



Big Five Personality Predictors of Career Readiness among Agricultural Graduate Students

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HIGHLIGHTS

- The personality traits of agricultural graduates were assessed using the Big Five Inventory (BFI-44).
- Agreeableness, openness, and conscientiousness acted as significant predictors of career readiness among agricultural graduates.
- Gender plays an insignificant role across *Big Five traits* and is not a key predictor of graduates' career readiness.

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ABSTRACT

Personality traits greatly influence how a graduate selects, adapts, grows and flourishes in their professional career path. The study conducted in 2025 examined the relationship between personality traits and career readiness among 120 final year agricultural graduates of Kerala Agricultural University, corresponding to a $\pm 8\%$ margin of error at a 95% confidence level, using the *Big Five Personality framework*. Results showed higher mean scores in agreeableness (3.68) and openness (3.40), with no significant gender differences ($p > 0.05$). Analysis identified agreeableness ($\beta = 0.354$, $p = 0.001$), openness ($\beta = 0.390$, $p = 0.004$), and conscientiousness ($\beta = 0.300$, $p = 0.021$) as significant predictors of career readiness. Correlational analysis showed positive associations between agreeableness ($r = 0.728$, $p < 0.01$), openness ($r = 0.665$, $p < 0.01$), and conscientiousness ($r = 0.413$, $p < 0.05$) and career readiness. Independent-samples t-tests showed no significant gender differences across the Big Five traits at the 5% level. However, conscientiousness ($d = 0.45$) and neuroticism ($d = -0.54$) showed moderate effect sizes, indicating practical gender-based differences. The study highlights the value of soft skills, industry exposure, and personal and career development programmes in enhancing agricultural graduates' career readiness and competence.

INTRODUCTION

The transition of agricultural university students into professional careers is a pressing yet essential concern in higher education and workforce development. This study emphasised a dual focus—examining personality structures and exploring their relationship with employability outcomes and professional preparedness. In today's rapidly evolving agricultural sector, adaptability, innovation, emotional intelligence, and collaborative

skills are increasingly valued alongside technical expertise and domain-specific knowledge. Understanding the personality orientations of students is, therefore, crucial for developing strategies that enhance workforce preparedness and long-term career success. Insights derived from such analyses contribute meaningfully to academic discussions on the interplay between personality and employability. To strengthen graduate readiness, the study offers evidence-based recommendations for curriculum designers, extension professionals, and industry stakeholders (Modak et al., 2018; Amaran et al., 2025).

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Agricultural education in India has undergone steady reforms; nevertheless, a considerable gap persists between classroom learning and the evolving demands of the agricultural sector. Employers increasingly prioritise attributes such as soft skills, creativity, adaptability, and interpersonal competence, which enhance technical expertise and reflect a growing shift toward comprehensive professional development (Harisha et al., 2024). Personality traits, as conceptualised by the Big Five model, are widely recognised as predictors of behaviour, motivation, learning orientation, and performance outcomes (Lee et al., 2023). These personality dimensions shape not only career preferences and orientations but also influence individuals' adaptive capacity, problem-solving ability, and resilience in uncertain and complex professional contexts (Hu et al., 2025). Despite this, empirical studies investigating agricultural graduates' personality profiles in India remain limited, particularly concerning their direct association with career readiness. It is, therefore, vital to address this research gap to better align higher education outcomes with the evolving workforce needs and to equip graduates with the competencies required to navigate the ever-changing professional environment within the tertiary education sector.

Guided by this rationale, the study was directed by three primary research questions: What are the dominant personality traits of agricultural university students as defined by the Big Five model? Are there significant gender-based variations in these traits? How do these personality dimensions influence career readiness and workforce transition? To explore these questions, a null hypothesis was proposed, stating that there are no significant differences in mean personality trait scores between male and female students. The present research thus employed standardised tools such as the Big Five Inventory (BFI-44) and the Career Readiness Index (CRI) to analyse the personality profiles, career orientations, and employability competencies of agricultural graduates within the context of India's evolving agricultural education framework.

