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Consumer Validation of Innovation Concepts for Mexican Creole Pig Products: Perceptions, Acceptance Drivers and Early-Market Feasibility

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ABSTRACT

This article studies how consumers perceive and evaluate early-stage innovation concepts related to Mexican Creole pig products (native breeds). Unlike prior research focused on the generation of ideas through structured creativity methods, the present study is centered on consumer validation. Empirical evidence was gathered through twelve focus groups (n = 71) conducted between August and November 2025 by the research team and trained student teams from both private and public institutions. Participants assessed a wide range of conceptual proposals—including gourmet products, sustainable packaging, premium branding, educational experiences, and cultural events—originally developed in an earlier ideation phase. Findings demonstrate that consumer acceptance depends primarily on perceived hygiene, traceability, packaging quality, and expected flavor attributes. Cultural storytelling and heritage value also increase interest but operate as secondary decision drivers. Cognitive barriers such as unfamiliarity with native breeds, fat-related stigma, and food neophobia were also identified. These insights clarify the conditions under which Creole pig innovations may achieve early-market feasibility in urban segments. By focusing exclusively on consumer attitudes toward conceptual prototypes, this article bridges the gap between creativity-based ideation and applied market sensing, providing actionable guidance for subsequent feasibility studies involving producers and value-chain actors.

Keywords: innovation concepts, consumer validation, native pig breeds, acceptance drivers, early-market feasibility

Validación del consumidor de conceptos de innovación para productos de cerdo criollo mexicano: percepciones, factores de aceptación y viabilidad en etapas tempranas de mercado

RESUMEN

Este artículo analiza cómo los consumidores perciben y evalúan conceptos de innovación en etapas tempranas relacionados con productos de cerdo criollo mexicano (razas nativas). A diferencia de investigaciones previas centradas en la generación de ideas mediante métodos estructurados de creatividad, el presente estudio se enfoca en la validación por parte del consumidor. La evidencia empírica se obtuvo a través de doce grupos focales (n = 71), realizados entre agosto y noviembre de 2025 por el equipo de investigación y equipos de estudiantes capacitados de instituciones públicas y privadas. Los participantes evaluaron una amplia gama de propuestas conceptuales —incluidos productos gourmet, empaques sostenibles, marcas premium, experiencias educativas y eventos culturales— desarrolladas originalmente en una fase previa de ideación. Los resultados muestran que la aceptación del consumidor depende principalmente de la percepción de higiene, la trazabilidad, la calidad del empaque y los atributos esperados de sabor. La narrativa cultural y el valor patrimonial incrementan el interés, pero operan como factores secundarios en la toma de decisiones. Asimismo, se identificaron barreras cognitivas como el desconocimiento de las razas nativas, el estigma asociado a la grasa y la neofobia alimentaria. Estos hallazgos aclaran las condiciones bajo las cuales las innovaciones basadas en cerdo criollo pueden alcanzar viabilidad en etapas tempranas del mercado en segmentos urbanos. Al centrarse exclusivamente en las actitudes del consumidor frente a prototipos conceptuales, este artículo cierra la brecha entre la ideación basada en la creatividad y la exploración aplicada del mercado, proporcionando orientaciones prácticas para estudios posteriores de factibilidad que involucren a productores y actores de la cadena de valor.

Palabras clave: conceptos de innovación, validación del consumidor, razas porcinas nativas, factores de aceptación, viabilidad temprana de mercado

INTRODUCTION

Native livestock breeds play a crucial role in maintaining agrobiodiversity, preserving cultural heritage, and strengthening the long-term resilience of food systems, regardless of location. Yet, a substantial proportion of the world's livestock breeds are currently at risk of extinction, largely due to the replacement of locally adapted populations by a narrow range of high-output commercial lines (FAO, 2015). Animal genetic diversity is recognized as a strategic resource for food security, rural development, and adaptation to climate change, because it allows producers to respond to emerging diseases, changing market demands, and environmental stressors (Boettcher et al., 2015). Therefore, Mexican Creole pig breeds represent a valuable yet underutilized component of the national livestock heritage.

