

<b>General comment</b>	
<b>RC1 comments</b>	
<p>The manuscript “Unseen population build-up of <i>Pratylenchus</i> in organically grown clover grass leys” describes and report the data and results about nematode trophic groups in different farm types with different organic fertilization and rotations in organically managed long-term field experiments in Germany</p>	
<p>While I find the introduction of the article mostly well written, I think that this lacks clarity regarding the focus of the paper (also I have the same impression from the title): is the focus on legumes? On organic fertilization? On PPN or the free-living community or both? I think this could be clarified and made a bit more consistent throughout the intro and the document in general. Also, what do you mean about beneficial nematode groups? Are bacterivorous nematodes always beneficial? Or do you maybe talk about a more balance nematode community in terms of trophic groups? I also think that the gap you are trying to fill could be explained more. I would try to formulate research questions that are clearly linked to the hypotheses that you mention in the end of the introduction.</p>	<p>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. Regarding the nematode community, we define beneficial nematodes as all trophic groups that do not directly interfere with plant performance, i.e. although bacterivorous nematodes provides nutrients by grazing on bacteria, this effect appears rather indirect. 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.</p> <p>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 variing 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 a control where legume-grasses are mulched and left in the field?</p>
<p>In general, the material and methods are fine, but they could be sharpened in</p>	<p>We will come back to this in detail in the specific comments section.</p>

<p>various points (see more specific comments). I am also not very sure how all the analyses are linked to the research questions and the hypotheses. I think this can be clarified. One thing I think is a bit limiting is the way you have analysed the nematode communities: you only looked at absolute abundances, while often it is interesting to look at relative abundances and also more specific taxa of the free-living nematode communities.</p>	<p>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 (<i>Pratylenchus pratensis</i>) 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 described in such densities in agricultural fields before, was meaningful for us and worth to show to the scientific community. When describing nematode communities, we agree that often relative abundances and nematode-based indices that refer to these data are used. However, we believe that relative data (usually done in molecular community analysis where absolute values are often missing) can hide a number of details: E.g., two farming systems have the same relative values for individual trophic groups but different absolute abundances. Such an information would get lost if showing only relative data. We, however, plan to tackle this topic in a second manuscript with focus on nematode based-indices (see also comment above)</p>
<p>The results and discussion sections in my opinion could also be more focused and linked to the research questions and hypotheses. Because of this, I find that in some cases it is difficult to follow the discussion and really understand what are the main points. Also, I am a bit confused about the section 'outlook': I think I would call this conclusions and again, I would try to link it more to the overall aim of the study and also to more practical implications and follow ups including all of your main results.</p>	<p>This is a very good point that we will consider after introduction of research questions. We will also give more practical implications which are based on actual efforts to decrease the number of PPN in the mixed farm type: The crop rotation was slightly changed. We will address practical implications while referring to the paper by Möller et al. 2026 where yield data of the specific crops are shown. The results and discussion section at the moment follows that order from general to specific (trophic groups – PPN genera/families – <i>Pratylenchus</i> species ID. As stated above, the latter part is not necessarily linked to the research question but it appears meaningful as this is a rather new finding. We will check where we could sharpen these parts according to research questions/hypothesis</p>
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<p><b>Specific comments</b></p>	<p></p>
<p><b>Title</b></p>	<p></p>
<p>the title is very specific, but the content is broader than this...I suggest to have another title that represents more the objective and the content of the work</p>	<p>Both reviewers requested this and as such we will broaden the title: Suggestions are: "Legume grass leys as drivers of nematode communities in four long-term simulated organic farm management strategies"</p>
<p><b>Abstract</b></p>	<p></p>

