

OPINION

Advantages, Disadvantages And Future Of Plant Selection Methods



Ahmad Usman

Plant selection is a process that involves identifying, selecting, and breeding plants with desirable traits for various purposes, such as food, medicine, ornamental uses, and more.

Plant selection is a process that involves identifying, selecting, and breeding plants with desirable traits for various purposes such as food, medicine, ornamental uses, and more. Over the years, humans have developed various plant selection methods that have resulted in significant improvements in crop yields, disease resistance, and overall plant quality.

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Why Do We Observe So Many Shapes, Sizes And Colour In Nature ?



Saikat Basu

If we take time to look around us we would certainly notice the galaxy of beautiful shapes, sizes and colours (SSC) as a conspicuous characteristic of our Natural World. Whether we are looking at different animals or plant species, or even microscopic or sub-microscopic forms of life (that can only be seen under specialized microscopes); we are amazed to see the spectacular diversity of various shapes, sizes and colour (SSC) in the nature.

The wide diversity of various shapes, sizes, and colours (SSC) present among different species of microbes, algae, fungi, bryophytes, pteridophytes, gymnosperms, or angiosperms; or invertebrates (cnidarians, coelenterates, arthropods, molluscs, and echinoderms, to mention only a handful); or vertebrates (such as fishes, amphibians, reptiles, birds, and mammals).

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Climate Change Limiting Maize Productivity In Pakistan



Anam Saira

Climate changes the major highlighted issue in the world. Pakistan being a developing country and its agriculture affected badly by the unsteady climate.

Dynamic climate temperature playing a key role in poignant agriculture and plant production.

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The Era Of Mobile Phones Has Come To An End

The AI PIN is a new and innovative product that has the potential to change the way we interact with technology.

Just as mobile phones revolutionized human life, replacing essential items like telephones, radios, TVs, newspapers, calculators, etc., Human Company has introduced "AI PIN," which may potentially phase out mobile phones in a matter of months.

AI PIN is a square device that magnetically clips onto your clothes or other surfaces. Human Company is providing this device with two "battery boosters," and it is powered by a Qualcomm Snapdragon processor.

AI PIN uses cameras, depth sensors, and motion sensors to track and record its surroundings. It includes a bullet speaker, referred to as "Personal Speaker" by Human, and can

connect to Bluetooth headphones.

Human Company has brought new ways to communicate with its AI PIN, primarily voice-based but also equipped with a green laser projector that can display information on your hand or any surface.

It is claimed that you can record objects using the camera. AI PIN operates based on your gestures, and it has a touchpad. The "Trust Light" on AI PIN shines when recording begins.

Human Company will start taking orders from November 15, and you can get this device for PKR 197,000.

The company provides a phone number and cell data on its brand's wireless service, which operates on the T-Mobile network. Countless AI modules will be available for creating, editing, running, and sharing

images and videos on social media.

The operating system is called Cosmos, providing relief from downloading numerous apps. Human's cosmos is a smoother system that can call various AIs and other tools according to your needs.

It's essentially like the ChatGPT plug-in system, enabling you to incorporate new features or data into your chatbot experience. AI PIN can write messages that resemble your personal writing style and summarize your email inbox for you. It can also translate into different languages.

AI PIN will tell you what to eat and what not to eat, providing nutritional information and creating a food chart.

It supports Tidal music streaming, including "AI DJ," which selects music for you based on your current listening

history.

The AI PIN is a new and innovative product that has the potential to change the way we interact with technology. It is a versatile device that can be used for a variety of purposes, and it is sure to appeal to a wide range of users.

In 2019, Imran Chaudhri and Bethany Bongiorno co-founded Humane, a pioneering company dedicated to crafting technologies and platforms for the intelligence age.

The Humane AI Pin, their initial product, allows consumers to carry the capabilities of AI wherever they go.

Collaborating with major players like Microsoft, OpenAI, Qualcomm Technologies, Inc., and T-Mobile, Humane is on a mission to usher in the next era of personal mobile computing, centered around the transformative power of AI.

DUET Takes Third Place In UNIDO Global Call 2023 Award Ceremony

The auxiliary system, a novel addition to the existing infrastructure, ensures the production of wind even under conditions of very low natural wind speeds.

The United Nations Industrial Development Organization (UNIDO) Global Call 2023 Award Ceremony, which was



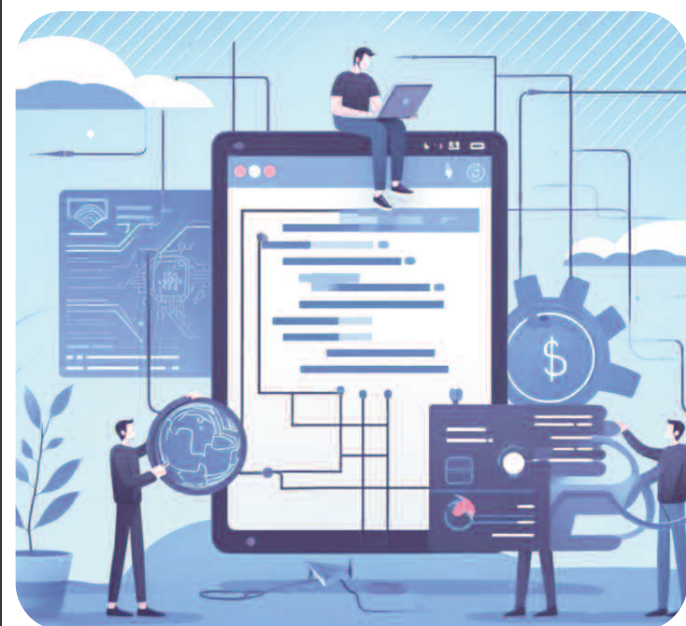
held at the China International Import Expo (CIIE) in Shanghai, saw the Dawood University of Engineering and Technology (DUET) emerge victorious, taking third place in the Clean Energy Innovation category.