International experience with native pig breeds and traditional meat products suggests that these animals can produce high value products and support rural economies, territorial identity, and product differentiation. Studies in Europe have demonstrated that traditional food products are closely linked to their origin, production practices, and gastronomic heritage, but that they often require targeted innovation in safety, health, and convenience in order to remain competitive in contemporary markets (Guerrero et al., 2009). For heritage-based foods, commercial viability depends on a delicate balance between preserving authenticity and incorporating aspects of modern food culture, such as standardized quality, clear information, and accessible formats.

Consumer research on food innovation shows that acceptance of novel products and technologies is affected by perceived benefits, risks, and naturalness (Siegrist, 2008). That is, new products are more likely to be successful when consumers clearly understand what they gain, feel confident that risks are controlled, and perceive the product as sufficiently "natural" or consistent with their dietary values. This information is particularly relevant for innovations based on native pig breeds, which may differ from conventional pork in terms of appearance, fat content, and sensory profile, and may be largely unknown to the general public. Lack of familiarity, fat related stigma, and ambiguous signals about origin or safety can all become barriers to trial and adoption, even when the underlying product has strong cultural and environmental attributes.

The present study forms part of a broader research program that explores innovation pathways for the valorization of Mexican Creole pigs. In an earlier phase, structured creativity methods were used to generate a wide range of conceptual proposals, including gourmet products, modern packaging and branding systems, cultural and gastronomic events, educational experiences, and well-being–oriented ideas. That ideation phase is not analyzed in this article. Here, it serves only as the source of the conceptual stimuli presented to consumers. The empirical contribution of the current study is restricted entirely to consumer reactions and evaluations, thereby maintaining a clear analytical distinction between creativity focused work and market-oriented research.

Early-stage consumer validation is a vital step in assessing the feasibility of any innovation process, even more in heritage-based ones. Before investing in product development or supply chain restructuring, it is necessary to understand how potential buyers interpret these concepts, what they find attractive or problematic, and under which conditions they would be willing to try or purchase. Qualitative methods, focus groups in particular, are well suited to this task because they allow researchers to observe how participants collectively construct meanings, negotiate doubts, and articulate expectations regarding unfamiliar food proposals. Through group discussion, consumers not only express individual preferences but also reveal shared norms and tensions—such as those between tradition and modernity, indulgence and health, or trust and skepticism—that are central to market acceptance of heritage livestock products.

Within this context, the central research question guiding this study is how urban consumers in Mexico perceive and assess early-stage innovation concepts derived from Mexican Creole pigs, particularly in terms of acceptance drivers, perceived barriers and early-market feasibility. To address this question, the article pursues three specific objectives. First, it seeks to identify the main drivers of consumer acceptance for these innovation concepts. Second, it examines the cognitive and emotional barriers that constrain willingness to try or adopt them, with particular attention to issues of hygiene, fat, risk perception and unfamiliarity. Third, it explores their early-market feasibility in urban segments,

considering how consumers reconcile their interest in authenticity and sustainability with their expectations for safety, convenience and contemporary aesthetics.

METHODOLOGY

This study employed a qualitative research design to examine how consumers perceive and evaluate early-stage innovation concepts associated with native Mexican pig breeds. Qualitative approaches are particularly suitable for exploring meanings, emotions, and context-dependent interpretations that underlie complex attitudes toward food, and focus groups have long been recognized as a powerful tool for that purpose (Krueger & Casey, 2015; Morgan, 1997). Because the aim of this article is to understand acceptance dynamics rather than to predict behavior at population level, a qualitative strategy was considered more appropriate than a survey-based or experimental design.

Study design and sampling strategy

Data were collected through twelve focus groups conducted between August and November 2025 (total n = 71). Participants were recruited using purposive sampling, consistent with Patton's (2002) recommendation for studies that seek depth and diversity of viewpoints rather than statistical representativeness.

Operationally, eligibility was defined by four criteria: participants had to (a) be between 18 and 60 years old, (b) live in an urban area, (c) report consuming pork at least once per month, and (d) have no professional involvement in livestock production, meat processing, food safety regulation or gastronomy consulting. Recruitment thus targeted young and adult consumers living in urban environments who reported regular pork consumption, while individuals with expert profiles were excluded to avoid professional bias. Each session was designed to include between five and nine participants; to account for potential no-shows and last-minute cancellations, ten individuals were invited to every group. Across the twelve planned sessions, this resulted in 120 invitations being issued and 71 actual participants taking part in the discussions.

