Technology, Meerut U.P India during *Kharif* season of 2022-2023. The experiment was carried out in randomized block design keeping two varieties i.e. Papdi and Rudra with three replications. The experimental trial consists 10 different treatment i.e. $T_1$ Control (Without fertilization), $\mathbf{T_2}$ = R.D.F (80:50:60 of N P K), $\mathbf{T_3}$ = Vermicompost @ 10 ton/hac., $\mathbf{T_4}$ = F.Y.M @ 15 ton/hac.**,** $\mathbf{T_5}$ = Jivamrita @ 6% sprays every 15 days interval**,** $\mathbf{T_6}$ = Jivamrita @ 8% sprays every 15 days interval.**,** $\mathbf{T_7}$ = Vermicompost @ 10 ton/hac. + Jivamrita @ 6% sprays.; $\mathbf{T_7}$ = Vermicompost @ 10 ton/hac. + Jivamrita @ 6% sprays., $\mathbf{T_8}$ = Vermicompost @ 10 ton/hac. + Jivamrita @ 6% sprays., $\mathbf{T_9}$ = Vermicompost @ 10 ton/hac. + Jivamrita @ 6% sprays., $\mathbf{T_{10}}$ = Vermicompost @ 10 ton/hac. + Jivamrita @ 6%. The preparation of field was done by tractor drawn cultivator followed by two cross-harrowing to pulverize the soil. To enrich the soil, well-rotten doses of RDM such as FYM @ 25 t/ha, vermicompost @ 1q/ha, Poultry manure @ 1q/ha was applied before harrowing and well-mixed with the soil by planking. Finally, the field was levelled with leveler and then experiment was laid out.

## 3. Result and Discussions

**Days to Germination:** The data under the influence of organic treatments significantly showed variations under various treatment combinations of organic manure. The maximum number of days taken for germination was recorded maximum papdi (18.93days) and rudra (18.91days) without

fertilizer under treatment $T_1$ while, the minimum number of days taken for germination papdi (14.36days) and rudra (14.34days) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with number of days taken for germination papdi (15.25days) and rudra (15.27days).

The minimum number of days taken to germination might be due to the application of organic manure which enhances the germination rate. The present findings are in agreements with those indicated by **Bairwa and Fageria *et al.,* (2008)** and **Baghel *et al.,* (2017)** in bottle gourd.

**Early Plant Vigor:** The 'remarks' descriptor was used after 30 days of planting which were from (3-99) based upon their characters as per DUS guideliness. The minimum early plant vigor was observed for papdi (poor) and rudra (poor) without fertilizer under treatment $T_1$ while, the maximum early plant vigor was observed for papdi (very good) and rudra (very good) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @15 ton/hac. + Jivamrita @ 8% sprays) with early plant vigor papdi (very good) and rudra (very good).

The maximum early plant vigor might be due to the application of organic manure which enhances the early plant vigor and nutrient levels might exert significant influence on the plant vigor rate, the optimum levels of organic manure significantly influences the vigor in plants. To judge the plant vigor uninterrupted growth in terms of vine length and stem girth is important which helps to judge the plant vigor as reported by **Kumar *et al.,* (2017).**

**Plant Growth Habit:** The 'remarks' descriptor was used after 45 days of planting which were from (3-99) based upon their characters as per DUS guideliness. The minimum plant growth habit was observed for papdi (poor) and rudra (poor) without fertilizer under treatment $T_1$ while, the maximum plant growth habit was observed for papdi (very good) and rudra (very good) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with plant growth habit papdi (very good) and rudra (very good).

Integrated nutrients supply beneficial nutrients to the crops thereby creating wide range of variation in plant morphology as referred by **Chen, (2006).** Similar studies were reported by **Kumar *et al.,* (2008)** in pointed gourd.

**Leaf Shape:** The 'remarks' descriptor was used after 45 days of planting which were from (1-99) based upon their characters as per DUS guideliness. The leaf shape which was inferior with other treatments was observed for papdi (cordate) and rudra (cordate) without fertilizer under treatment $T_1$ while, the superior leaf shape was observed for papdi (orbicular) and rudra (orbicular) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with superior leaf shape under papdi (orbicular) and rudra (orbicular).

To our findings it was observed that integrated nutrients might be beneficial nutrients to the crops thereby creating wide range of variation in plant morphology (leaf shape) as referred by **Chen, (2006).** Similar findings were also reported by **Kumar *et al.,* (2008); Ara *et al.,* (2012)** in pointed gourd.

