Graduate Tracer Study of the PhD Program in
Agricultural Science (Animal Science)

University of Southern Mindanao,
Kabacan, Cotabato

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ABSTRACT

This tracer study provides a comprehensive assessment of the employment outcomes, professional relevance, and competency development of graduates from the Doctor of Philosophy in Agricultural Science, major in Animal Science, at the University of Southern Mindanao (USM) covering the period 1998 to 2025.

A total of 24 graduates participated in the study, offering valuable insights into their career trajectories and the long-term impact of the program. Findings reveal that 79.17% of the respondents are currently employed, predominantly in state universities and government agencies, underscoring the strong demand for advanced expertise in Animal Science. Many graduates reported marked career progression after completing the degree, with several attaining senior academic ranks and assuming leadership roles such as program chairs, research directors, and deans.

The majority of respondents affirmed the high relevance of the PhD program to their current professional responsibilities. Competency assessments indicated that the program contributed substantially to the development of academic knowledge, research capability, and critical and creative thinking. In addition, graduates highlighted significant gains in leadership, problem-solving, and communication competencies, which have enhanced their effectiveness as educators, researchers, and administrators. However, slight gaps were identified in information technology–related training, pointing to areas for curricular enhancement in response to the digital transformation of agricultural research and education.

Overall, the study affirms the program's effectiveness in producing graduates who are well-prepared for competitive and impactful careers. The findings provide crucial feedback for continuous curriculum development to ensure alignment with regional

development priorities, national agricultural policies, and emerging global challenges in food security, sustainability, and innovation in Animal Science.

Introduction

The employment outcomes and work conditions of graduates from higher education institutions are widely recognized as critical indicators of the relevance, quality, and effectiveness of academic programs. Graduate employability not only reflects the adequacy of curricular content and pedagogical strategies but also provides evidence of institutional responsiveness to the needs of society and the labor market (Teichler, 2019; Schomburg, 2021). By examining where graduates are employed, the nature of their roles, and the sectors they contribute to, institutions can assess the alignment of their academic offerings with industry demands, technological advancements, and evolving global trends.

Such assessments also serve as a measure of how effectively programs prepare graduates for leadership, innovation, and service in their professional fields.

This study aims to generate evidence-based insights that will inform the continuous improvement of the program's curriculum. Curricular enhancement is critical to ensuring that graduates remain globally competitive, adaptable, and responsive to the shifting demands of agriculture and allied industries. In this regard, the study also acknowledges the policy context of ASEAN Integration, which promotes regional cooperation, mobility of skilled professionals, and mutual recognition of academic qualifications (ASEAN Secretariat, 2015; Commission on Higher Education [CHED], 2016). Aligning the curriculum with these imperatives will not only strengthen the program's relevance to local and national development goals but also position graduates for success in an increasingly interconnected and competitive global economy.

Objectives

The general objective of this study is to assess the employability, competencies, and career outcomes of graduates of the PhD in Agricultural Science major in Animal Science program at the University of Southern Mindanao (USM), with the aim of generating evidence that will inform curriculum enhancement, institutional planning, and policy development.

Specifically, it seeks to:

1. Provide stakeholders with relevant insights – furnish students, faculty, industry representatives, and policymakers with empirical data on the relevance, effectiveness, and outcomes of the program, thereby enabling informed decisions regarding higher education pathways and professional development.
2. Inform employers about talent availability – generate evidence on where to access highly skilled professionals whose competencies align with the evolving needs of academic institutions, government agencies, and industry sectors.
3. Guide policy and resource allocation – assist the Commission on Higher Education (CHED) and other funding agencies in directing resources toward academic programs that consistently produce competent, employable, and globally competitive graduates.

Conceptual Framework

The conceptual framework of this study is anchored on the principle that graduate competencies and employment outcomes serve as key indicators of program relevance and quality. By examining the alignment between the skills developed through the PhD in Agricultural Science program and the actual demands of the labor market, this study provides evidence for curriculum enhancement and policy formulation.

