Experts' Views on the Potential of Luxury Niche Agricultural Products for Rural Economic Development in Mexico and Other Nations with Similar Needs: A Delphi Study

Luis A. Flores, Ph.D.
Universidad Anáhuac Puebla

M. Craig Edwards
Michael A. Schnelle
Craig E. Watters
J. Shane Robinson
Jeff Sallee
Oklahoma State University

Abstract

Economic development is essential for nations to realize growth and prosperity. For rural contexts, producing luxury niche agricultural products, such as cut flowers, may offer unique opportunities. Nevertheless, variables exist that should be considered before starting such ventures. We sought to identify the potential of smallholder farmers in rural Mexico, and other nations with similar economic development needs, to grow high-value crops for luxury markets. Knowledgeable experts served as panelists during the study's three rounds of data collection, including researchers, extension educators, or other relevant professionals from Mexico and the United States. The initial round included three questions regarding 1) plant products, 2) a SWOT analysis framework, and 3) what smallholder farmers needed to achieve competitive advantages. In rounds two and three, the items retained from the preceding round were presented within a SWOT framework to be rated using a six-point, Likert-type agreement scale. The cutoff percentage for consensus of agreement was 75.00%. After three rounds, 113 items reached consensus, including five categories of plant products; nine Strengths, 21 Weaknesses, 15 Opportunities, and 13 Threats; and 50 items regarding producers' competitive advantages. Although our analysis revealed opportunities for smallholder farmers to successfully grow specialty crops for luxury niche markets, producer training and support mechanisms are needed to overcome weaknesses and threats while capitalizing on their strengths.

Keywords: human capital; poverty; rural livelihoods; smallholder farmers; specialty crops; SWOT analysis

Introduction

Economic growth continues to be one of the world's major development objectives and is part of the United Nations' Sustainable Development Goals (Le Blanc, 2015), such as no poverty, zero hunger, good health and well-being, among other aims. Every year, governments of different nations strive to improve their economies in efforts to diminish poverty (Hák et al., 2016); however, these goals are not always achieved. It is likely that more innovative and targeted solutions are needed to address this problem (Meza & Webb, 1990).

Poverty affects millions of people around the world, and more than 70.00% of the impoverished live in their nations' rural areas (Martínez, 2010). Regarding Mexico, more than four million households did not have the necessary income to acquire a basic food basket to meet their needs in 2012; 62.00% of the families that experienced food insufficiency resided in rural areas (CONEVAL, 2013). However, cases of rural development exist that may be appropriate for replication, such as the Mexican State of Sinaloa's rise as a leading tomato producer on the international stage (Barrón & Rello, 2000; Flores & Edwards, 2019), and other examples of training and the provision of production inputs to resource-constrained, smallholder farmers (Buadi et al., 2013; Murshed-E-Jahan & Pemsl, 2011). This may include producers growing for specialty or luxury niche markets.

Luxury products range from long-term retained goods, e.g., jewelry, real estate, and watches, to more short-term products, including service and experience goods, such as alcohol, food, hotel stays, and travel, for which the use or display of particular brands may bring prestige to owners apart from any functional utility (Chandon et al., 2016; Vigneron & Johnson, 2004). Such goods are typically categorized as rare, unique, uncommon, or controlled by sumptuary laws (Hauck & Stanforth, 2007; Lynn, 1991). Agricultural produce fitting these criteria include some *specialty crops* that classify as arboreal, fruit, nursery, ornamental, and vegetable, among other categories (Zhang & Wilhelm, 2011). Several specialty crops have worldwide prestige such as specific varieties of olives and grapes (Fuks et al., 2016; Geman & Kanyinda, 2007). These types of crops comprise a significant and expanding percentage of agribusinesses and may be a way to diversify smallholder farmers' crop portfolios while helping to mitigate financial risks and increase profits (Popp & Rudstrom, 2000; Weisensel & Schoney, 1989). D'Arpizio and Levato (2018) predicted that a positive trend across the world's regions would drive the luxury goods market higher by 6.00% to 8.00% at constant exchange rates and reach 276 to 281 billion euros, or more than $300 billion USD, in 2018. However, little is known about how smallholder farmers facing significant resource constraints might successfully produce for such markets.