METHODOLOGY

A quantitative, cross-sectional research design was used to examine the relationship linking personality traits and career readiness within agricultural university students. It enabled the apprehension of inter-individual variations in personality and their predictive capacity for employability-related competencies within a single time frame. The research was conducted across four constituent colleges of Kerala Agricultural University (KAU): College of Agriculture (CoA), Thiruvananthapuram; CoA, Thrissur; CoA, Kasargod; and CoA, Wayanad. These institutions were purposively selected as they represent agro-ecological and academic contexts, thereby enabling a deep understanding of students' personality orientations within agricultural education in Kerala. The sample comprised 120 students (78 females and 42 males) from the 2021 cohort, representing final-year undergraduates, providing a $\pm 8\%$ margin of error at the 95% confidence level, using proportionate stratified random sampling to ensure representation across all constituent colleges. Eligibility criteria included active current enrolment in the undergraduate agricultural programme and provision of informed consent.

The Big Five Inventory (BFI-44), a validated and widely used psychometric scale, was employed to assess personality traits using 44 items grouped into the five OCEAN dimensions: Openness (10), Conscientiousness (9), Extraversion (8), Agreeableness (9), and Neuroticism (8). The overall internal consistency (Cronbach's alpha) for the five domains ranged from 0.85 to 0.92, indicating excellent reliability of the original scale (Costa & McCrae, 1992). A five-point Likert scale was used to record responses. Additionally, the respondents' Career Readiness Index (CRI) was assessed to measure their employability skills. The CRI was developed based on the NACE (2021) framework for agricultural graduates, covering key areas such as leadership, problem-solving, and teamwork.

A comprehensive, multi-level analytical approach was used to achieve the research objectives and evaluate the proposed hypotheses. Descriptive statistics were calculated to assess the central tendencies and dispersion of personality traits. Inferential statistics were applied to evaluate group differences. Independent-samples t-tests were conducted to examine gender-based variations in personality traits. In addition to significance testing, effect sizes (Cohen's *d*) were computed to determine the magnitude of observed differences, following Cohen's (1988) thresholds for interpretation: small (≈ 0.2), moderate (≈ 0.5), and large (≈ 0.8). Regression analysis was performed using the CRI as the dependent variable and the Big Five personality traits as independent predictors. Regression outputs included coefficients (β), standard errors, t-values, and p-values. Traits with $p < 0.05$ were considered significant predictors of career readiness. Pearson's correlation analysis was used to assess inter-trait relationships and their connection with the Career Readiness Index at 1% and 5% significance levels, with results visualised through a correlation heatmap for better interpretability.

RESULTS

The analysis of personality traits among agricultural university students offers useful insights into individual differences and their influence on career readiness. The descriptive results of the Big Five traits among undergraduates reveal the relative prominence of each trait and how they vary between male and female students. The analysis also examined how these traits affect employability outcomes. It goes beyond simple description and provides evidence of which traits significantly influence career readiness among agricultural university students.

Descriptive patterns of the big five traits

The descriptive patterns of the Big Five traits explore gender-based differences, and interpret the findings in relation to employability, adaptive behaviour, and professional development in the agricultural sector. The findings from the descriptive analysis of the Big Five personality traits among undergraduate students are presented in Table 1.

The analysis revealed that Agreeableness recorded the highest mean score (3.68), followed by Openness (3.40) and Conscientiousness (3.29). Extraversion exhibited the lowest mean (2.93), indicating relatively introverted tendencies among students, while Neuroticism was moderate (3.00). Gender-based comparisons indicated that female students scored slightly higher on Openness and Conscientiousness, whereas male students recorded higher

Table 1. Descriptive statistics of personality traits with gender comparison

Trait	Total Mean	SD	Girls Mean	Boys Mean	Significance (Girls vs Boys)
Openness	3.40	0.40	3.44	3.31	NS
Conscientiousness	3.29	0.30	3.34	3.20	NS
Extraversion	2.93	0.25	2.91	2.97	NS
Agreeableness	3.68	0.69	3.67	3.70	NS
Neuroticism	3.00	0.35	2.94	3.12	NS

scores on Extraversion and Neuroticism. However, none of these differences were statistically significant ($p > 0.05$), confirming overall similarity between genders. The findings confirm the null hypothesis and align with earlier studies highlighting minimal gender differences in personality traits among higher education cohorts. (Schmitt et al., 2008).

The predictive influence of personality traits on employability outcomes

A multiple regression analysis was conducted to evaluate the predictive impact of the personality traits on employability outcomes, with the Career Readiness Index serving as the dependent variable. This analysis was designed to provide empirical evidence on which specific traits significantly affect career readiness among agricultural university students. Table 2 illustrates the obtained results.

