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**UPLIFT AGRICULTURE PROJECT
WORK PACKAGE 3
CURRICULUM AND TEACHING METHODS
BASELINE SURVEY REPORT**



ZIMBABWE OPEN UNIVERSITY

"Empowerment Through Open Learning"



HNU

Hochschule Neu-Ulm
University of Applied Sciences



Acknowledgements

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Part 1: Introduction/Background

Background

The Universities Promoting Linkages for Impactful Training, Innovation, and Technology Transfer in Agriculture (UPLIFT-Ag) project is a European Union-funded initiative aimed at strengthening the capacity of higher education institutions (HEIs) in Africa to deliver demand-driven, innovative agricultural training. Implemented by a consortium of 9 African universities from Kenya, Rwanda, Zimbabwe, and Burundi, alongside 3 EU-based institutions, the project seeks to address gaps in agricultural education by promoting collaboration with industry and integrating entrepreneurship, innovation, and practical skills into teaching and curriculum development.

One of the project's specific objectives (SO#2) is to integrate innovative agriculture teaching methods and approaches into improved curricula in participating HEIs. This includes identifying effective methods and developing model curricula that reflect the skills demanded by industry, including transversal skills such as leadership, communication, and entrepreneurship. Work Package 3 (WP3) is central to achieving this objective.

Purpose of the Report

This report presents the findings of a baseline survey conducted as part of WP3. It aims to provide a comprehensive understanding of the current status of agricultural curricula and teaching methods in the participating universities. The survey identifies existing strengths, gaps, and opportunities for innovation and partnership with industry actors, serving as a foundational reference for future activities under WP3.

Scope of Work Package 3

WP3 is designed to support curriculum innovation by:

- Identifying, adapting, and testing new teaching methods, tools, and materials.
- Developing model curricula aligned with industry needs.
- Building staff capacity in curriculum design and industry partnership.
- Creating institutional policies that support industry involvement in teaching.

Objectives of the Baseline Survey

General Objective

To establish the current status of agricultural teaching methods and curricula in participating African HEIs to guide the implementation of WP3 under the UPLIFT-Ag project.

Specific Objectives

- To map existing curricula and identify teaching approaches currently in use.
- To assess faculty capacity in innovative teaching and curriculum development.
- To determine the level of industry involvement in curriculum design and delivery.
- To identify institutional policies and frameworks that support or hinder curriculum innovation.
- To explore gaps and opportunities for integrating entrepreneurial and industry-responsive learning.

Part 2: Survey Methodology

Introduction

The baseline survey was conducted virtually using two different questionnaires programmed on google forms. The target groups were:

- (i) students at BSc, Masters and PhD at the 9 African universities in the UPLIFT-Ag project consortium.
- (ii) agriculture course lecturers at the 9 African universities in the UPLIFT-Ag project consortium.

Data collection was initiated in June and remained open until September 2024. There was adequate number of responses received from the different institutions and partner countries. A total of 453 students responded to the survey, comprising of 362 at BSc level, 68 at Masters degree level and 23 at PhD level. A total of 171 lecturers responded to the survey, 103 being PhD holders, and most of them being male (124).

Of note, based on the responses there was a generally high degree of optimism regarding the structure of curriculum and its responsiveness to industry needs, most lecturers and students are of the opinion the curriculum is well designed and appropriate methods are being used to teach agriculture courses. This finding does not agree with the sentiment expressed by employers, industry and other stakeholders.

The findings from each category of respondents are presented in the following sections, at the end of each section is a summary of conclusions and recommendations.

Part 3: Findings and discussion

Introduction

The UPLIFT-Ag project is focused on improving curriculum development and teaching practices within Higher Education Institutions (HEIs), with an emphasis on agriculture programs. A key component of this initiative is the execution of a baseline survey to evaluate the current state of curriculum content, instructional methods and available facilities as perceived by both students and faculty members.

The baseline survey was conducted online using a Google Forms questionnaire. The survey targeted agriculture lecturers from nine universities across Africa that are part of the UPLIFT-Ag project consortium. The survey was initiated in June 2024 and remained open until September 2024 providing sufficient time for participants to contribute their feedback.

This chapter presents and discusses the findings of the baseline survey conducted among lecturers and students across selected agricultural training institutions. The objective of the survey was to assess the status of teaching and learning in agriculture-related courses. A particular focus on the adoption of innovative teaching methods, availability and adequacy of infrastructure, curriculum relevance, and alignment to industry needs. Responses were collected from both academic staff and students to capture a balanced and holistic perspective on the current learning environment and its effectiveness in preparing graduates for industry and innovation.

The findings are presented thematically, drawing comparisons between student and lecturer responses to identify areas of alignment, divergence, and concern. Key thematic areas include: the extent of knowledge and application of modern teaching and learning approaches; personal and institutional barriers to pedagogical innovation; availability of facilities and specialized equipment; confidence of lecturers in applying active learning methods; perceptions on curriculum relevance; and the adequacy of support systems for competency-based and industry-aligned education.

Where possible, the analysis integrates recent literature to contextualize the findings within broader trends in agricultural education in Africa and globally. This helps highlight not only institutional strengths and gaps, but also opportunities for reform that align higher education practices with the evolving needs of agriculture, agribusiness, and related sectors.

Demographic Information of the Survey Participants

The survey sought to examine the demographic information of the participants. This was categorized into; Country, University, Gender, age and Highest academic qualification.

Country

The respondents were asked to indicate the countries they live in. Figure 1 shows the distribution of respondents by their countries.

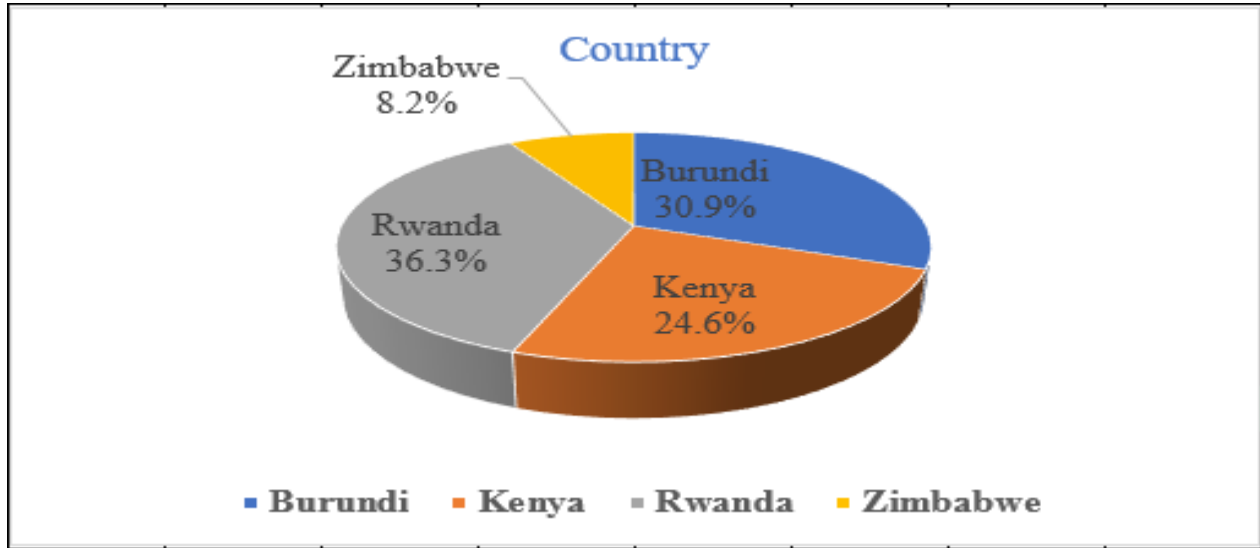


Figure 1: Distribution of respondents by their countries

More than a third (36.3%) of the lecturers who took part in the survey were from Rwanda. This was followed by 30.9% of them who were from Burundi while 26.6% and 8.2% of them were from Kenya and Zimbabwe respectively. The uneven distribution of lecturers from these countries can be attributed to the imbalance of lecturer populations across these countries, with Rwanda and Burundi having the highest representation.

University

The respondents were further asked to indicate they are affiliated with. Table 1 show the distribution of the Lecturers by their universities.

Table 1: Distribution of the Lecturers by their universities

University	Frequency (F)	Percentage (%)
Chinhoyi University of Technology	6	3.5
Chuka University	18	10.5
Kenyatta University	19	11.1
RCA	1	0.6
Taita Taveta University	4	2.3
UNILAK	19	11.1
University of Burundi	44	25.7
University of NGOZI	9	5.3

University of Rwanda	42	24.6
Zimbabwe Open University	9	5.3
Total	171	100.0

As shown in table 1 above, slightly more than a quarter (25.7%) of the lecturers who took part in the survey are affiliated to the University of Burundi. This was followed by 24.6% of them from the University of Rwanda while the remaining percentage of them from UNILAK (11.1%), Kenyatta (11.1%), Chuka (10.5%), Zimbabwe (5.3%), NGOZI (5.3%), Chinhoyi (3.5%), Taita Taveta (2.3%) and RCA (0.6%) universities respectively.

Gender

The survey further sought to identify the gender of the participants. This was categorized into Male and female. Figure 2 below show the distribution of the participants by their gender.

Majority (72.5%) of the respondents who took part in the survey were male while the remaining percentages (27.5%) of them were female.