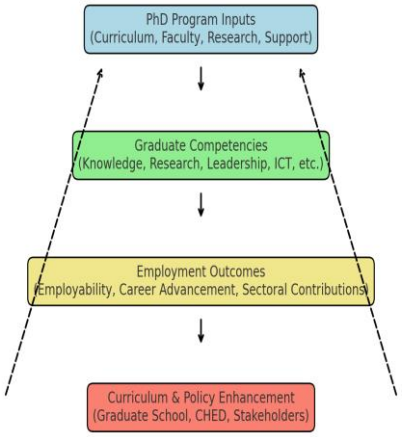
The framework is structured around three interrelated dimensions:

1. Graduate Competencies – Encompassing academic knowledge, research skills, leadership, communication, problem-solving, and digital literacy. These competencies are outcomes of program instruction, research training, and experiential learning.

2. Employment Outcomes – Including employability, job relevance, career advancement, leadership positions, and contributions to academic, government, and industry sectors. These outcomes reflect how well the program equips graduates for professional integration and progression.

3. Curriculum and Policy Implications – Findings inform curriculum revision and strategic interventions at both institutional and policy levels. Data-driven feedback guides the Graduate School, CHED, and other stakeholders in aligning academic programs with national and global agricultural development priorities.

Figure 1. Conceptual Framework of the Tracer Study



The diagram illustrates the flow from PhD program inputs, to graduate competencies, to employment outcomes, with a feedback loop informing curriculum and policy enhancement. This cyclical process ensures continuous improvement and alignment with both sectoral and global demands.

Methodology

A comprehensive list of graduates from the PhD program in Agricultural Sciences, major in Animal Science from 1998 to 2025 was obtained from the University of Southern Mindanao (USM) Registrar's Office. All identified graduates were invited to participate in the study.

Data Gathering

A structured questionnaire was developed and distributed electronically using Google Forms to collect relevant data on employment status, career progression, and the perceived impact of the PhD program on professional competencies (https://docs.google.com/forms/d/1LmL-atCQUK8seQpnjR2qgTCRJaglMNTMuh9iTLjMbNY/edit). The instrument was also sent to their FB. Those who did not answer the google form were called directly.

Data Analysis

Collected data were organized and analyzed using descriptive statistics, including frequency counts and percentage calculations, to provide a clear picture of the graduates' employment trends and program outcomes.

Results and Discussion

Distribution and gender composition.This section analyzes the distribution and gender composition of graduates from the PhD in Agricultural Sciences, major in Animal Science at the University of Southern Mindanao (USM), covering the years 1998 to 2025. The data illustrates program output trends and highlights gender participation dynamics over time (Table 1).

Table 1. List of graduates of PhD Agricultural Sciences major in Animal Science

Names	Year of Graduation	Gender
1. Belon, Alimudin	2025	M
2. Ferrer, Precious Amor B.	2025	F
3. Flores, Vrenelie II	2025	F
4. Navarra, Geraldson	2025	M
5. Oliva, Vic Laurence P.	2025	M
6. Rama, Mary Ann B.	2025	F
7. Clapano, Misael	2018	M

8. Sabaani, Satra	2018	F
9. Pahm, Kundo Jr	2016	M
10. Pasaol, Perla	2015	F
11. Atok, Geoffray R.	2013	M
12. Ele, Julius Jerome Ele G.	2013	F
13.Fuentes, Augie E.	2009	F
14. Revilla, Nila Nanette S.	2004	F
15. Gapasin, Ramon	2003	M
16. Dinopol, Estrella	2002	F
17. Tabora, Estrella	2002	F
18. Olanday, Pelagio Jr.	2002	M
19. Vergara, Eulalio	2002	M
20. Mantuang, Kuagan	1999	M
21. Sabutan, Manuel	1999	M
22. Derije, Jesus Antonio G.	1998	M
23. Migalbin, Josephine R.	1998	M
24. Moreno, Delfin	1998	M

Annual Number of Graduates

Figure 1 shows the annual number of graduates. Graduation rates were modest in the early years (1998–2004), with the highest output of four graduates in 2002. From 2009 to 2016, completion was intermittent, indicating fluctuations in program throughput. In recent years, graduation numbers increased, peaking in 2025 with six graduates. This reflects program maturity, improved institutional capacity, and growing enrollment in doctoral education.