Line 9-10: check the structure of this sentence.	Changed to: "Legumes are key elements in organic rotations with a high susceptibility towards a range of soil-borne pests and diseases, such as plant-parasitic nematodes of the genera <i>Meloidogyne</i> and <i>Pratylenchus</i> ."
Line 12-15: long and not easy to read	Sentence split in three: "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 and one "Mixed" Farm type which includes cattle. Each farm type has individually designed crop rotations and legume cropping frequencies."
Line 15: mention where is the farm located (country)	Will be added at L16: "...in northern Hesse, Germany"
Line 18: Not clear why two types of characterization for <i>Pratylenchus</i> (and also why in particular for this nematode genera).	We will add that this was the dominant nematode genus in all farm types: "...identify <i>Pratylenchus</i> the most dominant genus (xy% of all nematodes) ..."
Line 19: not typical way of unit for nematodes (usually numbers per 200 g of dry soil). How will you compare this to other studies?	This is not totally true. In Europe, nematodes are typically expressed as per 100 ml soil or as per 100 g dry soil. The reference is given in the EPPO (European plant protection organization) protocol PM7/119 "Nematode extraction" ( <a href="https://onlinelibrary.wiley.com/doi/epdf/10.1111/epp.12077">https://onlinelibrary.wiley.com/doi/epdf/10.1111/epp.12077</a> ) where in table 2 all extraction methods from soil are listed in volumes. In general a comparison between studies is rarely possible due to the fact that the recovery of nematodes from soil is highly variable between extractions method and laboratories (i.e. personnel). That's why the within experiment comparisons are more trustworthy than between experiments. As a rule, we compare the trends occurring in different experiments and underlying treatments rather than discussing individual nematode abundances
Line 22: which treatment was this?	We will delete the term treatments as this refers to both the control as well as the fertilizer trt
Line 25: what do you mean with hidden population?	"Hidden" in this context means that the population build-up of <i>Pratylenchus</i> could not be seen by the clover grass performance that was not affected by <i>Pratylenchus</i> . We will change this for clarification.
Line 26: which rotation?	We will add: "...crop rotation in the four farming systems."
In general, I think the research question could be a bit more motivated. The year component here is not mentioned in the results part of the abstract. I also think there are some details that could be	We will address the research questions as according the the first author comment in the general comments section. This will slightly change the corrections made in Line 12-15 (see above). We agree that the total number of

<p>skipped maybe (numbers of nematodes) and maybe focus more on the main results?</p>	<p>nematodes can be skipped and instead, we will include other PPN that reacted differently in the farm types (e.g. Helicotylenchus) and fertilizer (omnivores, bacterivores). We will include the assessment in three years in the method section at line 16.</p>
<p><b>Introduction</b></p>	
<p>Line 40: is this true???</p>	<p>Oh yes, most studies on PPN are in conventional field due to the fact that PPNs are seen as crop rotation pests. That's why the majority of outbreaks of PPN are in conventional systems and mainly focus on cyst and root-knot nematodes. Although, lesion nematodes have a broad host range, these appear in commonly in conventional systems (e.g. USA/ Australia with high cereal cropping frequencies) or intense vegetable cropping systems. The latter could also affect organic systems but the high diversity of crops in the rotation typically prevent the domination of single damaging organism. We will add a ref here:  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 47: beneficial to what? Maybe good to explain a bit more what do you mean with beneficial</p>	<p>We will add 1-2 sentences explaining that e.g. bacterivorous and fungivorous nematode have positive effects on nutrient cycling by releasing nutrients that are otherwise captured in the microbial biomass (and likely also necromass) while omnivorous and predacious nematodes are indicative of top down regulation of nematodes and a balanced soil food web without domination of individual specimen</p>
<p>Line 64-70: not very clear to me. Also here you focus quite a lot only on the PPN. Why is that?</p>	<p>Yes, the non- herbivorous nematodes are missing.  We will change this to:  "We investigated the soil nematode community dynamic with special focus on herbivorous nematodes in an organic long-term field experiment (LTFE) over three consecutive years (2022-2024)."</p>
<p>Line 67: to what are these percentages corresponding to? not clear</p>	<p>We agree that this is not so clear. We will change this to:  "Hence, rotations constituted of distinct proportions of legumes (33-50%), cereals (16-50%), and root-/tuber crops (16-33%) in the individual farm types."  Does this help?</p>

