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## The technical evolution and market of forwarders in Sweden

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Mechanization in Fenno-Scandinavian forestry started with the development of forwarders. The aim with this paper is to describe the technical evolution of and market for forwarders in Sweden from the early sixties to present. In total, 384 models (17, 175 and 192 with 4, 6 and 8 wheels respectively) have been sold. They were produced by 56 manufacturers, mostly from Sweden and Finland. Manufacturers have been established, merged and shut down frequently and in average only 10 to 14 manufacturers was on the market at the same time. The number of forwarders sold in Sweden decreased in the period 1975 to 1993 from 550 to 100 units annually. Since then there's been an increasing trend averaging on 331 units/year 2007-2012. The increase since 1993 corresponds to an increase in annual harvest from 67 to 86 million m<sup>3</sup> for the same time period. During 1975 to 1990 in average 7.0 forwarders were sold for every million m<sup>3</sup> harvested, during 1991 to 2012 it was only 3.4 forwarders/million m<sup>3</sup> sold. The average load index has decreased over time, especially for 8-wheeled forwarders with index 1.0 year 1980 and 0.8 year 2012. The average engine capacity has increased from 3.5 to 5.0 kW/metric ton (fully loaded machines) from 1970 to 2012. The average ground pressure with a full load year 2012 was lower for 8-wheeled (170 kPa) than for 6-wheeled forwarders (200 kPa), this difference is 30kPa smaller than in 1980. Analysis of a historic development trend might give indications for the future.