Each focus group consisted of five to nine participants, a size that allows for interaction without sacrificing individual contribution, in line with classic guidance for group-based qualitative research

(Krueger & Casey, 2015; Morgan, 1997). Sessions were moderated by trained student teams from a consolidated public university and a highly recognized private university, both operating within established academic programs. Moderators received prior training in qualitative facilitation, including neutrality, active listening, and the use of probing questions to elicit elaborated responses.

Separation from the ideation phase

The innovation concepts evaluated in the focus groups—such as gourmet products, modern packaging solutions, cultural and gastronomic experiences, educational activities, and well-being–oriented proposals—originated from a previous ideation phase based on structured creativity techniques (e.g., SCAMPER, Brainwriting, Forced Connections). In the present article, these techniques are mentioned only to clarify the origin of the stimuli. They are not analyzed here, and no creativity-output data is reused. All empirical material examined in this study comes exclusively from consumer discussions held during the focus group sessions. This maintains a clear analytical distinction between the ideation phase and the consumer validation phase.

Data collection procedures

Each focus group followed a semi-structured discussion guide, a format that balances comparability across groups with flexibility to capture emergent themes (Kitzinger, 1995). The guide was organized around four thematic blocks:

1. Initial interpretation of concepts – participants' spontaneous reactions to prototypes, descriptions, and visual prompts.
2. Acceptance drivers – perceived hygiene and safety, expected sensory quality, perceived modernity and convenience, price–value considerations, and cultural resonance.
3. Cognitive and emotional barriers – unfamiliarity with native breeds, stigma associated with visible fat, concerns about origin and processing, and food neophobia.
4. Early-market feasibility – willingness to try, conditions for purchase, preferred channels, and trust requirements.

Depending on the type of concept, moderators used images, brief narratives, or scenario-based descriptions to stimulate discussion. Sessions were held in quiet, neutral locations and lasted between 45 and 90 minutes. All focus groups were audio-recorded with the participants' consent.

Ethical considerations

At the start of each session, participants were informed about the study purpose, the voluntary nature of participation, and the confidentiality of their contributions. No personally identifying information was collected beyond basic socio-demographic descriptors relevant to the analysis. Given the non-sensitive nature of the topic and the anonymity of responses, the study was considered to involve minimal ethical risk, consistent with standard qualitative inquiry guidelines (Creswell & Poth, 2018).

Data analysis

Audio recordings were transcribed verbatim and analyzed using thematic analysis as outlined by Braun and Clarke (2006). A hybrid inductive–deductive approach was adopted. The deductive component drew on predefined domains—acceptance drivers, barriers, and feasibility—whereas the inductive component allowed new categories to emerge directly from participants' discourse.

Data coding proceeded in three stages. First, open coding identified meaning units related to perceptions, emotions, expectations, and evaluative criteria, following procedures similar to those described in grounded theory work by Strauss and Corbin (1998). Second, axial coding grouped these codes into broader thematic categories such as hygiene expectations, authenticity and tradition, fat-related stigma, naturalness, and identity-based consumption, reflecting dimensions previously highlighted in research on food choice and innovation acceptance (Rozin, 2006; Siegrist, 2008). Third, an integrative synthesis compared patterns across all twelve groups to identify convergences, divergences, and context-specific nuances, drawing on established principles of cross-case analysis (Miles & Huberman, 1994).

To strengthen analytic rigor, two researchers independently coded a subset of transcripts and compared their coding schemes, discussing discrepancies until reaching consensus on category definitions and theme boundaries. This process helped to enhance the credibility and dependability of the findings.

Data saturation with respect to core themes was reached after approximately ten groups, but analysis included all twelve to ensure robustness and to detect potential outlier perspectives.

Methodological limitations

As with all qualitative designs, the findings are not intended to be statistically generalizable. The concepts evaluated were early-stage proposals rather than fully developed products, so consumer perceptions may evolve with increased familiarity or direct sensory experience. Nevertheless, focus groups are widely recognized as an appropriate method for exploring attitudes toward novel foods and contextualizing how consumers interpret risk, benefit, and cultural meaning in early phases of product development (Kitzinger, 1995; Krueger & Casey, 2015).

