

## INFLUENCE OF FERTIGATION LEVELS AND DRIP IRRIGATION LEVELS ON YIELD AND QUALITY OF *RABI* CHILLI UNDER MULCH AND NO MULCHED CONDITIONS

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### ABSTRACT

The field investigation was carried out during *rabi* season to evaluate the influence of fertigation levels, mulching and drip irrigation levels on fresh fruit yield and yield quality at WTC fields, PJTSAU, Rajendranagar, Telangana in 2020-21 and 2021-22. The study was consisted of 12 treatment combinations viz.. 75 %, 100 % (300-60-120 kg ha<sup>-1</sup> N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) & 125% RDF, drip irrigation levels (0.8 Epan & 1.0 Epan) imposed under factorial combination of mulch (M<sub>1</sub>) and no mulch (M<sub>0</sub>) conditions. Among the fertigation levels, 100% RDF (31.15 t ha<sup>-1</sup>, 195.04 mg 100 g<sup>-1</sup>, 10.33 % & 0.94 %, respectively) recorded the higher fresh fruit yield, ascorbic acid content, oleoresin content and capsaicin content in pooled data. Mulching treatment has recorded the higher values for fresh fruit yield (37.56 t ha<sup>-1</sup>), ascorbic acid content (224.43 mg 100 g<sup>-1</sup>), oleoresin content (11.11 %) and capsaicin content (0.74 %) in pooled data when compared to unmulched treatment.

**KEYWORDS:** Fertigation levels, irrigation levels, mulch, ascorbic acid, oleoresin Content, capsaicin content and chilli fruit yield

Vegetable and fruit production is one of the emerging businesses in India in off and on season. In Telangana, agriculture contributes a large sector of the State's economy and uses around 55.51 lakh ha with 27 different crops though vegetable production is limited due to scarcity of water and labour along with price fluctuations around the year. Inadequate soil moisture and high soil temperature with low organic carbon content are the major factors for lower yield and quality of vegetable production (Yogaraju *et al.*, 2019).

Chilli (*Capsicum annuum* L.) commonly known as hot pepper belongs to the family Solanaceae and is cultivated as an annual crop worldwide. It is an important spice as well as vegetable crop, where both ripe and unripe fruits are used for culinary, salad, anti-cancer agent and processing purposes. Its extract is used in pharmaceutical industry for colouring the medicines. It is an excellent source of vitamin A and C. chilli has many beneficial effects and sometimes referred as capsule of vitamin C due to high amounts of vitamin C (Davinder singh, 2016).

India contributes about 36.57% to the total world chilli production and occupied an area of 411.0 thousand hectares in the country with a production of

4363.0 thousand tonnes and productivity of 10.6 t ha<sup>-1</sup>. In Telangana, it occupies an area of 10.9 thousand hectares with a production of 15.78 thousand tonnes (Indiastat-2021-22). India is the largest producer, consumer and exporter of chilli, which contribute to 25 per cent of total India's production. It responds well to split application of nutrients through fertigation in terms of increased growth and yield. Nitrogen is an essential component of nucleic acid and has been suggested to improve the development of vegetative structures. Potassium is well known for its role in improving the quality. Pungency and colour are two important characters liked by consumers. In foreign export and imports, quality is the important factor to be considered which can be achieved only through optimum nutrient application (Biwalkar *et al.*, 2015).

Mulching is a pertinent method to modify the hydrothermal regime of crop and enhance the efficiency of nutrients resulting in more yield over open field condition (Shailendra *et al.*, 2021). The consumption of water varies with method and frequency of application. To achieve higher yield through drip, proper irrigation scheduling is a viable option since it can minimize the water losses of runoff and deep percolation (Supekar *et al.*, 2021).