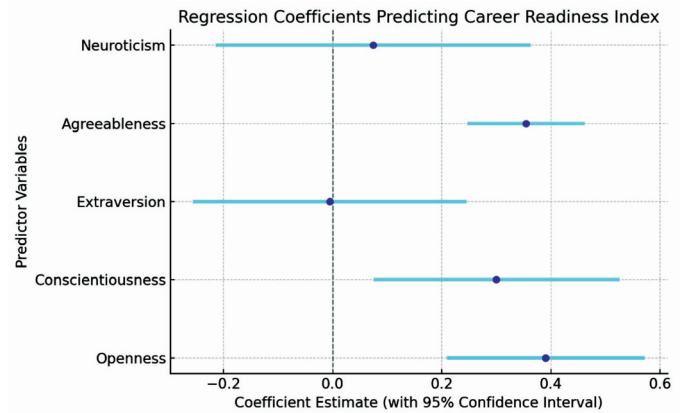
Table 2. Regression results predicting Career Readiness Index

Variable	Coef.	Std. Error	t	P> t	S/NS
const	-0.362	0.527	-0.686	0.530	NS
Openness	0.390	0.065	5.978	0.004	S
Conscientiousness	0.300	0.081	3.706	0.021	S
Extraversion	-0.005	0.091	-0.056	0.958	NS
Agreeableness	0.354	0.039	9.129	0.001	S
Neuroticism	0.074	0.104	0.714	0.515	NS

R^2 of 0.61; Adjusted R^2 of 0.58; ($F(5, 54) = 17.23, p < 0.001$); S- Significance; NS- Non-significance

The model showed strong explanatory power ($R^2 = 0.61$; Adjusted $R^2 = 0.58$), demonstrating that these five traits together contributed approximately 61% of the variance in career readiness. The regression model was statistically significant ($F(5, 54) = 17.23, p < 0.001$), indicating that the predictors collectively have a meaningful effect on career readiness. At the individual trait level, agreeableness ($\beta = 0.354, p = 0.001$), openness ($\beta = 0.390, p = 0.004$), and conscientiousness ($\beta = 0.300, p = 0.021$) emerged as significant positive predictors of career readiness. Conversely, extraversion ($\beta = -0.005, p = 0.958$) and neuroticism ($\beta = 0.074, p = 0.515$) were non-significant. Agreeableness showed the strongest predictive effect among the significant variables, followed by openness and conscientiousness.

These results of the regression analysis (Figure 1) highlight the dominant role of interpersonal, adaptive, and self-regulatory traits in shaping employability outcomes.

**Figure 1.** Regression Coefficients Predicting Career Readiness Index

Interrelationships among the big five personality traits and their associations with the career readiness index

To complement the regression analysis, a correlation matrix was constructed to examine the interrelationships among the Big Five traits and their associations with the Career Readiness Index (CRI). This analysis provides a broader perspective on how traits interact with one another and jointly influence employability outcomes, capturing both positive and negative linkages not evident from regression alone. The results are summarized in Table 3 and illustrated in Figure 2.

The analysis displayed several significant associations. At the 1% level, openness ($r = 0.665$), agreeableness ($r = 0.728$), and neuroticism ($r = -0.786$) were strongly correlated with career readiness. At the 5% level, both conscientiousness ($r = 0.413$) and extraversion ($r = 0.413$) exhibited moderate positive correlations with readiness. Inter-trait relationships further highlighted meaningful patterns. A strong and statistically significant positive correlation was found between conscientiousness and extraversion ($r = 0.720, p < 0.01$), suggesting that students who are organized and disciplined are also more socially outgoing. Openness and conscientiousness were moderately correlated ($r = 0.495, p < 0.05$), indicating a link between curiosity and diligence. In contrast, neuroticism showed negative correlations with both openness ($r = -0.583, p < 0.01$) and agreeableness ($r = -0.718, p < 0.01$), emphasizing the adverse impact of emotional instability on cooperative and adaptive behaviours.

Gender-based differences in personality traits

To examine potential gender-based differences in personality traits, Independent-samples t-tests were conducted, with results shown in Table 4 and Figure 3. In addition to significance testing, Cohen's d effect sizes were calculated to evaluate the practical magnitude of group differences, based on Cohen's (1988) thresholds.

