

**SOLUTIONS FOR DEVELOPING FACULTY IN AGRICULTURE, FORESTRY AND AQUACULTURE
AT COLLEGES UNDER THE MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT
IN THE CURRENT CONTEXT**

Hoang Thi Thoa¹

Abstract. This paper proposes solutions for developing faculty in agriculture, forestry, and aquaculture at colleges under the Ministry of Agriculture and Rural Development in the current context. The solutions include improving planning and faculty development, innovating recruitment and utilization, organizing training and capacity building, reforming assessment and evaluation, and establishing specialized incentive policies and a conducive environment. By implementing these solutions, agricultural colleges can enhance faculty capacity and contribute to the sustainable development of the agricultural sector and rural communities.

Keywords: *Teacher Capacity Development, Agricultural Education, Professional Development, Sustainable Development, Educational Innovation.*

1. Introduction

Vietnam's agricultural sector is undergoing significant transformation, driven by national development strategies and global trends. The Ministry of Agriculture and Rural Development has set ambitious goals for the 2023-2025 period, focusing on enhancing the quality of agricultural education, promoting sustainable practices, and modernizing the agriculture, forestry, and aquaculture sectors. Faculty at these colleges are pivotal in achieving these objectives, serving as the backbone of agricultural education.

To meet the evolving demands of the sector, developing a robust and dynamic approach to faculty development is imperative. Educators must be equipped with the latest knowledge, skills, and competencies to effectively prepare students for the challenges and opportunities of modern agriculture. This need for capacity development is underscored by various studies highlighting the importance of faculty development in improving educational outcomes and fostering innovation within the sector (Nguyen et al., 2019; Tran & Pham, 2020).

The current context in Vietnam presents both challenges and opportunities for agricultural education. Limited resources, resistance to change, and inadequate access to technology are some of the barriers that need to be addressed. However, significant opportunities arise from increased investment in research and development, collaboration with international partners, and technological advancements. Leveraging these opportunities requires a comprehensive and strategic approach to faculty development.

This paper proposes solutions for developing faculty in agriculture, forestry, and aquaculture at colleges under the Ministry of Agriculture and Rural Development. These solutions are designed to align with the strategic goals of Vietnam's agricultural sector, emphasizing professional development, technological integration, research support, and inclusive education practices. By implementing these solutions, agricultural colleges can enhance the capacity of their faculty, thereby improving the quality of education and contributing to the sustainable development of the sector.

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¹Thanh Hoa College of Agriculture, Vietnam

Corresponding author: Hoang Thi Thoa, e-mail: thoa.hoang1974@gmail.com

The following sections will detail each of these solutions and their implementation. Through this comprehensive approach, the author aims to support the ongoing transformation of Vietnam's agricultural education system, ultimately contributing to the broader goals of economic growth and sustainability in the country.

2. Context of education, orientation, objectives, and plans of the agriculture and rural development sector for the 2023-2025 period

The Food and Agriculture Organization of the United Nations (FAO) has repeatedly warned about the shortage of manpower in the agricultural sector worldwide, despite agriculture being a cornerstone and priority for most nations. The primary reasons for the decline and shortage of agricultural labor vary between countries but generally include aging populations, economic restructuring, urbanization, migration, and particularly the lack of interest among the younger workforces. Additionally, students pursuing agriculture, forestry, irrigation, and aquaculture disciplines often come from rural, mountainous, and remote areas, facing significant barriers to accessing higher education.

The shortage of manpower, especially high-skilled labor in the agricultural sector, is negatively impacting food security. By 2050, Vietnam's population is expected to reach 140 million, and the global population will be 9.2 billion, with food demand projected to increase by 70% compared to 2020. This challenge is compounded by the shrinking agricultural land due to urbanization and the increasing adverse effects of climate change, such as droughts, floods, saltwater intrusion, and rising sea levels.

Resolution No. 19-NQ/TW dated June 16, 2022, by the 13th Central Executive Committee on agriculture, farmers, and rural areas until 2030, with a vision to 2045, recognizes the crucial role of agriculture, farmers, and rural areas in socio-economic development, environmental protection, climate change adaptation, political stability, national defense, security, and the preservation of Vietnamese cultural values in response to international integration. One of the key solutions to achieve the goals of this resolution is to create breakthroughs in scientific research, technology application, innovation, digital transformation, and agricultural and rural workforce training.