RESULTS AND DISCUSSION

Overview of consumer focus groups

A total of twelve focus groups were conducted with young and adult consumers living in urban environments. Each group comprised between five and nine participants, allowing for sufficient diversity of viewpoints while maintaining an environment conducive to interaction and in-depth discussion. Across the twelve sessions, a broad portfolio of early-stage innovation concepts related to Mexican Creole pig products was examined, including gourmet food applications, modern packaging and premium branding, cultural and gastronomic events, educational and awareness activities, and well-being–oriented proposals.

Table 1 summarizes the thematic orientation and key characteristics of the focus groups. Rather than testing a single standardized stimulus in all groups, the research design deliberately exposed different segments of participants to distinct concept families. This strategy sought to explore how consumers interpret various possible innovation pathways for native pig breeds, ranging from product-centric innovations (e.g., premium cuts, ready-to-eat preparations) to experience- and narrative-based proposals (e.g., festivals, heritage storytelling, wellness experiences).

Table 1. Overview of consumer focus groups and concept themes

Focus group(s)	Main innovation concept(s)	Concept family
FG1–FG2	Golden Pig; Cuino Gourmet	Premium food products and branding
FG3	Cuino Festival	Cultural and educational festival
FG4	Pig Therapy	Well-being and experiential concept
FG5–FG6	School workshops; Creole Pig Fair	Educational and family-oriented activities
FG7	Protection Center for the Yucatecan Creole Pig	Conservation and educational tourism
FG8–FG11	SCAMPER portfolios (rural tourism, regional brand, campaigns, by-products)	SCAMPER-based innovation portfolios
FG12	Mixed-concept validation session	Integrated comparison of selected concepts

Note. All focus groups were carried out with young and adult urban consumers and followed the same semi-structured discussion guide. Each session was designed for five to nine participants; ten individuals were invited to each group to allow for non-attendance, resulting in a total of 71 participants across the twelve sessions.

Acceptance drivers

Across the twelve focus groups, several consistent acceptance drivers emerged. First, participants repeatedly emphasized hygiene and safety cues as non-negotiable conditions for considering any Creole pig–based innovation. Concepts that communicated clear control of slaughter, inspection, and handling were systematically evaluated more positively than those perceived as vague or rustic. Packaging, labeling, and the perceived professionalism of the brand were often used as proxies for safety and quality.

Second, expected flavor and sensory appeal played a central role. Even without direct tasting, participants frequently linked Creole pig products with richer flavor, juiciness, and a more “authentic” meat profile. When concepts explicitly highlighted these sensory attributes—through descriptive

language, imagery, or associations with traditional recipes—interest and willingness to try noticeably increased.

Third, traceability and origin transparency acted as important trust-building mechanisms. References to local farms, identifiable production regions, and small-scale or family-based systems were positively received, especially when combined with modern presentation. Participants valued the idea of "knowing where the product comes from" and considered it compatible with contemporary expectations for responsible consumption.

Finally, cultural and heritage narratives functioned as secondary but meaningful acceptance drivers. Even when hygiene and safety were the primary filters, stories about regional identity, family traditions, and the recovery of native breeds added symbolic value and emotional resonance to the concepts. These narratives appeared particularly relevant in groups that discussed festivals, gastronomic routes, and educational activities.

Cognitive and emotional barriers

In parallel with these drivers, focus groups revealed several recurrent barriers that limit acceptance. Unfamiliarity with native pig breeds was pervasive: many participants had never heard of Creole pigs or assumed that non-standard animals were "inferior" or less controlled than commercial breeds. This lack of knowledge created initial hesitation, especially when combined with images that deviated from the lean, pale meat typically associated with industrial pork.

A second barrier was fat-related stigma. Visible fat and darker meat color were often associated with "unhealthy" products, regardless of explanations about potential sensory advantages. Even when participants acknowledged that fat can improve flavor, they expressed concern about health, cholesterol, or weight gain, reflecting broader tensions between pleasure and dietary restraint in contemporary food cultures.

