



**PRO CARTON**

PACKAGING FOR  
A BETTER WORLD

## The Carbon Footprint of Carton Packaging 2023

A study carried out by RISE (Research Institutes of Sweden) Bioeconomy and Health Unit for Pro Carton tracked both the cradle-to-grave and cradle-to-gate carbon impact of carton from January to December 2021.



# Pro Carbon Footprint

**Heather J. Gibson, Matthew  
Lamont, Millicent Kennelly, Richard J.  
Buning**

## **Pro Carbon Footprint:**

**Active Sport Tourism** Heather J. Gibson, Matthew Lamont, Millicent Kennelly, Richard J. Buning, 2020-05-21 This volume serves to expand theory driven understandings of active sport tourism by showcasing five empirical studies examining a variety of active sport tourism contexts These include table tennis at the World Veterans Championships ultramarathon running cycling triathlon skiing snowboarding and a range of issues such as active ageing and travel related carbon footprints The volume also seeks to explore possibilities for future directions in active sport tourism and act as a catalyst for ongoing scholarly inquiry Travelling to take part in active sporting pursuits is growing in popularity around the world Active sport tourism encompasses travel to participate in a myriad sports as well as in competitive participatory sport events Much of the recent growth in active sport tourism is associated with travel to compete in participatory sport events notably the big city international marathon events amateur running triathlon and cycling events Masters Games and team sport tournaments While the broader sport tourism research literature has tended to focus on spectator oriented sports events particularly the mega events such as the Olympic Games it is only recently that a concerted research agenda in active sport tourism has emerged making this volume innovative and relevant This book was originally published as a special issue of the Journal of Sport Tourism

**Sustainability Metrics and Indicators of Environmental Impact** Eduardo Jacob-Lopes, Leila Queiroz Zepka, Mariany Costa Depra, 2021-07-16 Sustainability Metrics and Indicators of Environmental Impact Industrial and Agricultural Life Cycle Assessment covers trending topics on the environmental impact of systems of production putting emphasis on lifecycle assessment LCA This methodology is one of the most important tools of analysis as mathematical models are applied that will quantify the systematic inputs and outputs of the processes in order to evaluate the sustainability of industrial processes and products In this sense LCA is mainly a tool to support environmental decision making that analyzes the environmental impacts of products and technologies from a lifecycle perspective The emergence of ever larger global issues such as the energy dilemma the changing climate and the scarcity of natural resources such as water has boosted the search for tools capable of ensuring the reliability of the results published by the industries and has become an important tool in order to achieve sustainability and environmental preservation Thus lifecycle assessment LCA including carbon footprint valuation is necessary to ensure better internal management Provides guidance on environmental impacts and the carbon footprint of industrial processes Features guidelines in lifecycle assessment to support a sustainable approach along with quantifiable data to support proposed solutions Includes a companion website with slides and graphics to quantify environmental impact and other metrics of lifecycle assessment *Introduction to Environmental Economics*

Nick Hanley, Jason F. Shogren, Ben White, Benedict White, 2019 The only easy to read and practical non specialist introduction to key concepts in environmental economics written by an international author team **Sustainable Protein Sources**

Sudarshan Nadathur, Janitha P.D. Wanasundara, Laurie Scanlin, 2023-11-17 Sustainable Protein Sources Advances for a

Healthier Tomorrow Second Edition explores alternative proteins including plant fungal algal and insect proteins that can take the place of meat as sustainable sources to satisfy human protein needs This revised edition presents the benefits of plant and alternative protein consumption including those that benefit the environment population and consumer trends and contains new chapters on potato protein faba bean chickpea and coconut Organized by protein chapters also cover cereals and legumes oilseeds pseudocereals fungi algae insects and fermentation derived dairy and meat proteins paying particular attention to the nutrition uses functions benefits and challenges of each The book also explores ways to improve utilization and addresses everything from consumer acceptability methods of improving the taste of products containing these proteins and ways in which policies can affect the use of alternate proteins In addition the book addresses sustainable protein as a pathway to securing the food supply and considers regenerative versus extractive agriculture alongside new methods in farming and water usage Introduces the need to shift from animal derived to plant based protein and fermentation derived proteins Discusses nutritive values of each protein source and compares each alternate protein to more complete proteins Provides an overview of production including processing protein isolation use cases and functionality