## MATERIAL AND METHODS

The present experiment was carried out at Water Technology Center, College Farm, College of Agriculture, Rajendranagar, PJTSAU, Hyderabad. The field experiment was laid out in a 2 x 2 x 3 factorial randomised block design, wherein three fertigation levels viz.,  $F_{75}$  (225-45-90 kg N,  $P_2O_5$ - $K_2O$  ha<sup>-1</sup>),  $F_{100}$  (300-60-120 kg N,  $P_2O_5$ - $K_2O$  ha<sup>-1</sup>) &  $F_{125}$  (375-75-150 kg N,  $P_2O_5$ - $K_2O$  ha<sup>-1</sup>) and two drip irrigation levels ( $I_{0.8}$  &  $I_{1.0}$ ) were imposed under factorial combination of with mulch ( $M_1$ ) and unmulched ( $M_0$ ) conditions. Thus, the experiment consisted of total 12 treatment combinations which were replicated thrice. Silver-black mulch (30  $\mu$ ) sheet was laid on the field as per the treatments. Robust seeds of chilli hybrid (Sonali) used as test crop and 40 days seedlings were transplanted in paired row method at spacing 45 / 30 cm x 40 cm. Equal amount of irrigation was given in all treatments up to 10 DAS to get better establishment after that irrigation was scheduled at 2 days interval based on daily evaporation data (0.8 Epan & 1.0 Epan) recorded from USWB class 'A' pan evaporimeter in agro-meteorological station, ARI Farm, Rajendranagar, Hyderabad. Total 759.30 & 607.44 mm of water given to  $I_{1.0}$  and  $I_{0.8}$  treatments in 64 irrigation cycles,

respectively in 2020-21 (I year) whereas 918.00 & 734.40 mm of water given in 72 irrigation cycles at  $I_{1.0}$  &  $I_{0.8}$  levels, respectively during II year. The fertigation was carried out through ventury system on every 4<sup>th</sup> day from 12<sup>th</sup> DAT at 38 splits as per the treatments. Urea, Urea Phosphate and MoP fertilizers were used as sources of N, P & K, respectively and all the nutrients were applied through fertigation and scheduled according to stage of the crop. The 30%-30%-40% nitrogen applied at 10-40 DAT, 41-70 DAT and 71-150 DAT, respectively. The 35%-35%-30% phosphorus applied at 10-40 DAT, 41-70 DAT and 71-150 DAT, respectively and 30%-30%-40% K applied at 10-40 DAT, 41-70 DAT and 71-150 DAT, respectively. Chilli fresh fruit yield was recorded at different pickings and sum of all the pickings considered as total fresh fruit yield plot<sup>-1</sup> and expressed in t ha<sup>-1</sup>. Quality parameters were analysed immediately after harvesting of fresh fruits during both the years. Quality parameters were analysed at first, third & last picking and the mean results are discussed. The ascorbic acid content, oleoresin content and capsaicin content was estimated as per the procedure given by Sadasivam and Manickam (2005).

**Table 1. Effect of fertigation and irrigation levels under mulch and non-mulch conditions on total fruit yield (t ha<sup>-1</sup>) of chilli in pooled data during *rabi* season.**

| Mean of two years (pooled data) - Total fruit yield (t ha <sup>-1</sup> ) |              |              |              |                                     |              |              |
|---------------------------------------------------------------------------|--------------|--------------|--------------|-------------------------------------|--------------|--------------|
| Treatments                                                                | No mulch     |              | Mean         | Mulch                               |              | Overall Mean |
|                                                                           | $I_{0.8}$    | $I_{1.0}$    |              | $I_{0.8}$                           | $I_{1.0}$    |              |
| $F_{75}$                                                                  | 16.50        | 17.12        | <b>16.81</b> | 30.79                               | 33.01        | <b>31.90</b> |
| $F_{100}$                                                                 | 17.71        | 23.08        | <b>20.40</b> | 42.71                               | 41.09        | <b>41.90</b> |
| $F_{125}$                                                                 | 17.62        | 23.11        | <b>20.37</b> | 40.61                               | 37.12        | <b>38.87</b> |
| <b>Mean</b>                                                               | <b>17.28</b> | <b>21.11</b> | <b>19.19</b> | <b>38.04</b>                        | <b>37.07</b> | <b>37.56</b> |
| <b>Mean of <math>I_{0.8}</math></b>                                       |              |              | <b>27.66</b> | <b>Mean of <math>I_{1.0}</math></b> |              | <b>29.09</b> |
| Treatments                                                                | SEm( $\pm$ ) | CD (P=0.05)  | Interactions |                                     | SEm( $\pm$ ) | CD (P=0.05)  |
| Mulch (M)                                                                 | 3.00         | 8.80         | I X M        |                                     | 4.25         | NS           |
| Irrigation (I)                                                            | 3.00         | NS           | F x M        |                                     | 5.20         | NS           |
| Fertigation (F)                                                           | 1.06         | 3.11         | F x I        |                                     | 5.20         | NS           |
|                                                                           |              |              | F x M x I    |                                     | 7.35         | NS           |

