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Journal Name:	International Journal of Environment and Climate Change
Manuscript Number:	Ms_IJECC_104103
Title of the Manuscript:	Response of nutrients and mulches on qualitative Attributes of Strawberry (Fragaria x ananassa Duch.) cv. Chandler
Type of the Article	Review—Case report

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Compulsory REVISION comments</p> <ol style="list-style-type: none"> Is the manuscript important for scientific community? (Please write few sentences on this manuscript) Is the title of the article suitable? (If not please suggest an alternative title) Is the abstract of the article comprehensive? Are subsections and structure of the manuscript appropriate? Do you think the manuscript is scientifically correct? Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. <p><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></p>	<ol style="list-style-type: none"> The article is beneficial for community with a lot of effects. The title is well defined and suitable The abstract needs to be modified and more comprehensive The subsections are competing and well organised It is scientifically correct References are enough I add some comments down with full details;- <p>- This is an interesting study and the authors have collected a unique dataset using cutting edge methodology, literature reviews. - The paper is generally well written and structured.</p> <p>- However, in my opinion the paper has some shortcomings in regards to some data analyses and text, and I feel this unique dataset has not been utilized to its full extent</p> <p>-it needs alphabetical review, adjust fonts, spaces, paragraphs, do all same font with same design -adjust abstract as in form of introduction, methods, result, and conclusion.</p> <p>-remove all graphs, tables, legends or figures from inside article and put all after references at end of article</p> <p>-review all references and adjust font, design for all references and organize in numerical order -review discussion paragraph as a whole</p> <p>-the research is relevant and interesting</p> <p>-the paper is well written, the text is clear and easy to read but needs some font, design and alphabetical review with corrections</p> <p>-the conclusion is consistent with the evidence and arguments presented</p> <p>- Maximum 1000 words allowed per research</p>	
<p>Minor REVISION comments</p> <ol style="list-style-type: none"> Is language/English quality of the article suitable for scholarly communications? 	<ol style="list-style-type: none"> I think English language is well adjusted and suitable for the article. <p>- Where improvements are needed, a recommendation for major revision is typical. - I am ready to do the post-revision review too. -Review title as first.</p> <p>-Add name of author, affiliation, qualifications abbreviations after title -the English is understandable but the paper has some typographical and grammatical errors - Keep images, graphs and data tables in clear view at end of article</p>	

