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Sawmill Campaign Generator as a Basis for Planning and Control

Sawmills are automated processing facilities where logs are scanned and cutting decisions made automatically based on optimization of lumber yields. Attempts to plan or control a sawmill need to deal with this fundamental fact. The campaign concept is a class of logs processed under a given price list to produce a set of lumber outputs. Log classes are defined in terms of species, small end diameter, taper and length distributions. Differing ways of sorting logs, different log classes and different price lists create different campaigns. In a subsequent talk, we discuss how one can control the mill via controlling campaigns. We have created a software allows us to generate campaigns. The starting point is a pattern generator which generates a large class of patterns (6000+). The second step is a yield calculator that gives the number of pieces by width, thicknesses and length if this pattern is applied to a given log. We consider a substantial sample of logs from the given log class, and for each log in the sample evaluate all possible patterns against all the price lists. We thus arrive at an optimal breakdown for each log and the product outputs for all price lists. Cumulating the product outputs for all the logs in the sample we arrive at representative product output proportions. The model, coded in Python, is quite efficient. Source code for the model can be made available to all participants in the VCO.