

# Breeding wood quality: looking for early bloomers

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Luis A. Apiolaza, School of Forestry, University of Canterbury

Plantation forestry is under strong competition



Domestically from more profitable land uses; dairy, for example.

Photo by pascalk, Flickr.

# Plantation forestry is under strong competition

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Internationally from more profitable forest operations; eucalypts, for example.

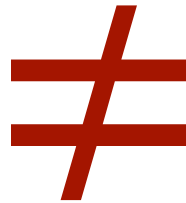
Photo by Corey Holmes, Flickr.



# Tree breeding's recipe

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What we  
select for  
(criteria)



What we  
breed for  
(objective)

NIRA  
weighted density  
dbh form

early selection

age-age  
correlations  
→

branch index  
weighted stiffness  
volume form

rotation age

**Implicit assumption:**

It works for growth...so it should for wood quality.

However, intrinsic wood quality has changed very little during the last 50 years.

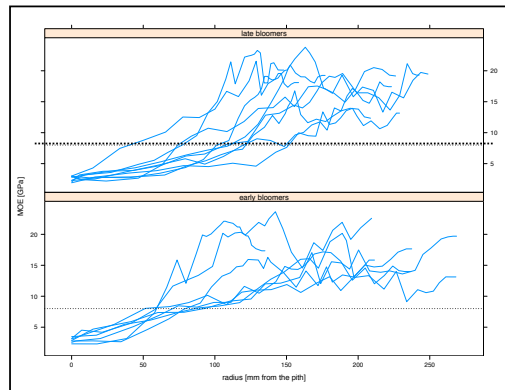


We have explanations for everything, even when we claim we don't. I call explanations pacifiers\*, to stop asking questions —  
*Humberto Maturana*