DUET's accomplishment shines a spotlight on the innovative strides made by Professor Zeeshan and his team, who introduced a cutting-edge Vertical Axis Wind Turbine (VAWT) solution designed to address challenges in wind energy production, particularly in regions with low natural wind speeds.

Professor Zeeshan emphasized the project's focus on enhancing the stability of wind power provision by incorporating an auxiliary system. Drawing an analogy to solar systems, he highlighted the intermittent nature of wind availability throughout the year.

The auxiliary system, a novel addition to the existing infrastructure...[Read More](#)

How To Find Freelance PHP Developer Jobs In US?



In the US, the demand for freelance PHP developers is strong, driven by PHP's global popularity and its third-place ranking in Upwork's freelance language demand. Freelance PHP developers, self-employed experts in PHP-based web and app development, cater to projects of varying scales, offering proficiency in PHP, the LAMP stack, and diverse web technologies.

In the US, the demand for freelance PHP developers is strong, driven by PHP's global popularity and its third-place ranking in Upwork's freelance language demand. E-commerce growth, PHP framework adoption, and the expanding gig economy contribute to this demand, providing numerous opportunities on online platforms and job boards.

Understanding the Freelance PHP Developer Market
Choosing the right freelance PHP developer is crucial for project success, offering skills, cost-effectiveness, and fresh perspectives. Long-term relationships save time and money, while flexible hiring on a project basis accommodates varying demands. The global demand for PHP developers is expected to rise, fueled by e-commerce growth, PHP framework popularity, and the gig economy trend. Essential skills for freelance PHP developers include PHP language proficiency, framework expertise (e.g., Laravel, Symfony), and knowledge of web technologies (HTML, CSS, JavaScript). Database experience, problem-solving, debugging skills, and effective communication and teamwork round out key attributes. A variety of freelance PHP projects, from website and web app development to specialized tasks like e-commerce and fintech development.

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In-Shape Health Clubs: Sculpting Wellness Journey With Fitness Excellence

In-Shape Gym recognizes that the fitness journey is deeply personal, prompting them to offer a diverse range of membership options accommodating various preferences and lifestyles.

In-Shape Health Clubs, a prominent fitness chain with 40+ California locations, offers a diverse wellness haven. From childcare to yoga, cycling, and personalized training, it caters to varied preferences. Membership choices—Lifestyle, Local Network, Network Plus, and Core—cater to specific needs, each with associated fees. A standout is the Virtual Run Club Events, reflecting In-Shape's tech-infused commitment to



engaging workouts.

Exploring In-Shape reveals advantages—abundant facilities, flexible memberships, and budget-friendly pricing. Yet, limita-

tions include geographical constraints and occasional billing/customer service issues. Real member insights, garnered from diverse platforms, enhance decision-making. Let's delve into the holistic world of Inshape gym, empowering you to make an informed fitness choice.

Membership Options at In-Shape Gym

In-Shape Gym recognizes that the fitness journey is deeply personal, prompting them to offer a diverse range of membership options accommodating various preferences and lifestyles. These options ensure that every member finds a plan tailored to their unique fitness goals.

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Navigating Virtual Classroom: An Overview Of Keiser University's Blackboard Learn

Keiser University's Blackboard Learn is one such platform, offering a virtual classroom environment designed to facilitate seamless interaction between students and instructors.

In the rapidly evolving landscape of education, online learning platforms have become integral to providing students with flexible and accessible education. Keiser University's Blackboard Learn is one such platform, offering a virtual classroom environment designed to facilitate seamless interaction between students and instructors.



In this article, we will delve into the features of Keiser Blackboard, its advantages, and some challenges associated with online learning. And its comparison with other top of the line learning platforms like Coursera

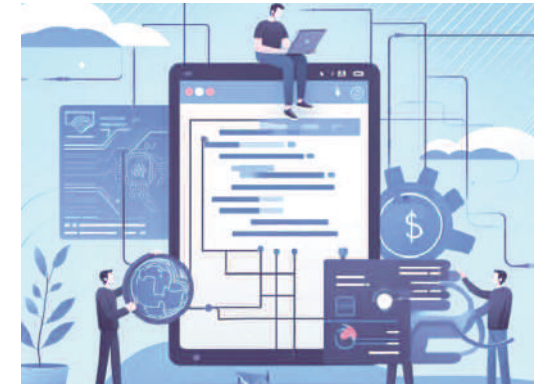
and Udemy. User-Friendly Interface Keiser Blackboard is renowned for its user-friendly interface, providing students with easy navigation and access to course materials.

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Sayyed Shozib

Building a standout profile on platforms like Upwork involves completing all sections, crafting a strong profile summary, showcasing past work, and accumulating positive ratings and reviews for enhanced credibility and client trust



How To Find Freelance PHP Developer Jobs In US?

