if the data are of the incidence type, they should be analysed via GLM/GLMM assuming a binomial/beta-binomial distribution for residual errors (not Poisson distribution).

R: We changed the models’ distributions to fit our data better. We selected the beta distribution for the severity models considering that we defined severity as necrotic area percentage (area of necrotic spots/(area of the fruit surface area)). For the incidence models, we selected a negative binomial since we defined incidence as the number of necrotic spots.

PCoA is used for beta-diversity indices, but it is also stated as 'principal component...'. What is the 'unidirectional ANOVA'? Usually alpha diversity indices are analysed via non-parametric ANOVAs.  
  
  
  
Comments to the Author  
Dear Authors,  
The experimental design could have been better at some points (why to compare mild damage against severe and not healthy vs. severe?).

Content  
First, it was for me very confusing that it is written that the lenticel damage is caused by biotic factors (not-uniform damage) or by abiotic factors (mechanical stress/uniform damage). But after it is also said that these are two hypotheses. Please take care when talking about this aspect. Besides, I have also the impression that the research question you want to answer with your study is if the lenticel damage is caused by biotic or abiotic factors (mechanical stress). But the experimental design used is not adequate to answer this question. To answer this question another experimental design is needed (no mechanical stress vs. mechanical stress). Therefore I encourage you to think again about the hypotheses postulated and the conclusion. Maybe you should not focus on mechanical damage and more in the other abiotic factors that you did test (humidity and rain).

Material and methods  
Several things need to be corrected, e.g.:  1 mL instead of one ml, company references, meanings of acronyms, incomplete description of procedures (PCRs) or no reference for the primers used, etc…).  
Results  
In the section of results some things are not coherent (you test only significant differences at the phylum and at the ASV level but not at the genus level. Although results at the genus level are presented. There are some graphics that are wrong (E.g. Figure 2 . 0dph and 21dph? where are those? Probably is only 21dphs). In one graphic abundance is written in Spanish!! – Figure 5 - >0.3% Abundancia). Some parts of the results section belong to the introduction/discussion.  
Uniformity (e.g. either p-value or p-value). Please use always the same words to refer to treatments, or incidence/severity measurements.  
  
Phytobiome Review  
  
Material and Methods  
Lenticel damage:  
L86- Supplementary table 2. Why was taken a different number of trees for each plot?:  
L90 – explain what is Travesia harvest: Explained in the text  
L87 – which harvest (main and traviesa?) . Than explain this before. This can also be added in supplementary table 2. All the trees were sampled in all the harvest, we especified this in the table and in the text   
L104 – 21 dph – write what the acronym means, even if it is obvious – days post harvest, we especified this in the text  
L106 – Table S3 shows differences in severities and incidences between farms. Why then is only Sinai in the table?. Maybe I do not understand it. Yes, you did not understand it. The table is just informing the effect that sinai has on the lenticel damage related to La Escondida. Since farm is discrete, the model assumes that La escondida is 0 and Sinai is 1

L109 – Differences between measurements, do you mean “the difference between the severity and incidences of the lenticel damage at harvest time“? as written in table S4?. We change it for damage progression in the text  
L119 – R package instead of R library  
Tables – SE /SD– again write the meaning of the acronyms. SE/standard error... and so on  
  
DNA extraction:  
L125 – how was the sampling? (how many lenticels where taken from the same avocado), how were the samples homogenized? – 1 mL instead of one ml, 1 h instead of one h added to the text

L128 - DNA was separated? Or better was purified? Done  
Usually to refer to a company – (Company, location, country)  
Sequencing  
L136 – Illumina! Not Ilumina. No full stop before Nearly…  
L135 even dough the company did the library preparation, may be it should be explained how this was prepared.  
L137 – name and references for the primers  
QIIME 2, UNITE fungal ITS reference data base, version, web page link  
L139 – Unassembled raw amplicon data should be submitted at the NCBI SRA and accession number should be available in the paper (see other papers). Vales

L156 – rarefaction curves should be displayed in Supplement.  
L156  What about the evenness? (Inv Simpson, Pielou) - (Dysbiosis can be later discussed).  
L59 - ANOVA instead of anova. For alpha diversity statistical analysis you need to use other method rather than only ANOVA. Ej GLM –and another test taking into account if data are normally distributed or not.  
L162 – Beta-diverstity analysis – One ordinate analysis should be enough. Permutational multivariate (PERMANOVA)  
L196– better use: following manufacturer’s instructions or guidelines.  
L197 – references for primers?. Sentence is too long. Please explain PCR conditions. Annealing temperature?  
  