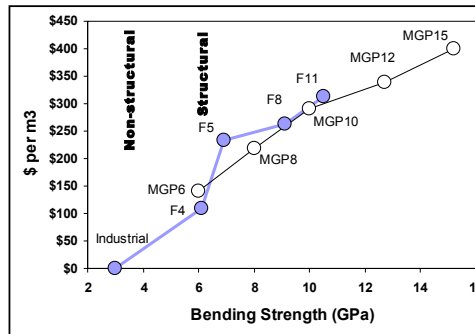
\*[UK, AU, NZ] dummy

# Features to exploit about wood quality

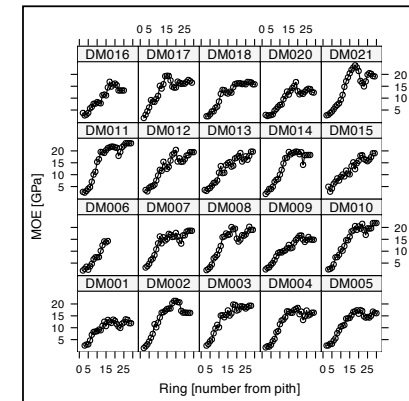
## Technical thresholds



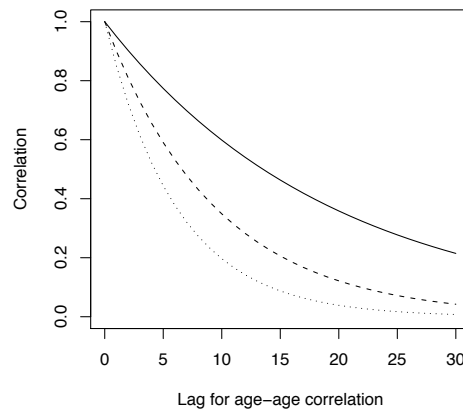
## Price and quantity



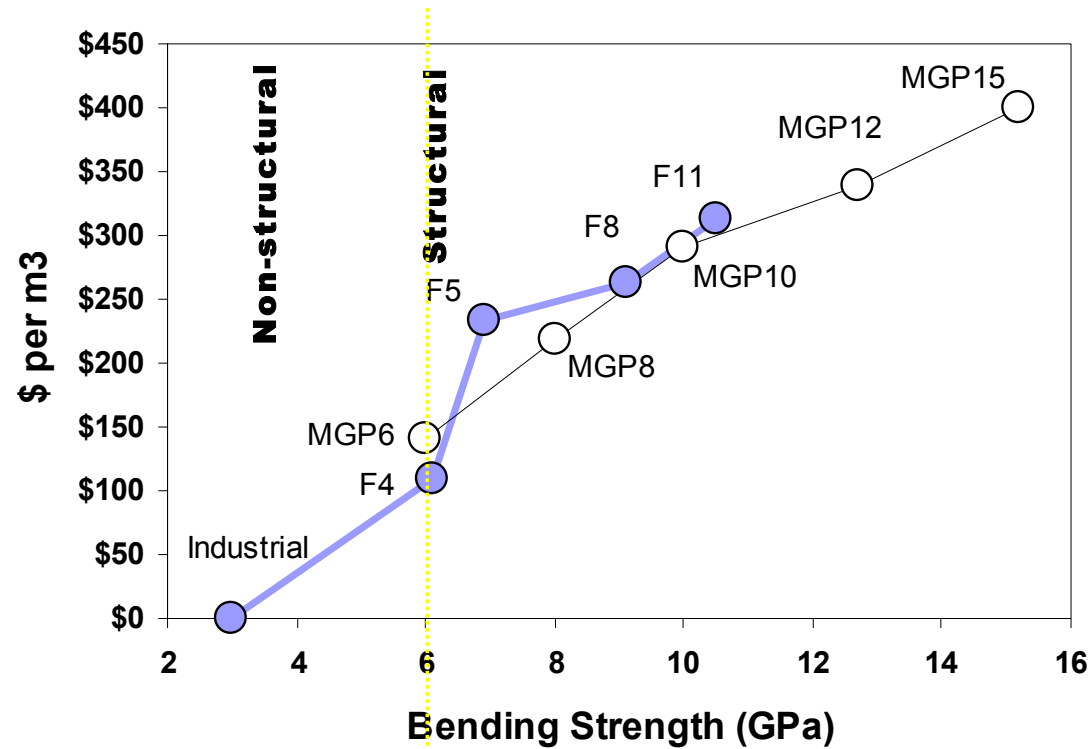
## Time trends



## Autoregressive



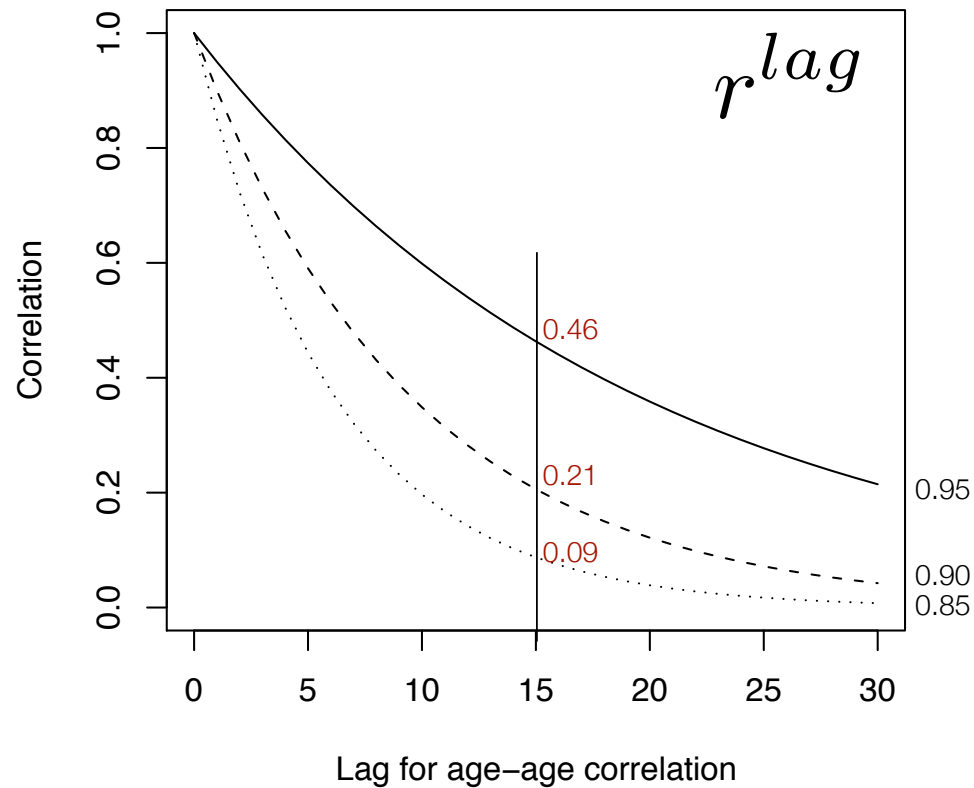
# Value: not all changes are worth the same



