RESPONSE TO REVIEWER' S COMMENTS (*first round of revision***)**

Dear Reviewers,
We thank you for your comments and detailed examination of our paper. All your comments have been included and corrected in the text of the paper. The explanation is proposed in the text below. We thank for the comments from the reviewers that have contributed to improve the quality of our paper and to eliminate mistakes.

Authors

Reviewer #1 (Professor Paul Hallett):

The findings in this paper that destabilization of soil by wetting agents varies considerably between wetting agents and that the impacts vary markedly across a broad range of soils is novel, important and very interesting. However, as it is written, this simple message is buried in cumbersome text that is difficult to follow. There is a large amount of redundant description or analysis that takes away from what should be the focus of this study. Simple information such as the general properties of the different wetting agents and why they were selected are not mentioned until the Discussion. When analyzing the data, the interesting finding of differences between soils gets glossed over by simple statistical analysis that lumps everything together.

This paper needs a major rewrite. Think of what is important to get the message across. Just because something was measured does not mean it is of value to the paper. There is no mechanistic reason given for some of the chemical measurements. Site selection just states 9 sites, but there are some textural differences that would be useful to highlight. Figure 2 shows great data, but you then go on to over analyse it but fail to really emphasise the soil specific differences. Your experimental design and the care taken in measurements and site selection are impressive.

There is some good text in the Discussion with clearly researched arguments to describe trends that were observed. Some of the basic description of wetting agents and soils that appears here needs to come earlier so that readers are aware of treatment selection. Lime application to D-I (which should be checked and not put in as speculative text), for instance, needs to be apparent before the Results are described.

Look back at what you see as important in the Discussion and revise the text so that the important trends jump out. The paper is very difficult to follow as it is currently presented.

The wetting agent application was not adequately described soil needs more detail.

With a substantial rewrite, this has the potential to be an important and exciting paper. At the moment it lacks focus and is difficult to read.

Response - Thank you for your comments and for the general evaluation of our paper.

- We agree with your opinion that the manuscript needed to be reworked. We have made changes in order to shorten it, simplify and improve its readability. The chapter of Methods was added information to the selection of wetting agents types.

- The manuscript has been reworked based on your recommendations. A greater emphasis has been put on the consideration of different characteristics of individual sites, namely soil texture. As to the choice of sites, our research team was limited by the accessibility of individual sites and by the (un)willingness of selected agricultural companies to collaborate.
- The information about lime application onto arable land and other parameters have been added to the chapter of Methods. On the other hand, it has not been possible to add information on all fertilizer applications as the sites are private land properties (under management of various companies), and the research team has no access to the private databases of those companies. This is why we have added only data available on crops grown in the last three years before the soil sampling, and on the application of fertilizers with the content of Ca (dolomitic limestone, sugar company saturation sludge etc.) in the last five years.
- The whole sub-chapter of Discussion has been modified according to your recommendations.

Point 1 - Abstract:

- Descriptive but if the text was written more succinctly it would be possible to write more about the impacts of specific wetting agents. Trends appear to be consistent of the wetting agents with the greatest impact on aggregate stability.
- First sentence simplify to: The potential effect of adjuvants/wetting agents (WA) added to the spray mixture on the stability of soil aggregates (SAS) in agricultural soil was studied.
- SAS acronym not helpful. You could use WSA or just refer to aggregate stability.
- Lines 18-21 all state almost the same thing. This could be more succinct.
- Line 24 – Cox needs to be defined

Response 1 – We agree with your comments. The changes proposed by you have been made in the Abstract.

