

Plants And Society Levetin Free

This introductory text focuses on how humans interact with plants. The topics covered include: botanical principles; commercial products derived from plants; plants and human health; fungi; and plants and the environment.

The fascinating account of a pioneering ethnobotanist's travels in the Amazon—at once a gripping adventure story, a passionate argument for conservationism, and an investigation into the healing power of plants, by the author of *The Amazon: What Everyone Needs to Know* For thousands of years, healers have used plants to cure illness. Aspirin, the world's most widely used drug, is based on compounds originally extracted from the bark of a willow tree, and more than a quarter of medicines found on pharmacy shelves contain plant compounds. Now Western medicine, faced with health crises such as AIDS, Alzheimer's disease, and cancer, has begun to look to the healing plants used by indigenous peoples to develop powerful new medicines. Nowhere is the search more promising than in the Amazon, the world's largest tropical forest, home to a quarter of all botanical species on this planet—as well as hundreds of Indian tribes whose medicinal plants have never been studied by Western scientists. In *Tales of a Shaman's Apprentice*, ethnobotanist Mark J. Plotkin recounts his travels and studies with some of the most powerful Amazonian shamans, who taught him the plant lore their tribes have spent thousands of years gleaning from the rain forest. For more than a decade, Dr. Plotkin raced against time to harvest and record new plants before the rain forests' fragile ecosystems succumb to overdevelopment—and before the Indians abandon their own culture and learning for the seductive appeal of Western material culture. *Tales of a Shaman's Apprentice* relates nine of the author's quests, taking the reader along on a wild odyssey as he participates in healing rituals; discovers the secret of curare, the lethal arrow poison that kills in minutes; tries the hallucinogenic snuff *epena* that enables the Indians to speak with their spirit world; and earns the respect and fellowship of the mysterious shamans as he proves that he shares both their endurance and their reverence for the rain forest.

"This new edition of the universally acclaimed and widely used textbook on fungal biology has been completely rewritten, drawing directly on the authors' research and teaching experience. The text takes account of the rapid and exciting progress that has been made in the taxonomy, cell and molecular biology, biochemistry, pathology and ecology of the fungi. Features of taxonomic significance are integrated with natural functions, including their relevance to human affairs."--BOOK JACKET.

Our intention with this book was to present the reader with the most accurate, significant, and up-to-date background and knowledge in the areas of ethnomedicinal and nutraceutical vegetation for the Lesser Himalayas in a comprehensive text. *Wild Edible Vegetables of Lesser Himalayas* provides a complete review of over 50 important plants of this region and details each species including photographs, botanical name, local name, family, flowering and fruiting period, status and habitat, parts used, distribution, ethnobotanical uses, cultural aspects, medicinal uses, and nutraceutical aspects. Medicinal uses include mode of preparation, method of application and diseases studied; cultural aspects and index; nutraceutical data provides analysis of fats, proteins, fibers, carbohydrates, ash, moisture content, dry matter, and energy value; elemental analysis includes various essential and toxic metals; phytochemical screening includes total phenolics, flavonoids, flavonols and ascorbic acid, and antioxidant potential in terms of DPPH scavenging activity, hydroxyl radical scavenging activity, H₂O₂ scavenging activity, Fe²⁺ chelating activity, ferric reducing antioxidant power, and phosphomolybdenum assay for each species. *Wild Edible Vegetables of Lesser Himalayas* is a concise and handy guide for scientists, scholars, and students interested in the study of agriculture, food science, nutraceutical science, bioscience, biodiversity, applied ethnobotany, ethnoecology, and ecology.

Science education is experiencing a revitalization, as it is recognized that science should be accessible to everyone, not just society's future scientists. One way to make the study of science more substantive to the non-major is to require a laboratory component for all science courses. The subject of applied botany with its emphasis on the practical aspects of plant science, the authors believe, will be appealing to the non-major as it exemplifies how a basic science can be applied to problem solving. *Laboratory Manual for Applied Botany* will make students realize that the study of plants is relevant to their lives and that they can participate in the discovery process of science. Although the manual includes much of the basic plant anatomy found in standard botany manuals, it differs in taking a practical approach, examining those plants and plant products that have sustained or affected human society.

Biodiversity and Human Health brings together leading thinkers on the global environment and biomedicine to explore the human health consequences of the loss of biological diversity.