$F_{75}$  = 225-45-90 kg N- $P_2O_5$ - $K_2O$  ha<sup>-1</sup>;  $F_{100}$  = 300-60-120 kg N- $P_2O_5$ - $K_2O$  ha<sup>-1</sup>;  $F_{125}$  = 375-75-150 kg N- $P_2O_5$ - $K_2O$  ha<sup>-1</sup>

## RESULTS AND DISCUSSION

## Yield

The total fresh fruit yield of chilli was found to be significantly influenced by mulch and fertigation levels (Table 1) during both the years. The pooled data pertaining to fertigation levels revealed that yield with  $F_{75}$  ( $24.36 \text{ t ha}^{-1}$ ) was significantly lower than the yield with higher fertigation levels. The  $F_{100}$  ( $31.15 \text{ t ha}^{-1}$ ) recorded significantly higher yield and was on par with higher fertigation levels *i.e.*,  $F_{125}$  ( $29.62 \text{ t ha}^{-1}$ ). Drip fertigation with 100% RDF positively influenced the total fresh fruit yield of chilli over 75% RDF which was due to positive effect on yield attributing characters ultimately resulting in higher fruit yield. Right amount of NPK during flowering stage favourably increased the number of flowers plant<sup>-1</sup> which obviously led to increased fruit setting. Also the timely availability of nutrients led to increased growth, higher uptake of nutrients, better photo assimilation and better translocation of assimilates from source to sink which in turn increased total fresh fruit yield (Subramani, 2008). Ayare *et al.*, (2012) explained that fertigation concentrated near the root zone and resulted in production of more dry matter by more efficient utilization of applied nutrients and ultimately resulted in higher yield of the crop.

Beneficial effect of mulching was observed in both the years, pooled data revealed that mulching recorded significantly higher yield (1.96 times) over non-mulching treatment ( $19.19 \text{ t ha}^{-1}$ ). This might be due to the congenial conditions to the plant provided by mulching like water availability, retention of soil moisture for long time and constant availability of nutrients throughout the crop period which improved the growth and yield. Similar results were observed by Kumara *et al.* (2015). Another reason might be that the pest and disease attack was relatively less under mulch and healthier plants were observed in mulch which resulted in higher yield over no mulch (Iftikhar Ahmad *et al.*, 2011).

The irrigation levels did not show any significant difference during both the years. Application of water in  $I_{0.8}$  resulted in on par yield with irrigation level at  $I_{1.0}$  resulting in 20 % of water without adverse effect. Among the interactions, the various combinations of fertigation levels, mulch and drip irrigation levels were found to be non-significant.

The irrigation requirement of crop varies in mulch and non-mulching conditions, Optimum soil moisture condition near the root zone due to drip irrigation has reduced the moisture losses and proliferate the dry

**Table 2. Effect of fertigation and irrigation levels under mulch and non-mulch conditions on ascorbic acid content ( $\text{mg } 100 \text{ g}^{-1}$ ) of chilli in pooled data during *rabi* season.**

