



Figure 1: GÖSSER SEILKRAN

Rising personal costs and falling timberprices forced the company to more rationalization. The technical development of cable systems became more and more sophisticated. Milestones were the HYDROKRAN 80, the RM 2000, the SHERPA-carriages, the TURMFALKE until to the WANDERFALKE or the high tech yarder SYNCROFALKE with remote control, combined with a loader crane and a processor head.

2. 1 Development of cable yarder systems in the FMM-company



Figure 2: HYDROKRAN 80

Heavy duty, multipurpose yarder, tiltable headspool 12 m, max. pulling power 5 to.



Figure 3: RM 2000

Small yarder for uphill transport, headspar 8 m, max. pulling power 2 to.



Figure 4: TURMFALKE

Allterrain yarder, headspar 10 m, max. pulling power 2,5 to, capstan drive for main- and haulbackline.



Figure 5: SHERPA-U 3 to
Allterrain carriage for all skyline-systems, remote controlled sky- and mainline clamp, effective capacity 1.5, 3, 4 to.



Figure 6: WANDERFALKE
Truck or trailer mounted allterrain yarder, pulling power 1,5 or 3 to, headspar 10 m.



Figure 7: SYNCROFALKE

Truck or trailer mounted allterrain yarder, pulling power 3 or 4 to, headspar 10 or 12 m, synchronized cable drums, here combined with loader crane and processor head WOODY 60

3. Development of forest works in the FMM-company

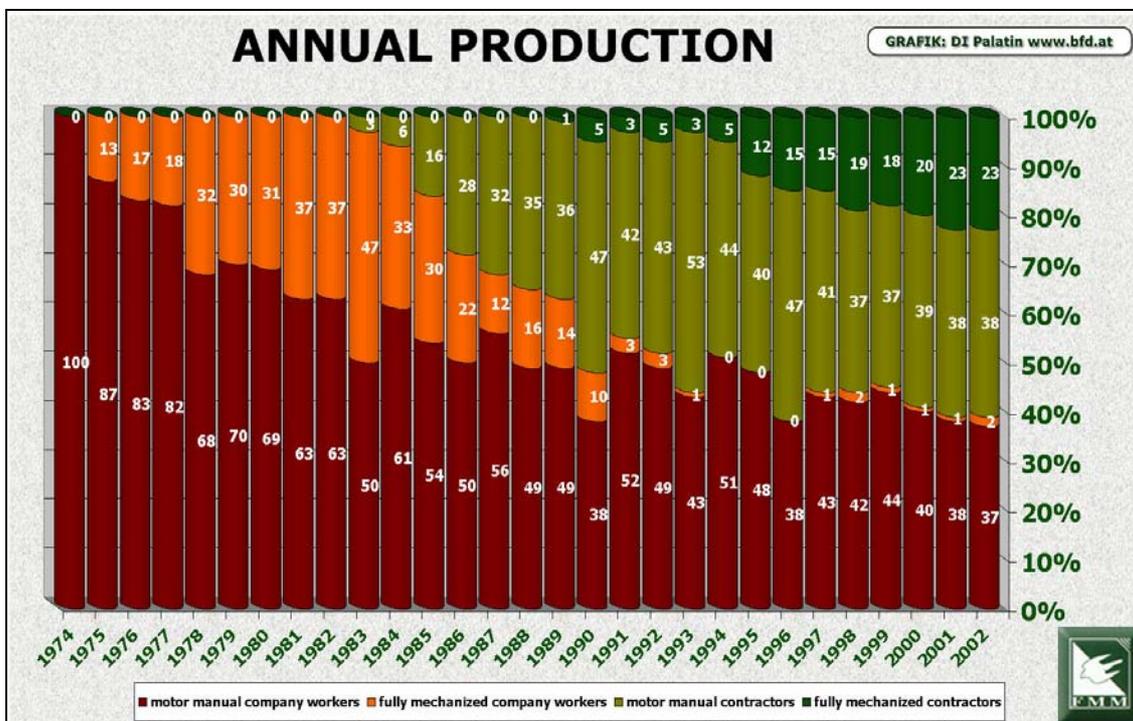


Figure 8: Increasing quota of contractors in logging operations

There are several reasons that lead to a decreasing quota of own employees:

- costs, especially social costs for own forest workers,
- a lack of good, examined forest workers,
- an increasing number of well equipped contractors
- technical development.