Conceptual and Theoretical Frameworks

The objective of economic development, our study's conceptual framework, does not guarantee people achieving happiness, but it may increase the possibility of choices to satisfy their needs by raising per capita income (Hidayah et al., 2012; Koven & Lyons, 2010; Leigh & Blakely, 2010). Development gives individuals greater control over the environment in which they live, and, therefore, allows them to increase their freedom (Singer, 2006). Due to economic development, people can choose between having more goods, more leisure, or both (Meza & Webb, 1990). As such, when introducing economic development in contexts that have been stagnant, special problems may arise, including the need to transform beliefs, habits, and institutions (Acemoglu et al., 2005). Despite these challenges and uncertainties, the promotion of economic development operates in most societies (Le Blanc, 2015). However, in many lesser-developed nations their population's aspirations often exceed the possibilities provided by

production, and differences between economic strata often widen over time (Costa & Bazzanella, 1958; Phillips, 2017). Moreover, the study of a nation's agricultural sector regarding its economic development holds a fundamental place in related literature (Singh & Tabatabai, 1993). In the rise and development of most civilizations, much of the economic activity frequently involved agriculture (Singh & Tabatabai, 1993). Economists, therefore, have recognized the importance of this sector in fomenting economic growth (Johnston & Mellor, 1961; Singh & Tabatabai, 1993).

Human capital, this study's theoretical framework, at its most basic level, measures a worker's quality based on the idea that human potential and the skilling of labor are the drivers of economic growth (Krutova, 2015; Luckstead et al., 2014). The impact of having proper educational and professional training of a nation's workforce to compete in markets that are increasingly demanding, dynamic, global, segmented, and sophisticated seems undeniable (Fernández et al., 1999; Loubet & Morales, 2015; Sánches & Ríos, 2011). And the importance of training and upgrading intensifies during periods of rapid technological change (Griliches, 1997).

Training is considered an investment in human capital (Loubet & Morales, 2015; Luț, 2017). Human capital theory suggests that investments in training stimulate a rise in workers' productivity that leads to an increase in their respective incomes (Loubet & Morales, 2015; Varela & Retamoza, 2012). Human capital theory further states that investing in people should also provide economic benefits to society overall (Sweetland, 1996).

This study was designed to identify the potential of smallholder farmers growing specialty crops to achieve rural economic development in Mexico and other nations with similar needs, as perceived by a panel of experts who participated in a three-round Delphi process during late 2019 and early 2020. The Delphi method is a technique for reaching *consensus of agreement* among *experts* regarding concerns, issues, or topics for which their opinions are valued (Dalkey, 1969).

Purpose and Objectives

The study's purpose was to investigate the potential of smallholder agricultural producers to successfully grow products intended for luxury niche markets, including crops such as high-value, ornamental flowers and specialty produce. To achieve this purpose, we examined the perceptions of experts regarding specialty crops that may be appropriate for smallholder farmers to produce in rural Mexico and other nations with similar economic needs. We sought to understand their views by identifying a *consensus of agreement* among the experts. Two objectives were addressed to accomplish the study's purpose: 1. Determine a *consensus of agreement* among a panel of experts regarding the potential of smallholder farmers to produce high-value, specialty crops. 2. Apply a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis framework to portray and interpret the panelists' views.

Methods

Our study's research design was essentially descriptive-exploratory; as such, a survey research design was applied by selecting the Delphi method in conjunction with SWOT analysis as data gathering, analysis, and interpretation tools (Hossain & Hossain, 2015; Rehmat et al., 2014; Schmelzenbart et al., 2018). In exploratory studies, investigators attempt to understand the causes of a phenomenon in the absence of settled conclusions (David & Sutton, 2011). Another benefit that exploratory research can offer is its adaptability and flexibility (Edmondson & McManus, 2007; Kimmelman et al., 2014; Reiter, 2017). As with the exploratory design,

descriptive research methodology also can be appropriate when testing hypotheses and theories (Lambert & Lambert, 2012; Salaria, 2012). Acceptable approaches for conducting exploratory research may involve consulting *experts* regarding an issue or topic (Edmondson & McManus, 2007; Rao & Perry, 2003). The Delphi method solicits and interprets the opinions of experts (Hsu & Sandford, 2007; Loo, 2002; Mcilfatrick & Keeney, 2003; Uhl, 1983).

