

ShortCUTS

NUMBER TWO TWOTHOUSAND&TEN SKOGFORSK

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GETTING MORE OUT OF THE WOOD

“In Skogforsk’s Wood utilisation programme, the focus is on forest products. Central to this are the customer requirements and greater production efficiency, which can provide higher profitability both in the forest and in the mills.” So says Lars Wilhelmsson, the programme manager.

Lars Wilhelmsson leads a team of eight researchers at Skogforsk, who are developing techniques and methods to improve profitability in forestry. The work involves both costs and revenue.

The key, according to Lars Wilhelmsson, is a matter of understanding the needs of the mills and their potential, and of improving the conditions in forestry to enable the right products to be provided efficiently, throughout the entire chain through to the end user.

“If forestry can improve its ability to direct the right timber to the right mill, the mills can then produce products of a higher quality with less wastage,” he says. “This goes without saying at the sawmills, but even the pulp- and- paper mills and heating plants can save money through better knowledge of the raw materials.”

Much of the work in the research project involves improving the value chain through better information on the stands, and better integration with the customers’ manufacturing processes.

“We are convinced that logging, transport and business activities could be greatly improved if data on the standing timber were available — such as through the use of laser scanning.”

FRONT-PAGE PICTURE: MACHINES — KEEP OFF! SOFT GROUND! From a course in water-protection in forestry (see p. 3). Photo: ARECA

“More-reliable yield calculations and improved systems for monitoring production are other important aspects of the work we are doing,” he says.

We are also benefiting from the many years of work done by Skogforsk on StanForD (the international standard for data collection and communication with forestry machines). A major upgrade of the standard will be available in a few months.

Work is also under way on new information standards—e.g. one for standing timber and one for business transactions between wood suppliers and industrial customers (papiNet).

“The harvester is also a focal point for information on stands and timber,” says Wilhelmsson, “and can be instrumental in getting things right, right from the start.

“We already have quality-controlled harvesters capable of measuring length and diameter accurately,” he says, “but we hope that even greater accuracy will be achieved through the work of our team to improve harvester sensing technology and information systems. The team works closely with Skogforsk members and the manufacturers.”



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“The data that is now collected automatically in bucking can be even smarter when connected to a GPS unit — which is becoming standard on forestry machines,” says Wilhelmsson. “For instance, it is possible to calculate the quantity of energy wood extracted from a final felling, or to produce site index maps on different parts of the stand.

“I also believe that forestry can improve customer needs by using predictive functions for wood properties that our team and others have developed in recent years. Based on the reference point of the stand in the country, its age, and the diameter of the trees, we can estimate the density of the wood, the branch thickness, the proportion of live knots, the heartwood, and the average fibre length, etc.” “This is not an exact science,” says Wilhelmsson, “and the estimates can be fairly wide off the mark on individual trees, but for an entire stand we can get a good idea of the average properties of the wood and of the variations in the batch. What’s more, the additional cost of estimating these properties is almost negligible; it is just a case of letting the computers calculate the data that has been collected by the harvester.”

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Productivity is generally defined as the ratio between the added value and the hours worked. All other things being equal, productivity in forestry goes up with an increase in the number of cubic metres processed per working hour. However, productivity will also go up with an increase in the added value.



New tool simplifies forestry contracting

A new tool for simplifying the contracting process in forestry has been introduced in Sweden as a result of a Skogforsk-led project.

The new tool consists of branch-wide negotiated general conditions — so called Agreed Documents — and templates for use in individual contracts.

It has been accepted by a number of forest enterprises and the Forestry Contractors' Association. The idea is that the regulations shall be incorporated in *all* forestry contractor agreements in both logging and silviculture.

Agreed Documents that regulate contracting are to be found in many sectors of industry. These regulations

are concerned with responsibility, claims for damages, warranties, and the resolving of conflicts etc.

The templates perform a dual function: first, to act as a checklist (eg, "has everything been included?") and, second, to provide carefully worded proposals to reduce the risk of misunderstanding in the contract.

Source: Resultat No. 3, 2010 or www.apse.se

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Focus on watercourse protection

Skogforsk, together with forest enterprises and forestry machine contractors, is running a series of courses on watercourse protection in forestry.

The principal message it wants to get across is simple: logging operations must never cause mud or silt to get into the watercourses. Mud and silt are not only harmful to fish but can also carry poisonous substances, such as mercury.

If driving across a brook or a creek is unavoidable, a machine should carry a pontoon — or, alternatively, the operator should build a bridge of long sawlogs, covered with pulpwood and logging residue.