**Leaf Size:** The 'remarks' descriptor was used after 45 days of planting which were from (3-99) based upon their characters as per DUS guidelines. The leaf size which was inferior with other treatments was observed for papdi (small) and rudra (small) without fertilizer under treatment $T_1$ while, the superior leaf size was observed for papdi (large) and rudra (large) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with superior leaf size under papdi (large) and rudra (large).

The leaf size varied due to the fact that nutrients plays important role in creating the wide or less surface area of the leaf as per the report of **Ara *et al.,* (2012)** in pointed gourd.

**Vine Length (cm):** The data under the influence of organic treatments significantly showed variations under various treatment combinations of organic manure. The minimum vine length (cm) was recorded maximum papdi (14.36cm) and rudra (14.34cm) without fertilizer under treatment $T_1$ while, the maximum Vine length (cm) papdi (18.93cm) and rudra (18.91cm) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with Vine length (cm) papdi (18.78cm) and rudra (18.88cm).

it was observed that the influence of integrated nutrients combination might promote the vine length due to organic manure applied in the form of FYM (farm yard manure) which might have improved the soil physical and chemical properties of the soil thus, providing the adequate supply of nutrients in soil. The result reported are with agreements with the results of **Satish *et al.,* (2017)** and **Yogendra *et al.,* (2018)** in bottle gourd.

**Petiole Length (cm):** The Petiole length (cm) was recorded minimum for papdi (14.36cm) and rudra (14.34cm) without fertilizer under treatment $T_1$ while, the maximum Petiole length (cm) papdi (18.93cm) and rudra (18.91cm) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac.+Jivamrita @ 8% sprays) with Petiole length (cm) papdi (18.78cm) and rudra (18.88cm).

The increase in petiole length might be due to the application of nutrients in the form of organic manure which might enhanced the length thus, proved and showed positive and significant response for petiole length. These results are contrary to those of **Joseph *et al.,* (1998)** in snake gourd and **Verma *et al.,* (2012)** in Taro.

**Node Number at Which First Female Flower Appears:** The data under the influence of organic treatments significantly showed variations under various treatment combinations of organic manure. The maximum node number at which first female flower appears was recorded maximum

papdi (5.52) and rudra (5.53) without fertilizer under treatment $T_1$ while, the minimum node number at which first female flower appears papdi (8.67) and rudra (8.65) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with node number at which first female flower appears papdi (7.76) and rudra (7.74).

Node number was maximum due to under the influence of organic manures which might have influence the node numbers. Similar findings were observed by **Brantly and Warren (1961)** and **Randhawa and Singh (1970)** in muskmelon.

**Fruit Shape:** The 'remarks' descriptor was used after 45 days of planting which were from (1-99) based upon their characters as per DUS guidelines. The fruit shapes which was inferior with other treatments was observed for papdi (oval) and rudra (oval) without fertilizer under treatment $T_1$ while, the superior fruit shape was observed for papdi (spindle) and rudra (spindle) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with superior leaf size under papdi (tapering) and rudra (tapering).

The variation of different fruit shape might be due to unique identity of different variety is responsible for such type of variation as suggested by **Ara *et al.,* (2012)** in pointed gourd. Nutrients management is also an essential criterion for fruit shape as per the findings of **Locascio *et al.,* (1984).**

**Fruit Skin Primary Color:** The 'remarks' descriptor was used after 45 days of planting which were from (1-99) based upon their characters as per DUS guidelines. The fruit skin which was inferior with other treatments was observed for papdi (light green) and rudra (light green) without fertilizer under treatment $T_1$ while, the superior fruit shape was observed for papdi (spindle) and rudra (dark green) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with superior leaf size under papdi (green) and rudra (green).

The variation of different fruit skin might be due to unique identity of different variety is responsible for such type of variation as suggested by **Ara *et al.,* (2012)** in pointed gourd. Nutrients management is also an essential criterion for fruit shape as per the findings of **Locascio et al., (1984).**

**Number of Primary Branches:** The data under the influence of organic treatments significantly showed variations under various treatment combinations of organic manure. The minimum number of primary branches was recorded maximum papdi (4.34) and rudra (4.36) without fertilizer under treatment $T_1$ while, the maximum number of primary branches papdi (7.88) and rudra (7.60) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with number of primary branches papdi (7.50) and rudra (7.55).

The reason for maximum primary branches might be due to the adequate supply of nutrients in the form of organic sources which might have facilitated the supply of nutrients to the soil making it available for primary branches. These findings are in line with **Arshad *et al.,* (2014)** and **Moharana *et al.,* (2017)** in cucumber.