   Among survey-based studies, the Delphi method is an approach employed in numerous disciplines to attain *a consensus of agreement among experts,* i.e., panelists, about concerns, issues, and topics for which their opinions are appropriate and valuable (Stitt-Gohdes & Crews, 2004; Thangaratinam & Redman, 2005). Dalkey (1969) described the Delphi method as a systematic approach for a decision-making group to use to reach consensus by responding to specific questions over numerous rounds interposed with the group members' ongoing feedback. We used it to identify, analyze, and interpret the perceptions of our panelists (see Figure 1).

Figure 1
Delphi Technique Procedural Flow Chart
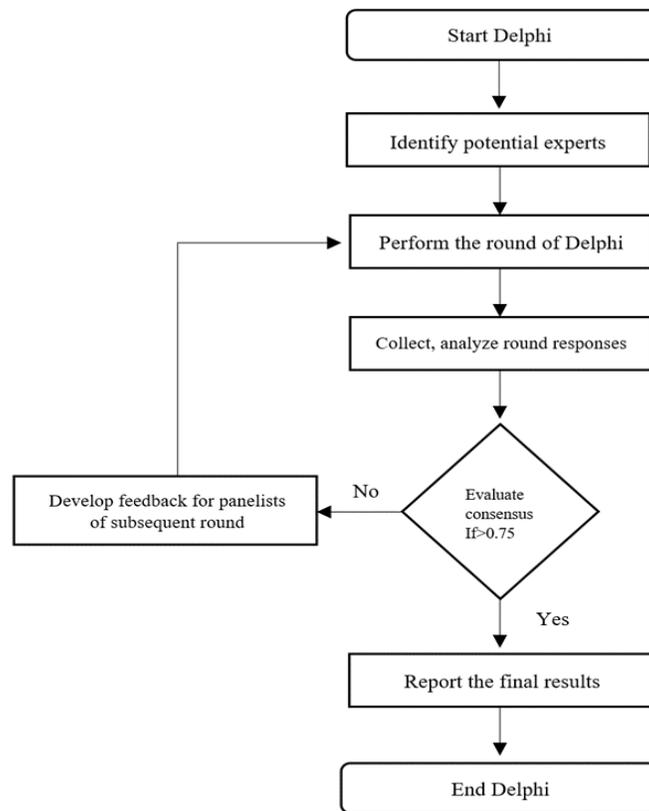
Note. Adapted from "Identification of Coordination Factors affecting Building Projects Performance," by W. S. Alaloul, M. S. Liew, and N. A. W. A. Zawawi, 2016, *Alexandria Engineering Journal, 55*(3), p. 2693 (https://doi.org/10.1016/j.aej.2016.06.010). Copyright 2016 by the Faculty of Engineering, Alexandria University.

   The Delphi method aims to distill the benefits of group members' knowledge and expertise without the possible disadvantage of group dynamics distorting the results, i.e., dominant personalities prevailing or individuals' desires to conform to majority opinion (Kauko

& Palmroos, 2014; Martin & Frick, 1998). This research technique allows investigators to communicate needs, trends, or factors related to a specific topic (Stitt-Gohdes & Crews, 2004).

Beginning in the early 1950s, SWOT analysis has been a strategic planning tool used by practitioners and researchers (Panagiotou, 2003). This technique parcels contextual factors comprising a phenomenon as inherent *strengths* and *weaknesses* versus external *opportunities* and *threats* (Duarte et al., 2006; Valentin, 2001). The Delphi method is an appropriate procedure for conducting a SWOT analysis, including the study of quality and innovation (Campos-Climent et al., 2012; López, 2004). SWOT analysis is an approach that can lead to coherent recommendations for decision-making to address issues or resolve problems by determining internal factors, e.g., available resources, motives, or existing skills, and external factors, such as economic and social environments, government policies, and market trends (Li et al., 2016). Our study combined the Delphi approach for consensus-building with a SWOT analysis framework.

Panel of Experts

To determine the reliability and validity of a Delphi study's findings, the number and appropriateness of panelists are important considerations. Dalkey et al. (1972) asserted that Delphi studies are reliable by having a panel with at least 13 members who are truly representative of the expert community. Careful selection of a panel of experts is the keystone to a successful Delphi study (Stitt-Gohdes & Crews 2004). Key informants (Rogers, 2003), i.e., directors of societies and foundations and other relevant professionals knowledgeable of the study's phenomenon, were contacted to develop a preliminary respondent frame. These key informants knew of possible panelists willing to be contacted and who may have been inclined to participate in the study. The individuals nominated were researchers, extension educators, or other professionals who investigated and/or provided extension services to producers or potential producers regarding high-value crops and had experience with at least one specialty crop.

