Reading in Political Economy

Volume 60 · Issue 2 · 2026
Pages 1350–1359

ISSN 0079-9874 (Print) · e-ISSN 0305-814X (Online) politonomia.org.ua/rpe

Accounting Measurement of Biological Assets under the Adaptation of the Financial Accounting System: An Analytical Field Study in Algeria

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Received: 08/08/2026 | **Accepted:** 23/10/2026 | **Published:** 07/11/2026

ABSTRACT

This article examines the extent to which Algeria's Financial Accounting System accommodates the particular characteristics of agricultural activity, especially the measurement of biological assets at what the authors describe as real value as an approximation to IAS 41 requirements. It also investigates the regulatory, market and professional obstacles to the practical implementation of modern measurement. The findings reveal a positive perception of the accounting framework's recognition of agricultural characteristics, alongside significant implementation problems. The study uses arithmetic means and one-sample t-tests to analyse questionnaire responses and test its hypotheses.

Keywords: biological assets; agricultural activity; real value; accounting measurement; IAS 41.

JEL classification: Z02; Z21.

INTRODUCTION

Accounting measurement is one of the fundamental pillars underpinning the quality of financial information. Its application to agricultural activity, however, has particular features because of the nature of biological assets, market fluctuations and the difficulty of determining fair value in Algeria. With the adoption of a Financial Accounting System inspired by international standards, questions have arisen concerning its suitability for the agricultural sector and the capacity of current accounting practices to meet the requirements of measurement at what the authors term "real value", as provided for under IAS 41. Against this background, this article analyses accounting measurement in agricultural activity and identifies the principal problems and factors affecting the choice of measurement models in Algeria. The research question is therefore as follows:

To what extent does the Financial Accounting System (SCF) provide an appropriate accounting framework for measuring biological assets and achieving consistency with international standards?

RESEARCH HYPOTHESES

The Financial Accounting System, as adapted to the agricultural sector, accommodates the characteristics of agricultural activity, particularly the nature of biological assets and agricultural production cycles.

Accounting measurement practices in Algerian agricultural enterprises conform to IAS 41 requirements, despite the difficulties encountered in the Algerian environment.

How to cite: Chenafi & Chenchouna (2026). Accounting Measurement of Biological Assets under the Adaptation of the Financial Accounting System: An Analytical Field Study in Algeria. Reading in Political Economy, 60(2), 1350–1359.
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Agricultural enterprises face substantial problems that hinder the measurement of biological assets at real value.

The organisational, market, financial and structural factors surrounding agricultural enterprises influence the selection of an accounting measurement model.

The qualifications and training of professionals, including preparers and analysts of financial statements, affect the quality of accounting measurement in agricultural activity.

RESEARCH OBJECTIVES

To assess the degree of alignment between accounting practices under the Financial Accounting System and IAS 41.

To identify the problems hindering the measurement of biological assets at real value.

To identify the factors affecting the selection of accounting measurement models in agricultural enterprises.

To clarify the role of professional education and training in strengthening the application of accounting measurement concepts among agricultural-sector personnel.

RESEARCH METHODOLOGY

To address the research question and test the proposed hypotheses, the study adopts a descriptive, inductive and analytical approach to describe and analyse accounting measurement in agricultural activity in Algeria, assess the extent to which the Financial Accounting System accommodates the sector's particular characteristics, and examine accounting practices in agricultural enterprises.

RESEARCH INSTRUMENTS

Desk research: the theoretical component draws on books, scholarly articles and legal provisions relating to the Financial Accounting System and agricultural accounting.

Questionnaire: the main instrument for collecting field data was administered to professional and academic groups, namely preparers of financial statements, users of financial statements and contributors to the theoretical foundations of accounting.

STRUCTURE OF THE STUDY

The study comprises two main parts. The first discusses the conceptual and regulatory foundations of the accounting measurement of biological assets, the concept and importance of accounting measurement, its characteristics in agricultural activity, and the factors affecting measurement in Algeria. The second presents a field-based statistical investigation using responses from a sample of 101 individuals representing the three study groups, in order to address the research question and derive findings and recommendations.