Line 72-73: so this is negative right?	We wouldn't think so: It can be both negatively (if one of the PPN with broad host range dominates at high levels) and positively if the several neamtodes with broad host range co-occur at low densities (e.g. interspecific competition) without reaching damaging levels for the plant/crop.
Line 71-74: I don' really think you come back clearly to the research questions/hypotheses in your results and discussion (and outlook). I think this can be strengthened.	After revision, we agree that hypothesis iii) is not very consistent with the results. We will change this according to the time of fertilizer application that should foster predominantly bacterivorous and fungivorous nematodes compared to the mulch system (control)
<b>Material and methods</b>	
Table 1 : it would be good to also include the control here	Yes, we will do this.
Line 81: the parenthesis is not closed	Will be done.
Line 89-90: maybe this is more for the text?	Yes we will move this to the text
Line 96-97: but how are located the plots?	We will add the reference to figure 4 in: Möller et al. 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> . The arrangement of plots is given in this figure.
Line 141: why so deep?	This is the standard plough horizon in this particular organic farm and which is the main rooting zone
Line 145: how long was this (the processing)?	Usually less than 1 month
Line 153-154: maybe add a reference for this? we do not kill them in this way, we add alcohol	Fixation of nematode is usually don in formalin if the samples could not be processed within 4 weeks after extraction. Here, we directly examied and identified the nematodes after extraction so that no fixative was needed. Alcohol can change the structure of nematodes (shrinking) which may not allow a diagnosis on genus/species level afterwards. That's why we produced the mass slides directly after nextraction and counting. This is a method trained at the Wageningen University in the Netherlands. A reference will be added: Korthals et al. 1996: Long-term effects of copper and pH on the nematode community in an agroecosystem, <i>Environmental Toxicology and Chemistry</i> , 15, 979–985, <a href="https://doi.org/10.1002/etc.5620150621">https://doi.org/10.1002/etc.5620150621</a> .

<p>Line 155: to what does this refer to? to the number of nematodes identified in general or to the numbers that were assigned to family level? Usually we identify 100 individuals in the sample.</p>	<p>To avoid bias in the identification of nematodes that were fixed on the mass slide, we identify all nematodes that occur on the slide. Depending on the density of nematodes this can be between 100 and 200 nematodes. The aim is to identify at least 100 and the averaged data in L155 shall confirm only that we were always above this minimum.</p>
<p>Line 159-161: why is this?</p>	<p>We agree that we somehow misused the term plant-parasitic nematodes (by including Tylenchidae which are rather plant associates than PPN). We will change PPN to herbivorous nematodes in figures and text that refers to this specific nematode family</p>
<p>Line 162: why this was done is not very clear for me...</p>	<p>We did this to confirm the species <i>P. pratensis</i> in our study. Although <i>Pratylenchus</i> has a broad host range in general, some species have a rather narrow host range:  <i>P. neglectus</i> -&gt; cereals and grasses  <i>P. penetrans</i> -&gt; more than 400 hosts  <i>P. crenatus</i> -&gt; cereals, carrots  <i>P. pratensis</i> -&gt; cereals, grasses  For this reason it is important to identify <i>Pratylenchus</i> to the species level in order to evaluate the damage potential for individual crops in the rotation.  We will address this in L162.. as well as add a sentence in the introduction, referring to the importance of species ID for <i>Pratylenchus</i>.</p>
<p>Line 165: what is JKI?</p>	<p>Julius Kühn Institute, we will change this</p>
<p>Line 179: it would be good to specify the structure of the models...what was the random effect and were there nested factors?</p>	<p>We acknowledged this in Lines 184 and 187/188.  If wished, we will add the underlying R-formula to the text.</p>
<p>Line 181: and what about normality?</p>	<p>In the cited book chapter by Zuur et al, the authors claim that the normality is less important than the variance homogeneity for the outcome of the LME. We therefore concentrated on the latter assumption.</p>
<p>Line 183: why only PPN? And I wonder if you have specific hypotheses for the time since you are investigating it also?</p>	<p>Good point!  PPN were used because this was the only trophic group that responded significantly on the farm types and their crop rotations. We refused to have a hypothesis for the time because we could only look into 3 years of the 6 year rotation with focus on legume-grass ley periods. We agree, that the next three years that completes the 6 year rotation would bring more insights in the dynamics of all nematodes over the course of the rotation.</p>
<p>Line 185: so this is a different model than the one used before or not?</p>	<p>Yes, we unfortunately could not include both in the same model due to the different sample sizes and treatments that were included in each year (2 trts in 2022, 3 trts in 2023, 4 trts in 2024)</p>