Panelists' Personal and Professional Characteristics

Of the 18 panelists who completed the study's Round One instrument, 11 (61.11%) were female, six (33.33%) were male, and one (5.55%) responded *other* for their gender. The panelists' ages ranged from 28 to 68; the mean age was 51.88 years. Regarding ethnicity or race, 15 (83.33%) identified themselves as Latino; two (11.11%) as Caucasian, and one (5.55%) preferred to not indicate their race or ethnicity. One (5.55%) participant reported a bachelor's degree as the highest educational degree earned, five (27.77%) indicated a master's degree, and 12 (66.66%) held doctorates. The panelists' years of related work experience ranged from five to 49 years and averaged 20.44 years. Nine (50.00%) indicated that they were full-time professors/ researchers; four (22.22%) responded as holding positions of directors, managers, or specialists in enterprises or foundations; three (16.66%) were consultants, and two (11.11%) were full-time extension educators. Five (27.77%) panelists specialized in agronomy; two (11.11%) in agricultural education and communications; two (11.11%) in food sciences; two (11.11%) in horticulture; two (11.11%) in strategy and/or economic development; one (5.55%) in ecology; one (5.55%) in public administration; one (5.55%) in vegetable physiology; one (5.55%) in biology; and one panelist (5.55%) did not respond to the question.

Instrumentation and Data Collection

For the first or initial round of the study, we developed an open-ended instrument consisting of three questions. The study's questionnaire was reviewed by faculty members of the

Department of Agricultural Education, Communications, and Leadership; the Department of Horticulture and Landscape Architecture; and the Department of Entrepreneurship at Oklahoma State University to ensure content and face validity. The three questions were: 1. Which luxury high-value agricultural plant products may reflect an *unsatisfied consumer demand* and have the potential for delivering profits to smallholder farmers in low- and middle-income countries? 2. What is the *potential for smallholder agricultural producers in rural areas* to grow products intended for luxury niche markets, including crops such as high-value, ornamental flowers, foliage, spices, and specialty produce? Please include any strengths, weaknesses, opportunities, and threats to producing for luxury markets that should be considered by aspiring producers, especially smallholder farmers, such as resource input needs, technical needs including education and training, innovation concerns, and so forth. 3. What is *needed for smallholder farmers in rural areas to achieve competitive advantages*, if producing luxury agricultural products for niche markets, as defined in this study?

 The panelists' responses to the first round's questions were used to develop the study's Round Two instrument. We grouped the suggested crops into 10 categories based on the first round results in consultation with a horticulturalist. The panelists answered the second question using a SWOT analysis framework and responded to question three in an open-ended way. Data collected during Round One were used to develop the study's Round Two instrument.

 Round Two consisted of the panelists rating the statements derived from Round One using a six-point, Likert-type scale: *1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Agree,* or *6 = Strongly Agree*. The statements for which more than 75.00% of the panelists indicated either *Agree* or *Strongly Agree* were determined to have reached *consensus of agreement*. In Round Three of the study, panelists were asked to rate the statements from Round Two that failed to reach *consensus of agreement* but achieved a level of 50.00% or higher. The other items were removed from further study. Round Three employed a dichotomous scale: *Disagree* or *Agree* (Lamm et al., 2020). The statements for which more than 75.00% of the panelists indicated *Agree* were also determined to have reached *consensus*.

 Three rounds are often sufficient to collect the necessary data, and, in most cases, to reach *consensus of agreement* in a Delphi study (Custer et al., 1999; Ludwig, 1997). Further, Dalkey et al. (1972) indicated that a group of 13 Delphi panelists was required to achieve reliability with a 0.90 correlation coefficient. Kastein et al. (1993) also asserted that 13 participants were an appropriate number to achieve sufficient reliability in a Delphi study. Therefore, participation of 15 panelists throughout the study's three rounds of data collection supported the reliability of our findings. Three panelists only participated in Round One.

 From Round One, 286 statements were provided by the panelists ($n = 18$). We analyzed each item, and similar or duplicate statements were either combined or eliminated, and compound statements were separated (Fereday & Muir-Cochrane, 2006; Shinn et al., 2009). From the 286 original items, 188 were retained for presentation in Round Two.