- We have added some additional information.
- The first sentence of Abstract has been rewritten.
- We agree that an inappropriate acronym was used. We have used the following abbreviations: SA for soil aggregates and WSA for water stability of soil aggregates. We were inspired for example by the following studies:
    - Bartlová J., Badalíková B., Pospíšilová L., Pokorný E., Šarapatka B. (2015): Water stability of soil aggregates in different systems of tillage. *Soil & Water Res*., 10: 147-154. https://doi.org/10.17221/132/2014-SWR
    - Zhou, M., Liu, C., Wang, J. et al. (2020): Soil aggregates stability and storage of soil organic carbon respond to cropping systems on Black Soils of Northeast China. *Sci Rep*. 10, 265. https://doi.org/10.1038/s41598-019-57193-1
- Lines 18-21 have been rewritten.
- Line 24 – Thank you for your observation, this term was not explained neither in the abstract nor in the methodology. Cox = oxidizable carbon.

Point 2 - Introduction:

This would benefit from much clearer arguments in a major rewrite. Up to line 54 is very basic information that is redundant for readers of this paper. Start with the prevalence of wetting agent use

and the potential impacts on aggregate stability exacerbating negative impacts of already well studied impacts from C mineralisation and tillage. I suggest that you structure the Introduction as follows:

1. Huge use of wetting agents in pesticide application and increased use to improve the wettability of soils in agriculture.
2. In sprays, wetting agents improve dispersal so improve efficacy.
    - In soil wetting agents to improve water flow, the intended impact is an increased rate of water infiltration and improved retention.
3. Wetting agent use presents a potential threat to soil aggregate stability, as water repellency has been found to be a major driver of soil stability.

Response 2a – Thank you for your comments. We have made the changes in the chapter of Introduction but we are not able to rework the whole chapter according to your recommendations, the reason being the focus of the submitted study. Our goal was to point to a potential problem from the viewpoint of applied research, i.e. whether the potential influence of wetting agents on WSA exists or not. The goal of our study was not to investigate causes of this influence in detail as that should be focused, in our opinion, by a separate scientific work. Nowadays, the use of wetting agents is a common agricultural practice, they are part of classic sprays but also part of soil herbicides that are applied directly into the soil. Therefore, our scientific team which also includes growers of field crops (agronomists) wanted to open the topic to further research and/or to provide the first data to farmers. Whereas the influence of individual active substances of herbicides, fungicides etc. on the environment has been studied over a long time, other admixtures in the spray mixtures are not taken into account. Chanes that we have made are as follows:

- A part of Introduction has been deleted.
- The influence of wetting agents on the soil has been pointed out.
- The structure of Introduction has been altered as compared with the original text; wetting agents and their potential influence on the soil are described first, and only then the issue of soil aggregates.
- Information has been added about the development of wetting agents and their composition.

….and then much of your more descriptive will flow from here.

- Line 69 – this is just an example, but ‘It is a known fact’ is too definitive and long-winded. You could just write ‘By accelerating penetration, adjuvants increase….’
- Line 79 – a bigger impact of wetting agents would be more rapid wetting, which would increase risk of slaking.
- You need to introduce some of the soil parameters that you measured along with aggregate stability. Relevance of glomalin etc. needs to be described.

Response 2b – Thank you for your assessment of “Introduction”. We have tried to make changes in the chapter according to your recommendations.

- Line 69 – The proposed change has been made.
- Line 79 – I apologize but I did not understand the comment.
- We agree, a new information has been inserted into the Introduction.

Point 3 – Materials and Methods:

- Line 90 – throughout you are too wordy and the text can be more succinct. Here you can just write "Soil samples were taken at three regions of the Czech Republic, with three farms sampled in each, comprising a total of nine sites.
- Line 94 'pedological'
- Line 96 - ISO 10381-6:2009 won't be familiar to many readers so state what it is.
- Line 98 – 100 – this text is hard to follow.
- Figure 1 is possibly ok, but given you have supplementary text, it may be better to move. The lower part of this figure does not give much information and could be deleted.
- Lines 115-220 – condense some of this information into a Table that appears in the main text. Inlcude important information for wettability such as pH, text and organic matter. Move other material such as Munsell colours to supplementary.
- Section 1.2 – the wetting agent application approach is not clear. Did you spray onto the soil or use as the dispersing liquid in the aggregate stability test? If the latter then it represents a condition that would not occur in the field. The soil would never be this dry and wetted this quickly with a wetting agent. Details are needed either on how much was applied by a spray, per g of soil, or the concentration of liquid if they were used in the aggregate stability test. Write about the wetting agent treatments before describing the aggregate stability test that you used.
- Section 1.3 – this should appear before Section 1.2. Cox needs to be defined.
- Line 280 – it won't be clear to readers why you measured glomalin unless it appears in the introduction. Is there a specific hypothesis such as wetting agents having a greater impact in soils with more glomalin?
- Section 1.4 – be more succinct. We know your treatment structure already. Its Principal Component Analysis.

