

<b>General comment</b>	
<b>RC2 comments</b>	<b>Author comments</b>
<p>The manuscript 'Unseen population build-up of <i>Pratylenchus</i> in organically grown clover grass leys' examines how nematode trophic guilds are responding to four organic farming strategies (differing in amount of ley and type of organic fertilizer) in field experiments in Germany. The authors show that plant-parasitic nematodes were dominant in all farm types, and the most abundant being <i>Pratylenchus</i>. However, the title is misleading as a big part of the manuscript is about the response of different nematode trophic groups.</p>	<p>Both reviewers point out the too specific title of the manuscript. We therefore agree to use a more general title. See also suggestion for reviewer 1 in the comment section "Title": "Legume grass leys as drivers of nematode communities in four long-term simulated organic farm management strategies"</p>
<p>The authors need to decide what should be the focus of the paper – the amount of legumes in the rotation or the organic fertilizer affecting the whole nematode community or mainly just plant-parasitic nematodes. And that should be evident throughout the manuscript. As stated in the end of the introduction, the purpose of the study is to identify organic cropping systems and organic matter management strategies that suppress potentially harmful PPN while simultaneously fostering beneficial nematode trophic groups. Are you really doing that when you have four different systems, all with different fertilization? And what was the purpose of the repeated sampling in most of the systems? Depending on the focus of the paper, it could be discussed whether the part about diagnostics of <i>Pratylenchus</i> species should be deleted. In the present form, this section is not fitting in with the other.</p>	<p>We thank the reviewer for these very important questions regarding the manuscript. Together with reviewer 1 these will further improve to manuscript structure and aim: We will adjust the focus of the study according as also described in the answer to reviewer 1 in the general comments: "As the main focus of the field experiment is too mimic different farming strategies (cattle production, soil fertility management farm, market-oriented farm and human nutrition oriented farm, we will start the intro with describing these farming approaches. Legumes as the fundamental basis of these systems will, however, play the biggest role. We will further describe more in detail the purpose of the different fertilizer used: These are based on alternative strategies to use the 1-2 years clover-grass in systems that lack cattle.... Although the general study focus is more on PPN, we think that other trophic groups may as well be used to explain PPN effects on plants. That's why we included the trophic groups. We are aware that nematode-based indices (relative and absolute nematode data) are oftentimes used. These are not included here as it would have extended the manuscript a lot while the study focus would be lost. We agree that direct research questions to the study purpose are missing and we will include these as following (also acknowledging the research gap as recommended): e.g. How do farming systems with a reduced period of legume-grass cropping shape the nematode community? How do varying use strategies of legume-grass mixtures (the standard is too feed these to cattle followed by the application of manure and slurry to the field) affect the nematode community compared with</p>

a control where legume-grasses are mulched and left in the field?”

When looking at sustainable agricultural production systems, such a systems approach is very valuable to judge the long-term sustainability of a given system. Nematodes are only one part of such an evaluation but oftentimes valuable indicators. Möller et al. (2026) uses additional parameter that we will now also use for the discussion of our data and the population build-up of *Pratylenchus* highlights that the general organic farming system (Mixed Farm type) may face some problems in the future (at least in this location).

The purpose of the repeated sampling was 1) to have additional replications that could be used to differentiate Farm type effects and 2) to see how the individual crops (or crop rotations) affect the nematode community over time -> Is the population stable? What are preferential hosts for PPN? How to nematode response to fertilizer over time (their application does not always happen simultaneously which is usual for systems comparisons).

That's why we will adjust the hypothesis and add a fourth one to be in line with the new structure of the manuscript (see comments to reviewer 1):

First, we would switch the order of the hypotheses 2 and 3 to be more in line with the order of the results. We will add a 4th hypothesis that organic fertilizer reduce the number of ectoparasitic but not endoparasitic nematodes (the latter are in roots and therefore not necessarily in contact with the soil and a potential antagonistic activity. For the 4th hypothesis we will delete the part “and thereby decrease PPN populations compared to the mulched control.” In the actual hypothesis 3.

Both reviewers also question the usefulness of the molecular section in this study. We copied the answer to reviewer 1 below:

“Originally, only morphological analyses of the nematode communities were planned. The molecular analysis was done by chance as we figured out that there was something uncommon (*Pratylenchus pratensis*) in the field. We agree that this is not typically meaningful for the research questions and hypothesis, but, given the fact that this nematode has not been describe in such densities in agricultural fields