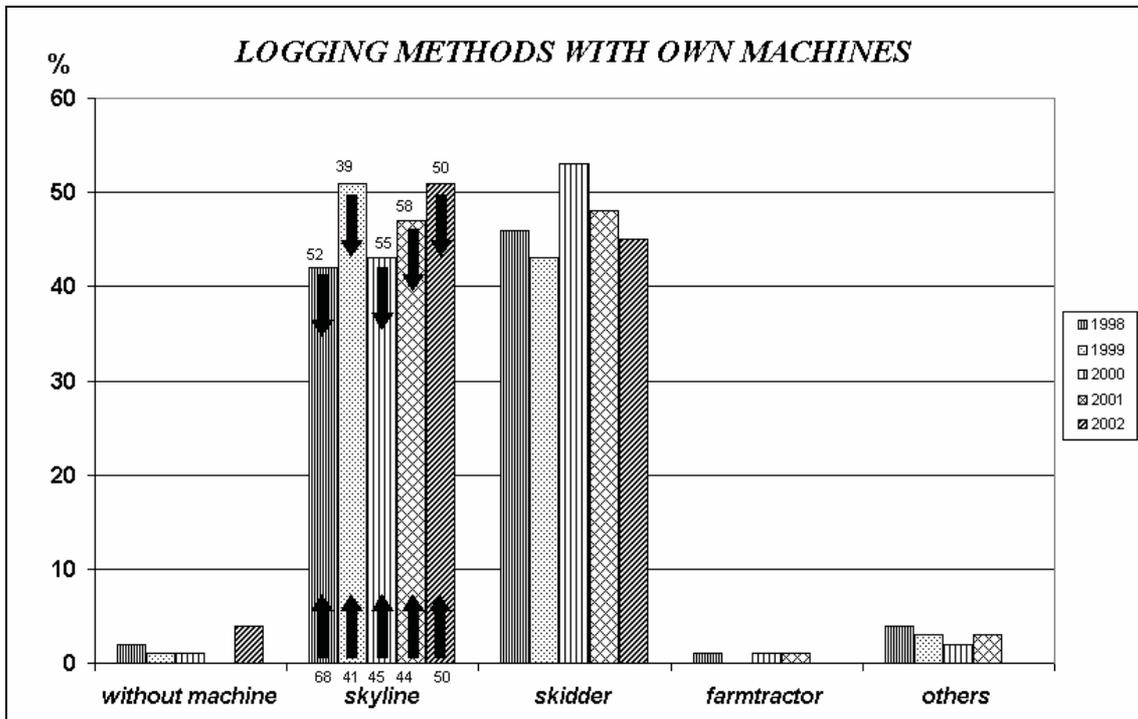


Figure 9: Today's logging methods with own machines

Figure 9 shows, that about 50 % of our logging operations with our own machines are carried out by cable yarders, half way uphill and downhill.

