**MODELAÇÃO DOS RECURSOS FLORESTAIS 2019/20**

***FOREST MODELS 2019/20***

***Continuous evaluation – Topic 4.1***

***Fitting Families of Growth Curves***

10. Use the growth data from permanent plots of eucalyptus (file [4\_GrowthFunctions\_2019-2020\_Help.pdf](https://fenix.isa.ulisboa.pt/downloadFile/281547991158392/4_GrowthFunctions_2019-2020_Help.pdf) available at

<https://fenix.isa.ulisboa.pt/courses/mrf-0-283463546569514/powerpoints> and:

a. Plot the evolution of dominant height for the different plots

b. use the solver function from EXCEL to fit the Lundqvist function to the data and plot the estimated values together with the original data

c. estimate de site index (S) for each plot and fit the Lundqvist function with the A parameter expressed as a linear function of the site index and plot the estimated values together with the original data

d. use the solver function from EXCEL to fit the difference equation derived from Lundqvist function with k as the free parameter and plot the estimated values together with the original data

e. Compare the results looking at the residual sum of squares obtained with the 3 methods used

f. similar to c. but with the A parameter expressed as a linear function of both the site index and Stand density. Plot the estimated values together with the original data.

For any questions check the pdf file presented in class: [4\_GrowthFunctions\_2019-2020\_Help.pdf](https://fenix.isa.ulisboa.pt/downloadFile/281547991158392/4_GrowthFunctions_2019-2020_Help.pdf) available at the course webpage: <https://fenix.isa.ulisboa.pt/courses/mrf-0-283463546569514/powerpoints>