| Mean of two years (pooled data) - ascorbic acid content ( $\text{mg } 100 \text{ g}^{-1}$ ) |               |               |               |                   |               |               |
|---------------------------------------------------------------------------------------------|---------------|---------------|---------------|-------------------|---------------|---------------|
| Treatments                                                                                  | No mulch      |               | Mean          | Mulch             |               | Overall Mean  |
|                                                                                             | $I_{0.8}$     | $I_{1.0}$     |               | $I_{0.8}$         | $I_{1.0}$     |               |
| $F_{75}$                                                                                    | 152.63        | 152.62        | <b>152.63</b> | 201.94            | 207.83        | <b>204.88</b> |
| $F_{100}$                                                                                   | 162.07        | 178.15        | <b>170.11</b> | 237.92            | 241.35        | <b>239.64</b> |
| $F_{125}$                                                                                   | 149.86        | 172.78        | <b>161.32</b> | 232.19            | 225.34        | <b>228.76</b> |
| Mean                                                                                        | <b>154.85</b> | <b>167.85</b> | <b>161.35</b> | <b>224.01</b>     | <b>224.84</b> | <b>224.43</b> |
| Mean of $I_{0.8}$                                                                           |               |               | <b>189.43</b> | Mean of $I_{1.0}$ |               | <b>196.35</b> |
| Treatments                                                                                  | SEm( $\pm$ )  | CD (P=0.05)   | Interactions  |                   | SEm( $\pm$ )  | CD (P=0.05)   |
| Mulch (M)                                                                                   | 11.38         | 33.38         | I X M         |                   | 16.10         | NS            |
| Irrigation (I)                                                                              | 11.38         | NS            | F x M         |                   | 19.71         | NS            |
| Fertigation (F)                                                                             | 4.02          | 11.80         | F x I         |                   | 19.71         | NS            |
|                                                                                             |               |               | F x M x I     |                   | 27.88         | NS            |

$F_{75}$  = 225-45-90 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>;  $F_{100}$  = 300-60-120 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>;  $F_{125}$  = 375-75-150 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>

matter partitioning and helped in the diversion of photosynthesis to the reproductive parts ultimately resulted in higher yield (Rajanee *et al.*, 2017). Due to this positive effect of drip irrigation, application of less water at 0.8 Epan was also sufficient to meet crop demand. Maida *et al.*, (2020) also observed that 0.8 IW/CPE treatment has recorded the maximum fruit length, higher fruit diameter, highest average weight of fruit. Chilli is sensitive to fluctuation in temperature and moisture. Mulch protected the crop from higher temperatures and modified the hydrothermal properties of soil which resulted in better plant growth and yield (Siti Aishai Hassan *et al.*, 1995). Mulch in conjunction with drip irrigation and fertigation hastens the growth and yield of the crop which may be due to favourable moisture maintained in the root zone, its availability to plants, avoiding leaching of soluble fertilizers and provide weed free environment.

#### Ascorbic Acid (mg 100 g<sup>-1</sup>)

The results revealed that the highest ascorbic acid content (Table 2) with higher fertigation levels. In pooled data, the F<sub>100</sub> has recorded the highest ascorbic acid content (204.87 mg 100 g<sup>-1</sup>) and was on par to the F<sub>125</sub> (195.04 mg 100 g<sup>-1</sup>) and the lower value was recorded in F<sub>75</sub> (178.75 mg 100 g<sup>-1</sup>). Higher ascorbic acid content was found with optimum level of NPK @

100 % RDF could be due to higher NPK which influenced the carbohydrate synthesis and formation of ascorbic acid, as ascorbic acid is mainly constituted of carbohydrate compounds. These results were in line with Mounika (2016) and Shilpa (2019). Mehnaz Akram *et al.*, (2017) and Janardhanrao (2020) who reported that the highest ascorbic acid content (118 mg 100 g<sup>-1</sup>) with higher levels of NPK @ 100 % RDF was due to enhancement of enzyme activity for amino acids synthesis leading to higher ascorbic acid content.

With mulching of the chilli crop, the M<sub>1</sub> has recorded 39.09% higher ascorbic acid content over M<sub>0</sub> (161.35 mg 100 g<sup>-1</sup>) in pooled data. There was insignificant variation found between I<sub>0.8</sub> & I<sub>1.0</sub> irrigation levels during both the years. The interaction effect among fertigation levels, mulch and drip irrigation levels was found to be non-significant. Relatively higher content was observed in F<sub>100</sub>+I<sub>1.0</sub>+M<sub>1</sub> (241.35 mg 100 g<sup>-1</sup>). There was positive correlation observed between yield and mean ascorbic acid content. The determination coefficient (R<sup>2</sup>) (Figure 1) was 0.962 in pooled data which showed a linear increase in ascorbic acid content observed with total fresh yield.

