

rice grain anatomy

rice grain anatomy is a fascinating subject that delves into the intricate structure of one of the world's most important staple foods. Understanding the anatomy of rice grains is not only essential for agricultural practices and food science but also plays a significant role in nutrition and cooking. This comprehensive article will explore the various components of rice grains, their functions, and how they contribute to the overall quality and characteristics of rice. Furthermore, we will examine the differences between various rice varieties and their unique anatomical features. The following sections will provide an in-depth look at rice grain anatomy, including its layers, composition, and nutritional profile.

- Introduction to Rice Grain Anatomy
- Basic Structure of Rice Grains
- Components of Rice Grain Anatomy
- Nutritional Aspects of Rice Grain Anatomy
- Variations in Rice Grain Anatomy
- Importance of Understanding Rice Grain Anatomy

Basic Structure of Rice Grains

The basic structure of rice grains consists of several distinct layers, each serving a unique purpose. The typical rice grain is oval-shaped, with a hard outer shell known as the husk. The husk protects the grain during growth and harvesting. Beneath the husk lies the bran layer, which is rich in nutrients and fibers. Finally, the innermost part of the rice grain is the endosperm, which is primarily composed of starch and serves as the main source of energy.

The Husk

The husk, or hull, is the outermost protective layer of the rice grain. It is typically removed during the milling process and is not consumed. The primary function of the husk is to shield the grain from environmental factors such as pests, moisture, and diseases during its growth. The husk is composed of fibrous materials, making it durable and resistant to damage.

The Bran Layer

Underneath the husk lies the bran layer, which is composed of several sub-layers. This layer is rich in vitamins, minerals, and dietary fiber, which are essential for maintaining a healthy diet. The bran layer can vary in thickness depending on the type of rice and how it is processed. In whole grain rice, this layer is retained, providing significant nutritional benefits, while in white rice, it is removed during milling.

The Endosperm

The endosperm is the largest part of the rice grain and serves as the main source of energy. It is primarily made up of starch and contains small amounts of protein. The endosperm's composition and texture can vary among different rice varieties, affecting cooking properties and flavor. For instance, long-grain rice tends to have a more elongated endosperm, resulting in a fluffy texture when cooked, while short-grain rice has a more rounded endosperm, leading to a stickier consistency.

Components of Rice Grain Anatomy

The anatomy of rice grains can be broken down into several key components, each contributing to the grain's overall characteristics. These components include the aleurone layer, the germ, and the seed coat.

The Aleurone Layer

The aleurone layer is a single cell layer located just beneath the bran. It plays a crucial role in the grain's metabolism, particularly during germination. The aleurone contains enzymes that break down stored nutrients in the endosperm, making them available for the developing plant. This layer is also rich in protein and contributes to the nutritional profile of whole grain rice.

The Germ

The germ, also known as the embryo, is the part of the grain that can sprout into a new plant. It is a small, nutrient-dense structure containing fats, proteins, vitamins, and minerals. The germ is often removed during the milling process to extend the shelf life of rice. However, it is packed with nutrients and is a significant contributor to the health benefits of brown rice.

The Seed Coat

The seed coat is the protective layer surrounding the grain. It acts as a barrier against pathogens and physical damage. While it does not contribute significantly to the nutritional value of rice, its

presence is essential for the grain's integrity during storage and transport.

Nutritional Aspects of Rice Grain Anatomy

Understanding rice grain anatomy is vital for evaluating its nutritional aspects. The various layers of the grain contribute differently to its overall nutrient content. Whole grain rice, which retains the bran and germ, is significantly more nutritious than white rice, which has had these layers removed.

Nutrient Composition

Rice grains are rich in carbohydrates, primarily in the form of starch, which provides energy. Additionally, the bran layer contains various vitamins such as B vitamins, minerals like iron and magnesium, and dietary fiber, which aids digestion. Some of the key nutrients found in rice include:

- Carbohydrates: The primary energy source.
- Protein: Essential for body repair and growth.
- Vitamins: Particularly B vitamins such as thiamine, niacin, and riboflavin.
- Minerals: Including magnesium, phosphorus, and iron.
- Dietary Fiber: Important for digestive health.

Health Benefits

The health benefits of consuming rice, particularly whole grain varieties, are well-documented. These benefits include improved digestion due to high fiber content, better control of blood sugar levels thanks to the presence of complex carbohydrates, and a reduced risk of chronic diseases such as heart disease and diabetes. Furthermore, the vitamins and minerals found in the bran and germ contribute to overall health and well-being.