<p>Line 187: so each experiment farm type was analysed separately, right?</p>	<p>No, each year was analyzed separately but always all analyzed farm types were included per year (see comment above). The factor time could not be included due to the addition of trts over time.</p>
<p>Line 188: and what about the fertilization?</p>	<p>We didn't add fertilizer in the nested design because this factor was randomly arranged in each farming system strip (for more details, see Möller et al 2026, Fig. 4). We will attach this paper to the supplementary material</p>
<p>Line 190-191: not completely clear to me</p>	<p>This means that we compared the farming systems only over the control trts (where the clover grass was mulched in all systems). In contrast, fertilizer were not compared over all systems. We only compared the fertilizer with the control within each farming system separately. We agreed on this because of the different fertilizer compositions and application dates in the study. E.g. the fertilizer had different amounts of carbon and nitrogen and were thus rather incomparable. The different amount of nutrients origins from the diverse biomass produced by the grass-clover or grass-lucerne mixtures. In this systems approach, the nutrient equivalent was added as organic fertilizer. This means that each farm received amounts of fertilizer equivalent to the biomass (and nutrients) produced during the legume-grass period.</p>
<p>In general, don't you have any chemical or physical parameters to try to explain and interpret the results?</p>	<p>Yes, because they are published elsewhere: Möller et al. 2026. This was still in revision during the submission process and we will refer more to this data in our revision.</p>
<p></p>	<p></p>
<p><b>Results</b></p>	<p></p>
<p>Line 196: I think it would be nice to link better the results to the research questions and the hypotheses.. I also think that the order of the way in which the results are reported could be made a bit better</p>	<p>Our general rule was to start with the most general results (total number of nematodes, nematode trophic groups) and end with the most specific (genus and species data). We would like to keep this order. We agree that the link and the arrangement should be more in line with the hypothesis. 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 4<sup>th</sup> 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 4<sup>th</sup> hypothesis we will delete the part "and thereby decrease PPN populations compared to the mulched control." In the actual hypothesis 3.</p>

<p>Line 197: usually they are expressed in 100 g of dry soils</p>	<p>In Europe both, expressions in 100 ml of soil and 100 g of dry soil are common. As discussed above, the extraction technique is more important than the volume (the difference in general between both approaches should be low (approx.. 10% higher number of nematodes when extracting per ml than per g dry soil) when considering 15-20% water in soil that will be lost and a bulk density of 1.2 to 1.3 g/ ml</p>
<p>Line 216: in terms of what?</p>	<p>We will specify this sentence by:          “The difference in the total number of bacterivorous nematodes among farm types were generally low and insignificant”</p>
<p>Table 2: not clear to me what are these ratios</p>	<p>T-ratios are an output of the estimated marginal means that are used to test the significance of fixed effects contrasts: Here, the fixed effect is the sampling time e.g. herbivores in the cash crop farm (df=6) have a highly significant positive contrast between 2023 and 2024 -&gt; this means that the increase from 2023 to 2024 is statistically significant. Vice versa, in the same period, the bacterivores have a highly significant negative t-value, indicating that the decline of bacterivores between 2023 and 2024 is statistically confirmed.</p>
<p>Line 235: here you mean the fertilization and also the control, right?</p>	<p>Yes, the first two sentences should indicate that the fertilizer were not fundamentally changing the nematode community of the farm types.</p>
<p>Line 238: absolute or relative abundances?</p>	<p>We will add “absolute” before the term “nematode trophic group abundance”</p>
<p>Line 248: lower than?</p>	<p>We will rearrange the sentence to clarify this</p>
<p>Line 257-258: why reporting the values results only for the omnivorous nematodes?</p>	<p>Because we only had significant results for this nematode trophic group. During writing of the results section, we quickly figured out that mentioning each individual results would be too boring for the reader who could easily see each result in the figure. As we will place the data into a data repository, any reader should also gain access to each single value.</p>
<p>Figure 1: I would put this legend outside the graphs</p>	<p>This a good point and can of course be done easily. The question is than about the readability of the figure which is already very small. We will check this with the typing editor (if the manuscript will pass the review) and act according to their decision</p>
<p>Line 270-275: I think this can be clearer. At the moment is a bit confusing. Also, explain more how to interpret the significance values in the graph: how do we need to read them?</p>	<p>Ok, first, we may delete the sentence “The Soil Fertility Farm type was sampled in 2023 and 2024, the Vegan Farm type in 2024 only.” as this is described in the methods part.          Second, we will rearrange the next sentence to:          “Multiple comparisons of Farm types were performed in the control treatment (grey</p>

