



CAMERON WAKE
Manager
Manufacturing & Machinery

USING DATA FOR MACHINERY SELECTION

All the elements of contemporary house design and construction are constantly evolving and changing, and roofs are no exception.

As architectural styles change over time, so do the sizes and shapes of the roof trusses.

This, combined with other factors like changes in customer base, presents an on-going challenge for roof truss manufacturers.

There is no 'one size fits all' workstation that is efficient for producing all truss sizes and types.

Whether it's a roller gantry press, hydraulic table press, a flo-jig or multi-head jig, each machine has particular strengths which should be exploited in relation to certain truss types.

An efficient mix of saws and truss assembly workstations which has served a factory well for the last five years may not be efficient for the next five.

The variables are many: changes in overall production volume, advances in machinery and manufacturing technology, and an ever increasing focus on plant safety.

How best to utilise existing equipment, whether to keep or replace existing machinery, and new equipment selection are complex decisions that should rely on sound information.

The good news is that, as explained by Mark Smiles in GN Guideline No. 145, truss fabricators have some relatively simple yet powerful tools available to them for decision making.

Historical job data and production monitoring software produces reports that reveal trends in areas like mix of truss types produced by a plant, and the production efficiency and utilisation at workstations for given truss types.

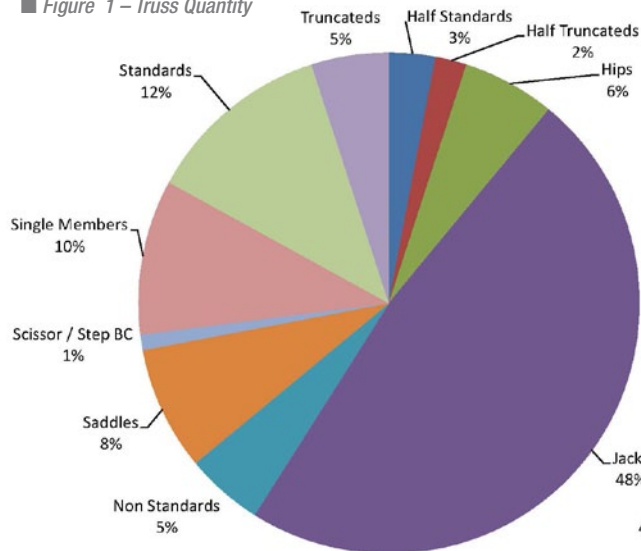
Periodic analysis of such data may reveal a need to shift certain trusses to

a different workstation, or identify a gap in the equipment mix that is holding back efficient production of particular truss types.

As a very simple example, consider a truss plant that has, as their business has grown and the truss mix in their jobs has evolved, identified a bottleneck for jack and saddle truss production. They produce jacks and saddles on their small table press which is a good press for the small assemblies, flexible and reliable, but finding floor space for a second table will be a challenge. Should they simply replicate their existing workstation?

Using a representative sample of jobs

■ Figure 1 – Truss Quantity



recently produced by the plant, Figure One shows a graph of the breakdown of number of trusses produced by basic truss type. Jacks comprise 48 per cent and saddles 8 per cent.

This is no great surprise as the plant knows they are making a higher proportion of jacks than ever before.

Investigating the type of jacks produced yields a more interesting revelation.

Figure 2 shows that of

all the jacks produced the vast majority, 75 per cent, are single joint 'Y-jacks'. That's right. 75 per cent!

Combined with knowledge of required equipment manning levels and machine costs, a compelling argument emerges for serious consideration of a dedicated jack press.

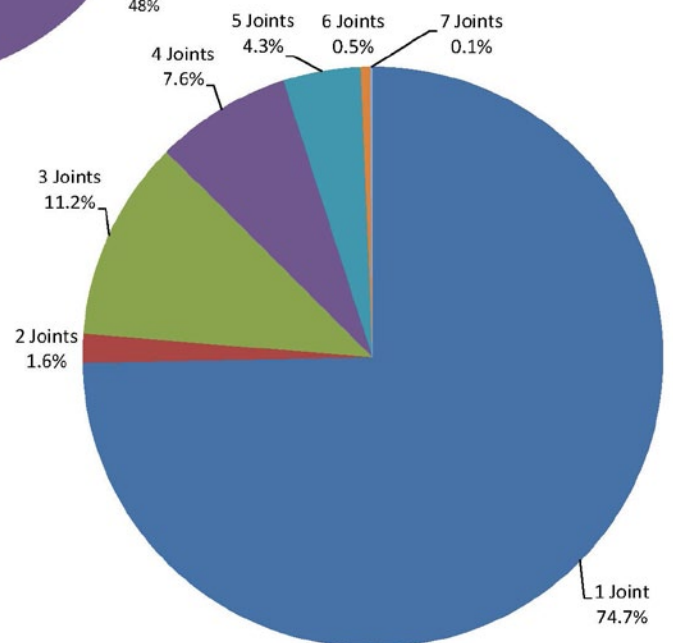
This will relieve the burden from the table press but consume far less floor space.

Similar analysis applies equally to cutting workstations.

Periodic review of the average mix of cut member types in comparison to saw capacities and capabilities may reveal a looming bottleneck. And if you don't know how to extract the information you need, your plate software supplier will.

Anecdotal evidence, 'gut feel', or the generally accepted opinion in factory or office are not solid grounds for making high value, potentially game-changing decisions like equipment selection.

It's important to use this rich source of data to validate your hypotheses so that decisions can proceed with low risk and high confidence. «end»



■ Figure 2 – Number of Joints per jack truss