Logging planning is also important to ensure that machines do not operate close to a brook or stream where the ground is often soft.

The message to take home is that watercourse protection inevitably costs money — the alternative would

be a strong adverse reaction from the general public and the mass media, which would cost far more.

"This is a major undertaking, and it highlights how seriously the forestry sector takes watercourse protection," says Fredrik Staland, who is coordinating the work at Skogforsk. "Once the work has been completed, more than 1 900 logging machine operators and logging planners will have completed at least one of our 100 one-day courses," says Staland.

The work is an initiative from SMF (the Swedish forest contractors association) and partly financed by the EU.

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The area of pre-commercial thinning (cleaning) carried out in 2009 in Sweden fell, thus contributing to reduced costs in forestry. Photo: Mats Samuelsson

A rise in logging costs and lower timber prices

In 2009, costs in regeneration cutting rose by 2%, and in thinning by a hefty 9%. Silviculture costs also rose by 4% per hectare. These are some of the findings from the annual questionnaire survey, conducted jointly by Skogforsk and the Swedish Forest Agency.

This year was somewhat different from previous years. Despite an increase in heavy cost items, overall forestry costs fell by 6% as compared with the previous year. This can partly be explained by a reduction in thinning operations, and partly by a reduction in the area of silviculture carried out during the year. This resulted in a 13% fall in silviculture costs.

Raw-material costs to the mills fell by an average of 10%, largely because of a decline in timber prices. In contrast, haulage costs rose by 3%.

Source: Resultat No. 7, 2010.

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SINGLE-SHIFT – A BRIGHTER ALTERNATIVE?

Two-shift system is cheapest but low interest rates are closing the single-shift gap.

The two-shift system is the most widely used in forestry, but an increasing number of forestry contractors are switching to single-shift work. This is mainly because administration is easier, and working conditions are better, as work can be combined more readily with family and social life.

In purely economic terms, a two-shift system for forestry machines is hard to beat. The machines are utilized well, there is a good return on the capital

invested, and volume production per machine team is high.

Our basic analysis shows that single-shift work is approximately 8% more expensive than running two shifts. However, the forestry contractors that operate a single shift maintain that productivity is higher, and there is less wear and tear on the machines. This is partly because more work can be done in daylight hours, when the operators are fresh and alert, and partly because technical utilization of the machines is higher.

Putting all these positive factors together considerably narrows the gap between two-shift and single-shift systems. What's more, if all the positive factors were to interact simultaneously, single-shift working could even end up somewhat cheaper.

Source: Resultat No. 5 2010

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NOTES



NEW CHAINSAW MOTOR GIVES SHORTER BUCKING SPLITS AND INCREASED PRODUCTIVITY

A new chainsaw motor, the F11-iP, has been developed by Parker Hannifin for harvester heads. The chain speed and cutting power can remain constant throughout the bucking operation.

A comparative study found that bucking was 12% faster with the new chainsaw motor than a conventional chainsaw motor. The number of logs that incurred bucking splits was roughly the same with both motors, but the bucking splits on the F11-iP were on average 3 cm shorter.

Resultat No. 4 2010. bjorn.hannrup@skogforsk.se



MEDIUM-DUTY HARVESTER BEST ALL-ROUND OPTION IN THINNINGS

Skogforsk and John Deere have conducted large-scale trials on productivity and thinning quality using four harvesters of different sizes in northern Sweden.

The smallest thinning harvester recorded the lowest thinning cost in small-diameter stands, while the medium-duty harvester was cheapest in somewhat larger stands. The line was drawn at a mean stem of 0.09 m³ (solid i.b).

The study focused on the logging costs, but if we also included factors such as working environment, flexibility and the prospect of multitree handling, then the medium-duty harvesters are the best option in thinnings.

Resultat No. 6 2010. torbjorn.brunberg@skogforsk.se



WHAT MAKES A WINNER? — INTERVIEWS WITH 10 SUCCESSFUL CONTRACTORS

That there is no simple solution for creating a profitable forestry contractor business is clear from the searching interviews carried out among ten long-established successful forestry contractors.

Skogforsk has conducted searching interviews with ten of these businesses. The successful companies had a sound financial base; would write off their machinery in line with the fall in value and always focused on the personnel.

All of the companies exhibited a culture based on hard work, and letting the operators take responsibility — indeed, this was perhaps the highest common denominator among the successful machine operators.

Resultat No. 11 2010. klas.norin@skogforsk.se



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