I. CONCEPTUAL AND REGULATORY FOUNDATIONS OF ACCOUNTING MEASUREMENT FOR BIOLOGICAL ASSETS

1. Accounting measurement

1.1. The concept of accounting measurement. The notion of accounting measurement has developed alongside accounting thought as theorists and professional bodies have sought a framework ensuring objectivity and consistency in financial reporting. In 1966, the American Accounting Association (AAA) defined it as "the assignment of numbers to past, present and future events of an entity on the basis of past or present observations according to specified rules" (Mohamed, 2008, p. 115).

The definition attributed to the International Accounting Standards Board describes accounting measurement as the process of determining the amounts to be presented in the body of each financial statement and, in some cases, in the notes. The term "measurements" refers to the amounts presented or disclosed (Standards, 2013, p. 2).

Campbell, by contrast, approaches measurement philosophically. Accounting measurement is described as the quantitative expression of a company's financial transactions; Campbell also characterises measurement as assigning numbers to represent attributes of material systems (Al-Zuwaie, 2018, p. 15).

These definitions reveal three dimensions. The first is procedural: measurement systematically links economic phenomena to numerical quantities according to defined rules. The second is normative: measurement is directly connected to presentation and disclosure in financial statements. The third is theoretical and philosophical: measurement assigns numbers to represent real-world characteristics, raising questions about their nature

and the limits of numerical accuracy.

1.2. The importance of accounting measurement. Accounting measurement is an essential tool, particularly in monetary terms, because it facilitates comparisons between investment alternatives and across periods within the same enterprise. Expressing economic events and their outcomes in monetary units makes investment options easier to assess and allows a firm's financial performance to be evaluated over time, thereby increasing managers' confidence in decision-making.

Accounting measurement also provides a common means of communication among parties preparing and using financial statements. By recording and presenting economic activity in monetary units, it promotes consistent, comprehensible and comparable information, enabling investors, managers and other users to interpret statements and make informed decisions (Zergoun and Ben Yedir, 2016, p. 3).

1.3. Particular characteristics of accounting measurement in agriculture

Accounting measurement represents economic reality by expressing the economic events affecting an entity. Its application to agriculture is more complex because agricultural production has natural and productive characteristics that distinguish it from other sectors. Agricultural activities depend on living biological assets whose values change through biological transformation and are directly affected by climatic and market conditions beyond the enterprise's immediate control. Valuation is thus dynamic rather than static.

These characteristics directly affect the feasibility of applying traditional measurement bases, particularly given the distinctive nature of biological assets (Lalić, Perić and Jovanović, 2012, pp. 234–238):

Biological transformation: biological assets undergo processes such as growth, changes in characteristics, production and reproduction. These processes produce quantitative changes, including increases or decreases in size, and qualitative changes, including improvements or deterioration in quality.

Natural and climatic effects: drought, rainfall and other climatic risks are external factors that affect growth and productivity and may cause unexpected fluctuations in the economic value of biological assets.

Other researchers argue that these measurement characteristics extend beyond biological assets themselves to additional attributes (Campos-Llerena, Arias-Pérez, Toscano-Morales and Barreno-Córdova, 2025, p. 4):

Biological cycle: a biological asset passes through a full life cycle, from growth to maturity and production and ultimately decline or consumption. Each stage has different accounting implications for fair-value measurement, complicating recognition.

Genetic quality: characteristics such as breed or seed variety affect productivity and resistance to disease and consequently influence the asset's fair value and potential future cash flows.

These specificities oblige accounting practice to adapt to forms of production not adequately captured by conventional approaches and therefore to reconsider the traditional bases and tools used in general accounting.

2.2. Factors affecting the accounting measurement of biological assets in Algeria

Algeria has sought to keep pace with international developments in accounting and encourage investment by modernising the Financial Accounting System and adapting it to agriculture through Decision No. 201, thereby moving towards international accounting standards. Although the amendment incorporates accounting treatment for biological assets based on concepts resembling those adopted internationally, particularly fair value, implementation remains constrained by market, organisational and legislative conditions specific to the Algerian economy.