- 1. Real value jump
- 2. Lots (!) of wood here

# Assessment methods induce autocorrelation

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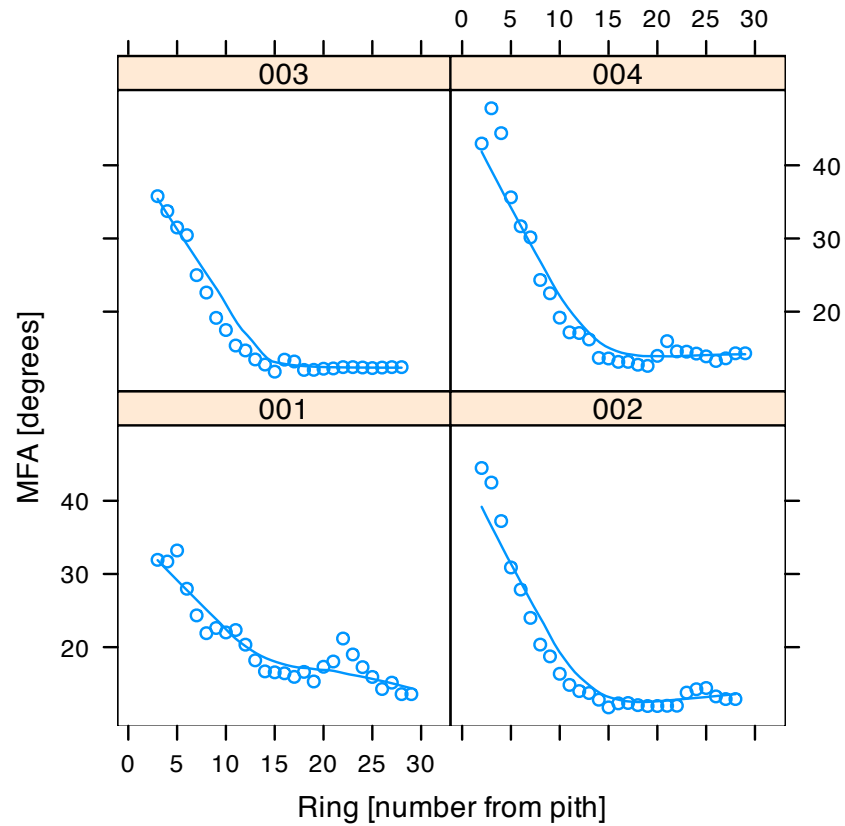


Predicting rotation age performance is **hopeless** unless we have very high (>0.9) autocorrelation