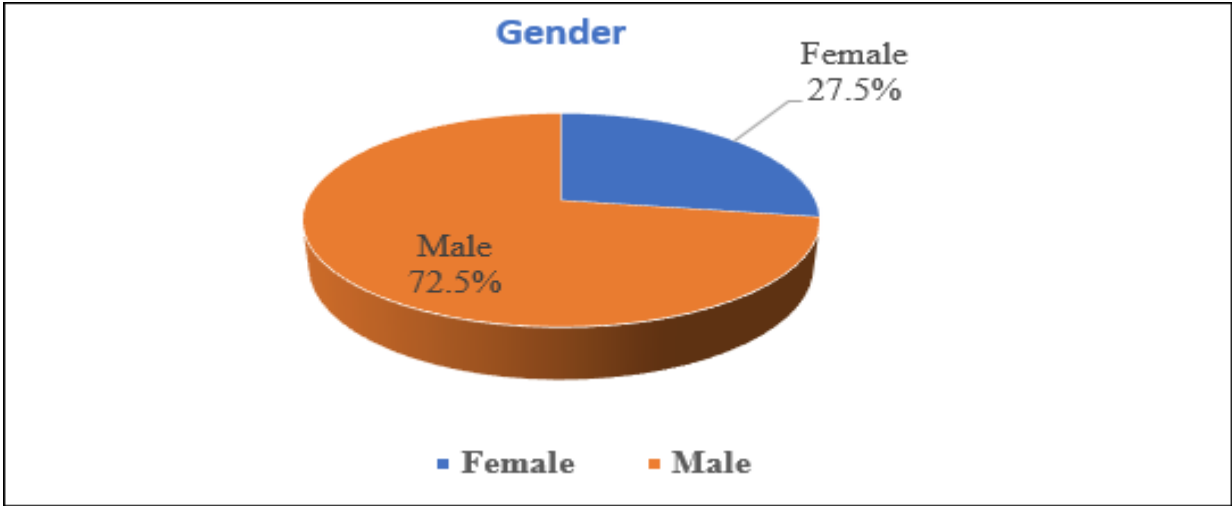


Figure 2: Distribution of the participants by their gender

The baseline survey revealed a significant gender imbalance among academic staff, with 72.5% male and 27.5% female participants, reflecting broader trends across African higher education. This disparity aligns with a study which reported that only 24% of tertiary academic staff in Sub-Saharan Africa are women (UNESCO, 2020). Similar concerns are echoed in studies from Zambia, where women account for just 27% of lecturers and only 8% of professors (Muuma, 2022). A broader

analysis across 16 African universities found that women occupy only 13% of Vice-Chancellor roles, and over half of the institutions have fewer than 30% female Deans (Diab et al., 2023). The persistent underrepresentation of women is driven by a mix of cultural norms, lack of institutional support, biased promotion practices, and limited access to leadership development opportunities (Thelma & Ngulube, 2024). These findings underscore the urgent need for African universities to implement affirmative action, mentorship, gender-sensitive policy reforms, and regular monitoring to ensure equitable faculty representation and create inclusive academic environments.

Age

The respondents were further asked to indicate their age. This was categorized into age brackets such as below 30 years, 31-40 years, 41-50 years and above 51 years. Figure 3 below shows the distribution of lecturers by their age brackets.

As shown in figure 3, 40.9% of the Lecturers belonged to the age bracket of between 41-50 years. This was followed by slightly less than a third (31.6%) of them who were above 51 years while 26.3% of them were between 31-40 years. Only 1.2% of them were below 30 years.

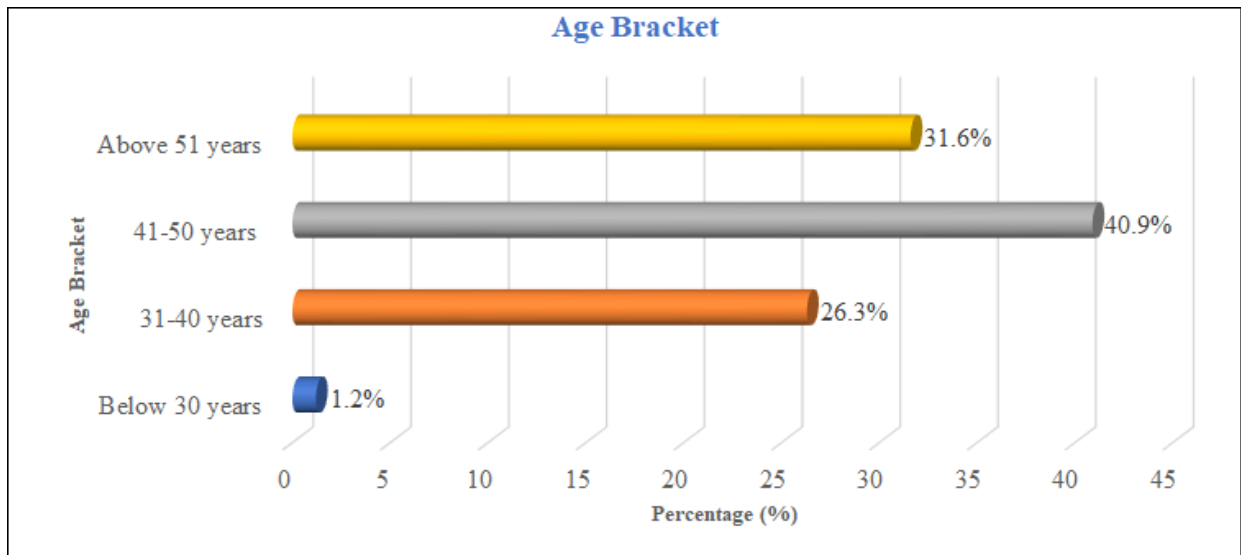


Figure 3: Distribution of lecturers by their age brackets

The survey's finding suggests an aging academic workforce in African higher education institutions. This trend is consistent with broader regional patterns. For instance, a study on the academic profession in Africa highlighted that a significant proportion of faculty members are approaching retirement age, raising concerns about succession planning and the infusion of new talent (Teferra & Altbachl, 2004). The limited presence of younger lecturers may be attributed to factors such as limited doctoral training opportunities, inadequate mentorship programs, and the allure of more lucrative opportunities outside academia (Ng'ethe et al., 2012). This demographic imbalance poses challenges for institutional renewal, innovation, and the sustainability of academic programs.

Highest Academic Qualification

The respondents were further asked to indicate their highest academic qualification. This was categorized into; Bachelor's degree, first degree, masters or PhD. Figure 4 below presents the distribution of lecturers by their highest academic qualification.



Figure 4: Distribution of lecturers by their highest academic qualification

Majority (60.2%) of the lecturers who participated in the survey were PhD holders. This was followed by more than a third (37.4%) of them who were Masters holder while only 1.8% and 0.6% of them had a bachelor's degree or a first degree respectively as their highest academic qualification. This shows implies that most of the lecturers in the survey are highly qualified, with only a few having lower academic qualifications.

Lecturers' Instructional Delivery Qualifications

The survey further sought to establish whether the participants possess an Instructional Delivery Qualification (IDQ), which referred to any specific additional training undertaken to enhance their skills and effectiveness as lecturers or instructors.

As shown in figure 5 below, nearly half (48.5%) of the lecturers possess an Instructional Delivery Qualification (IDQ) while the remaining 51.5% percentage felt otherwise. This suggests that almost half of the lecturers are actively seeking to improve their teaching effectiveness through additional training, indicating a commitment to professional development.

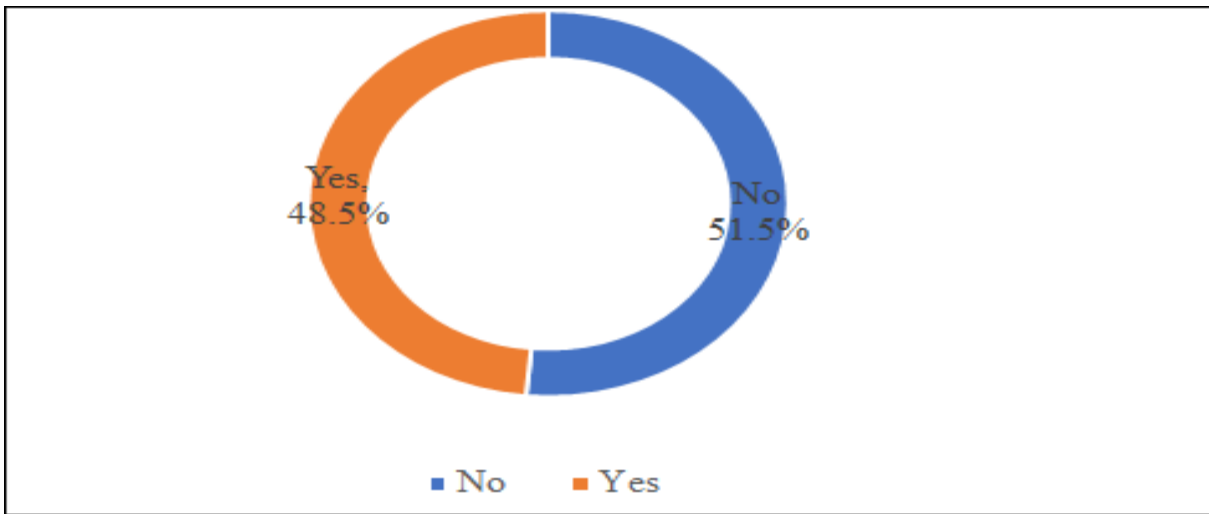


Figure 5: Lecturers' Instructional Delivery Qualifications

The finding that 48.5% of lecturers possess an Instructional Delivery Qualification (IDQ) reflects a growing trend in higher education where faculty are increasingly recognizing the value of pedagogical training to enhance student learning outcomes (Godsk & Møller, 2025). However, the fact that a majority (51.5%) lack such qualifications underscores persistent institutional gaps in promoting or requiring instructional competence, a concern echoed by recent studies advocating structured professional development for university educators (Alexandrou, 2021).

Type of instructional delivery qualifications

The surveys also sort to describe the type of Instructional Delivery Qualification. The survey findings indicate that 46.2% of the lecturers were undecided about their Instructional Delivery Qualification (IDQ). This was followed by 15.2% of them who had training in pedagogy, while 10.5% indicated that the qualification was not available to them. A smaller percentage, 4.7%, had a postgraduate diploma or certificate in higher education and 3.5% had training in both teaching methods and agricultural and subject-specific training.

Other qualifications included professional certificates related to education (2.9%), training in pedagogy for specific subjects (2.3%) and certificates in university teaching (2.3%). Additionally, 1.8% of the lecturers had qualifications in the incorporation of technology or online teaching, quality assurance in teaching or education, and various short courses such as horticulture or land economics. This suggests that while a significant portion of the lecturer population lacks formal instructional qualifications a significant number have also pursued specialized training to enhance their teaching skills.

Table 2: Distribution of the Type of Lecturers' Instructional Delivery Qualifications

Qualification/Training Description	Frequency (F)	Percentage (%)
Pedagogy/Training in Pedagogy	26	15.2
Postgraduate Diploma/Certificate in Higher Education	8	4.7
Teaching Methods/Training on Teaching Methods	6	3.5
Professional Certificates (related to education)	5	2.9
Postgraduate Certificate in Learning and Teaching	2	1.2
Training in Pedagogy for Specific Subjects (e.g., Plant Doctor, IPM)	4	2.3
Incorporation of Technology or Online Teaching	3	1.8
Quality Assurance in Teaching or Education	4	2.3
Various Short Courses (e.g., Horticulture, Land Economics)	3	1.8
Agricultural and Subject-Specific Training	6	3.5
Certificates/Qualifications in Agriculture and Education	3	1.8
Certificates in University Teaching	4	2.3
Not Available	18	10.5
Undecided	79	46.2
Total	171	100

The survey reveals that 46.2% of lecturers are undecided about their Instructional Delivery Qualification (IDQ), while only a minority possesses formal pedagogical credentials such as postgraduate diplomas or certificates in higher education. This uncertainty may reflect limited access to structured training or a lack of institutional emphasis on pedagogical development, a concern echoed in South African universities where professional development has historically been uncoordinated and unsustainable (Vilppu et al., 2019a).

