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Website: www.readersshelf.com

*Email:*readersshelf@gmail.com, jvph@rediffmail.com

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1. AGRICULTURE

Climate-Smart Agronomy: Strategies for Sustainable Crop Production under Climate Change

Chinchorkar, Sachin.S.

Associate Professor, Polytechnic in Agricultural Engineering,AAU,Dahod-Dahod-389160

Introduction

Agriculture is one of the most climate sensitive industries in the world. Temperature, rainfall, humidity and atmospheric carbon dioxide concentration directly affect crop growth, productivity and quality. The appearance of new pests and diseases together with frequent droughts, floods, heat waves, cyclones and changing rainfall patterns have made climate change a huge threat to global agriculture in recent decades and temperatures have been going up. Such climate shocks are impacting food production systems globally and jeopardizing the lives of millions of farmers. Developing nations are particularly susceptible since a substantial share of their population relies directly on agriculture for income and food security. Rising global population has increased the need for food, fiber and fuel. Agricultural land and water supplies are dwindling continually. Traditional methods of farming based on excessive tillage, indiscriminate use of fertilizers, extensive irrigation and mono-cropping have escalated the environmental deterioration and greenhouse gas emissions. These methods have also resulted in decreased soil fertility, ground water depletion and diminished ecological stability. Hence, contemporary agriculture needs a sustainable method that can improve agricultural output, conserve natural resources and respond to climatic unpredictability.

Climate-smart agronomy has become an essential answer to these interrelated concerns. Climatic-smart agronomy is the application of agronomic methods and technology that increase agricultural output, enhance resistance to climatic stress and decrease environmental consequences. It combines sustainable farming and new science approaches to build strong agricultural systems that can provide food security under changing climate circumstances. The idea is to utilize the soil, water, nutrients, crops and biodiversity efficiently for long-term sustainability.

Principle and Historical Significance

The concept of climate-smart agriculture emerged internationally in the early twenty-first century, when global organisations highlighted the need for climate-resilient agricultural systems as one of urgency. In 2010, the Food and Agriculture Organization of the UN officially adopted the idea of “climate-smart agriculture” as a means of sustainable food production in the face of climate change. But the origins of climate-smart agronomy may be traced back to previous agricultural advances, notably the Green Revolution. In the mid-20th century, agricultural scientist Norman Borlaug developed high-yielding wheat cultivars that greatly expanded food output in many nations. His work prevented global hunger and changed contemporary agriculture. The Green Revolution raised production but exposed the environmental fallout of intensive farming systems and prompted experts to call for more sustainable and climate-resilient agriculture options.

Today climate-smart agronomy is an integrated strategy to achieve sustainable crop production while taking on adaptation, mitigation and food security together. It includes conservation agriculture, effective water management, crop diversification, stress-tolerant cultivars, integrated nutrient management, agroforestry, digital agriculture and ecological agricultural methods. These solutions are rapidly becoming critical for the sustainability of agricultural systems in the face of climate unpredictability.

Components for Climate Smart Agriculture

- The concept is that agricultural production and environmental sustainability should advance simultaneously and this is the essence of climate-smart agronomy. The method attempts to increase agricultural resilience and reduce ecological degradation and greenhouse gas emissions. Climate-smart agronomy is an alternative to standard farming practices which typically concentrate on short-term output at the expense of long-term sustainability and resource preservation.
- Conservation Agriculture is one of the most fundamental pillars of climate aware agronomy. The three principles of conservation agriculture are limited soil disturbance, permanent soil cover and crop variety. Excessive tillage degrades the soil structure, speeds up the breakdown of organic materials and leads to increased erosion. Reduced or minimal tillage helps to maintain soil moisture, promote microbial activity and prevent carbon loss from the soil. Crop residues left on the soil surface operate as protective mulch and help to reduce evaporation losses and regulate soil temperature. These techniques promote soil health and boost resistance to drought and heat stress.
- An other key element of climate wise agronomy is diversifying crops. Continuous monocropping depletes the soil nutrients and increases the sensitivity to pests, diseases and climatic stresses. Diversified cropping systems including cereals, pulses, oilseeds, vegetables and fodder crops increase the ecosystem stability and decrease the production hazards . Crop rotation breaks pest cycles and improves nitrogen balance in soil. The use of legumes in agricultural systems increases nitrogen fixation and decreases reliance on synthetic fertilizers. Intercropping methods also optimize resource use and production under constrained land constraints .
- In contemporary agriculture, water management has become a major issue since climate change has exacerbated water shortages in many locations. Drip irrigation and sprinkler irrigation are efficient irrigation strategies for sustainable agricultural production. Drip irrigation waters directly to the root zone, reducing water loss from evaporation and runoff. Sprinkler system evenly sprays water and enhances irrigation efficiency on undulated land. Rainwater collecting systems, agricultural ponds and watershed management methods assist save water for use in dry times. Climate-smart agronomy also encourages irrigation scheduling depending on crop development phases and soil moisture levels to optimize water-use efficiency.
- Climate resilient agriculture is built on soil health management. Healthy soils are superior at storing water, providing nutrients and withstanding conditions of environmental stress. Soil fertility and microbial activity are enhanced by organic matter enrichment via compost, farmyard manure, crop residues, green manuring and biochar application. Integrated nutrient management is a way of sustaining soil production by integrating organic and inorganic sources of nutrients. Biofertilizers and microbial inoculants serve to enhance nutrient availability and promote plant development under stress situations. Soil testing and site-specific nutrient management may further improve fertilizer efficiency and decrease pollution to the environment.
- The creation of climate-resilient crop varieties is another important climate-smart farming practice. Plant breeders are generating crop genotypes that can tolerate drought, salt, heat, floods and new diseases. Short duration crop types are of particular importance in locations

with unpredictable rainfall patterns since they may avoid terminal drought stress. Climate resilient crops that assist maintain agricultural output under harsh climatic circumstances include heat-tolerant wheat, drought-resistant rice, salinity-tolerant barley, flood-tolerant rice types.