Generally ascorbic acid production mainly controlled by changes in the soil temperature (Davinder Singh 2016). Mulch maintained the temperature range

**Table 3. Effect of fertigation and irrigation levels under mulch and non-mulch conditions on oleoresin content (%) of chilli during 2020-21 (I year) , 2021-21 (II year) and in pooled data during rabi season.**

| Mean of two years (pooled data) - oleoresin content (%) |                  |                  |              |                          |                  |              |
|---------------------------------------------------------|------------------|------------------|--------------|--------------------------|------------------|--------------|
| Treatments                                              | No mulch         |                  | Mean         | Mulch                    |                  | Overall Mean |
|                                                         | I <sub>0.8</sub> | I <sub>1.0</sub> |              | I <sub>0.8</sub>         | I <sub>1.0</sub> |              |
| F <sub>75</sub>                                         | 7.81             | 8.40             | <b>8.10</b>  | 10.15                    | 10.69            | <b>10.42</b> |
| F <sub>100</sub>                                        | 8.62             | 8.63             | <b>8.63</b>  | 12.30                    | 11.78            | <b>12.04</b> |
| F <sub>125</sub>                                        | 7.77             | 7.91             | <b>7.84</b>  | 11.49                    | 10.24            | <b>10.86</b> |
| <b>Mean</b>                                             | <b>8.06</b>      | <b>8.32</b>      | <b>8.19</b>  | <b>11.31</b>             | <b>10.90</b>     | <b>11.11</b> |
| Mean of I <sub>0.8</sub>                                |                  |                  | <b>9.69</b>  | Mean of I <sub>1.0</sub> |                  | <b>9.61</b>  |
| Treatments                                              | SEm(±)           | CD (P=0.05)      | Interactions |                          | SEm(±)           | CD (P=0.05)  |
| Mulch (M)                                               | 0.51             | 1.50             | I X M        |                          | 0.72             | NS           |
| Irrigation (I)                                          | 0.51             | NS               | F x M        |                          | 0.88             | NS           |
| Fertigation (F)                                         | 0.18             | 0.53             | F x I        |                          | 0.88             | NS           |
|                                                         |                  |                  | F x M x I    |                          | 1.25             | NS           |

F<sub>75</sub>= 225-45-90 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>; F<sub>100</sub>= 300-60-120 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>; F<sub>125</sub>= 375-75-150 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>