Variations in Rice Grain Anatomy

Different rice varieties exhibit unique anatomical characteristics that affect their culinary uses and nutritional profiles. The primary types of rice include long-grain, medium-grain, and short-grain varieties, each with distinct features.

Long-Grain Rice

Long-grain rice has a long, slender shape and typically remains separate and fluffy when cooked. The endosperm in long-grain rice contains more amylose, which contributes to its texture. Varieties such as Basmati and Jasmine are popular examples of long-grain rice.

Medium-Grain Rice

Medium-grain rice is slightly shorter and wider than long-grain rice and tends to be moist and tender when cooked. It is commonly used in dishes such as risotto and paella. Arborio rice is a well-known variety of medium-grain rice.

Short-Grain Rice

Short-grain rice is round and sticky when cooked, making it ideal for sushi and rice puddings. It contains a higher proportion of amylopectin, resulting in its sticky texture. Sushi rice is a well-known short-grain rice variety.

Importance of Understanding Rice Grain Anatomy

Understanding rice grain anatomy is essential for multiple reasons. It enables farmers to optimize cultivation practices for higher yields and better quality grains. For food scientists, knowledge of rice anatomy informs the development of fortified rice products and enhances cooking techniques. Additionally, nutritionists and health professionals can provide better dietary recommendations based on the differences in nutrient profiles among various rice types.

In summary, the anatomy of rice grains is a critical area of study that influences agricultural practices, cooking methods, and nutritional outcomes. By understanding the structure and components of rice grains, stakeholders across various sectors can make informed decisions that enhance the quality and health benefits of this staple food.

Q: What are the main components of rice grain anatomy?

A: The main components of rice grain anatomy include the husk, bran layer, endosperm, aleurone layer, germ, and seed coat. Each of these layers serves a specific function and contributes to the nutritional profile of the rice grain.

Q: How does the anatomy of rice grains affect their cooking

properties?

A: The anatomy of rice grains, particularly the composition of the endosperm, affects their cooking properties. Long-grain rice tends to be fluffy and separate when cooked, while short-grain rice is stickier due to higher amylopectin content.

Q: What nutritional benefits does the bran layer of rice provide?

A: The bran layer of rice is rich in dietary fiber, vitamins (especially B vitamins), and minerals. It contributes significantly to the overall nutritional value of whole grain rice, promoting digestive health and reducing the risk of chronic diseases.

Q: Why is brown rice considered more nutritious than white rice?

A: Brown rice is considered more nutritious than white rice because it retains the bran and germ layers, which contain essential nutrients such as fiber, vitamins, and healthy fats. White rice, on the other hand, has these layers removed during milling, resulting in lower nutrient content.

Q: What are the different varieties of rice based on grain anatomy?

A: The different varieties of rice based on grain anatomy include long-grain rice (e.g., Basmati, Jasmine), medium-grain rice (e.g., Arborio), and short-grain rice (e.g., sushi rice). Each variety has unique cooking characteristics and uses in culinary applications.

Q: How does the husk of rice grains contribute to their preservation?

A: The husk of rice grains acts as a protective barrier against environmental factors, such as pests and moisture, which helps preserve the grain during growth and storage. It protects the inner components of the grain from damage.

Q: What role does the germ play in rice grain anatomy?

A: The germ, or embryo, is the part of the rice grain that has the potential to sprout into a new plant. It is rich in nutrients such as healthy fats, proteins, vitamins, and minerals, making it an important component of the grain's nutritional profile.

Q: Can the knowledge of rice grain anatomy help in food science?

A: Yes, knowledge of rice grain anatomy is crucial in food science as it informs the development of fortified rice products, improves cooking techniques, and enhances the understanding of the nutritional benefits of different rice types.

Rice Grain Anatomy

Find other PDF articles:

<https://ns2.kelisto.es/suggest-study-guides/files?dataid=gFC60-4907&title=free-printable-bible-study-guides.pdf>

rice grain anatomy: Crop Plant Anatomy Ratikanta Maiti, 2012 Divided into four sections covering anatomy in relation to crop management, anatomical descriptions of the major crop plants, anatomical changes in adaptation to environments and the link between anatomy and productivity, this book provides a comprehensive source of crop plant anatomy information. The crop areas covered include cereals, pulses and beans, oil crops and fibre crops. Suitable for students, researchers and professionals in the field, this book brings together economic plant anatomy and crop productivity for the first time. It is suitable for students and researchers of crop scienc.