The Ministry's directive is to develop agriculture that is efficient, sustainable, and environmentally friendly; to shift from agricultural production thinking to agricultural economic thinking; to produce high-value, diversified products along value chains that meet market demands; and to promote sustainable, ecological, organic, circular agriculture that is environmentally friendly and climate-adaptive. To realize these objectives, it is essential to enhance research, technology transfer, especially high-tech and biotechnology, and to accelerate digital transformation. Additionally, there must be breakthroughs in workforce development, training, and skills enhancement to meet the demands of agricultural restructuring, rural economic development, and to effectively leverage the opportunities of the Fourth Industrial Revolution, digital transformation, and international integration.

Following Decree No. 60/2021/ND-CP dated June 21, 2021, by the Government, public service units performing higher education and vocational education tasks are granted greater autonomy in management and task implementation. Instead of regular funding allocations, the state will implement a mechanism of task assignment, ordering, or bidding; promote competition in public service provision, gradually reduce direct budget support, and increase financial autonomy for units.

The Fourth Industrial Revolution is profoundly impacting all aspects of social life, particularly in education and training. According to Oxford University's assessment, under the influence of the Fourth Industrial Revolution, about 47% of professions will change and be redefined in the next 20 years. Many professions will decline or even disappear, while many new professions will emerge due to the widespread application of artificial intelligence, big data, cloud computing, robotics, automation, and virtual reality.

The rapid development of digital technology will significantly affect recruitment, the shift between training disciplines, teaching and learning methods, and research. Online forms of learning, workshops, and seminars are becoming increasingly common. In research, the use of artificial intelligence, digital

technology, and the design of virtual reality simulation models to enhance the quality of learning and research for students and researchers will become more prevalent.

3. Principles for Building Solutions for Faculty Development in Agriculture, Forestry, and Aquaculture at Colleges under the Ministry of Agriculture and Rural Development in the Current Context

Principle of Ensuring Objectivity: The principle of ensuring objectivity in proposed faculty development solutions necessitates their alignment with overarching objectives outlined by the Party and the State for vocational education development. These objectives are delineated in a series of legislative and directive documents, including the Law on Vocational Education, Resolution No. 29-NQ/TW, Resolution No. 44-NQ/CP, Directive No. 21-CT/TW, Directive No. 16/CT-TTg, Decision No. 2239/QD-TTg, Circular No. 15/2021/TT-BLĐTBXH, and Decision No. 286/QD-BNN-TCCB. The specific aims are directed towards enhancing the faculty in agriculture, forestry, and aquaculture at colleges to effectively respond to current societal development trends.

Principle of Ensuring Systematic and Coherence: This principle emphasizes the need for a systematic and coherent approach in developing solutions for faculty development. It involves ensuring that the proposed strategies and interventions are interconnected and aligned with the broader goals and objectives of agricultural education. By adopting a systematic approach, colleges can avoid disjointed efforts and ensure that faculty development initiatives complement each other, leading to a more integrated and effective outcome.

Principle of Ensuring Practicality: The principle of ensuring practicality underscores the importance of designing solutions that are realistic and applicable within the context of agricultural colleges. Practicality entails considering factors such as resource availability, institutional capacity, and existing infrastructure. Solutions should be feasible to implement and sustainable in the long term, taking into account the specific needs and constraints faced by colleges in the agricultural sector.

Principle of Ensuring Continuity and Development: Ensuring continuity and development involves fostering an environment where faculty development is an ongoing process rather than a one-time effort. It requires establishing mechanisms for continuous learning, professional growth, and career advancement for faculty members. By investing in faculty development programs and creating opportunities for skill enhancement and knowledge exchange, colleges can nurture a dynamic and resilient academic community capable of adapting to evolving challenges and opportunities.

Principle of Ensuring Feasibility: The principle of ensuring feasibility emphasizes the importance of developing solutions that are practical and achievable within the constraints of available resources and institutional capacity. Feasibility involves conducting thorough assessments of the costs, benefits, and potential risks associated with proposed interventions. Solutions should be economically viable, socially acceptable, and technically feasible to implement, ensuring that they can be successfully executed and sustained over time.