	<p>bordered bars) only. Here, the grey bordered bars that do not share a common letter are statistically different.”</p> <p>Third,</p> <p>“The effects of fertilizer (black bordered bars) were compared to the control within each Farm type. Here, *, **, and *** above black bordered bars indicate whether the fertilizer treatment is significantly different from the control treatment of the same Farm type at <math>p &lt; 0.05</math>, <math>p &lt; 0.01</math>, and <math>p &lt; 0.001</math>, respectively (emmeans contrasts)”</p> <p>We will further add the comment:</p> <p>“Fertilizer applied to the individual Farm types had different compositions of nutrients (nitrogen, carbon, phosphorous, etc. see Möller et al. 2026). A comparison of fertilizer effects among Farm types is therefore not allowed due to violation of the <i>ceteris paribus</i> principle.”</p>
<p>Line 277: is this the right place for this section?</p>	<p>As stated above: we will change the order of the hypothesis and then this will be in the correct order.</p>
<p>Line 284: why not shown the stats?</p>	<p>At that time we picked out a specific time (2023 and 2024, not 2022) and only the treatments soil fertility farm, mixed farm and cash crop farm. The reason (hard to remember what was half a year ago) was most likely this rather subjective approach. We will analyse this again for the two farm types that were investigated in all three years and will include the stats here.</p>
<p>Table 3: not completely clear...are these t ratios or estimated means?</p>	<p>See comment for table 2. The approach is the same. These are t-ratios</p>
<p>Figure 2: i find confusing why you add this figure 2 and also the table 3. why both in the figure 2 and in table 3 there are families and genera of nematodes?</p>	<p>Table 3 is an addition to Figure 2: While in figure 2 only treatments effects were statistically acknowledged, table 3 was used to show also the time series effect, i.e. whether the increase/decline of specific nematode genera/families over the course of the crop rotation was statistically significant. The reason to not include the time series data in the figure was the readability of the figure. As the reviewer already mentioned (L270-L275), the figure is hardly readable already. So we tried to reduce the info in the figure by outsourcing the time series data into the table 3 (the same accounts for table 2 and Figure 1). We will add a reference to figures 1 and 2 in the respective table headings to show the link between both files. Another opportunity would be to remove the tables into supplementary material. However, as we used the table data in the discussion, this appears questionable.</p>
<p>Line 317: confusing to talk about peaks, can you be more specific?</p>	<p>Yes, we will change the sentence to:</p> <p>“These large effects for both genera were a results of outliers that occurred in the Mixed</p>

	Farm type for <i>Pratylenchus</i> in 2024 (3505 nematodes 100 ml soil <sup>-1</sup> , replicate three) and ...”
Line 326: in which way?	We will change the sentence to: “Compared with the control treatment, specimen of the genus <i>Helicotylenchus</i> were significantly lower one year after the biogas slurry application (2022)”
Line 329: why necessary to study them with molecular methods? I think this would be important to explain more in general. I also think that in this section the results could be more highlighted.	See answer to comment at L162; We will add 1-2 sentences that the distance between our <i>P. pratensis</i> sequences and those already known sequences in the NCBI data source is small enough to confirm <i>P. pratensis</i> as species while the distance in the tree from the genetically similar <i>P. vulnus</i> is far enough to separate both species from each other. This was one of the goals of the molecular analysis: to identify the correct species.
Figure 4: why without separation of fertile treatment?	Indeed, this was due to the correlation: With four data points, a correlation of yields and <i>Pratylenchus</i> would be impossible. The main message of the figure was to show that <i>Pratylenchus</i> increased independent of the fertilizer and that this increase is not linked to yield losses in the grass clover.
Line 364-365: there is only one solid line, right?	Yes, because all other correlations were not statistically significant and it is therefore not allowed to draw a line between these data points.
<b>Discussion</b>	
Line 370-372: and others that found the same?	So far there were no papers that show such a high presence of PPN in organic farming systems. We will add: “Likewise, Ilieva-Makulec et al. (2017) and Quist et al (2016) found low relative abundances of “plant feeders” (< 20%) but high abundances of bacterivorous nematodes (> 50%) in organically managed soils.”  Refs: Ilieva-Makulec, K., Tyburski, J., and Makulec, G.: Soil Nematodes in Organic and Conventional Farming System: A Comparison of the Taxonomic and Functional Diversity, Polish Journal of Ecology, 64, 547–563, <a href="https://doi.org/10.3161/15052249PJE2016.64.4.010">https://doi.org/10.3161/15052249PJE2016.64.4.010</a> , 2017. Quist, C. W., Schrama, M., Haan, J. J. de, Smant, G., Bakker, J., van der Putten, W. H., and Helder, J.: Organic farming practices result in compositional shifts in nematode communities that exceed crop-related changes,