The *Climate Change 2007* volumes of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) provide the most comprehensive and balanced assessment of climate change available. This IPCC Working Group II volume provides a completely up-to-date scientific assessment of the impacts of climate change, the vulnerability of natural and human environments, and the potential for response through adaptation. Written by the world's leading experts, the IPCC volumes will again prove to be invaluable for researchers, students, and policymakers, and will form the standard reference works for policy decisions for government and industry worldwide.

Species, formae speciales, and strains. Predisposing and age-conditioned influences on susceptibility. Sporulation. Infection. The biotic and physiological components of pathogenesis. Survival and overseasoning. Dispersal. The effect of weather on epidemics. Forecasters, simulators, and control. Crop and yield losses. Resistance and breeding. *Alternaria* pathogens and diseases. The hypothesis of ecological and physiological affinities between pathogenic *alternarias*.

This book surveys the world's green plant diversity, from green algae through flowering plants, in a taxonomic and evolutionary context.

Written for the introductory course for non-science majors, *Plants & People* outlines the practical, economical, and environmental aspects of how plants interact with human beings and the earth. The book begins with an introduction to the fundamental concepts of plant biology, followed by sections focused on the global issues related to plants and their connection to global warming, deforestation, and biogeography. It continues by examining how plants influence our daily lives, from food and drink to clothing and medicinal usage. The text encourages readers to have a continued interest in plants in our society and to consider how our actions play a role in their existence.

This is the first book to summarize all aspects of allergenic pollen: production, atmospheric distribution, and health impacts, as well as the means of monitoring and forecasting these phenomena. Based on a four-year effort by a large group of leading European scientists, this book highlights the new developments in research on allergenic pollen, including the modelling prospects and effects of climate change. The multidisciplinary team of authors offers insights into the latest technology of detection of pollen and its allergenic properties, forecasting methods, and the influence of allergenic pollen on the population. The comprehensive coverage in this book makes it an indispensable volume for anyone dealing with allergenic pollen worldwide. Readers involved in environmental health, aerobiology, medicine, and plant science will find this book of interest.

"Urban Climate Change Research Network, Center for Climate Systems Research, Earth Institute, Columbia University."

This introductory, one quarter/one-semester text takes a multidisciplinary approach to studying the relationship between plants and people. The authors strive to stimulate interest in plant science and encourage students to further their studies in botany. Also, by exposing students to society's historical connection to plants, Levetin and McMahon hope to instill a greater appreciation for the

botanical world. *Plants and Society* covers basic principles of botany with strong emphasis on the economic aspects and social implications of plants and fungi.

A plant anatomy textbook unlike any other on the market today. Carol A. Peterson described the first edition as 'the best book on the subject of plant anatomy since the texts of Esau'. Traditional plant anatomy texts include primarily descriptive aspects of structure, this book not only provides a comprehensive coverage of plant structure, but also introduces aspects of the mechanisms of development, especially the genetic and hormonal controls, and the roles of plasmodesmata and the cytoskeleton. The evolution of plant structure and the relationship between structure and function are also discussed throughout. Includes extensive bibliographies at the end of each chapter. It provides students with an introduction to many of the exciting, contemporary areas at the forefront of research in the development of plant structure and prepares them for future roles in teaching and research in plant anatomy.

This book assesses the potential effects of biotechnological approaches, particularly genetic modification, on the present state of fiber crop cultivation and sustainable production. Leading international researchers discuss and explain how biotechnology can affect and solve problems in connection with fiber crops. The topics covered include biology, biotechnology, genomics and applications of fiber crops like cotton, flax, jute and bamboo. Providing complete, comprehensive and broad subject-based reviews, the book offers a valuable resource for students, teachers, and researchers including agriculturists, biotechnologists and botanists, as well as industrialists and government agencies involved in the planning of fiber crop cultivation.

This volume combines 10 years of accomplished research at the Pilauco site. The studies are focused on a variety of scientific areas including geological, sedimentological, geomorphological and paleobotanical topics, as well as paleontology of vertebrata and invertebrata, micropaleontology, archaeology, biochemistry, taxonomy, taphonomy, astrophysics and the development of some particular touristic aspects. In 18 chapters a variety of authors describe the excavation and investigation of this unique location. The book presents Pilauco as an example for the natural laboratory which can be found in South America, a testing ground for many of the hypotheses regarding migrations of animals and humans. In this context the study of topics, such as the paleozoography, the role of megafauna species for the architecture of the forests, the animal extinctions or the early human settlements, is extremely important on a global scale. The Pilauco site features paleontological and archaeological evidences and is contemporaneous with the Monte Verde site (~ 15,000 cal. yr AP). It is located 100 km north from Monte Verde and lies within the Intermediate Depression in northwestern Chilean Patagonia. It was discovered by chance in 1986 and has been excavated and investigated since 2007.