Response 3 – Thank you for your comments and observations. We have tried to incorporate most of them into the text; if this has not happened, we explain in the below text.

- Line 90 – The sentence has been rewritten.
- Line 94 – corrected
- Line 96 – It is an international standard ISO 10381-6:2009 which provides guidance on the collection, handling and storage of soil for subsequent testing under aerobic conditions in the laboratory.
- Lines 98 – 100 – The text has been reworked.
- Figure 1 – The description of this Figure was added based on the requirement of editor of SOIL journal. The reason was to prove the origin of individual map layers (copyright). We would like to leave Figure 1 as it is because it presents a general overview of soil sampling and individual sites.
- Line 115-120 – The characterization of individual soil pits has been reduced.
- Section 1.2 – The section has been shifted according to your recommendation. The information about the dosing of wetting agents has been added.
- Section 1.3 – The section has been shifted in front of Section 1.2, parameter Cox has been defined in the whole text, i.e. including the other chapters.
- Line 280 – We assumed that glomalin as an important soil protein can have an inluence on the resistance and resilience of soil aggregates to disintegration. This was why the parameter

was analyzed. The information on globalin has been added to the chapter of "Introduction" as well as to the chapter of "Discussion".

- Section 1.4 – This part has been simplified.

Point 4 – Results:

Section 2.1 – first paragraph is redundant

- Don't start with Glomalin or other basic soil properties. Start with aggregate stability impacts, then move into the soil properties with an explanation that they are measured to explore soil properties that may drive the response.
- Line 311 – mean Cox is meaningless to interpreting your data. You are exploring impact on each of 9 different soils.
- Up to line 338 is all secondary information. This level of detail is not needed. Much of this information could appear in supplementary text..

Response 4 A – We agree with your comments. We have tried to modify the text according to your proposals.

- I am not certain to have understood your comment correctly. I have changed the order of subchapters so that comments on WSA come first and the text continues with comments on basic soil parameters.
- Line 311 – I agree that the Cox (soil oxidizable carbon) value differed the individual sampling points, which was due to the character of given sites but also due to management practices (application of manure, harvest residues left on the spot, grown plant species). This is why the description of measured values was modified. In my opinion, the parameter should be part of results as it (a) positively correlates with WSA; (b) represents (indicates representation of) primary organic matter in the form of both decomposed and non-decomposed plant residues, root exudates, post-harvest residues, dead micro-organisms, supplied organic fertilizers, and humic and fulvic acids.
- Up to line 338 – I am not certain to have understood your comment correctly. Do you suggest to move the part of data between Line 315 and Line 338 in the Annex? We have made the reduction and moved the part of data in the Annex according to your recommendation.