	before, was meaningful for us and worth to show to the scientific community.”
I am a bit confused regarding the use of the terms herbivorous nematodes and plant-parasitic nematodes. What are your definitions of these terms? To me, herbivorous nematodes are feeding on plants, but they are only considered plant-parasitic if they cause substantial damage. E.g. I would consider species within Tylenchidae to be herbivorous but not plant-parasitic, but you have included them as plant-parasitic. So which genera do you consider herbivorous and which plant-parasitic? Or are you just using different names for the same thing? If the latter, use the same name throughout the manuscript.	You are completely right and in line with reviewer 1, we will change this accordingly in the figures 1 and 2. The family Tylenchidae is not considered being plant-parasitic. A strategy to solve this is given in the comment to reviewer 1 Line 159-161
Detailed comments:	
Abstract: The different legume cropping sequences are not mentioned but rather just the names of the organic farm types are provided. The differences among the farm types should be evident already from the abstract.	“Here, we ask how plant-parasitic and other free-living trophic nematode guilds are affected by four diverse organic farming strategies. These are three stockless organic farm types “Cash Crop”, “Soil Fertility”, “Vegan” Farm type with 33% legumes in the rotation and one “Mixed” Farm type which includes cattle and 50% legumes in the rotation. Each farm type has individually designed crop rotations and legume cropping frequencies.”
Introduction: The structure could be improved by providing a clear red thread and the main focus of the study should be evident.	Yes, this is in line with reviewer 1 and will be adjusted (see also comment no. 2 of rev 1): “We agree with the reviewer that the introduction is too much focused on legumes. This was partially due to the greatest effect of this plant family that we saw in our experiment. As the main focus of the field experiment is too mimic different farming strategies (cattle production, soil fertility management farm, market-oriented farm and human nutrition oriented farm, we will start the intro with describing these farming approaches. Legumes as the fundamental basis of these systems will, however, play the biggest role. We will further describe more in detail the purpose of the different fertilizer used: These are based on alternative strategies to use the 1-2 years clover-grass in systems that lack cattle.”
Line 29: longer durations of legumes	Yes, we will change this
Line 31: References Finckh et al. 2015 and Böhm et al. 2020 not included in the reference list. Why would the increased	We are sorry, here we failed to insert the ref with our reference manager.

<p>nutrient cycling contribute to reduced use of pesticides?</p>	<p>Regarding the reduced pesticides, this is meant independently from nutrient cycling and mean be achieved by at least two processes:</p> <ol style="list-style-type: none"> <li>1. Legumes have a low C:N ratio and their decomposition foster soil microbes -&gt; these in turn can protect plant roots from soil-borne pathogens (e.g. rhizobacteria, mycorrhiza, and more)</li> <li>2. Legumes break winter-annual cropping seasons (particularly in temperate cereal production systems) and will therefore contribute to winter annual weed control -&gt; in the long term, this will allow to reduce herbicides in the whole production system.</li> </ol>
<p>Line 33 (and throughout the manuscript): PPNs</p>	<p>Yes, we will check this in the following</p>
<p>Line 36: largely unknown is a bold statement. There is a number of studies looking at nematodes in organic cropping systems.</p>	<p>We agree that this phrase is a bit too general. Most likely this sentence will be deleted during our re-structuring of the introduction, however, before doing so, we will first change this to a more specific statement:  “Although PPN are important drivers amongst the manifold pathogens involved in the legume root-rot complex, their potential for yield losses in organic land-use systems is largely unknown.”</p>
<p>Line 39: If knowledge of these systems is lacking, how could you then state that long and diverse rotations in organic systems harbor less specialized PPNs (e.g. cyst nematodes)? Include a reference.</p>	<p>Correct, studies on yield loss potential in organic farms are lacking (see comment above). Nevertheless there is a limited source of studies that consider PPN in organic farming systems.  Ref added:  Jaeyeong Han et al 2022:: Plant-Parasitic and Free-Living Nematodes from Organically Farmed Fields in Illinois and Wisconsin, 1535-1025, available at:  <a href="https://pubag.nal.usda.gov/catalog/7795296">https://pubag.nal.usda.gov/catalog/7795296</a>.</p>
<p>Line 55: e.g. demonstrated</p>	<p>„e.g.“ will be included</p>
<p>Table 1: The fertilization treatments specified in the text for the cash crop and soil fertility farm types do not correspond with the time points provided in the table.</p>	<p>This is correct! Thank you. The data in the table are correct, those in the text wrong. We will change this based on the publication by Möller et al. 2026.  Möller, M., Athmann, M., Dreßen, S., Weber, T. K. D., Ruch, B., and Bruns, C. 2026: How to maintain soil fertility in stockless organic farming: Research concepts and insights from the first crop rotation of a long-term field experiment, <i>Org. Agr.</i>, 16, 20,  <a href="https://doi.org/10.1007/s13165-026-00545-9">https://doi.org/10.1007/s13165-026-00545-9</a>, available at:  <a href="https://link.springer.com/article/10.1007/s13165-026-00545-9">https://link.springer.com/article/10.1007/s13165-026-00545-9</a>.</p>

<p>Line 99: It is not evident from Table 1 what farm types that were sampled the different years.</p>	<p>We will add the specific Farm types that were samples to the text in brackets always after the term "farm types".</p>
<p>Figure 1: Why not have a graph for plant-parasitic nematodes too?</p>	<p>The PPN are included in the Figure 1 A "Herbivores". As we later differentiate the herbivores in the 6 most abundant taxa, we believe that inclusion of PPN in this figure would be redundant. Moreover, this figure should be rather an overview of the presence of individual nematode trophic groups that consist mainly on these five (animal parasites are excluded as typically occurring in dauer forms that are hardly to identify morphologically).</p>
<p>Line 234: Refer to another chapter number (3.1) than the current chapter you are in.</p>	<p>Correct! Thank you. We will change this to chapter 3.1.</p>
<p>References in the text: Not provided in a consistent way regarding publication year (i.e. not in chronological order).</p>	<p>We apologize for this. For the insertion of references, we used the citation stile of SOIL. However, this does not re-arrange the order of citations in the text. We will check and change this accordingly.</p>