Discusses pollution from tobacco smoke, radon and radon progeny, asbestos and other fibers, formaldehyde, indoor combustion, aeropathogens and allergens, consumer products, moisture, microwave radiation, ultraviolet radiation, odors, radioactivity, and dirt and discusses means of controlling or eliminating them.

Thoroughly updated and reorganized, Strickberger's *Evolution*, Fourth Edition, presents biology students with a basic introduction to prevailing knowledge and ideas about evolution, discussing how, why, and where the world and its organisms changed throughout history. Keeping consistent with Strickberger's engaging writing style, the authors carefully unfold a broad range of philosophical and historical topics that frame the theories of today including cosmological and geological evolution and its impact on life, the origins of life on earth, the development of molecular pathways from genetic systems to organismic morphology and function, the evolutionary history of organisms from microbes to animals, and the numerous molecular and populational concepts that explain the earth's dynamic evolution. Important Notice: The digital edition of this book is missing some of the images or content found in the physical edition.

The book that helped make Michael Pollan, the New York Times bestselling author of *How to Change Your Mind*, *Cooked* and *The Omnivore's Dilemma*, one of the most trusted food experts in America Every schoolchild learns about the mutually beneficial dance of honeybees and flowers: The bee collects nectar and pollen to make honey and, in the process, spreads the flowers' genes far and wide. In *The Botany of Desire*, Michael Pollan ingeniously demonstrates how people and domesticated plants have formed a similarly reciprocal relationship. He masterfully links four fundamental human desires—sweetness, beauty, intoxication, and control—with the plants that satisfy them: the apple, the tulip, marijuana, and the potato. In telling the stories of four familiar species, Pollan illustrates how the plants have evolved to satisfy humankind's most basic yearnings. And just as we've benefited from these plants, we have also done well by them. So who is really domesticating whom?

Natural pine forests characterize many landscapes preserved over time, either as a result of a specific forest management practice or a disturbance. In the event of a lack of management over a long period of time, these formations could evolve with increasingly chaotic structures towards other formations. This process can lead to landscape change, the spread of insects and pathogens, and the risk of fires and watercourse obstruction. Pine forest plantations should be considered as transient tree populations, destined to evolve into more complex and stable formations. However, sometimes they should be preserved for their cultural value. Careful management of these forests also takes into account the close relationship between forest and human settlements. As a first step, ecological management assumes the definition of these two macro types. These approaches include the application of integrated methods for determining the reference conditions of the main functional and structural ecosystem components of forests. The reference conditions are the historical (or natural) variability range of ecological structures and processes, reflecting the recent evolution and dynamic interaction of biotic and abiotic conditions and patterns of disturbance. These conditions form the basis for comparison with contemporary ecosystem processes and structures and are a frame of reference for designing ecological restoration treatments and conservation plans. The productive aspects must not be overlooked; rather, they have to be considered, planned, and managed with a perspective of sustainability and ecosystem functionality. This should be considered for a common approach to forest management, for a forest rehabilitation, and for forest restoration activities. Emphasis on U.S. & Western world.

Laboratory Protocols in Fungal Biology presents the latest techniques in fungal biology. This book analyzes information derived through real experiments, and focuses on cutting edge techniques in the field. The book comprises 57 chapters contributed from internationally recognised scientists and researchers. Experts in the field have provided up-to-date protocols covering a range of frequently used methods in fungal biology. Almost all important methods available in the area of fungal biology viz. taxonomic keys in fungi; histopathological and microscopy techniques; proteomics methods; genomics methods; industrial applications and related techniques; and bioinformatics tools in fungi are covered and compiled in one book. Chapters include introductions to their respective topics, list of the necessary materials and reagents, step-by-step, readily reproducible laboratory protocols, and notes

on troubleshooting. Each chapter is self-contained and written in a style that enables the reader to progress from elementary concepts to advanced research techniques. Laboratory Protocols in Fungal Biology is a valuable tool for both beginner research workers and experienced professionals. Coming Soon in the Fungal Biology series: Goyal, Manoharachary / Future Challenges in Crop Protection Against Fungal Pathogens Martín, García-Estrada, Zeilinger / Biosynthesis and Molecular Genetics of Fungal Secondary Metabolites Zeilinger, Martín, García-Estrada / Biosynthesis and Molecular Genetics of Fungal Secondary Metabolites, Volume 2 van den Berg, Maruthachalam / Genetic Transformation Systems in Fungi Schmoll, Dattenbock / Gene Expression Systems in Fungi Dahms / Advanced Microscopy in Mycology