Third, elements of food neophobia appeared when concepts were perceived as too unusual, overly rustic, or insufficiently explained. Participants were more reluctant to try products that evoked

uncertainty about taste, texture, or preparation, particularly when they lacked social references (e.g., friends or family who had tried similar products).

These barriers suggest that successful positioning of Creole pig innovations will require not only appealing stories and attractive designs, but also clear, credible information that reduces uncertainty and reframes fat, color, and origin in terms that align with current health and quality discourses.

DISCUSSION

The present study set out to explore how consumers perceive and evaluate early-stage innovation concepts derived from Mexican Creole pig breeds. The findings show that acceptance is driven by a combination of hygiene and safety cues, perceived product quality, traceability and origin transparency, and emotionally resonant cultural narratives. At the same time, acceptance is constrained by low awareness of native breeds, fat-related stigma, and varying degrees of food neophobia. In this section, we discuss these results in light of relevant literature on traditional foods, food innovation, and consumer behavior.

Consumer acceptance and the modernization of heritage products

International work on traditional food products has shown that consumers attach strong importance to origin, local identity, and production practices, but also expect improvements in safety, health, and convenience if these products are to remain competitive in contemporary markets (Guerrero et al., 2009). Our findings are consistent with this dual requirement. Participants responded positively to concepts that framed Creole pig products as high-quality, carefully controlled foods, especially when these were presented through modern packaging, clear labeling, and visible hygiene cues. In this sense, the “premiumization” of Creole pig products, accompanied by professional branding and transparent information, appears to be a plausible pathway for positioning heritage-based innovations in urban markets.

At the same time, the most appealing concepts did not abandon the link with tradition and locality. Narratives emphasizing Mexican identity, regional gastronomy, and the recovery of native breeds added symbolic value and contributed to differentiation from generic industrial pork. This alignment between

cultural heritage and contemporary quality signals mirrors the logic described for European traditional foods, where authenticity and modernization need to be carefully balanced rather than treated as mutually exclusive.

Perceived risk, naturalness, and fat-related stigma

Research on public acceptance of innovative food technologies has highlighted perceived benefits, perceived risks, and perceived naturalness as key determinants of acceptance (Siegrist, 2008). The present results suggest that similar mechanisms operate for innovations based on native animal breeds. On the benefit side, participants anticipated superior flavor, juiciness, and a more "authentic" eating experience from Creole pig products, particularly when concepts referenced traditional recipes or regional cooking styles. On the risk side, however, uncertainties about hygiene, veterinary control, and supply-chain formalization emerged as salient concerns, especially when products were perceived as "too rustic" or disconnected from recognized quality systems.

Perceived naturalness played an ambivalent role. Ideas involving more natural feeding, small-scale production, or connection to rural environments were valued, but only when they did not conflict with expectations for cleanliness and safety. This reflects a broader tension in contemporary food cultures, where consumers seek both naturalness and assurance, often using packaging and branding as proxies for the latter.

The strong negative reactions to visible fat and darker meat color illustrate how biological, cultural, and psychological influences converge in food choice, as described by Rozin (2006). While fat is central to the sensory appeal of many traditional meat products, health-conscious discourses have encouraged its stigmatization. Focus group participants frequently associated visible fat with unhealthiness, even when acknowledging its contribution to flavor. This suggests that successful Creole pig innovations may require strategies that communicate both sensory benefits and credible health or portion-control messages, rather than relying solely on heritage framing.

Awareness gaps and the need for education

A recurring finding across groups was the very low awareness of native pig breeds. Most participants had never heard of Mexican Creole pigs and did not spontaneously associate pork diversity with biodiversity or cultural heritage. This situation echoes the broader problem identified by global assessments of animal genetic resources: native livestock populations are often undervalued and underused, despite their potential contributions to resilience and food security (FAO, 2015).

Our results indicate that consumer education and storytelling are not optional add-ons but structural components of any market strategy for Creole pig products. Concepts that integrated informative elements—such as explanations of breed origin, production practices, and conservation value—tended to generate more interest and trust, especially when combined with tangible quality cues (e.g., certifications, logos, scannable codes). Educational and experiential formats, such as festivals, heritage events, or protection centers, were perceived as credible entry points for raising awareness while offering enjoyable social experiences.

