Interactive comment on "Experimental sand burial affects seedling survivorship, morphological traits and biomass allocation of *Ulmus pumila var. sabulosa* in Horqin Sandy Land" *by* Jiao Tang et al.

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RC1: In introduction part, the scientific questions of this study were not clear, and scientific hypothesis and scientific significance were not clearly mentioned. I suggest authors revise this section. AC1: We revised the section of introduction, the scientific questions, the scientific hypothesis and scientific significance were clearly mentioned.

RC2: In Experimental methods, "seedlings were experimentally buried to either 0, 33%, 67%, 100%, or 133% soil depth of the original mean seedling height." I wonder why 133% of seedling height treatment was conducted. 100% buried means no photosyn-

thesis occurred, and will result in the death of the seedling. I think the treatment of 133% is unnecessary. AC2: In fact, some plants could survive when the sand burial depths exceed their plant height. And in the similar sand burial experiments, plants always are buried by different sand burial depths. We designed these degrees of sand burial according previous similar research for other psammophytes. For example: Liu, B., Liu, Z.M., and Guan, D.X.: Seedling growth variation in response to sand burial in four Artemisia species from different habitats in the semi-arid dune field, Trees, 22, 41-47, 2008. Zhao, W. Z., Li, Q. Y., and Fang, H. Y.: Effects of sand burial disturbance on seedling growth of Nitraria sphaerocarpa, Plant and Soil, 295, 95-102, 2007. In addition, the results displayed 133% of seedling height treatment would result in all of seedling dead, while 100% of seedling height treatment would keep part of seedlings survived. So the treatment of 133% was necessary and it suggested that seedlings of sandy elm had some resistance to partial sand burial, complete sand burial decreased the survivorship. Once sand burial exceed the mean seedling height, it is fatal for seedlings of sandy elm.

RC3: In Statistical analysis, using the methods of one-way ANOVA and multiple comparisons to analyze were not adequate, in that the experiment was a gradient test (0, 33%, 67%, 100%), I suggest you try to use regression analysis to analyze the relationship between variables and buried ratios. AC3: The statistical analysis we adopted in this manuscript was adequate and we want to compare the effect of different experimental sand burial treatments on seedlings performance on Ulmus pumila var. sabolusa. Of course, the regression analysis you suggested is better for our next research on the effect of temperature variation on seedling photosynthesis in the summer. We will adopt this method to analyze the relationship between all photosynthetic parameters and the temperature changes.

RC4: Fig.1 was useless AC3: We deleted the dynamics of temperature and precipitation of this areas and a new geographic location graph was inserted into this manuscript, which is helpful to display this study areas in the world.

Thanks for your valuable advices for our manuscript.

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/se-2016-55/se-2016-55-AC2-supplement.pdf