Dear editors,

We enclose the manuscript “Livin' on the edge: Precision yield data shows evidence of ecosystem services from field boundaries” to be considered for publication in *Agriculture, Ecosystems & Environment*.

Our manuscript uses a novel approach to address the question “*How do different field boundary types affect crop yield?*” Semi-natural field boundaries can increase or stabilize yield in field crops, while also preserving landscape diversity and biodiversity in homogeneous agricultural landscapes. However, detecting the effect of field boundaries also requires a large amount of time-consuming field sampling, limiting the scope of the analyses due to the large amount of labour involved. Meta-analysis is often a standard approach to this, but we show that there is another alternative: *precision yield data*. Combine yield monitor data is widely collected by growers and agronomists across North America and Europe, but has rarely been used to answer landscape-level agroecological questions, meaning that our manuscript is one of the first of its kind.

Using 252 field-years of data from Alberta, Canada, we examined how the yield of three common crops – wheat (*Triticum aestivum*), canola (*Brassica napus*), and peas (*Pisum sativum*) – are influenced by different types of field boundaries. We found that crop yields tend to increase with distance from the field boundary before plateauing at about 50 m, and similarly, crop yield stability (variance) tends to decrease with distance. However, we also found evidence of an intermediate increase in wheat yields away from shelterbelts, suggesting that these boundaries provide tangible ecosystem services to growers, and should be preserved in agricultural landscapes.

We believe that this manuscript would be of great interest to your readers, as it demonstrates a new approach to studying how crop yields vary across landscapes. Precision yield data is an often-collected – but highly underused – source of valuable information for growers, agronomists, and agroecologists, and this manuscript shows some of the incredible potential that exists in such data, and suggests new directions of research. Thank you for your consideration, and we look forward to hearing from you. Please note that a preprint of this manuscript can also be found at <https://agrirxiv.org/search-details/?pan=20210431806>.

Sincerely,

Samuel Robinson

Lan Nguyen

Paul Galpern