4. Solutions for developing faculty in agriculture, forestry, and aquaculture at colleges in the current context

4.1. Improving the planning and development of faculty in agriculture, forestry, and aquaculture at colleges in the current context to align with the direction, objectives, and plans of the agricultural sector and rural development

Objective:

The primary objective is to enhance the planning and development of faculty members specializing in agriculture, forestry, and aquaculture within colleges. This aims to ensure that faculty training and expertise are in harmony with the strategic direction, objectives, and developmental plans of the agricultural sector and rural development initiatives.

Approach:

Achieving this objective involves the following steps:

Strategic Alignment: Review existing faculty development plans and align them with the long-term goals and priorities of the agricultural sector and rural development programs. This ensures that faculty training initiatives are directly contributing to overarching sectoral objectives.

Needs Assessment: Conduct a thorough assessment to identify the specific skills and knowledge gaps among faculty members in agriculture, forestry, and aquaculture. This assessment will consider emerging industry trends, technological advancements, and changing market demands.

Tailored Development Programs: Design customized training programs to address the identified needs and gaps of faculty members. These programs will cover diverse areas such as subject matter expertise, pedagogical techniques, research methodologies, and industry engagement.

Capacity Building Initiatives: Implement various capacity-building initiatives to equip faculty members with the necessary tools and resources for professional growth. This may include organizing workshops, seminars, conferences, and collaborative projects to facilitate knowledge exchange and networking opportunities.

Continuous Evaluation: Establish a robust monitoring and evaluation framework to track the progress and effectiveness of faculty development efforts. Regular feedback mechanisms will be employed to gather input from stakeholders, allowing for ongoing refinement and improvement of training programs.

By implementing these strategies, colleges can enhance the capabilities and expertise of their faculty in agriculture, forestry, and aquaculture. This, in turn, will contribute to the sustainable development of the agricultural sector and rural communities in alignment with sectoral goals and plans.

4.2. Innovating recruitment and utilization of faculty in agriculture, forestry, and aquaculture at colleges in the current context

Objective:

The main objective is to modernize the recruitment and utilization processes of faculty members specializing in agriculture, forestry, and aquaculture within colleges. This aims to ensure optimal utilization of faculty expertise while adapting to the evolving needs and challenges of the agricultural sector.

Approach:

Achieving this objective involves the following strategies:

Strategic Recruitment: Implement targeted recruitment strategies to attract highly qualified professionals with expertise in relevant fields such as agronomy, forestry management, aquaculture, and sustainable agriculture practices. This may involve collaborating with industry partners, leveraging professional networks, and offering competitive incentives to attract top talent.

Diversified Skill Sets: Prioritize diversity in faculty composition to encompass a wide range of expertise, including traditional agricultural practices, modern agricultural technologies, environmental sustainability, and rural development. This ensures a comprehensive skill set among faculty members to address multifaceted challenges in the agricultural sector.

Flexible Utilization: Adopt flexible staffing models that allow for the dynamic allocation of faculty resources based on evolving educational priorities and industry demands. This may involve implementing interdisciplinary teaching teams, encouraging faculty rotation across departments, and promoting cross-functional collaboration to maximize resource utilization and knowledge sharing.

Professional Development: Provide ongoing professional development opportunities for faculty members to enhance their teaching skills, research capabilities, and industry relevance. This includes investing in faculty training programs, supporting participation in conferences and workshops, and facilitating collaborative research projects with industry partners.

Performance Evaluation: Establish transparent and merit-based performance evaluation systems to

assess faculty contributions and effectiveness. This includes regular performance reviews, peer evaluations, and student feedback mechanisms to ensure accountability and continuous improvement in teaching and research outcomes.

By innovating recruitment and utilization practices, colleges can optimize faculty resources and foster a dynamic learning environment conducive to excellence in agricultural education and research. This contributes to the overall advancement of the agricultural sector and supports sustainable rural development initiatives.