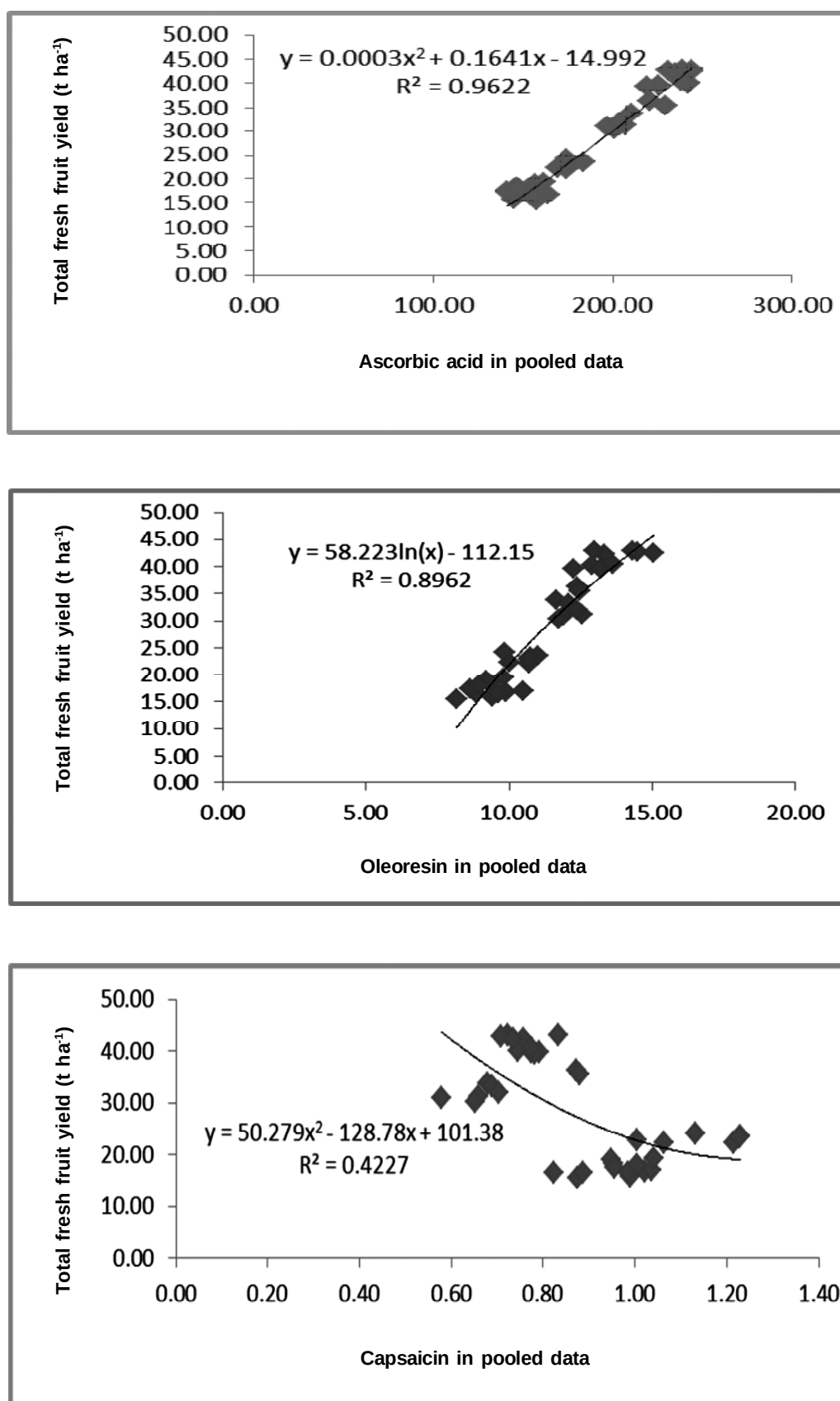


Fig.1: Regression of chilli fruit yield (t ha<sup>-1</sup>) with ascorbic acid content (mg 100 g<sup>-1</sup>), oleoresin content (%) and capsaicin content (%) of fruit in pooled data.

from 24°C to 32°C at different pickings hence higher ascorbic acid content was recorded. Similar results were observed by Ashrafuzzaman *et al.*, (2011) and Maida *et al.*, (2019).

### Oleoresin content (%)

Oleoresin is essential oil that gives sharp pungent aroma and the data related to oleoresin content of fresh chilli is presented in Table 3. With respect to the fertigation levels, a 10.48 % & 11.55 % higher oleoresin content recorded in  $F_{100}$  over  $F_{125}$  (9.35) and  $F_{75}$  (9.26), respectively. The highest oleoresin content was observed with  $F_{100}$  treatment, it might be attributed due to greater synthesis and translocation of photosynthates in fruits on account of increased uptake of nutrients. These results were in corroborative to Shilpa (2019), Mounika (2016).

There was significant variation found between mulching and non-mulching treatments. The mulching ( $M_1$ ) treatment was observed 35.62% higher content when compared to the no mulch treatment (8.19 %) in

irrigation levels, their interaction with fertigation levels and mulch has not shown significant influence on oleoresin content. The data on correlation between yield and mean oleoresin content (Fig. 1) revealed that there was significant positive correlation observed for oleoresin (0.896) in I, II year and in pooled data respectively.

### Capsaicin content (%)

Market demand of chilli depends on the pungency of the fruit, capsaicin is the major alkaloid responsible for pungency in chilli. It is mainly controlled by genetic characters of the plant but external environment and management practices also plays significant role in synthesis of capsaicin and data related to capsaicin content of fresh chilli fruit is presented in Table 4. The capsaicin content was significantly influenced by fertigation levels and mulch during both the years. With respect to the fertigation levels, The  $F_{100}$  and  $F_{125}$  (0.94 % & 0.91 %, respectively) recorded significantly higher capsaicin content and these