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Creating a compelling portfolio for freelance PHP development involves showcasing top projects, emphasizing skills, and using case studies for impact. High-quality visuals, easy navigation, and the inclusion of certifications enhance portfolio appeal. Tailoring a resume is vital, focusing on matching job descriptions, incorporating keywords, quantifying achievements, and proofreading for error-free content.

Leveraging freelance platforms like Upwork, Fiverr, Toptal, Codeable, and Gigster caters to diverse needs. Each platform offers specific features, specialties, and hiring processes, allowing businesses to choose based on project requirements, budget constraints, and skill preferences.

Building a standout profile on platforms like Upwork involves completing all sections, crafting a strong profile summary, showcasing past work, and accumulating positive ratings and reviews for enhanced credibility and client trust.

How to bid? Effectively bidding on freelance projects requires balancing competitiveness and fair valuation. Understand job requirements, align skills, and estimate time/resources for fair pricing. Research market rates, considering experience and expertise. Be flexible to negotiate based on the client's budget, fostering a collaborative and mutually beneficial approach.

Here is an example of how to calculate a bid for a freelance project:

Project requirements: Develop a custom WordPress theme for a small business website.

Estimated time and resources required: 20 hours of development time.

Market rate for similar projects: \$50-\$100 per hour.

Experience and expertise: 5 years of experience developing WordPress themes.

Bid calculation: 20 hours * \$75 per hour = \$1500

Leveraging Freelance Platforms

Leveraging social media for professional networking is vital for discovering freelance PHP opportunities in the US. Establish a robust LinkedIn profile, join relevant groups, and follow industry influencers on LinkedIn and Twitter. Actively share PHP-related content to showcase expertise. Directly reach out to express interest in job openings.

Platforms like LinkedIn offer user-friendly features for effective networking, while Twitter helps track influencers. GitHub showcases your work, and Stack Overflow aids learning and networking within the PHP community. Utilizing these platforms strategically enhances visibility and networking capabilities for freelance PHP developers.

Online communities

Joining relevant online communities and forums is a great way to find freelance PHP developer jobs in the US. Here are some specific online communities and forums that you can join to find freelance PHP developer jobs in the US:

Reddit: There are a number of PHP development subreddits on Reddit, such as /r/php and /r/laravel.

Stack Overflow: Stack Overflow is a question-and-answer website for developers. It also has a forum where developers can ask questions and share knowledge.

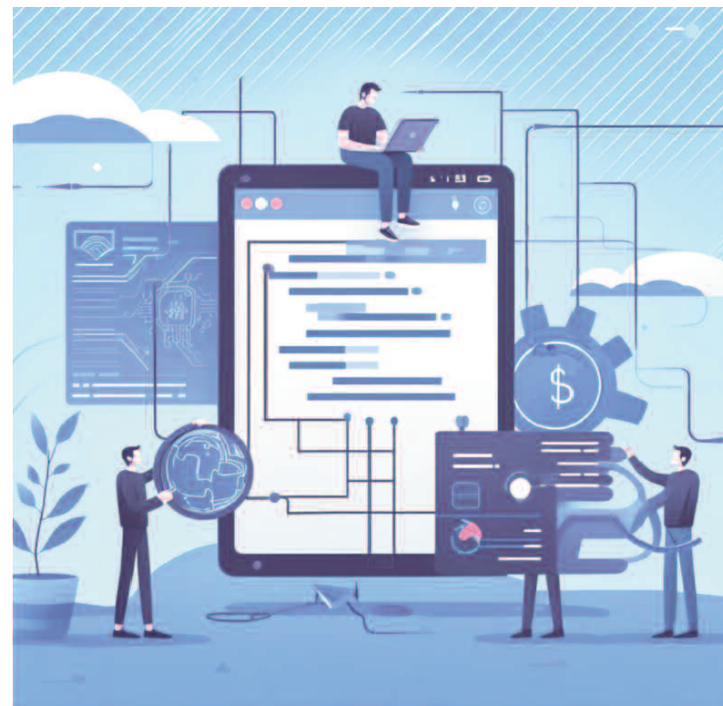
Dev.to: Dev.to is a community for developers to share articles, tutorials, and other content.

Hacker News: Hacker News is a news website for hackers and

and share knowledge.

Networking and Building an Online Presence

Demonstrating expertise through a personal blog or website is essential for freelance PHP developers. Share insightful articles, contribute to open source projects, and engage in PHP conferences to broaden your network and establish authority. Effective communication skills are crucial; practice clear email writing, address client questions proactively, and



startup enthusiasts. It also has a forum where users can post and discuss news articles.

FreeCodeCamp: FreeCodeCamp is a non-profit organization that teaches people to code. It also has a forum where users can ask questions

and negotiate contracts transparently.

Time management is key in a remote work setup; use tracking tools, set boundaries, and communicate regularly. Long-term success relies on building client relationships; establish trust,

provide value, and seek feedback. Continuous learning is vital in the dynamic PHP landscape; read blogs, attend conferences, take online courses, and contribute to open source projects.

Stay informed

Staying informed about the latest PHP developments, trends, and job opportunities is vital. Subscribe to newsletters like PHP Weekly, PHP Architect, Laravel News, Symfony News, and Zend Newsletter for regular updates.

Explore blogs such as SitePoint PHP, NetTuts+ PHP, Tuts+ Laravel, Tuts+ Symfony, and PHPnet Blog for in-depth insights. Stay current with industry updates through the Stack Overflow Developer Survey, GitHub Octoverse, PHP Salaries, PHPJobs.net, and RemoteOK. Additionally, follow PHP developers and companies on social media for real-time news and job alerts, ensuring you remain well-connected and informed.