- Agroforestry systems, which combine trees with crops or animals, are an important part of climate aware agriculture. Trees boost biodiversity, trap carbon, decrease wind speed and improve soil conservation. Agroforestry systems provide extra revenue via timber, fruits, fuelwood and feed. In dryland areas, trees enhance microclimatic conditions and lessen the impact of heat stress on crops and cattle. The association of perennials with annual crops is a major ecological contribution.
- Integrated pest control is becoming more critical as climate change alters pest and disease dynamics. Increasing temperatures and fluctuating humidity patterns create conditions in which dangerous insects and illnesses may multiply and spread rapidly. Too much pesticide is bad for the environment, but it also creates resistance in pests and expenses of manufacturing. Integrated pest management uses cultural techniques, resistant cultivars, biological control agents, mechanical approaches and need-based pesticide administration to control pests sustainably. Such a strategy reduces reliance on chemicals and helps to build ecological balances in agricultural settings.
- Digital agriculture and precision farming technologies are revolutionizing climate smart agronomy. Remote sensing, drones, geographic information systems, artificial intelligence, machine learning and Internet of Things-based sensors are enabling farmers monitor crop health, soil moisture, insect incidence and nutritional status with more precision. Weather forecasting systems give farmers with timely information on rainfall, temperature and severe weather occurrences, to help them make educated management choices. Mobile based advisory services are boosting the availability of farmers to agricultural information, market data and climate alerts. Modern digital technology have greatly increased the efficiency of resource usage and climate adaption measures in agriculture.

Benefits

- Climate smart agronomy also targets carbon management and greenhouse gas reduction. Agriculture is a major source of greenhouse gas emissions, including methane emissions from rice paddies, nitrous oxide from fertilizers and carbon dioxide from changes in land use. Measures such as conservation tillage, residue retention, agroforestry, integrated nutrient management and organic farming may minimize greenhouse gas emissions and increase carbon absorption in soil and plants. Carbon sequestration not only benefits soil fertility, but also helps in climate mitigation.
- Integrated agricultural systems are of great benefit in climate wise agriculture. These methods include agricultural production, livestock, fisheries, poultry and horticulture in one farming unit. Integrated systems enhance nutrient recycling and diversify revenue sources, therefore decreasing economic risks associated with climatic unpredictability. Crop wastes may be used as feed for animals and animal excrement can be recycled as organic fertilizer. Such methods enhance efficiency in the use of resources and promote agricultural resilience.
- Indigenous knowledge is equally important in climate-smart agronomy. Centuries of climate-adaptive strategies

have been built by traditional agricultural groups depending on the local environmental context. Traditional water saving measures, diversified cropping systems, organic manuring practices and communal seed preservation techniques have played a big role towards sustainable agriculture. The fusion of scientific discoveries with indigenous agricultural knowledge results in more practical and contextualized methods for climate adaption.

Women farmers are the key to sustainable agriculture and climate resiliency. In many developing nations, women are actively engaged in agricultural cultivation, seed selection, nursery management, harvesting and post-harvest activities. But they typically lack access to land ownership, agricultural loans, training and extension services. Climate-smart agriculture requires gender-inclusive agricultural policy and capacity-building activities. Women farmers' empowerment increases family food security and resilience of communities.

The following table highlights important climate-smart agronomic strategies and their major benefits for sustainable crop production.

S. No.	Climate-Smart Agronomic Strategy	Major Benefits
1	Conservation tillage	Reduces soil erosion and conserves moisture
2	Crop rotation	Improves soil fertility and breaks pest cycles
3	Intercropping	Enhances biodiversity and yield stability
4	Mulching	Conserves soil moisture and regulates temperature
5	Drip irrigation	Improves water-use efficiency
6	Rainwater harvesting	Ensures water availability during drought
7	Integrated nutrient management	Maintains soil fertility sustainably
8	Biofertilizer application	Improves nutrient availability
9	Agroforestry	Enhances carbon sequestration
10	Climate-resilient crop varieties	Tolerates climatic stress
11	Integrated pest management	Reduces pesticide dependency

Conclusion

Climate change poses enormous challenges to global agriculture and food security. Erratic rainfall, rising temperatures, water shortages, soil degradation and growing insect and disease threats threaten agricultural output and the lives of farmers throughout the globe. The intensive use of resources in traditional agricultural systems is no longer adequate to ensure sustainable food production. Therefore, implementation of climate-smart agronomy is important to ensure agricultural sustainability and resilience under changing climatic circumstances. Climate-smart agronomy is a holistic agricultural paradigm that incorporates sustainable agriculture practices, scientific innovation, and ecological conservation and climate adaption measures. To produce crops sustainably, practices such as conservation agriculture, crop diversity, efficient irrigation, integrated nutrient management, agroforestry, precision agriculture and climate-resilient crop types are required. These measures not only boost production but also save natural resources, improve soil health, decrease greenhouse gas emissions and increase resistance to environmental stress.

References

Kabato, Wogene, Girma Tilahun Getnet, Tamrat Sinore, Attila Nemeth and Zoltán Molnár. "Towards climate-smart agriculture: Strategies for sustainable agricultural production, food security and greenhouse gas reduction." *Agronomy* 15, no. 3 (2025): 565.

Raza, Ali, Tushar Khare, Xinyue Zhang, Md Mezanur Rahman, Muzammil Hussain, Sarvajeet Singh Gill, Zhong-Hua Chen, Meixue Zhou, Zhangli Hu and Rajeev K. Varshney. "Novel strategies for designing climate-smart crops to

ensure sustainable agriculture and future food security." *Journal of sustainable agriculture and environment* 4, no. 2 (2025): e70048.

Begna T, Wakweya RB. Climate-Smart Agriculture: Effect of Climate Change on Food Security and Its Mitigation Strategies. International Journal of Agronomy. 2025; 2025(1):9972955.

Arif, Muhammad, Talha Jan, Hassan Munir, Fahd Rasul, Muhammad Riaz, Shah Fahad, Muhammad Adnan, Ishaq Ahmad Mian and Amanullah. "Climate-smart agriculture: assessment and adaptation strategies in changing climate." In *Global climate change and environmental policy: agriculture perspectives*, pp. 351-377. Singapore: Springer Singapore, 2019.

Singh, R., & Singh, G. S. (2017). Traditional agriculture: a climate-smart approach for sustainable food production. *Energy, Ecology and Environment*, *2*(5), 296-316.

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2. AGRICULTURAL ENTOMOLOGY

Hermetic Storage Technology for Management of Stored Grain Insect Pests

Dulera, Jyoti. G.[1] and Parmar, Pushpa[2]

Assistant Research Scientist, Regional Research Station[1] Associate Professor, COA, Vaso[2]

Introduction

Post-harvest losses caused by storage insect pests are a major challenge to grain quality and food security, particularly in developing countries like India. Important pests such as the Rice weevil, Lesser grain borer, Pulse beetle and Khapra beetle cause serious quantitative and qualitative losses in stored grains (Atwal and Dhaliwal, 2008) . Although chemical fumigants and insecticides are commonly used for pest management, their excessive use has led to problems such as insecticide resistance, pesticide residues, environmental pollution and health hazards. Therefore, hermetic storage technology has gained importance as an eco-friendly and sustainable alternative. Hermetic storage systems create airtight conditions that reduce oxygen and increase carbon dioxide levels due to respiration of grains, insects and microorganisms, thereby suppressing insect survival and protecting stored grains without the use of chemicals.