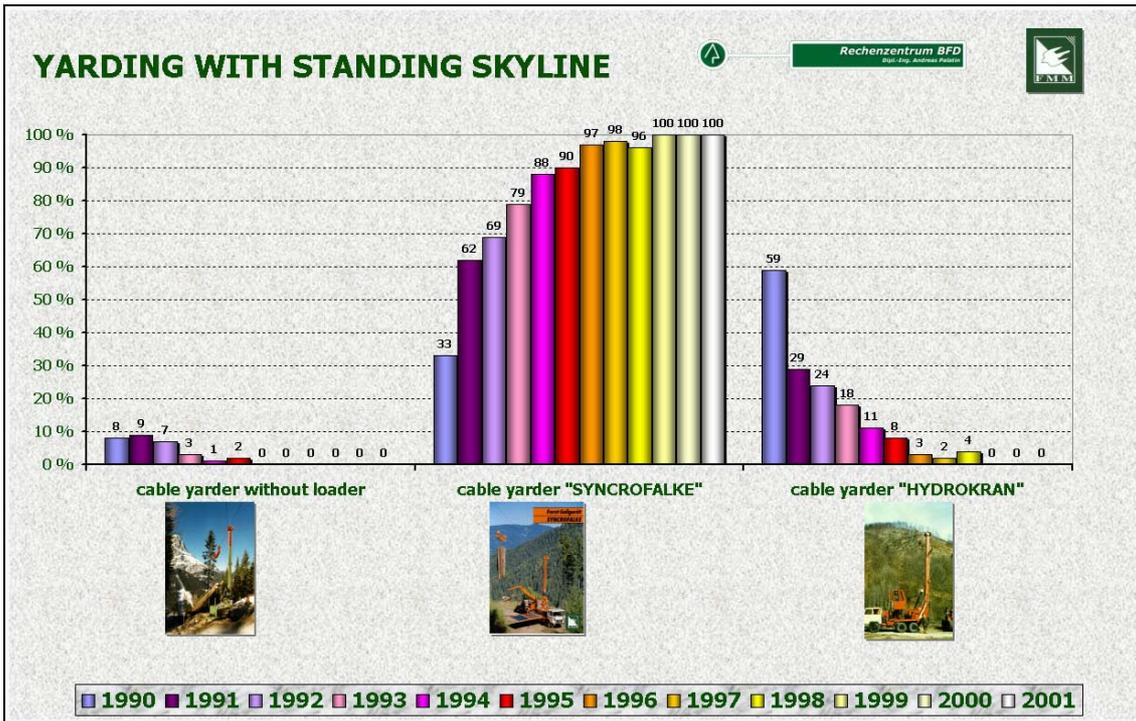


Figure 10: Increasing quota of cable yarders with loaders and / or processor heads