rice grain anatomy: Lectures on Pathological Anatomy Sir Samuel Wilks, Walter Moxon, 1875

rice grain anatomy: ICC Handbook of 21st Century Cereal Science and Technology Peter R. Shewry, Hamit Koksel, John Taylor, 2023-06-30 ICC Handbook of 21st Century Cereal Science and Technology highlights the importance of cereals, presenting insights into the foundational structure of cereal grains, including potential contamination factors that can negatively impact cereal and grain yield. Focusing on the eight major cereal crops - wheat, maize, rice, barley, sorghum and millets, oats, rye and pseudocereals, this is the only available reference to provide standardized coverage for detailed comparison. Written by a global team of expert editors and contributors, the book provides practical insights into the utilization of cereals, grains and safety assessments. This International Association for Cereal Science and Technology endorsed volume continues their commitment to international cooperation through the dissemination of knowledge, conducting research and developing standard methods. - Provides standardized insights into cereals, their grains, profiles and uses - Includes the 8 most utilized cereals including pseudocereals - Promotes understanding of the real-world use options of cereals

rice grain anatomy: Koji Alchemy Jeremy Umansky, Rich Shih, 2020-05-04 This book is remarkable.—David Zilber, co-author of *The Noma Guide to Fermentation* James Beard Foundation Book Award Finalist for Reference and Scholarship The perfect next step.—NPR's Science Friday This is the first book devoted to processes, concepts, and recipes for fermenting and culturing foods with koji, the microbe behind the delicious, umami flavors of Japanese cuisine In *Koji Alchemy* chefs Jeremy Umansky and Rich Shih—collectively considered to be the most practical, experienced, generous educators on the culinary power of this unique ingredient—deliver a comprehensive look at modern koji use around the world. Using it to rapidly age charcuterie, cheese, and other ferments, they take the magic of koji to the next level, revolutionizing the creation of fermented foods and flavor profiles for both professional and home cooks. *Koji Alchemy* includes: • A foreword by

best-selling author Sandor Katz (*The Art of Fermentation*) • Cutting-edge techniques on koji growing and curing • Information on equipment and setting up your kitchen • More than 35 recipes for sauces, pastes, ferments, and alcohol, including stand-outs like Popcorn Koji, Roasted Entire Squash Miso, Korean Makgeolli, Amazake Rye Bread, and more “Koji Alchemy is empowering and does much to open the door to further creativity and innovation. . . . I can’t wait to see and taste the next wave of koji experimentation it inspires.” —Sandor Katz Next level fermentation fodder.—*The Boston Globe*

rice grain anatomy: *Cereal Genomics II* Pushpendra K. Gupta, Rajeev Varshney, 2013-05-29 “*Cereal Genomics*” published in 2004 served the purpose of collecting all information on cereal genomics at one place and was well received by the cereal workers through-out the world. The last eight years have witnessed significant advancement in the field of cereal genomics. For instance, high-density genetic maps, physical maps, QTL maps and even draft genome sequence have become available for several cereal species. Furthermore, the next generation sequencing (NGS) technologies have revolutionized genomics research, so that it is possible now to sequence genomes of hundreds or thousands of accessions of an individual cereal crop. Significant amounts of data generated using these NGS technologies created a demand for computational tools to analyse this massive data. In view of these developments, the Editors realised that there was a need to have an updated volume on the present status and future prospects of cereal genomics. These developments related to technology and the tool have been documented in this volume, thus supplementing our earlier edited volume “*Cereal Genomics*”. “*Cereal Genomics II*” discusses advances in cereal genomics research made during the last eight years, and presents state-of-art cereal genomics and its utilization involving both basic research such as comparative genomics and functional genomics, and applied research like QTL mapping and molecular breeding.

rice grain anatomy: Morphoanatomical Atlas of Grass Leaves, Culms, and Caryopses Dhara Gandhi, Susy Albert, 2020-11-25 This new volume features the studied anatomical details of different parts of 100 wild grass species and provides a comprehensive overview of existing knowledge. Each of the three sections of the volume (leaf grass, culm, and caryopses) discusses and illustrates the diagnostic histological features, along with statistical analyses on the quantitative and qualitative data. The descriptions of these grasses, particularly those growing in the grasslands of the Panchmahal and Dahod districts of India, are supplemented with microphotographs and keys for the taxa concentrate upon diagnostic characters above the rank of genus, which will be helpful for the easy identification of the grasses, even in their vegetative stages before flowering. The cluster analysis uses the statistical analysis program Minitab for each part on the basis of the diagnostic features. In this volume, readers will be able to easily identify the grass species based on the anatomical features described here. The volume will be of great interest both to grass specialists and to generalists seeking state-of-the-art information on the diversity of grasses, the most ecologically and economically important of the families of flowering plants.

