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Interactive comment on “Improvements in aggregate stability of recently deposited sediments supplemented with tea waste and farmyard manure” by B. Turgut and B. Köse

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Thank you very much for your kind comments on our manuscript. The following are our responses to your comments:

C1: Page 2038 Line 8 : “The AS was determined at different times after adding organic matter” What organic matter means here? The farmyard manure (FYM) and tea waste (TW)? Be careful, because you don’t add FYM and TW characteristics!

R1: “The AS was determined at different times after adding organic matter (2nd, 4th, 6th, 8th, 10th, 14th, and 18th weeks) using wet sieving methods.” changed with “The AS was determined at different times (2nd, 4th, 6th, 8th, 10th, 14th, and 18th weeks)

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after adding FYM and TW using wet sieving methods.

C2: Page 2038 Lines 10 and 11 AS or Aggregate stability?

R2: “AS reached the highest value at the end of second week” changed with “aggregate stability reached the highest value at the end of second week” and “AS reached the highest value at the end of eighth week” was changed with “aggregate stability reached the highest value at the end of eighth week”.

C3: Page 2038 Line 15 clearly: : : means significantly?

R3: Yes, clearly means is significantly.

C4: Page 2038 Line 16 noticeably: : : means significantly?

R4: “The results of this study were clearly indicated that tea waste and farmyard manure applications noticeably increased aggregate stability of recently deposited sediment” was changed with “The results of this study were clearly indicated that tea waste and farmyard manure applications significantly increased aggregate stability of recently deposited sediment”

C5: Page 2039 Line 10 “In respect to these remarks, the addition of organic matter has been used in the restoration of degraded soils for a long time” (Some quotation is required)

R5: New references were added.

C6: Page 2040. Line 14 “: : :no information is available on the effect of tea waste on aggregate stability.” (A quick review of the literature shows that this is not true)

R6: “no information is available on the effect of tea waste on aggregate stability” was changed with “fewer information is available on the effect of tea waste on aggregate stability”.

C7: Page 2039 Line 5 and Page 2040. Line 9. Avoid issues that may seem contradic-

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tory: le: “Organic matter is the most important component of soil aggregate stability” (Page 2039 Line 5) : : :”and inorganic soil constituents such as Fe and/or Al oxides and hydroxides to cause aggregation” Page 2040. Line 9

R7: In the first sentence (Page 2039, Line 5) it was emphasized that organic matter is the most important component of aggregate formation but in the second sentence (Page 2040, Line 9), the components that influence the formation of aggregate were mentioned.

C8: Page 2040 Line 12 After a somewhat ambiguous introduction about what is a sediment (Lines 1 to 11), the authors concludes that “sediments are a good example for degraded soils” (but I’m not sure that’s very appropriate)

R8: This concern is a very valid one. In the first draft we did not clearly state why the sediments were selected as the study material. While they are not ‘soils’ they may become a potential agricultural medium in this region in near future. This concern was addressed in the introduction (page: 3, Line: 18-29) and given following paragraph.

“Aggregate stability was found to be over 40% in studies conducted over degraded soils (Hernández, Garcia and García, 2015, Khaliq and Kaleem Abbasi, 2015, Mukherjee, Lal and Zimmerman, 2014), and this is much higher in those found in studied RDS. Therefore, RDS can be considered as a special case of extremely degraded soils. In accordance, the practices that improve aggregate stability in RDS can also be suitable, and probably more effective, in improving extremely degraded soils. Although aggregate stability is improved mainly through the application of farmyard manure, fewer information is available on the effect of tea waste on aggregate stability. Thus, our hypothesizes were that (i) the aggregate stability would be improved by application of the tea waste, (ii) the effect of tea waste and farmyard manure on aggregate stability would be different, (iii) the aggregate stability would be influenced by the application rates and (iv) elapsed time after organic material application of both farmyard manure and tea waste would change the aggregate stability. It is expected that increased ag-

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gregate stability after tea waste application on recently deposited sediments (RDS) can improve the physical properties of degraded soils.”

Potential benefits of improving aggregate stability in RDS is addressed in the conclusion (Page: 7, Lines: 17-24) and given following paragraph.

“In practice the significance of the findings is two fold. First, in areas with steep topography such as Artvin, where new agricultural plots are created by terracing and suitable soil resources are very scarce for this practice, fine grained sediments can be a good source of plantation medium with added organic amendments. Both tea waste and farmyard manure are abundant in this region because of its proximity to tea plants and cattle-raising farms. Second, sediment accumulation reduces water storage capacity of dam reservoirs, and thus the benefits of a dam. Removing sediments from reservoirs for agricultural purposes can help in increasing the sustainability of the benefits expected from a dam.”

C9: Page 2040. Line 12 “the aggregate stability would be influenced by the application dozes” doses?

R9: “dozes” was changed with “doses”

C10: Page 2041. Line 3 “Two different types of organic material were used in the study.” Please, add organic materials characteristics (similarly to table 1 for sediment)

R10: Table 3 was added included some characteristics of tea waste and farmyard manure.

C11: Page 2041. Line 8 “The sediments obtained from reservoir site: : :” The authors do not explain why are using sediments sampled in a bottom valley from a water reservoir. Is the dump clogged and the bottom valley will be cultivated?

R11: Material section was reorganized.

C12: Page 2041. Line 23 Specify the chapter where is the method used, ie: Wet

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combustion method (Sparks et al., 1996), vs. SOM

R12: This comment is not understood.

C13: Page 2041. Line 27: Do not match the years “The pH values of the sediments were measured in the 1 : 2.5 soil-water suspensions (Conklin, 2014).” Conklin, A. R.: Introduction to Soil Chemistry: Analysis and Instrumentation, Wiley, Hoboken NJ, USA, 2005.

R13: Conklin, 2014 was changed with Conklin, 2005

C14: Page 2042. 3 Results and discussion The discussion should be more elaborate

R14: The discussion was elaborated.

C15: Table 1. Add sediment carbonates content (with a soil pH of 8.6: : should have it!!)

R15: Sediments were taken in November 2013. After the sampling the carbonate analysis was not made in that time. It is thought that in the elapsed time, a lot of environmental factors such as humidity could change the carbonate content of sediment. Therefore the results of carbonate analysis is not be reliably now.

C16: Figures You should review the format of the graphics (axes, decimals, statistics letters) and clarify the figure captions

R16: The axes and decimals of graphics were rearranged, also figure captions were clarified. In graphics, 0.01 significance level were shown as capital letters and 0.05 significance levels were shown small letters. That is way the differences lettering.

C17: Terms Used throughout the text to be reviewed: dozes? Doses, amounts, rates: : : Organic matter supplement? amendment: : : Application? Input, contribution, amount, rates: : : sediment deposited? Sediment, Bottom valley sediment: : :

R17: “dozes and doses” were changed with “rates”; “organic matter supplement” was

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changed with “organic matter amendment”

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