Market factors: measurement at current values presupposes a transparent market providing reliable prices. Several features of the Algerian context make objective and realistic valuation difficult:

Weak active markets for agricultural products: active markets are central to fair-value measurement because observable prices for comparable biological assets at the measurement date form the valuation basis. Where these markets are absent or ineffective, enterprises resort to alternative methods based on estimates or future cash flows, potentially reducing the reliability of financial reporting.

Differences in agricultural product quality: crop types, seasonal variation and farming practices create substantial variation in quality, hindering the identification of a stable and reliable price on which fair-value estimates can be based.

Irregular harvesting and marketing periods: agricultural prices fluctuate with seasonal supply and demand. Valuations at different points in time therefore become more complex, producing differences in reported figures and limiting the suitability of end-of-cycle prices for earlier harvest or marketing stages.

Organisational factors: in addition to markets, organisational characteristics directly affect accounting practice and determine whether entities can meet the requirements associated with biological assets.

Inadequate valuation tools and accounting expertise: many agricultural enterprises lack sophisticated technical tools and specialised expertise in fair-value techniques, including cash-flow models and the use of Level 2 and Level 3 inputs under IFRS 13. Insufficient professional training further weakens valuation precision and creates opportunities for misstatement or manipulation.

Absent or fragile accounting information infrastructure: weak technology and accounting information systems impede the adoption of specialised software and effective financial data management. Consequently, enterprises may rely on manual or partly automated records, reducing efficiency and increasing error risk, while hindering the preparation of accurate management reports, analyses and forecasts (Ali, 2020, pp. 92–93).

Shortages of qualified agricultural accounting staff: younger, qualified professionals often prefer fast-growing, technologically advanced and better-paid organisations. This makes the introduction and effective use of modern accounting techniques in agriculture more difficult (Bakulina, 2020, pp. 2–5).

Legislative factors: laws and regulations also affect measurement, particularly as the Financial Accounting System seeks convergence with international standards.

Overlap between accounting treatment and tax requirements: invoices, receipts and agricultural registers are important evidence for financial transactions. Tax rules require supporting documentation, although certain transactions, such as fertiliser produced from biological-asset waste, may lack formal documents. Missing or dispersed records across fields and farms create gaps in accounting documentation and complicate verification and reliable reporting (Ali, 2020, pp. 88–92).

Lack of detailed interpretative guidance for agricultural cases: where specific applications require professional judgement but detailed guidance is absent, accounting practices vary across enterprises despite the existence of a general legal framework.

Uneven compliance and implementation across agricultural enterprises: differences in entity size and organisational structure undermine the comparability of financial statements by reducing the consistency of accounting information.

II. ACCOUNTING MEASUREMENT CHALLENGES ARISING FROM THE SPECIFIC CHARACTERISTICS OF AGRICULTURAL ACTIVITY IN ALGERIA

The accounting measurement problem lies in reconciling the requirements of the applicable framework (Decision No. 201 and IAS 41) with the changing economic characteristics of biological assets in order to generate relevant and reliable financial information. International standards favour fair value as a means of reflecting economic value, although this approach presupposes active markets and transparency that the Algerian environment does not consistently provide. The Algerian approach, which the authors describe as measurement at “real value”, is therefore challenged by market, organisational and legislative constraints. Measurement is not merely a technical choice: the wider institutional and economic environment also determines the quality of accounting information.

1. Research approach and study population

The study uses a field-based analytical approach to investigate agricultural accounting measurement in Algeria, assess the suitability of the Financial Accounting System for this sector and identify the principal obstacles to measuring biological assets at real value. A questionnaire serves as the main data-collection instrument for assessing and testing the proposed hypotheses and exploring the constraints affecting implementation.

The study population was divided into three principal groups to capture different perspectives on accounting measurement in agriculture:

Group 1 – preparers of financial statements: accounting personnel, including assistant accountants, senior accountants, department heads and finance and accounting directors, as well as chartered accountants, statutory auditors and accounting experts. They are directly responsible for producing accounting information and preparing statements.