Enhancing Soft Skills for Freelance Success

Participating in webinars, conferences, and workshops is a dynamic strategy for acquiring new PHP skills, connecting with peers, and discovering freelance opportunities in the US. Conveniently accessible through platforms like PHP Weekly, SitePoint, and Tuts+, webinars offer at-home learning.

Conferences such as PHP North America and Laravel World provide networking and client interaction opportunities. Platforms like General Assembly and Udemy offer hands-on learning through workshops, enhancing skill development.

Complemented by attending meetups and hackathons, this approach fosters continuous learning and expands professional networks in the competitive US market.

Freelance PHP developers in the US face significant challenges, including fierce global competition, client acquisition struggles due to pricing concerns, and the delicate balance of setting rates for sustainable income. Effective time management amid client projects, marketing, and networking poses another hurdle.

Keeping pace with evolving PHP technologies requires continuous learning. To thrive, strategies include identifying strengths and weaknesses, setting realistic goals, creating a comprehensive business plan, active networking, prioritizing customer service, and strategic business investments. Learning from mistakes is crucial; identify, analyze, understand contributing factors, develop a plan, implement it, and patiently persist in refining skills for success in the dynamic freelance PHP market.

Conclusion

The demand for freelance PHP developers in the US is robust, driven by global popularity, e-commerce growth, and the gig economy. To navigate this competitive landscape, freelancers must showcase expertise through portfolios, tailor resumes, and leverage platforms like Upwork and Fiverr. Bidding effectively, staying informed through newsletters and blogs, participating in webinars, and honing soft skills contribute to success...[Read More](#)



Rosheen Javed

Each membership type entails initiation fees, monthly charges, and annual enhancement fees, granting members the flexibility to choose a plan aligned with their budget and fitness objectives



In-Shape Health Clubs: Sculpting Wellness Journey With Fitness Excellence

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The Lifestyle Membership is crafted for those seeking a comprehensive fitness experience, providing access to a broad spectrum of facilities and services. It caters to individuals valuing diverse workout options and comprehensive wellness amenities.

For those preferring a more localized fitness routine, the Local Network Membership strikes a balance between convenience and choice. It allows access to facilities within a specific network, catering to members who prioritize proximity over an extensive range of offerings.

The Network Plus Membership is designed for fitness enthusiasts craving an extensive network of facilities. Ideal for those who enjoy exploring various In-Shape locations, this membership appeals to individuals seeking diverse workout environments.

Catering to essential fitness needs, the Core Membership provides access to fundamental facilities, offering a budget-friendly option for those with

specific workout routines in mind. It stands as a straightforward membership choice with a commitment to affordability.

Each membership type entails initiation fees, monthly charges, and annual enhancement fees, granting members the flexibility to choose a plan aligned with their budget and fitness objectives. This adaptability in membership options positions In-Shape Health Clubs as a versatile fitness solution for a broad spectrum of individuals.

Unveiling Fitness Excellence at In-Shape Gym

In-Shape Gym delivers a comprehensive fitness experience, providing diverse amenities from top-notch childcare facilities to invigorating yoga classes and personalized training programs. Virtual Run Club Events exemplify In-Shape's commitment to seamlessly integrate technology, fostering community and competition. Membership benefits include a supportive environment, hands-on guidance, and access to varied fitness tools.

Flexible membership options cater to diverse needs, aligning with preferences and budgets while prioritizing affordability. As we delve into user reviews,

we'll uncover firsthand experiences, highlighting positive elements that attract members and considerations that add depth to In-Shape Health Clubs' wellness narrative. Let's explore testimonials to capture the essence of



In-Shape through the eyes of those immersed in its offerings.

Navigating Financial Fitness Understanding the financial implications of joining a fitness club is crucial for making an informed decision. In-Shape Health Clubs takes a transparent approach to pricing, offering a

range of membership options to suit diverse budgets and preferences.

The cost of an In-Shape gym membership is influenced by factors like location, membership type, and ongoing promo-



otions. On average, monthly fees for a Basic Membership typically range from \$5 to \$35, with Preferred Memberships, offering additional perks, having slightly higher costs. Family plans, encouraging group fitness, often come with discounted rates per person, providing an economical

option for households.

As prospective members evaluate the financial commitment for each membership type, it's vital to balance the benefits against the costs. In-Shape's commitment to affordability makes it a compelling choice for individuals seeking quality facilities without straining their budgets.

In-Shape Health Clubs and Competitor Comparison

In-Shape Health Clubs operates in a dynamic fitness arena, contending with competitors like Fitness Together, Princeton Club, Crunch Fitness, Equinox, LA Fitness, Gold's Gym, and 24 Hour Fitness. Distinctive in its offerings, In-Shape stands out with diverse amenities, including childcare, swimming pools, yoga, cycling, and Virtual Run Club Events.

Fitness Together specializes in personal training, Princeton Club focuses on top-notch cardio brands and childcare, while Crunch Fitness offers a variety of equipment and group classes. Regarding financial commitment, Crunch Fitness has a \$49 base enrollment fee and a \$9.99 monthly fee, while Princeton Club's single adult monthly fee is \$65.49. This comparative

overview aids prospective members in evaluating not just costs but also the unique features each competitor brings to the fitness landscape.

