Gang-Nail Guide Lines No.16

Evaluating New Equipment Purchases

by John Tadich
Technical Services Manager,
Gang-Nail Australia Limited

The selection of the correct equipment for your truss plant is rapidly becoming one of the most important decisions a Truss Plant Manager has to make. Not so long ago, the choice was simple, as there was not a large range of equipment to choose from. A couple of centre point saws and a 'G' clamp press and you were in business. Not only were you in business, but you knew that you would be competitive as your opposition would have similar equipment. However, today with the wide range of equipment available and the rapid movement toward automation of saws and jigs, Truss Plant Managers need to review their truss plant equipment on a regular basis.

A recent survey of the efficiency of pressing equipment by an independent industrial engineer has shown that productivity varies by a factor of two between the efficient and inefficient pressing systems.

Many Truss Plant Managers have not considered automating their plants because of the price tags that some of this equipment carries. This has now substantially changed, particularly with saws, as there are several automated single blade saws which are in the $50,000 to $70,000 bracket and it is possible to retro-fit automation to an existing saw for as little as $20,000.

However, the point I wish to make is that we should not be put off by the cost of automation. What we should be doing is quantifying the value of the investment by calculating its contribution to the *bottom line.* In other words, what is the pay back period? A common approach to this is to estimate the reduction in labour and place a value on the purchase, based on direct labour savings. For example, one computerised single bladed saw might replace two sawyers on manual saws; hence, the pay back period is the cost of the new saw divided by the cost of the sawyer for one year. This is fine, if this simplified calculation substantiates the purchase. Unfortunately, it does not take into account the fact that this new equipment may enable you to increase your plant output. If you can increase the number of trusses you produce each day, your fixed overhead component of cost will reduce as a proportion of your selling price (see Gang-Nail Guidelines No. 8).

The additional recovery of overheads due to increased production enables you to become more competitive which in turn provides an opportunity to increase sales. Therefore, the potential return for an investment in more efficient equipment can be substantially greater than mere savings in direct labour.

To illustrate this point I have prepared an example of a plant that currently has a single Flo-Jig pedestal system and a pair of Centre Point Docking saws that produce 120 EqA/day.

There is an opportunity to expand the business to 360 EqA/day by taking on several new clients. The manager is now faced with the question of how to best expand the plant. He wants to evaluate the options of duplicating his existing equipment or alternatively using a modern Easy-Set Multi-Head press and an automated saw like the Rotary saw.

Table 1 is a summary of the 'EqA' Program model of the current plant and each of the options under consideration.

As you will see from this table the labour efficiency measured in EqA/man/hours shows only a marginal improvement over the current plant with Option 1. This is to be expected as we have simply duplicated low technology equipment. However, there is a significant improvement in profit ($30,200/month) due to reduced costs brought about by the increase in production output. However, in Option 2 which includes the automated equipment, labour efficiency increases to 7.5 EqA/man/hours and after taking into account the additional financing cost of the more expensive equipment, there is further reduction in $/EqA rate to $6.97.

Summary of EqA Financial Model showing the impact of increased volume and automation on product cost.

	CURRENT	OPTION 1	OPTION 2
EQUIPMENT	1 Flo-Jig 2 CPP2 Saws	3 Flo-Jigs 6 CPP3 Saws	1 Easy-Set Multi-Head 2 Rotary Saws
Capital Investment in Equipment	$50,900	$152,700	$296,500
Number of Production Staff	5	14	6
Output EqA/Man/Hours	3	3.2	7.5
Output EqA/Day	120	360	360
Direct Labour Lost/Month	$13,992	$36,432	$16,368
Total Cost/Month	$32,000	$66,000	$47,700
$Cost/EqA	$14.06	$9.65	$6.97
Reduction in Cost $/EqA	-	$4.41	$7.09

- Potential improvement in profit due to increased volume $30,200
- Potential improvement in profit due to automation $18,300/month

Although this example is not based on a real truss plant, the numbers are indicative of what can be expected from investment in appropriate automation.

Be sure that you do not make the wrong decision when choosing truss plant equipment. Make sure you carry out a proper evaluation as the future prosperity of your business may depend on it.