 In Round Two, the panelists rated their levels of agreement on the items distilled from Round One. Items for which more than three-fourths (>75.00%) of the panelists selected *Agree* or *Strongly Agree* were considered to have reached *consensus of agreement* (Buriak & Shinn, 1989; Carnes et al., 2010; Farrell et al., 2015; Hsu & Sandford, 2007; Pietersma et al., 2014; Shinn et al., 2009), i.e., 91 ($n = 15$; 83.33% response rate). And 72 items for which more than one-half (>50.00%) but less than three-fourths (<75.00%) of the panelists chose *Agree* or *Strongly Agree* were used to develop the study's Round Three instrument (Carnes et al., 2010; Rodriguez-Mañas et al., 2013). The 25 items for which less than one-half (<50.00%) of the

panelists chose *Agree* or *Strongly Agree* were removed from further investigation.

　　　Round Three sought to achieve *consensus of agreement* on the remaining items. The panelists were asked to indicate either *Disagree* or *Agree* (Lamm et al., 2020) during this round. Seventy-two items were returned to the panelists. An additional 22 items reached *consensus of agreement* ($n = 15$; 100.00%). The remaining 50 items failed to reach *consensus of agreement*.

Results

Round One

　　　In responding to question one, the 10 categories of plant products offered by the panelists included arboreal, culinary herbs, edible fruits, endemic species, medicinal, nursery crops, nutraceutical foods, precious woods, vegetables, and other. These categories were populated with 91 examples. The number of statements provided for question two applying a SWOT analysis framework were 28 Strengths, 37 Weaknesses, 30 Opportunities, and 28 Threats. The panelists indicated a total of 55 responses to question three, i.e., producers' competitive advantages.

Round Two

　　　In Round Two, panel members rated their levels of agreement for the 188 statements derived from Round One by using a six-point, Likert-type agreement scale. For 91 items, more than three-fourths (>75.00%) of the panelists ($n = 15$) selected either *Agree* or *Strongly Agree*. We determined that *consensus of agreement* had been reached for those items (Carnes et al., 2010; Shinn et al., 2009). Four categories of plant products reached *consensus of agreement*. Items related to question two reaching *consensus of agreement* included six Strengths, 13 Weaknesses, 12 Opportunities, and seven Threats. And 49 items reached *consensus of agreement* regarding producers' competitive advantages in response to question three.

Round Three

　　　The panelists rated their levels of agreement for the 72 items that failed to reach *consensus* (<75.00%) during Round Two but exceeded 50.00%. During this round, the panelists used a dichotomous response scale: *Disagree* or *Agree* (Lamm et al., 2020). More than three-fourths (>75.00%) of the panelists ($n = 15$) selected *Agree* for 22 of the returned items; therefore, *consensus of agreement* was reached for those items. The additional items reaching *consensus of agreement* included one category of plant product; three Strengths, eight Weaknesses, three Opportunities, and six Threats; and one additional competitive advantage.

　　　The total number of items that reached *consensus of agreement* was 113 after three rounds of data collection (see Table 1). The distribution of those items included five categories of plant products with 61 examples; nine Strengths, 21 Weaknesses, 15 Opportunities, and 13 Threats; and 50 items related to smallholders' competitive advantages.

Table 1

Items that reached Consensus of Agreement after Three Rounds of the Delphi Study (N = 113)