This is a practical, user-friendly guide to the identification and assessment of indoor air contaminants that contribute to building related illness in commercial buildings, institutions, and residences. The third edition covers basic concepts and details various approaches and up-to-date analytical methods, and it addresses some of the more recent, as well as less common, concerns on air pollutants. All chapters will be updated and also includes one completely new chapter on Inhalable Airborne Particles. All updates adhere to the latest National Ambient Air Quality Standards and other active standards.

Mould infestation in heritage collections can damage artifacts and may pose a health risk to individuals who work with these collections. This Technical Bulletin presents information on mould morphology, prevention of mould growth, actions to take should mould occur and health effects relating to mould exposure. It informs the reader how to remove mould growth from artifacts and it describes the appropriate personal protective equipment to wear when working in a mould-contaminated environment or when work.

Plants and Society McGraw-Hill Science/Engineering/Math

An essential guide and invaluable resource for anyone interested in herbal medicine, Australian flora and the indigenous Australian culture. Plants have been used for medicinal purposes since earliest recorded history and Australia's varied flora provided Aboriginal people with medicines. With the arrival of Europeans much of this knowledge was overtaken by modern drugs and techniques but today there is a revival of interest in traditional medicines. Australian Medicinal Plants covers the Aboriginal use of native plants and explains how the first settlers learned from the Aborigines their medicinal values. There is information on nearly 500 individual plants, how they were used, what their known pharmacological constituents are, where to find them and how to prepare remedies. The species are helpfully arranged in chapters according to their use: for fevers, painkillers, antiseptics and digestive disorders for instance.

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. For introductory courses in product technology and process controls. National standard for process technology basics Introduction to Process Technology is part of the NAPTA Series for Process Technology. Developed in partnership with Industry and Education, this unprecedented collection supports a consistent curriculum and exit competencies for process technology graduates. Introduction to Process Technology provides learning material for the first course of a process technology program. The updated 2nd edition aligns with the new NAPTA curriculum. It focuses on safety, explores the industry's modern-day processes and legislative influences, and includes new critical-thinking exercises, graphics, and instructor resources.

This book is published open access under a CC BY 4.0 license. Over the past decades, rapid developments in digital and sensing technologies, such as the Cloud, Web and Internet of Things, have dramatically changed the way we live and work. The digital transformation is revolutionizing our ability to monitor our planet and transforming the way we access, process and exploit Earth Observation data from satellites. This book reviews these megatrends and their implications for the Earth Observation community as well as the wider data economy. It provides insight into new paradigms of Open Science and Innovation applied to space data, which are characterized by openness, access to large volume of complex data, wide availability of new community tools, new techniques for big data analytics such as Artificial Intelligence, unprecedented level of computing power, and new types of collaboration among researchers, innovators, entrepreneurs and citizen scientists. In addition, this book aims to provide readers with some reflections on the future of Earth Observation, highlighting through a series of use cases not just the new opportunities created by the New Space revolution, but also the new challenges that must be addressed in order to make the most of the large volume of complex and diverse data delivered by the new generation of satellites.

INSTANT TOP 10 BESTSELLER *New York Times *USAToday *Washington Post *LA Times "Debunks the idea that aging inevitably brings infirmity and unhappiness and instead offers a trove of practical, evidence-based guidance for living longer and better." —Daniel H. Pink, author of *When and Drive* **SUCCESSFUL AGING** delivers powerful insights: • Debunking the myth that memory always declines with age • Confirming that "health span"—not "life span"—is what matters • Proving that sixty-plus years is a unique and newly recognized developmental stage • Recommending that people look forward to joy, as reminiscing doesn't promote health Levitin looks at the science behind what we all can learn from those who age joyously, as well as how to adapt our culture to take full advantage of older people's wisdom and experience. Throughout his exploration of what aging really means, using research from developmental neuroscience and the psychology of individual differences, Levitin reveals resilience strategies and practical, cognitive enhancing tricks everyone should do as they age. *Successful Aging* inspires a powerful new approach to how readers think about our final decades, and it will revolutionize the way we plan for old age as individuals, family members, and citizens within a society where the average life expectancy continues to rise.