Star at Section 2.2 – first sentence redundant

- Lines 360-365 – Put this text about site differences between controls first as it sets the scene about how the different respond.
- Then you transition to how the wetting agents had an impact.
- Line 341 – think of what readers will want to learn. Rather than emphasising the control in this sentence write "Many of the wetting agents decreased aggregate stability, with large differences found between soils." It is really exciting that WA2, for instance, caused massive destablisation of some soils but not others. You need to shout about this more.
- When I look at Figure 2 I find myself going back to your lengthy text describing the soils to try to figure out the soil properties that could be driving the differences. You need to make the reader work less. Having key data such as texture, OM and pH in a Table would make it easier to refer back. You have some of this in Table 3, but it would be easier to follow if a more comprehensive summary table of the soil was included. Labelling as A-I is also unhelpful to the reader as you sampled 3 broadly different locations, so they could be indicated on the X axis label.
- Line 365 to 370 – Think of what the reader wants to learn. WA3 consistently the worst and WA1 consistently the best across a broad range of soils. Here you also demonstrate the quality

of your science by studying many soils, coming to the same conclusion for all of them. So to a reader you would argue that to retain soil aggregate stability, WA3 should be avoided.

- Figure 3 is the same data presented in a different way. It should not be included.
- Analyse the general impacts using only type of statistical test. You have not described site specific impacts in enough detail. What is about site D that makes it so much different from Site A. Why does I get affected by WA2 more than site A? If you described the basic soil properties more, something may jump out.
- There is no mechanistic reason to explore a chemical properties like Mg and its impact on aggregate stability caused by wetting agent addition. This looks like a fishing exercise.
- PCA would benefit from Clay being included. This is a major driver of both aggregate stability and hydrophobicity. Think of mechanisms.

Response 4 B – We agree with your comment and thank you for evaluating our manuscript.

- Lines 360 – 365 – The text has been reworked as recommended.
- Line 341 – Thank you for pointing out the influence of WA2 wetting agent, which has been highlighted in the chapters of Results and Discussion, and will certainly lead to improved quality of our study. Nevertheless, the goal of our work was not to compare the influence of individual wetting agents in detail but rather to try to describe/point out a potentially new problem which is the influence of WA on WSA, and thus to open discussion among scientists and launch research focused in that direction, which would for example deal with the influence of individual WA on WSA.
- Figure 2 – Subchapters 2.1 and 2.2 have been modified. We have tried to comply with your comments and to incorporate your suggestions. However, we would like to leave Figure 2 in the current form. The reason is that it shows values from the sites, which are linked with the data in Annex. We are concerned that if e.g. soil types and other information are included into Figure 2, it would become less clear and more difficult to refer to in other parts of the manuscript.
- Line 365 to 370 – Thank you pointing out the significance of wetting agent WA3 (the worst effect across the variants) and wetting agent WA1 (the least negative effect across the variants); the fact was more highlighted in Results and Discussion. However, I have to point out once again that the goal of our research was not a chemical analysis of the wetting agents used.
- Figure 3 – Thank you for your comments. To improve the clearness of described results, we have moved the diagram to the Annex. We believe that it clearly shows the demonstrable influence of wetting agents on WSA, and this is why we would like to have it in the paper.
- Analyse the general impacts using only type of statistical test … – We agree that the impact of sites was not described in more details. Therefore, we have included more information to results in chapter 2.1 a taken the issue into account in Discussion, too. On the other hand, from the statistical point of view, the effect of wetting agents on WSA in the soil samples was statistically analysed – see for example data presented in Figure 2, Annex A and Annex C of our manuscript.
- There is no mechanistic reason … – Thank you for your comment. This part of results has been modified. We determined the basic soil nutrients to find out whether some of them can influence the action of WA on WSA.
- PCA would benefit from Clay being included – thank you for your comment. We assumed*, that the content of Cox (unstable forms of soil C) correlates with the soil content of clay. The Cox parameter positively correlated with WSA, i.e. soils with the lower C content (soil types Haplic Luvisols and Relictistagnic Fluvisols with the lower content) featured lower WSA values. At the same time, the soils exhibited the lowest content of glomalin, and were classified in texture classes SiL and CL.