	<p>Appl. Soil Ecol., 98, 254–260,  <a href="https://doi.org/10.1016/j.apsoil.2015.10.022">https://doi.org/10.1016/j.apsoil.2015.10.022</a>,  available at:  <a href="https://www.sciencedirect.com/science/article/pii/S0929139315301153">https://www.sciencedirect.com/science/article/pii/S0929139315301153</a>, 2016.</p>
<p>Line 375: explain more</p>	<p>We will add:  „The narrow and sometimes species-specific host-range of Heteroderidae, e.g. <i>Heterodera glycines</i> and soy bean, <i>Globodera pallida/rostochiensis</i> and potato and closely related plant species, allows a multiplication on hosts that are grown in short (2-3 years) cropping sequences. However, the oftentimes long rotation cycles in organic systems (e.g. 6 years in this study) prevent a population build-up due to the absences of preferred hosts (Hallmann &amp; Kiewnick, 2015) (Han et al. 2022).  Ref: 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 376: reference?</p>	<p>See above:  Hallmann, J. and Kiewnick, S.: Diseases caused by nematodes in organic agriculture, in: Plant Diseases and Their Management in Organic Agriculture, edited by: Finckh, M. R., van Bruggen, A. H., and Tamm, L., American Phytopathological Society, St. Paul, Minn, 91–105, 2015.</p>
<p>Line 380: but it was higher than in other treatments?</p>	<p>Not statistically confirmed. Therefore, we would like to be more general here and discuss the source of these already high initial values</p>
<p>Line 393: explain a bit more why this is in line with your first hypothesis</p>	<p>We will add:  “This is confirmed by a 100% increase of free-living nematodes in a long term rotation sequence (6 years with 3 years pasture) compared to a three year rotation sequence (without pasture) under organic management in the United States (Han et al. 2022). The authors stated that the nematode community was “more resilient and complex” in this system, indicating an increase of higher nematode trophic groups (omnivorous and predacious nematodes) and a “more favorable habitat for free-living nematodes”. The lack of soil disturbance, particularly in the long pasture period may be responsible for this.”</p>
<p>Line 404-408: but the bias would be present in all the different treatment right? so you might still see difference between treatments if there is one...no?</p>	<p>Indeed. All samples were processed in the same way, so that the <i>ceteris paribus</i> principle still holds. We would like to highlight this because of the difficulties when comparing our</p>