Insights from User Reviews

User reviews serve as a window into the daily encounters of individuals at In-Shape Gym, offering firsthand perspectives from diverse platforms. These insights illuminate both strengths and potential pitfalls, providing valuable considerations for those contemplating a membership.

Starting with a Trusty Spotter Review, the positive portrayal labels In-Shape gym as an excellent gym with a wide array of amenities. However, there's a mention of potential confusion in pricing at different club levels, suggesting that more budget-friendly options may be available. Moving to the Yelp Rating and Reviews, where an average rating of 3.5 stars from 3 reviews showcases a mixed sentiment. Positive feedback commends facilities and staff, but negative comments highlight billing issues and customer service concerns. An Indeed Review by a Former Custodian paints a positive picture, portraying In-Shape gym as a fantastic...[Read More](#)

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Rosheen Javed

The platform's robust assessment and grading system, including automatic grading and immediate feedback, enhances efficiency and support for students. Mobile accessibility further promotes flexibility, enabling learners to access course materials from any device



Navigating Virtual Classroom: An Overview Of Keiser University's Blackboard Learn

The platform enables students to engage in online discussions, collaborate on group projects, and interact with instructors and peers in real-time. The interface is intuitively designed to accommodate various learning styles, contributing to a positive user experience.

Features and Functionality
Keiser Blackboard offers a range of features to enhance the online learning experience. Instructors can create customized content and assessments tailored to individual student needs. The platform also supports automatic grading for certain assessments, providing students with immediate feedback.

Furthermore, Keiser Blackboard is compatible with various devices, including smartphones and tablets. Integration with tools like Turnitin for plagiarism detection and Collaborate for video conferencing enhances the overall learning environment.

Advantages of Keiser Blackboard
Flexibility: Keiser Blackboard allows students to access course materials and participate in class discussions from anywhere, at any time.

Customized Learning:
Instructors can tailor content and assessments to address the unique needs of individual students, fostering a more personalized learning experience.

Integration with Tools: The platform seamlessly integrates with tools like Turnitin and Collaborate, enriching the learning experience with additional resources.

Challenges of Online Learning
Despite its advantages, online learning platforms such as Keiser Blackboard present certain challenges:

Technical Issues: Users may encounter technical challenges, such as slow loading times or difficulties accessing specific features.

Limited Face-to-Face Interaction: Online learning can limit face-to-face interaction, potentially disadvantaging students who thrive in a traditional classroom setting.

Resource Requirements: Reliable internet access and access to a computer or mobile device are prerequisites, posing challenges for students without these resources.

Isolation and Lack of Social Interaction: The absence of physical classrooms can lead to a sense of isolation, as online learning lacks the social interac-

tion of traditional classrooms.

Cheating Concerns: The virtual nature of assessments may raise concerns about academic integrity and make it easier for students to engage in dishonest practices.

Limited Hands-On Experience: Some fields require hands-on experience, and online learning may not fully provide the practical skills needed, such as in nursing or engineering.

Less Immediate Feedback and Accountability: Online learning may offer less immediate feedback and accountability compared to traditional classrooms, potentially affecting student performance.

Navigating Keiser Blackboard, Coursera, and Udemy

The online education landscape offers a multitude of choices, and among the prominent players are Keiser Blackboard, Coursera, and Udemy. Each platform brings a unique set of features and drawbacks to the table, providing diverse options for learners. In this comprehensive exploration, we will delve into the strengths and weaknesses of each, aiding prospective learners in making well-informed decisions.

Keiser Blackboard: Fostering Virtual Classroom Engagement
Keiser Blackboard stands out

for its commitment to creating a virtual classroom environment that facilitates effective communication between students and instructors. Renowned for its user-friendly interface, this platform ensures seamless navigation and access to course materials. The collaborative and interactive learning features allow students to engage in online discussions, group projects, and real-time interactions, creating an immersive educational experience.

Instructors on Keiser Blackboard have the flexibility to personalize learning experiences by tailoring content and assessments to meet individual student needs. The platform's robust assessment and grading system, including automatic grading and immediate feedback, enhances efficiency and support for students. Mobile accessibility further promotes flexibility, enabling learners to access course materials from any device.

Despite these advantages, technical issues and potential limitations in face-to-face interaction pose challenges. Dependence on technology, lack of immediate feedback, and potential for cheating are also considerations for prospective users. However, for those seek-

ing a career-focused education aligned with Keiser University's mission, the platform offers substantial benefits.

Coursera: Global Learning Excellence

Coursera emerges as a global hub for academic excellence, offering a variety of learning options from top universities and organizations worldwide. Its flexible learning approach, including self-paced courses, instructor-led courses, and specializations, caters to diverse preferences. The affordability of courses and significantly lower costs for degrees compared to on-campus alternatives make Coursera an accessible option for learners.

The platform's vast collection of free courses and partnerships with 300+ top universities and organizations contribute to a rich and diverse learning environment. Coursera's mobile accessibility allows for offline learning, accommodating individuals on the move. However, potential confusion regarding pricing and the need for prior knowledge in certain courses are factors to consider.

Coursera's commitment to quality is evident through courses taught by top experts. Nevertheless...[Read More](#)



"The art challenges the technology, and the technology inspires the art."