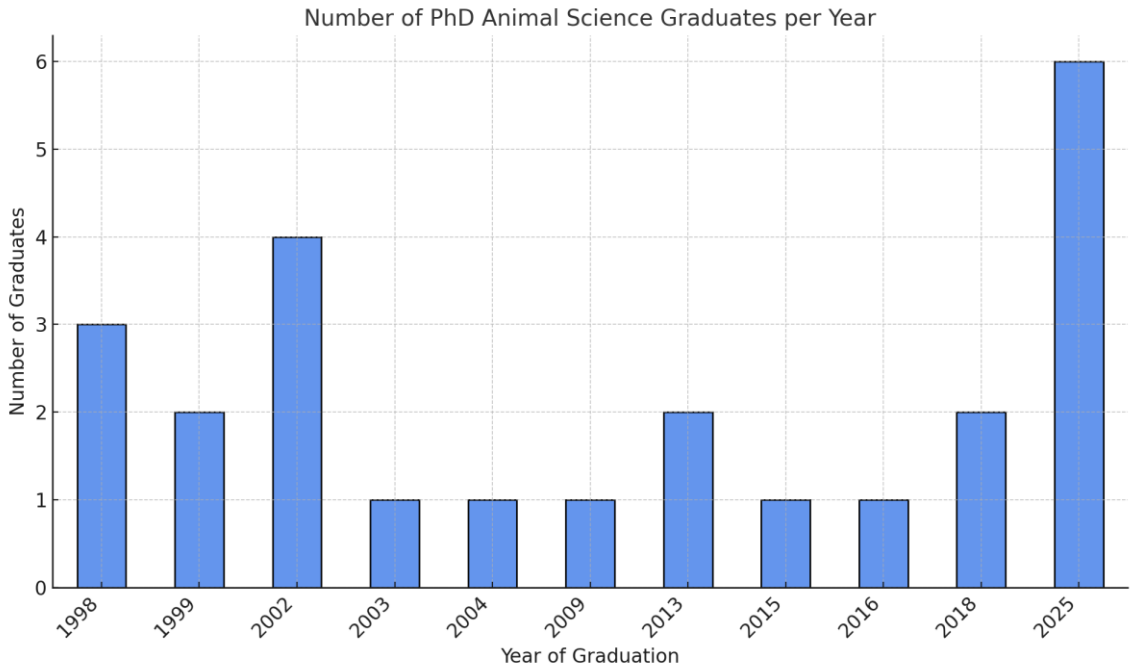


Figure 1. Number of Graduates per Year

Graduates by Year and Gender

The gender-disaggregated chart reveals male dominance in early cohorts (1998–2003). From 2004 onwards, female graduates emerged more consistently, and by 2025, gender participation reached parity with three male and three female graduates. This indicates progress toward gender inclusivity in advanced agricultural sciences, aligned with broader goals of women's empowerment and equal access to higher education.

The longitudinal trends demonstrate that the PhD Animal Science program has transitioned from low initial outputs to greater productivity and inclusivity. The recent surge in graduates underscores the program's strengthened role in producing highly qualified professionals for academia, research, and leadership. The increasing presence of women in the program highlights progress toward gender equity, positioning USM as a contributor to national and regional goals in human resource development for agriculture and higher education.

