**Dear Dr Sébastien Barot**

**Thank you for your helpful comments on our manuscript.**

**This last round of reviews helped to improve the manuscript quality.**
**We provide below in red font, a detailed point-by-point response to your comments, with explanations of the changes we made and their locations in the text.**

**All comments have been addressed.**

**We hope that this new version will be suitable for publication.**

**Yours sincerely,**

**Nicolas Legay, on behalf of all co-authors.**

I am satisfied with the way the manuscript has been improved and the reviewers' comments addressed. I would be ready to recommend the manuscript but have a few more comments.
The abstract could mention the fact that the preference for ammonium vs. nitrate is different between species and higher for conservative species.
RESPONSE: According to your suggestion, we added a sentence addressing this point in the abstract (L40-42).

I like the discussion however:

1) It should explicitly mention the fact that the interpretation is limited by the fact that only three species are studies.
RESPONSE: We feel that we already acknowledged that limitation in the first section of the discussion ("…and this could be related to a limited number of species/replicates."). Nevertheless we added a more explicit sentence at the end of this first section (L299-300).

2) I think the way nitrate and ammonium uptake rates are measured is very useful but I think the discussion/conclusion should mention that it would also be interesting to measure the absorption of nitrate and ammonium at the whole plant scale. For example, through 15N pulses. This could give a different image of N uptake.
RESPONSE: We kind of addressed this request in the discussion Line 373-377. Yet, we added a sentence at the end of the conclusion (L425-426) to insist on that point.

3) I like the discussion about the differences between the relative nitrate and ammonium rates and the link with the plant strategy. However, I am surprised it is never mentioned that assimilating ammonium is less costly than assimilating nitrate (that has to be reduced). This could be in line with a more conservative strategy? Similarly the influence, of the ammonium vs. nitrate preference likely has consequences on ecosystem functioning and the N budget of the ecosystem (because nitrate is more prone to losses) (see Boudsocq 2009 and 2012, OK I am co-author of these articles).
RESPONSE: We agree this was a weakness of our paper and we added a sentence to refer to these points and to your paper (L314-316 and 319-321).

4) Ammonium is more absorbed during autumn. Could that just be due to the fact that ammonium is less mobile than nitrate within the soil so that it requires more humid soils to be absorbed?
RESPONSE: We added a sentence to cover this point in the discussion (L407-408).

There are still some writing glitches. I have listed some of them (see below) but the manuscript should be carefully proofread.
Line 55. It is awkward to start the sentence with "And". I think the "plant ecology, " should be deleted
RESPONSE: We tried to simplify the message here (L57).
Line 60. I suggest "the significance of root traits is less understood than the one of leaf traits"
RESPONSE: Done (L61).
Line 66. "is both influenced by anatomical …. and by physiological adjustments such as …"
RESPONSE: Done (L66).
Line 69. "Nitrogen is one of the best studied mineral nutrients and its uptake by plants under both the ammonium and nitrate forms is influential for plant and ecosystem functioning"
RESPONSE: Done (L67-69).
Line 72 "some information" à la place de "supports"
RESPONSE: Done (L71).
Line 100. Could the first hypothesis be expressed more precisely? What does that mean "contributing to the economic spectrum"? Does that mean that there is a root economic spectrum fully correlated (positively) to the leaf spectrum?
RESPONSE: We clarified the first hypothesis in the introduction (L99-102). Root traits measured in this study allow separating species in function of their nutrient acquisition strategy in the similar way than leaf traits (H1), and also capturing their nutrient acquisition preference between the different inorganic N forms (H3).
Line 105. I do not understand the "both in quantity and quality"
RESPONSE: Corrected, we removed this part of the sentence.
Line 130. "managements"
RESPONSE: Done (L130).
Line 146. "during the day"
RESPONSE: Done (L146).
Line 151 "kept in ice"?
RESPONSE: It is usually kept on ice; we published several papers with this sentence.
Line 152 "5.6 mm mesh"
RESPONSE: Done (L152).
Line 164 "living young roots"
RESPONSE: Done (L164).
Line 174 "root 15N natural"
RESPONSE: Done (L174).
Line 183 "at the cost of losing relevant ecological information"
RESPONSE: Done (L183).
Line 210 "Hanes's relations were used" or ''Hanes's relation was used"
RESPONSE: Done (L210).

Line 269 I do not understand this sentence because obviously the paragraph is comparing different sites

RESPONSE: Corrected (L270)

Line 287 I find that “resource use “ is too vague and not related enough to the previous sentence

RESPONSE: Corrected using terms from the cited reference (L287-289).

Line 288 “despite relatively weak relationships”

RESPONSE: Done (L288).

Line 289 “different selective pressures” “specializations”

RESPONSE: Done (L289-290).

Line 304 “indeed” seems to me inappropriate here

RESPONSE: Removed

Line 326 “opposite response” is for me to vague. Response to what? Response of what?

RESPONSE: We detailed our sentence in text (L331-332).

Line 359 “could depend on”

RESPONSE: Done (L365).

Line 364 The sentence is in my opinion awkward. Should the plural be used? Not clear whether this is a result of the manuscript or a general thought coming from the reference.

RESPONSE: Corrected (L371-372)

Line 379 “remain”

RESPONSE: Done (L385)

Line 397 “grassland N cycling rate”

RESPONSE: Done (L404)