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

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

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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.

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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 skillling 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; Sánchez & 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*

![Delphi Technique Procedural Flow Chart](image)


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
consisting of three questions. Instrumentation

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)*

<table>
<thead>
<tr>
<th>Items</th>
<th>% Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Question 1.</strong> Which luxury high-value agricultural plant products may reflect an <em>unsatisfied consumer demand</em> and have the potential for delivering profits to smallholder farmers in low- and middle-income countries? <em>(n = 5 Categories, including 61 Examples)</em></td>
<td></td>
</tr>
<tr>
<td>Culinary herbs (e.g., amaranth, <em>Dialium</em> [velvet tamarind], mint, oregano, sage, thyme)</td>
<td>93.33</td>
</tr>
<tr>
<td>Edible fruits (producers of such, e.g., avocado, blackberry, blueberry, cranberry, <em>Cucurbita ficifolia</em> [fig-leaf gourd], currant, kiwi, pepper, pitahaya, <em>Prunus salicifolia</em> [cherry], quince, raspberry, strawberry, wild grape)</td>
<td>86.67</td>
</tr>
<tr>
<td>Endemic species, including for local cuisine and popular culture (e.g., cinnamon, garlic, ginger, rosemary, saffron, tapirira, turmeric, vanilla)</td>
<td>80.00</td>
</tr>
<tr>
<td>Medicinal (e.g., Arnica, boldo, calendula, echinacea, mallow, maritime cineraria, melissa, tarragon, valerian, witch hazel)</td>
<td>80.00</td>
</tr>
<tr>
<td>Nursery crops, including floral and foliage, tropical and other (e.g., anthurium, aspidistra, aster, bromeliad, <em>Byrsonima</em> [locust berry], chrysanthemum, <em>Eustoma</em> [lisianthus], fern, gardenia, holly, lavender, lemon croton plant, lily of the valley, <em>Liriope</em>, maidenhair, myrtle, orchid, peony, perennial, philodendron, ruscus, tulip, <em>Zantedeschia aethiopica</em> [arum lily])</td>
<td>80.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Question 2.</strong> What is the potential for smallholder agricultural producers in rural areas to grow products intended for luxury niche markets?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strengths (n = 9)</strong></td>
</tr>
<tr>
<td>Local knowledge</td>
</tr>
<tr>
<td>Agrobiological diversity of species in their areas</td>
</tr>
<tr>
<td>Availability of native plants</td>
</tr>
<tr>
<td>General agricultural knowledge</td>
</tr>
<tr>
<td>People with value for the land</td>
</tr>
<tr>
<td>Labor that can achieve specialization</td>
</tr>
<tr>
<td>Microclimates</td>
</tr>
<tr>
<td>Land</td>
</tr>
<tr>
<td>Rural society eager for alternatives and proposals to improve their quality of life</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Weaknesses (n = 21)</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Altered natural resources</td>
</tr>
<tr>
<td>Poor communication channels</td>
</tr>
<tr>
<td>Loss of resources due to different causes</td>
</tr>
<tr>
<td>Ignorance about products destined for luxury markets</td>
</tr>
<tr>
<td>Lack of assessment</td>
</tr>
<tr>
<td>Distant location</td>
</tr>
<tr>
<td>Lack of unity and community disinterest</td>
</tr>
<tr>
<td>Limited resources</td>
</tr>
</tbody>
</table>
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  

78
Middlemen  
Highly bureaucratic processes for obtaining licenses  
Increasing price of raw material  

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