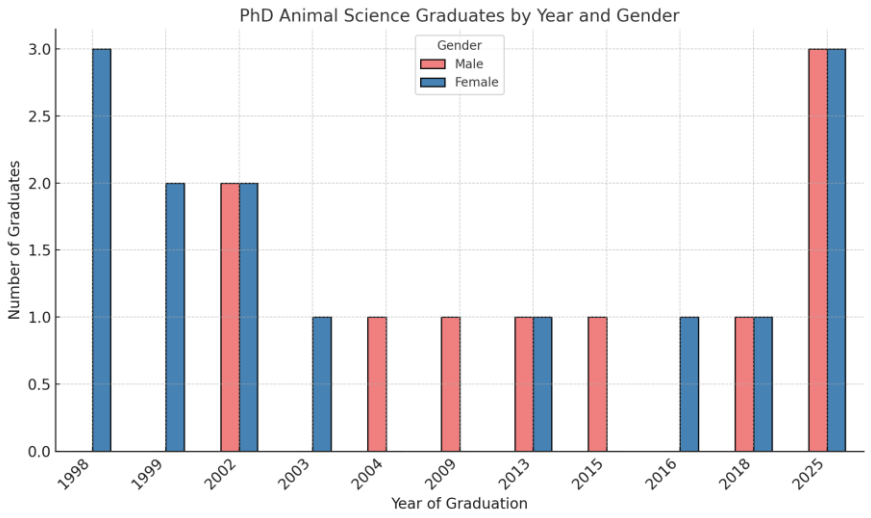


Figure 2. Graduates by Year and Gender

Institution/ Agency of Employment

The employability profile of graduates from the PhD in Agricultural Sciences major in Animal Science program at USM (1998–2025) reflects consistently strong outcomes (Table 1):

1. **100% Permanent Employment** – All identified graduates secured permanent positions, indicating the program's high relevance to the labor market and strong demand for advanced expertise in agricultural science.
2. **Graduates of the 1990s and early 2000s** – The first cohorts (1998–2004) produced graduates who advanced into senior leadership positions, including university presidents, college presidents, and professors in state universities and colleges. This demonstrates the program's early success in producing pioneering leaders.
3. **Graduates from the 2009–2016 period** – Graduates during this phase entered academia and government institutions in various teaching and administrative roles, reflecting steady program contributions despite fewer graduates per cohort.

4. **Recent cohorts (2018–2025)** – The latest graduates show higher numbers, with six graduates in 2025 alone. Many hold positions as instructors, associate professors, or directors, suggesting that the program has matured and is now producing larger cohorts ready to assume critical roles in higher education and the agricultural sector.

Overall, the program has a strong employability record across its history, with graduates consistently contributing to higher education leadership, research, and government service. The steady increase in output, particularly in 2025, highlights the program's expanding role in supplying highly skilled professionals aligned with national and regional development priorities.

Table 1. Employability of graduates of the PhD in Agricultural Sciences major in Animal Science program (1998 to 2025).

Major in Animal Science				
1. Atok, Geoffray R.	2013	University of Southern Mindanao	Permanent	Associate Professor V
2. Belon, Alimudin	2025	Upi Agricultural School	Permanent	TVI Focal/Assistant Vocational Administrator II
3. Clapano, Misael	2018	Davao Oriental State University	Permanent	Professor IV
4. Derije, Jesus Antonio	1998	University of Southern Mindanao/Central Mindanao State University	Permanent	University President/University Professor (Retired)
4. Dinopol, Estrella	1999	Agusan del Sur State College of Agriculture and Tecvhnology	Permanent	Professor VI
5. Ele, Julius Jerome Ele G.	2013	Univesrity of Southern Mindanao	Permanent	Professor VI
6.Fuentes, Augie E.	2009	Davao del Sur State College	Permanent	College President

7. Ferrer, Precious Amor B.	2025	University of Southern Mindanao	Permanent	Instructor III
8. Flores, Vrenelie II	2025	University of Southern Mindanao	Permanent	Associate Professor V
9. Gapasin, Ramon		University of Southern Mindanao	Permanent	Associate Professor V (Retired)
10.Mantuang, Kuagan	1999	Mindanao State University	Permanent	Professor III (Retired)
11. Migalbin, Josephine R.	1998	University of Southern Mindanao	Permanent	Professor VI
12. Moreno, Delfin	1999	Cotabato Foundation College of Science and Technology	Permanent	(Retired)
13. Navarra, Geraldson	2025	Deparment of Agricultuire	Permanent	Director
14. Oliva, Vic Laurence P.	2025	University of Southern Mindanao	Permanent	Associate Professor I
15. Olanday, Pelagio Jr.	1999	University of Southern Mindanao	Permanent	Professor V (Retired)
16. Pahm, Kundo Jr	2016	Cotabato State University	Permanent	
17. Pasaol, Perla	2015	Cotabato State University	Permanent	Professor 1
18. Rama, Mary Ann B.	2025	University of Southern Mindanao	Permanent	Assistant Professor I
20. Revilla, Nanette		SPAMAST	Permanent	Associate Professor V (Retired)
21. Sabaani, Satra	2018	Tawi-Tawi Regional Agricultural College	Permanent	Associate Professor III
22. Sabutan, Mauel	1999	University of Southern Mindanao	Permanent	Professor VI Retired)
23. Tabora, Estrella	1999	Mindanao State University - Maguindanao	Permanent	Professor VI (Retired)
24. Vergara, Eulalio	2000	University of Southern Mindanao	Permanent	Associate Professor V (Retired)