4. Relation and development of timberprices and wages of forest workers

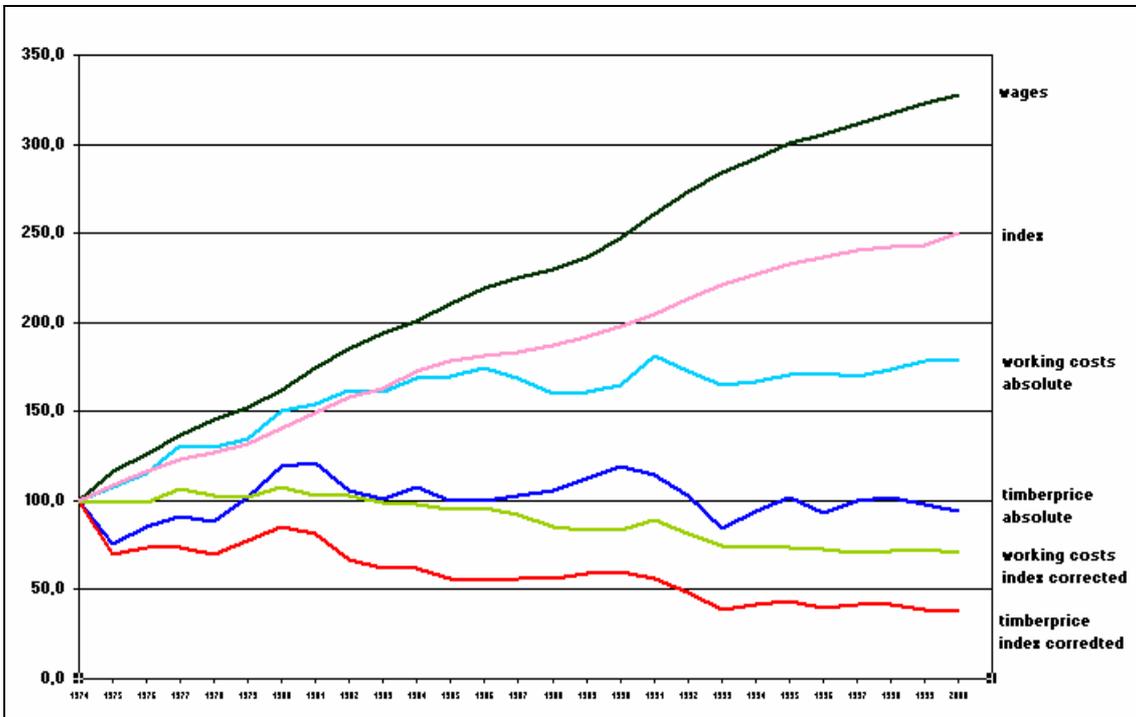


Figure 11: Development of the gap between timberprices and wages

The absolute timberprices today are in the same high as in 1974, but the index corrected value only is 38 % of the value in 1974 ! In the same time the wages have raised up to 328 %.

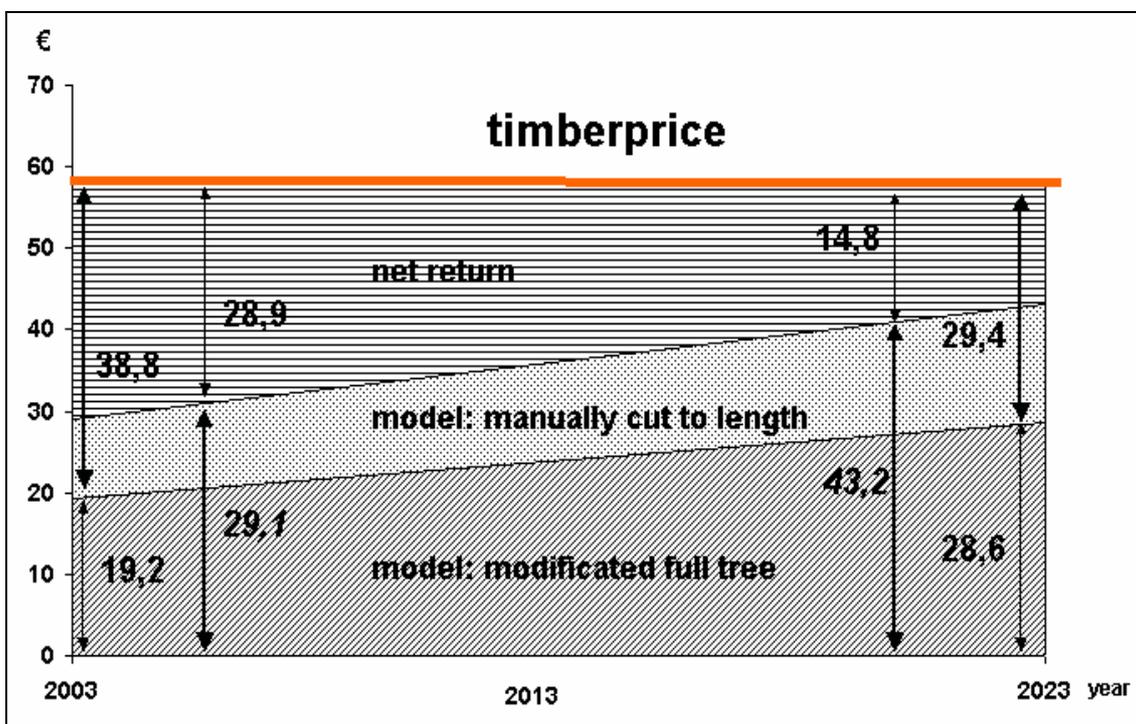


Figure 12: Simulation of rising costs with different logging methods and constant timberprices. Development of net return.