Items	% Agreement
Question 1. Which luxury high-value agricultural plant products may reflect an *unsatisfied consumer demand* and have the potential for delivering profits to smallholder farmers in low- and middle-income countries? (*n* = 5 Categories, including 61 Examples)	
Culinary herbs (e.g., amaranth, *Dialium* [velvet tamarind], mint, oregano, sage, thyme)	93.33
Edible fruits (producers of such, e.g., avocado, blackberry, blueberry, cranberry, *Cucurbita ficifolia* [fig-leaf gourd], currant, kiwi, pepper, pitahaya, *Prunus salicifolia* [cherry], quince, raspberry, strawberry, wild grape)	86.67
Endemic species, including for local cuisine and popular culture (e.g., cinnamon, garlic, ginger, rosemary, saffron, tapirira, turmeric, vanilla)	80.00
Medicinal (e.g., arnica, boldo, calendula, echinacea, mallow, maritime cineraria, melissa, tarragon, valerian, witch hazel)	80.00
Nursery crops, including floral and foliage, tropical and other (e.g., anthurium, aspidistra, aster, bromeliad, Byrsonima [locust berry], chrysanthemum, Eustoma [lisianthus], fern, gardenia, holly, lavender, lemon croton plant, lily of the valley, liriope, maidenhair, myrtle, orchid, peony, perennial, philodendron, ruscus, tulip, Zantedeschia aethiopica [arum lily])	80.00
Question 2. What is the *potential for smallholder agricultural producers in rural areas* to grow products intended for luxury niche markets?	
Strengths (*n* = 9)	
Local knowledge	100.00
Agrobiological diversity of species in their areas	93.33
Availability of native plants	93.33
General agricultural knowledge	86.67
People with value for the land	86.67
Labor that can achieve specialization	86.67
Microclimates	80.00
Land	80.00
Rural society eager for alternatives and proposals to improve their quality of life	80.00
Weaknesses (*n* = 21)	
Altered natural resources	100.00
Poor communication channels	93.33
Loss of resources due to different causes	93.33
Ignorance about products destined for luxury markets	93.33
Lack of assessment	93.33
Distant location	86.67
Lack of unity and community disinterest	86.67
Limited resources	86.67

Lack of research and development	86.67
Reduced or limited postharvest shelf life	86.67
Lack of education	86.67
Lack of advice and training	86.67
Use and transformation of products is unknown	86.67
Lack of investment capital	86.67
Lack of technology	86.67
Abuse/misuse of chemical pesticides	86.67
Lack of organization to make cooperatives	80.00
They leave the land to emigrate to the cities	80.00
Lack of training in reproduction of species with high sales potential	80.00
Poor vision of sustainability	80.00
Lack of transportation	80.00

Opportunities (*n* = 15)

Grow plants for products that are well-priced	93.33
Possibility of sales by cooperatives	86.67
Potential for additional income	86.67
Gourmet markets of international cuisine	86.67
Use the research of Mexican scientists	86.67
Interest and openness of the community	80.00
Need exists for foods with nutritional and functional properties that, in addition to being part of the ingredients of traditional cuisine, have properties that help prevent diseases such as diabetes, high cholesterol, and vascular diseases	80.00
Need to use or take advantage of one or more regional resources	80.00
Some plants can grow in small areas and require minimal care	80.00
Train housewives and youth to integrate them into the workforce	80.00
Market for organic products is growing	80.00
Market for healthy products is growing	80.00
Specialized markets	80.00
Very suitable climates	80.00
Unsatisfied demand*	78.57

Threats (*n* = 13)

Abandonment of farming and producers migrating due to increasing crime, including acts of violence	100.00
Loss of resources due to looting and other criminal acts	93.33
No organizations exists or locals do not know how to effectively organize themselves	93.33
High dependence on government subsidies	93.33
Recurrent climatic effects in the region, including intermittent impact on communication	93.33
Climate change	93.33
Loss of resources due to natural causes	86.67
Deforestation	86.67
Land use that endangers plant diversity	86.67
No clear export legislation exists for many products	86.67

Middlemen	80.00
Highly bureaucratic processes for obtaining licenses	80.00
Increasing price of raw material	80.00

Question 3. What is *needed for smallholder farmers in rural areas to achieve competitive advantages* if producing luxury agricultural products for niche markets, as defined in this study ($n = 50$)

Internal organization and planning process that allows producers to visualize in tangible and economic ways what to produce at different times	100.00
Consider the inputs required and receive related technical advice and training	100.00
Know the full value chain of their product(s)	100.00
Receive financial advice to form agreements benefiting the community	100.00
Receive training on new practices and crops, as well as trading, sales, and after sales activities	100.00
Receive training about cooperatives and creation of value addition networks	100.00
Develop management plans	100.00
Benefit from research and development	100.00
Conduct good practices	100.00
Receive training on environmental, economic, social, and cultural sustainability	100.00
Not be subjected to governmental paternalism	100.00
Practice sustainable entrepreneurship	100.00
Prepare short-, medium-, and long-term production goals	100.00
Receive basic education	93.33
Maintain an attitude of adaptation to changes and innovation	93.33
Receive technical and administrative training	93.33
Conduct good agricultural practices, preharvest, harvest, and postharvest	93.33
Adopt technology for the transformation of tinctures, extracts, essential oils, and capsules	93.33
Integrate the use of productive value chains with minimal reliance on middlemen	93.33
Receive access to credit to finance projects under fair lending conditions	93.33
Receive training about luxury niche markets	93.33
Affiliate with programs that assure them a fair price for their products	93.33
Obtain suppliers that can be trusted to provide quality inputs	93.33
Plan production better to maintain a stable level of product supply	93.33
Adequate infrastructure	93.33
Obtain certificates and keep related records	93.33
Recognition of and respect for cultural diversity, including producers' ancestral origins	93.33
Promotion of human values	93.33
Benefit from collaboration among academic, governmental, and other societal actors	93.33

