revista online de extensão e cultura
REALIZAÇÃO

DOI 10.30612/realizacao.v13i24.21126
ISSN: 2358-3401

Submetido em 01 de janeiro de 2026
Aceito em 23 de julho de 2026
Publicado em 25 de agosto de 2026

FROM FIELD TO TABLE: A PRACTICAL DEMONSTRATION OF COMMERCIAL EGG QUALITY DURING AN EXTENSION ACTIVITY IN THE BAIXADA FLUMINENSE REGION

DO CAMPO À MESA: AVALIAÇÃO PRÁTICA DA QUALIDADE DE OVOS COMERCIAIS EM UMA AÇÃO EXTENSIONISTA NA BAIXADA FLUMINENSE

DEL CAMPO A LA MESA: UNA DEMOSTRACIÓN PRÁCTICA DE LA CALIDAD DE LOS HUEVOS COMERCIALES DURANTE UNA ACTIVIDAD DE EXTENSIÓN EN LA REGIÓN DE LA BAIXADA FLUMINENSE

Pollianna Luciene da Silva Soares
https://orcid.org/0000-0002-4261-9691
Universidade Federal Rural do Rio de Janeiro
Rafaela Fernandes de Sousa
https://orcid.org/my-orcid?orcid=0009-0000-1349-2946
Universidade Federal Rural do Rio de Janeiro
Elisama Cosme Higino
https://orcid.org/0009-0006-2176-5792
Universidade Federal Rural do Rio de Janeiro
Ygor Silva Louzada
https://orcid.org/0009-0006-9230-9305
Universidade Federal Rural do Rio de Janeiro
Gabriel de Lima Sodré
https://orcid.org/0009-0004-2200-8887
Universidade Federal Rural do Rio de Janeiro
Natália Sales Leal dos Santos
https://orcid.org/0009-0001-1251-1233
Universidade Federal Rural do Rio de Janeiro
Jessyca Kelli Ferreira Costa
https://orcid.org/0009-0000-7693-3278
Universidade Federal Rural do Rio de Janeiro
Leandro dos Santos Machado
https://orcid.org/0000-0003-4117-195X
Universidade Federal Rural do Rio de Janeiro
Túlio Leite Reis
https://orcid.org/0000-0003-2141-8740
Universidade Federal Rural do Rio de Janeiro
Jean Kaique Valentim
https://orcid.org/0000-0001-8547-4149
Universidade Federal Rural do Rio de Janeiro

Resumo: A Semana Rural configura-se como um importante evento extensionista voltado à aproximação entre universidade e sociedade, promovendo a difusão de conhecimentos científicos e tecnológicos aplicados aos meios rural e urbano. Nesse contexto, a discussão sobre a qualidade dos alimentos de origem animal, especialmente dos ovos de mesa, assume papel relevante por sua relação com a segurança dos alimentos, a saúde pública e o consumo consciente. O objetivo deste trabalho foi relatar e analisar uma ação extensionista desenvolvida durante a Semana Rural 2025, realizada na Universidade Federal Rural do Rio de Janeiro (UFRRJ), com foco na demonstração prática de métodos utilizados para avaliação da qualidade de ovos de mesa. A atividade teve como público-alvo estudantes e professores dos ensinos Fundamental, Médio e Superior, trabalhadores rurais e urbanos em busca de capacitação e famílias da comunidade do entorno. A ação foi conduzida por meio de demonstrações práticas realizadas no espaço da Mini Fazenda, envolvendo aspectos relacionados à qualidade externa e interna dos ovos, com o objetivo de ensinar o público a diferenciar ovos frescos de ovos armazenados e esclarecer dúvidas sobre produção, conservação e escolha do produto. A atividade alcançou aproximadamente 300 participantes e apresentou elevada interação com o público. As observações realizadas durante a ação evidenciaram o interesse dos participantes pelos conteúdos apresentados, especialmente aqueles relacionados ao frescor, armazenamento e características de qualidade dos ovos. Os resultados reforçam o potencial de atividades práticas de extensão na promoção da educação alimentar, na aproximação entre universidade e sociedade e na divulgação de conhecimentos científicos aplicados ao cotidiano da população.

Palavras-chave: Divulgação científica, Educação alimentar, Extensão universitária, Produção avícola, Segurança dos alimentos.