Notably, even short-term pedagogical training programs have been shown to shift lecturers' conceptions from knowledge transmission to learning facilitation, enhancing their teaching effectiveness (Gumede et al., 2023). Therefore, expanding access to such training could significantly improve instructional quality in higher education.

Distribution of Lecturers teaching position/rank

The respondents were further asked to indicate their current teaching position/rank. As shown in figure 6, more than a third (38.0%) of the lecturers who took part in the survey indicated that they are currently lecturers. This was followed by 23.4% of them who were teaching assistants while the remaining percentage of them were either senior lecturers (22.8%), associate professors (9.9%), full professors (4.7%) respectively with 1.2% of them who were undecided.

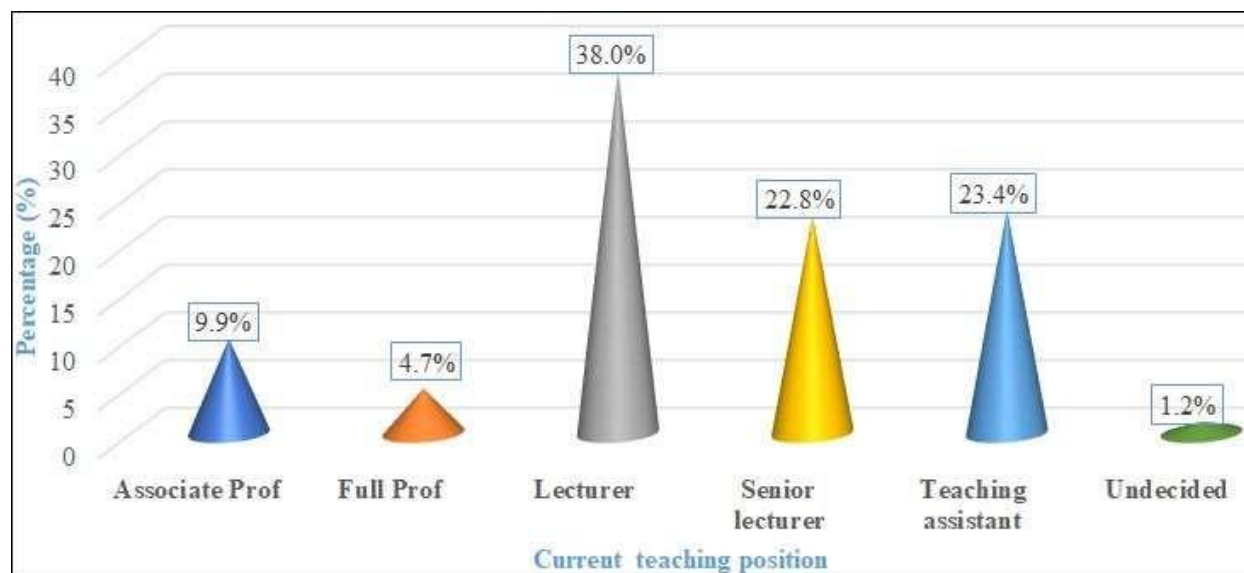


Figure 6: Distribution of lectures' current teaching position/rank

The survey indicates that a substantial proportion of academic staff occupy entry- or mid-level positions. This distribution aligns with global trends in higher education, where early-career academics often face challenges in progressing to senior roles due to factors such as limited mentorship, institutional support, and structural barriers within academic career pathways (Mantai & Marrone, 2023).

Furthermore, the relatively lower percentages of senior lecturers (22.8%), associate professors (9.9%), and full professors (4.7%) suggest potential bottlenecks in academic advancement. Recent studies highlight that career progression in academia is frequently influenced by a combination of individual agency and institutional policies, emphasizing the need for transparent promotion criteria and supportive professional development programs to facilitate upward mobility.

Lecturers' Tenure in Current Positions

The respondents were also asked to specify the duration of their tenure in their current position. Table 3 presents the distribution of responses regarding the length of time they have worked in this role.

As shown in Table 3, 43.3% of the respondents who took part in the survey had worked in their current position for 1-5 years. This was followed by 24.6% who had been in their position for 6-10 years. Additionally, 9.4% of the respondents were undecided about their duration in the position. The remaining lecturers were distributed as follows: 7.0% had worked for 11-15 years, 6.4% had less than 1 year of experience, and 4.7% had been in their position for 5-10 years. A small percentage of respondents (2.3%) had been in their role for 16-20 years, while another 2.3% had worked for more than 21 years.

Table 3: Lecturers' tenure in their current position.

Qualification/Training Description	Frequency (F)	Percentage (%)
1-5 years	74	43.3
11-15 years	12	7.0
16-20 years	4	2.3
5-10 years	8	4.7

6-10 years	42	24.6
Above 21 years	4	2.3
Less than 1 year	11	6.4
Undecided	16	9.4
Total	171	100

The survey indicates that a significant portion of lecturers have considerable experience in their current roles, with 43.3% having served for 1–5 years and 24.6% for 6–10 years. This tenure distribution suggests a relatively stable academic workforce, which can contribute positively to institutional knowledge and teaching quality. However, prolonged tenure without ongoing professional development may lead to stagnation in teaching practices and reduced adaptability to new pedagogical approaches. Studies have shown that while experienced faculty bring valuable insights, continuous engagement in professional development is essential to maintain teaching effectiveness and innovation (Vilppu et al., 2019b).

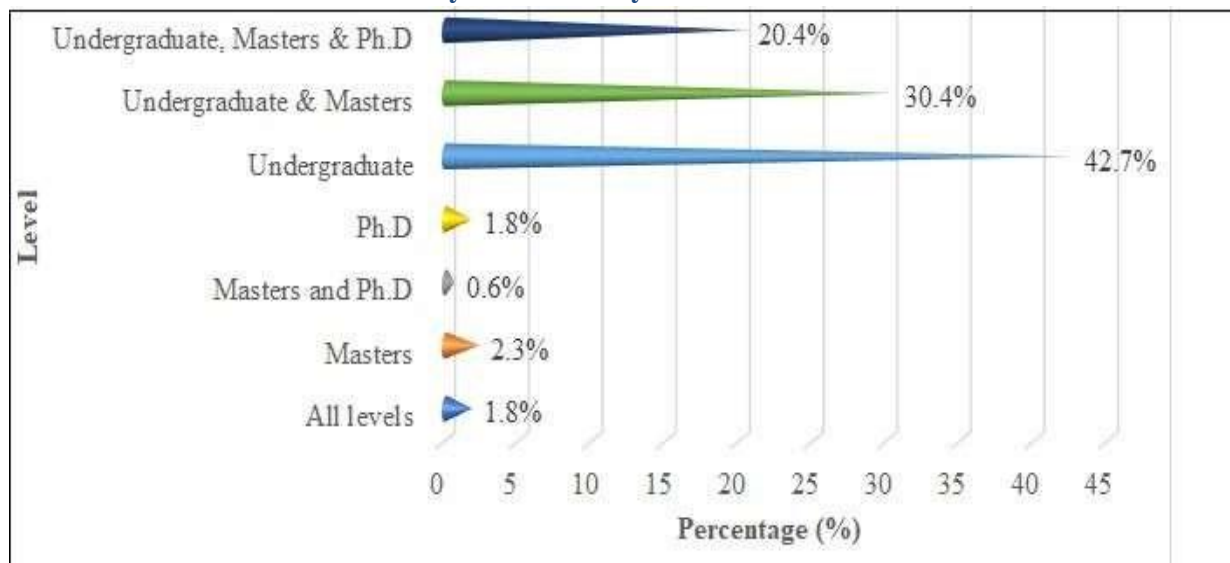
Moreover, the presence of a substantial number of lecturers with 1–10 years of experience highlights the importance of structured mentorship and support systems to foster career progression and prevent potential burnout. Institutions that invest in continuous professional development and clear advancement pathways tend to retain faculty more effectively and enhance overall educational quality (Gumede et al., 2023).

Levels of Teaching Engagement among Lecturers

The respondents were further asked to indicate the levels they teach. Figure 7 below presents a distribution of the lecturers by the levels they teach.

The survey results show that majority (42.7%) of the lecturers teach undergraduate level. This was followed by nearly a third (30.4%) of them who teach undergraduate and master levels while the remaining percentage of them teach either a combination of undergraduate, masters and PhD (20.4%), Masters (2.3%), PhD (1.8%), all levels (1.8%) and a combination of Masters and PhD (0.6%) levels respectively.

Figure 7: Distribution of the lecturers by the levels they teach



The survey indicates most of the lecturers primarily teach at the undergraduate level, while 30.4% engage with both undergraduate and master's students. Smaller proportions are involved in teaching across all academic levels, including PhD programs. This distribution reflects the broader structure of higher education in Kenya, where undergraduate programs constitute the majority of offerings, followed by masters and doctoral programs.

The limited involvement of lecturers in postgraduate teaching may be attributed to the relatively low number of PhD holders among academic staff in Kenya. A report highlights that the country has less than 7,000 PhD holders, underscoring a significant gap in qualified personnel to support advanced academic programs(Commission for University Education., 2023).

Lecturers' Areas of Specialization

The respondents were also asked to identify their subject area of specialization. Table 4 shows the distribution of responses regarding their subject area of specialization.

As shown in the table 4, 18.7% of the respondents indicated that they specialized is in Agronomy and Crop Science, making it the most common subject area among the lecturers surveyed. This was followed by 15.2% of respondents specializing in Agricultural Economics and Management. Other notable specializations included Animal Science and Health (13.5%) and Environmental Science and Soil Management (10.5%). Biotechnology and Related Fields accounted for 8.2%, while Horticulture

and Crop Protection made up 6.4%. Education and Extension was the specialization of 5.8% of the respondents. Additionally, 21.7% of the respondents specified “Other” as their area of specialization. This distribution reflects ongoing efforts in African higher education to align academic training with agricultural transformation and sustainable development goals, emphasizing both crop production and agri-business competencies (World Bank, 2019).

Table 4: Distribution of responses regarding their subject area of specialization

Subject Area of specialization	Frequency (F)	Percentage (%)
Agricultural Economics and Management	26	15.2
Agronomy and Crop Science	32	18.7
Animal Science and Health	23	13.5
Biotechnology and Related Fields	14	8.2
Horticulture and Crop Protection	11	6.4
Environmental Science and Soil Management	18	10.5
Education and Extension	10	5.8
Other	37	21.7
Total	171	100.0

Additional and Interdisciplinary Areas of Specialization

The respondents were further asked to specify their other subject area of specialization. Table 5 shows the distribution of responses regarding their other subject area of specialization.