	results with other studies (see also the discussion nematodes per ml and per g of soil)
Line 408-410: I do not get the meaning of this sentence Explain more	This sentence is rather misplaced here: Before we discussed the methodology and now a sentence of ecological interaction. We would like to delete this sentence.
Line 409: trophic crop? Maybe you mean trophic group?	Oh yes, “trophic group” is correct. Sentence will be deleted
Line 416: could, not would I think would be better	Will be corrected to “could”
Line 426: assumptions correct?	Well, root biomass was not measured. However, aboveground dry matter yield of clover grass (Möller et al. 2026) underlines this assumption.
Line 431-432: is this in line with your hypotheses?	We will add: “... obvious damage which confirms the third (formerly second hypoth.) hypothesis of our study.
Line 435: reference?	We add Braun et al 2010) after “...longer” Braun, M., Schmid, H., Grundler, T., and Hülsbergen, K.-J.: Root-and-shoot growth and yield of different grass–clover mixtures, <i>Plant Biosystems - An International Journal Dealing with all Aspects of Plant Biology</i> , 144, 414–419, <a href="https://doi.org/10.1080/11263501003718604">https://doi.org/10.1080/11263501003718604</a> , 2010.
Line 453: add a comma after 'our study'	Will be done
Line 457: reference?	This was an idea derived from our own findings in this study. Is here a ref necessary?
Line 465: but you did not find this, right? you did not study this	We only found that PPN were not increased by cover crops in the Soil Fertility and Vegan Farm types. Other positive effects mentioned were rather an example of the benefits of cover cropping and not studied here.
Line 466: reference?	We will add: Neupane, K. and Yan, G.: Host suitability of cover crops to the root-lesion nematode <i>Pratylenchus penetrans</i> associated with potato, <i>Plant Dis.</i> , 107, 2096–2103, <a href="https://doi.org/10.1094/PDIS-08-22-2001-RE">https://doi.org/10.1094/PDIS-08-22-2001-RE</a> , 2023.
Line 471-472: to which results are you referring here?	This is rather a general statement than a reference to specific data. We will adjust the sentence to: “Therefore, the use of a cover crop to control a plant-parasitic nematode genus or even species may result in the multiplication of other plant-parasitic taxa.
Line 485: references?	We will add the review of Khan & Kim (2007): Khan, Z. and Kim, Y. H.: A review on the role of predatory soil nematodes in the biological control of plant parasitic nematodes, <i>Appl. Soil Ecol.</i> , 35, 370–379,

	<p><a href="https://doi.org/10.1016/j.apsoil.2006.07.007">https://doi.org/10.1016/j.apsoil.2006.07.007</a>, available at:  <a href="https://www.sciencedirect.com/science/article/pii/S0929139306001806">https://www.sciencedirect.com/science/article/pii/S0929139306001806</a>, 2007.</p>
Line 499: spp <i>Pratylenchus</i>	We will add „spp.“ after <i>Pratylenchus</i>
Line 514-515: I think this was not so clear from the results above, maybe make it more clear?	We will add to the results section that the COI gene combined with a morphological diagnosis is generally sufficient for species description. The low similarity of the sequence derived from COI compared with other species in the NCBI data source afforded the study of the SSU fragment.
Line 523-526: I don't completely understand why do you give this conclusion	This refers to the sensitivity of plant species to nematodes. The onion for example, is oftentimes no or a very weak host for certain plant-parasitic nematodes (e.g. <i>Meloidogyne hapla</i> ). While the population of this particular nematode declines during onion production, the farmer may receive up to 100% yield loss as the nematode penetrates the root (before finding out that it is no host) can cause severe damage to single onion layers; the market will not accept such a damaged onion and the farmer may suffer 100% yield loss, particularly due to optical damage.
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but here you don't mention at all the negative effect of some treatments on plant feeding nematodes, why?	This is correct and we will change this in line 533: “The up to 50% lower numbers of <i>Pratylenchus</i> spp. in the Cash Crop, Soil Fertility, and Vegan Farm types compared to the Mixed Farm type suggests that a reduced period of legume grass ley combined with a higher number of annual crops in the rotation could prevent the population build-up of <i>Pratylenchus</i> spp. that occurred in our experimental field.
Line 529-530: in absolute term, right? and what about the relative abundances of these groups??	Yes we referred here more to the absolute abundances. The reason is the misleading nature of relative abundances-> a low relative abundance does not necessarily mean that a certain taxa has a low absolute abundance, e.g. after organic fertilization, the relative abundance of bacterivorous nematodes may be 80% and more-> this is however due to the rapid increase of this trophic group while other nematodes remain unchanged, although their relative abundance had declined. Therefore, we would like to refer more to the absolute values.
Line 539: reference?	We will add: Goede, R. G. de, Du Preez, G., Geisen, S., Höss, S., and Kakouli-Duarte, T.: Protocols for Nematode Sampling, Extraction, Morphological

	and Molecular Identification, Index Calculation and Toxicity Testing, in: Nematodes as environmental indicators from theory to practice, [Second edition], edited by: Kakouli-Duarte, T., Korthals, G., and Moreno, S. S., CAB International, Oxfordshire, UK, 250–272, <a href="https://doi.org/10.1079/9781800624221.0015">https://doi.org/10.1079/9781800624221.0015</a> , 2025.
I think a more general conclusion is missing.	Could the reviewer be more specific in this context. We thought to be already rather general, given the fact that the study focus is rather specific. Some hints would be very helpful for our revision.