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Abstracts

em cinco espaçamentos na idade de 8 anos. O experimento foi desenvolvido na Estação Experimental do Instituto Agronômico de Pernambuco (IPA) em Araripina que apresenta uma temperatura média anual de 25 °C e precipitação média anual é de aproximadamente 750 mm, com concentração de 70% entre os meses de dezembro a março. Durante o período experimental a precipitação média anual foi 529.4 mm, concentrada nos meses de janeiro a abril, o que configura uma mudança temporal severa e faz dessa década uma das mais secas da história. A taxa de sobrevivência média do experimento foi de 90%, constatando-se diferenças significativas entre os clones, sendo o C11 no espaçamento 3 m x 3 m o que apresentou maior taxa de sobrevivência 98.40%. Pelo teste de Scott-Knott ($p < 0.05$) os tratamentos foram divididos em três grupos sendo o espaçamento 2 m x 1 m o que apresentou as menores taxas de sobrevivência. Mesmo em condições climáticas severas os clones de eucaliptos conseguem se desenvolver e apresentam baixo índice de mortalidade.

C1u: MIXED-SPECIES FORESTS AND PLANTATIONS: KNOWLEDGE GAPS AND RESEARCH PRIORITIES

Mixed settlements of *eucalyptus* and acacia in transition area between Brazilian Savana (Cerrado) and Amazon Forest biomes

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The adoption of mixed planting with eucalyptus and legume tree espcie - able to fix nitrogen, is a sustainable alternative to provide nitrogen to the *eucalyptus*. Our objective was to evaluate if the mixed planting of eucalyptus and acacia yields basal area equivalent to homogeneous eucalyptus planting. The treatments evaluated were: *Eucalyptus* (E, clone I144 - *E. urophylla* x *E. grandis*) with and without nitrogen fertilization (0A: 100E + N e 0A: 100E-N), acacia (A, *Acacia mangium*) (100A: 0E), acacia and eucalypt ratio 1:2 (33A: 67E) and 1:1 (50A: 50E). Randomized blocks design (RBD) was used, with four replicates and plot with 1,296 m² (12 x 12 trees) and 576 m² of useful area (double surround, with spacing 3 x 3 m). The trees were measured at three years of age by circumference at brest height (CBH) and basal area (BA, $m^2\ ha^{-1}$). BA was different among treatments ($p < 0.000$), the higher was in homogeneous acacia planting (14.5 $m^2\ ha^{-1}$). The mixed planting was no different from the eucalyptus homogeneous fertilized with N ($p > 0.35$, in both acacia represented 60% and 84% of the BA for 1:2 and 1:1 ratio between eucalyptus and acacia. The interspecific competition was positive for acacia and negative for eucalyptus.

Developing founding forest species in a disturbed area within the city of Rio Branco, Acre, Brazil, after three decades of age / *Desenvolvimento de essências florestais plantadas em uma área alterada na cidade de Rio Branco-Acre após três décadas de idade*

Harley Araújo da Silva[1], Veronica Telma da Rocha Passos[1], Thiago Augusto da Cunha[2]
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Poucas são as experiências de plantios florestais na Amazônia com idade avançada e que reúnam grande número de espécies arbóreas, como é o caso do Experimento Arboreto, localizado no Parque Zoobotânico da Universidade Federal do Acre. Nesse caso, em duas áreas de 1,38 ha cada, foram plantados indivíduos de 138 espécies diferentes no espaçamento de 2,5 m x 2,5 m, sendo a roçagem e coroamento os únicos tratamentos silviculturais aplicados. Buscando saber o estado atual das espécies, trinta e cinco anos após o plantio foi realizado o censo dos indivíduos plantados, bem como mensuração de variáveis dendrométricas como o diâmetro à altura do peito (DAP) e a altura total (Ht). Das espécies plantadas, 59 apresentam indivíduos vivos merecendo destaque a palmeira *Syagrus sancona* e *Handroanthus serratifolius* por apresentarem sobrevivência acima de 75%. Espécies como *Annona montana*, *Aspidosperma vargasii*, *Ceiba samauma*, *Couepia bracteosa*, *Dalbergia inundata*, *Hymenaea courbaril*, *Hymenaea parvifolia* e *Simira rubescens* apresentaram taxas regulares de sobrevivência, variando entre 50% e 69%. Essências comumente usadas pelo mercado madeireiro como *Aspidosperma vargasii*, *Cedrela odorata*, *Dipteryx odorata*, *Hymenaea courbaril* e *Hymenaea parvifolia* se destacaram perante as demais por apresentarem médias de DAP com valores variando entre 26 cm e 31 cm, e Ht entre 17 m e 19 m. A importância desse trabalho reside na necessidade de, passados 35 anos do plantio, se determinar quais espécies melhor se adaptaram em uma área onde foram aplicados os tratos silviculturais mais básicos ao pleno desenvolvimento das mudas.

Integrating the intra- and inter-species-groups competition effects into an individual diameter at breast height growth model for mixed-species forests in Mexico

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The forest management-planning in Northwest of Durango, Mexico involve mixed-species stands and the selection method is normally applied for uneven-aged stands in such forests. An individual distance-dependent model without age was used to evaluated the diameter at breast height (dbh) growth and neighborhood effects for four species groups in mixed-species stands. The dataset considers 44 stem-mapped re-measurement plots and twenty-two species were grouped as: *Pinus* (seven species), other conifers (three species), other broadleaves (four species) and *Quercus* (eight species). Four methods were used to select neighboring trees, 12 distance-dependent competition indices were computed, and the con-group and hetero-group neighborhood effect were carried out for species groups. The dbh growth model was fitted separately under the assumptions of no-competition effect (without competition term), equivalent and nonequivalent neighborhood effects. The dbh growth models under the assumption of nonequivalent neighborhood effect outperformed the models under the assumptions of equivalent neighborhood effect and without competition effect. The intra-species-group competition negatively affect the diameter growth for all species groups, except for the Quercus group. In all cases, the fitted age-independent dbh growth models showed a good of fit to the stem-mapped plots data with adjusted coefficient of determination values larger than 0.97 and root mean square error values smaller than 1.33 cm. The growth models can be used to predict the dbh growth for the species groups in mixed-species forests.