Develop communion between themselves and consumers	93.33
Conduct a community analysis regarding the viability of a production project	93.33
Provide appropriate care for the environment	93.33
Practice multidisciplinary integration	93.33
Acquire technical advice from extension agents to deal with pests and diseases	93.33
Use inputs that contribute to the reduction of greenhouse gases (GHG)	93.33
Apply technologies that restore natural resources such as soil, water, and local biodiversity	93.33
Preserve traditional, ancestral knowledge for care of the land	93.33
Not illegally extract resources	93.33
Sustainable vision	93.33
Necessary to organize small producers for the production and transformation of seed	86.67
Participate in national and international fairs	86.67
Receive environmental education	86.67
Assess regional environmental conditions	86.67
Be willing to produce outside of their comfort zone	86.67
Know and value their natural resources and how to use such properly	80.00
Access to funds for the development of medium or high technology greenhouses	80.00
Acquire knowledge of current regulations regarding the use of forest resources	80.00
Maintain ownership of intellectual property	80.00
Be less fearful of change	80.00
Practice green agriculture	80.00

Note. *Item rated by 14 of the 15 panelists.

Conclusions

After three rounds of data collection, the panelists reached *consensus of agreement* for 113 items (see Table 1). The distribution of those items included five categories of plant products appropriate to be grown by smallholder farmers. Fifty-eight Strengths, Weaknesses, Opportunities, and Threats emerged deserving consideration if such crops were to be produced. The panelists indicated another 50 items related to smallholder farmers' competitive advantages if producing specialty crops for luxury niche markets. Thirteen of these items received 100.00% agreement and the lowest six items garnered 80.00% agreement (see Table 1). Seventy-five other items did not reach *consensus of agreement* after three rounds of data collection.

The panelists reached *consensus of agreement* for nine Strengths, 21 Weaknesses, 15 Opportunities, and 13 Threats. However, 65 items from the SWOT analysis categories did not reach *consensus*. Our study exposed both existing and needed aspects of human capital development (Krutova, 2015; Zvarych, 2018). If considering the main internal factors agreed to by the panelists, some of the potential producers' *Strengths* were local knowledge, agrobiological diversity of species in their areas, availability of native plants, general agricultural knowledge, and people with value for the land (see Table 1). *Strengths* yielded the smallest number of items.

Weaknesses had the most items reaching *consensus of agreement*, including factors such as altered natural resources, poor communication channels, loss of resources due to different causes, ignorance about products destined for luxury markets, and lack of assessment (see Table 1). All of the *Weaknesses* for which the Delphi panel reached consensus should be carefully considered in strategic planning (Chernov et al., 2016; Párraga et al., 2014) intended to prepare smallholder farmers to grow specialty crops for luxury niche markets. This should guide their development of human capital and receipt of support (Fernández et al.,1999; Krutova, 2015; Luckstead et al., 2014; Swanson, 2006; Zvarych, 2018).

Examples of external factors were *Opportunities* to grow crops that are well-priced, possibility of sales by cooperatives, potential for additional income, gourmet markets of international cuisine, and using the research of Mexican scientists (see Table 1). And *Threats* emerged such as abandonment of farming and producers migrating due to increasing crime, including acts of violence; loss of resources due to looting and other criminal acts; lack of existing organizations, or locals do not know how to effectively organize themselves; and high dependence on government subsidies (see Table 1).

Recommendations for Practice

Panelists acknowledged the importance of relying on and developing further the potential producers' human capital using a SWOT framework. Therefore, future actions associated with implementing our findings should seek to exploit the *Strengths* and *Opportunities* and diminish or eradicate the *Weaknesses* on which the panelists reached *consensus of agreement*. The panelists also identified *Threats* (Lang et al., 1997) that could decrease the likelihood of the producers succeeding. Such challenges ranged from international competition for market share to violent crimes against producers to their lacking organizational capacity. These and other *Threats* should be checked to the extent possible. Recognizing various internal and external factors could be the first step toward capitalizing on the producers' strengths and opportunities while minimizing or even alleviating their weaknesses and threats, as found in this study.