—John Lasseter
American film director, producer, screenwriter, animator, voice actor, and the head of animation



Ahmad Usman

This method has become increasingly popular in recent years due to advances in genetic analysis techniques. It allows breeders to identify and select plants with desirable traits more accurately and efficiently than with other methods



Advantages, Disadvantages And Future Of Plant Selection Methods

Plant selection is a process that involves identifying, selecting, and breeding plants with desirable traits for various purposes, such as food, medicine, ornamental uses, and more.

Plant selection is a process that involves identifying, selecting, and breeding plants with desirable traits for various purposes such as food, medicine, ornamental uses, and more. Over the years, humans have developed various plant selection methods that have resulted in significant improvements in crop yields, disease resistance, and overall plant quality.

In this article, we will delve deeper into the different plant selection methods, their advantages and disadvantages, and the future of plant selection.

Mass selection:
Mass selection is one of the oldest and simplest methods of plant selection. In this method, seeds from many plants are mixed and planted together. After the plants mature, the best ones are selected based on desirable traits such as yield, disease resistance, or flavor.

The seeds from these selected plants are then saved and replanted in the next generation, resulting in a gradual improvement in the overall quality of the crop. This

method is relatively easy and inexpensive, and it can be used for any type of plant.

However, mass selection has some disadvantages. It can take several generations before significant improvements are achieved, and the process may not result in plants with the desired traits. Moreover, mass selection relies on natural variations, and it is not always possible to identify and select the best plants accurately.

Phenotypic selection:
Phenotypic selection involves selecting plants based on observable traits such as height, leaf shape, flower color, or fruit size.

These traits are often controlled by a combination of genetic and environmental factors, so it is important to choose plants that not only have desirable traits but also perform well in specific growing conditions.

This method is widely used in agriculture and horticulture because it is relatively easy and inexpensive. It allows breeders to select plants with desirable traits that are easy to identify, such as disease resistance or fruit size.

However, phenotypic selection may not be effective for complex traits that are difficult to observe or measure, such as drought tolerance or nutrient uptake efficiency.

Genotypic selection:

Genotypic selection involves selecting plants based on their genetic makeup, which can be determined by DNA sequencing or other genetic analysis techniques. Genotypic selection allows breeders to identify specific genes or markers associated with desirable traits and use them to selectively breed plants with those traits.

This method has become increasingly popular in recent years due to advances in genetic analysis techniques. It allows breeders to identify and select plants with desirable traits more accurately and efficiently than with other methods.

Moreover, genotypic selection can be used to select plants with complex traits that are difficult to observe or measure, such as drought tolerance or nutrient uptake efficiency.

However, genotypic selection has some disadvantages. It can be expensive and time-consuming, and it requires specialized equipment and expertise. Moreover, it may not be effective for traits that are controlled by multiple genes or that are influenced by environmental factors.

Hybridization:
Hybridization involves crossing two different plants to create a hybrid offspring that combines the desirable traits of both parents. Hybridization can be done naturally, but in mod-

ern agriculture, it is often done artificially by hand-pollinating flowers or using specialized machinery.

Hybrid plants are often more vigorous and have higher yields than their parents, but they may also be sterile or produce unpredictable offspring.

This method has been widely used in agriculture and horticulture for many years. It allows breeders to combine desirable traits from different plants and create new varieties with improved quality, yield, and disease resistance. Moreover, hybridization can be used to create plants with desirable traits that are difficult to achieve by other methods.

However, hybridization has some disadvantages. It can be expensive and time-consuming, and it requires specialized expertise and equipment. Moreover, hybrid plants may not always perform well in specific growing conditions, and they may require specialized management practices.

Genetic engineering:
Genetic engineering involves modifying the genetic makeup of plants by inserting or deleting specific genes or DNA sequences. This method has revolutionized plant selection and allowed breeders to create plants with specific desirable traits that would be impossible to achieve by traditional breed-

ing methods.

Genetic engineering has been used to create plants with improved disease resistance, tolerance to environmental stresses, and increased nutritional value. For example, the development of genetically modified (GM) crops has allowed farmers to reduce the use of pesticides and herbicides, resulting in more environmentally sustainable farming practices.

However, genetic engineering is a controversial topic, and there are concerns about the potential risks associated with genetically modified organisms (GMOs). Some people worry that GMOs may have unintended consequences for the environment or human health, and there is ongoing debate about the safety and ethical implications of genetic engineering.

Participatory plant breeding:
Participatory plant breeding is a relatively new method that involves collaboration between farmers, breeders, and other stakeholders in the plant breeding process. This method is designed to incorporate the knowledge and experience of local farmers and communities into the plant selection process, resulting in plants that are better adapted to local growing conditions and cultural practices. Participatory plant breeding has been used successfully in many parts of the

world, particularly in developing countries where farmers have limited access to modern plant breeding techniques. This method allows farmers to play an active role in the selection and development of new plant varieties, resulting in more sustainable and equitable agricultural practices.

Conclusion:
Plant selection is a complex and dynamic process that has evolved over thousands of years. Today, plant breeders have access to a range of sophisticated plant selection methods that allow them to create plants with specific desirable traits. Each method has its advantages and disadvantages, and breeders must choose the most appropriate method depending on their specific goals and constraints.

As we look to the future of plant selection, there is growing interest in developing plants that are more sustainable, resilient, and adaptable to changing environmental conditions. This will require continued innovation and collaboration between plant breeders, farmers, and other stakeholders in the plant breeding process. With the right tools and approaches, we can create plants that will help us feed a growing population, protect our natural resources, and support sustainable agricultural practices.



