

Title Optimization of supporting device for mechanical harvesting
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Abstract

The cordon is used mostly in vineyard, but it extends in other fruits production as well, because we can till easily, and definitely. The row in mechanical aspects-can be to dimension and design, optimize for mechanical harvesting with minimizing damages of crops and plants. There have been many experiment results for this task, but theoretically based methods, which are calculated with row-harvester interaction, have missed. We constructed a mathematical model to analyse of the row and harvester interactions. The parameters of this model were calculated with measurements in the different vineyards, because these depend on the varieties and row constructions. For the characterising of crop detachment we calculated a statistical fatigue diagram used test results. For preparing this diagram we investigated at the cordon not at artificial situation. For optimizing we made relationships among the damping parameter of the certain row, and the drawing force of cordon wire and the specific load and the vibration parameters of harvester, and grape detachment. Then we controlled these relationships with concrete investigations in different vineyards and circumstances. Interesting result, that the elastic parameter of cordon wire doesn't play important role for the optimize vine row. We constructed a special instrument at intermediate post, which is great impactation to better situation. The suitable horizontal moving of the cordon wire is allowed with this system. Using of our method we can determine the best working parameters of harvester as well.