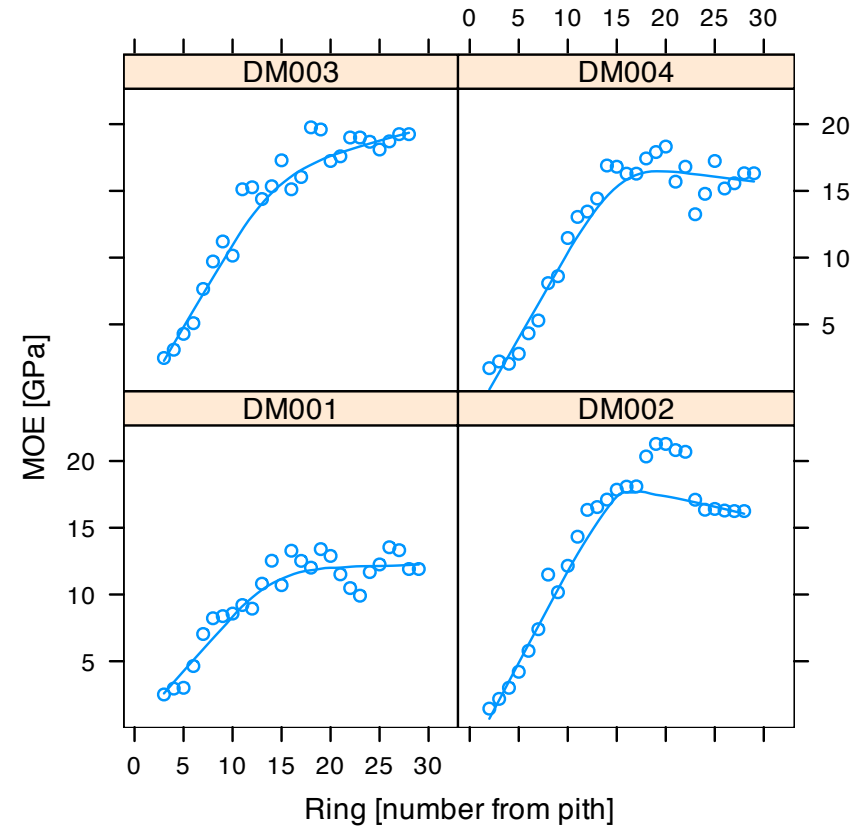


# Time trends and technical thresholds

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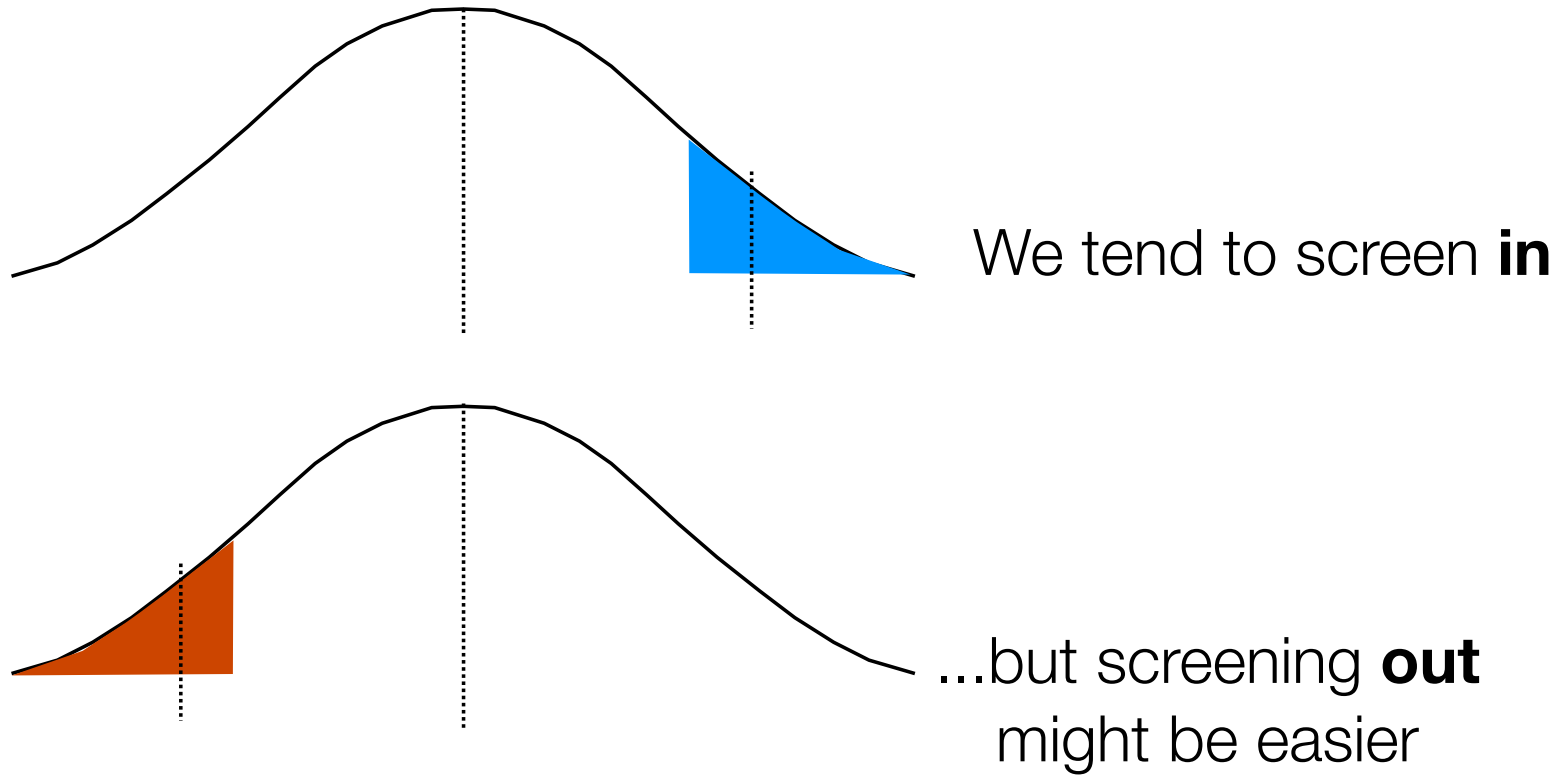
Threshold: 30°