* Churman, G.J. et al. (2020): Clay minerals as the key to the sequestration of carbon in soils. *Clays and Clay Miner.*, 68, 135-143, https://doi.org/10.1007/s42860-020-00071-z,

Point 5 – Discussion:

- Start with your big finding, which is huge. Wetting agents destablise soils and the effects vary considerably depending on soil type.
- Earlier in the paper, readers need to be aware of the differences in Wetting Agents that you are describing here. Line 457 needs to appear in the Materials and Methods (and possibly Introduction) with clear text on the differences in chemistry and how this affects interfacial properties of soil. Throughout the Results readers need to be guided on C and texture of the different soils as this appears to be the major driver between sites, as would be expected from a large body of previous research.
- There are too many papers cited. Only cite papers specifically needed for this study. There are general papers on erosion etc. that are not needed.
- You are missing some important studies:
    - Lehrsch, G.A. 2013. Surfactant effects on the water-stable aggregation of wettable soils from the continental USA. Hydrological Processes, 27, 1739-1750.
    - Lehrsch, G.A., Sojka, R.E. & Koehn, A.C. 2012. Surfactant effects on soil aggregate tensile strength. Geoderma, 189, 199-206.

Response 5 – We agree with your comments and suggestions.

- Start with your big finding … – Thank you for your comment. We agree with you, we have started the above chapter with that observation.
- Earlier in the paper … – Thank you for your comment. We have added more data on the wetting agents to all parts of the manuscript mentioned by you as well as to Abstract; also in the Discussion we have tried to provide extended information about soil types in connection with WSA. Nevertheless, similarly as in the above responses, I have to emphasize that our primary goal was not to investigate exact effects of the chemical composition of individual WA on the soil as a whole. Our goal was to verify whether a potential exists on the part of WA to influence WSA and to explore the potential further. Unfortunately, analytical methods for studying the exact effect of the chemical composition of individual WA on WSA were not available to us.
- The are too many paper cited … – We agree, the number of citations has been reduced and the discussion has been shortened. Seven citations have been deleted from the text.
- You are missing some important studies … – Thank you for your comment. We have tried to include both studies into the paper and we consider them very beneficial. Both of them work with two water agents (liquid surfactants): a) IrrigAid Gold® (alkoxylated polyols and glucoethers) and b) ethylene oxide/propylene oxide block copolymer. In addition, the study published in Geoderma assessed alkyl polyglycoside WA. The substances are used mainly in USA but only IrrigAid is used commercially (registered). Despite the difference with our study, we agree with conclusions of those works and have tried to take into account in Discussion.

The authors hope that the revised version of the above manuscript no. SOIL-2021-91 will be accepted for publication in SOIL.

Yours Faithfully,
Dr. Jakub Elbl

Reviewer #2 (Professor Peter Matthews):

While I was writing this review, Paul Hallett's was posted. So I have also read Hallett's general comments, and agree with them. So this review should be regarded as additive and complementary to Hallett's.
The work addresses an important topic, reports on a very considerable amount of research effort, and could be very useful. However, it could only be published following a major re-write, and even then could only be published if all our very major concerns are satisfied. The comments below should not be regarded as comprehensive and complete – they are just representative and illustrative of the very great amount of extra work that is needed in the presentation of this potentially interesting and worthwhile work before it is published. That extra work should start with addressing the major issues of explanation of rationale, methodology, statistics and results, and finish with word-by-word proof-reading – with regard to the latter, the individual corrections listed below illustrate the type of corrections needed.
Firstly – overall – although 'wetting agents added to agricultural sprays' is mentioned in the title, it is not clear from the abstract that that is what the paper is about. We have to read a long way into the text before re-discovering that. Stand back and think – what would be the usefulness of this research ? Answer – if a particular wetting agent causes particular loss of soil stability, then perhaps it should be changed to a different one. So – in a typical application to a crop – how much of the wetting agent falls onto the soil rather than being absorbed by the plants ? Does that order of magnitude correspond to the application you have studied ? (These issues are deferred to suggested further work late in the submission.) And the soil erosion is presumably caused by rainfall dislodging the surface layer of the soil and washing it down-hill. So - how exactly did you measure the soil stability – and why such deep soil pits (annex b-4) ? Do the wetting agents really penetrate that far to cause reduction in stability? And I would like to know what soil type is most affected – but find it almost impossible to judge that from the way the results are presented.

