

ECONOMIC ANALYSES OF WOODY BIOMASS HARVESTING IN THE MISSOURI OZARKS

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SUSTAINABLE WOOD ENERGY PROJECTS

- ✘ Economically viable
- ✘ Ecologically sound
- ✘ Socially acceptable

ECONOMICALLY VIABLE

- ✘ Three studies
 - + EOFC / MDC (2005)
 - + MFPA / Auburn (2008)
 - + MU / MDC (2009)

EOFC THINNING TRIAL

- ✘ In cooperation with MDC
 - + Coldwater Conservation Area (Wayne County)
- ✘ Three harvesting systems
- ✘ Integrated harvest
 - + Poles (transported as roundwood)
 - + Sawtimber (transported as roundwood)

CHAINSAW - SKIDDER



CRAWLER - HOTSAW



HARVESTER - FORWARDER



RESULTS

- ✘ Approximate production \$ per ton
 - + Chainsaw/skidder \$23 avg (\$20-28)
 - + Crawler/hotsaw \$38
 - + Harvester/forwarder \$20 avg (\$17-23)
- ✘ Harvest/Extract/Yard
 - + Does not include processing (chipping) or transportation to sawmill or energy plant
- ✘ *Becker, P., Jensen, J. and Meinert, D. 2006. Conventional and mechanized logging compared for Ozark hardwood forest thinning: Productivity, economics and environmental impact. NJAF 23(4):264-272.*

MFPA BIOMASS TRIAL

- ✘ In cooperation with Auburn Univ and USFS
 - + Poplar Bluff Ranger District (Wayne and Butler Co.)
- ✘ One harvesting system
- ✘ Two-pass harvest
 - + Sawtimber (not part of this study)
 - + Biomass (processed on site, transported as chips)

SMALL-SCALE FELLER-BUNCHER



SMALL-SCALE SKIDDER / CHIPPER



RESULTS

- ✘ Approximate production cost: \$17-18 per ton
 - + Increased efficiencies could drop cost to \$12-13
- ✘ Harvest/Extract/Process
 - + Does not include transportation to energy plant

MU BIOMASS HARVEST

- ✘ In cooperation with MDC
 - + University Forest Conservation Area (Butler County)
- ✘ One harvesting system
- ✘ Integrated harvest
 - + Sawtimber (transported as roundwood)
 - + Biomass (processed on site, transported as chips)

LARGE-SCALE FELLER-BUNCHER



PROCESSING



RESULTS

- ✘ Approximate production cost per ton:
 - + Biomass: \$22-23
 - ✘ 32% labor
 - ✘ 26% chipper
 - ✘ 16% feller-buncher
 - ✘ 15% skidder
 - ✘ 11% loader
 - + Sawtimber: \$12-13
- ✘ Harvest/Extract/Process
 - + Does not include transportation to sawmill or energy plant

SUMMARY

- ✘ Production costs: \$17-23 per ton
- ✘ Transportation costs: \$3-4 per ton
 - + 25 tons, 50 mi, \$1.50-2.00 loaded mile
- ✘ Stumpage?
 - + Value-added product or reduced management cost?
- ✘ Profit?

THE REST OF THE STORY...

ECOLOGICALLY SOUND



ECOLOGICALLY SOUND



ECOLOGICALLY SOUND



SOCIALLY ACCEPTABLE





Thank You!