Dear authors,

After carefully reviewing the comments of the referees and your responses to these comments, I believe that although you have responded more or less satisfactorily to all specific questions, there is a general comment that has been ignored. This comment is one of the greatest weaknesses of the paper: the statistical approach. The second reviewer indicates in the introduction of her/his letter:

'The main concern deals with the lack of clarity in the methods and experimental design used and also the statistical approach which is too poor for explaining the role of the biopreparations on the studied properties. In this sense, the biopreparation effect on CO2 emissions is not well isolated from the soil temperature and soil moisture effect (strongly related to CO2 emissions). I suggest using multiple regression analysis in order to know the weight of each variable (soil temperature, soil moisture and biopreparations) in the final response. In addition, some of the aspects mentioned in the discussion and conclusions for explaining the observed changes, for example CO2 emissions, within treatments (such as tillage, cover crops density, height) are not given through the manuscript'.

You have answered many of the other specific aspects mentioned by the second reviewer, but not the main ones mentioned above, so please:

Comment. 1.

Address the corrections mentioned above: a new statistical analysis to further explore the weight and the importance of the effect of different variables on soil properties (and not only correlations that just indicate an association between variables).

Response.

It was modified results, discussion, and conclusions according with the results of the new statistical analysis.

Non-parametric correlation is used, since we do not use regressions, we have omitted them.

Data analysis showed average and strong linear correlations between soil temperature, CO_2 emission, total and aeration porosity (Table 3). In 2015 and 2017, we strong negative correlations between soil temperature and CO_2 emission. In 2016, the opposite correlation was found. In 2016 were wetter compared to 2015 and 2017, especially the months of July and August. Amount of precipitation in 2016 during the vegetation period of the plants was evenly distributed, there were no periods of drought. Meanwhile, in 2015 and 2017, drier periods were identified when no more than 5 mm of precipitation fell per decade.

Soil temperature also correlated with soil porosity, however relations in 2015 were negative and in 2016-2017 – positive.

Table 3. Correlations between soil properties

Independent variables, *x*	Dependent variables, *Y*			
	Temperature, °C	CO_2 emission, µmol m^{-2} s^{-1}	Total porosity, %	Aeration porosity, %
2015				
Temperature, °C	1.00	-0.914**	-0.752*	-0.856**

CO_2 emission, μmol m^{-2} s^{-1}	-	1.00	0.712*	0.755*
Total porosity, %	-	-	1.00	0.986**
2016				
Temperature, °C	1.00	0.725*	0.804*	0.771*
CO_2 emission, μmol m^{-2} s^{-1}	-	1.00	0.855**	0.824*
Total porosity, %	-	-	1.00	0.923**
2017				
Temperature, °C	1.00	-0.849**	0.822*	0.762*
CO_2 emission, μmol m^{-2} s^{-1}	-	1.00	-0.728*	-0.842**
Total porosity, %	-	-	1.00	0.900**

Notes: * - significant at $P \leq 0.05 > 0.01$; ** - at $P \leq 0.01 > 0.001$.

Soil CO_2 emission correlated with soil porosity, however in 2017 this relation was negative. In addition, soil porosity forms closely correlated with each other.

-Data analysis showed average and strong linear correlations between soil temperature, CO2 emission, total and aeration porosity. In 2015 and 2017, we saw strong negative correlations between soil temperature and CO2 emission. In 2016, the opposite correlation was found due to higher precipitation.

Comment. 2.

Modify your results, discussion and conclusions accordingly with the results of the new statistical analysis.

Response.

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Non-parametric correlation is used, since we do not use regressions, we have omitted them.

Data analysis showed average and strong linear correlations between soil temperature, CO_2 emission, total and aeration porosity (Table 3). In 2015 and 2017, we strong negative correlations between soil temperature and CO_2 emission. In 2016, the opposite correlation was found. In 2016 were wetter compared to 2015 and 2017, especially the months of July and August. Amount of precipitation in 2016 during the vegetation period of the plants was evenly distributed, there were no periods of drought. Meanwhile, in 2015 and 2017, drier periods were identified when no more than 5 mm of precipitation fell per decade.

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The manuscript was supplemented with data, additional statistical correlation analyzes were performed.

Comment. 3.

Furthermore, provide the information if the distribution of the variables is normal or not, demanded also by the reviewer but not addressed in your answers (section 2.5).

Response.

The analysis matrix included data on normally distributed variables.

The manuscript was supplemented with data, additional statistical correlation analyzes were performed.

Based on the comments, we removed the LSD results from the graph.

Data analysis showed average and strong linear correlations between soil temperature, CO_2 emission, total and aeration porosity (Table 3). In 2015 and 2017, we strong negative correlations between soil temperature and CO_2 emission. In 2016, the opposite correlation was found. In 2016 were wetter compared to 2015 and 2017, especially the months of July and August. Amount of precipitation in 2016 during the vegetation period of the plants was evenly distributed, there were no periods of drought. Meanwhile, in 2015 and 2017, drier periods were identified when no more than 5 mm of precipitation fell per decade.

Soil temperature also correlated with soil porosity, however relations in 2015 were negative and in 2016-2017 – positive.

Comment. 4.

Check that all the information given in the discussion on tillage, cover crops density, height is supported by own observations, data or by literature, but is not just speculative.

Response.

We checked all information given in the discussion. Some information is supported by own observations, and some by literature. We corrected sentences would be clearer to understand.

Comment. 5.

Please add in the objectives and title the type of crops or agroecosystem where your studied is carried out.

Response.

According to Reviewer's comment, we added the type of crops in the objectives (lines 21, and 115) and title.

Comment. 6.

Line 275, mention correctly, without inducing confussion as explained by the reviewer 2, the references Moyano et al. (2013) and Sierra et al. (2015), explaining the context, are they comparative or contrasting situations with your results?

Response.

It is comparative situation. In order without induce confusions, we added additional information in lines 325 and 326: "Our studies have also shown that environmental conditions have an effect on temperature changes, i.e. the use of a biological preparation influences the increase in temperature".