Figure 12 shows an annual rise of system costs of 2,5 %. The costs for a mechanized full tree logging method are € 19.20, the costs for a manually cut to length method € 29,10. Within 20 years the net return for manual methods is cut in half ! To keep the net return on the same level, there is no chance for any manual logging method in future.

5. Model of a constant cost level

The gap between rising wages and falling timberprices becomes bigger and bigger. To keep up costs on the same level with rising wages, you also have to raise the output in forest working systems, that means to reduce time spent on producing one cbm of timber.



Figure 13: Model of a constant cost level. goal: constant felling costs

An estimated annual 3,5 % rise of wages with an constant cost level must reduce the production time in the same relation. The result is as shown. Rationalization only can work when it is combined efficient with an controlling system.

6. Future aspects

To be competitive with forestry in mountainous areas the need of further reduction of costs is necessary when timberprices can not be raised. We live in a worldwide global system, and timberprices may even get less. The costs for producing timber, compared e.g. to Scandinavian countries, are higher in alpine regions on behalf of topographical reasons. This forced and still forces forest companies to further rationalization. Some years ago it was enough to adapt the organisation (lean management).

Today you have to change logging systems.

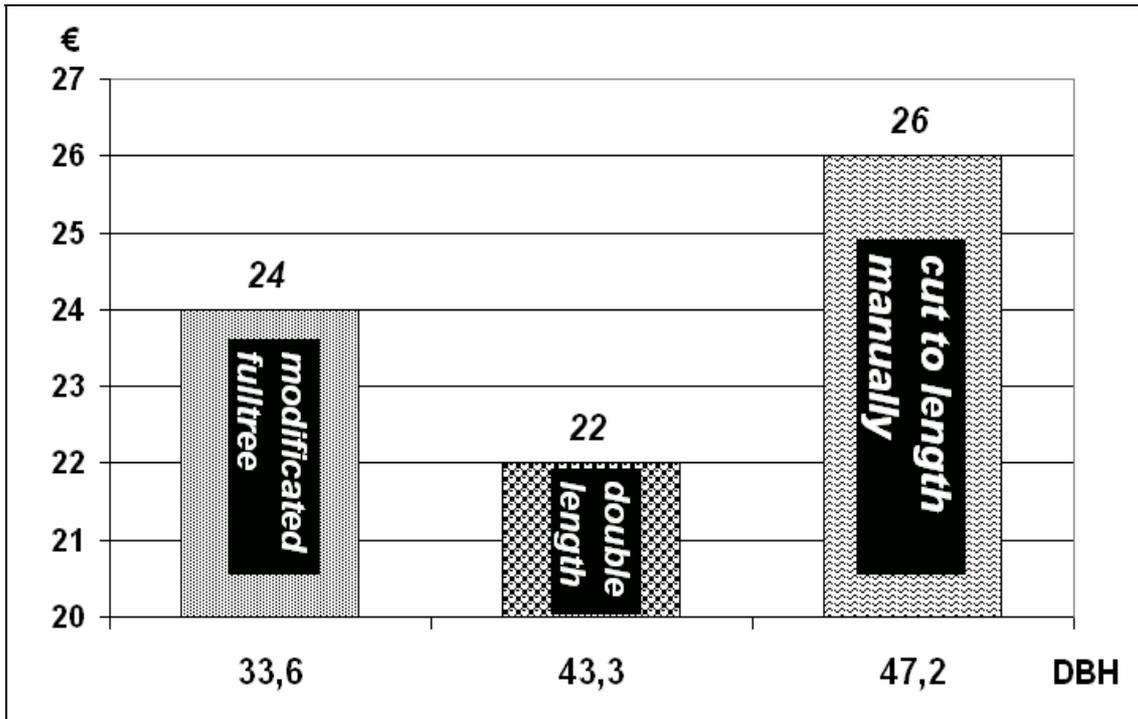


Figure 14: Costs of different logging methods in relation to the timbers size

Even with a lower diameter of 10 cm the costs for mechanized logging systems are close or lower to others.