Group 2 – users of financial statements: stakeholders who rely on financial statements in decision-making, including executives, general managers, board chairs and shareholders, together with banking professionals (credit committee chairs and financing analysts) and insurance-sector professionals.

Group 3 – contributors to accounting theory: university academics specialising in accounting and finance. Through teaching and the development of theoretical and methodological frameworks, they help shape professional accounting practices and provide critical analysis based on accounting principles and standards.

The researchers distributed 130 questionnaires, either in person or by email. After screening and organising the returned forms, 101 valid responses were retained. SPSS version 23 was used to examine respondents' views and test the study hypotheses.

2. ASSESSMENT OF THE VALIDITY AND RELIABILITY OF THE RESEARCH INSTRUMENT

Table 1. Reliability and validity coefficients of the questionnaire

Questionnaire dimension	Items	Cronbach's alpha	Validity coefficient
Dimension 1: SCF accommodation of agricultural characteristics	5	0.711	0.843
Dimension 2: Compliance of current accounting measurement with IAS 41	5	0.654	0.809
Dimension 3: Practical problems in applying real value in Algeria	5	0.704	0.839
Dimension 4: Factors affecting the choice of measurement models	5	0.687	0.839
Dimension 5: Professionals' awareness and training in modern measurement	5	0.700	0.837

Source: Authors' calculations based on SPSS.

Cronbach's alpha was used to examine the reliability of the questionnaire. The coefficients were 0.711, 0.654, 0.704, 0.687 and 0.700 for Dimensions 1–5, respectively. The authors interpret these as satisfactory reliability levels, noting that all alpha coefficients exceed 0.60.

3. RESULTS AND DISCUSSION

Table 2. Extent to which the Financial Accounting System (SCF) accommodates the characteristics of agricultural activity

Item	Mean	Standard deviation	Rank	Response
Items	Mean	Standard deviation	Item rank	Response
First	3.68	0.799	3	Agree
Second	3.63	0.703	4	Agree
Third	3.84	0.935	1	Agree
Fourth	3.57	0.779	5	Agree
Fifth	3.82	0.932	2	Agree
Overall dimension	3.71	0.565	Agree	Agree

Source: Authors' calculations using SPSS 23.

The first dimension yielded an overall mean of 3.71 and a comparatively low standard deviation of 0.565, suggesting a generally positive perception among the three respondent groups of the extent to which the adapted SCF incorporates agricultural characteristics, including seasonality and biological transformation. Nevertheless, respondents expressed reservations concerning the lack of detailed application guidance and measurement mechanisms for particular cases, especially biological assets and government grants or support. Alignment therefore appears general and conceptual rather than detailed and procedural.

Table 3. Alignment of current accounting measurement practices with IAS 41

Item	Mean	Standard deviation	Rank	Response
Items	Mean	Standard deviation	Item rank	Response
First	3.44	0.793	5	Agree
Second	3.50	0.783	4	Agree
Third	3.79	0.875	1	Agree
Fourth	3.75	0.830	2	Agree
Fifth	3.71	0.852	3	Agree
Overall dimension	3.64	0.533	Agree	Agree

Source: Authors' calculations using SPSS 23.

The second dimension recorded an overall mean of 3.64, indicating partial alignment between the SCF and IAS 41. Individual item means ranged from 3.44 to 3.79, suggesting perceived conceptual similarities between the locally described "real value" and international fair value, and a belief that adopting international treatments could improve information credibility. Nevertheless, neutral responses and variation in item means point to an implementation gap caused by the limited availability of active markets and transparent prices in Algeria. Disclosure of biological assets appears to be more formalistic than substantively informative.

Table 4. Practical difficulties of applying real-value measurement to biological assets in Algeria

Item	Mean	Standard deviation	Rank	Response
Items	Mean	Standard deviation	Item rank	Response
First	3.66	0.898	4	Agree
Second	3.59	1.115	5	Agree
Third	4.10	0.768	2	Agree
Fourth	3.87	0.757	3	Agree
Fifth	4.13	0.611	1	Agree
Overall dimension	3.87	0.573	Agree	Agree

Source: Authors' calculations using SPSS 23.