The findings from Table 4 revealed that none of the observed differences were statistically significant at the 5% level. However, effect size estimates suggested small-to-moderate practical differences in certain traits. Specifically, openness ($d = 0.35$) and conscientiousness ($d = 0.45$) showed moderate effects, despite non-significant p -values. Neuroticism ($d = -0.54$) also indicated a moderate effect, with females scoring slightly higher, although this

Table 3. Correlation Matrix of Big Five Traits

Trait	O	C	E	A	N	CRI
Openness (O)	1.0	0.495*	0.254 ^{NS}	0.036 ^{NS}	-0.583**	0.665**
Conscientiousness (C)	0.495*	1.0	0.720**	-0.188 ^{NS}	0.069 ^{NS}	0.413*
Extraversion (E)	0.254 ^{NS}	0.720**	1.0	0.081 ^{NS}	0.044 ^{NS}	0.413*
Agreeableness (A)	0.036 ^{NS}	-0.188 ^{NS}	0.081 ^{NS}	1.0	-0.718**	0.728**
Neuroticism (N)	-0.583**	0.069 ^{NS}	0.044 ^{NS}	-0.718**	1.0	-0.786**
Career Readiness Index (CRI)	0.665**	0.413*	0.413*	0.728**	-0.786**	1.0

Notes: $p < 0.01$ (highly significant), $*p < 0.05$ (significant), NS = not significant. O- Openness; C- Conscientiousness; E- Extraversion; A- Agreeableness; N- Neuroticism; CRI- Career Readiness Index

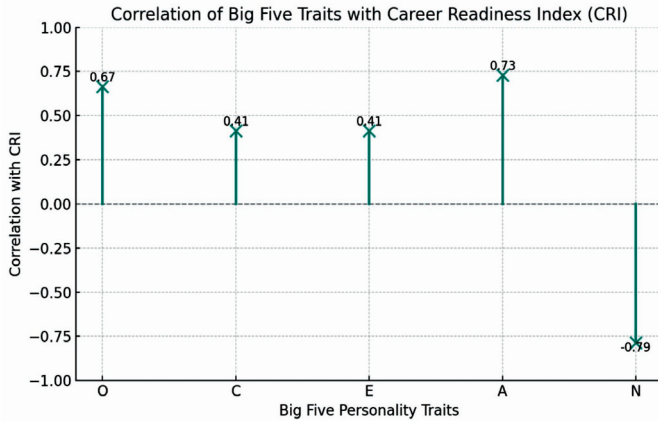


Figure 2. Correlation of Big Five Traits with Career Readiness Index (CRI)

Table 4. Independent samples t-test results (gender comparison) with effect sizes

Trait	t-value	df	p-value	Cohen's <i>d</i>	Interpretation
Openness	0.72	17.38	0.481	0.35	Small-to-moderate effect
Conscientiousness	0.88	15.01	0.393	0.45	Moderate effect
Extraversion	-0.456	13.38	0.656	-0.25	Small effect (trivial)
Agreeableness	-0.078	15.92	0.939	-0.04	Negligible effect
Neuroticism	-0.987	13.32	0.341	-0.54	Moderate effect

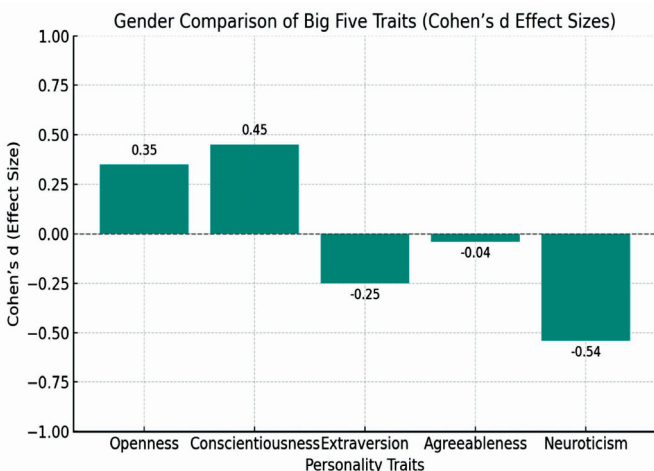


Figure 3. Gender-based differences in personality traits

difference did not reach significance ($p = 0.341$). In contrast, extraversion ($d = -0.25$) reflected only a trivial effect, while agreeableness ($d = -0.04$) was negligible.