When asked to specify their other subject area of specialization, 4.1% of them specialized in Food Sciences, Nutrition, and Biotechnology, making it the most common specialization within the "Other" category. This was followed by 2.9% of respondents in Mathematics, Economics, and Social Sciences. Other areas of specialization included Agricultural Policy, Economics, and Related Fields (2.4%),

Animal and Biological Sciences (2.3%), Environmental and Ecological Sciences (2.3%), and Forestry, Agro forestry, and Rangeland Resources (2.3%). Agricultural Engineering, Applied Sciences, and Technology accounted for 1.8%.

Table 5: Distribution of responses regarding other subject area of specialization

Other Subject Area of specialization	Frequency (F)	Percentage (%)
Agricultural Policy, Economics, and Related Fields	4	2.4
Agricultural Engineering, Applied Sciences, and Technology	3	1.8
Animal and Biological Sciences	4	2.3
Environmental and Ecological Sciences	4	2.3
Food Sciences, Nutrition, and Biotechnology	7	4.1
Forestry, Agroforestry, and Rangeland Resources	4	2.3
Mathematics, Economics, and Social Sciences	5	2.9
Undecided (Already responded above)	128	78.3
Total	171	100.0

The breakdown of other specializations reveals further disciplinary diversity, with Food Sciences, Nutrition, and Biotechnology (4.1%) leading, followed by fields such as social sciences, ecology, and engineering. This reflects a growing interdisciplinary shift in agricultural education aimed at addressing complex food system challenges through integrated expertise in health, technology, environment, and policy (Parent & Collette, 2021).

Duration since introduction of Agriculture Programs at the University

The respondents were asked to indicate how long Agriculture courses have been offered at their university. Figure 8 shows the distribution of responses on the Duration of agriculture courses offered at the University.

The majority of lecturers (53.2%) reported that agriculture courses have been offered at their institutions for 11–15 years, with 26.9% indicating durations exceeding 21 years. A 6.4% of lecturers stated that the course has been offered for less than 1 year, 5.3% stating 16-20 years, while 4.7% and 3.5% stated 6-10 year and 1-5 years respectively.

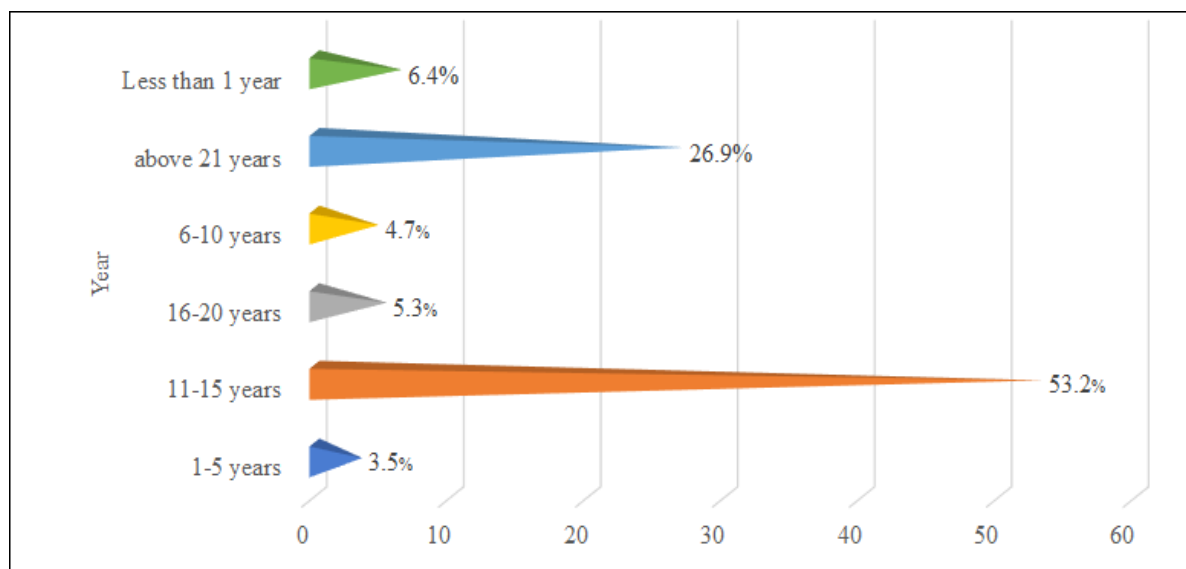


Figure 8: Duration since Introduction of Agriculture Programs at the University

This result suggests a well-established presence of agricultural education in many universities, aligning with national and regional strategies to strengthen food systems and rural development through sustained academic investment.

Effectiveness and Relevance of the Current Curriculum

The survey assessed lecturers' views on the effectiveness and relevance of the current agriculture curriculum. A majority (63.8%) agreed or strongly agreed that students undertake practical training

schemes emphasizing learning by doing, while 53.2% acknowledged industry-based practical training, though with notable neutrality (16.4%) and disagree (22.2%). Regarding innovation and entrepreneurship, 61.4% agreed or strongly agreed, with 14.6% in disagreement and 16.4% neutral or undecided. For transversal skills such as leadership and problem-solving, 67.3% agreed or strongly agreed, while 12.8% disagreed and 18.7% remained neutral or undecided.

Multidisciplinary and cross-cutting courses were endorsed by 71.9% of respondents, with only 10% in disagreement. Finally, 51.5% agreed or strongly agreed that training and assessment practices promote industry partnerships, though a considerable portion (31.6%) remained neutral or undecided, and 16.9% disagreed.

Table 6: Effectiveness and Relevance of the Current Curriculum

Practical training emphasizes;	Agree		Strongly Agree		Neutral		Disagree		Strongly Disagree		Undecided	
	F	%	F	%	F	%	F	%	F	%	F	%
Learning by doing	79	46.2	30	17.6	21	12.3	15	8.8	12	7	14	8.2
Learning within the industry	67	39.2	24	14	28	16.4	25	14.6	13	7.6	14	8.2
Innovation and entrepreneurship	63	36.8	42	24.6	27	15.8	11	6.4	14	8.2	14	8.2
Transversal skills such as leadership, communication, problem-solving,	67	39.2	48	28.1	18	10.5	11	6.4	11	6.4	14	8.2
Multidisciplinary courses with cross-cutting elements	67	39.2	56	32.7	17	10	8	4.7	9	5.3	14	8.2
Partnerships with industry	55	32.2	33	19.3	40	23.4	18	10.5	11	6.4	14	8.2

The findings indicate broad agreement among lecturers that the current agriculture curricula emphasize practical training, industry engagement, innovation, and transversal skills, though varying levels of neutrality and disagreement suggest inconsistent implementation. These results align with recent calls for competency-based, industry-aligned curricula in African higher education to enhance graduate employability and address sector-specific challenges.

Teaching and Learning Methods Applied in Agriculture Courses

The respondents were asked to indicate the extent to which various teaching and learning methods are practiced or applied in the agriculture courses at their university. Table 7 shows the distribution of teaching/learning methods practiced/ applied in the agriculture courses in the University.

The survey revealed that work integrated learning is commonly used, with 32% of lecturers always applying it, 25.7% often, and 29.8% sometimes, while a small proportion (2.9%) never use it. Project-based learning is frequently practiced, with 18% always, 32.7% often, and 33.9% sometimes employing this method. Experiential learning also features prominently, with 20% always, 35.7% often, and 33.9% sometimes using it, while very few (1.2%) reported never engaging in it. Notably, a competence-based approach is highly adopted, with 35% of lecturers always applying it, 30.4% often, and only 0.6% indicating they never use it.

Flipped classrooms (2.9% always use) and game-based learning (1.8% always use) are the least adopted, with high levels of indecision and rare application. Inquiry-based learning showed slightly higher usage (9.9% always use), while computer-based simulations had modest uptake (5.3% always use).

Methods involving direct industry engagement, such as internships (29.8% always), industry tours (17.5% always), field experiments (20.5% always), and exhibitions (11.7% always), showed better integration but still reflected inconsistent application, with a large proportion of respondents undecided or using them only occasionally.

Table 7: Teaching and learning methods applied in Agriculture courses

Response	Always		Never		Not Sure		Often		Seldom/Rarely		Sometimes	
	F	%	F	%	F	%	F	%	F	%	F	%
Work Integrated Learning	32	18.7	5	2.9	6	3.5	44	25.7	17	9.9	51	29.8
Project-Based Learning	18	10.5	2	1.2	6	3.5	56	32.7	20	11.7	52	30.4
Experiential Learning	20	11.7	2	1.2	3	1.8	61	35.7	12	7.0	58	33.9
Competence-Based Approach	35	20.5	1	0.6	2	1.2	52	30.4	16	9.4	51	29.8
Flipped classroom	5	2.9	1	0.6	1	0.6	28	16.7	2	1.2	36	21.1

Game based learning	3	1.8	3	21.	3	22.	16	9.4	1	11.	36	21.1
			6	1	8	3			9	1		
Inquiry based learning	1	9.9	6	3.5	4	2.3	27	15.	2	16.	37	21.6
	7							8	8	4		
Computer based simulation and modeling	9	5.3	2	11.	3	1.8	24	14	2	15.	37	21.6
			0	7					6	2		
Early exposure of learners to actual business environment	1		1					11.	3	20.		
	2	7.0	3	7.6	4	2.3	19	1	5	5	36	20.8
Internships	5	29.	1	0.6	4	2.3	24	14	1	6.4	28	16.4
	1	8							1			
Industry tours	3	17.	4	2.3	5	2.9	31	18.	1	8.2	35	20.5
	0	5						1	4			
Field experiments	3	20.	2	1.2	5	2.9	36	21.	6	3.5	35	20.5
	5	5						1				
Participation in exhibitions, shows and demonstrations	2	11.						13.	2	13.		
	0	7	5	2.9	4	2.3	23	5	3	5	44	25.7

The results highlight a strong shift toward active, practical pedagogy in agriculture education, aligning with global trends advocating experiential learning to bridge the gap between academic knowledge and real-world applications. Such methods are essential for equipping graduates with hands-on skills, critical thinking, and problem-solving capabilities, which are increasingly emphasized in modern agricultural curricula for enhancing employability and sector relevance (Petrov, 2025).

The limited adoption of innovative teaching methods like flipped classrooms and game-based learning indicates challenges in transitioning to interactive, student-centered pedagogies, despite their proven

benefits in enhancing engagement and practical skills in agricultural education (R et al., 2015). However, the relatively higher emphasis on internships and field-based activities aligns with global trends advocating experiential learning to better prepare students for industry demands, although inconsistency in their application highlights the need for structured implementation frameworks.