Results  
Figure 1 – please show the if there are sig. differences between harvest/ farms in the graphics. (letters of significance)  
L2210 – Please how much are these p-values. I do not see them in table S3.  
L216. I do not see the severity reaches 5.3% or 8% in figure 1. Please explain.  
L231-L234 – Move to introduction or discussion  
L235- L237. Something is wrong with figure 2, where are the two harvest points in the graphic (0 dph and 21 dph?)  
L242-246. Move to introduction or discussion  
L258. A table with the PERMANOVA results would not damage.  
L262. There is no barely significant, it was not significant. The damage severity can be analysed though for each farm separately. Since the main factor (farm) may be masking the effect of the damage. In the plots you can already see that samples are separated by damage severity. This could also be shown in which you do the plots for each farm separately. You can also add this graphics to figure. 4 and just show only PCoA or CAP (you can see both PCoA and CAP results are the same).  
L269. If it is significantly higher, than better to write that it is like this.  
L276 – I do not understand here. Have you do an statistic test to test significant differences between damage extent/ severity at the genusl level? . Why was this done at the phylum level and not at the genus level?. Either you show only results at the OTU level, or you do the same analysis for both.  
Figure 5 – Abundancia is spanisch, please change to English.  
Fig. 6 and 7 – First I would do the graphics maybe in other way since it is, at least for me, misleading., because of the cumulative bars. Besides: In the Phylogenetic tree the numbers are overlap!, please correct.  Please, in order to facilitate readers manuscript comprehension, you should write the identity of the ASVs in the graphic. E.g. : ASV1\_Cystobasidium, ASV2\_Unclassified Fungi, ASV3\_Tremellomycetes…and so on.

Discussion  
Please take care with the structure. First you should maybe very shortly present what it was studied, main aims, experimental design (shortly!) and after discuss the results separately in blocks. Finally, at the end do a summary and conclusions. (L325-331- move to the end of the discussion). I recommend to discuss the results in blocks. Set the hypothesis in the introduction and answer and discuss your hypothesis one by one.  
Please take care. It is not clear sometimes if it is being talk about your own results or the results from others. You can always use: In this study…Our results confirmed this hypothesis and so on.  
L333- I think the lenticel damage should be presented in other way. Cause it is written there are two types of lenticel damage, one caused by mechanical stress and one by pathogens but on the other hand it is say these are two hypothesis. Either they are always treated like hypothesis or not. Besides, this study does not test if lenticel damage is cause by biotic or abiotic factors (mechanical stress). Otherwise avocados should have been treated differently? (no mechanical stress vs. mechanical stress). What is mechanical stress here?, the recollection? the avocado transport to the fabric and management in the fabric?. I think with this approach you can not answer this question unless the two farms treat the avocados differently (lower vs. higher mechanical stress). Why lenticel damage is mild in La Escondida farm in comparison to El Sinaí farm?. Are the avocados treated differently in the two farms?. The humidity/precipitation as discussed?.  
L391 – Be careful with composition and diversity. Then, usually microbial community composition includes alpha and beta-diversity. I would recommend to use just only microbial community composition and refer to alpha or beta diversity when needed.  
L408- fungi were isolated from healthy and necrotic lenticels?, but the microbial community study was conducted by taken samples from lenticels with mild and severe symptoms?. If this is the case, culture dependent and independent analysis cannot be compare. Where the samples taken for the microbial community analysis and the isolations the same?.  
L410 – give some examples.  
L423 – I think this study cannot answer if the damage is explained by mechanical or fungal infection, or both. Since mechanical injury was present, and the present of a mechanical injury could influence the progress of the lenticel damage – post–harvest. Small mechanical stress may be traduced in the long time in fungal infections (after 21d in cold storage). Most probably both biotic and abiotic factors are interconnected?, injury promotes fungal infection?? Or severity of the infection is enhanced by mechanical damage?.  
  
