

SIMANF{R}

Model for *Pinus nigra* Cataluña (Spain)

Model

Pnigra_cat_v01

Model description

- Specie: *Pinus nigra* J.F.Arnold
- Spanish Forest Inventory (SFI) code: 25
- Geographical area: Cataluña
- Geographical area (administrative): Gerona, Lleida, Barcelona and Tarragona

Model type

- Category: growth
- Model level: distance independent individual tree model
- Reproduction methods: seedling forest
- Stand structure: even-aged stands
- Species composition: monospecific stands
- Forest origin: natural

Model requirements and recommended use

- Initial inventory requirements: age and dominant height of the plot; expan and dbh of the trees. Aspect, slope and altitude are variables needed in order to calculate mushroom variables
- Geographical area: Cataluña, closer places and another places with similar characteristics (assuming differences)
- Stand type: monospecific stands
- Execution recommended time: 5 years executions (survival, growth and ingrowth equations developed by using that criteria)
- Site Index is defined as top height at a base age of 60 years



Figure 1: *Pinus nigra*



Figure 2: Details of *Pinus nigra*

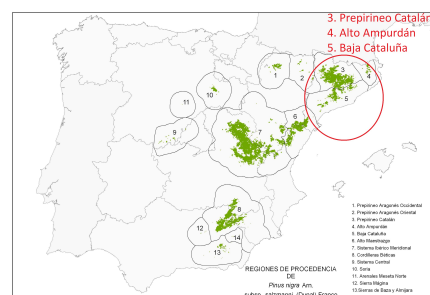


Figure 3: Provenance regions of *Pinus nigra* in Spain

Bibliography

Complete SIMANFOR model recommended citation):

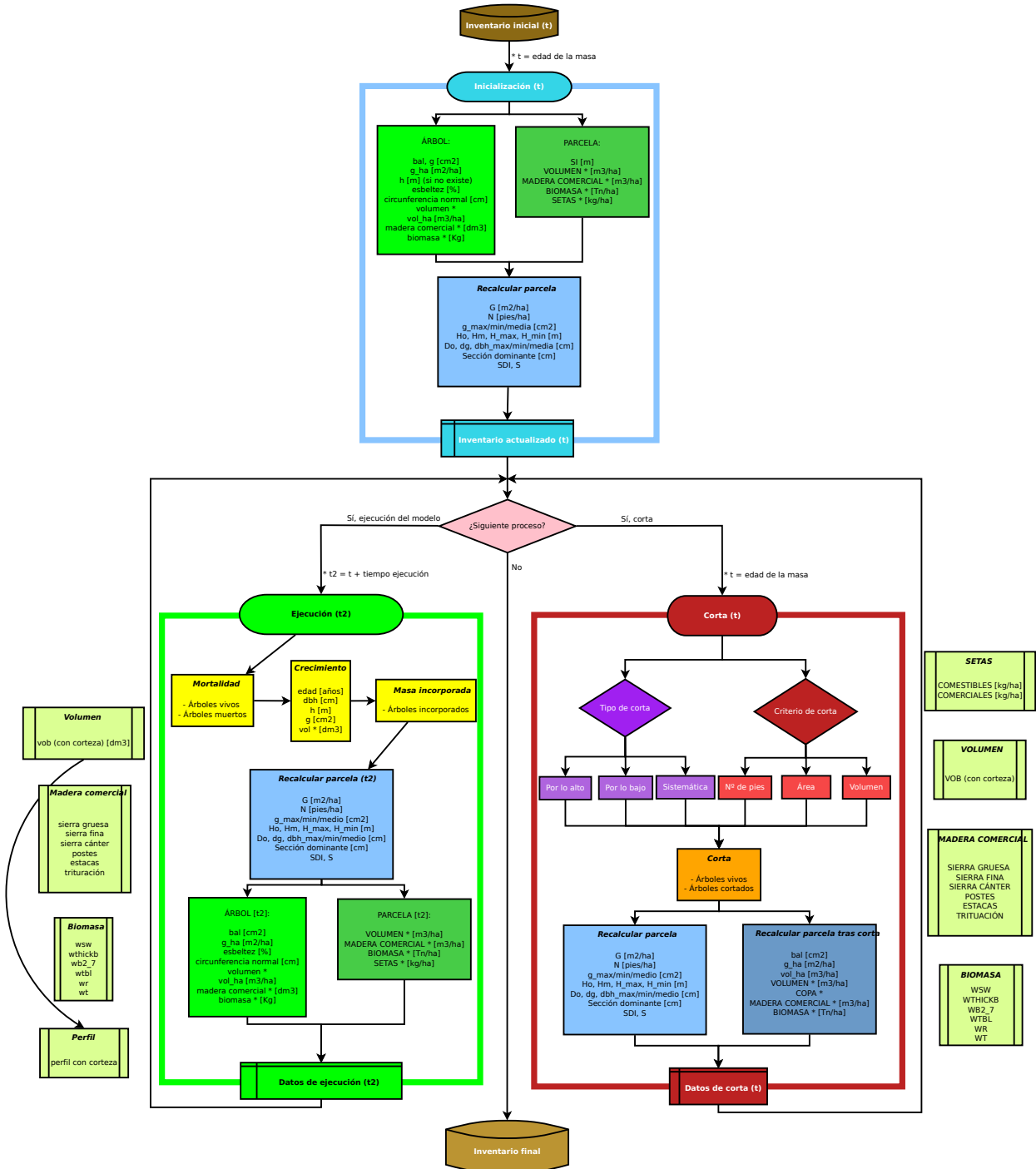
SIMANFOR (2022). Individual tree growth model independent from distance for black pine (*Pinus nigra*) in Cataluña (Spain).

