

RESPONSE OF JACK PINE TO PRE-COMMERCIAL THINNING: PRELIMINARY META-ANALYSIS RESULTS

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SUMMARY

Historically, quantitative yield responses of jack pine (*Pinus banksiana* Lamb.) to pre-commercial thinning (PCT) have been documented in numerous individual case studies within the scientific literature. However, there has not been a systematic attempt to evaluate these responses on a collective basis. Thus the objective of this study was to synthesize the results of these individual case studies via meta-analysis in order to derive general inferences regarding yield responses. The scope of this analysis was restricted to evaluating responses in terms of mean tree size and merchantable volume production. Analytically, 4 basic steps were involved. The first step consisted of systematically keyword-searching the following electronic databases for relevant PCT studies: (1) WebSPIRS Database (©1997-2000 SilverPlatter Information N.V.); (2) Canadian Forest Service (CFS) Library Network via the Metafore portal (Natural Resources Canada (NRCan)); (3) Science Direct Database (Elsevier Science B.V.); and (4) World Wide Web via a general Internet search employing the Google search engine (©2001 Google Inc. CA, USA). The maximum temporal coverage of these searches was approximately 71 years (1930-2001) and included consideration of all publications irrespective of language. The second step consisted of assessing the resultant publications for their specific applicability in terms of treatments and yield parameters assessed. The third step consisted of deriving and subsequently calculating effect sizes (response ratio) for quadratic mean diameter and merchantable volume. The fourth step consisted of quantifying the relationship between each response ratio and mean dominant height at the time of PCT, change in mean dominant height since PCT, and post-PCT spacing via multiple regression analysis. Specifically, a fixed-effect unweighted multiple regression meta-analysis approach was utilized given the (1) number of potential covariates effecting the response ratios, and (2) lack of replicated experimental designs within the literature which negated the calculation of study-specific variance estimates. Explicit results are presented within the poster presentation including management inferences and suggested recommendations relating to PCT in jack pine. For a complete description of the meta-analytical procedures utilized including the searching protocol used, studies and associated data sets employed, additional computations, resultant inferences, management recommendations, study limitations

and applicable references, refer to Newton and Charlebois (2002; Response of jack pine to pre-commercial thinning: meta-analysis results. Forest Ecology and Management: in preparation).

BIOSKETCH

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