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LIA FORESTIA web seminars round 2021 #6

EULOGY OF FAST GROWTH... UP TO WHAT COSTS? A PRELIMINARY RECOGNITION BEFORE A STUDY OF TRADE-OFFS OF GROWTH HETEROSIS IN HYBRID I ARCH.



Breeding and selection for growth has been a main target worldwide since breeding programmes have been initiated in the late fifties. Significant genetic gains have been achieved in most commercial forest tree species with visible impact in the development of the wood industry. Although additional traits related to stem architecture and wood traits - and in some species pests and diseases resistance- have been progressively considered, increase of productivity remains so far, a main driver of tree improvement.

However, the many threats linked to climate changes may deeply shove the 'wood production breeding paradigm'. Indeed, several signs from forest managers and from scientists in the literature show a shift in concerns with recommendations of planting instead slow growing species to better cope with climate changes. Their belief is that fast growing species might be less tolerant for example to drought than slow growing species.

For a breeder of one of the faster growing conifers in temperate climate (Larix sp), manipulating one of the most powerful breeding strategies (interspecific hybridisation) to enhance growth (heterosis), this evolution of priorities is clearly a source of many questionings.

As a non-expert, we intend as a first step to gather relevant information on trade-offs in plants and trees in particular, which echo with an experimentation we have been conducting since 2013. This experimentation aims to better understand how hybrid vigour in Larix x eurolepis arises, which traits (structural and functional) make the hybrid different from its parents and finally what is the cost of this over-expression of vigour.

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