rice grain anatomy: Cereal Grains Gulzar Ahmad Nayik, Tabussam Tufail, Faqir Muhammad Anjum, Mohammad Javed Ansari, 2023-03-07 Ever since the beginnings of agriculture, cereals have provided unlimited health benefits to mankind as a staple food in our diet. Cereals are rich in complex carbohydrates that provide us ample energy, and help to prevent many diseases such as constipation, colon disorders, and high blood sugar levels. They enrich our overall health with abundant proteins, fats, lipids, minerals, vitamins, and enzymes. In every part of the world cereals are consumed for breakfast, lunch or dinner. *Cereal Grains: Composition, Nutritional Attributes, and Potential Applications* provides an overview of cereals including their properties, chemical composition, applications, postharvest losses, storage, and quality. Various well-versed researchers across the globe share their knowledge and experience covering cereal’s role in food security, allergens in grains, phytochemical profile, industrial applications, health benefits, global standard of cereals, and recent advances in cereal processing. Key Features: Contains comprehensive information on general composition and properties of cereals. Discusses the recent advances in cereal technology Provides knowledge on bioactive characterization of cereal grains Contain

information on future aspect of grain quality and allergens in cereal grains This handbook is a valuable resource for students, researchers, and industrial practitioners who wish to enhance their knowledge and insights on cereal science. Researchers, scientists, and other professionals working in various cereal processing industries and other horticultural departments will also find the comprehensive information relevant to their work.

rice grain anatomy: Seed Anatomy Ella Werker, 1997 On 400 pages, the author gives a comprehensive survey not only of seed anatomy, including shape, size, weight and colouring of seeds, but also treats the very variable surface structures, seed and embryo proportions and relations, their nutritive tissues and the manifold reserve materials. She furthermore refers to the function of the seed coat and the advantages of sculpturing, as well as to the secretory structures in the seed, the vascularization and the passage of the nutrients. This excellent work is an encyclopedic reference indispensable for anybody who is interested in seeds.

rice grain anatomy: Seed Development: OMICS Technologies toward Improvement of Seed Quality and Crop Yield Ganesh K. Agrawal, Randeep Rakwal, 2012-12-09 The book is about the seed development in the model and crop plants. Seed development is a key step of the plant life cycle that determines the nutrient value of seeds – the life for human civilization, growth, and development. The nutrient value of seeds is mainly due to storage reserve products such as carbohydrates, lipids (triacylglycerols), and proteins. The book primarily focuses on application of the 21st century high-throughput technologies transcriptomics, proteomics, metabolomics, and systems biology in near complete understanding of the various processes involved in seed development in different crop plants. The book reveals how such technologies have revolutionized our understanding of the multilayer processes and regulations involved therein by generating large-scale datasets. Accumulated datasets provide basic knowledge to develop integrated strategies to eventually improve the nutritional value of plant seed and crop yield, a critical goal in food security issues around the globe.

rice grain anatomy: Nutrition Science Focused on Indigenous Health Jitender Talwar, 2025-01-24 Nutrition Science Focused on Indigenous Health sheds light on the critical role of nutrition in promoting health and addressing dietary challenges in diverse communities. Tailored for undergraduate students and health-conscious readers, this book explores food groups, cooking methods, and the nutritional value of staples like milk, pulses, and vegetables. Detailed sections on vitamins, minerals, and novel food substitutes provide practical guidance for healthy living. The text emphasizes applied nutrition, diet surveys, and food safety, considering the socio-economic and health conditions prevalent in India and similar developing regions. With tables on recommended dietary intakes and case studies, it's a valuable resource for students, dietitians, and food counselors aiming to enhance their understanding of nutrition and its impact on health across all age groups.

rice grain anatomy: Comparative Anatomy of the Gastrointestinal Tract in Eutheria II Peter Langer, 2017-10-23 This volume of the series Handbook of Zoology deals with the anatomy of the gastrointestinal digestive tract – stomach, small intestine, caecum and colon – in all eutherian orders and suborders. It presents compilations of anatomical studies, as well as an extensive list of references, which makes widely dispersed literature accessible. Introductory sections to orders and suborders give notice to biology, taxonomy, biogeography and food of the respective taxon. It is a characteristic of this book that different sections of the post-oesophageal tract are discussed separately from each other. Informations on form and function of organs of digestion in eutherians are discussed under comparative-anatomical aspects. The variability and diversity of anatomical structures represents the basis of functional differentiations.