Response - Thank you for your comments and for the general evaluation of our paper. We agree with your comments and proposed changes. We have tried to take into account all comments, both yours and those of the other reviewer prof. Paul Hallet, and we have modified the whole paper from Abstract to Conclusions. Our goal has been to add concrete data and conclusions to Abstract, to simplify Introduction, to add necessary information to Material and Methods (dosage of wetting agents, topsoil characterization, more details on statistical data processing etc.), and to delete redundant text from the chapter of Material and Methods. We have also completely changed the structure of Results and reworked Discussion.
As to your question about the research usefulness, we primarily dealt with the issue of a potential influence of wetting agents application on the stability of soil aggregates in the top soil. Characterization of soil pits was added as the pedological survey was part of soil sampling. We wanted to know all essential data about the soils. We agree with you that the description of all soil horizons should not be in the chapter of Methods but in the Annex. In Methods, we have left only the characterization of top soil layer from which soil samples were collected. The soil samples were collected from regions in the Czech Republic that feature different reliefs and are potentially prone to various forms of soil erosion. Yes, climatic conditions are an important aspect but management practices on these sites play a role, too. Nevertheless, impacts of erosion on the sites were not subject of our research.

Point 1 - Abstract:
Do not repeat the list of different types of wetting agents, but do tell us where wetting agents appear from. Invented acronyms not already accepted in frequent usage are irritating for the reader – so spell out SAS and WA. Ox should be subscript in the term Cox.

Response 1 – Thank you for your comment. The proposed changes have been made.

Point 2 - Introduction:
Needs to be more focussed, especially with regard to the references – cite fewer.

- Line 36 - missing ".
- Line 38. aggregate consists of -> aggregates comprise
- Line 47. Awkward grammar using the - symbol.
- Line 55. 'At that' – ambiguous phrase.
- Line 64. as cuticle of -> as the cuticles of
- Line 81 , 82. I am not familiar with the use of the term 'stand'.
- Table 1 . I do not understand 'sum of temperatures' – why add the temperatures together ?
- Line 285. 'EDTA' – explain.
- Line 292. 292 personal -> principal.

Response 2 – Thank you for your comments. The chapter of "Introduction" ¨has been altered to better reflect the main topic of the paper. The other grammer mistakes have been corrected in line with your suggestions.

- Line 36 – Missing quotes have been added.
- Line 38 – The sentence has been modified.
- Line 55 – The sentence has been modified.
- Line 64 – The sentence has been modified.
- Lines 81, 82 – We agree with your opinion. The term "stand" was replaced with "growth".
- Table 1 – We realize this is not a standard meteorological representation of temperatures. It is a mode used in agronomy (agriculture) to express whether the region is cold, warm, mildly warm or very warm region. The reason is a state when the period with a mean daily air temperature >10°C lasts in the Czech territory on average >140 days, thus representing the vegetation period. For example, the sum of temperatures above 10°C, which ranges from 2500–2800°C indicates the warm region (the highest number of vegetation days), while the interval from 2200-2400°C indicates the cold region (the lowest number of vegetation days) in terms of growing field crops. For better clarity, we have added units (°C) into the table.
- Line 285 – This was a mistake which has been fixed.
- Line 292 – Thank you for notification, a correction has been made.

Point 3 - Results:
You need to explain the rationale behind your statistical approach. What do the various methods, such as 'post-hoc Tukey's SD test' actually show you , and why did you choose that approach? I find many of the results baffling. For example, in Figure 3, why are there four different graphs, and why are there two results for each sampling point?

- Line 412. Refers us to Figure 5 (before reference to Figure 4). But where is Figure 5 ?

