HCT trucks in Swedish forestry
- operational experiences
Gunnar Svensson

NB-NORD Meeting, June 14–16 2017, Lappeenranta, Finland
Annual wood transportation in Sweden

Number of transports – 2 million
Average transport distance - 91 km
Transported weight - 72 millions tonnes
Transport cost – 700 million euro
Wood supply cost in Sweden

- Harvesting: 43%
- Transport: 26%
- Silviculture: 16%
- Roads: 8%
- Administration: 6%
- Other: 1%
One More Pile, 10+ years
High capacity transport (HCT)

Conventional vehicle
Gross vehicle length: 24 m
Gross vehicle weight: 64 t

”Bigger Piles”
Gross vehicle length: 24 m
Gross vehicle weight: 74 t

”One More Pile”
Gross vehicle length: 30 m
Gross vehicle weight: 90 t
Fuel consumption

- Fuel consumption 7-13% (20% 90 tonnes) lower compared to 60 (64) tonnes
- Low density material reduces the effect
## From 60 to 64 tonnes

<table>
<thead>
<tr>
<th></th>
<th>60</th>
<th>64</th>
<th>Difference, %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GVW, tonnes</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>litres/100 km</strong></td>
<td>52,6</td>
<td>54,3</td>
<td>3,2</td>
</tr>
<tr>
<td><strong>litres/t</strong></td>
<td>2,4</td>
<td>2,2</td>
<td>-5,6</td>
</tr>
<tr>
<td><strong>ml/tkm</strong></td>
<td>27,4</td>
<td>25,6</td>
<td>-6,4</td>
</tr>
</tbody>
</table>
## Transport economy

<table>
<thead>
<tr>
<th></th>
<th>60</th>
<th>64</th>
<th></th>
<th>74</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed costs</td>
<td>&lt;1%</td>
<td>-</td>
<td></td>
<td>+6%</td>
</tr>
<tr>
<td>Variable costs, per km</td>
<td>-2%</td>
<td>-</td>
<td></td>
<td>+11%</td>
</tr>
<tr>
<td>Distance per year</td>
<td>1%</td>
<td>-</td>
<td></td>
<td>-2%</td>
</tr>
<tr>
<td>Total costs</td>
<td>&lt;1%</td>
<td>-</td>
<td></td>
<td>+5%</td>
</tr>
<tr>
<td>Transported volume</td>
<td>-4%</td>
<td>-</td>
<td></td>
<td>+11%</td>
</tr>
<tr>
<td>Transport cost per m³</td>
<td>4%</td>
<td>-</td>
<td></td>
<td>-5%</td>
</tr>
<tr>
<td>Vehicle combination</td>
<td>Length</td>
<td>Empty weight</td>
<td>Average load</td>
<td>Max, allowed load</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------</td>
<td>--------------</td>
<td>--------------</td>
<td>------------------</td>
</tr>
<tr>
<td>ETT (no crane)</td>
<td>~ 30 m</td>
<td>24</td>
<td>66</td>
<td>66</td>
</tr>
<tr>
<td>ST (crane)</td>
<td>~ 23 m</td>
<td>26</td>
<td>47</td>
<td>48</td>
</tr>
<tr>
<td>ST (no crane)</td>
<td>~ 23 m</td>
<td>22</td>
<td>49</td>
<td>52</td>
</tr>
<tr>
<td>ST (chips)</td>
<td>~25 m</td>
<td>24</td>
<td>47</td>
<td>50</td>
</tr>
</tbody>
</table>

Based on 6 572 loads
Conclusions – transport economy

- Transport cost is reduced by 4% by the introduction of 64 tonnes GVW
- Under right conditions – 74 tonnes GVW has similar potential
- Proportion driving with load, and load ratio is crucial
Driver experiences

- 650 – 700 hk is enough for 74 tonnes in most cases
- RME and HVO works well - if it's not contaminated!
- Problems starting in the woods – handled by:
  - Hydraulic front-wheel drive, crawl gear,
  - CTI, liftable axles and air-dump
- Significantly more flexible than 64 tonnes
Flexible construction

2,5 m

3,5 m
Improved traction
Impact on infrastructure
Impact on road safety

- The effect levels when the weight ratio between the impacting vehicle exceeds 10:1 (15-25 tonnes)
- Less number of vehicles reduces the risk of accidents
- Not statistically proved that overtaking accidents were more common for 24-meter than a 18-meter rig
Deviations & incidents

- A few driver related accidents
- A few overtaking incidents (1+2 – roads)
- Some fatigue cracks in frame and timber banks
- Problem with bent stakes on some carriages
74 tonnes in Sweden – status report

- May 4th 2017 – decision to introduce BK4 bearing class
- July 1st 2017 – BK4 bearing class starts to apply
- Swedish Transport Administration will define which roads are suitable for 74 tonnes
- July 1st 2018 – probable start of 74 tonne trucks in practical operation
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