

**Identifying Research Priorities for Agricultural, Environmental, and Life Sciences
Advancements at Virginia Tech: A Survey of Stakeholder Perspectives**

Yaw Asamoah Akowuah

yawaa86@vt.edu

540-558-5292

Jean Parrella, Ph.D.

jparrella@vt.edu

530-219-5642

Jessica Spence

jessicaraespence@vt.edu

817-680-7700

Virginia Tech
Department of Agricultural Leadership and Community Education
214 Litton-Reaves Hall, Mail Code: 0343
Virginia Tech, Blacksburg, VA 24061

Identifying Research Priorities for Agricultural, Environmental, and Life Sciences Advancements at Virginia Tech: A Survey of Stakeholder Perspectives

Introduction

The Virginia Agricultural Experiment Station (VAES) is a research enterprise including more than 350 scientists in the colleges of agricultural, environmental, and veterinary sciences at Virginia Tech. It supports sustainable practices and rural development, addressing the evolving needs of agricultural communities far beyond Virginia State's borders. By aligning its priorities with the United Nations Sustainable Development Goals (SDGs), the Experiment Station enhances its capacity to address urgent global issues such as food security, climate resilience, and ecosystem conservation. While ensuring relevance to the SDGs is critical, meeting the needs of Virginia Experiment Station stakeholders is equally important to foster local and regional impact. At the time of this study, comprehensive research examining the priorities across specific stakeholder groups had not been conducted. Thus, we sought to identify stakeholders' perceived priority issues to inform Experiment Station research priorities and resource allocation. This research aligns with AAEE values by advancing AFNR knowledge, promoting sustainability, and addressing stakeholder needs.

Conceptual Framework

The SDGs provide a comprehensive framework guiding the Experiment Station's research priorities toward sustainability, resilience, and equity. They serve both as a strategic direction for research and a benchmark for evaluating the societal impact of projects, particularly in addressing stakeholder challenges. The Experiment Station's research aligns closely with several specific SDGs, including SDG 2: Zero Hunger, SDG 13: Climate Action, and SDGs 14: Life Below Water, and SDG 15: Life on Land (Le Blanc, 2015). By integrating SDG targets into its project evaluation criteria, the Experiment Station ensures that funded research not only meets stakeholder needs but also advances long-term environmental and societal goals.

Methods

We conducted a cross-sectional survey to collect data from stakeholders across Virginia, including but not limited to farmers, agricultural professionals, educators, and consumers. To develop the survey instrument, we initially surveyed faculty across the three colleges ($N = 94$) and reviewed secondary sources (e.g., faculty directories) to identify their research areas, specific inquiries within those areas, and how those research areas align with the SDGs. Through thematic analysis, we identified 14 broad categories (e.g., crop production, pest management, public health, environment), each containing between 4 and 25 related research topics. Survey respondents chose categories relevant to them and rated the importance of each associated research area within those categories. Experiment Station administrators distributed the survey via listservs, events, meetings, and newsletters between May and October 2024, receiving 251 usable responses.

Results

Table 1 presents the top three most relevant research categories identified by different stakeholder groups, with the two highest rated research topics within each category. Percentages indicate the proportions of respondents rating these topics as *moderately* or *very* important.

Table 1
Research Priorities Identified by Stakeholders

| Stakeholder Group | Most Relevant Categories | Research Topic Priorities |
|--|--|---|
| Crop Farmers (n = 62) | Fruits – 70.97% | Plant disease – 96.50% Soil health – 92.98% |
| | Vegetables – 35.48% | Pesticide efficacy – 97.56% Integrated pest management – 95.12% |
| | Cereals – 17.75% | Farm/agribusiness profitability – 90.25% Agricultural policies – 87.80% |
| Livestock Farmers (n = 62) | Livestock Production – 83.02% | Infectious diseases – 97.68% Reproductive health – 97.68% |
| | Agricultural Economics – 71.70% | Farm/agribusiness profitability – 100% Land use and farmland preservation – 94.74% |
| | Crop Production – 50.94% | Soil health – 100% Weed management – 100% |
| Agricultural Professionals (n = 20) | Agricultural Economics – 65% | Agricultural policies – 92.31% Farm/agribusiness profitability – 84.62% |
| | Crop Production – 65% | Weed management – 92.31% Plant disease – 92.31% |
| | Environment – 55% | Soil quality – 100% Water quality – 81.82% |
| University Educators (n = 35) | Environment – 65.71% | Ecosystem restoration – 91.31% Climate change – 86.96% |
| | Food and Nutrition – 42.86% | Food safety – 74.34% Food quality – 66.66% |
| | Public Health – 37.14% | Mental and social well-being – 76.92% Physical activity – 76.92% |
| Consumers (n = 16) | Environment – 75% | Air quality – 100% Climate change – 100% |
| | Education and Workforce Development – 62.50% | Leadership development – 100% Workforce upskilling – 90% |
| | Food and Nutrition – 50% | Food labeling – 87.50% Food safety – 87.50% |

Conclusions, Implications, and Recommendations

The data reveals both shared concerns, such as soil health and climate change, and distinct priorities across stakeholder groups. Farmers focus on agricultural productivity, pest management, and soil health, while agricultural professionals prioritize policies and water/soil quality. University educators emphasize environmental sustainability and well-being, and consumers value environmental quality and workforce development. These findings call for targeted research initiatives from the Experiment Station aligned with the SDGs. Improved outreach strategies are needed to engage underrepresented stakeholders and incorporate their perspectives into future research efforts.

References

- Cash, D., Clark, W. C., Alcock, F., Dickson, N. M., Eckley, N., & Jäger, J. (2003). Salience, credibility, legitimacy and boundaries: Linking research, assessment and decision making. *KSG Working Papers Series*. <https://doi.org/10.2139/ssrn.372280>
- Le Blanc, D. (2015). *Towards integration at last? The sustainable development goals as a network of targets* (DESA Working Paper No. 141, ST/ESA/2015/DWP/141). Department of Economic & Social Affairs. https://www.un.org/esa/desa/papers/2015/wp141_2015.pdf
- King, A. E. H., & Edwards, M. C. (2021). The ever-evolving brand of the land-grant institution: A historical overview. *Journal of Applied Communications*, 105(4). <https://doi.org/10.4148/1051-0834.2417>
- United Nations. (2023). *The sustainable development goals report 2023: Special edition*. United Nations. <https://unstats.un.org/sdgs/report/2023/>