Saikat Basu

Plant-animal interaction is a unique phenomenon in the natural world. If we look closely, the shape, size, odour, and even colour of several flower species have undergone co evolution with their specific pollinators like small birds, bats, snails, slugs, or insects (such as bees, butterflies, moths, different species of flies and beetles, wasps, and ants) that play a significant role in the cross pollination of a wide diversity of plant species that helps to maintain the dynamics of our natural ecosystems.



Why Do We Observe So Many Shapes, Sizes And Colour In Nature ?

If we take time to look around us we would certainly notice the galaxy of beautiful shapes, sizes and colours (SSC) as a conspicuous characteristic of our Natural World. Whether we are looking at different animals or plant species, or even microscopic or sub-microscopic forms of life (that can only be seen under specialized microscopes); we are amazed to see the spectacular diversity of various shapes, sizes and colour (SSC) in the nature.

The wide diversity of various shapes, sizes, and colours (SSC) present among different species of microbes, algae, fungi, bryophytes, pteridophytes, gymnosperms, or angiosperms; or invertebrates (cnidarians, coelenterates, arthropods, molluscs, and echinoderms, to mention only a handful); or vertebrates (such as fishes, amphibians, reptiles, birds, and mammals).

The important question to ask is why? Why do we need this SSC, or why has nature created diversity in SSC among innumerable species through very long geologic periods of evolution?

One of the important explanations for such reach diversity is certainly reproductive fitness. Animals or plants with SSC definitely have better chances of achieving higher reproductive success during their lifetime.

Big body size, big and unique-

ly shaped horns, distinct coat colours or plumage, big shape and size, and beautiful and attractive marking patterns, like the stripes on tigers or spots on cheetahs and jaguars or the ornamental mane of the male lions or tusks in the case of elephants and walrus, are excellent examples for reproductive fitness in various populations.

Choosy females like mating with the most spectacular males in the population since they desperately want the quality genes of the males to pass onto their next generation.

This unique SSC in nature's diversity thus helps in establishing a high quality, genetically diverse, disease resistant population to thrive over time. This gives those target populations a better chance to survive, travel, breed, and multiply to help sustain the species concerned. Is there any other explanation? What about plants, then?

Well, lunch could not reproduce in the same way as the animals do because they are restricted to a specific place in the ecosystem. However, plants have numerous adaptations that have helped in the sexual, asexual, and vegetative reproduction of various plant species.

But it is interesting to note that 85% of the flowering plant species are angiosperms, which include both monocotyledons and dicotyledonous plants.

These plant species are

dependent on various natural or biological pollinators, such as insects, snails, slugs, small birds, reptiles, amphibians, and mammals, to help them in the transfer of the pollen grain from the stigma of one flower to the stigma of another flower.

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the anther of one flower to the stigma of another flower in the same plant or different plants located in the vicinity.

Does the pollinator provide a very significant ecological service that has helped nature sustain and thrive during the process of evolution?

Plant-animal interaction is a unique phenomenon in the natu-

ral world. If we look closely, the shape, size, odour, and even colour of several flower species have undergone co evolution with their specific pollinators like small birds, bats, snails, slugs, or insects (such as bees, butterflies, moths, different species of flies and beetles, wasps, and ants) that play a significant role in the cross pollination of a wide diversity of plant species that helps to maintain the dynamics of our natural ecosystems.

Anthropogenic impacts, however, have damaged this unique balance of SSC in nature for the selfish needs and greed of humans. Both recreational hunting and poaching, live capture, and the illegal trade and trafficking of various major and minor forest products, wildlife, and biodiversity have put artificial evolutionary pressure on our ecosystems.

By taking the most majestic males or highly productive females through both legal and/or illegal harvest, we have been weakening the population dynamics of many species without knowing or acknowledging it. Let us illustrate with an example below.

Plum headed and grey-headed parakeets are two extremely beautifully coloured and distinct parakeet species from the Indian subcontinent. The species called the plum headed parakeet is distinctly dimorphic.

The male has a brighter plum-coloured head, and the female has a lighter mauve-coloured head.

This is one of the most conspicuous dimorphic species among parakeets found in India, after the rose ringed parakeet, where the male has a dark ring around the base of the head but the female lacks that marking.

The grey-headed parakeet's colour is much deeper. Often female plum headed parakeets are identified, labelled, or illegally sold to customers as grey headed parakeets, as the plum headed parakeet is more abundant in numbers.

Illegal breeders of indigenous species knowingly or unknowingly keep different parakeet species together in their illegal captive breeding programs. They often produce hybrid species with different colorations that are sold at high prices to customers.

But the approach is absolutely non-ethical and destructive to nature, as these are synthetic species and not natural wild species created in nature that have slowly evolved to their current shape, form, and colour.

Accidental release of such hybrids into the wild could cause gene contamination and genetic bottlenecks by cross breeding with wild species, weakening the vigour, population dynamics, and ecological health of the species.

Breeding of wild birds such as parakeets must be monitored and restricted to avoid genetic contamination of the wild stock of the concerned species. The mesmerising coloration should not be the cause of their illegal capture, breeding, sale, and trafficking. We must take action to protect and conserve these beautiful species.

We still need to understand and decipher the laws that govern our natural world comprehensively. Unfortunately, our little knowledge about the intricate way in which nature operates has been facilitating the destruction of our nature and natural ecosystems.

