1. Record Nr. UNINA9910141686103321

Titolo	Cellular aspects of wood formation / / Jorg Fromm, editor
Pubbl/distr/stampa	Berlin ; ; New York, : Springer, c2013
ISBN	3-642-36491-8
Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (260 p.)
Collana	Plant cell monographs, , 1861-1370 ; ; v.20
Altri autori (Persone)	FrommJorg
Disciplina	582.16
Soggetti	Trees - Growth Trees - Molecular aspects Wood
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I: Basic Processes of Wood Formation -- Xylem Development in Trees: From Cambial Divisions to Mature Wood Cells -- Topochemical and Electron Microscopic Analyses on the Lignification of Individual Cell Wall Layers During Wood Formation and Secondary Changes -- New Insights into Heartwood and Heartwood Formation -- Part II: Control of Wood Formation by Endogenous and Exogenous Factors -- The Role of Hormones in Controlling Vascular Differentiation -- Transcriptional Regulation of Wood Formation in Tree Species -- Climate Control of Wood Formation -- Wood Formation Under Drought Stress and Salinity -- Biology and Chemistry of Tension Wood -- Formation and Structure of Compression Wood.
Sommario/riassunto	With today’s ever growing economic and ecological problems, wood as a raw material takes on increasing significance as the most important renewable source of energy and as industrial feedstock for numerous products. Its chemical and anatomical structure and the excellent properties that result allow wood to be processed into the most diverse products; from logs to furniture and veneers, and from wood chippings to wooden composites and paper. The aim of this book is to review advances in research on the cellular aspects of cambial growth and wood formation in trees over recent decades. The book is divided into two major parts. The first part covers the basic process of wood biosynthesis, focusing on five major steps that are involved in this

process: cell division, cell expansion, secondary cell wall formation, programmed cell death and heartwood formation. The second part of the book deals with the regulation of wood formation by endogenous and exogenous factors. On the endogenous level the emphasis is placed on two aspects: control of wood formation by phytohormones and by molecular mechanisms. Apart from endogenous factors, various exogenous effects (such as climate factors) are involved in wood formation. Due to modern microscopic as well as molecular techniques, the understanding of wood formation has progressed significantly over the last decade. Emphasizing the cellular aspects, this book first gives an overview of the basic process of wood formation, before it focuses on factors involved in the regulation of this process. .