Principle of Hermetic Storage Technology

Hermetic storage technology works on the principle of airtight sealing, where oxygen levels decrease and carbon dioxide levels increase due to respiration inside the container. These modified atmospheric conditions suppress the survival, feeding and reproduction of storage insect pests, leading to their death without using chemicals. Hermetic storage also minimizes fungal growth and grain deterioration by restricting moisture and external contamination. Its effectiveness mainly depends on proper grain drying, airtightness of the storage structure and storage conditions.

Types of Hermetic Storage Structures

Different types of hermetic storage systems are used worldwide depending on storage scale, crop type and economic conditions.

1. **Hermetic Bags:** Hermetic bags are multilayer airtight plastic bags designed to prevent air exchange. These bags are widely used by small and marginal farmers because of their low cost and ease of handling. The most popular hermetic bag technology is the Purdue Improved Crop Storage (PICS) bag system developed for safe storage of grains and pulses. PICS bags generally consist of two inner high-density polyethylene liners and one outer woven polypropylene bag. These multiple layers effectively reduce oxygen availability and suppress insect development.
2. **Metal Silos:** Metal silos are airtight metallic structures used for medium and large-scale grain storage. These structures provide long-term protection against insects, rodents and moisture. Metal silos are highly durable and suitable for community-level storage systems.
3. **Plastic Drums and Airtight Containers:** Plastic drums, bins and airtight containers are commonly used at household level for storage of cereals and pulses. When properly sealed, these containers create modified atmospheric conditions unfavourable for insect survival.
4. **Cocoons and Flexible Hermetic Structures:** Large-scale hermetic cocoons made from gas-impermeable materials are increasingly used for commercial grain storage. These structures are suitable for bulk storage under warehouse conditions.

Effect of Hermetic Storage on Insect Pests

Hermetic storage effectively controls important storage insect pests such as the Rice weevil, Lesser grain borer, Pulse beetle and Red flour beetle by reducing oxygen and increasing carbon dioxide levels inside airtight containers (Murdock *et al., 2012*). These conditions suppress insect survival and reproduction, thereby reducing grain damage, weight loss and deterioration in seed quality. Hermetic storage also helps maintain seed germination and preserves better grain quality in cereals and pulses compared to conventional gunny bag storage.

Advantages of Hermetic Storage Technology

1. Chemical-Free Protection: Hermetic storage eliminates or reduces the need for chemical fumigants and insecticides, thereby minimizing pesticide residues in food grains.
2. Eco-Friendly Approach: Since no toxic chemicals are involved, hermetic storage is environmentally safe and suitable for sustainable agriculture.
3. Reduction in Post-Harvest Losses: Hermetic

systems effectively reduce quantitative and qualitative grain losses caused by insects and microorganisms.

4. Maintenance of Grain Quality: Stored grains retain their nutritional quality, seed viability and market value for longer periods.
5. Safe for Farmers and Consumers: Absence of toxic pesticide exposure improves safety for both grain handlers and consumers.
6. Suitable for Organic Storage: Hermetic technology is highly suitable for organic farming systems where synthetic pesticides are restricted.

Limitations of Hermetic Storage

Despite its advantages, hermetic storage technology has some limitations such as high initial cost of certain structures, requirement of proper airtight sealing, risk of fungal growth in high-moisture grains and reduced effectiveness due to physical damage of storage bags. In addition, limited awareness among farmers in some regions restricts its adoption. Therefore, farmer training and awareness programs are essential for the successful use of hermetic storage systems.

Future Prospects

Hermetic storage technology has great potential in modern post-harvest management systems. Increasing concern regarding pesticide residues, resistance development and environmental pollution has accelerated interest in non-chemical storage methods. Integration of hermetic storage with botanical protectants, modified atmosphere technologies and digital monitoring systems may further improve storage efficiency. Recent research is also focusing on smart hermetic storage systems equipped with sensors for monitoring oxygen, temperature and humidity. Development of low-cost hermetic technologies suitable for rural conditions can significantly contribute to reduction of post-harvest losses and enhancement of food security.

Conclusion

Hermetic storage technology is an eco-friendly and effective method for protecting stored grains from insect pests by creating airtight conditions with low oxygen and high carbon dioxide levels. It helps maintain grain quality and food security without the use of chemical pesticides.

References

Atwal, A. S. and Dhaliwal, G.S. (2008). *Agricultural Pests of South Asia and Their Management*. Kalyani Publishers, New Delhi.

Murdock, L. L., Margam, V., Baoua, I., Balfe, S. and Shade, R.E. (2012). Death by desiccation: Effects of hermetic storage on insect pests of grain. *Journal of Stored Products Research*, 49: 166–170.

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3. RAIN WATER HARVESTING

From Water Scarcity to Water Security: The Role of Rainwater Harvesting

Joshi, Arpita

M.A, M.Com, UGC Net Qualified-Asst. Professor, Jodhpur

Introduction

For the past four decades, we have seen that as summer approaches, the drinking water problem grows. As the heat of summer approaches, the water shortage also increases, and every year in May and June, the question arises as to whether drinking water will be available in the taps. This situation is observed not only in cities but also in rural areas, where people walk several kilometers to arrange for drinking water. All in all, it can be said that the drinking water crisis assumes a formidable form. This problem is escalating day by day. On one hand, population growth—and on the other, the lack of proper management of available water—acts like adding insult to injury.

Water Scarcity-Reason, Responsibility and Remedy

Time and again, newspaper headlines feature not only reports on water scarcity but

also the opinions of experts on the subject. Newspapers highlight that groundwater levels in both rural and urban areas are steadily declining, and that rivers, ponds, wells, and similar water bodies are drying up.

We ourselves are solely responsible for this situation, as we neither make proper use of the water available in abundance, nor do those in positions of authority ensure its effective management. The one measure that is consistently undertaken, however, is to occasionally remind the public that water is scarce and, therefore, should be used judiciously. Furthermore, restricting water distribution is a tactic employed every summer as a purported solution to the problem. This pattern has persisted for the past three or four decades; the public looks on, while the government and those in positions of responsibility merely perpetuate the old ways. No one is making any effort to find a permanent solution to this problem.