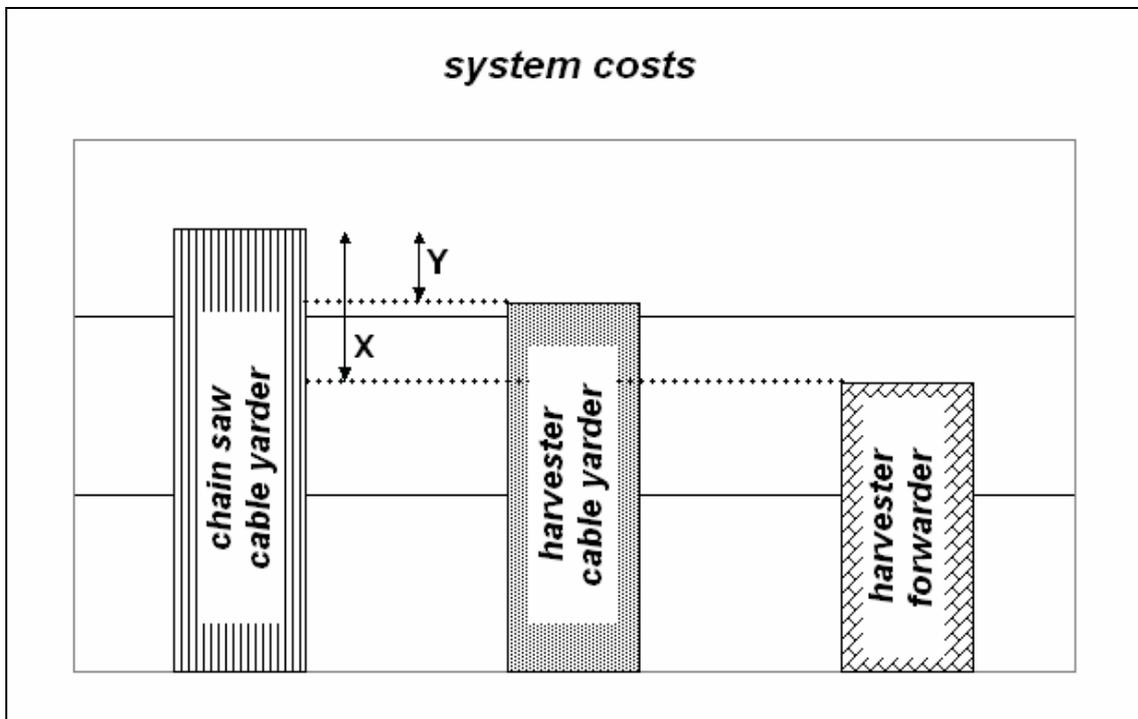


Figure 15: Costs of different logging methods

If you compare system costs of different logging methods you will see that high mechanized harvesting chains are more efficient and have lower costs on behalf of their high output

Forest companies cannot afford high personal costs combined with high social costs any more. They change to capital costs by investing forest machines with an high output, and therefore low system costs.

The technical development of the last years helped to find solutions for lower cost systems compared to motormanual systems even in mountainous areas.

New track driven harvesting systems, e.g. the VALMET SNAKE, that can work steep slopes up to 60 % combined with modern, remote controlled cable yarding systems are real “survival kits” for forestry in alpine regions as well as full tree logging with cable yarders combined with a loader and a processing head, e.g. SYNCROFALKE with WOODY 60. But development still has to go on. Therefore I think the need of rationalization is the driving force for technology development, to keep up forestry in alpine regions competitive.