**Days to First Fruit Harvest:** The data under the influence of organic treatments significantly showed variations under various treatment combinations of organic manure. The maximum days to first fruit harvest was recorded maximum papdi (114.33days) and rudra (114.35days) without fertilizer under treatment $T_1$ while, the minimum days to first fruit harvest papdi (104.19days) and rudra (104.18days) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with days to first fruit harvest papdi (107.97days) and rudra (107.99days).

The minimum days to first fruit harvest was recorded due to higher accessibility of nitrogen in the form of organic manure that induced protein production which might cause more meristem cells and finally cell division leads to earliness or maturity of fruits. The present result is in consonance with **Ghasem *et al.,* (2014)** and **Jilani *et al.,* (2009).**

**Days to Last Fruit Harvest:** The data under the influence of organic treatments significantly showed variations under various treatment combinations of organic manure. The maximum days to last fruit harvest was recorded maximum papdi (14.36days) and rudra (14.34days) without fertilizer under treatment $T_1$ while, the minimum days to first fruit harvest papdi (18.93days) and rudra (18.91days) was recorded under treatment $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays) with days to last fruit harvest papdi (18.78days) and rudra (18.88days).

The minimum days to last fruit harvest was recorded due to the fact that improved growth parameter and better sink and source relationship which ultimately results in higher yield and maturity of fruits. These results are in line with the present findings of **Thriveni *et al.,* (2015)** in bitter gourd and **Singh et al., (2012)** in bottle gourd.

## Conclusion

All the treatments showed significant differences for most of the traits under study, the combination of $T_9$ (Vermicompost @ 10 ton /hac + Jivamrit @8% Spray) followed by the treatment $T_{10}$ (F.Y.M @ 15 ton/ha + Jivamrita @ 8% sprays) was best suited for the growth attributes of pointed gourd. Hence, the above treatment can be suggested as a combination for getting higher growth of pointed gourd.

## Competing Interests

Authors have declared that no competing interests exist.

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**Table 1. Effect of Integrated Nutrients Management Practices on Growth Parameters of Pointed gourd**

| Treatments | Days to Germination | | Early Plant Vigour | | Plant Growth Habit | | Leaf shape | | Leaf size | | Vine length (cm) | | Petiole Length (cm) | | Nodes Number at Which Female Flower Appeared | | Fruit Shape | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** |
| **$T_1$** Control (Without fertilizer) | 18.93 | 18.91 | 3 | 3 | 3 | 3 | 1 | 1 | 3 | 3 | 90.81 | 92.41 | 5.75 | 5.35 | 5.52 | 5.53 | 3 | 3 |
| **$T_2$** R.D.F (80:50:60 of N P K) | 16.25 | 16.24 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 126.65 | 126.85 | 7.53 | 8.12 | 6.51 | 6.51 | 2 | 2 |
| **$T_3$** Vermicompost @ 10 ton /hac | 18.78 | 18.88 | 5 | 5 | 5 | 5 | 3 | 3 | 5 | 5 | 100.96 | 100.38 | 6.51 | 6.77 | 5.54 | 5.54 | 2 | 2 |
| **$T_4$** F.Y.M @15 ton /hac | 15.41 | 15.41 | 5 | 5 | 5 | 5 | 3 | 3 | 5 | 5 | 108.72 | 109.15 | 7.09 | 7.18 | 5.68 | 5.68 | 2 | 2 |
| **$T_5$** Jivamrita @ 6% sprays every 15 days interval | 15.51 | 15.50 | 5 | 5 | 5 | 5 | 3 | 3 | 5 | 5 | 119.38 | 119.28 | 7.30 | 7.81 | 5.85 | 5.85 | 2 | 2 |
| $T_6$ Jivamrita @ 8% sprays every 15 days interval | 16.39 | 16.38 | 5 | 5 | 5 | 5 | 4 | 4 | 5 | 5 | 131.44 | 135.08 | 8.03 | 8.39 | 6.74 | 6.73 | 2 | 2 |
| **$T_7$** Vermicompost @ 10 ton/hac +Jivamrita @ 6% sprays | 18.21 | 18.20 | 5 | 5 | 5 | 5 | 4 | 4 | 5 | 5 | 137.81 | 138.07 | 8.80 | 9.07 | 7.52 | 7.51 | 2 | 2 |
| **$T_8$** F.Y.M ton /hac +Jivamrita @ 6% sprays | 17.15 | 17.14 | 5 | 5 | 5 | 5 | 3 | 3 | 5 | 5 | 134.57 | 138.63 | 8.27 | 8.91 | 6.79 | 6.80 | 2 | 2 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **$T_9$** Vermicompost @ 10 ton /hac + Jivamrit @8% Spray | 14.36 | 14.34 | 7 | 7 | 7 | 7 | 5 | 5 | 7 | 7 | 149.19 | 146.05 | 9.71 | 9.76 | 8.67 | 8.65 | 4 | 4 |
| **$T_{10}$** F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays | 15.25 | 15.25 | 7 | 7 | 7 | 7 | 5 | 5 | 7 | 7 | 148.38 | 140.59 | 9.02 | 9.21 | 7.76 | 7.74 | 5 | 5 |