In times like these, what solution could effectively provide a permanent resolution to the problem of drinking water? Can water harvesting be a solution? The answer to this would necessarily be yes. India experiences a robust monsoon every year, with millions upon millions of liters of water falling as rainfall annually. Regrettably, despite this massive volume of rainfall, the general public still faces water shortages during the summer season. The responsibility for this lies not only with us but also with those in authority, as neither party formulates sustainable, long-term strategies to address the issue. Every year, we allow this rainwater to simply flow away into drains and sewers, making no effort to harvest or conserve it.

Hydrologists believe that if we were to undertake the task of scientifically harvesting and conserving this rainwater, the problem of drinking water scarcity could be resolved to a significant extent.

Rain Water Harvesting-Present Scenario

Rainwater harvesting has been made mandatory by various governments, and regulations have been formulated to this effect. Governments have also launched numerous schemes in this regard. However, the unfortunate reality is that neither the government nor the public pays any attention to this matter. Every year, whenever a drinking water crisis arises, the public blames the government, while the government blames the public.

Driven by mandatory requirements, people have indeed installed water harvesting systems; however, the majority of these systems are defunct, broken, or completely neglected. According to estimates, only 10 to 12 percent of the installed systems are currently operational. This situation persists because the government is failing to take concrete measures and remains indifferent to the issue. Although comprehensive regulations are in place, the lack of proper oversight nothing is being effectively accomplished. Due to this very apathy on the part of the government, water harvesting systems are not taken seriously in commercial establishments, hotels, homes, government buildings, and similar places. Since the systems are not functioning effectively, as previously mentioned, lakhs of liters of water go to waste.

Measures to Strengthen Rainwater Harvesting Systems

To strengthen rainwater harvesting systems and encourage public participation, the following measures should be implemented:

- To apprise the public of the rules and regulations;
- To establish a mechanism ensuring strict adherence to these rules, and to fix accountability among the responsible persons;
- Every building should have properly constructed recharge pits and effective rainwater harvesting systems in accordance with regulations;
- To motivate people by emphasizing that saving every drop of rainwater for the future is essential; otherwise, future generations will lament that no water has been preserved for them;
- To educate people regarding the significance of water, to raise their awareness, and to periodically organize programs designed to highlight the importance of water conservation.

Benefits of a Proper and Effective Rainwater Harvesting System

In case the effective system of rain water harvesting is there then the same would result in following benefits:

- **Water will Flow into the Ground**: Through effective water harvesting, rainwater percolates into the ground;
- **Increase in Groundwater Level**: Since the water flows into the ground to the same will certainly remain into the ground. The process helps improve groundwater levels;
- **Recharging of Traditional Water Reservoirs**: As groundwater levels raise, step-wells, open wells, ponds, and underground water tanks are naturally recharged and retain water for longer periods.
- **Use for Drinking Water**: This stored water can serve as an important source of drinking water in the future and significantly reduce the problem of potable water scarcity.

Conclusion

Water is one of the most precious resources for human life, and its conservation has become an urgent necessity in today's world. The growing drinking water crisis clearly indicates that if immediate and effective steps are not taken, future generations may face severe water scarcity. Rainwater harvesting offers a practical, sustainable, and long-term solution to this problem. By conserving rainwater, improving groundwater levels, and creating public awareness, we can significantly reduce the burden of water scarcity. However, this can only be achieved through the combined efforts of the government and the public. Every individual must understand the importance of saving water and actively participate in water conservation initiatives. If rainwater harvesting systems are implemented sincerely and effectively, India can move towards a secure and sustainable water future.

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4. HORTICULTURE-VEGETABLE SCIENCE

Nanotechnology Applications in Vegetable Production

Sneha Rathore[1], Anita Choudhary[2]

Department of Horticulture, Collage of Agriculture, Agriculture University, Jodhpur

Abstract

A promising area of agricultural sciences, nanotechnology offers creative ways to increase crop output, sustainability, and resource efficiency. Nanotechnology is used in vegetable production to improve nutrient delivery, plant protection, stress tolerance, and post-harvest quality through the use of nanoparticles, nanofertilizers, nanopesticides, nanosensors, and nanocarriers. Nanomaterials provide for precise and effective interactions with plant systems because of their tiny size and strong reactivity. The concepts, main uses, advantages, drawbacks, and potential applications of nanotechnology in vegetable production are reviewed in this article, with a focus on the technology's role in climate-smart and sustainable gardening.

Keywords: *Nanotechnology, vegetable production, nanofertilizers, nanopesticides, nanosensors, sustainable agriculture*

Introduction

Fertilizers, insecticides, and irrigation are all necessary for the intensive management of vegetable crops, which frequently results in low input-use efficiency and environmental degradation. Runoff, volatilization, and leaching cause losses for conventional agricultural inputs. By enhancing the accuracy, productivity, and sustainability of vegetable production systems, nanotechnology provides innovative ways to get beyond these restrictions. The use of nanomaterials in agriculture—often referred to as "nano-agriculture"—has drawn a lot of interest lately (Rai *et al.,* 2012).

Concept of Nanotechnology in Agriculture

Materials with at least one dimension between 1 and 100 nanometers are the focus of nanotechnology. Compared to their bulk counterparts, materials of this size have distinct physical, chemical, and biological characteristics. Through targeted distribution and controlled release mechanisms, nanotechnology in agriculture seeks to improve crop growth, nutrient absorption, pest and disease management, and post-harvest quality (Kah *et al.,* 2019).

Nanofertilizers in Vegetable Production

Nutrient transporters designed at the nanoscale to increase nutrient-use efficiency are known as nanofertilizers. They can be used as seed treatments, foliar sprays, or soil supplements. In addition to reducing nutrient losses, nanofertilizers offer a gradual and regulated release of vital elements including iron, zinc, phosphorus, and nitrogen. Nanofertilizers have been demonstrated to enhance growth, productivity, and nutrient content in plants such as tomatoes, spinach, and cabbage (DeRosa *et al.,* 2010).

Nanopesticides and Plant Protection

In order to improve the stability, solubility, and target specificity of active chemicals, nanopesticides encapsulate or formulate them into nanocarriers. These formulations limit environmental pollution and lower the necessary pesticide dose. Vegetable bacterial and fungal infections have been successfully treated using nanoparticles with antibacterial qualities, such as chitosan, silica, and silver (Rai *et al.,* 2012).