**Design for Environment, Second Edition: A Guide to Sustainable Product Development** Joseph Fiksel, 2009-07-31 An in depth roadmap to sustainable product development Drawing on the experiences of dozens of major corporations Design for Environment Second Edition offers a business rationale for developing sustainable products and processes as well as a comprehensive toolkit for practicing DFE in the context of product life cycle management Learn how environmental innovation creates business value and helps companies to meet global energy and environmental challenges Discover how to Practice integrated product development and concurrent engineering Select appropriate metrics to represent product life cycle performance Maintain and apply a portfolio of systematic Design for Environment strategies Use analysis methods to evaluate design performance and trade offs Apply systems thinking to reduce the supply chain environmental footprint The book is enhanced by in depth case studies of DFE applications by industry leaders [Ecological Economics Research Trends](#) Carolyn C. Pertsova, 2007 This new book presents important research in the field of ecological economics which is a trans disciplinary field of academic research that addresses the dynamic and spatial interdependence between human economies and natural ecosystems Ecological economics brings together and connects different disciplines within the natural and social sciences but especially between these broad areas Ecological economics presents a more pluralistic approach to the study of environmental problems and policy solutions characterised by systems perspectives adequate physical and biological contexts and a focus on long term environmental sustainability

**How Bad Are Bananas?** Mike Berners-Lee, 2020-09-03 It is terrific I can't remember the last time I read a book that was more fascinating and useful and enjoyable all at the same time Bill Bryson How Bad Are Bananas was a groundbreaking book when first published in 2009 when most of us were hearing the phrase carbon footprint for the first time Mike Berners Lee set out to inform us what was important aviation

heating swimming pools and what made very little difference bananas naturally packaged are good This new edition updates all the figures from data centres to hosting a World Cup and introduces many areas that have become a regular part of modern life Twitter the Cloud Bitcoin electric bikes and cars even space tourism Berners Lee runs a considered eye over each area and gives us the figures to manage and reduce our own carbon footprint as well as to lobby our companies businesses and government His findings presented in clear and even entertaining prose are often surprising And they are essential if we are to address climate change

*The Handbook of Strategic Public Relations and Integrated Marketing Communications 2/E* Clarke Caywood, 2011-12-28 The Definitive Guide to PR and Communications updated with the newest social media and brand reputation tools and techniques The most authoritative comprehensive resource of its kind The Handbook of Strategic Public Relations and Integrated Marketing Communications Second Edition is a gathering of 70 of the brightest most influential figures in the field It includes 27 new chapters as well as 44 new authors addressing the major changes in the field since the last edition the use of social media in business demanding and growing stakeholder relationships and a new era of openness and transparency to protect reputations and brands and to prevent crises Providing best practices for 28 key industries the handbook is conveniently organized into thematic sections Introduction to Public Relations and Integrated Communications research history law and ethics Stakeholder Leadership in Public Relations crisis management employees investors consumers press corporate philanthropy and digital communities Current and Continuing Issues in Public Relations business sustainability environmental communications and reputation and brand management Industries and Organizations Business to Consumer and Business to Business automotive aviation insurance hospitality healthcare consulting financial food law and energy Each section highlights specific case studies and examples to illuminate exactly how to plan and execute different methods for optimum results The book concludes with a section on the future of the industry developing issues trends and roles of public relations and integrated communications Use The Handbook of Strategic Public Relations and Integrated Marketing Communications to position your company your brand and yourself for success for many years to come Praise for The Handbook of Strategic Public Relations and Integrated Marketing Communications The second edition of the Handbook of Strategic Public Relations and Integrated Marketing Communications is very impressive in its coverage of trends tools industries and challenges Every marketer needs to have a copy Philip Kotler Kellogg School of Management Northwestern University author of Marketing 3.0M The massively updated Handbook of Strategic Public Relations and Integrated Marketing Communications is the go to source for an overview of the fast changing field of PR and the central role it plays in marketing An easy to read m lange of case studies from a wide variety of industries commentaries on trends in the field and insights on the links between theory and practice it guides the reader through an increasingly complex and ubiquitous discipline Jerry Swerling Professor and Director of Public Relations Studies and Director of Strategic Communication PR Center Annenberg School for Communication and Journalism University