Personal Barriers to Adopting Improved Teaching and Learning Methods

The survey sought to evaluate personal barriers that may affect lecturers' adoption of improved teaching and learning methods in the agriculture courses at their university. Table 9 below shows the distribution of various personal barriers affecting lecturers' adoption of improved teaching and learning methods in the agriculture courses at their university.

The survey revealed mixed perceptions regarding personal barriers to adopting improved teaching methods. A large proportion of respondents remained undecided (30.4%) across most barriers. Lack of knowledge and skills, lack of pedagogical training, and time constraints were not seen as critical barriers with only 0.6%, 17% and 13.5% rating it as very important respectively. However, inadequate specialized facilities stood out, with 42.1% rating it as very important. Other barriers like lack of motivation, restrictive curricula, resistance to change (from learners and colleagues), and lack of incentives were generally seen as less significant, though notable portions expressed concern.

Table 8: Personal barriers affecting lecturers' adoption of improved teaching and learning methods in the agriculture courses at their university

Statement	I am not certain		Low importance		Not important		Somewhat important		Very important		Undecided	
	F	%	F	%	F	%	F	%	F	%	F	%
Lack of knowledge and skills	5	2.9	29	17.0	29	17.0	27	15.8	1	0.6	52	30.4
No pedagogical teacher training	6	3.5	24	14.0	38	22.2	22	12.9	29	17.0	52	30.4
Time constraints	4	2.3	33	19.3	30	17.5	29	17.0	23	13.5	52	30.4
No motivation	7	4.1	25	14.6	40	23.4	23	13.5	24	14.0	52	30.4
A restrictive curriculum	7	4.1	20	11.7	36	21.1	28	16.4	28	16.4	52	30.4
Inadequate specialized facilities, e.g. smart classrooms, software, etc.	10	5.8	5	2.9	31	18.1	-	-	72	42.1	52	30.4
Resistance to change by students	10	5.8	27	15.8	40	23.4	23	13.5	19	11.1	52	30.4
Lack of incentives teaching methods	22	12.9	13	7.6			32	18.7	52	30.4	52	30.4
Resistance to change by colleagues	8	4.7	23	13.5	41	24.0	29	17.0	18	10.5	52	30.4

The findings suggest that (Geera & Onen, 2023). This reflects a broader challenge in higher education where infrastructural limitations are often prioritized, but fostering pedagogical capacity and changing mindsets requires more targeted interventions.

Availability and Adequacy of Facilities for Agriculture tech Courses

The survey sought to examine the availability of various facilities for agritech courses. Table 10 shows the distribution of responses on the availability of various facilities for agritech courses.

The survey highlighted critical gaps in the availability and adequacy of facilities for agritech courses. Lab space was reported as mostly available but inadequate by 23.4% of respondents. Key equipment, such as tillage and planting machinery and harvesting/post-harvest tools were reported to be few by 24.6% and 22.3% respectively, while 19.9% state they are not available. Learner-centered teaching farms had relatively better availability, with 13.5% indicating adequacy. Greenhouse structures, climate sensors, and instructional delivery equipment also faced availability challenges, with up to 30.4% undecided on their status. Facilities for veterinary services, personal protective gear, and livestock handling were reported as either insufficient or non-existent by a significant portion of respondents, indicating widespread infrastructural deficiencies.

Table 9: The availability of various facilities for agritech courses

Response	Available		Mostly available		Not applicable		Nothing available		Few available		Undecided	
	F	%	F	%	F	%	F	%	F	%	F	%
Lab space and facilities	13	7.6	52	30.4	9	5.3	5	2.9	40	23.4	52	30.4
Tillage and planting equipment	11	6.4	32	18.7	16	9.4	18	10.6	42	24.6	52	30.4
Harvesting and post-harvest equipment	9	5.3	26	15.2	13	7.6	34	19.9	38	22.3	52	30.4
Learner-centered teaching farm	23	13.5	36	21.1	6	3.5	18	10	37	21.6	52	30.4
Greenhouse structures	12	7	34	19.9	12	7	21	12.3	40	23.4	52	30.4
Climate sensors and data loggers,	9	5.3	22	12.9	17	9.9	36	21.1	35	20.5	52	30.4
Instructional delivery equipment and accessories	38	22.2	37	21.6	1	0.6	8	4.7	35	20.5	52	30.4
Plant propagation and seed units	15	8.8	24	14	23	13.5	27	15.8	30	17.5	52	30.4
Veterinary clinic with equipment	11	6.4	20	11.7	20	11.7	42	24.6	26	15.2	52	30.4
Personal Protective Equipment	11	6.4	24	14	12	7	34	19.9	38	22.2	52	30.4
Aggrotech training and	8	4.7	24	14	15	8.8	35	20.5	37	21.6	52	30.4

demonstration Centre												
Irrigation infrastructure	10	5.8	16	9.4	17	9.9	40	23.4	36	21.1	52	30.4
Spraying equipment	15	8.8	21	12.3	15	8.8	23	13.5	45	26.3	52	30.4
Drone	5	2.9	8	4.7	18	10.5	79	46.2	9	5.3	52	30.4
Stores and storage facilities	12	7	26	15.2	11	6.4	31	18.1	39	22.8	52	30.4
Incubation center	11	6.4	22	12.9	10	5.8	44	25.7	32	18.7	52	30.4
Library and information resources	32	18.7	50	29.2	2	1.2	5	2.9	30	17.5	52	30.4
Feed bunks, feed storage and delivery systems link	10	5.8	19	11.1	16	9.4	52	30.4	22	12.9	52	30.4
Livestock handling facilities like chutes	11	6.4	16	9.4	18	10.5	41	24	33	19.3	52	30.4
Dairy infrastructure	12	7	18	10.5	19	11.1	38	22.2	32	18.7	52	30.4

Dairy processing equipment	11	6.4	13	7.6	18	10.5	52	30.4	25	14.6	52	30.4
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The findings underscore a persistent inadequacy in essential facilities supporting practical training in agriculture courses, mirroring challenges reported in other African agricultural institutions. Without sufficient infrastructure, the effective delivery of hands-on, industry-relevant training is compromised, limiting graduates' readiness for the job market. Addressing these gaps through strategic investments and public-private partnerships is essential to align education with sectoral needs.

Lecturers' Confidence in Applying Innovative Teaching and Learning Methods

The respondents were asked to indicate their level of confidence in practicing or applying various teaching and learning methods. Specifically, they were asked how confident they are, or would be, as lecturers/instructors, in utilizing various methods in their teaching.

The survey revealed that lecturers generally exhibit high confidence in applying active learning methods. For project-based learning, 37.4% of respondents felt very confident, while 42.1% expressed similar confidence in problem-based learning. Experiential learning also showed strong confidence levels (40.9% very confident), and competency-based education followed closely at 38.6%. Work-integrated learning saw 35.1% of respondents being very confident. However, less familiarity was noted with flipped classrooms and inquiry-based learning, where only 23.4% and 31% of respondents, respectively, reported confidence, with 30.4% undecided in both cases. Game-based learning had more modest confidence levels (22.8% confident, 12.9% little confidence) (Table). Despite these variances, responses indicated overall positive confidence levels in using methods like simulations, entrepreneurial education, and internships.

Table 10: Confidence of Lecturers in Applying Teaching and Learning Methods

Response	Very confident		Fairly confident		Little confidence		Not at all		Not sure		Undecided	
	F	%	F	%	F	%	F	%	F	%	F	%
Project based learning	64	37.4	30	17.5	16	9.4	4	2.3	5	2.9	52	30.4
Problem based learning	72	42.1	28	16.4	12	7	3	1.8	4	2.3	52	30.4
Experiential learning	70	40.9	30	17.5	11	6.4	4	2.3	4	2.3	52	30.4
Competency based Education	66	38.6	35	20.5	11	6.4	3	1.8	4	2.3	52	30.4

Work integrated learning	60	35.1	39	22.8	10	5.8	4	2.3	6	3.5	52	30.4
Collaborative learning	8	4.7	27	15.8	9	5.3	9	5.3	4	2.3	52	30.4
Flipped classroom	36	21.1	40	23.4	19	11.1	7	4.1	17	9.9	52	30.4
Inquiry based learning	53	31	40	23.4	12	7	4	2.3	10	5.8	52	30.4
Game based learning	29	17	39	22.8	22	12.9	10	5.8	19	11.1	52	30.4
Computer based simulation	38	22.2	35	20.5	23	13.5	12	7	11	6.4	52	30.4
Entrepreneurial education	48	28.1	43	25.7	14	8.2	7	4.1	6	3.5	52	30.4
Organizing effective internships	67	39.2	35	20.5	9	5.3	3	1.8	5	2.9	52	30.4
Organizing effective industry tours	65	38	37	21.6	9	5.3	4	2.3	4	2.3	52	30.4
Aligning curriculum to industry needs	62	36.3	35	20.5	13	7.6	3	1.8	6	3.5	52	30.4

The findings suggest that lecturers are generally confident in utilizing established active learning strategies such as project-based, problem-based, and experiential learning, aligning with global trends in agricultural education (Sahito et al., 2025). However, innovative methods like flipped classrooms and game-based learning still face hesitation, likely due to limited exposure and training (Tripathi. et al., 2019) Addressing this gap through targeted capacity-building initiatives could enhance the adoption of diverse pedagogical approaches.

Relevance of Current Agriculture Curriculum to Industry Needs and Future Content

The respondents were asked to indicate how well the current curriculum they are using is aligned to industry needs and priorities.

As shown in Table 12, slightly more than a third (33.9%) of respondents felt that most aspects of the curriculum are aligned with industry needs, while 23.4% believed that only a few aspects align with industry requirements. However, 30.4% of respondents were undecided, suggesting some uncertainty about the curriculum's relevance to industry. A smaller percentage (8.2%) felt that the entire curriculum was well-aligned with industry needs, while only 1.2% felt that the curriculum was not aligned at all.

Table 11: Curriculum relevance to industry and future content

Response	Frequency (F)	Percentage (%)
A few aspects of the curriculum are aligned to industry needs	40	23.4
Curriculum is not at all aligned to industry needs	2	1.2
I am not sure	5	2.9
Most aspects of the curriculum are aligned to industry needs	58	33.9
The whole curriculum is well aligned to industry needs	14	8.2
Undecided	52	30.4
Total	171	100.0

This implies that while there is some alignment with industry, there is still room for improvement in ensuring the curriculum is fully aligned with the evolving demands of the industry. Studies emphasize that curriculum reform must be informed by continuous industry engagement to ensure graduates are equipped with practical, market-relevant skills (Ssebuwufu et al., 2012). A future-oriented curriculum should incorporate emerging agro technologies, entrepreneurship, and digital agriculture to address evolving sector needs (Koulaouzides et al., 2003).