Best regards.  
  
Reviewer: 2  
  
Comments to the Author  
Dear editorial team, and authors my comments about the manuscript named “Lenticel damage of avocado cv. Hass depends on spatiotemporal factors and influences the fungal structure community”  
This is a very interesting and comprehensive study about the lenticel fungal community and some aspects of lenticel damage under spatial-temporal dynamics on Hass avocados under Tropical condition case Colombia. My recommendation is accepted but with mayor revision, so the authors should add more information and analysis to increase the quality and relevance of the manuscript, because is not novel and informative enough to warrant publication.  
In the next paragraphs, I explain the mayor and minor comments. In additional, the manuscript should be improved in good scientific English, please request a native speaking to write better the whole manuscript. I found it difficult to follow parts of manuscript, not only because of the technical terms but also because of some grammar/style issues I thought obfuscated the meaning quite a bit. Please review whether my edits make sense!  
Mayor revision  
1.      The introduction and discussion section are poorly described, the authors should include more details and comparisons on other similar studies in avocado production worldwide, the relevance of pre and postharvest process and its relationship with lenticel damage in avocado production systems, new opportunities to reduce the losses on quality and the golds associated with use new tools to this aim. In addition, is necessary add information about new evidence associated with environmental parameters. I stronger recommended the followed papers:  
a.      <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.3390%2Fagronomy11091699&amp;data=05%7C01%7Csmosque2%40eafit.edu.co%7Cc92c6ee17026455be74408da458080fb%7C99f7b55e9cbe467b8143919782918afb%7C0%7C0%7C637898715490996787%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&amp;sdata=wRcupZRyTuqRE4Loy6ViaSNZsFtPUKCAH6QJa%2B%2F3kV0%3D&amp;reserved=0>  
b.      <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.1080%2F14620316.2020.1763860&amp;data=05%7C01%7Csmosque2%40eafit.edu.co%7Cc92c6ee17026455be74408da458080fb%7C99f7b55e9cbe467b8143919782918afb%7C0%7C0%7C637898715490996787%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&amp;sdata=K5OvMnWkKXyGRmyWMePnJqhy1J0FpVs0Y3c43LCG5m0%3D&amp;reserved=0>  
c.      <https://nam10.safelinks.protection.outlook.com/?url=https%3A%2F%2Fdoi.org%2F10.1016%2Fj.heliyon.2021.e05905&amp;data=05%7C01%7Csmosque2%40eafit.edu.co%7Cc92c6ee17026455be74408da458080fb%7C99f7b55e9cbe467b8143919782918afb%7C0%7C0%7C637898715490996787%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&amp;sdata=r27vjcEY9aKN9PrgAk5opsOMn8gsLxKpPB7th9j0dYU%3D&amp;reserved=0>  
2.      I am not sure that evaluation of lenticel damage on Hass avocados from only two orchard give stronger evidence to understand and says “Lenticel damage of avocado cv. Hass depends on spatiotemporal factors and influences the fungal structure community”  
3.      The plant diseases and spatial temporal variables evaluated were poorly. I stronger suggest that authors evaluated other parameters, for example: physical, epicarp concentration, maturity, and simulated storage condition characteristics that stand out in fruits. Such characteristics of fruit diseases interaction, I must recommend that pathogenicity test is necessary to improve the relevance of the manuscript. In addition, is necessary to know the behavior of Hass under post-harvest condition, because many diseases are influenced by this process. It would seem that assessments were conducted at the end of the specified time period. Is this correct? If so, it is an inherent flaw in the experiment, as avocado fruits ripen at different rates. Using a time-based approach means that some fruit may have been under-ripe at assessment whilst others were over-ripe. Activation of anthracnose and other diseases infection is highly dependent on ripeness stage. Hence, the accepted methodology is to assess avocado fruits once they reach a specified ripeness stage (as determined by measuring fruit firmness). Please provide a valid reason for using a time-based approach. If any data on fruit firmness was collected, I strongly suggest that they be included.  
4.      Similarly, the key outcomes of the study are unclear. What were the study's main findings and what will there be impact be in terms of understanding or predicting the behavior of the lenticel damage parameters and its future geographical zones with more suitability condition?  
5.      More details are also needed to describe the analysis of the data so readers can ensure their appropriateness for the type of data presented. Additional, please take attention to detail is needed to improve the overall quality of manuscript including the small detail about concept lenticel damage in avocado, sampling, data uses, statistics analysis and software used. The quality of the figures and tables also needs attention, because there are not stand on.  
6.      I suggest that authors may include essential details for inclusion are how many sampling units (i.e. fruist) were evaluated. Many data and analysis are unclear. Example: Which tissues were sampled? Presumably no disease symptoms were apparent at the time of harvest. How long after harvest were they sampled and under what conditions were the fruit held until then? How many trees were sampled from each plot? How many fruits from each tree? Were the same trees sampled in all fruits sampled? What was the time required to transport the fruit to the laboratory from each plot? At what temperature were the fruit held during this period? This is important information, as delayed cooling after harvest can greatly influence the incidence and severity of postharvest diseases and disorders.  
7.      Some of the literature cited is old and the work will have been superseded by new evidence, much more is now known about avocado quality. Introduction and discussion section needs more references. This section should include more details and comparisons on other similar studies in avocado lenticel damage worldwide.  
8.      Is local research with poor projection to the other zones when this crop is planted. Try to emphasize that the work can have worldwide projection.  
9.      What soil and climatic conditions were associated with the origin of fruit used in the assay?  
10.     The presented work is related with applied experimentation of estimable practical interest. It provides solutions to a "local" industrial problem of the avocado (and avocado varieties used) in regions when this was evaluated that may be of general interest in avocado crop, if the bibliography related to the subject would be revised a little more, so it seems somehow only limited to previous works reported under this version. The presentation is correct but shows some defects of scientific format, chronological order of the references, some lack of uniform criteria, etc. The graphics should also have a larger font format, at least the legends, etc.  
11.     I would suggest adopting the terminology used in the International Avocado Quality Manual\*. These terms are widely used and accepted in scientific literature.  
\*White, A., Woolf, A., Hofman, P.J., Arpaia, M.L., 2009. The International Avocado Quality Manual. UC Davis Press, California.  
12. The discussion and conclusion show a limited understanding of the mechanisms involved. Also, a better understanding of the mechanisms regulating and with relationship in avocado trees would aid the interpretation of results. I urge the authors to read all relevant scientific literature and re-write these sections. From my view, this part looks like Conclusion rather than Discussion. Authors need to cite some related literatures and compare your data to others. Or explain your data in details.  
  