Early-market feasibility and strategic implications

From an early-market perspective, the findings suggest differentiated feasibility across concept families. Gourmet products with professional packaging and clear origin information appear to have relatively high potential in urban segments, provided that price premiums are justified by perceived quality and that distribution channels (e.g., selected supermarkets, specialty stores, direct sales) reinforce the image of safety and exclusivity. Concepts centered on cultural events, festivals, and educational activities also show promise, particularly as platforms for introducing Creole pig narratives in a low-risk, experiential context.

More radical proposals, such as non-food uses or highly unconventional formats, generated curiosity but also greater uncertainty and ambivalence. For these ideas, feasibility may depend on careful piloting, strong emphasis on animal welfare and professional management, and close alignment with existing consumer frames for wellness and nature-based experiences.

Overall, the results support the view that heritage livestock innovations must simultaneously address sensory expectations, health concerns, and identity-related meanings. Rather than assuming that cultural or environmental arguments alone will drive acceptance, the evidence points to the need for integrated strategies that combine modern quality signals with distinctive heritage narratives. This has direct implications for producers, marketers, and policy-makers interested in building viable markets for native pig breeds in Mexico and similar contexts.

CONCLUSION

This study analyzed how consumers perceive and evaluate early-stage innovation concepts related to Mexican Creole pig products. Using twelve focus groups with young and adult urban consumers, it identified key drivers and barriers shaping acceptance of gourmet products, branded packaging, cultural experiences, educational activities, and well-being–oriented proposals derived from a previous ideation phase.

The findings show that consumer acceptance is grounded in four main drivers: perceived hygiene and safety, expected sensory quality, traceability and origin transparency, and culturally resonant narratives. When concepts clearly communicated controlled production, professional presentation, and distinctive flavor anchored in regional gastronomy, participants expressed genuine interest and willingness to try. Narratives emphasizing Mexican identity and the recovery of native breeds added symbolic value, but were more effective when embedded within concrete quality and safety cues.

At the same time, the study identified important barriers. Low awareness of native pig breeds, fat-related stigma, and various forms of food neophobia constrained enthusiasm, especially when products were perceived as unfamiliar, insufficiently explained, or visually inconsistent with prevailing ideals of "lean" meat. These barriers underline the need for educational and communicative efforts that reframe Creole pig products not as risky deviations from the norm, but as carefully managed, high-quality alternatives with cultural and environmental benefits.

From a practical standpoint, the results suggest that early-market strategies for Mexican Creole pig innovations should prioritize: (1) premium food products with strong safety and quality signaling; (2)

transparent origin and traceability systems; and (3) experiential and educational formats that build familiarity and trust. Rather than treating heritage value as a self-sufficient selling point, stakeholders should integrate it with modern expectations for health, convenience, and professionalism.

The study has several limitations. As a qualitative exploration based on a purposive sample, its findings are not statistically generalizable, and perceptions may evolve as consumers gain direct sensory experience with actual products. In addition, the analysis focused exclusively on consumer validation and did not address production costs, supply constraints, or the perspectives of value-chain actors, which are examined in other phases of the broader research program. Future work should combine consumer insights with economic and logistical analyses to design feasible value chains for Creole pig products and test specific prototypes in real or simulated market environments.

Despite these limitations, the present article provides a critical bridge between creativity-based ideation and value-chain feasibility. By clarifying how consumers interpret, accept, or resist innovations linked to native pig breeds, it offers actionable guidance for researchers, producers, and policy-makers seeking to transform a vulnerable genetic resource into a culturally grounded and economically viable component of contemporary food systems.

From a methodological perspective, future studies could build on this design in several ways. First, combining focus groups with individual in-depth interviews would allow researchers to contrast socially negotiated views with more personal and potentially divergent perspectives. Second, experimental or sensory tests with actual Creole pig products could complement concept-based discussions and provide behavioral evidence on tasting, purchase decisions and price sensitivity. Third, comparative designs including rural consumers and non-urban segments would help to refine the transferability of the present findings and reveal context-specific nuances in acceptance patterns. Finally, mixed-methods designs that integrate qualitative insights with survey-based measures could strengthen the external validity of the results and support more fine-grained segmentation of potential target markets.

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