**Table 4. Effect of fertigation and irrigation levels under mulch and non-mulch conditions on capsaicin content (%) of chilli during in pooled data during *rabi* season.**

| Mean of two years (pooled data) - capsaicin (%) |             |             |              |                   |             |              |
|-------------------------------------------------|-------------|-------------|--------------|-------------------|-------------|--------------|
| Treatments                                      | No mulch    |             | Mean         | Mulch             |             | Overall Mean |
|                                                 | $I_{0.8}$   | $I_{1.0}$   |              | $I_{0.8}$         | $I_{1.0}$   |              |
| $F_{75}$                                        | 0.94        | 0.89        | <b>0.91</b>  | 0.63              | 0.69        | <b>0.79</b>  |
| $F_{100}$                                       | 1.03        | 1.22        | <b>1.13</b>  | 0.72              | 0.80        | <b>0.94</b>  |
| $F_{125}$                                       | 0.98        | 1.07        | <b>1.02</b>  | 0.76              | 0.85        | <b>0.80</b>  |
| <b>Mean</b>                                     | <b>0.98</b> | <b>1.06</b> | <b>1.02</b>  | <b>0.71</b>       | <b>0.78</b> | <b>0.74</b>  |
| Mean of $I_{0.8}$                               |             |             | <b>0.84</b>  | Mean of $I_{1.0}$ |             | <b>0.92</b>  |
| Treatments                                      | SEm(±)      | CD (P=0.05) | Interactions |                   | SEm(±)      | CD (P=0.05)  |
| Mulch (M)                                       | 0.06        | 0.16        | I X M        |                   | 0.08        | NS           |
| Irrigation (I)                                  | 0.06        | NS          | F x M        |                   | 0.10        | NS           |
| Fertigation (F)                                 | 0.02        | 0.06        | F x I        |                   | 0.10        | NS           |
|                                                 |             |             | F x M x I    |                   | 0.14        | NS           |

$F_{75}$  = 225-45-90 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>;  $F_{100}$  = 300-60-120 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>;  $F_{125}$  = 375-75-150 kg N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O ha<sup>-1</sup>  $I_{0.8}$ -0.8 Epan and  $I_{1.0}$ -1.0 Epan

pooled data. Under mulch it could be due to optimum soil moisture which hastens the physiological growth that ultimately increased the production of secondary metabolites (Davinder Singh, 2016). With respect to

treatments were on par to each other. The lowest capsaicin content was registered in  $F_{75}$  (0.79 %). The Capsaicin content increased with increase in the NPK fertigation levels which might be due to external

application of nitrogen that is essential for the synthesis of capsinoids as nitrogen controls the activity of phenylalanine ammonialyase enzyme and capsaicin synthase enzyme which were responsible for production as well as longevity of capsaicin content in the chilli. Similar results were observed by Mounika (2016) and Shilpa (2019).

Data related to mulch indicated that the variation between the mulch and no mulch treatments was significant. In pooled data, the maximum capsaicin content was observed in  $M_0$  (1.02 %) over  $M_1$  (0.74 %). No mulch treatment recorded higher capsaicin content due to water stress condition which boosted the activity of antioxidant enzyme in chilli leaves and fruits and leads to the production of high capsaicin content. Another reason might be due to limited moisture content under no mulch condition along with optimum NPK enhances activity of capsaicin synthase enzyme and ultimately increased the production of capsaicin (Subramani 2008). Data pertaining to the irrigation levels, there was no significant variation found between the  $I_{0.8}$  &  $I_{1.0}$  during both the years. The interaction effect among the fertigation levels, mulch and drip irrigation levels was found to be non-significant in pooled data. Capsaicin content and fruit yield are highly negatively correlated. The determination coefficient ( $R^2$ ) (Fig.1) showed as non-significant ( $P=0.01$ ) in pooled data (0.422).

## CONCLUSION

From the present study, it can be concluded that application of 100% RDF (300-60-120 kg ha<sup>-1</sup> N-P<sub>2</sub>O<sub>5</sub>-K<sub>2</sub>O) along with  $I_{0.8}$  + mulch resulted in higher yield and better quality of chilli. Further increment in the nutrients and water did not increase the spiciness of the chilli and chilli yield. So drip fertigation with 100% RDF along with  $I_{0.8}$  + mulch can be recommended for green chilli growers for achieving higher quality, yield and saving irrigation water.

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