The third dimension recorded a high mean of 3.87 and a standard deviation of 0.573, signalling strong agreement that major practical obstacles impede real-value measurement. Item means included 3.66 for the lack of active markets, 3.87 for technical and professional shortcomings and 4.13 for the importance of reliable market data. These findings identify weak market organisation, seasonal and climatic fluctuations and insufficient modern valuation tools as significant barriers.

Table 5. Factors influencing the selection of accounting measurement models

Item	Mean	Standard deviation	Rank	Response
Items	Mean	Standard deviation	Item rank	Response
First	3.50	0.890	5	Agree
Second	3.91	0.776	1	Agree
Third	3.83	0.549	2	Agree
Fourth	3.70	0.819	4	Agree
Fifth	3.80	0.849	3	Agree

Overall dimension	3.64	0.533	Agree	Agree

Source: Authors' calculations using SPSS 23.

The fourth dimension showed general agreement, with some item means around 3.50. The choice of measurement model is perceived to depend on organisational, tax, market and financing considerations. Regulatory and tax requirements may favour more cautious and stable models, while market instability encourages historical cost. Enterprise size, organisational structure and lenders' requirements also affect the adoption of modern approaches.

Table 6. Professional awareness of, and training in, modern measurement concepts

Item	Mean	Standard deviation	Rank	Response
Items	Mean	Standard deviation	Item rank	Response
First	4.10	0.742	5	Agree
Second	3.78	0.782	1	Agree
Third	4.04	0.786	2	Agree
Fourth	3.88	0.852	4	Agree
Fifth	3.65	1.187	3	Agree
Overall dimension	3.64	0.533	Agree	Agree

Source: Authors' calculations using SPSS 23.

The fifth dimension produced relatively high item means, including 4.10 for one statement, which the authors interpret as evidence of broad agreement concerning inadequate qualifications and professional training in modern measurement. Limited knowledge of real-value concepts and international accounting standards, particularly IAS 41, is presented as a major obstacle. The difficulty therefore concerns not only legislation or markets, but also the ability of human resources to understand and apply modern measurement requirements.

4. HYPOTHESIS TESTING

One-sample t-tests were conducted against a hypothetical mean of 3, treated by the authors as the lower boundary of agreement on a five-point Likert scale.

Table 7. One-sample t-tests for the five dimensions

One-sample t-test output reproduced from the source

Dimension	t	df	Sig. (two-tailed)	Mean difference	95% CI (lower–upper)
MA	12.654	100	.000	.711	.60–.82
MB	11.912	100	.000	.638	.53–.74
MC	15.278	100	.000	.871	.76–.98
MD	14.368	100	.000	.749	.65–.85
ME	15.017	100	.000	.891	.77–1.01

Note: Values and inconsistencies between the narrative and individual tables have been preserved as reported in the source.

Source: Authors' calculations using SPSS 23.

Hypothesis 1: the first dimension had a mean of 3.71, indicating a positive view of the SCF's accommodation of agricultural characteristics. The calculated t-statistic was 12.654 (reported significance: Sig. = 0.000). The null hypothesis was rejected in favour of the alternative that the SCF accommodates agricultural characteristics to a meaningful extent, although this accommodation remains general rather than detailed.

Hypothesis 2: the second dimension had a mean of 3.64, indicating partial alignment between SCF measurement practices and the international agricultural accounting standard. The calculated t-statistic was 11.912 (Sig. = 0.000). The null hypothesis was rejected in favour of the alternative, while recognising that environmental and organisational constraints prevent complete application of IAS 41.

Hypothesis 3: the third dimension had a mean of 3.87, indicating agreement that serious obstacles hinder real-value measurement. The calculated t-statistic was 15.278 (Sig. = 0.000). The null hypothesis was rejected in favour of the alternative, identifying the lack of active markets, price fluctuations and weak information and valuation infrastructure as major problems.

Hypothesis 4: the fourth dimension was reported in the hypothesis-testing narrative as having a mean of 3.75, indicating that respondents recognise the effects of organisational, market and financing factors on the choice of measurement model. The calculated t-statistic was 14.368 (Sig. = 0.000). The null hypothesis was rejected in favour of the alternative, suggesting that the operating environment affects the adoption of measurement models, particularly the preference for more conservative approaches under uncertainty.