Abstract: The Rural Week is an important extension event aimed at bringing universities and society closer together by promoting the dissemination of scientific and technological knowledge applied to rural and urban environments. In this context, discussions on the quality of animal-derived foods, particularly table eggs, are relevant because of their relationship with food safety, public health, and informed consumption. This study aimed to report and analyze an extension activity developed during Rural Week 2025, held at the Federal Rural University of Rio de Janeiro (UFRRJ), focusing on the practical demonstration of methods used to evaluate table egg quality. The activity targeted students and teachers from elementary, secondary, and higher education, rural and urban workers seeking training, and families from the surrounding community. The activity was conducted through practical

demonstrations in the Mini Farm area, addressing aspects related to the external and internal quality of eggs, with the aim of teaching participants how to distinguish fresh eggs from stored eggs and clarifying questions regarding production, storage, and product selection. Approximately 300 participants were reached, and the activity showed high levels of interaction with the public. Observations made during the activity indicated considerable participant interest in the topics presented, particularly those related to freshness, storage, and egg quality characteristics. These findings reinforce the potential of practical extension activities to promote food education, strengthen the relationship between universities and society, and disseminate scientific knowledge applied to everyday life.

Keywords: Food education, Food safety, Poultry production, Science communication, University extension.

Resumen: La Semana Rural es un importante evento de extensión destinado a acercar la universidad a la sociedad mediante la difusión de conocimientos científicos y tecnológicos aplicados a los entornos rural y urbano. En este contexto, la discusión sobre la calidad de los alimentos de origen animal, especialmente de los huevos de mesa, es relevante debido a su relación con la seguridad alimentaria, la salud pública y el consumo informado. El objetivo de este trabajo fue relatar y analizar una actividad de extensión desarrollada durante la Semana Rural 2025, realizada en la Universidad Federal Rural de Río de Janeiro (UFRRJ), centrada en la demostración práctica de métodos utilizados para evaluar la calidad de los huevos de mesa. La actividad estuvo dirigida a estudiantes y profesores de educación primaria, secundaria y superior, trabajadores rurales y urbanos interesados en capacitación y familias de la comunidad circundante. La actividad se llevó a cabo mediante demostraciones prácticas en el espacio de la Mini Granja, abordando aspectos relacionados con la calidad externa e interna de los huevos, con el objetivo de enseñar a los participantes a diferenciar huevos frescos de huevos almacenados y aclarar dudas sobre la producción, conservación y selección del producto. La actividad alcanzó aproximadamente 300 participantes y presentó una elevada interacción con el público. Las observaciones realizadas durante la actividad evidenciaron un alto interés de los participantes por los contenidos presentados, especialmente aquellos relacionados con la frescura, el almacenamiento y las características de calidad de los huevos. Los resultados refuerzan el potencial de las actividades prácticas de extensión para promover la educación alimentaria, fortalecer la relación entre la universidad y la sociedad y difundir conocimientos científicos aplicados a la vida cotidiana.

Palabras clave: Comunicación científica, Educación alimentaria, Extensión universitaria, Seguridad alimentaria, Producción avícola.

INTRODUCTION

The quality of animal-derived foods has assumed a central role in contemporary discussions on food safety, public health, and sustainability, driven by increasing consumer demands regarding the products they consume. In this context, table eggs stand out as foods with high nutritional value, broad consumer acceptance, and relatively low cost, characteristics that contribute to their importance in the diet of the population (SILVA NETO et al., 2024; GAO et al., 2025).

Eggs are relevant sources of high-quality proteins, as well as lipids, vitamins, minerals, and bioactive compounds, contributing to human nutrition across different age groups. In addition to their nutritional value, attributes related to external and internal quality, such as shell integrity, freshness, albumen consistency, and yolk characteristics, are important for consumer acceptance and for maintaining product quality during storage (LIAO et al., 2023).

Despite their widespread consumption, consumers still have frequent questions regarding the assessment of egg quality at the time of purchase and consumption, particularly concerning the identification of fresh eggs, the effects of storage on egg characteristics, and appropriate storage conditions throughout the production chain and in the household environment (ALMEIDA et al., 2022). Lack of knowledge about these aspects may contribute both to inappropriate consumption and to unnecessary disposal of products that remain suitable for use (BARBOSA et al., 2025).

Egg quality assessment involves multiple parameters, including external characteristics such as egg weight and shell integrity and internal characteristics such as yolk index and Haugh unit. These parameters may be influenced by factors such as housing system, hen age, diet, storage conditions, and time elapsed after laying (MORALECO et al., 2019). Demonstrating simple assessment methods may therefore represent an interesting educational strategy, particularly in extension activities aimed at non-specialized audiences.

