SOIL Discuss.,
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Interactive comment on "Potential for agricultural production on disturbed soils mined for apatite using legumes and beneficial microbe" *by* R. Swift et al.

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Referee's comment should further discuss how this study can be useful at more global scales. Could this particular research be an example or case study of adequate land management for similar areas with analogous status? Response See addition on line 29 pg 3

Referee's comment narrowing the selection of species to restore could have a large impact on biodiversity in the area, particularly if this occurs at a large scale. Please, elaborate on this issue. Response The regions suitable for restoration to rainforest are now mentioned -line 24 pg2-biodiversity is not an issue here

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Referee's comment The objective of the study ('establish the scientific basis upon which agriculture can effectively be developed on land that has been previously mined for phosphorus establish' is a little unclear and unspecific.

Response Wording has been changed line 27 pg 3

Referee's comment some of these aims are not addressed in the study, e.g. underpin potential future animal feedlot operations, aquaculture or aquaponic operations. Please rewrite considering these comments. Response Wording has been changed line 28 pg 3.

Referee's comment Why did you choose those particular rates of fertiliser? Please explain the rationale for this.

Response A sentence from the discussion has been shifted to the M&M pg 4 line 10 The fertilizer composition used in this study was deliberately broad in order to cater to the requirements of the different legume varieties and the unknown response of the soils to the fertilizer application.

Referee's comment Using a non- replicated unfertilised plot can result in an unbalanced design. Please, clarify

Response Wording changed line 24 pg 4 to make it clear the plot was fertilised and used only to assess background nodulation.

Referee's comment The rate of seedling emergence seems quite high (90%). Did you use any treatment to overcome potential dormancy?

Response The fact no seed pretreatment was necessary is now mentioned. Pg 4 line 20 The high germination is not unexpected from these agricultural crops.

Referee's comment although no nitrogenous fertilizer was applied and the soil had low nitrogen levels, your plant tissue had adequate nitrogen levels. Why do you think you obtained these results? Response This is adequately covered in the discussion where

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we say-the “Although no nitrogenous fertilizer was applied and the soil had low nitrogen levels, plant tissue showed adequate nitrogen. Thus for the crop legumes evaluated in this study, inoculation with the commercial strains of rhizobia provided sufficient nitrogen for growth and there was no requirement for expensive nitrogenous fertilizers. This is especially relevant in the environmentally sensitive environs of Christmas Island.”

Referee’s comment I would prefer the figures in color

Response Will cost too much

Referee’s comment Please, check consistency across the document e.g the use of ‘nitrogen’ or ‘N’; ‘2 ha’ or ‘two ha’

Response Have changed chemical symbols to the full word except in places where it is say 30 kg N ha Also changed to two ha in one place

Referee’s comment Table 1. Explain abbreviations

Response done

Additional changes

Figure 1 The caption for category 10 has been modified

The data for copper have been corrected

Changes to the text mean that old Fig 3 has become new Fig 2

Please also note the supplement to this comment:
http://www.soil-discuss.net/soil-2016-33/soil-2016-33-AC1-supplement.pdf

Interactive comment on SOIL Discuss., doi:10.5194/soil-2016-33, 2016.

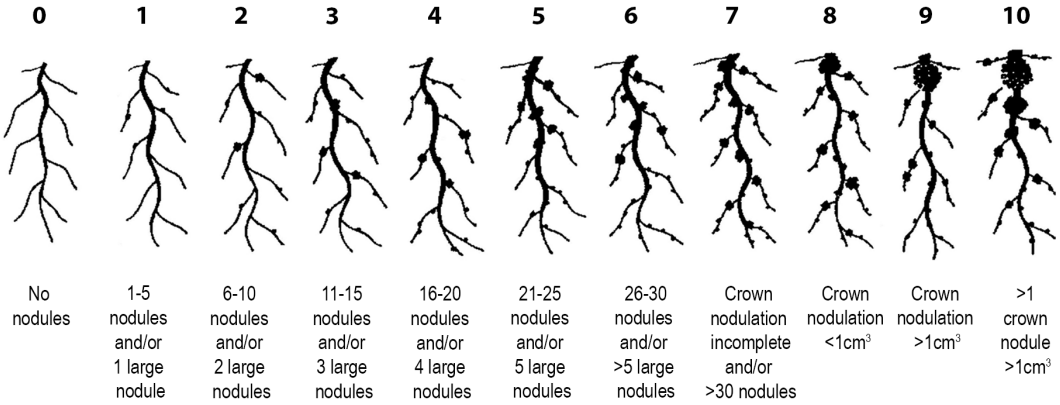

Fig. 1.

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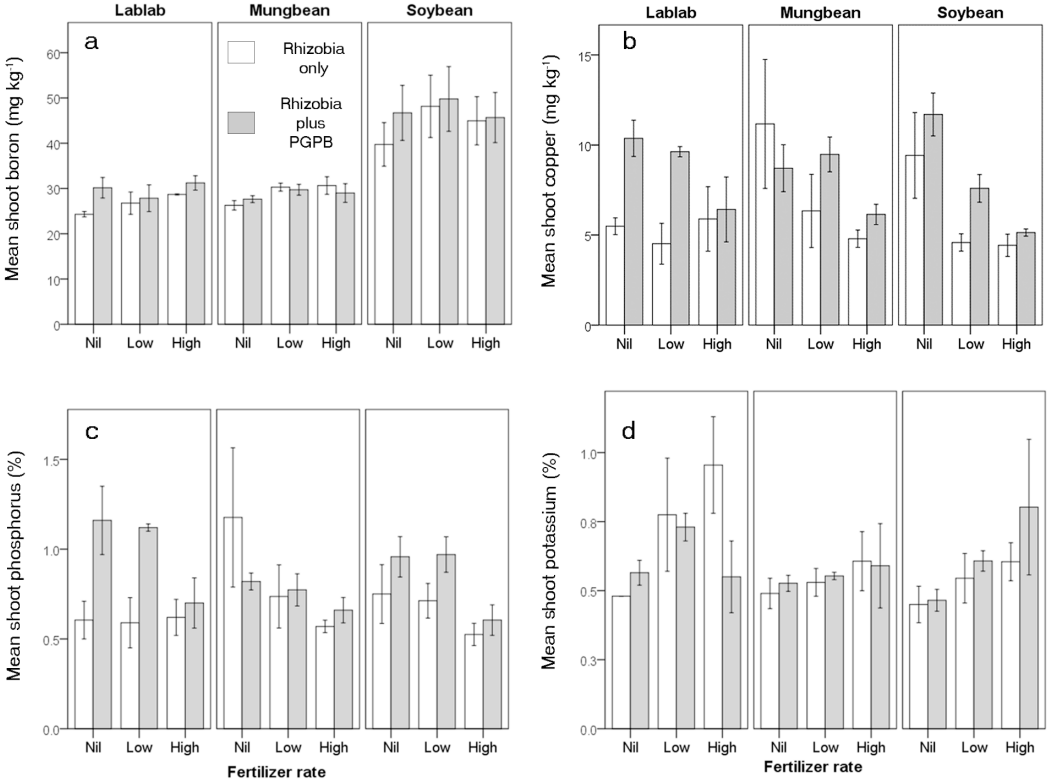

Fig. 2.

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