Hypothesis 5: the fifth dimension was reported as having a mean of 3.89, reflecting agreement on the importance of professional qualifications and training in improving measurement quality. The calculated t-statistic was 15.017 (Sig. = 0.000). The null hypothesis was rejected in favour of the alternative that professional qualifications and training influence the quality of accounting measurement in agricultural activity.

CONCLUSION

This study examined accounting measurement in Algerian agriculture by combining a conceptual discussion of accounting measurement and the distinctive characteristics of agricultural activity with a field study of the SCF's suitability for this sector and the extent to which current practices conform to IAS 41. It also identified implementation problems and factors influencing the choice of measurement model.

MAIN FINDINGS

The Financial Accounting System shows substantial conceptual recognition of agricultural characteristics, but its coverage is general and requires more detailed implementation procedures.

Accounting practices in Algeria demonstrate only partial alignment with IAS 41: conceptual similarities exist, but conditions in the Algerian environment prevent full implementation.

Significant practical barriers hinder real-value measurement, notably the absence of active markets, limited price transparency and seasonal and climatic fluctuations that destabilise reported values.

The choice of measurement model is affected by organisational, tax, market, financing and structural factors, often encouraging conservative approaches such as historical cost.

Human resources are essential to measurement quality: inadequate qualifications and training in modern measurement concepts and international accounting standards hamper accounting reform in agriculture.

RECOMMENDATIONS

Issue more detailed implementing regulations for the measurement of biological assets and agricultural produce to reinforce the operational aspects of the SCF as adapted to agriculture.

Develop official mechanisms for collecting and publishing actual agricultural prices so that more objective reference values can be established.

Improve coordination between accounting treatments and tax requirements to reduce difficulties affecting the choice of measurement models.

Update academic and professional training programmes by incorporating more extensive coverage of real-value measurement concepts and international standards.

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APPENDICES

Items	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Response
First	Frequency	0	11	20	60	10	3.68	0.799	Agree
First	Percentage	0%	10.9%	19.8%	59.4%	9.9%	3.68	0.799	Agree
Second	Frequency	0	5	35	53	8	3.63	0.703	Agree
Second	Percentage	0%	5%	34.7%	52.5%	7.9%	3.63	0.703	Agree
Third	Frequency	2	7	20	48	24	3.84	0.935	Agree
Third	Percentage	2%	6.9%	19.8%	47.5%	23.8%	3.84	0.935	Agree
Fourth	Frequency	0	7	40	43	11	3.57	0.779	Agree
Fourth	Percentage	0%	6.9%	39.6%	42.6%	10.9%	3.57	0.779	Agree
Fifth	Frequency	0	12	18	47	24	3.82	0.932	Agree
Fifth	Percentage	0%	11.9%	17.8%	46.5%	23.8%	3.82	0.932	Agree
Overall – Dimension 1	Overall – Dimension 1	Overall – Dimension 1	Overall – Dimension 1	Overall – Dimension 1	Overall – Dimension 1	Overall – Dimension 1	3.71	0.565	Agree

Source: Original questionnaire tabulations; numerical values reproduced without alteration.

Items	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Response
First	Frequency	1	14	28	56	2	3.44	0.793	Agree
First	Percentage	1%	13.9%	27.7%	55.4%	2%	3.44	0.793	Agree
Second	Frequency	2	9	30	57	3	3.50	0.783	Agree
Second	Percentage	2%	8.9%	29.7%	56.4%	3%	3.50	0.783	Agree
Third	Frequency	0	9	24	47	21	3.79	0.875	Agree
Third	Percentage	0%	8.9%	23.8%	46.5%	20.8%	3.79	0.875	Agree
Fourth	Frequency	0	6	32	44	19	3.75	0.830	Agree
Fourth	Percentage	0%	5.9%	31.7%	43.6%	18.8%	3.75	0.830	Agree
Fifth	Frequency	0	10	25	49	16	3.71	0.852	Agree
Fifth	Percentage	0%	9.9%	24.8%	49.5%	15.8%	3.71	0.852	Agree
Overall – Dimension 2	Overall – Dimension 2	Overall – Dimension 2	Overall – Dimension 2	Overall – Dimension 2	Overall – Dimension 2	Overall – Dimension 2	3.64	0.533	Agree

Source: Original questionnaire tabulations; numerical values reproduced without alteration.