of Southern California The Handbook is a fresh look at strategic public relations with great insights from top public relations professionals Invaluable advice and a must read for all PR practitioners Jane Ostrander Vice President Global Communications Tenneco Few writers and even fewer thinkers in the world of public relations have the breadth and depth of experience shown by Clarke Caywood The Second Edition of his Handbook of Strategic Public Relations demonstrates that range of experience in exquisite detail Assembled here you ll find the finest minds and biggest names in the profession No PR practitioner or student of the art can afford to be without this superb collection James S O Rourke IV Ph D Teaching Professor of Management Mendoza College of Business University of Notre Dame A must read that gives an ever greater importance to the human person as a stakeholder and the object for which an organization is driven to do good as a cornerstone for profitability Jerry G Kliatchko Ph D Dean School of Communication University of Asia and the Pacific UA P Manila Philippines How can companies survive in the era of global competition This book offers valuable clues from the perspective of managing a successful relationship with its stakeholders Kimihiko Kondo Dean and Professor of Marketing Graduate School of Business Otaru University of Commerce Otaru Hokkaido Japan Caywood s stakeholder approach distinguishes PR from other management fields His book fully covers the stakeholder challenge across industries Debbie Treise Ph D Professor Associate Dean Graduate Studies College of Journalism and Communications University of Florida This second edition will certainly provide readers with an advanced understanding of public relations in a rapidly changing IMC environment Dean M Krugman Professor Emeritus Department of Advertising and Public Relations University of Georgia Clarke Caywood s PR Handbook provides invaluable counsel on every major issue facing today s public relations practitioner Non PR executives also will gain important communication insights from 70 of the greatest minds in public relations Ron Culp Public Relations Consultant and Director MA Program in Public Relations and Advertising DePaul University In this 21st Century age of Integrated Marketing Communications Dr Clarke Caywood has compiled the blueprint on how to approach Public Relations in these contemporary times J P James Senior Partner Engagement Marketing MEC Assistant Adjunct Professor CUNY Hunter College and New York University Our function s number one objective is develop and successfully execute communications strategies that help our companies and organizations win in the marketplace and Clarke Caywood s Handbook of Strategic Public Relations and Integrated Marketing Communications provides students of our profession the best in real world thinking and successful execution Jim Spangler Vice President Chief Communications Officer Navistar Inc

*The Carbon Footprint of Everything* Mike Berners-Lee, 2022-04-26 I can t remember the last time I read a book that was more fascinating and useful and enjoyable Bill Bryson Reduce your carbon footprint and understand the issue with this up to date life guide for carbon conscious readers Kirkus Calculate your carbon footprint with an item by item breakdown Meet your company s carbon goals using the latest research Covid 19 and the carbon battle understand the new global supply chain The Carbon Footprint of Everything breaks items down by the amount of carbon they produce creating a calorie guide