In this context, university extension plays a strategic role in bringing scientific knowledge closer to society by promoting educational activities aimed at developing more informed, critical, and conscious consumers. The exchange of knowledge between universities and communities enables the practical application of academic concepts and contributes to the development of solutions aligned with social demands, reinforcing the social commitment of public higher education institutions (SANTANA et al., 2025).

Large-scale extension events, such as Rural Week, represent important spaces for science communication, integration of teaching, research, and extension, and dissemination of knowledge applied to agricultural sciences and food production. Rural Week is one of the main extension events in the Baixada Fluminense region and, in 2025, reached its third edition. Organized by the Federal Rural University of Rio de Janeiro (UFRRJ) in the municipality of Seropédica, Rio de Janeiro State, the event brings together different audiences, including students, producers, professionals, and consumers, through practical, educational, and demonstrative activities covering different areas of knowledge.

Therefore, this study aimed to report and analyze an extension activity developed during Rural Week 2025 at the Federal Rural University of Rio de Janeiro (UFRRJ), focusing on the practical demonstration of methods for assessing table egg quality among different audiences.

MATERIALS AND METHODS

Location of the activity

The extension activity was conducted as part of the Rural Week 2025 – Diverse Actions event, characterized as an extension event within the Technology and Production thematic area. The activity took place on June 11 and 12, 2025, with a total workload of 12 hours, at the Federal Rural University of Rio de Janeiro (UFRRJ).

The activities were conducted in the UFRRJ Mini Farm area, a space traditionally used for practical, educational, and demonstrative activities during Rural Week, providing suitable conditions for demonstrations related to animal production and the quality of animal-derived foods.

Target audience

The target audience included undergraduate and graduate students, rural producers, event visitors, and community members interested in topics related to animal production, food safety, and the quality of animal-derived products. The initially estimated audience was 200 people.

Extension activity

The team responsible for the activity consisted of UFRRJ faculty members and students, who coordinated the activity, prepared educational materials, and conducted the practical demonstrations. The methodology was based on practical and interactive demonstrations related to table egg quality assessment, using eggs with different storage conditions and quality characteristics to facilitate participants' understanding and promote learning through direct observation.

During the activity, different methods and characteristics used to assess the external and internal quality of eggs were demonstrated and explained in an accessible manner, including:

1. Visual assessment of the eggshell, considering cleanliness, integrity, presence of cracks, and uniformity. The importance of these characteristics for protecting the internal contents and maintaining product quality was discussed.
2. Floatation test, presented as a simple method for estimating egg freshness. The relationship between egg behavior in water, air cell size, and storage time was explained. The use of saline solutions with different densities to estimate egg specific gravity was also presented, according to Hamilton (1982).
3. Breaking the egg onto a flat surface, used as a visual demonstration of albumen and yolk characteristics. Aspects such as albumen consistency and spreading, as well as yolk shape, centralization, and vitelline membrane integrity, were discussed.
4. Yolk index and Haugh unit, presented conceptually as indicators used to assess internal egg quality. Their importance and the procedures used for their determination in laboratory evaluations were explained. The Haugh unit is calculated based on albumen height and egg weight, whereas the yolk index is determined from the ratio between yolk height and diameter (HAUGH, 1937; STADELMAN; COTTERILL, 1995).
5. Yolk color assessment, using the Roche® color fan as a reference, with an intensity scale ranging from light yellow to dark orange. The relationship between yolk pigmentation and carotenoid intake through the birds' diet was discussed, as well as the lack of a direct relationship between greater yolk color intensity and higher nutritional value.

In parallel with the practical demonstrations, interactive discussions were held with the public to address frequent questions concerning differences between fresh and stored eggs,

types of commercially available eggs, production systems, labeling, household storage, and criteria for product selection at the time of purchase. Illustrative materials and accessible language were used to facilitate understanding of the topics presented.

RESULTS AND DISCUSSION

The extension activity reached approximately 300 participants, exceeding the initially estimated audience of 200 people. The participation observed during the activities demonstrated considerable public interest in topics related to table egg quality and enabled direct interaction between participants and the team responsible for the activity. The general characteristics of the extension activity are presented in Table 1.

Table 1. Characterization of the extension activity conducted during Rural Week 2025 at UFRRJ.