"Hope Jahren is the voice that science has been waiting for." —Nature "A superb account of the deadly struggle between humanity and what may prove the only life-bearing planet within ten light years, written in a brilliantly sardonic and conversational style." —E. O. Wilson "Hope Jahren asks the central question of our time: how can we learn to live on a finite planet? *The Story of More* is thoughtful, informative, and—above all—essential." —Elizabeth Kolbert, author of *The Sixth Extinction* Hope Jahren is an award-winning scientist, a brilliant writer, a passionate teacher, and one of the seven billion people with whom we share this earth. In *The Story of More*, she illuminates the link between human habits and our imperiled planet. In concise, highly readable chapters, she takes us through the science behind the key inventions—from electric power to large-scale farming to automobiles—that, even as they help us, release greenhouse gases into the atmosphere like never before. She explains the current and projected consequences of global warming—from superstorms to rising sea levels—and the actions that we all can take to fight back. At once an explainer on the mechanisms of global change and a lively, personal narrative given to us in Jahren's inimitable voice, *The Story of More* is the essential pocket primer on climate change that will leave an indelible impact on everyone who reads it.

The fifth edition of the *Manual of Allergy and Immunology* is designed to serve health care professionals in the diagnosis and management of allergic and other immunological disorders. The manual presents the basic and essential material and provides specific information to assist in clinical decision-making and treatment planning. The specialist will find this manual a convenient reference handbook, while the generalist will be able to use the Manual as a helpful guide in formulating a diagnostic and therapeutic approach to patients suspected of having an allergic or immunologic disorder. Students, house officers, and other health care professionals will find the Manual a useful guide to the clinical practice of allergy and immunology. New for this edition: • Additional tables provide extensive data for basic and clinical understanding • Increased use of algorithms to help provide quick diagnosis • References include both published literature and authoritative Internet resources for more extensive discussion of each subject • Therapeutic recommendations are consistent with current evidence-based guidelines to provide the latest information • Uses the familiar Lippincott Manual outline format to organize information and save time in

looking up information

This well timed volume features a selection of chapters composed by experts in their respective fields. It covers a broad range of topics, from its fundamental biology to the fern's population genetics and environmental and therapeutic applications.

People's desire to understand the environments in which they live is a natural one. People spend most of their time in spaces and structures designed, built, and managed by humans, and it is estimated that people in developed countries now spend 90 percent of their lives indoors. As people move from homes to workplaces, traveling in cars and on transit systems, microorganisms are continually with and around them. The human-associated microbes that are shed, along with the human behaviors that affect their transport and removal, make significant contributions to the diversity of the indoor microbiome. The characteristics of "healthy" indoor environments cannot yet be defined, nor do microbial, clinical, and building researchers yet understand how to modify features of indoor environments—such as building ventilation systems and the chemistry of building materials—in ways that would have predictable impacts on microbial communities to promote health and prevent disease. The factors that affect the environments within buildings, the ways in which building characteristics influence the composition and function of indoor microbial communities, and the ways in which these microbial communities relate to human health and well-being are extraordinarily complex and can be explored only as a dynamic, interconnected ecosystem by engaging the fields of microbial biology and ecology, chemistry, building science, and human physiology. This report reviews what is known about the intersection of these disciplines, and how new tools may facilitate advances in understanding the ecosystem of built environments, indoor microbiomes, and effects on human health and well-being. It offers a research agenda to generate the information needed so that stakeholders with an interest in understanding the impacts of built environments will be able to make more informed decisions.

Rangeland ecosystems which include unimproved grasslands, shrublands, savannas and semi-deserts, support half of the world's livestock, while also providing habitats for some of the most charismatic of wildlife species. This book examines the pressures on rangeland ecosystems worldwide from human land use, over-hunting, and subsistence and commercial farming of livestock and crops. Leading experts have pooled their experiences from all continents to cover the ecological, sociological, political, veterinary, and economic aspects of rangeland management today. This book provides practitioners and students of rangeland management and wildland conservation with a diversity of perspectives on a central question: can rangelands be wildlands? The first book to examine rangelands from a conservation perspective emphasizes the balance between the needs of people and livestock, and wildlife. Written by an international team of experts covering all geographical regions, it examines ecological, sociological, political, veterinary, and economic aspects of rangeland management and wildland conservation, providing a diversity of perspectives not seen before in a single volume.