rice grain anatomy: Arsenic in Drinking Water and Food Sudhakar Srivastava, 2019-08-08 Arsenic contamination poses a major environmental problem, especially in Southeast Asian countries like Bangladesh and India. Threatening the health of millions of people due to arsenic's toxicity and carcinogenicity, the major routes of arsenic exposure for humans are either through drinking water or crops. Rice is the crop most affected by arsenic owing to its cultivation in major arsenic contaminated areas, biogeochemical factors in the soil during rice growth, and specific features of

rice that enable it take up more arsenic than other crop plants. This book addresses the problem of arsenic by pursuing a holistic approach. It presents the status quo in different parts of the world (North and South America, Europe, Asia, etc.) and provides essential information on food-related arsenic exposure risks for humans, and possible preventive and curative measures for tackling arsenic poisoning. It covers the arsenic contamination status of rice, rice-based products, other vegetables, fishes, mushrooms, and other foods, with a special focus on rice-arsenic interactions. The mechanisms of arsenic uptake, translocation and distribution in plants and grains are also explained. In closing, the book reviews a variety of prospective agronomic and biotechnological solutions to the problem of arsenic accumulation in rice grains. The book is intended for a broad audience including researchers, scientists, and readers with diverse backgrounds including agriculture, environmental science, food science, environmental management, and human health. It can also be used as an important reference guide for undergraduate and graduate students, university faculties, and environmentalists.

rice grain anatomy: Experiment Station Record United States. Office of Experiment Stations, 1916

rice grain anatomy: Technical Note , 1915

rice grain anatomy: Kent's Technology of Cereals N. L. Kent, 1994-01-01 This well-established textbook provides students of food science with an authoritative and comprehensive study of cereal technology. Kent compares the merits and limitations of individual cereals as sources of food products as well as looking at the effects of processing treatments on the nutritive value of the products. The fourth edition of this classic book has been thoroughly updated with new sections including extrusion cooking and the use of cereals for animal feed.

rice grain anatomy: Cereal Grains Sukhvinder Singh Purewal, 2025-08-29 Cereal grains are a major part of the global diet, but their nutritional benefits depend on how they are processed. This book explores how various techniques influence nutrient content, bioavailability, and food quality. It provides a clear understanding of traditional and modern processing methods, helping professionals optimize grain-based products. This book provides updated information on innovative grain processing techniques and demonstrates how different methods affect dietary value. Helpful for the industrial sector as well as serving as a reliable source for food science and nutrition studies, this book bridges the gap between research and real-world applications, ultimately offering practical and meaningful information for improving cereal-based, health-benefiting food products. Key Features Provides comprehensive knowledge on different kinds of cereal processing methods Presents the latest information on the effect of processing methods on the specific nutrients (macro as well as micro) of cereal grains Includes techniques to minimize nutrients loss

rice grain anatomy: The Anti-Inflammation Diet, Second Edition Christopher P. Cannon, M.D., Heidi McIndoo, M.S., R.D., L.D.N., 2014-01-07 New research shows that abnormal inflammation may be linked to a variety of diseases and conditions, including heart disease, cancer, asthma, diabetes, and arthritis. A diet designed to reduce and reverse inflammation can improve overall health. Idiot's Guides: The Anti-Inflammation Diet, Second Edition includes a wealth of information about how the diet works and the latest in research and testing. It offers healthy eating plans, food lists, and delicious recipes. An Associate Professor of Medicine at Harvard Medical School, Dr. Cannon also includes valuable information on stress reduction, exercise, and weight control.

rice grain anatomy: Bibliography of Agriculture , 1974

rice grain anatomy: Bibliography of Agriculture with Subject Index , 1982-10

rice grain anatomy: Pharmaceutical Journal , 1901

Related to rice grain anatomy

Rice University Rice University is a comprehensive research university in Houston, Texas. Rice produces Houston's next generation of leaders and advances tomorrow's thinking

Strategic Plan | Rice University We will leverage our curiosity and the uniqueness that is Rice, an unparalleled commitment to the person, and a distinct ability to work across disciplines, across

industries, and across

Canvas at Rice | Learning Environments | Office of Information Canvas is Rice's Learning Management System for all course-related curriculum needs. If you have questions or would like additional information, please contact Learning Environments,