Item	**Description**
Type of activity	Extension event
Activity name	Rural Week 2025 – Practical assessment of table egg quality
Institution	Federal Rural University of Rio de Janeiro (UFRRJ)
Thematic area	Technology and Production
Location	UFRRJ Mini Farm
Date	June 11–12, 2025
Workload	12 hours
Estimated audience	200 people
Audience reached	300 people
Target audience	Students, rural producers, and community members
Methodology	Practical demonstrations and explanations related to egg quality assessment
Main topics addressed	Egg quality, freshness, storage, and product selection

The practical demonstrations of external and internal egg quality assessment represented an important educational strategy, enabling participants to understand, in a simple and applied manner, concepts that are often restricted to academic or laboratory environments. Direct observation of the eggshell, egg behavior during the floatation demonstration, and albumen and yolk characteristics after breaking the eggs generated considerable interest and encouraged active participation through questions, comments, and reports of personal experiences.

Visual assessment of the eggshell enabled discussions of aspects such as integrity, cleanliness, and the presence of cracks, highlighting their importance for maintaining egg

quality. The literature emphasizes the importance of eggshell integrity for preserving internal quality and reducing the possibility of contamination (DE OLIVEIRA MARCIANO et al., 2025). Associating these concepts with practical examples facilitated their understanding by the public.

The floatation test was one of the procedures that generated considerable interest during the activity. Explaining the relationship between increases in air cell size, loss of water and carbon dioxide, and storage time allowed participants to understand some of the changes that occur in eggs after laying. Demonstrating a simple procedure that can be readily understood by non-specialized audiences helped connect scientific knowledge with everyday situations.

Breaking eggs onto a flat surface allowed participants to visually observe differences in albumen and yolk characteristics. During this stage, classical internal quality parameters, such as yolk index and Haugh unit, were explained. Participants were informed that fresher eggs tend to have more viscous albumen and a higher, more centrally positioned yolk, whereas storage causes changes that increase albumen spreading and reduce internal structural firmness (EISEN et al., 1962; ALLEONI; ANTUNES, 2001).

Questions concerning the identification of fresh eggs, differences between fresh and stored eggs, the meaning of yolk color, and differences between conventional, free-range, and alternative production systems were also frequently raised during the activity. The discussion of yolk color helped clarify that its intensity is primarily related to the presence and concentration of carotenoid pigments in the birds' diet and does not, by itself, indicate greater nutritional value of the egg (VALENTIM et al., 2025).

Another topic addressed was the appropriate storage of eggs, both at retail locations and in households. Guidance on hygiene, conservation, and storage conditions was presented in an accessible manner, emphasizing the importance of good practices for maintaining product quality and safety. According to Moraleco et al. (2019), storage conditions may influence different egg quality characteristics over time.

The interaction observed during the activity highlights the importance of university extension as a means of bringing universities and society closer together. Presenting scientific information through practical demonstrations made it possible to discuss everyday situations and encouraged active participation among visitors.

The participation of students also represented an important educational component of the activity, as their involvement in preparing and conducting the demonstrations provided opportunities to develop skills related to scientific communication, interaction with different audiences, and practical application of knowledge acquired during their academic training.

Although the activity did not involve systematic quantitative data collection regarding participants' perceptions or knowledge, the high level of participation and interaction observed during the demonstrations indicates the relevance of practical and dialogical strategies in science communication and university extension activities. Future activities may incorporate assessment instruments, such as questionnaires administered before and after the activities, to objectively measure their impact on participants' knowledge.

Overall, the experience demonstrated that practical and interactive activities related to the quality of animal-derived foods represent relevant strategies for science communication and for bringing academic knowledge closer to people's everyday lives, contributing to the strengthening of the teaching, research, and extension triad.

CONCLUSIONS

The practical demonstration of methods related to table egg quality assessment conducted during Rural Week 2025 represented a relevant strategy for science communication and food education. The activity enabled technical knowledge to be presented in an accessible

and interactive manner, helping clarify questions related to freshness, storage, and egg characteristics.

The participation of approximately 300 people demonstrates the potential of large-scale extension events to bring universities closer to society and expand the dissemination of scientific knowledge applied to everyday life.

The experience reinforces the importance of Rural Week as a space for integration between universities and society and highlights the role of university extension in students' academic training and in disseminating information related to food production and quality.

The continuation and expansion of similar activities in future editions of the event are recommended. Whenever possible, systematic instruments for evaluating participants' perceptions and knowledge should also be incorporated to enable objective measurement of the impact of extension activities.

ACKNOWLEDGMENTS

The authors thank the Federal Rural University of Rio de Janeiro, the faculty members, students, and participants involved in the extension activity, as well as the institutional bodies responsible for supporting and validating the activity.

REFERENCES

ALLEONI, A. C. C.; ANTUNES, A. J. Unidade Haugh como medida da qualidade de ovos de galinha armazenados sob refrigeração. **Scientia Agricola**, v. 58, n. 4, p. 681–685, 2001. DOI: 10.1590/S0103-90162001000400005.