Nanosensors and Precision Vegetable Farming

Nanosensors are sophisticated diagnostic instruments that can instantly identify environmental stressors, infections, soil moisture, and nutritional status. Nanosensors provide site-specific control of herbicides, fertilizers, and water in vegetable cultivation, supporting precision agriculture. This method preserves crop health while increasing resource efficiency and lowering production costs (Kah *et al.,* 2019).

Nanotechnology for Stress Tolerance in Vegetables

Plants are more resilient to abiotic stressors including salt, drought, and severe temperatures thanks to nanomaterials. For instance, in vegetable crops under stress, silicon and zinc oxide nanoparticles enhance antioxidant activity and osmotic control. In challenging conditions, this helps to promote growth and yield stability (Nair *et al.,* 2010).

Role in Seed Technology and Crop Establishment

Early plant establishment, seedling vigor, and germination rate are all improved by nanopriming seeds using nanoparticles. By increasing water intake and enzyme activity, nanopriming has demonstrated beneficial benefits on uniform emergence and early development in plants including cucumber, tomato, and chilli (Mahakham *et al.,* 2017).

Post-Harvest and Quality Enhancement

Additionally, nanotechnology contributes to the preservation of fresh vegetable quality and shelf life. Packaging materials based on nanotechnology that have antibacterial and gas-regulating qualities aid in preventing spoiling and maintaining freshness. Edible nano-coatings improve post-harvest quality by reducing respiration and moisture loss (Kah *et al.,* 2019).

Advantages of Nanotechnology in Vegetable Production

- Enhanced nutrient- and pesticide-use efficiency
- Reduced environmental pollution
- Improved crop yield and quality
- Better stress tolerance
- Support for precision and sustainable agriculture
- These benefits make nanotechnology a valuable tool for future vegetable production systems.

Risks, Limitations, and Safety Concerns

Notwithstanding its benefits, nanotechnology presents issues with food safety, environmental persistence, and nanoparticle toxicity. Careful risk evaluation,

regulation, and responsible usage are required due to the lack of evidence regarding long-term effects on soil microorganisms and human health (DeRosa *et al.,* 2010).

Future Prospects and Research Needs

Future studies should concentrate on creating environmentally benign and biodegradable nanomaterials, comprehending the interactions between nanoparticles, plants, and soil, and creating regulatory frameworks. Nanotechnology's significance in sustainable vegetable production will be further enhanced by its integration with genomics, artificial intelligence, and precision farming (Kah *et al.,* 2019).

Conclusion

Nanotechnology has the revolutionary potential to improve vegetable production through increased resilience, sustainability, and efficiency. Nanotechnology enhances production and quality while lowering environmental effects through the precise delivery of nutrients and plant protection agents. Nanotechnology has the potential to play a significant role in vegetable cultivation in the future provided it is properly regulated and scientifically validated.

References

DeRosa, M. C., Monreal, C., Schnitzer, M., Walsh, R., and Sultan, Y. (2010). Nanotechnology in fertilizers. *Nature Nanotechnology, 5*(2), 91.

Kah, M., Kookana, R. S., Gogos, A., and Bucheli, T. D. (2019). A critical evaluation of nanopesticides and nanofertilizers against their conventional analogues. *Nature Nanotechnology, 13*(8), 677–684.

Mahakham, W., Sarmah, A. K., Maensiri, S., and Theerakulpisut, P. (2017). Nanopriming technology for enhancing germination and starch metabolism of aged rice seeds. *Scientific Reports, 7*, 8263.

Nair, R., Varghese, S. H., Nair, B. G., Maekawa, T., Yoshida, Y., and Kumar, D. S. (2010). Nanoparticulate material delivery to plants. *Plant Science, 179*(3), 154–163.

Rai, M., Ingle, A. P., and Gupta, I. (2012). Role of nanotechnology in agriculture with special reference to management of insect pests. *Applied Microbiology and Biotechnology, 94*(2), 287–293.

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5. HORTICULTURE: VEGETABLE SCIENCE

Organic Vegetable Production and Certification

Choudhary, Anita [1], Rathore, Sneha [2]

Department of Horticulture, Collage of Agriculture, Agriculture University, Jodhpur

Introduction

"Organic agriculture is a production system that sustains the health of soils, ecosystems, and people," according to the International Federation of Organic Agriculture Movements (IFOAM). Instead than using inputs that have negative impacts, it depends on biological processes, biodiversity, and cycles tailored to local conditions (Food Safety and Standards Authority of India, 2017).

Difference between Conventional and Organic farming (Malik, 2020)

Conventional	Organic
It is based on economical orientation	It is based on ecological orientation
Synthetic fertilizers are used	Synthetic fertilizers are not used
Pesticides and fungicides are used to control pest and diseases	Pest and diseases are controlled biologically
Weeds are controlled through herbicides	Manually weeds are removed here
Produce obtained will have chemical residues	Produce is free from chemical residues
Produce is carcinogenic and causes several health problems	No such problems are observed here
Soil fertility is maintained for shorter	Soil fertility is maintained on long

period	term basis

Benefits of Organic Farming

- Eco-friendly
- Good for human beings
- Good for animals
- Better quality produce
- No use of synthetic chemicals
- Low cost of cultivation
- Long term fertility of soils
- Higher price for the products

Principles of Organic Farming (Sacchi *et al.*, 2024)

According to IFOAM, organic agriculture is guided by following four principles:

1. **Principle of Health:** The health of soil, plants, animals, humans, and the world as a whole should be maintained and improved via organic agriculture. Healthy crops that promote human and animal health are produced by healthy soil.
2. **Principle of Ecology:** Living ecological systems and cycles should be the foundation of organic agriculture, which should cooperate with, imitate, and support them. According to this theory, organic farming is rooted in living ecological systems.
3. **Principle of Fairness:** Relationships that guarantee equity with respect to the shared environment and chances in life should be the foundation of organic agriculture. Equity, respect, justice, and stewardship of the common world—both among individuals and in their interactions with other living things—are characteristics of fairness.
4. **Principle of Care:** To safeguard the environment and the health and welfare of present and future generations, organic agriculture has to be handled carefully and responsibly. According to this idea, the most important factors in organic agriculture's management, development, and technological decisions are accountability and prudence.

