

Novel genetic algorithm towards implementing a lining-layout optimization strategy.

ABSTRACT

This paper presents the strategies for optimizing planting areas. The three strategies considered for preparing field lining; 1) 600 line-direction 2) selecting the best line-direction for single block and 3) selecting the best line-directions for many separate blocks, might lead to different numbers of trees. Thus, an application named Lining-Layout Planning by Intelligent Computerized System (LLP-ICS) is introduced to choose the best strategy. Because there are many possible solutions with ambiguous results, a novelty of Genetic Algorithm (GA) for lining-layout with focusing on the two approaches which are 1) assigning the determined random values to the genes of chromosome, 2) avoiding the same solution of optimal blocks occurs, was applied to suggest the optimal solution intelligently. The aim of this study was to suggest the best strategy among the various area coordinates tested. In addition, the capability of the application by novel GA was also examined. The results indicated that the LLP-ICS produces a consistent solution with feasible results and less number of repetition processes led to reduce the computation time.

Keyword: Optimization; Genetic algorithm; Lining layout; Optimal solution.