Model components:

- **Site Index equations:**
Palahí M, Grau JM (2003). Preliminary site index model and individual-tree growth and mortality models for black pine (*Pinus nigra* Arn.) in Catalonia (Spain). *Forest Systems*, 12(1), 137-148
- **Survival equation:**
Palahí M, Grau JM (2003). Preliminary site index model and individual-tree growth and mortality models for black pine (*Pinus nigra* Arn.) in Catalonia (Spain). *Forest Systems*, 12(1), 137-148
- **Diameter growth equation:**
Palahí M, Grau JM (2003). Preliminary site index model and individual-tree growth and mortality models for black pine (*Pinus nigra* Arn.) in Catalonia (Spain). *Forest Systems*, 12(1), 137-148
- **Ingrowth and distribution equation:**
Trasobares, A., Pukkala, T., Miina, J. (2004). Growth and yield model for uneven-aged mixtures of *Pinus sylvestris* L. and *Pinus nigra* Arn. in Catalonia, north-east Spain. *Annals of forest science*, 61(1), 9-24.
- **General calculations: bal, g, slenderness, normal circumference:**
Standard equations
- **Generalized height-diameter equation:**
Palahí M, Grau JM (2003). Preliminary site index model and individual-tree growth and mortality models for black pine (*Pinus nigra* Arn.) in Catalonia (Spain). *Forest Systems*, 12(1), 137-148
- **Taper equations over bark (volume):**
Rodríguez F, Lizarralde I (2015). Comparison of stem taper equations for eight major tree species in the Spanish Plateau. *Forest systems*, 24(3), 2
- **Biomass equations:**
Ruiz-Peinado R, del Río M, Montero G (2011). New models for estimating the carbon sink capacity of Spanish softwood species. *Forest Systems*, 20(1), 176-188
- **Technological wood uses information:**
Rodríguez F (2009). Cuantificación de productos forestales en la planificación forestal: Análisis de casos con cubiFOR. In *Congresos Forestales*
- **Value for Reineke Index equation:**
Aguirre A, Condés S, del Río M (2017) Variación de las líneas de máxima densidad de las principales especies de pino a lo largo del gradiente estacional de la Península Ibérica. 7 Congreso Forestal Español
- **Edible and marketed mushrooms equations:**
Palahí M, Pukkala T, Bonet JA, Colinas C, Fischer CR, Martínez de Aragón JR (2009). Effect of the inclusion of mushroom values on the optimal management of even-aged pine stands of Catalonia. *Forest Science*, 55(6), 503-511

Figures:

- **Figure 1:** by Myrabella, licensed under CC BY-SA 4.0
- **Figure 2:** by <https://antropocene.it>
- **Figure 3:** extracted from MAPA



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Interest Links

SIMANFOR - Support system for simulating Sustainable Forest Management Alternatives. Accessed 11 May 2021, in <https://www.simanfor.es/>

iuFOR - Sustainable Forest Management Research Institute UVa-INIA. Accessed 11 May 2021, in <http://sostenible.palencia.uva.es/>

ETSIIAA Palencia - Higher Technical School of Agricultural Engineering of Palencia. Accessed 11 May 2021, in <http://etsiiaa.uva.es/>

UVa - University of Valladolid. Accessed 11 May 2021, in <https://www.uva.es>

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