Interactive comment on "Effects of two contrasting biochars on gaseous nitrogen emissions and intensity in intensive vegetable soils across mainland China" *by* Changhua Fan et al.

Anonymous Referee #3

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This article is well structured, well written and it seems that the experiment was well performed. Results are well described and discussed.

Some other articles on biochar and greenhouse gas emissions have put forward several hypotheses on the effect of biochar on greenhouse gas emissions. Some of them are discussed in the text, but all possible hypotheses could be discussed more systematically in the discussion.

I also would have used soil types instead of site names for the treatments. I think this is more relevant.

Some other small remarks

- Line 26 agriculture accountS

- Lines 78-line 83 please make shorter sentences. It also seems that the words 'sites' and 'soils' are mixed up.

- Line 86: what do you mean with 'initial' soil bulk density? Was that the bulk density of the site where soil was collected and does it mean that all treatments had different soil bulk densities?

- Line 90 add 'were used'

- Line 192. It is mentioned that values were higher for Bm than for Bw amendments but this is only significant for HN; ie the soil with the lowest initial pH

- Line 193-194: Bm performed only significantly better in HN, so it did not perform better in all soils.

- Line 208-209: they greatly lowered some peaks of N20 emissions: how many occasions, what reduction %, was it significant?

- Line 243: lowered

- Line 277: how is inorganic nitrogen being immobilized in biochar with higher C/N ratio? What is the presumed mechanism?

- Line 303: biochar is written wrong

- Line 306-307: how can soil microorganisms lead to unsustainable greenhouse vegetable production?

- Table 2. NH3-emissoins. BC is not a significant factor but letters are different for the biochar treatments. How is this possible?