This popular guide enables users to quickly and confidently identify any of the trees of the southeastern United States, from the common loblolly pine or red mulberry to the rare Pinckneya (fever-tree) or goat willow. The guide treats more than 300 species—every one known to occur in the region, from the Coastal Plain to the highest elevations. Included are trees native to the region as well as those introduced and now reproducing. Helpful features include easy identification keys, common and scientific names, distribution maps, an introductory section on basic leaf, flower, and stem structures, and a glossary of descriptive and identifying terms.

A stunning landmark co-publication between the American Society of Plant Biologists and Wiley-Blackwell. *The Molecular Life of Plants* presents students with an innovative, integrated approach to plant science. It looks at the processes and mechanisms that underlie each stage of plant life and describes the intricate network of cellular, molecular, biochemical and physiological events through which plants make life on land possible. Richly illustrated, this book follows the life of the plant, starting with the seed, progressing through germination to the seedling and mature plant, and ending with reproduction and senescence. This "seed-to-seed" approach will provide students with a logical framework for acquiring the knowledge needed to fully understand plant growth and development. Written by a highly respected and experienced author team, *The Molecular Life of Plants* will prove invaluable to students needing a comprehensive, integrated introduction to the subject across a variety of disciplines including plant science, biological science, horticulture and agriculture.

Through fascinating vignettes and case studies, this unique text illustrates how Yucatecan migrants actively maintain social ties across borders. It also paints a vivid picture of the people and their lives. It places them in the context of current U.S. immigration policy and mesmerizes students by bringing them up to speed on one of the most crucial issues facing the U.S. today.

Journalism entered the twenty-first century caught in a paradox. The world had more journalism, across a wider range of media, than at any time since the birth of the western free press in the eighteenth century. Western journalists had found themselves under a cloud of suspicion: from politicians, philosophers, the general public, anti-globalization radicals, religious groups, and even from fellow journalists. Critics argued that the news industry had lost its moral bearings, focusing on high investment returns rather than reporting and analysing the political, economic, and social issues of the day. Journalism has a central and profound impact on our worldview; we find it everywhere from newspapers and television, to radio and the Internet. In the new edition of this thought-provoking and provocative *Very Short Introduction*, Ian Hargreaves examines the world of contemporary journalism. By looking not only at what journalism has been in the past, but also what it is becoming in the digital age, he examines the big issues relating to reportage, warfare, celebrity culture, privacy, and technology worldwide.

Plant organ abscission is a developmental process regulated by the environment, stress, pathogens and the physiological status of the plant. In particular, seed and fruit abscission play an important role in seed dispersion and plant reproductive success and are common domestication traits with important agronomic consequences for many crop

species. Indeed, in natural populations, shedding of the seed or fruit at the correct time is essential for reproductive success, while for crop species the premature or lack of abscission may be either beneficial or detrimental to crop productivity. The use of model plants, in particular Arabidopsis and tomato, have led to major advances in our understanding of the molecular and cellular mechanisms underlying organ abscission, and now many workers pursue the translation of these advances to crop species. Organ abscission involves specialized cell layers called the abscission zone (AZ), where abscission signals are perceived and cell separation takes place for the organ to be shed. A general model for plant organ abscission includes (1) the differentiation of the AZ, (2) the acquisition of AZ cells to become competent to respond to various abscission signals, (3) response to signals and the activation of the molecular and cellular processes that lead to cell separation in the AZ and (4) the post-abscission events related to protection of exposed cells after the organ has been shed. While this simple four-phase framework is helpful to describe the abscission process, the exact mechanisms of each stage, the differences between organ types and amongst diverse species, and in response to different abscission inducing signals are far from elucidated. For an organ to be shed, AZ cells must transduce a multitude of both endogenous and exogenous signals that lead to transcriptional and cellular and ultimately cell wall modifications necessary for adjacent cells to separate. How these key processes have been adapted during evolution to allow for organ abscission to take place in different locations and under different conditions is unknown. The aim of the current proposal is to present and be able to compare recent results on our understanding of organ abscission from model and crop species, and to provide a basis to understand both the evolution of abscission in plants and the translation of advances with model plants for applications in crop species.

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