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From the Editor

Forest research and the needs of our stakeholders

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Forestry is an applied science and most of our studies are made in cooperation with different players with an interest in forest ecosystems, forest management, forest operations and logistics or the use of forest biomass for different products, i.e. the stakeholders. These stakeholders have different and sometimes conflicting interests; thus, they may have different needs and demands on the research made. This makes it necessary to reflect on what perspective we apply in our the research and if the research questions we ask are adapted to the needs of the stakeholders, if we know the level of risk that the stakeholders are willing to accept, and if we can adapt to the stakeholders need without compromising the scientific demands on a sound study.

We need to ask ourselves if the hypotheses used are testing what the stakeholders are interested in. It is not always the best option to test if a new method/machine/treatment is statistically different from the standard one. In one case, when I presented preliminary results to some stakeholders about a new method which on average gave a 8% better result than the standard one but there this difference was not statistically significant ($p=0.09$), the first response I got was "what is the risk that the new method give worse result than the standard one". In their view the standard method was working very well but there was not much room to improve it, the new method on the other hand had not been used for long and there were larger chances for improvements. In this case a single sided test with the null hypothesis that the new method was worse than the old had been a more correct approach for that stakeholders. On the other hand, other stakeholders might have the opposite view and need a positive result to allow the use of a new method.

There is also a need to reflect on the fact that a statistically significant difference and a "difference" that is relevant to a stakeholder is two different things. A statistically significant difference can be relevant to the stakeholders if it is large enough, but if the difference is small it might not be worthwhile to replace a machine or learn a new method to reach that improvement. On the other hand, for a larger difference, as in the example above, it might be interesting to change the method as long as the risk of losing in performance is kept at an acceptable level to the stakeholder or the difference may be a motivation for further studies. Thus, it is important to quantify and present results also for comparisons that are not statistically significant. Its more informative to write "There was no significant difference in productivity between treatment A at 10.5 $m^3\ h^{-1}$ and treatment B at 11.1 $m^3\ h^{-1}$ ($p=0.212$)." than simply "There was no significant productivity difference between treatment A and B". The first sentence gives stakeholders the opportunity to make their own assessment of the possible difference and at which level the null hypothesis could not be rejected.

Especially in analyses of forest operations and supply chains it is obvious that there are many stakeholders with somewhat conflicting interests; land owners, forestry contractors, hauliers, end users of the wood, and the supply chain operators, i.e. the forest companies or forest owner associations buying the wood from the land owners and supplying it to the end users by buying services from forestry contractors and hauliers. In many cases analyses are performed to improve the efficiency of the whole supply chain, i.e. a supply chain operator perspective, and less efforts are made to analyse how these changes affects the interests of other players in the supply chain. If the most efficient solution found has large negative impacts on the economic results for the contractors or hauliers involved there is a low probability that that solution can be implemented successfully. As an example, a haulier in a chip supply system as the one modelled in Eliasson et al. (2017) remarked that the model results was valid but as he was reimbursed per delivered ton and not per hour, the best solution with four trucks would leave his business losing money, as it resulted in too low utilisation of his trucks. Thus, a renegotiation of the hauling contract would be necessary to enable the use of the most efficient solution. When the researchers doing the studies are aware of conflicts of interests among stakeholders, they need to address these in the discussion of the paper presenting the research.

Our stakeholders also benefit from clear system descriptions to enhance their understanding of the differences between their own system and the studied reference (Business as usual, BAU) and alternate systems. Unfortunately, it is easy to relate a BAU scenario to the one you are most used to. And there might be subtle, and sometimes large, differences that might render a comparison made in one area invalid in another area. One obvious example is the sizes and payloads of trucks used in different parts of the world, with maximum gross vehicle weights varying between 38 and 76+ tonnes depending on country. Thus, implementation of results should be made with some caution outside the studied areas, and stakeholders might benefit from consulting local researchers and get their opinion before implementing results valid elsewhere.

The relationship between the research community and forestry stakeholders is precious and important for both parties. After all, it is the questions and issues raised by different stakeholders that constitute the basis for the research needs which, ultimately, transforms to research calls and future projects.

References

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Lars Eliasson
Associate Editor for Logistics and Forest Engineering