The spectacular show of flowers, particularly for attracting them. Corresponding pollinators are an outstanding example of how nature operates. But by removing the plant host or their respective pollinators, or vice versa, we are possibly pushing the species towards extinction, even before we had enough time to discuss and describe the species properly.

Hence, the diversity of SSC in nature is a parameter that has helped living organisms successfully undergo evolutionary changes over time, enhance reproductive fitness, maintain the genetic quality of the population, and struggle for existence by equipping them with proper tools to help them develop their own future and destiny.



Anam Saira

The overall reduced period of plant life-cycle adversely affects the interception of solar-radiations results in less production of photosynthates resulting in production of smaller cobs with lesser and smaller number of grains



Climate Change Limiting Maize Productivity In Pakistan

Anam Saira,
Samina Tanveer

Climate changes the major highlighted issue in the world. Pakistan being a developing country and its agriculture affected badly by the unsteady climate. Dynamic climate temperature playing a key role in poignant agriculture and plant production.

The extent to increase in temperature and the potential of more extreme events associated with climate change making the agricultural productivity at a risk. Although, all the crops being cultivated comparatively sensitive to this activity but Maize among the most important crops being sensitive and its productivity reduced to a greater extent. The Maize enjoying an outsized role in the gross domestic product comes at third place in production after wheat and rice in Pakistan growing on a large area with the majority of farmers adapting to cultivate maize. In Pakistan maize planted doubly a year with two growing seasons mainly the summer and spring.

"Climate change increase in carbon dioxide emissions in the coming decades, the global average temperature will rise between 4 and 6 degrees

Celsius, with a near doubling of atmospheric CO₂ by century's end. Those hotter, CO₂-rich future conditions are akin to turning up the heat and pumping CO₂ into a greenhouse. The likely result, assuming no other limiting factors such as lack of nutrients, is an explosion of plant life". Temperature and Heat Sensitivity:

Maize being a temperature and droughty sensitive crop badly affected by temperature rise in both the seasons but the major damage cause in spring season which suddenly rises in temperature after mid of March affects crop productivity. Warmer temperature affects the maize productivity directly generally in two ways. Higher temperature increases the crop growth rates by shortening their life-span through the process of bolting. This ends up in less and reduced time period crop to grain development affecting the crop yield potential.

Pollen Sterility: The tasseling and pollination stage both affects equally by rise in temperature as the temperature increased the male pollen become sterile due to excessive water loss and the accumulation of assimilates produced as a result of photosynthesis reduced. Fertilization in maize occur when the pollen fallen from the tassels of the maize plant

received by the silk. Increased temperature above 32C greatly reduce the ability of the pollen to attach to the silk and the occurrence of silk on the cob also delayed which reduce the period of co-occurrence of both the pollen and the cob. The increase air temperature also affects the maize pollen to

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become sterile and non-sticky to the cob because of the loss of water from the pollen during its flight. Pollen desiccated to 20% of its original water content is still capable of germination.

The reduction in pollen water content under heat stress is unlikely to be the main reason of reduced pollen viability.

The location of the tassel on the maize plant also provides maximum exposure to extreme temperatures increasing the probability of pollen

damage as a result of heat stress. Reduced Plant Cycle:

The overall reduced period of plant lifecycle adversely affects the interception of solar-radiations results in less production of photosynthates resulting in production of smaller cobs with lesser and smaller number of grains. The

lesser and smaller number of grain production mainly due to the lesser amount of starch production for the grain filling of maize and incomplete or sterile pollens which results in crinkled seeds having only the seed coat with no or lesser weight reducing the overall production.

On kernel development and final kernel mass due to a reduction in the number or size of endosperm cells formed thereby reducing sink capacity of maize cob. During this stage heat stress affects

cell division, sugar metabolism, and starch biosynthesis, reducing subsequent dry matter accumulation within kernels. The time duration of the grain filling process (35 days) is the longest physiological process during the reproductive stage, increasing the probability of experiencing high temperature during this stage.

Grain Filling: Heat stress during grain filling reduces endosperm starch content, the primary constituent of kernels. Maize kernel weight is the product of the rate and duration of grain filling,

both of which are affected by temperature.

High temperature during this period is associated with a reduction in the duration of grain filling. On an average 7% yield decline occur in maize per day when the temperature increased during the tasseling stage.

In maize productivity is the count of number and weight of seeds per cob the lesser the number of seeds less production and hence poor yield.

Mitigation of Climate Change:

The solution to these problems lies with in the development of such new varieties which not only have the capability to cope with heat and drought stresses but also have a shorter life span to mitigate the heat stress with no effect

on yield.

On the basis of management, it can be mitigated using application of nitrogen and magnesium which helps to reduce the effect of heat stress in maize plant. Light but frequent irrigation may help to reduce the effect of heat on the maize plant.

There should be a variety development program that not only emphasizes on yield of the crop but also addresses the problems related to the changing climate and the challenges related to it. Recommendations:

Farmer should also emphasize on the new technology to improve its per acre yield by becoming not reluctant in adopting wise and safe agriculture and clean environment which has a lesser impact on the environment. New agricultural practices will not only have to prevent heat stress but also improve the resilience of the system while reducing production costs.

The government should conduct such programs that not only make agriculture friendly to the environment but a check balance should be created to check and forecast the climate change strategy and the crop planting time should be forecasted to the farmers which help them to mitigate such problems associated with the changing and damaging climate to the crop productivity.