Cost balance for external and internal work completion on the basis of comparative costs

Minimum extent of utilization (ha/year)

$$= \frac{\text{Fixed costs}(€/\text{year})}{\text{Inter-company billing rate}(€/\text{ha}) - \text{Partially variable costs } (€/\text{ha})}$$

What are the effects of additions or reductions on the comparative costs?

Example 1: Speeding costs

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Assumed, external work is paid by area, and the area output is increased by an insufficient work depth. This leads to yield losses for the external variety of work execution. The costs at the level of the yield losses for this alternative are rising as compared to working with owned equipment, which we assume is working at the optimal working depth.

$$\text{Minimum extent of utilization}_{\text{(ha/year)}} = \frac{\text{Fixed costs}_{(€/\text{year})}}{(\text{Inter-company billing rate } (€/\text{ha}) + \text{Speeding costs } (€/\text{ha})\ ) - \text{Proportionally variable costs } (€/\text{ha})}$$

Example 2: Timeliness costs

Assumed, the contractor supposed to perform inter-company harvesting work arrives at a suboptimal time for harvesting. In comparison to the perfect timing that could be achieved with owned harvesting equipment, there are additional costs incurred for drying.

$$\text{Minimum extent of utilizaion}_{\text{(ha/year)}} = \frac{\text{Fixed costs}_{\text{(€/year)}}}{(\text{Inter-company billing rate}_{\text{(€/ha)}} + \text{Timeliness costs}_{\text{(€/ha)}}) - \text{Proportionally variable costs}_{\text{(€/ha)}}}$$

Example 3: Technological progress

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Assumed, an owned combine harvester has higher grain losses during threshing than the combine harvester used by the contractor. Compared to the contractor, this results in costs at the level of the monetary value of the resulting yield losses.

$$\text{Minimum extent of utilization (ha/yr)} = \frac{\text{Fixed costs } (\text{€/year})}{\text{Inter-company billing rate } (\text{€/ha}) - (\text{Proportionally variable costs } (\text{€/ha}) + \text{Timeliness costs } (\text{€/ha}))}$$

The greater the difference in the denominator of the formula, the lower is the necessary minimum extent of utilization.

The smaller the difference in the denominator of the formula, the higher is the necessary minimum extent of utilization.

The external variety is getting more expensive, when more costs are added to the inter-company billing rate, the difference to the proportionally variable costs is greater. → Less workload is necessary to reach minimum utilization.

The internal variety is getting more expensive, when more costs are added to the proportionally variable costs, the difference to the inter-company billing rate is smaller → More workload is necessary to reach minimum utilization.