for the carbon conscious With engaging writing leading carbon expert Mike Berners Lee shares new carbon calculations based on recent research He considers the impact of the pandemic on the carbon battle especially the embattled global supply chain and adds items we didn't consider a decade ago like bitcoin and other cryptocurrencies Supported by solid research cross referenced with other expert sources illustrated with easy to follow charts and graphs and written with Berners Lee's trademark sense of humor *The Carbon Footprint of Everything* should be on everyone's bookshelf *The Carbon Footprint of Everything* is an extensively revised and updated edition of *How Bad Are Bananas* **Health, Sustainability and the Built Environment** Dak Kopec, 2008-08-28 With the emergence of sick building syndrome in the 1970s and the emphasis on LEED standards today interior designers are interested in the topics of health and sustainability *Health Sustainability and the Built Environment* examines the concept of sustainability as it pertains to sustaining human health By analyzing the many ways that humans interact with the built environment the text teaches students how to identify both the positive and negative effects that their designs can have on the health of the occupants *Energy Aware Planning Guide*, 2011 **The Sustainability Practitioner's Guide to Input-output Analysis** Joy Murray, Richard Wood, 2010 Provides an introduction to input output analysis for sustainability practitioners and looks into the how of measuring our impacts tracking our progress and informing the decisions for a sustainable future *Encyclopedia of Global Warming* Steven I. Dutch, 2010 This work offers complete authoritative coverage of the science policy and social issues surrounding global warming and climate change *The Encyclopedia of Global Warming* provides comprehensive coverage of the questions of global warming and climate change including scientific descriptions and explanations of all factors from carbon dioxide to sunspots that might contribute to climate change It is designed to provide students at the high school and undergraduate levels with a convenient source of information on fundamental science and sociopolitical issues including the debates and controversies surrounding climate change The study of climate change involves not only scientists but also politicians policy makers businesses government and nongovernment agencies and the general public A student attempting to understand both the environmental science and social issues and controversies will encounter not just scientific terms and concepts but political organizations geographic areas social concepts persons countries organizations and laws as well Each essay in the set falls into one or more of the following broad categories animals Arctic and Antarctic astronomy chemistry and geochemistry climatic events and epochs conferences and meetings cryology and glaciology diseases and health effects economics industries and products energy environmentalism conservation and ecosystems ethics human rights and social justice fossil fuels geology and geography laws treaties and protocols meteorology and atmospheric sciences nations and people oceanography organizations and agencies physics and geophysics plants and vegetation pollution and waste popular culture and society science and technology transportation and water resources The essays in this set range from 400 to 2 000 words in length They are arranged in one of six types of essay format Term essays describe a concept and explain its significance

for climate change Overview essays provide broad overviews of a scientific policy or social phenomenon or debate Organization essays provide the date of establishment of an organization and discuss its mission and significance for climate change Biographical essays provide biographical information on people followed by descriptions of their life and climate work and Top Twenty Emitter essays provide information on each of the twenty nations with the highest annual emissions of greenhouse gases they also provide discussions of the historical and political context of the nation s climatic impact Law and Treaty essays provide the date of passage or ratification of the law and protocol as well as lists of all participating nations and continue with discussions of background summary of provisions and significance for climate change **Carbon**

**Footprint and the Industrial Life Cycle** Roberto Álvarez Fernández,Sergio Zubezu,Rodrigo Martínez,2017-05-28 This book analyzes the relationship between large scale industrial activity and the carbon footprint and provides a theoretical framework and tools to calculate the carbon footprint of industrial activities at every stage of their life cycles including urban planning master plans recycling activities project and building stages as well as managing and manufacturing Discussing the main preventative and corrective measures that can be utilized it includes case studies reports on technological developments and examples of successful policies to provide inspiration to readers This book collects the contributions of authors from four continents in order to analyze from as many as possible points of view and using many different approaches the problem of sustainability in today s globalized world **Greenhouse Gases and Sustainable Animal**