Minor revision  
Title  
My suggestion is change the title, because is very ambitious and in part not represent the scope of manuscript.  
Abstract  
Try to be specific and write a paragraph more informative, because is very confused the aim. In addition, you can add more information based in data (statistical, among others).  
Introduction  
The introduction is poorly described. My suggestion is that you add more information about important aspects that could justify the work (e, j., origin of problem of the avocado productions, lenticel damage performance, and epidemiological parameters, among others).

Material and Methods  
a.      Add information about edaphic variables in the experimental plot. In addition, variables associated to crop management needed to add. Also, it would be useful to know which was employing under this work. The “variables associated to crop management” need to be listed.  Also, it would be useful to present the number of plots employing each crop management practice.

b.      Fruit sampling assessment has not been explained in sufficient detail. How many trees were sampled from each plot?  How many fruits from each tree? Were the same trees sampled in all periods? Which tissues were sampled? Epicarp? Mesocarp? Presumably no disease symptoms were apparent at the time of harvest. How long after harvest were they sampled and under what conditions were the fruit held until then?  At what temperature were the fruit held during this period? How many bloom, branches samples were collected and from what position relative to the sampled trees? This is important information, as delayed cooling after harvest can greatly influence avocado quality.

c.      The procedures for assessing each variable in fruits should be described after this sentence. In particular, how were the fruit prepared for assessment? Were they cut longitudinally into halves or quarters? Were they peeled?