It is uncommon to find locales that share matching characteristics and needs, therefore, tailored strategic plans are often needed. In many cases, a lack of recognition about the importance of agriculture to rural economies and its impact on the global economy hinders the vision of policymakers and the leaders of rural communities in effectively planning for future opportunities (Singh & Tabatabai, 1993; Swanson, 2006). Therefore, we also recommend using our findings as a guide to examine the situation in regions and communities to determine purposeful initiatives for leveraging the strengths and opportunities inherent to those locales. Stakeholders should develop strategic plans (Albrechts et al., 2017; Bryson et al., 2018) presenting a range of economic development possibilities relevant to their regions.

Another recommendation for future practice emphasizes the importance of Extension services, public and private, and the vital position such serves in the diffusion of innovations, including the transfer of new knowledge and practices proposed for smallholder farmers to adopt (Rivera & Sulaiman, 2009; Rogers, 2003). However, before these practices and innovations may be diffused, change agents, including advisory service and extension professionals, must be convinced of the importance and necessity of such (Tiraieyari et al., 2013). Rural economic development can be more effective when providers understand the current context and needs of communities, including the necessity to invest in human capital (Krutova, 2015; Luckstead et al., 2014; Luţ, 2017). Moreover, achieving economies of scale is nearly impossible if actors are only working individually (Altman, 2015). Therefore, practitioners of rural economic development

should form and organize local groups or cooperatives of potential producers to jointly decide on strategies and guidelines consistent with strategic objectives that can be adopted, implemented, and monitored over time. Cooperatives could also contribute to improving methods of administration, management systems, and training processes, among meeting other needs supporting the creation of human capital and increasing productivity (Ito et al., 2012; Mojo et al., 2017). According to Swanson (2006), organizing farmers is an essential and initial step toward long-term economic development in rural contexts.

Recommendations for Research

Rural actors, including smallholder farmers who contribute to economic development, should be studied to better understand their structures, practices, and outputs, especially regarding economic, environmental, and social impacts. Research also should be conducted to determine farmers' perceived production interests and related needs, and the capacities of their communities. Such an approach may lead to adapting participatory research agendas and developing plans that include training programs and management frameworks more likely to help these communities capitalize on their competitive advantages (Swanson, 2006).

Another priority for research is the improvement of data collection to support future strategic planning and decision-making. Reliable data from specialty crop communities and other relevant stakeholders are needed to comprehend production budgets, sales and related forecasts, and volume of purchases, among other economic indicators. In addition, by examining the relationships between and among growers, agribusinesses, and other actors, researchers could better illustrate their behaviors, needs, interactions, and synergies, which may assist in improving rural economies (Flores et al., 2018). The need also exists to explore larger geographic scales and contexts. Although individual regions may have their own interests in promoting local specialty crops for luxury niche markets, larger, multi-region studies could expand our understanding of the phenomenon (Evans et al., 2012; Freedman et al., 2013), including the interplay of more complex dynamics and likelihood of multiplier effects.

Implications and Discussion

The Delphi method used in tandem with SWOT analysis was valuable in this study because the approach revealed significant issues – both positive and negative – likely to be encountered by smallholder farmers and their rural communities in Mexico and perhaps in other contexts with similar economic development needs. Further, the need for human capital accumulation, as presented in our findings, is considered a significant factor in economic development (Becker, 1993; Luţ, 2017). It can positively affect economic growth through local innovation and by the adoption of introduced technologies and practices (Benhabib & Spiegel, 1994; Meza & Webb, 1990), including farmers choosing to grow new crops for previously untapped markets. Although theories are often postulated to illustrate economic development, our work may contribute to its practice and literature, especially in the rural contexts of developing nations. Our findings support the need to develop farmers' capacities to produce specialty crops with the prospect of improving their livelihoods and thereby lift national economies (Becker, 1993; Krutova, 2015; Loubet & Morales, 2015; Luckstead et al., 2014; Stiles & Kulvisaechana, 2003; Zvarych, 2018), i.e., achieving the broad supposition of human capital theory.

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