Residential Colleges | Dean of Undergraduates | Rice University Fostering diversity and an intellectual environment, Rice University is a comprehensive research university located on a 300-acre tree-lined campus in Houston, Texas. Rice produces the next

Access | Office of Admission | Rice University Fostering diversity and an intellectual environment, Rice University is a comprehensive research university located on a 300-acre tree-lined campus in Houston, Texas. Rice produces the next

Office of Provost | Rice University Rice's faculty are entrepreneurial, enthusiastic and deeply committed to excellence. As creative innovators, we challenge our students to explore new ideas and make new discoveries

Chao family gift supports, names Rice University's 12th residential Amid unprecedented enrollment growth, Rice will open its 12th residential college, the Ting Tsung and Wei Fong Chao College — referred to as Chao College — made possible

Rice rises in US News rankings, recognized for value, teaching and Rice University continues its upward trajectory in national and international rankings, earning the No. 17 spot in the 2026 U.S. News & World Report Best Colleges

CoachRICE | DOERR | Rice University This 80-hour Level 1 accredited program with the International Coaching Federation (ICF) applies a variety of teaching and learning methodologies to give participants an immersive experience

WaTER Institute | Rice University Researchers based at Rice University in Texas have developed a novel membrane-free desalination system that uses a creative approach to heat recovery that can

Rice University Rice University is a comprehensive research university in Houston, Texas. Rice produces Houston's next generation of leaders and advances tomorrow's thinking

Strategic Plan | Rice University We will leverage our curiosity and the uniqueness that is Rice, an unparalleled commitment to the person, and a distinct ability to work across disciplines, across industries, and across

Canvas at Rice | Learning Environments | Office of Information Canvas is Rice's Learning Management System for all course-related curriculum needs. If you have questions or would like additional information, please contact Learning Environments,

Residential Colleges | Dean of Undergraduates | Rice University Fostering diversity and an intellectual environment, Rice University is a comprehensive research university located on a 300-acre tree-lined campus in Houston, Texas. Rice produces the next

Access | Office of Admission | Rice University Fostering diversity and an intellectual environment, Rice University is a comprehensive research university located on a 300-acre tree-lined campus in Houston, Texas. Rice produces the next

Office of Provost | Rice University Rice's faculty are entrepreneurial, enthusiastic and deeply committed to excellence. As creative innovators, we challenge our students to explore new ideas and make new discoveries

Chao family gift supports, names Rice University's 12th residential Amid unprecedented enrollment growth, Rice will open its 12th residential college, the Ting Tsung and Wei Fong Chao College — referred to as Chao College — made possible

Rice rises in US News rankings, recognized for value, teaching and Rice University continues its upward trajectory in national and international rankings, earning the No. 17 spot in the 2026 U.S. News & World Report Best Colleges

CoachRICE | DOERR | Rice University This 80-hour Level 1 accredited program with the International Coaching Federation (ICF) applies a variety of teaching and learning methodologies to give participants an immersive experience

WaTER Institute | Rice University Researchers based at Rice University in Texas have developed a novel membrane-free desalination system that uses a creative approach to heat recovery that can

Related to rice grain anatomy

South Korea scientists tout 'beef rice' as source of protein for the future (Reuters1y) SEOUL, March 14 (Reuters) - South Korean researchers have grown beef cells in rice grains in what they say is a major step towards achieving a sustainable, affordable and environmentally friendly

South Korea scientists tout 'beef rice' as source of protein for the future (Reuters1y) SEOUL, March 14 (Reuters) - South Korean researchers have grown beef cells in rice grains in what they say is a major step towards achieving a sustainable, affordable and environmentally friendly

Variation in grain yield, and nitrogen, phosphorus and potassium nutrition of irrigated rice cultivars grown at fertile and low-fertile soils (JSTOR Daily2y) Vol. 434, No. 1/2, Part I: Special Issue Plant Nutrition for Sustainable Crop Production (January 2019), pp. 107-123 (17 pages)

Background and aims Rice cultivars bred for fertile soils may not be the

Variation in grain yield, and nitrogen, phosphorus and potassium nutrition of irrigated rice cultivars grown at fertile and low-fertile soils (JSTOR Daily2y) Vol. 434, No. 1/2, Part I: Special Issue Plant Nutrition for Sustainable Crop Production (January 2019), pp. 107-123 (17 pages)

Background and aims Rice cultivars bred for fertile soils may not be the

Back to Home: <https://ns2.kelisto.es>