Government Support to Promote Organic Farming

The ministry of agriculture is promoting organic farming in the country under the following schemes:

National Project on Organic Farming (implemented since Oct. 2004)

Rashtriya Krishi Vikas Yojana

National Centre on Organic Farming: **Ghaziabad**

Regional centers: Bangalore, Bhubaneswar, Hissar, Imphal, Jabalpur, Nagpur

Documents Requirement for Organic Certification (Bahsi *et al.*, 2021):

- Field map
- Field history sheet
- Input record
- Harvest register
- Movement records
- Equipment cleaning record
- Sales record
- Activity register
- Output record
- Pest control records
- Labeling records

Conclusion

Due to growing knowledge and concern about the detrimental effects of careless use of chemical fertilizers, pesticides, and machineries on food quality, soil health, human health, and the environment, organic farming, particularly of vegetables, is gaining traction globally. Therefore, organic farming may help lessen the risks that climate change poses to the production of vegetables.

References

Malik, D. P. (2020). *Organic farming in India: Production, export, certification and policy support*. *The Indian Journal of Agricultural Sciences, 90*(1), 230–232.

Sacchi, G., Romanello, L., & Canavari, M. (2024). *The future of organic certification: Potential impacts of the inclusion of Participatory Guarantee Systems in the European organic regulation*. *Agricultural and Food Economics, 12*(2).

Bahsi, N., Altuntas, D., & Budak, D. B. (2021). *Certification process of organic agricultural products and problems experienced in the implementation in Turkey*. *Turkish Journal of Agricultural Economics, 27*(1), 25–30.

Food Safety and Standards Authority of India. (2017). *Food Safety and Standards (Organic Foods) Regulations, 2017.* Government of India.

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6. SOIL SCIENCE

Foliar Feeding to Correct Nutrient Deficiencies in Crops

A. Premalatha[1] and S. Saravanakumar[2]

MYRADA, Gobichettipalayam, Erode District

Introduction

The essential plant nutrients are known to alter the various physiological and biochemical functions which finally influences on the yield and quality of the crop. Sometimes, soil applied nutrients are insufficient for crop to meet out their nutrient requirement and it may be due to non-availability of nutrients because of abrupt soil conditions, exhausted soil condition or nutrient losses through leaching and many more things which can hinder the availability of nutrients to plants and cease the plant growth, which ultimately affect the yield and quality of the crop produce. So, foliar application of nutrients was found to be more advantageous than soil application with the elimination of losses through leaching and fixation.

Foliar Application

Foliar feeding is a technique of feeding plants by applying liquid fertilizer directly to their leaves. Plants are able to absorb essential elements through their leaves. It is effective method to correct deficiency of crop plant in shorter time (Patil and Chetan, 2016). The absorption takes place through their stomata and also through their epidermis. It is the application of fertilizers to foliage of the crop as spray solution is known as foliar spray. This method is highly suitable for application of small quantities of fertilizers, especially micronutrients. Major nutrients can also be applied by this method when there is no adequate moisture in top layer of soil.

Foliar application is not a substitute for soil application, but only a supplement to it. More recently, foliar feeding has been widely used and accepted as an essential part of crop production, especially on horticultural crops. Although not as widespread on agronomic crops, the benefits of foliar feeding have been well documented and increasing efforts have been made to achieve consistent responses. It thus increases photosynthetic rate, better nutrient translocation from the leaves to the developing seeds (Manomani and Srimathi, 2009). It is most economical way to achieve quality production and yield, especially when sink competition for carbohydrates among plant organs take place, while nutrient uptake from the soil is restricted (Kannan, 2010) and it is most effective and economical way to improve plant nutrient deficiency (Pradeep and Elamathi, 2007) and it constitutes one of the important milestones in the progress of agricultural production.

Mechanism of Foliar Fertilization

- In order for a foliar fertilizer nutrient to be utilized by the plant for growth, it

must first gain entry into the leaf prior to entering the cytoplasm of a cell in the leaf.
- To achieve this nutrient must effectively penetrate the outer cuticle and the wall of the underlying epidermal cell.
- Once penetration has occurred, nutrient absorption by the cell is similar to absorption by the roots.
- Of all the components of the pathway of foliar-applied nutrients, the cuticle offers the greatest resistance.

Meteorological Condition Favouring Foliar Application

- Time of Day: Late evening; after 6:00 p.m and Early morning; before 9:00 a.m.
- Temperature: Low temperature 18-19^{o}C (Ideal 21^{o}C)
- Humidity: Greater than 70 % relative humidity
- Wind speed: less than 5 mph
- Rainfall: Within 24 to 48 hours after a foliar application may reduce the application effectiveness, as not all nutrient materials are immediately absorbed into the plant tissue

Rates of Nutrient Absorption into Plant Tissues

Nutrient Element	Time for 50 % Absorption
Nitrogen	½-2 hours
Phosphorous	5-10 days
Potassium	10-24 hours
Calcium	1-2 days
Magnesium	2-5 days
Sulphur	8 days
Zinc	1-2 days
Manganese	1-2 days
Iron	10-20 days
Molybdenum	10-20 days

Foliar feeding: Desirable Characteristics

1. **Solubility:** Foliar fertilizers should be able to either dissolve or suspended in water and contain an active ingredient chemical compound as salts, chelates or complexes of mineral nutrients.
2. **Molecular Weight/Size:** foliar fertilizer must contain low molecular weight or molecules of smaller size in order to have higher penetration of leaf cuticle.
3. **Solution pH:** solution pH should be adjusted for better activity of nutrient and to prevent the scorching or burning effects.
4. **Form:** The absorption rate of ammonium ions into the leaves is faster than that for nitrate ions. Urea has higher leaf penetration than other inorganic N fertilizers. KCl fit for use for soil fertilization but unfit for foliar application due to its rapid crystallization over leaf surface.

Advantages of Foliar Nutrition

- It helps in rapid correction of nutrient deficiency of crop plants
- It will help during high fixation of P and K
- Foliar spray can be applied when adverse condition like root rot disease, drought condition *etc.* were noticed in field
- Foliar spray can also be given when there is not adequate moisture in top soil to absorb the nutrients by plant roots
- Only use small amounts of fertilizer are required as compared to soil application.
- Fertilizer use efficiency is high and cost of input materials is low
- Improved yield and yield quality parameters

Conclusion

In present day Agriculture, foliar feeding plays an important role in crop production to rectify nutrient deficiency in shorter time and to improve crop yield. With almost all crops foliar feeding will eventually spread on the leaf parts and thereby solving the problem. If the deficiency symptom appears on the leaves, it can be effective method over soil application. Leaf feeding is rapid technique with lesser amount of inputs needed. Hence, foliar

fertilization can be easiest and cost effective method for rectifying nutrient deficiencies of crops.

References

Kannan, S. 2010. Foliar fertilization for sustainable crop production. *Sustainable Agriculture Reviews*. 4: 371- 402.