4.3. Organizing training and capacity building for faculty in agriculture, forestry, and aquaculture at colleges in the current context

Objective:

The primary goal is to enhance the professional skills and knowledge base of faculty members specializing in agriculture, forestry, and aquaculture within colleges. This aims to ensure that educators are equipped with the latest industry insights and pedagogical techniques to deliver high-quality education and research outcomes.

Approach:

Achieving this objective involves the following strategies:

Needs Assessment: Conduct comprehensive needs assessments to identify specific areas for faculty training and capacity building. This may involve surveying faculty members, analyzing industry trends, and consulting with relevant stakeholders to prioritize training areas based on emerging challenges and opportunities in the agricultural sector.

Tailored Training Programs: Develop customized training programs tailored to the unique needs and expertise of faculty members. These programs may cover a wide range of topics, including innovative teaching methodologies, emerging technologies in agriculture, research methodologies, and pedagogical best practices. Training sessions can be delivered through workshops, seminars, online courses, and peer learning communities to accommodate diverse learning preferences.

Industry Engagement: Foster collaboration and knowledge exchange between academia and industry by facilitating industry placements, internships, and research partnerships for faculty members. Engaging with industry experts and practitioners provides faculty with real-world insights and practical experience that enhances the relevance and applicability of their teaching and research activities.

Professional Development Opportunities: Encourage continuous professional development among faculty members through opportunities for advanced degrees, certifications, and participation in conferences, seminars, and professional associations. Investing in faculty development not only enhances individual competencies but also strengthens institutional capacity and promotes a culture of lifelong learning within the academic community.

Evaluation and Feedback: Implement robust evaluation mechanisms to assess the effectiveness of training programs and monitor faculty progress. Regular feedback sessions, post-training evaluations, and performance assessments can help identify areas for improvement and refine future training initiatives to better meet the evolving needs of faculty members and the agricultural education sector.

By organizing targeted training and capacity-building initiatives, colleges can empower faculty members to excel in their roles as educators, researchers, and industry leaders. This contributes to the overall enhancement of agricultural education quality and research excellence, driving innovation and sustainability in the agricultural sector.

4.4. Reforming assessment and evaluation of faculty in agriculture, forestry, and aquaculture at colleges in the current context

Objective:

The objective is to reform the assessment and evaluation processes for faculty members specializing in agriculture, forestry, and aquaculture within colleges. This aims to ensure that assessment methods are aligned with industry standards, promote continuous improvement, and accurately measure faculty performance and contribution to educational and research outcomes.

Approach:

To achieve this objective, the following strategies can be implemented:

Review of Assessment Practices: Conduct a comprehensive review of existing assessment practices to identify strengths, weaknesses, and areas for improvement. This may involve analyzing the effectiveness of current evaluation methods, feedback mechanisms, and performance criteria in capturing faculty contributions to teaching, research, and service activities.

Alignment with Industry Standards: Align assessment criteria and performance metrics with industry standards and best practices in agriculture, forestry, and aquaculture. This ensures that faculty evaluations reflect the skills, competencies, and expertise required for success in the field, enhancing the relevance and credibility of assessment outcomes.

Implementation of Multi-dimensional Evaluation: Implement multi-dimensional evaluation frameworks that consider various aspects of faculty performance, including teaching effectiveness, research productivity, industry engagement, professional development, and service contributions. This holistic approach provides a comprehensive assessment of faculty contributions to the academic community and the agricultural sector.

Integration of Feedback Mechanisms: Integrate feedback mechanisms into the assessment process to facilitate ongoing communication and dialogue between faculty members and evaluators. Regular feedback sessions, peer reviews, and self-assessment tools empower faculty to reflect on their performance, identify areas for growth, and collaborate with peers and mentors to enhance their professional development.

Professional Development Support: Provide faculty members with professional development opportunities and resources to support their continuous improvement efforts. This may include training workshops, seminars, mentoring programs, and access to educational resources and funding opportunities to enhance their teaching, research, and service capabilities.

Continuous Monitoring and Improvement: Establish mechanisms for continuous monitoring and evaluation of assessment processes to ensure their effectiveness and relevance over time. Regular reviews, stakeholder consultations, and data analysis enable colleges to identify emerging trends, address challenges, and implement iterative improvements to the assessment framework.

