Response to Reviewer 1 Comments

Dear Reviewer,

Thank you for your comments and suggests concerning our manuscript entitled “Correlation and regression analysis of spraying process indicators quality” (applsci-2005602). Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. We have studied comments carefully and have made correction which we hope meet with approval. Revised portion are marked in red in the paper. The main corrections in the paper and the responds to the reviewer’s comments are as following.

Point 1: The purpose of the study is not clearly explained. An analysis of two methods for determining the quality of the spray performed was conducted. The correlation coefficients between the results obtained from these methods were determined. The fundamental question is where to apply the obtained results and what can they be used for, both in laboratory research and in agricultural practice? This should be clarified. Otherwise it will be research for research's sake contributing nothing to both science and practice.

Response 1: The answer to the question was included in the discussion: „Biological efficacy depends on the cover and deposition of liquid on plants. The models developed in this study are of high practical use. Based on the knowledge of the degree of coverage (which is faster and easier for determination) the value of deposition of spray liquid can be estimated with high precision. The results of the study may be a reference point for studies on the evaluation of the biological efficacy of the spraying process. Future studies in this area should focus on experiments in field conditions”.

Point 2: The sentence "The analysis of correlation coefficient values or regression models are very common approaches in various fields and disciplines such as medicine [26, 27], biology [30, 31], food technology [32,33], earth sciences [34, 35], economics [36, 37] and agriculture [38- 41]. Therefore, these techniques are employed in this research." contributes nothing, as the information contained therein is generally known. Only the sentence increases the amount of literature cited.

Response 2: This section is upgraded to present results in range of technique of plant protection.

Point 3: Was a study done on the uniformity of the distribution of the sprayed liquid from the boom spraying the model plants? If so, please state what the coefficient of variation (CV) was.

Response 3: The uniformity studies were not performed, therefore the results of the CV coefficient of variation were not presented. The flow rate of the liquid was measured before each measurement.

Point 4: I don't understand why the results obtained from two nozzles were combined on one graph. In my opinion, it would be more valuable to test each nozzle separately at different spray pressures or speeds.

Response 4: The research assumption in this study was to determine the relationship between deposition of the liquid and the degree of coverage for various types of nozzles. Therefore, we conducted a correlation and regression analysis with the division into standard and air induction nozzles. Similar correlation and regression relationships were obtained when analyzed each nozzle separately.

Point 5: With the current juxtaposition, the value of the correlation coefficients could be the result of the nozzle types used and any other combination of nozzles could give different values of the coefficients.

Response 5: The research results presented in the study are preliminary research which will be continued. The results of experiments with the use of various types of nozzles as well as technical and technological factors will be presented in further publications.

Point 6: Why were pressures of 200 kPa and 400 kPa selected and 300 kPa omitted?

Response 6: In accordance with the research assumption, two pressure levels were selected for the experiments. Each successive factor would cause a multiplication of the combinations to be analyzed.

Point 7: The figures should indicate which results apply to which nozzles and pressures.

Response 7: The figures was corrected, according with suggest of Reviewer.