Threshold: 8 GPa

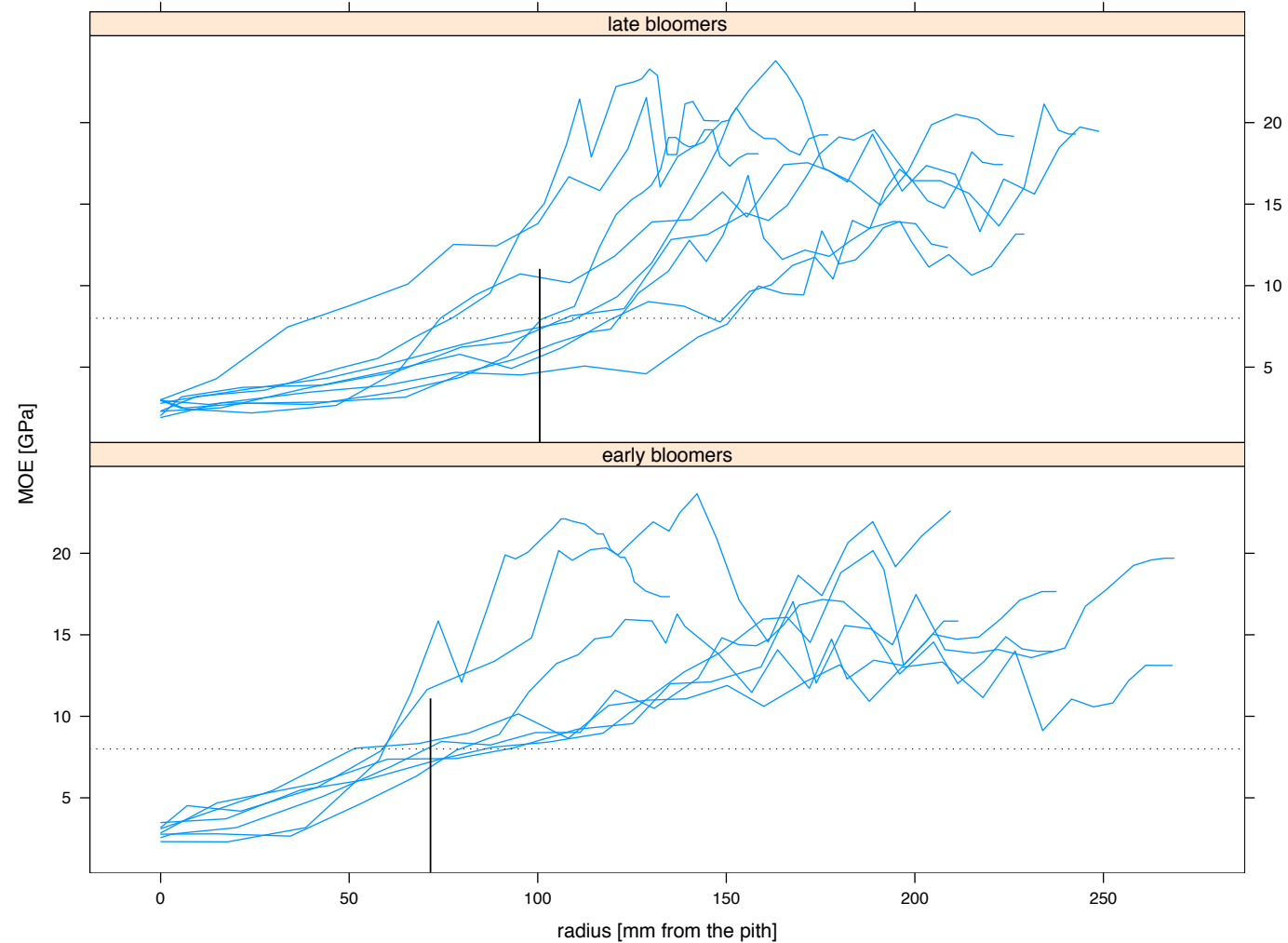
# More than one way for changing the average

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Is 'good enough' good enough? or  
Would this work?

# Variability: there is plenty of room for selection



What about genetic control?

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*h<sup>2</sup> CV*

0.45

14%

In summary, we are...

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ignoring 'rotation age'

using small lags for age-age correlations

going for very early selection (<4 years)

how early do we meet the threshold?

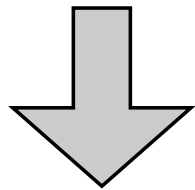
screening out the worst material

proposing to use simple tools with moderate resolution

In summary, the best  
is enemy of the good

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breeding for the best  
possible quality



breeding for early  
expression  
of acceptable quality



Every sentence I utter must be understood not as an affirmation but as a question — *Niels Bohr*

Thanks

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