

## Performance of a Small-scale Harvester

---

**Issue:** The National Fire Plan has highlighted the need to address management of overly dense forest stands. Decades of fire exclusion have led to conditions with high volume and stems per acre in small-diameter material. The cost-effectiveness of removing this small-diameter material is very limited. Use of cut-to-length harvesters would be more productive and much safer than manual systems, but their feasibility could be limited by their high capital investment.



**Study Description:** The machine evaluated was a Neuson 11002 HV track-mounted harvester equipped with a LogMax 3000 19.7-inch capacity cutting head. The harvester was powered by a 102-hp Deutz BF4M turbo-diesel engine and can operate on slopes up to 30%. The study site was located in a lodgepole pine stand to be thinned. Initial stand density was approximately 1700 trees/acre and a removal level of about 1500 trees/acre. All live and dead material down to 1.0 inch DBH was removed. The harvester was videotaped while working in two study plots that measured 0.05 acres each. Within each plot trees were measured for DBH, height to live crown, and total height. Harvested trees were merchandized into a variety of products that included 6.5-ft. and 8-ft. fence posts, 8-ft. fence stays, 13-ft. large and small corral rails, and 16-ft. corral rails.

**Status:** Data were collected during August 2001 and summarized in October 2001. Two papers have been written which will be published in 2002. On average, the harvester merchandized 73 trees/PMH. Mean productivity was 3.84 tons/PMH for a mean DBH of 4.43 inches and a mean total height of 38-ft. The harvester is competitive while working in material 4 inches DBH and higher.

### Benefits:

- *Determine lower tree diameter limits for efficient operation*
- *Determine hourly and unit costs for harvesting small-diameter material*
- *Provide valuable information to National Forests for Stewardship program*

**Cooperators:** USDA Forest Service, Medicine Bow-Routt NF – Region 2, Blondin Inc., and Jack Timmer Logging.

**Contacts:** Dr. Bob Rummer or John Klepac, USDA Forest Service

---