ALMEIDA, A. A.; VALENTIM, J. K.; ZANELLA, J.; MENDES, J. P. Caracterização dos consumidores de ovos no município de Dourados-MS. **RealizAção**, v. 9, n. 17, p. 21–29, 2022. DOI: 10.30612/realizacao.v9i17.16043.

BARBOSA, L. F. C.; DO CARMO, F. F. Avaliação da qualidade física dos ovos comercializados no Gama-DF. **Revista Científica de Medicina Veterinária do UNICEPLAC**, v. 8, n. 1, p. 59–78, 2025. DOI: 10.59370/revet.v8i1.277.

EISEN, E. J.; BOHREN, B. B.; MCKEAN, H. E. The Haugh unit as a measure of egg albumen quality. **Poultry Science**, v. 41, n. 5, p. 1461–1468, 1962. DOI: 10.3382/ps.0411461.

FORPROEX. Fórum de Pró-Reitores de Extensão das Universidades Públicas Brasileiras. **Política Nacional de Extensão Universitária**. Manaus, AM: Fórum de Pró-Reitores de Extensão das Universidades Públicas Brasileiras, 2012.

GAO, Z.; ZHENG, J.; XU, G. Research progress and technological application prospects of comprehensive evaluation methods for egg freshness. **Foods**, v. 14, n. 9, p. 1507, 2025. DOI: 10.3390/foods14091507.

HAMILTON, R. M. G. Methods and factors that affect the measurement of egg shell quality. **Poultry Science**, v. 61, n. 10, p. 2022–2039, 1982. DOI: 10.3382/ps.0612022.

HAUGH, R. R. The Haugh unit for measuring egg quality. **United States Egg and Poultry Magazine**, v. 43, p. 552–555, 1937.

LIAO, W.; CAI, H.; LIAN, H.; HUANG, Z.; SUN, Y.; NI, H. Quality evaluation of table eggs under different rearing systems in China. **Food Science and Technology**, v. 43, p. e110322, 2023. DOI: 10.1590/fst.110322.

MORALECO, D. D.; VALENTIM, J. K.; SILVA, L. G.; LIMA, H. J. D. A.; BITENCOURT, T. M.; DALLAGO, G. M. Egg quality of laying hens fed diets with plant extracts. **Acta Scientiarum. Animal Sciences**, v. 41, n. 1, p. e43801, 2019. DOI: 10.4025/actascianimsci.v41i1.43801.

OLIVEIRA MARCIANO, C.; SOUZA EZIDIO, P. A.; AMORIM OLIVEIRA, A.; BARBOSA, M. A. P.; FURUYA, L. B.; SANTOS, U. S.; STANQUEVIS, C. E.; MARCATO, S. M. Ovos: produção, qualidade e estratégias de conservação. **Brazilian Journal of Animal and Environmental Research**, v. 8, n. 2, p. e80421, 2025. DOI: 10.34188/bjaerv8n2-068.

SANTANA, L. S. B.; OSÓRIO, N. B.; SANTANA, W. V.; SILVA SANTOS, V. H.; MACHADO, L. C.; SOUSA SÁ, F. A.; et al. Extensão universitária como ponte entre saberes acadêmicos e transformação social. **ARACÊ**, v. 7, n. 6, p. 35082–35097, 2025. DOI: 10.56238/arev7n6-346.

SILVA NETO, P. A.; COSTA, B. L.; OLIVEIRA, M. C.; CHAVES, M. J. L.; MENDES, L. G.; MONTE, A. L. S. Parameters for the evaluation of egg quality: a systematic review. *Nutrivisa* – **Revista de Nutrição e Vigilância em Saúde**, v. 11, n. 1, p. e12781, 2024. DOI: 10.59171/nutrivisa-2024v11e12781.

STADELMAN, W. J.; COTTERILL, O. J. **Egg Science and Technology**. 4. ed. New York: Food Products Press, 1995. 590 p.

VALENTIM, J. K.; ALMEIDA, A. A.; SERPA, F. C.; CASTRO BURBARELLI, M. F.; FELIX, G. A.; GOMES, K. M.; OUROS, C. C. D.; CALDARA, F. R.; MARTELLI, S. M.; KOMIYAMA, C. M.; et al. Improvement in the coloration and quality of Japanese quail eggs through supplementation with natural pigments. **Poultry,** v. 4, n. 2, p. 25, 2025. DOI: 10.3390/poultry4020025.