

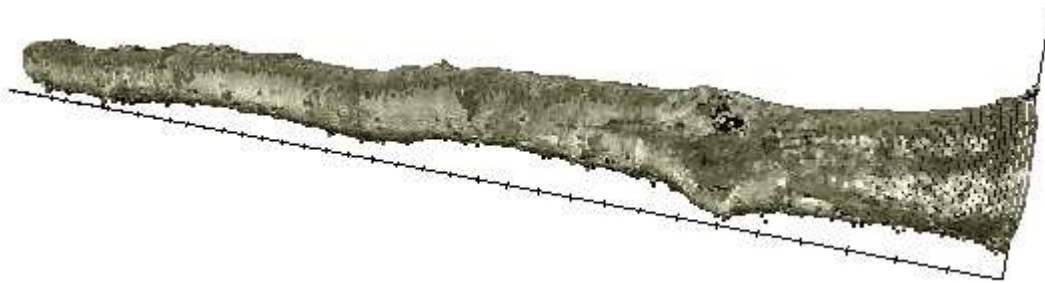
# **MPM ENGINEERING LTD.**

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## **Bucking / Merchandiser Optimizer**

MPM's *Bucking Optimizer* handles a wide range of stem bucking situations from the simple that only consider physical dimensions, up to the more sophisticated that handle defects.

To do this, the *Bucking Optimizer* incorporates four key elements: image analysis, external inputs (e.g. PLC controls), product definition, and sawmill machinery modeling.



### **Image Analysis**

The detection and application of surface features is used in the processing and optimization routines. Depending on the scanning equipment used, features such as *Catface*, *Nodal Swell*, and *Sweep* can be found and optimized for. (See "Key Features" below for the full list.)

### **External Inputs**

An interface is available for our optimization system to receive data from various external locations. This data can be used in conjunction with our internal optimization system, or can be just recorded in the databases for reporting purposes. For example, a PLC can be used to tell the optimizer when an operator has overridden the optimizer solution with a manual one. Allowing the optimizer reports to accurately reflect what was actually cut.

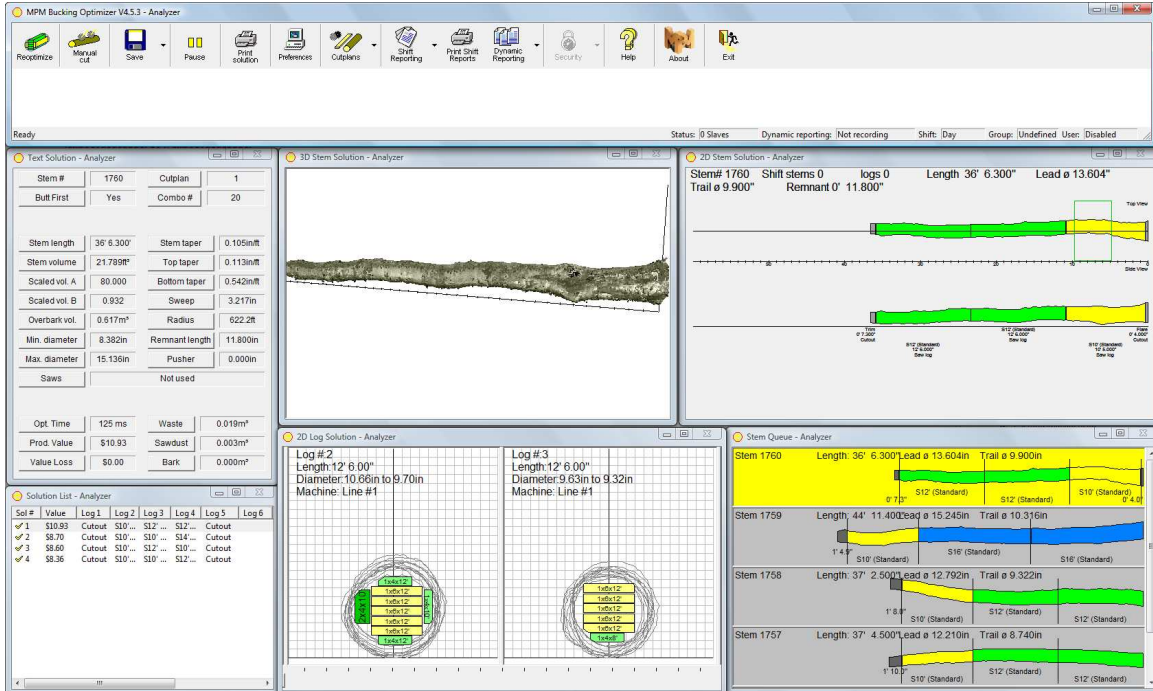
### **Product Definition**

Full product definitions, organized into groups and grades, are used in the patterns and product fits for determining the best solution. With the ability to define both *Block* and *Board* products, a multitude of situations can be optimized for. (See "Key Features" below for the full list.) For example, combinations of *Poles* and *Saw Logs* (with *Board* products) can be optimized in the same solution.

### **Sawmill Machinery Modeling**

MPM's optimization systems contain detailed machine models in order to closely represent the sawmill process – and the Bucking Optimization system is no exception. Whether the sawline is straight or curve sawing, skewing, profiling, or has multiple center cant saw clusters, our machine models are manufacturer specific and configured to all limits defined by the customer and manufacturer's recommendations.

# Key Features:



- Scanner type independent for customer flexibility.
- Simulations can be run off-line to evaluate different parameters and machinery configurations.
- Optimization can be based on price or volume while allowing product priority to attain specific production requirements.
- Optimizes using a variety of downstream machine types/brands and their specific features. (*Turners, Infeeds, Breakdowns, Gangs, etc.*)
- Optimizes for block types such as *Saw Log, Export Log, Plyblock, and Pole.*
- Optimization can consider characteristics of the stem surface (such as *Nodal Swell, and Catface*) as well as stem shape (such as *Flare, Pistol Grip, Broken End, Stepped Cut, Sweep, Kink / Crook, Diameter, and Taper.*)
- Stems are optimized by determining the highest value combination of blocks attainable. The value of each block is determined using criteria based on its type. (Ex: *Saw Logs* fit *Board* products using the capabilities of the sawmill breakdown equipment while *Poles* have a value per piece / volume and so on.)
- Operators can override the solution to account for defects such as rot, breakage or grade that the current scanning system does not recognize. The optimizer will then re-optimize the remainder of the stem.
- Stem load tracking that can be used to track specific suppliers.
- Product mix controls to affect individual stem solutions based on what has been produced in total.
- A variety of graphical displays help the user to analyze a solution.
- Extensive and customizable production reports.



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