**Agriculture for Developing Countries** Tomoyuki Kawashima,2013

*Vineyard & Winery Management* ,2008

Pennsylvania Township News ,2009

**Spa Management** ,2009-06

Nature Sir Norman Lockyer,1912

The

Nation ,1872

The Top Books of the Year Pro Carbon Footprint The year 2023 has witnessed a remarkable surge in literary brilliance, with numerous captivating novels captivating the hearts of readers worldwide. Lets delve into the realm of bestselling books, exploring the fascinating narratives that have charmed audiences this year. Pro Carbon Footprint : Colleen Hoover's "It Ends with Us" This poignant tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover expertly weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can prevail. Uncover the Best : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This spellbinding historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. Discover the Magic : Delia Owens "Where the Crawdads Sing" This evocative coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens crafts a tale of resilience, survival, and the transformative power of nature, captivating readers with its evocative prose and mesmerizing setting. These popular novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of compelling stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is an exceptional and gripping novel that will keep you guessing until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

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### **Pro Carbon Footprint Introduction**

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web a seed gets planted either by humans or animals or gets blown by the wind seeds need water in order to start growing this is called germination ger min ation when a seed germinates it will

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web video transcript plants are amazing especially when we look at their life cycle from first growth to reproduction it all starts with a seed that cracks open and starts to grow when it has the

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web apr 2 2021 the seed is the embryonic stage of the plant life cycle most seeds consist of three parts embryo endosperm and seed coat the embryo is a tiny plant that has a root a stem and one or more leaves the endosperm is the nutritive tissue of the seed often a combination of starch oil and protein the seed coat is a protective covering that

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web jul 11 2021 life cycle of a seed seed begin when the seeds absorbs water from the environment and starts to sprout and grow germination the primary root system develops from radicle and get divided into branches seedling grown out of the ground plant the stem and its leaves grow toward the sunlight some bear fruit some do not seed life

*is a seed living or non living uc santa barbara* - Jul 20 2022

web answer 4 seeds are living inside of a seed is an embryo a baby plant answer 5 seeds are fascinating structures they are definitely living but are living at a very very slow pace imagine that you can slow down your metabolism to

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web seed life span and food security 2019 oct 224 2 557 562 doi 10 1111 nph 16006 epub 2019 jul 5 department of comparative plant and fungal biology royal botanic gardens kew wellcome trust millennium building wakehurst place ardingly west sussex rh17 6tn uk much is known about the inter specific distribution of life span in a wide

how to sow grass seed in winter and actually grow grass the - Nov 11 2021

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multiple generations of arkansans practice lost art of seed saving - Jan 31 2021

web oct 31 2023 zack mccannon started honeycomb seed and seed bank earlier this year to collect and sell heirloom seeds and is working to bring some of smyth s seeds back to life such as the cushaw squash and

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web all flowering plants go through the following life cycle germination is the process by which a plant begins to grow from a seed roots form under the soil the stem leaves and flower emerge

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with their heads tilting progressively westwards as a result of cells elongating on

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web 1 day ago fifty participants from 29 countries discussed the progress of the seed site and external events design review service and the capacity building programme on the site and design for nuclear installations during a recent technical meeting at the iaea headquarters in vienna austria specific draft documents that related to seed were

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web filament supports the anther pistil the female part of the plant sometimes called the carpel stigma collects pollen grains style allows pollen to pass to the ovary ovary produces seeds inside tiny ovules sepal found outside the petals the sepal protects the flower when it s unopened

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web what is the life cycle of a plant many plants grow out of seeds and bulbs seeds grow roots and shoots roots and shoots then grow leaves above ground many plants make flowers which turn into

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web sep 28 2023 seed the characteristic reproductive body of both angiosperms and gymnosperms essentially a seed consists of a miniature undeveloped plant the embryo which alone or in the company of stored food is surrounded by a protective coat learn more about seed characteristics dispersal and germination

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research limited food industry science centre palmerston north 4410 new zealand 2

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web seed dispersal 1 seed the plant life cycle starts with a seed from the outside seeds are protected by a tough layer called outer coat but inside every seed there is a tiny baby plant known as an embryo the embryo has a root shoot as well as the first true leaves seeds wait to germinate until three needs are met water correct

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web oct 26 2023 the seed market is a bit weird right now on one hand pitchbook reports that at a total of 3 2 billion in the third quarter pre seed and seed deals in the u s have fallen to pre pandemic

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