DISCUSSION

Descriptive patterns of the Big Five traits offer insights into career readiness. Students exhibited high Agreeableness, promoting teamwork, and moderate Openness, fostering creativity and technology adoption (McCrae & Costa, 2008). Low Extraversion limits communication and leadership, while moderate Neuroticism implies stress vulnerability. Hence, stress management, mentoring, and leadership training are vital to strengthen communication, resilience, and employability in agricultural education.

Agreeableness aligns with studies emphasizing cooperative, pro-social orientations vital for team-based agricultural and extension work (Malik et al., 2020). Openness highlights creativity and adaptability in addressing technological and sustainability challenges (McCrae & Costa, 2008; Mishra et al., 2021). Conscientiousness—diligence and persistence—predicts performance through planning, record-keeping, and resilience (Lounsbury et al., 2004; Qadir, 2014). Extraversion's non-significance suggests sociability is less critical than teamwork, while neuroticism did not hinder readiness. Hence, curricula should integrate team-based, problem-solving, and mentored training with technical education to foster agreeableness, openness, and conscientiousness, strengthening employability and personality development among agricultural graduates. The results of the independent samples t-test reiterate that the regression findings: agreeableness, openness, and conscientiousness positively support career readiness, whereas neuroticism hampers it. Agreeableness emerged as the strongest correlate, emphasizing the importance of pro-social and cooperative orientations in agricultural contexts, where teamwork, negotiation, and stakeholder collaboration are integral (John & Srivastava, 1999; Tziner & Tanami, 2013). Openness positively correlates with career readiness, emphasizing creativity and adaptability essential for agricultural graduates (Shireesha et al., 2023). Conscientiousness supports diligence, goal orientation, and reliability in sustainable management (Barrick & Mount, 1991). Extraversion moderately aids readiness, while neuroticism ($r = -0.786$, $p < 0.01$) hinders confidence and resilience. Institutions can enhance readiness through teamwork, technology exposure, mentoring, and stress management, integrating technical and socio-emotional competencies to produce skilled, resilient, and socially equipped agricultural professionals.

Gender-based analysis showed no statistically significant differences, likely due to the small sample size, though moderate

effect sizes suggested practical variations in openness, conscientiousness, and neuroticism. These findings align with prior studies reporting modest gender differences (Feingold, 1994; Weisberg et al., 2011; Shah et al., 2023). Agreeableness and extraversion remained similar across genders, indicating consistent cooperation and sociability (Costa, Terracciano & McCrae, 2001). Slight differences in conscientiousness and openness may influence technology adoption and career readiness, underscoring the need for resilience training in agricultural education. Overall, the results suggest that gender alone is not a decisive factor in predicting personality-linked readiness for agricultural careers. However, capacity-building initiatives that universally enhance openness, conscientiousness, and emotional stability will continue to be critical. This inclusive approach will ensure that both male and female graduates are equally prepared to traverse the complex and ever-evolving demands of the agricultural sector.

CONCLUSION

The study demonstrates that among agricultural undergraduates, agreeableness, openness, and conscientiousness emerge as the most salient predictors of career readiness, whereas extraversion and neuroticism show limited influence. Correlation results further demonstrate the positive association of cooperative and adaptive orientations with employability, alongside the detrimental effect of higher neuroticism. Although gender differences in trait expression were not statistically significant, effect size estimates indicated modest variations, suggesting that interventions should be universally oriented rather than gender specific. Overall, the findings highlight the need for agricultural education programmes to integrate opportunities that cultivate teamwork, flexibility, and conscientious behaviour, while simultaneously inculcating resilience and stress-management orientations. Such measures would enable graduates to translate personality strengths into enhanced employability, ensuring preparedness for the dynamic demands of the agricultural sector.

DECLARATIONS

Ethics approval and informed consent: The study adhered to established ethical principles of social science research. Students were fully briefed on the objectives and scope of the study before participation. Informed consent was obtained, participation was voluntary, and no academic consequences were associated with refusal or withdrawal. All responses were anonymised to protect confidentiality and ensure unbiased analysis.

Conflict of interest: The authors declare that there are no conflicts of interest in conducting this research study.

Authors' contribution: This work was carried out in collaboration between all the authors. The study was conceptualised, interpreted, and the final draft of the manuscript was prepared by Author 1 and Author 5. Author 1 collected the data required for the study and performed the statistical analysis. The draft was edited by Author 2 and Author 5, All authors read and approved the final manuscript.

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