Manonmani, V. and Srimathi, P. 2009. Influence of mother crop nutrition on seed and quality of blackgram. *Madras Agric. J*. 96: 125-128.

Patil, B. and Chetan, H.T. 2016. Foliar fertilization of nutrients. *Marumegh*. 3 (1): 49-53.

Pradeep, M. and Elamathi S. 2007. Effect of foliar application of DAP, micronutrients and NAA on growth and yield of green gram (*Vigna radiata* L.). *Legume Res*. 30(4):305-307.

7. AGRICULTURE

Guduchi - Miracle Herb of 21st Century of India

Rajasekar Reddy

West Bengal

Tinospora cardifolia commonly called as Amrutha, Guduchi is an important medicinal plant belonging to the family Menispermaceae. It is bitter in taste and astringent. Leaves contain furanoid bitter principle tinosporine, tinosporide stems contain β-sitosterol. It is useful in burning sensation, hyperdipsia, helminthiasis, dyspesia, vomiting, flatulence, acid gastritis, jaundice, harmorrhoids, viral fevers inflammations, gout, cardiac debility, skin diseases, leprosy,anemia, cough, asthma, seminal weakness, urinary disorders, eye diseases. The whole plant, well ground, is applied on fractures and skin disorders.

It was found throughout India especially in Kerala, Karnataka, Tamilnadu, Maharashtra, Gujatat, Goa, Odisha, West Bengal. Tinospora cordifolia is a dioecious large, glabrous, decidious climber having rough and brownish bark with white latex. Leaves are membranous and cordate. Flowers are small greenish yellow in colour. Fruit is a drupe ovoid, socculant turns to deep red colour on ripening. Seed are curved. These are no named varieties in this crop. Elite climbers have to be identified and such climbers can be multiplied vegetatively.

It is a very hardy plant and found growing in varied type of climates in several parts of the country. However, for its luxuriant growth, it prefers warm and humid tropical climate, with an annual rainfall of 2000-3000 mm. The crop can be grown on a wide range of soils. Medium black or red soil is the most suitable soil for this plant. It can be grown on other types of soil also, provided they are well drained and are rich in organic matter content. However, acidic to neutral soils are preferred though it can come up in alkaline soils as well.

It is propagated through seeds and cuttings. Seeds have poor germination capacity, therefore for economic cultivation, it is propagated through cuttings. About 10-15 cm long stem cuttings having atleast two nodes are planted in raised beds or in poly bags to get greater success. Treatment of cut ends with rooting hormones gives better results. The rooting ofcuttings takes about 8-10 weeks and cuttings will be ready for planting in the main field after about 10 weeks. The usual planting time is during the onset of monsoon in May-June. Rooted cuttings are planted in main field at a spacing of 1 m x 1 m. About 10,000 cuttings are required to plant in an hectare area. The pits have to be watered immediately after planting and at regular intervals there after till they are established.

Since Tinospora is a climber, proper training structures are necessary to get higher yields. This is achieved by using proper training structers like wires or live supports. Tinospora plants when planted in neem plantations are found to be highly compatible with each other. Neem trees of 5-6 year old could be utilized as live supports.

It is advisible to irrigate the plants every day in the initial stages. Later, the frequency of irrigation is reduced to 5-6 days depending upon soil and climatic conditions. It can also be grown under protective irrigation of drip. Usually it is a practice to apply 10 tonnes of well rotten Farm Yard Manure per hectare. In addition fertilizer dose of 60-40-40 kg N-P-K are applied/ha to obtain good yield. Of the recommended quantity, half of N and full dose of P2O5 and K2O are applied as basal dose at the time of planting and the remaining half of N is applied after two months of planting.

The leaves and stem are the economic parts of this plant. The first harvest of leaves is obtained after 3-4 months of planting and subsequently at two months interval. While harvesting, care should be taken to pluck the leaves without damaging the vines. These leaves are then spread clean floor for drying. In about a weeks time, when they are fully dried they are packed in polyethylene lined bags for further marketing. An average yield of about 5000 kg of dried leaves can be obtained from one hectare in an year.

Pest and disease problems are low in this crop. However, the sooty mold disease is found to damage the leaves and the crop. The sooty mold fungus grown on gummy excreta of the insects deposited on the leaves. This can be controlled by spraying a solution of Nuvacronmixed with starch. Starch deposited on fungal matter on leaves and shoots dries up and peels off the fungal pathogen.

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8. ACADEMIC PUBLISHING

Redefining Academic Prestige: The Path to Indigenous Publishing in India

Vyas, Mukesh

Jodhpur-Rajasthan

Introduction

In recent times, we observe that researchers in India conduct their work with immense diligence, striving to have their research papers published in journals that hold global recognition. Their aim is to enhance the significance of their research and ensure it reaches the widest possible audience. To fulfill this objective, they constantly seek out such journals and arrange for the publication of their research papers within them.

Present Scenario

It is a matter of pride for us that today; India is establishing its identity in the global research area not merely as a participating country, but as an emerging intellectual power. We bear witness to the fact that, over the past decade or so, various universities and research institutions across India have made remarkable progresses in knowledge creation.

According to recent assessments, India ranks among the top ten nations in the field of research. In scientific publications the India is at number 3 in the world and as per nature index (2024) it is at number 9 in the world outperforming several traditionally strong nations in physical and life sciences. These assessments indicate that India is no longer

merely experiencing population growth; rather, the country is now emerging as a knowledge powerhouse.

While it is true that India has now emerged as a knowledge powerhouse—ranking among the world's leading nations—the question nonetheless arises: are the benefits of this intellectual advancement and its associated economic gains truly accruing to our own country, or are India's so-called intellectuals channeling these entire benefits toward foreign nations or international platforms? This question gains particular significance given our observation that, even today, authors and researchers take pride primarily in the fact that their research or papers have been published in foreign journals. This shows their dependence on the foreign journals.

We are well aware of and fully understand that Indian researchers conduct their research either using their own personal funds or through grants received from the government or various institutions. In other words, their research is primarily funded by public money; yet, they remain dependent on journals of foreign origin. Undoubtedly, having one's research published in foreign journals is a matter of pride; however, a complete reliance on them is certainly misguided and serves as a symbol of a lack of confidence in the journals published within the country.

Reasons for Non-Reliance on Domestic Journals

There may be so many reasons for not relying on the domestic journals.

Predatory Journals: The first reason is availability of a huge number of predatory journals in the country which do not have a good impact factor. They charge a huge sum and publish the paper without peer review or without checking even the authenticity and uniqueness of research. Consequently, researchers are compelled to seek alternative avenues and publish their research papers in foreign journals. This leads to an increased dependence on such journals.