By reforming assessment and evaluation practices, colleges can foster a culture of excellence, accountability, and continuous improvement among faculty members. This contributes to the overall enhancement of teaching quality, research productivity, and institutional effectiveness in advancing agricultural education and innovation.

4.5. Establishing and implementing specialized incentive policies and creating a conducive environment to motivate the development of faculty in agriculture, forestry, and aquaculture at colleges in the current context

Objective:

The objective is to establish and implement specialized incentive policies and create a conducive environment to motivate the development of faculty in agriculture, forestry, and aquaculture at colleges. This aims to recognize and reward faculty members for their contributions, promote professional growth, and enhance job satisfaction, thereby fostering a supportive environment for continuous improvement and innovation.

Approach:

To achieve this objective, the following strategies can be implemented:

Development of Tailored Incentive Policies: Design and implement incentive policies specifically

tailored to the needs and priorities of faculty members in agriculture, forestry, and aquaculture. These policies may include financial incentives, performance-based bonuses, recognition awards, professional development opportunities, and research grants to reward excellence, innovation, and contributions to the academic community.

Promotion of Work-Life Balance: Promote work-life balance initiatives and flexible work arrangements to support faculty members in managing their professional responsibilities alongside personal commitments. This may involve offering options for telecommuting, flexible scheduling, parental leave, and wellness programs to enhance job satisfaction, reduce stress, and improve overall well-being.

Creation of Collaborative Research Networks: Facilitate the establishment of collaborative research networks and interdisciplinary partnerships to promote knowledge sharing, collaboration, and innovation among faculty members. Encouraging cross-disciplinary research projects, joint publications, and collaborative grant applications fosters a culture of collaboration and collective learning, enhancing the quality and impact of research outcomes.

Recognition of Achievements and Contributions: Implement mechanisms to recognize and celebrate faculty achievements and contributions to teaching, research, and service activities. This may include establishing awards ceremonies, publishing success stories, and showcasing faculty accomplishments through newsletters, websites, and social media platforms to raise visibility and enhance morale.

Professional Development Support: Provide ongoing professional development support and resources to empower faculty members to pursue their career goals and aspirations. This may involve offering mentoring programs, leadership training, conference attendance opportunities, and access to educational resources and workshops to enhance teaching effectiveness, research productivity, and leadership skills.

Feedback and Engagement Mechanisms: Establish feedback and engagement mechanisms to solicit input from faculty members on incentive policies, work environment, and professional development opportunities. Regular surveys, focus groups, and town hall meetings enable faculty to voice their opinions, share feedback, and contribute to the continuous improvement of incentive programs and institutional practices.

By establishing and implementing specialized incentive policies and creating a supportive environment, colleges can cultivate a culture of excellence, collaboration, and continuous improvement among faculty members in agriculture, forestry, and aquaculture. This contributes to the attraction and retention of top talent, enhances institutional reputation, and fosters innovation and excellence in teaching, research, and service.

5. Conclusion

The development of faculty in agriculture, forestry, and aquaculture plays a pivotal role in advancing education, research, and innovation within the agricultural sector. Through the implementation of strategic solutions tailored to the current context, colleges under the Ministry of Agriculture and Rural Development can significantly enhance the capacity and effectiveness of their faculty members.

By improving planning and development processes, innovating recruitment and utilization strategies, organizing targeted training and capacity-building initiatives, reforming assessment and evaluation practices, and establishing specialized incentive policies, colleges can create a dynamic and supportive environment for faculty growth and development.

These efforts not only benefit individual faculty members but also contribute to the overall enhancement of agricultural education quality, research excellence, and institutional effectiveness. Moreover, they align with the broader goals of the agricultural sector and rural development initiatives, driving sustainable growth, innovation, and resilience.

As we look towards the future, it is imperative to continue investing in faculty development and creating conducive environments that foster collaboration, creativity, and continuous improvement. By doing so, we can ensure that agricultural colleges remain at the forefront of knowledge creation and dissemination,

empowering the next generation of agricultural professionals to tackle the challenges of tomorrow and drive positive change in our communities and beyond.

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