d.      Tables and figures are poorly constructed and confusing. Data from Figures would be more clearly presented as values in with letters to denote significant difference

e.      Variables in avocado fruit can vary greatly depending on region, season, and orchard management practices. It is important to provide the mean, minimum and maximum values for each variable that was used in the study. Reporting these values on a dry weight basis would be preferable. Including a measure of the variation (such as standard deviation, standard error of the mean or coefficient of variation) would also be advisable.  
f.      Data from Figures would be more clearly presented as values with letters to denote significant difference. Possible reasons for the low area of diseases is worthy of discussion. However, the low incidence of lenticel damage and epicarp/mesocarp necrosis is not unexpected, as the fruits were unlikely to have been exposed to the conditions that trigger the development of thise disorders i.e. excessively low temperature, chilling injury and mechanical damage. Hence, little knowledge has been gained by measuring the incidence of thise disorders. When determining the susceptibility of avocado fruit to postharvest disorders, researchers generally subject the fruits to a well-controlled “trigger event”.  For example, bruise susceptibility may be quantified by applying a 1 Joule impact to fruit at firm-ripe stage and measuring the size of the resultant flesh bruise after a prescribed time and temperature.  
g.      The linear mixed-effects models analysis results presented in Section 3 would be best presented in a table. I’d suggest showing the results of all the analyses that were conducted, even those that did not show a significant relationship. Also, what does the first value inside the brackets represent.  
h.      The study shows that lenticel damage arising from different fungi (Example Colletotrichum) is one of the most frequently occurring defects in Colombian avocado fruit. Dov Prusky’s research team in Israel have published many papers on the infection processes of this Colletotrichum gloeosporioides pathogen in avocado fruit, yet there is no mention of this highly relevant research in the manuscript. I strongly suggest the authors familiarise themselves with the research and include relevant aspects of it in their discussion.  
i.      The authors have overlooked the important role of fruit nitrogen concentration in promoting postharvest diseases. A strong positive relationship between anthracnose incidence and N/Ca ratio in avocado fruit has been reported in the literature\*. Hence, this relationship should at least be acknowledged by the authors, even though N was not analysed in the current study.  
\* Dann, E.K., Coates, L.M., Pegg, K.G., Deane, J.R., Cooke, A.W., Smith, L.A., Shuey, L., Whiley, A.W., Hofman, P.J., Marques, R., Stubbings, B., 2016. Rootstock selection, nitrogen and calcium influence postharvest disease in avocado, in: Golding, J.B., Heyes, J.A., Toivonen, P.M.A., Avanzato, D., Harker, R. (Eds.), XXIX International Horticultural Congress on Horticulture: Sustaining Lives, Livelihoods and Landscapes. Int. Soc. Horticultural Science, Leuven 1, pp. 391-397.  
\* Willingham, S.L., Pegg, K.G., Anderson, J.M., Cooke, A.W., Dean, J.R., Giblin, F.R., Coates, L.M., 2006. Effects of rootstock and nitrogen fertiliser on postharvest anthracnose development in Hass avocado. Australas. Plant Pathol. 35, 619-629.  
j. The discussion and conclusion show a limited understanding of the mechanisms involved in the performance of Hss cultivar investigated in the study. Also, a better understanding of the mechanisms of response of this cultivar under climatic and edaphic condition devalued would aid the interpretation of results. I urge the authors to read all relevant scientific literature (some of which I’ve indicated above) and re-write these sections.  
  
Conclusion  
The author should improve the conclusion and focus on the most important data of the study. The conclusions presented do not represent the importance of the research work.  
  
Reference  
The number should be improve based on the before comments. In addition, review the correct format used by the Journal.  
  
Figure  
Poor resolution and need to be compressible standalone. The figure legend should explain all the abbreviations used in the figure  
La información contenida en este correo electrónico está dirigida únicamente a su destinatario y puede contener información confidencial, material privilegiado o información protegida por derecho de autor. Está prohibida cualquier copia, utilización, indebida retención, modificación, difusión, distribución o reproducción total o parcial. Si usted recibe este mensaje por error, por favor contacte al remitente y elimínelo. La información aquí contenida es responsabilidad exclusiva de su remitente por lo tanto la Universidad EAFIT no se hace responsable de lo que el mensaje contenga. The information contained in this email is addressed to its recipient only and may contain confidential information, privileged material or information protected by copyright. Its prohibited any copy, use, improper retention, modification, dissemination, distribution or total or partial reproduction. If you receive this message by error, please contact the sender and delete it. The information contained herein is the sole responsibility of the sender therefore Universidad EAFIT is not responsible for what the message contains.