Graduate Competency Ratings

This section presents the analysis of graduate competency ratings for the PhD in Agricultural Science major in Animal Science program. The findings are illustrated using both a stacked bar chart (Figure 3) and a radar (spider) chart (Figure 4).

Figure 3 illustrates the distribution of ratings (Excellent, Good, Fair, Poor, Very Poor) across all competencies. It highlights strong performance in academic knowledge, research skills, decision-making, and creative thinking, while revealing variation in leadership, communication, and information technology skills.

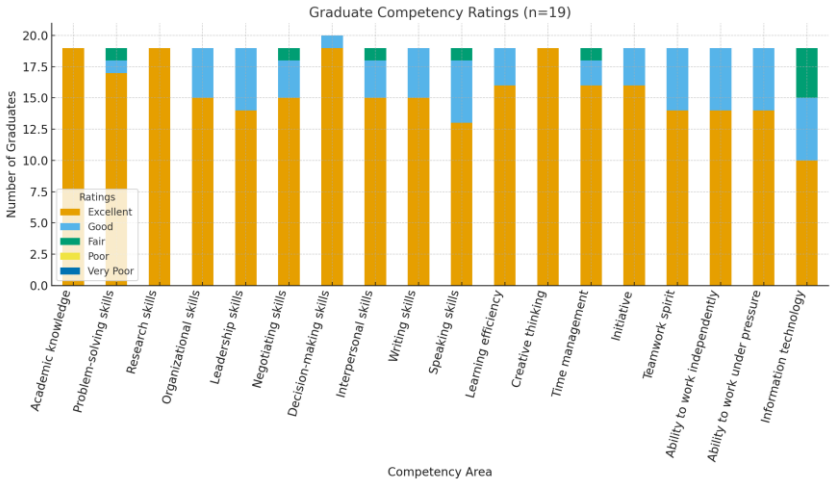


Figure 3. Stacked Bar Chart of Competency Ratings

Figure 4 provides a proportional view of competencies rated as Excellent by graduates. High clustering around 100% for academic and research competencies shows program strength in advanced scholarship. Moderate performance is observed in leadership, organizational, and communication-related skills, while information technology is clearly identified as the weakest area.