| **Factors** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Variety** | 0.1 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 0.18 | NA | 0.034 | 0.098 | 0.023 | NA | NA | NA |
| **Treatment** | 0.224 | 0.643 | NA | NA | NA | NA | NA | NA | NA | NA | 0.41 | 1.18 | 0.076 | 0.219 | 0.051 | 0.145 | NA | NA |
| **V x T** | 0.316 | N/A | NA | NA | NA | NA | NA | NA | NA | NA | 0.58 | 1.67 | 0.108 | 0.309 | 0.071 | NA | NA | NA |

**Table 1. Continue.**

| Treatments | **Fruit Skin Primary Color** | | **Number of Primary Branches** | | **Days to first fruit harvest** | | **Days to Last Fruit Harvest** | |
|---|---|---|---|---|---|---|---|---|
| | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** | **Papdi** | **Rudra** |
| **$T_1$** Control (Without fertilizer) | 138C | 138C | 4.34 | 4.36 | 114.33 | 114.35 | 120.49 | 120.56 |
| **$T_2$** R.D.F (80:50:60 of N P K) | 138A | 138A | 6.76 | 6.60 | 113.16 | 113.17 | 124.65 | 126.35 |
| **$T_3$** Vermicompost @ 10 ton /hac | 138A | 138A | 5.63 | 5.14 | 104.65 | 104.67 | 121.62 | 122.62 |
| **$T_4$** F.Y.M @15 ton /hac | 138A | 138A | 6.10 | 5.89 | 105.57 | 105.56 | 122.64 | 124.67 |
| **$T_5$** Jivamrita @ 6% sprays every 15 days interval | 138A | 138A | 6.62 | 6.65 | 107.24 | 107.24 | 123.59 | 125.56 |
| $T_6$ Jivamrita @ 8% sprays every 15 days interval | 138A | 138A | 6.91 | 7.20 | 109.92 | 109.92 | 125.95 | 127.88 |
| **$T_7$** Vermicompost @ 10 ton/hac | 137A | 137A | 7.36 | 7.46 | 111.24 | 111.24 | 129.59 | 130.47 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| +Jivamrita @ 6% sprays | | | | | | | | |
| **$T_8$** F.Y.M ton /hac +Jivamrita @ 6% sprays | 138A | 138A | 7.24 | 7.32 | 110.68 | 110.68 | 127.15 | 129.13 |
| **$T_9$** Vermicompost @ 10 ton /hac + Jivamrit @8% Spray | 137A | 137A | 7.88 | 7.60 | 104.19 | 104.18 | 133.43 | 133.74 |
| **$T_{10}$** F.Y.M @ 15 ton/hac. + Jivamrita @ 8% sprays | 138A | 138A | 7.51 | 7.55 | 107.97 | 107.99 | 131.10 | 131.89 |
| **Factors** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** | **SE(m) ±** | **CD at 5%** |
| **Variety** | NA | NA | 0.04 | N/A | 0.043 | 0.123 | 0.098 | 0.281 |
| **Treatment** | NA | NA | 0.089 | 0.257 | 0.096 | 0.276 | 0.218 | 0.627 |
| **V x T** | NA | NA | 0.126 | NA | 0.136 | NA | 0.309 | 0.887 |

Table 2 : **Outcome from Nutrients Management Practices on Growth Parameters of Pointed gourd**

**Descriptors (Early plant vigour)**

3. Poor
5. Good
7. Very good
99. Others (Specify in the Remark's descriptors)

**Descriptors (Plant growth habit)**

3. Short viny
5. Medium viny
7. Long viny
99. Others (Specify in the Remark's descriptors)

**Descriptors (Leaf shape)**

1.Cordate 3. Ovate
2.Oblong 4. Obovate
5.Orbicular 99. Others

**Descriptors (Fruit shape)**

7. Club shaped
8. Cylindrical
9. Oval
10. Spindle shape
11. Tapering
99. Others (Specify in the Remark's descriptors)

**Descriptors (Fruit skin primary colour)**

1.Light green (138C)
2. Green (138A)
3.Dark green (137A)