Items	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Response
First	Frequency	0	17	12	60	12	3.66	0.898	Agree
First	Percentage	0%	16.8%	11.9%	59.4%	11.9%	3.66	0.898	Agree
Second	Frequency	9	5	22	47	18	3.59	1.115	Agree
Second	Percentage	8.9%	5%	21.8%	46.5%	17.8%	3.59	1.115	Agree
Third	Frequency	1	1	16	52	31	4.10	0.768	Agree
Third	Percentage	1%	1%	15.8%	51.5%	31%	4.10	0.768	Agree

Items	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Response
First	Frequency	2	15	21	57	6	3.50	0.890	Agree
First	Percentage	2%	14.9%	20.8%	56.4%	5.9%	3.50	0.890	Agree
Second	Frequency	0	2	29	46	24	3.91	0.776	Agree
Second	Percentage	0%	2%	28.7%	45.5%	23.8%	3.91	0.776	Agree
Third	Frequency	0	2	19	74	6	3.83	0.549	Agree
Third	Percentage	0%	2%	18.8%	73.3%	5.9%	3.83	0.549	Agree
Fourth	Frequency	1	4	35	45	16	3.70	0.819	Agree
Fourth	Percentage	1%	4%	34.7%	44.6%	15.8%	3.70	0.819	Agree
Fifth	Frequency	2	3	27	50	19	3.80	0.849	Agree
Fifth	Percentage	2%	3%	26.7%	49.5%	18.8%	3.80	0.849	Agree
Overall – Dimension 4	Overall – Dimension 4	Overall – Dimension 4	Overall – Dimension 4	Overall – Dimension 4	Overall – Dimension 4	Overall – Dimension 4	3.75	0.524	Agree

Source: Original questionnaire tabulations; numerical values reproduced without alteration.

Items	Items	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	Mean	Standard deviation	Response
First	Frequency	0	1	20	48	32	4.10	0.742	Agree
First	Percentage	0%	1%	19.8%	47.5%	31.7%	4.10	0.742	Agree
Second	Frequency	0	5	29	50	17	3.78	0.782	Agree
Second	Percentage	0%	5%	28.7%	49.5%	16.8%	3.78	0.782	Agree
Third	Frequency	2	1	14	58	26	4.04	0.786	Agree
Third	Percentage	2%	1%	13.9%	57.4%	25.7%	4.04	0.786	Agree
Fourth	Frequency	2	1	28	46	24	3.88	0.852	Agree
Fourth	Percentage	2%	1%	27.7%	45.5%	23.8%	3.88	0.852	Agree
Fifth	Frequency	13	0	16	52	20	3.65	1.187	Agree
Fifth	Percentage	12.9%	0%	15.8%	51.49%	19.8%	3.65	1.187	Agree
Overall – Dimension 5	Overall – Dimension 5	Overall – Dimension 5	Overall – Dimension 5	Overall – Dimension 5	Overall – Dimension 5	Overall – Dimension 5	3.89	0.596	Agree

Source: Original questionnaire tabulations; numerical values reproduced without alteration.

Fourth	Frequency	0	5	21	57	18	3.87	0.757	Agree
Fourth	Percentage	0%	5%	20.8%	56.4%	17.8%	3.87	0.757	Agree
Fifth	Frequency	0	1	10	65	25	4.13	0.611	Agree
Fifth	Percentage	0%	1%	9.9%	64.4%	24.8%	4.13	0.611	Agree
Overall – Dimension 3	Overall – Dimension 3	Overall – Dimension 3	Overall – Dimension 3	Overall – Dimension 3	Overall – Dimension 3	Overall – Dimension 3	3.87	0.573	Agree

Source: Original questionnaire tabulations; numerical values reproduced without alteration.