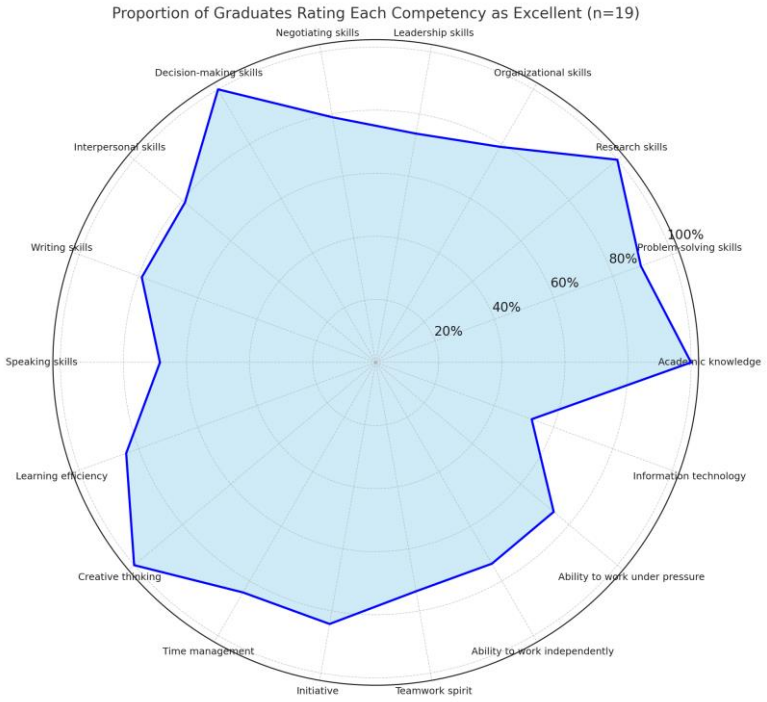


Figure 4. Radar Chart of Excellent Ratings

Contribution of graduates' PhD degree to various professional competencies

Overall, the PhD program demonstrates strong outcomes in fostering leadership, communication, and professional competencies. Graduates are well-prepared for leadership and research-intensive roles, particularly in academic and government institutions. These outcomes are consistent with the **Philippine Qualifications Framework (PQF) Level 8** descriptors for doctoral graduates, which emphasize the highest levels of expertise and scholarship in a specialized field of study. Specifically, PQF Level 8 requires graduates to (a) demonstrate a comprehensive and in-depth understanding of theories and methodologies, (b) produce research that generates new knowledge or offers original contributions to the discipline, and (c) assume leadership in professional, academic, or scientific communities by addressing complex problems with independent, innovative, and ethical approaches.

The relatively lower ratings in information technology highlight a crucial area for curricular enhancement, particularly in relation to the PQF's expectation for doctoral graduates to apply advanced research skills using emerging tools and technologies. Integrating digital competencies—such as advanced ICT applications, data analytics, and digital agriculture systems—will further ensure that graduates not only meet but also exceed PQF Level 8 standards. By embedding these enhancements, the program will produce highly competent, innovative, and globally competitive professionals who are fully responsive to technological transformations shaping agricultural research, higher education, and policy-making in the 21st century.

Table 2. Findings as to contribution of graduates' PhD degree at USM to various professional competencies. 2025.

Competency Area	**Findings (Ratings)**	**Remarks**
Leadership and Organizational Skills	Mostly rated Excellent or Good. Graduates demonstrated strong leadership, organizational capacity, and ability to manage complex tasks.	Indicates effective training in managerial and leadership competencies. Strengthens readiness for academic administration and project management roles.
Negotiation and Interpersonal Communication	Rated Excellent/Good across respondents. Graduates reported confidence in engaging with peers, colleagues, and stakeholders.	Reflects strong alignment with the demands of academic and extension work requiring collaboration and diplomacy.
Academic Writing and Public Speaking	Majority rated Excellent or Good. Graduates reported improved ability in presenting scholarly work and publishing research outputs.	Demonstrates program effectiveness in preparing graduates for dissemination of knowledge in academic and professional platforms.
Teamwork and Independent Work	Rated Excellent/Good. Graduates highlighted the ability to function	Indicates adaptability and resilience, preparing graduates for dynamic

	collaboratively as well as independently under pressure.	academic and professional environments.
Information Technology Skills	Received slightly lower ratings: Good to Fair. Some respondents noted limitations in advanced ICT training.	Identifies a curricular gap. Suggests need for integration of advanced IT applications, digital agriculture tools, and data analytics to enhance competitiveness.

Conclusion

The Doctor of Philosophy (PhD) program in Agricultural Science, major in Animal Science at the University of Southern Mindanao has demonstrated effectiveness in preparing its graduates for stable and progressive careers, particularly within academic institutions and government agencies. Beyond providing specialized expertise in animal science, the program has successfully fostered a wide range of professional competencies essential for leadership, advanced research, evidence-based decision-making, and policy development. The strong congruence between graduate competencies and their employment functions underscores the program's relevance, academic rigor, and responsiveness to sectoral needs.

Nevertheless, the study highlights the importance of further strengthening the curriculum by integrating advanced information and communication technology (ICT) training, data analytics, and digital agriculture applications. These enhancements will better equip graduates to address the demands of modern agricultural systems, which are increasingly shaped by technological innovations, climate resilience imperatives, and global sustainability frameworks.

Overall, the findings affirm the program's significant role in producing competent, innovative, and globally competitive professionals in agricultural sciences. They also provide evidence-based guidance for continuous curriculum development to ensure that USM remains at the forefront of graduate education and research, contributing

meaningfully to national agricultural advancement and addressing regional as well as global challenges in food security, sustainability, and rural development.

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