Response 3 – Thank you for your comment, we believe that incorporating the proposed changes and explaining the statistical data processing will improve the manuscript quality.

- The whole chapter has been reworked so that the measured values are logically linked.
- Input data analysis has been performed first.
- This has been followed by ANOVA and the Tukey´s HSD test, which has been used to determine significance of differences between the control variant (without WA addition) and the variant with the addition of WA. First, all values have been compared with each other

(Table 4 in the corrected manuscript) and then values from individual sites (Figure 2 in the corrected manuscript).

- ANOVA and the Tukey´s HSD test have been complemented with the pair T-test whose task has been to confirm that the sets of all WSA values (control versus variants WA1, WA2, WA3, WA4) exhibit significant differences. The pair t-test has been used to compare mean values of individual WA. Thus, values before and after the addition of WA have been compared.
- Graphical representation of the significance of WA application effect on WAS has been made with the use of box chart (which was designated as Figure 3 in the original text and moved into Annex c-9 in the corrected text). This graph presents a comparison of mean WSA values (median) in the control variant and in variants after the addition of WA (four wetting agents – four graphs) to soil samples from individual sampling points. In addition, the chart shows also average values, extreme values and outliers, thus providing an overview about the variability of measured values.
- Line 412 – Thank you for your comment. This was our mistake, the correct Figure designation has been added.

Point 4 - Discussion:

The discussion wanders around all the different factors – soil type, crop type, agricultural practice etc – but these should have been separated out as factors early on, and the statistical approach used to remove them as factors masking the deleterious effect of wetting agents. By the time we get to the discussion, we should know the effect of wetting agents on their own, independent of confounding factors – so that, for example, you could advise manufacturers of sprays to change wetting agent, or advise farmers of what soil types not to spray on. Similarly, from line 451 onwards, you start to describe the chemical make-up of the sprays – but again that should have been described early on.

- Line 491 onwards. This is a 'further work' section, not part of the discussion, The problem is that many of the shortcomings of this work are stated as needing further work, but should have been sorted out in this study. Overall, there are too many citations, and the various discussions ramble rather than being compartmentalized into the various issues, each of which should be tightly focused on.

Response 4 – Thank you for your comment. The whole chapter of discussion has been reworked. We have tried to take into account your and Prof. Paul Hallet´s comments.

- Line 491 onwards – We agree that the discussion was not homogeneous and that some included issues could have been better discussed and/or explained. On the other hand, we would like to point out that our goal was not to describe for example the chemism of the action of wetting agents on soil particles in detail or to analyse their concrete influence on the development of soil erosion. Our goal was to open a research and discussion to the issue that has been investigated only partly up to now. There are extensive studies on the effect of the application of various pesticides on living ecosystems but the influence of additives in spray mixtures has not beed studied in detail. We did not want a broad research concept at the beginning but we rather wanted to focus on a basic question: "Is there any potential that soil aggregates can be affected by wetting agents?", the answer to which would then continue with a follow-up research that would be conducted either directly by our team or by colleagus from other universities.

Point 5 - Annex:

occasionally baffling. For example in annex a- and a-2 – what is the 'decomposition of the effective hypothesis', and why is 'soil horizon' a vertical label (with no tick mark) in Annex a-1, but a

horizontal label in a-2 ? And annex d-8 is incomprehensible without further explanation adjacent to the figure.

Response 5 – Thank you for your comment. Annexes have been altered based on your recommendations. The first two graphs (Annexes a-1, a-2) show: a) the influence of sampling point within individual companies; b) within all companies. Average values of WSA (water stability of soil aggregates) are presented before and after the addition of WA. Soil samples were collected on each site from the top soil at two places. There were altogether 6 samples collected from one soil profile. The results show that average WSA values from one soil profile did not significantly differ whether they were compared within one company or for all companies together.

The authors hope that the revised version of the above manuscript no. SOIL-2021-91 will be accepted for publication in SOIL.

Yours Faithfully,
Dr. Jakub Elbl