1.1.1 Knowledge of Future Content

The respondents were asked to indicate how knowledgeable they are regarding the content needed for the future curriculum in their area of specialization.

Nearly half (43.9%) of the respondents felt that they understood most aspects of the expected future content, while 14.6% felt fully proficient. However, 9.4% indicated that they had little knowledge of the future content, and 1.2% had no knowledge of it.

A notable 30.4% were undecided, reflecting uncertainty about the future content they may need to cover. This suggests that there is a general awareness of upcoming content, but some respondents may require further training or information on what will be expected in the future. This finding highlights a gap in awareness or preparation that may require attention to improve teaching effectiveness and curriculum alignment.

Table 13: Lecturers' knowledge of future content

Response	Frequency (F)	Percentage (%)
I am fully proficient and knowledgeable on the expected future content	25	14.6
I have little knowledge of the expected future content	16	9.4
I have no knowledge	2	1.2
I understand most aspects of the expected future content	75	43.9
Undecided	52	30.4
Total	171	100.0

This implies that while a majority of respondents have a reasonable understanding of the future content expected in their teaching areas, there are still significant portions who feel either unprepared or uncertain about what will be required. To ensure effective teaching and curriculum alignment, it may be necessary to provide further training, updates, and resources to help instructors stay informed and confident about upcoming content.

Suggestions for improving the agriculture curriculum and teaching at their university

As shown in table 14 below, when asked to provide suggestions for improving education, most Lecturers (18.7%) suggested curriculum development and practical learning while 11.7% stated industry collaboration and involvement.

Other suggestions included enhancing infrastructure and resources (8.2%) and focusing on

teaching methods and pedagogy (8.8%). Practical experience and internships (5.3%) and strengthening public-private collaborations (4.7%) were also mentioned. Notably, 30.3% of respondents were undecided or had no specific suggestions, indicating that there may be a need for more targeted discussion or clarification on how to improve educational practices. This implies that there is a strong emphasis on improving curriculum development and practical learning.

Table 14: Suggestions on improving the agriculture curriculum and teaching.

Response	Frequency (F)	Percentage (%)
Industry Collaboration & Involvement	20	11.7
Curriculum Development & Practical Learning	32	18.7
Infrastructure & Resources	14	8.2
Collaborative Approach & Stakeholder Engagement	10	5.8
Practical Experience & Internships	9	5.3
Teaching Methods & Pedagogy	15	8.8
Funding & Government Support	8	4.7
Focus on post-harvest processing, Integrate agribusiness and entrepreneurship education.	3	1.8
Need to strengthen public-private collaborations.	8	4.7
Undecided/No suggestions	52	30.3

Conclusions and recommendations on findings based on lecturers responses

Aspect	Finding	Recommendation
<ul style="list-style-type: none"> • Instructional delivery qualification 	<ul style="list-style-type: none"> • About 50% of the respondents lack IDQ. 	<ul style="list-style-type: none"> • Institutions to put in place mechanism to provide instructional delivery training. • Verify and standardize the various types of IDQs held by lecturers in the same institutions.
<ul style="list-style-type: none"> • Teaching subjects 	<ul style="list-style-type: none"> • Crop related subjects dominate. 	<ul style="list-style-type: none"> • Review curriculum to ensure more balanced inclusion of the diverse specializations in agriculture.

	<ul style="list-style-type: none"> • Agribusiness, economics and extension are well represented. • Animal sciences are underrepresented, including fisheries and apiculture. • ICT in agriculture is severely lacking 	<ul style="list-style-type: none"> • Create space other topics, e.g. ICT that support are important in supporting quality learning off agriculture.
<ul style="list-style-type: none"> • Focus of current curriculum 	<ul style="list-style-type: none"> • Lecturers are of the opinion curriculum emphasizes practical training, learning within industry, innovation & entrepreneurship, and is multidisciplinary. This is contrary to prevailing opinion on the weak links between industry and universities and the low capacity of innovation and entrepreneurship among graduates. 	<ul style="list-style-type: none"> • Need to identify the cause of the erroneous positive perception of the current curriculum by lecturers. • Establish a mechanism for obtaining feedback from other stakeholders regarding the state of curriculum.
<ul style="list-style-type: none"> • Teaching methods 	<ul style="list-style-type: none"> • Diverse teaching methods are being applied by lecturers. • Most often used are work integrated learning, project based learning, competence based approach, collaborative learning, industry tours, internships, field experiments and participation in exhibitions. • Less frequently used are flipped class, game based learning, computer based simulation and modelling, and inquiry based learning. 	<ul style="list-style-type: none"> • Check the effectiveness of the commonly used teaching methods. • Develop guides and conduct training on the less well known teaching methods.

<ul style="list-style-type: none"> • Personal barriers to use of improved teaching methods 	<ul style="list-style-type: none"> • Lack of knowledge, skills and time; restrictive curriculum; negative attitude partly from lecturers and students are among the key barriers. • 	<ul style="list-style-type: none"> • Build capacity of staff to use improved teaching methods. • Review curriculum and workload to create space and time for introduction of improved methods. • Proactive and participatory engagement of lecturers and students to explore and try out new improved methods.
<ul style="list-style-type: none"> • Institutional barriers to adoption of improved methods 	<ul style="list-style-type: none"> • Numerous workload (75%), large class sizes (79%), lack of facilities (89%), inadequate support to staff (81%). 	<ul style="list-style-type: none"> • Institutions to review policy on workload and class size with focus on quality improvement. • Audit facilities for teaching and put in place a plan for improvement. • Creatively identify opportunities to incentivize staff and support them to adopt improved methods.
<ul style="list-style-type: none"> • Infrastructure for teaching 	<ul style="list-style-type: none"> • Institutions lack the necessary facilities for teaching 	<ul style="list-style-type: none"> • Strategically invest in acquisition of modern teaching infrastructure, e.g. drones, sensors, incubation services, simulation and modelling software, IT and AI applications, automation and precision agriculture technology
<ul style="list-style-type: none"> • Industry participation in teaching 	<ul style="list-style-type: none"> • Industry engagement is missing or only low engagement observed. 	<ul style="list-style-type: none"> • Improve collaborations with industry through research, co-teaching, sabbatical visits, specialized courses and certifications for industry. • Strategically position universities to demonstrate relevance to industry stakeholders. • Attract industry to support student contests, innovation and entrepreneurial initiatives.
<ul style="list-style-type: none"> • Curriculum alignment to industry needs 	<ul style="list-style-type: none"> • Lecturers perceive curriculum to be largely aligned to industry needs. This is contrary to 	<ul style="list-style-type: none"> • Need to check the reasons for the misalignment in opinion between universities and industry.

	prevailing opinion by industry, regulators and other stakeholders.	<ul style="list-style-type: none">• Institutions to have effective mechanisms for obtaining accurate feedback from other stakeholders on the status of curriculum.
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FINDINGS FROM STUDENTS ON THE STATE OF AGRICULTURE CURRICULUM, TEACHING METHODS AND ALIGNMENT TO INDUSTRY NEEDS

Responses across countries and institutions

There was fairly good representation of respondents across the countries and institutions (Figure 1 and 2). The majority of respondents are male, 65%, possibly reflecting the gender ratios among students in agriculture courses.

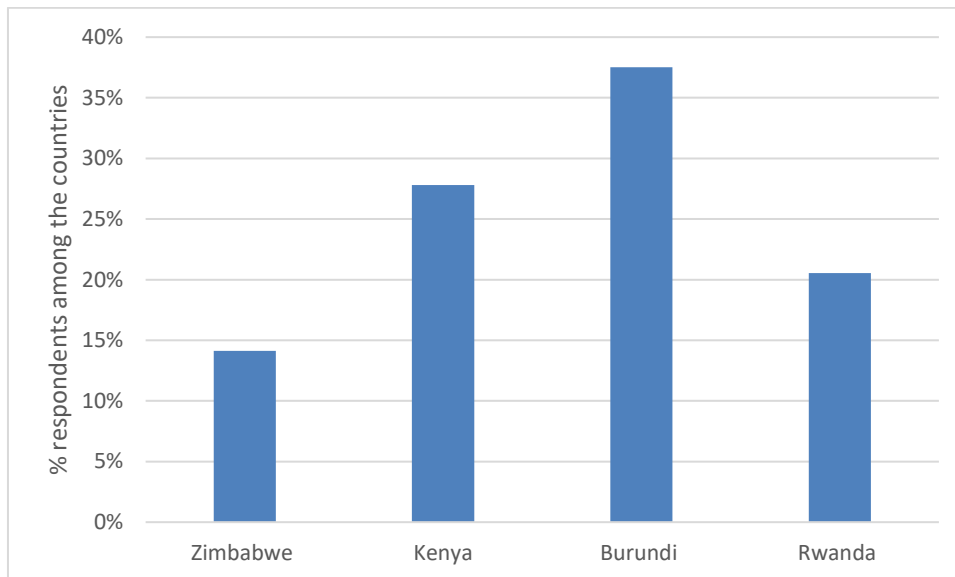


Figure 9: Distribution of survey respondents among the UPLIFT-Ag project countries

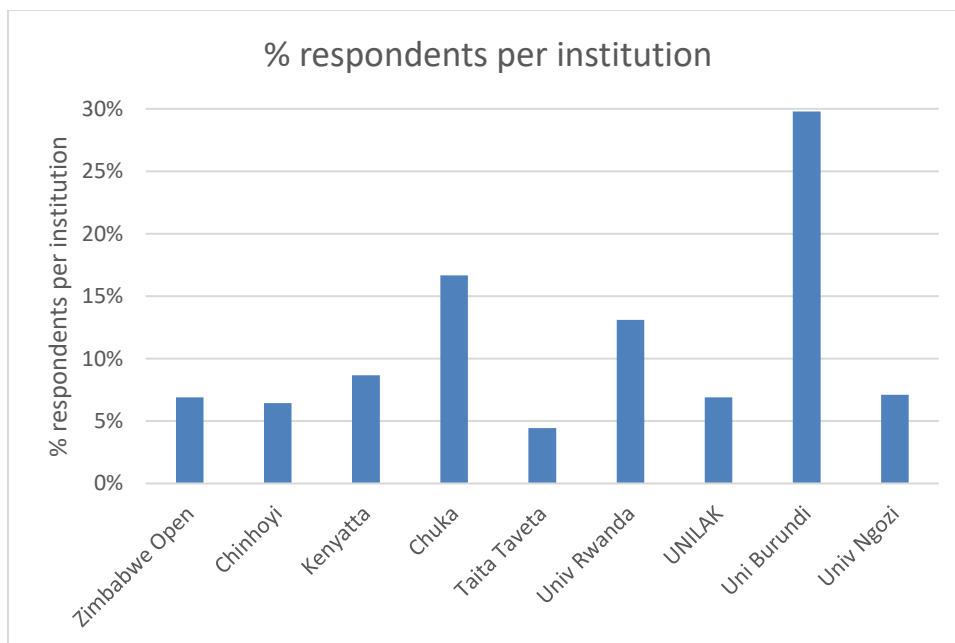


Figure 10: Distribution of survey respondents among the UPLIFT-Ag partner institutions

Level of study of respondents and duration of study

A majority (79.9%) of respondents were at BSc, 15% MSc and 5.1 % were PhD students. The duration of study varies from 4 years (42%), 3 years (41.2%), 2 years (presumably for masters- 15%) and over 4 years, likely for PhD at 1.8%.