Academic Evluation and Impact Facotr: The Academic evaluation is second reason. It is direct and evident reason that, even today in India, academic evaluation places a higher premium on research papers published in foreign journals; this is because such assessment is determined by the journals' Impact Factors—metrics that invariably exceed those of domestic journals. Since the very basis of academic evaluation is the Impact Factor, and given that foreign journals typically possess higher ones, researchers naturally strive to have their papers published in journals with high Impact Factors, thereby avoiding any complications regarding their academic assessment.

Non Availability of Open Access Journals: The next reason is non availability of open access journals in India. The scholars, students etc. need to pay charges to access the research papers. On the other hand on global level there is large number of open access journals where the students and scholars are not charged if they access the journals. For students, scholars etc. there are no charges but to get article published in such journals the payment has to be made by the researchers. For understanding, one should know that open-access journals differ from other commercial journals. In case of commercial journals they collect fees from research students and readers in the form of subscription charges. Only after paying these fees can such students and researchers gain access to the research papers published in those commercial journals. Conversely, in the case of open access, fees are not levied upon the students or researchers reading the content; instead, the fees—referred to as publication fees or Article Processing Charges—are collected from the researchers submitting the papers for publication. For readers, access to these research papers remains open. Thus, in our country these types of open access journals are needed to encourage dependence on domestic journals.

Economic Loss to the Country

The research papers, in foreign journals, are published after paying the article process Charges. It means the researchers have to remit money for publication. There is, therefore, economic loss to the country. One should note that when a publication of domestic origin appears abroad—specifically in a foreign journal—it is evident that the researcher incurs expenses for such publication. The publishing is never free of charge. The cost needs to be incurred. The costs incurred for the purpose

invariably go to the foreign journals in the form of publication fees. A study conducted by IIM, Ahmedabad and Indian Meritime University, Kolkatta and Behrampur university shows that Indian Researchers paid a whopping $17 million in 2020 (Ref.: The Print) to publish their research articles in open access format. This expense pertains to publication in open-access journals, where a fee is charged under the pretext of processing research articles. Thus, the money is remitted to that country from where the journal is being published. This means that money goes out of country from India, which causes, certainly, economic loss to our country. If the same publication had been done domestically, the money would have remained in the country and would have been useful here only and would have contributed to economic development of our country.

Open Access Journals-Indian Scenario and Government Initiatives

Now the question is- if Open Access is globally available, why should it not be possible in India? This is a pivotal question—one that demands a resolution. It comes as welcome news for India and its citizens that, on January 1, 2025, the Government of India officially launched the (ONOS) "One Nation, One Subscription" initiative. This initiative by the Indian government is proving to be a boon not only for researchers but also for those seeking to get access to the research articles and various researches at global level. The initiative provides students, faculty, and researchers, at all central and state-managed educational and research institutions, free country-wide access to thousands of globally recognized pay walled academic and scientific journals.

While this initiative has made research easier for researchers, the financial barriers to publication remain to be addressed and this is greatly needed. This will enable local research to receive indigenous publications, which can be accessed worldwide. This will certainly strengthen the publishing Industry in the country.

Development of Credible Domestic Journals and Proper Evaluation

The next issue concerns the development of facilities to enhance the availability of credible journals from Indian publishers, thereby enabling Indian research scholars to publish their work in such reputable periodicals. However, merely increasing the availability of credible journals is, in itself, insufficient unless accompanied by improvements in the system for evaluating research papers. This system of evaluation should be designed in such a way that research papers receive recognition not only within the country but also at a global level. This would, to some extent, help wean researchers away from their charm on foreign journals; for currently—as noted earlier—given the higher impact factors of international publications, every student or researcher aspires to have their research published predominantly in foreign journals.

If indigenous, credible journals were to flourish in India, the country would undoubtedly be able to evaluate its own knowledge through the lens of its own institutional self-confidence; consequently, the dependence of Indian researchers on foreign journals would naturally diminish.

As previously stated, India has demonstrated its capability in generating research; therefore, the need now lies in developing credible indigenous journals to achieve knowledge sovereignty and dominance.

Suggestions to Improve Local Journals

Research communities need to change academic incentives and develop a strong home publishing infrastructure in order to lessen reliance on foreign publications. This shift entails reorganizing how researchers are compensated for their work as well as assessing and supporting regional academic institutions. If the points mentioned below are taken into consideration, it is possible that a researcher's dependence on foreign journals could decrease and trust on domestic jornals would increase:

Enhance Domestic Infrastructure

- Enhance Local Journals: Universities and national scientific academies should significantly invest in local university presses and scholarly societies to elevate editorial standards, rigor in peer review, and digital archiving capabilities.

- Utilize Native Databases: Employ regional and national indexing systems to authenticate and uncover home research. In India, researchers can utilize the UGC-CARE list to cross-reference and find high-quality, accredited regional journals instead of solely depending on Scopus or Web of Science.
- Adopt non-commercial Open Access models where the host university covers publication expenses, allowing research to be freely viewed and published without costly foreign article processing charges.

Changing the Academic Assessment and Rewards System

- Instead of mandating that all academics publish in high-JIF international journals, institutional review boards and promotion committees should reconsider this practice. Institutions should instead consider the research's practical or geographical significance in addition to its fundamental excellence.
- Encourage Local Citations: To help local articles get more attention and better metrics, faculty and researchers can make an effort to reference high-quality work published in domestic journals in their literature reviews.

Steer Clear of Dangerous Substitutes

Predatory jounals are available in huge number so the researchers should avoid the flood of "pay-to-publish" journals.Such journals take advantage of the need to publish quickly. Before sending in your work, make sure the journal is legitimate by using tools to check its reputation. To make sure the domestic publication you are pursuing follows strict publishing and peer-review criteria, you can consult trusted lists like the Directory of Open Access Journals (DOAJ).

Conclusion

Undoubtedly, complete dependence on foreign journals will not cease entirely; however, with reigerous and combined efforts a platform can be provided to researchers which offer them access to all necessary facilities. If this is achieved, it will not only result in foreign exchange savings but also ensure that research conducted within the country gains global recognition. Similarly, changes in academic evaluation criteria would also encourage Indian researchers to publish their work in domestic journals. Should this come to pass, we will witness India rapidly achieving self-reliance in the realms of knowledge enhancement and research publication—a contribution from publishers, researchers, and scholars toward our Honorable Prime Minister's campaign to make the nation self-reliant across various sectors.

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