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	<ul style="list-style-type: none">- You need to check referencing for accuracy, adequacy and balance.-limit research article to maximum 1000 words.-add more keywords.	
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<p>Optional/General comments</p>	<ul style="list-style-type: none">- Good research, worthy for study- the Abstract highlights the important findings of the review of fertilizers.-the tables or figures, aid understanding and superfluous- the research is relevant and interesting- good sampling in analytical papers-clarify the validity of questions, the use of a detailed methodology and the data analysis being done systematically (in qualitative research) <ul style="list-style-type: none">- good reviews of all types and modalities of fertilizers used for agriculture in India <ul style="list-style-type: none">- the paper's premise is interesting and important <ul style="list-style-type: none">- the methods used are appropriate <ul style="list-style-type: none">- the data support the conclusions <p>Article after Grammar and paraphrasing corrections:-</p> <p>Response of nutrients and mulches on qualitative Attributes of Strawberry (<i>Fragaria x ananassa</i> Duch.) cv. Chandler</p> <p>Abstract</p> <p>A field experiment was conducted at the Horticulture Research Farm-1, of the Department of Horticulture, School of Agricultural Sciences and technology, Babasaheb Bhimrao Ambedkar University (A Central University), Vidya- Vihar, Rae Bareilly Road, Lucknow to evaluate the significance of mulching and nutrients the performances of Strawberry (<i>Fragaria x ananassa</i>) with respect to the qualitative character's parameters during 2019-20. The experiment was laid out in RBD having three replications. The result revealed significantly highest TSS (11.28)°Brix, Total Sugar (8.89%), Reducing Sugar (6.85%), Non Reducing Sugar (2.39%), Acidity (0.63%) and Ascorbic Acid (41.90 mg/100g) in treatment T9 (Black polythene FYM 100%) followed by the treatment T10 (Black polythene vermi-compost 100%). However, treatment T1 (control) showed poor performance with respect to all qualitative parameters. Hence, the result lead to the conclusion that adoption of Black polythene with FYM 100% in Strawberry enhances all qualitative attributing parameters and black polythene with vermin-compost 100% showed second-best result. Keyword: Strawberry, nutrients, mulches, growth and yield</p> <p>Introduction The Strawberry is a most important man made horticultural fruit crop. The modern cultivated octaploid Strawberry (<i>Fragaria X ananassa</i> Duch.) originated in France. It belongs to the family Rosaceae. It is one of the delicious and nutritious among soft fruit with wider adoptability. This crop is chiefly grown in the temperate world. However, it can be grown under sub-tropical climate and even at high altitude of tropical climate. Strawberry can be grown in a wide range of soil from heavy clays to light sand and gravels. However, strawberry plant grows well in sandy loam soil with a pH of 5.5- 6.5 (Anon 1956). The strawberry fruit contains 0.5% total sugar and 0.90% to 1.85% acidity the prominent malic acid and citric acid. As reported by Watt and Merrill (1959) 100 g of natural strawberry fruit contains protein 0.7g, fat 0.5 g, carbohydrate 8.4 g, and Vitamin A 60 IU., thiamine 0.03 mg, riboflavin 0.07 mg, niacin</p>	
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	<p>0.60mg, vitamin C 59.0mg, calcium 21.0mg, phosphorous 21.0 mg, iron1.0 g, potassium 164 mg and sodium 1.0 mg. It is found that 10 to70gm catechin, 10 mg epicatechin, 10 mg caffeic acid, 10 to 15 mg P-coumaric acid, 10 to 35 mg 4- hydroxybenzoic acid, 5 mg procatechuic acid and 10 to 40 mg gallic acid per kg of fresh fruit. Ethyl Esters are the major volatile compounds responsible for the flavour of fruits. Ethyl butanoate and ethyl hexanoate are the main esters identified in ripe fruits and asparagine, glutamine and alanine are the most prominent free amino acid [Perez et al., (1992)]. Green and ripe, red achenes and leaf tissue of strawberry contain ellagic acid –an antimutagenic and anticarcinogenic plant phenol. Couture et al. (1988) found that ripe fruit contains slightly more lipid than unripe fruit and it contains more oleic acid and less linoleic acid. . The fruit of strawberry is a complete fruit with a 98% edible portion. The first plant of the cultivated strawberry <i>Fragaria x ananassa</i> has originated in France and the two American diploids <i>F. chiloensis</i> and <i>F. virginiana</i> are considered in progenitors. The cultivated strawberry <i>F. ananassa</i> is grown all over the world but its progenitors are the Native to the new world. <i>F. chiloensis</i> is found to occur in Chile and along the coast from California to the Aleutian island while <i>F. virginiana</i> is located in Canada and the United States of America. Natural population of <i>F. ananassa</i> is restricted to the coastal California, Oregon and Washington (Sologalov, 1987). The most broadly distributed natural species is the diploid <i>F. vesca</i> which is found in North and South America, Europe, Asia and Hawaii (Heike, 1997). The modern cultivated strawberry is of recent origin in Europe between 1714 and 1759).</p> <p>MATERIALS AND METHODS The experiment was conducted at Horticulture Research Farm –I of Department of Horticulture, School of Agricultural Sciences and Technology, Babasaheb Bhimrao Ambedkar University, Lucknow, India, during the academic year of 2019-20it . is geographically situated in the subtropical tract of Central U.P. at 80°55' East longitude and 26°56' North latitude. The Horticulture Research Farm is situated at 10 Km away from the Lucknow Railway Station towards South-East in Lucknow Rae Bareli Road, Vidya-Vihar, near South City, Lucknow. This region received an average annual rainfall of 650-750 mm which is distributed over a period of more than 100 days with a peak period during July-August. It is also receiving scattered show during winter months. In general, the temperature ranges from 3.5°C to 45°C. The coldest month is January while, the maximum temperature is observed during May and June. The relative humidity (RH) is 50-77% in different season of the year. Lucknow is characterized by a sub-tropical climate with hot, dry summer and cold winter. The soil of the experimental farm was saline with soil pH less than 8.2, Electrical conductivity more than 4.0 and sodium exchangeable percentage less than 15.0. Experimental Material:- The runners of the Chandler variety of strawberry were brought from the Central Institute of Temperate Horticulture, Kashmir (J&K) in the month of October, 2019. The runners were kept for two days in shade for hardening before transplanting in well-prepared beds under open field condition plots which were distributed randomly in three replications. Standard cultural practices were followed during the period of the experiment for maintaining the runners. List 1 : The details of treatments used in the experiments are given below. Observation recorded: Qualitative parameters like Total soluble solids were estimated at ambient temperature by a digital hand refractometer (ATAGO Pocket 3810, PAL-1). Titrable acidity was calculated by titrating the fruit pulp extract with 0.1N NaOH using the phenolphthalein indicator. Acidity, Ascorbic acid, total sugar, reducing sugar, and non-reducing sugar content in fruit samples were estimated by the method described by Panse and Sukhatme (1989). Statistical analysis: The analysis of variance (ANOVA) for randomised block design (RBD) was performed using the OPSTAT (http://14.139.232.166/opstat) programme, according to the criteria provided by Gomez and Gomez (1984). Fisher and Yates' table was used for comparing 'F' values and computing critical difference (CD) at a 5% level of significance. Results and Discussion Response of different nutrients and mulches on quality attributes of strawberry The Total soluble solids (T.S.S.) content of strawberry fruits were recorded with the help of the Erma Hand Refractometer. The total soluble solid of various treatment combination has been represented in the table, which was varied from (7.5%) to (11.28)°Brix. The total soluble solids contents of fruits were increased significantly with different effect of FYM, NPK, Vermicompost, and Mulched with black and white polythene in comparison to control plants. The maximum total soluble solids (11.28) were recorded in the treatment of nine fruits treated with black polythene with FYM 100% followed by treatment of Ten (10.18) treated with black polythene vermi-compost 100%. These results are in conformity with the finding of Patil et al. (2004) in strawberry. The minimum acidity was observed with controlled treatment one (0.31%), whereas, the maximum acidity was recorded with treatment nine (0.63%) followed by treatment ten (0.58). These results are in agreement with those obtained by Rajbir et al. (2008). In the case of ascorbic acid the maximum data clearly showed that the treatment T9 (41.90 mg/100g) followed by</p>	
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	<p>the treatment T10 (40.20 mg/100g). Minimum value was found in the treatment T1 (control) (27.06 mg/100g). Significantly higher ascorbic acid content in fruits was also recorded in Black polythene FYM 100% in comparison to white polythene Patil et al. (2004). The total sugar, reducing and non reducing sugar was observe maximum in treatment T9 (8.89%), (6.85%) and (2.39%) which is followed by T10 (8.54%), (6.78%) and (1.76%) respectively. However minimum non-reducing, reducing and total sugar was recorded (1.15%),(5%) and (6.15%) respectively. Among all the treatments the maximum amount of qualitative parameters were estimated when treatment was treated with FYM 100% and mulched of black polythene and followed by treatment ten which black polythene and vermi-compost 100%.</p>	
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PART 2:

	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

Reviewer Details:

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