Awareness, knowledge, practices and attitudes related to the present curriculum and teaching methods

Student responses on curriculum effectiveness revealed mixed perceptions. About 55% agreed that practical training emphasizes "learning by doing," while 29% disagreed. Similarly, 51% agreed that practical training emphasizes industry exposure, while 28% disagreed. A majority (62%) believed the training promotes innovation and entrepreneurship, though 24% did not.

On transversal skills like leadership and problem-solving, 61% of students agreed they are offered in training—slightly lower than 74% of lecturers. However, 24% of students disagreed. Regarding multidisciplinary training, 58% of students acknowledged its presence, significantly below the 77% reported by lecturers. Only 54% of students agreed that their training incorporates industry partnerships, while 27% disagreed.

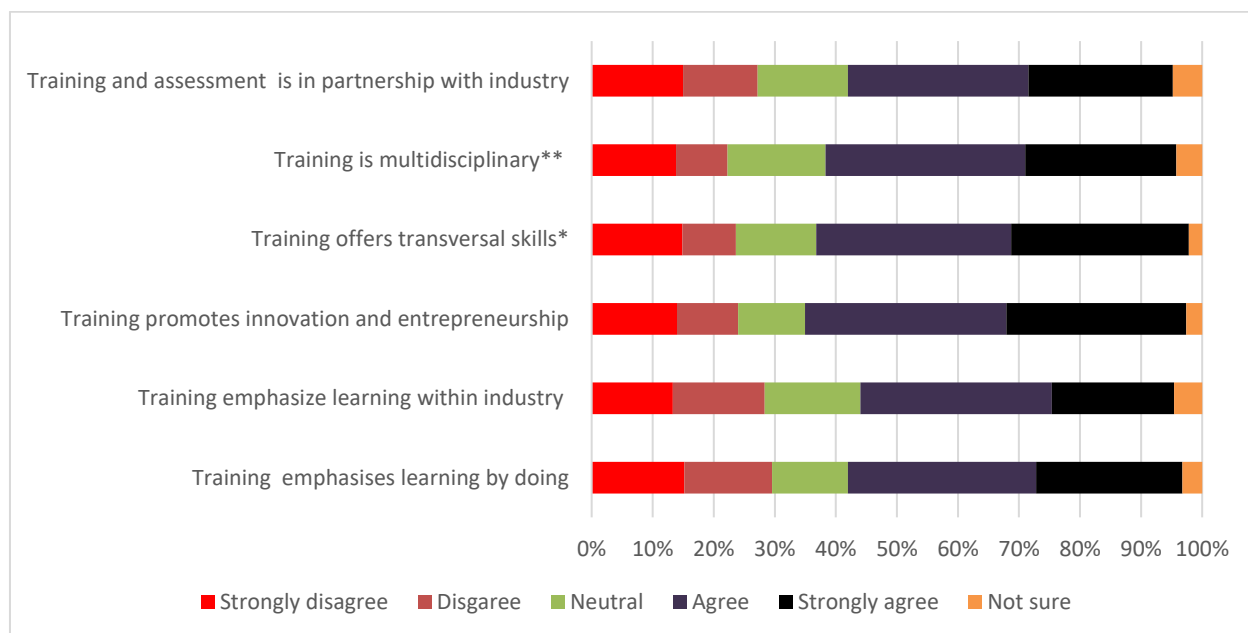


Figure 11: Students perception about the current agriculture curriculum

*Transversal skills include leadership, communication, problem solving and others

**Multidisciplinary courses have cross-cutting elements

These findings point to a disparity between student perceptions and lecturer expectations concerning the curriculum's practical and industry relevance. Despite more than half of students recognizing innovation and transversal skills in their training, this confidence contrasts with employer concerns about graduate readiness (Kaki et al., 2021). The gap between perceived and demonstrated competencies suggests a need for objective evaluation of learning outcomes and stronger mechanisms for student-industry engagement (Tran, 2016). Curriculum adjustments should also emphasize experiential learning and industry-driven content to improve alignment with real-world needs.

Student Exposure to Current Teaching and Learning Methods

The students were asked to what extent they have experienced specific teaching methods being practiced/applied by their lecturers. Students identified a wide variety of teaching methods being practiced (Figure 12).

Students reported varied experiences with current teaching and learning approaches. A total of 52% of students reported that work-integrated learning was used often or always, compared to 81% of lecturers familiar with the method, indicating a potential gap in perception or application. 43% of students experienced project-based learning frequently, closely matching lecturers' use (48% often/always, 34% sometimes). 47% of students reported experiential learning use often or always, while 26% noted occasional use, slightly lower than the 89% lecturer adoption rate.

A major number of students (54%) reported frequent exposure to competency-based education, and 59% to collaborative learning both aligning well with lecturer reports. Flipped classrooms and game-based learning were less frequently encountered: 34% of students experienced flipped classrooms often or always, while 16% had never experienced it. Game-based learning was often or always used for 22%, with 29% saying it was never used.

Computer-based simulations were also infrequently reported, with only 35% of students encountering them regularly. Inquiry-based learning had mixed responses: 41% used it often or always, while 32% experienced it rarely or never.

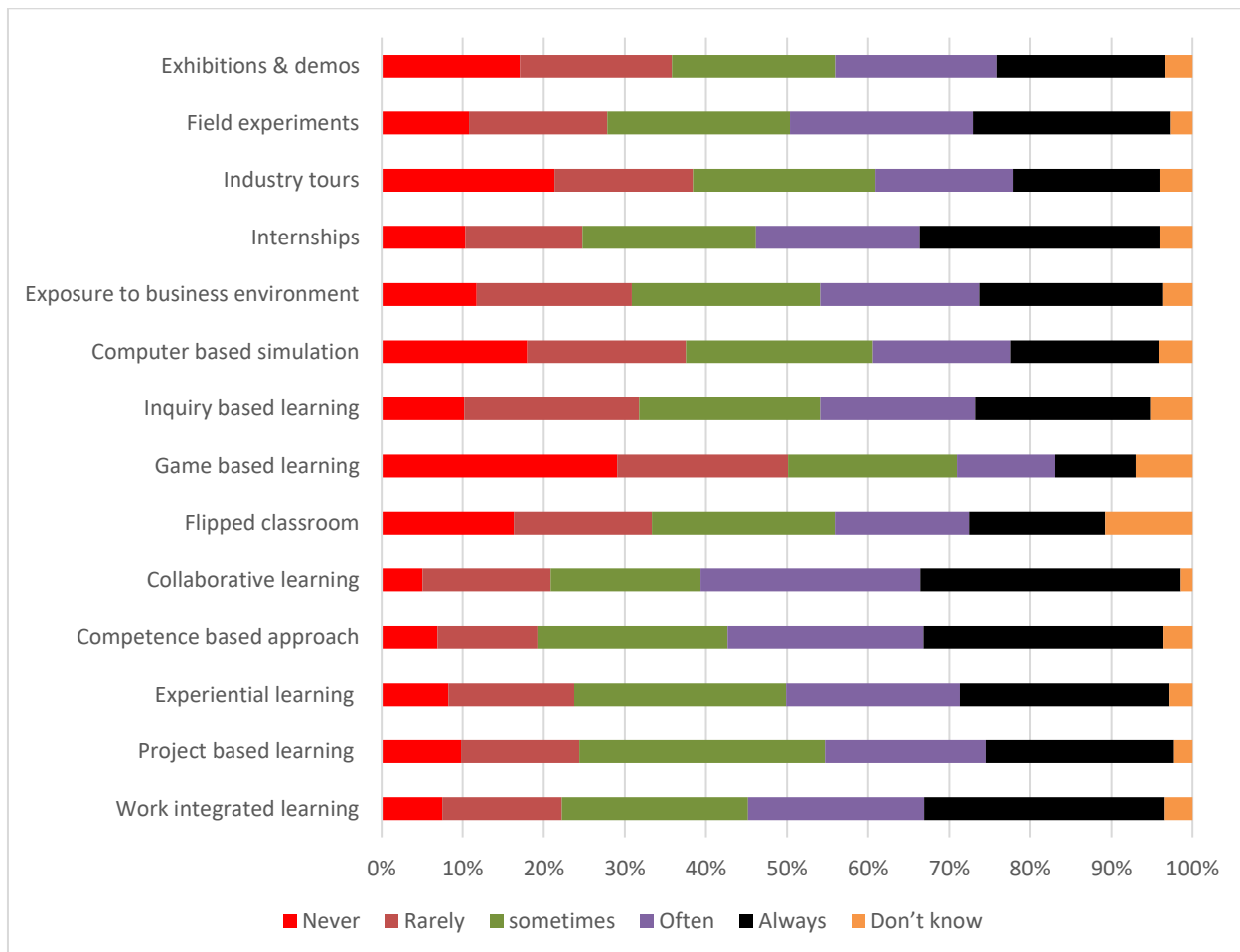


Figure 12: Students experience with use of various teaching methods by lecturers

These findings indicate a moderate alignment between student-reported exposure to teaching methods and lecturer self-reported application. However, discrepancies especially for work-integrated learning and experiential approaches suggest a communication or implementation gap (Casado, 2000). This gap may arise from differing interpretations of pedagogical terms or uneven practical application, warranting standardized orientation for both students and faculty. Enhancing consistency in method delivery and clarity in pedagogical objectives could bridge this disconnect and improve learning outcomes.

Student Perceptions on Specialized Infrastructure and Equipment for Teaching and Learning

Students reported widespread inadequacies in specialized infrastructure necessary for effective teaching and learning. Majority (59%) identified labs as inadequate, and 61% cited insufficient tillage and planting equipment. For harvesting and post-harvest equipment, 66% rated them as either lacking or inadequate. Teaching farms were deemed adequate by only 31%, while 60% found them lacking or inadequate. Greenhouses and sensors fared similarly, with 43% and 42% reporting inadequacies respectively.

