Kuratorium für Waldarbeit und Forsttechnik e.V.

Vorsitzender: Landesforstpräsident Martin Strittmatter
Geschäftsführender Direktor: Bernhard Hauck
Vereinsregister: Amtsgericht Darmstadt, VR 30519

Press release

Groß-Umstadt, November 17, 2025

Successful Test Phase for Project Outreach

Project Outreach has successfully tested a new feller-forwarder machine with a 20-meter reach in the forest in Baden-Württemberg. The project consortium, consisting of Hohenloher Spezial-Maschinenbau GmbH (Neu-Kupfer), the German Center for Forest Work and Technology (KWF, Groß-Umstadt), and the Institutes for Human-Machine Interaction (MMI) and Structural Lightweight Design (SLA) at RWTH Aachen University, is now evaluating the data collected during operation for the final report.

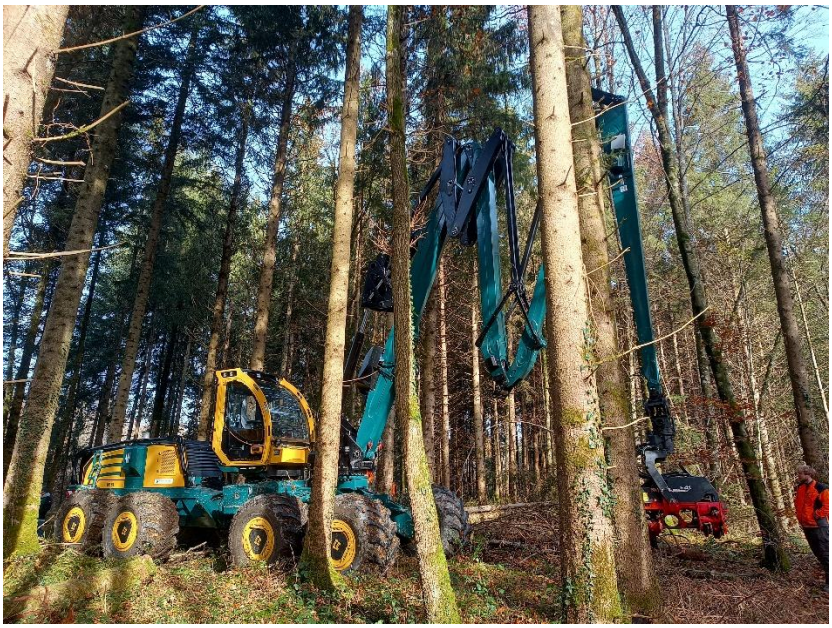
In the Altdorfer Wald forest district near Ravensburg, public corporated ForstBW kindly provided the project with training and test areas where the machine was tested and preliminary performance data subsequently collected using a time study. The Outreach machine is intended to replace the motor-manual feller in the central block, which is inaccessible to standard wheeled harvesters when skid row spacing is extended to 40 meters. The aim is to replace accident-prone manual work and make fully mechanized timber harvesting possible even with skid rows spacing of 40 m.

An HSM 405 H4 with adjustable rims serves as the carrier vehicle. The attached lightweight boom weighs over 4 t, while the head, converted into a felling unit – the feed rollers and their mechanism have been removed – weighs approximately 850 kg. A lighter felling head is under development. The total system weighs about 40 t. Despite the rims adjusted to 3.4 m, the system occasionally reached its stability limits when fully extended at a right angle and pulling a tree. These limits can be extended by using bog tracks or inflating the tires with water.

Strain gauges were attached to the boom to monitor its structural integrity during testing. A specially developed assistance system helps the operator keep track of the felling head's position, even at extended reach, using multiple camera systems and a special computer with real-time image processing. A stereo camera on the felling head captures and displays data like the diameter of the trees in view and their distance from the crane tip, while another camera provides a view into the canopy above the head.

Operator Charly Müllerschön, who trains new customers on HSM harvesters and also helped oversee the project during the development phase, as an exercise first felled several dozen spruce and beech trees with a diameter at breast height (DBH) of up to 45 cm. After the felling cut, the trees are pulled from the stump with the help of a winch mounted at the crane base and attached to the rotator, coordinated with the boom, and pulled within reach of a standard harvester, which then handles delimbing and processing. The only failure encountered during the successful tests was a bent saw blade that needed replacing.

On another test plot, the machine felled and delivered approximately 100 cubic meters of spruce and deciduous trees, with performance data and damage to the remaining stand as well as the soil being recorded. According to an initial evaluation, no significant damage to the soil or stand was caused. Performance data for the entire work system will be evaluated during the remaining project period until December 31, 2025, and will be included in the final report, which is due at the end of March 2026. The project is funded by the Federal Ministry of Agriculture, Food and Regional Identity (BMLEH) through the Agency for Renewable Resources (FNR) (funding reference KWF: 2220NR309D).



Outreach feller-forwarder in the test area. (All photos: KWF)

Outreach machine with boom fully extended and under load.

Outreach machine with extended boom in the forest.

Screen in the cabin of the feller-forwarder informing about the present boom reach.

View into the cabin of the Outreach feller-forwarder with additional screens for operator assistance.

The German Center for Forest Work and Technology (KWF) is the center of expertise for forestry technology and work processes in Germany. The KWF is an institution co-financed by the federal government and the German states, and is responsible for all federal states and types of forest ownership. Including its predecessor institutions, the KWF has over 100 years of experience in practical consulting and applied research. Its work focuses on evaluating forestry technology and work processes from the perspectives of occupational safety, ergonomics, ecology, and economics, in order to achieve optimal conditions for people working in the forest and to preserve and develop our forests. Furthermore, the KWF is the testing institution for forestry technology in Germany. Another key area of its work is the collection, processing, and dissemination of data through professionally qualified and target-group-oriented communication.

Contact data

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