Only 18% of students found modern sensors and data loggers adequate, while 27% said they were completely lacking. Instructional equipment like projectors was reported adequate by 39%, but 45% found it inadequate. Plant propagation and seed units were inadequate for 41%, and vet clinics were either lacking (27%) or inadequate (35%) for most students. Agritech demo centers and irrigation facilities were found inadequate by 41%, while 28% reported complete lack of access. Only 9% had adequate access to drones; 56% had none.

Storage facilities like cold rooms were mostly lacking (30%) or inadequate and only 20% found them adequate. Incubation centers were not available for 34%, and another 30% rated them as inadequate. In contrast, 41% rated library resources as adequate. Livestock handling facilities were lacking or inadequate for 63%, and internet access was rated adequate by 40%, showing relatively better digital access.

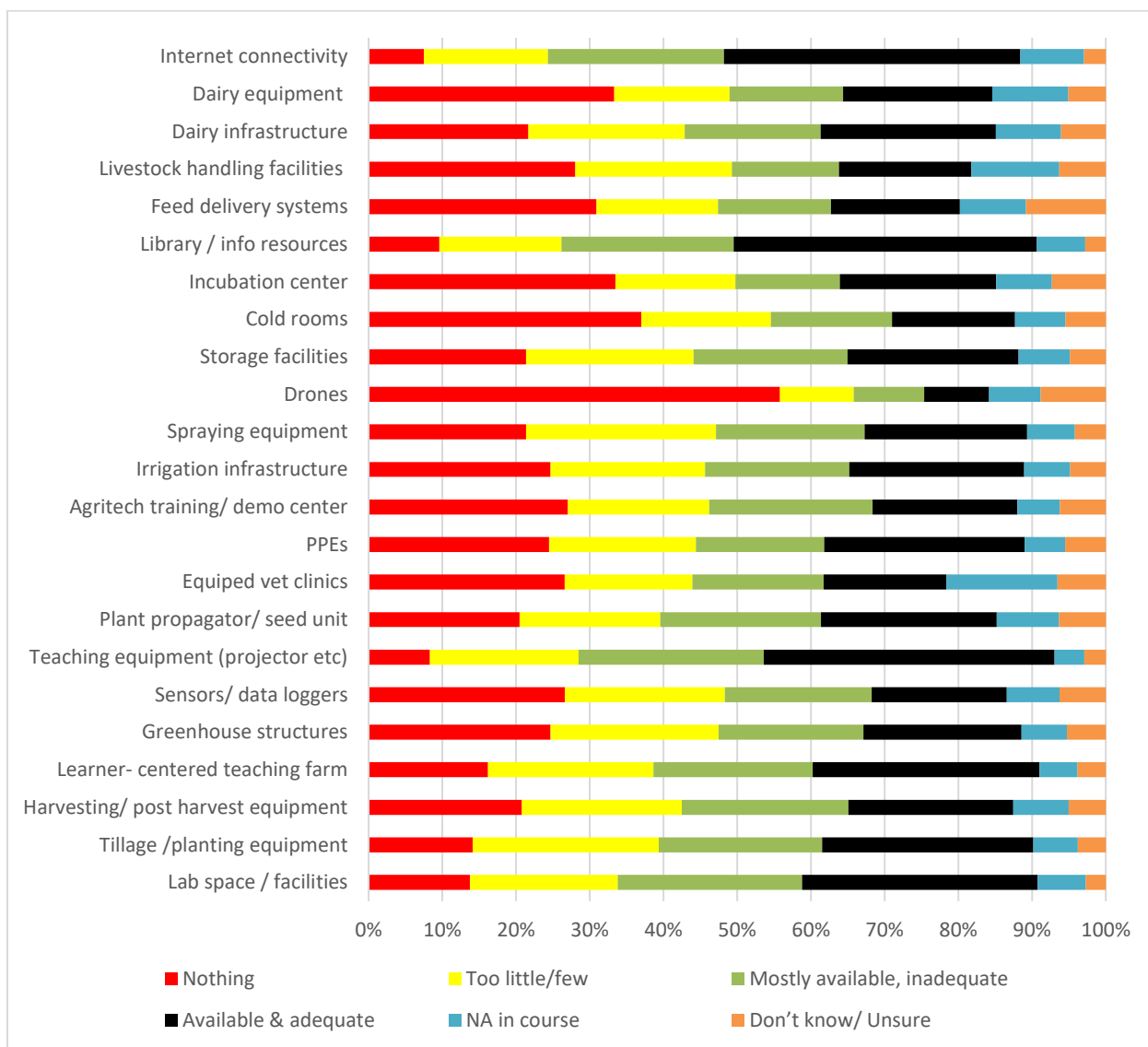


Figure 13: Student Perceptions of Infrastructure and Equipment for Teaching and Learning

The findings reveal critical gaps in infrastructure supporting agricultural education, particularly in practical and digital learning tools. Consistent with recent studies, suggesting that inadequate access to equipment like greenhouses, vet clinics, and drones significantly hinders the development of hands-on competencies among students in agricultural training institutions (Njati & Lideke, 2022; World Bank, 2019).

Student Perceptions on Curriculum Relevance to Industry Needs

Students were asked to assess the alignment of their current curriculum with industry needs. Only 25% believed the curriculum is well aligned, while 42% felt most aspects are aligned, and 20% believed only a few elements align with industry priorities.

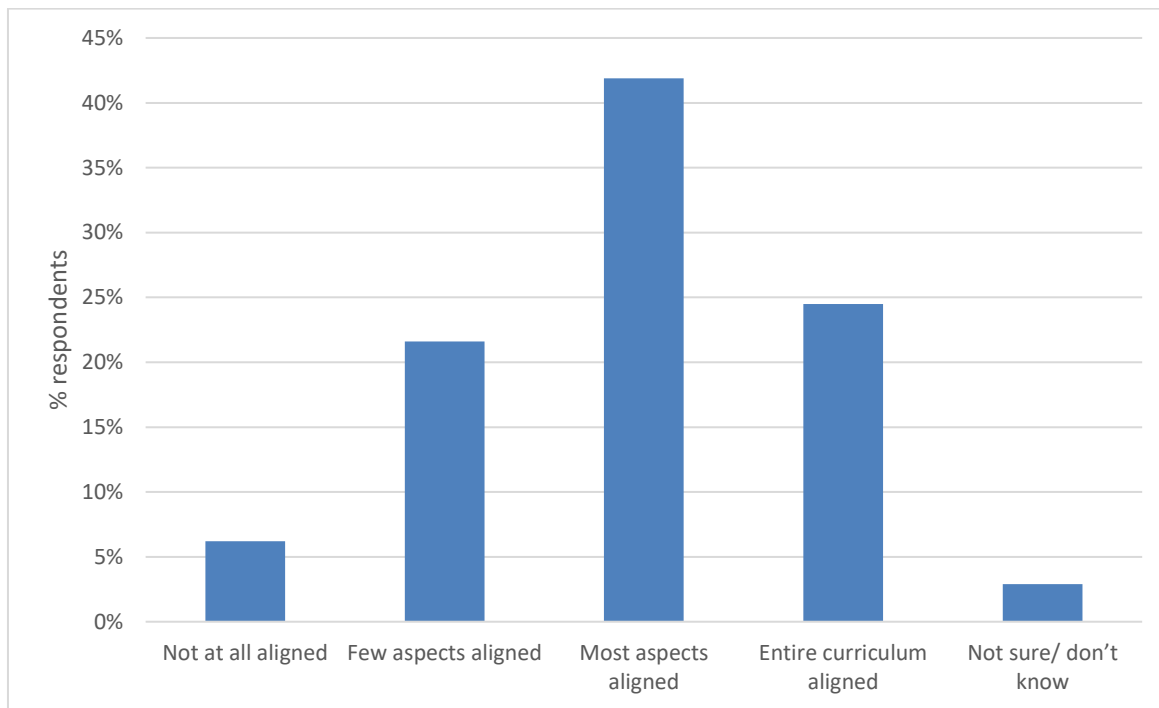


Figure 14: Students perception on curriculum relevance to industry

Despite moderate optimism from students regarding curriculum relevance, ongoing industry feedback highlights persistent gaps in graduate preparedness for real-world demands (Agbaje, 2023; Geera & Onen, 2023). This disconnect suggests a potential misperception among students or ineffective exposure to industry standards, underscoring the need for stronger industry-academia collaboration and feedback integration in curriculum review.

Conclusions on findings from students

1. On curriculum, gaps are identified in regard to provision for learning by doing and enabling learning within industry. There are few students observing industry involvement in their training.
2. The findings (from both students and lecturers) that largely the curriculum promotes innovation and entrepreneurship does not conform to prevailing view of industry and other stakeholders. Graduates of agriculture have not demonstrated significant innovation or entrepreneurial prowess.
3. The observation that the curriculum transfers transversal skills is contrary to prevailing view from employers and other stakeholders. Leadership, soft skills, problem solving, etc are among the most critically lacking skills in graduates.
4. A variety of teaching methods are apparently in use, but not all are well understood among both students and lecturers. These include flipped classroom, game based learning, ICT simulation.
5. Critical infrastructure for teaching are lacking in almost all aspects. In particular the lack of infrastructure to support modern teaching methods is of concern. For example drones, incubation centers, agritech teaching and demo farm, sensors and data loggers are critically lacking.
6. The large number of students (67%) with opinion that curriculum is aligned to industry needs is alarming as it does not correspond with the prevailing view from employers/industry, regulators and other stakeholders.

Recommendations on findings from students

1. Measures are needed to close the gaps between universities and industries. This may entail multiple approaches, for example creating roles for industry in to co-teach, reviewing internships to be more meaningful and impactful, convening joint activities with industry (workshops, conferences), orienting research to address priorities identified by industry.
2. There is need to revisit the issue of innovation and entrepreneurship, to clarify what it means to both students and lecturers and review current practices to ensure this is effectively and demonstrably promoted in agriculture teaching. New ways to assess student acquisition of innovation and entrepreneurship skills need to be identified and embedded into the current curriculum.
3. There is need to revisit transversal skills, to clarify the meaning to both students and lecturers and review current practices to ensure these are being promoted in agriculture teaching. New ways to assess student acquisition of transversal skills need to be identified and built into the current curriculum.
4. Lecturers need to be trained in use of diverse teaching methods that promote the quality of learning. Particular attention to be paid to methods that are identified as being less utilized currently (flipped classroom, game based learning, ICT simulation, etc).
5. Institutions need to conduct audits of their teaching facilities and develop a strategy to improve. Particular attention to be paid to modern infrastructure to support improved teaching and learning, e.g. drones, incubation centers, agritech teaching and demo farm, sensors and data loggers.
6. Universities need to establish effective mechanism for obtaining accurate feedback from stakeholders (industry, employers, regulators, collaborators). This will help to avoid/ correct the erroneously positive perception about the quality and effectiveness of their training programmes.

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