Canadian Cow-calf Cost of Production Network Consensus Versus Individual Approach

The process by which cost of production data is collected needs to be consistent across operations and regions. Conducting this kind of farm level analysis, however, poses a challenge because there are only a few data collection options available and the collection of that data can be both relatively time consuming and expensive.

CONSENSUS BASED DATA COLLECTION

Used in several different research fields to gather both qualitative and quantitative data, the consensus-based data collection approach utilizes focus groups to collect data from multiple individuals simultaneously. With the discussion focused on a particular topic or set of research questions that are asked by a moderator, this approach can be more economical and efficient for obtaining data from multiple participants than individual interviews (Krueger and Casey, 2000). Focus groups can generate large amounts of data in a relatively short time span and these insights can be used as the basis for a more comprehensive discussion (Guba and Lincoln, 1994; Orr 1992). However, the group approach to data collection may reduce the specific details on a participant that the researcher is able to collect (Kruger 1994).

Data quality influenced by recruitment, preparation, group size and the moderator

How participants are recruited and the way in which the focus group session is conducted may change depending on the underlying research question. General recommendations include creating a criterion to select participants for the group session to ensure enough similarities to facilitate discussion and; to overcome the issue of participants not attending by overrecruiting by 10 to 25 percent (Kruger and Casey, 2000; Robson 2011). The group needs to be large enough so that a variety of perspectives can be included

without being difficult to manage and not so small that it becomes fragmented (Robson 2011). Kruger (1994) highlights the importance of a moderator able to keep the group focused. The role of the moderator is to ensure that panel participants connect with the major subject without dominating the discussion or becoming distracted by differences in secondary topics.

Pedroza et al. (2017) collected technical parameters, production costs and other economic information using expert panels on farms in Brazil. Data collection costs were found to be lower than individual interviews or survey methods and the authors found that this provided enough data to compare the economic performance of farms in different regions in Brazil (Pedroza et al. 2017). However, the authors did note that there was some difficulty in standardizing data because of the heterogeneity of producer profiles and there were logistical challenges in organizing meetings and mobilizing producers in order to assure their representative presence (Pedroza et al. 2017). The researchers found that if a large and heterogenous group was selected it would limit the efficacy of the work because of a lack of consensus among participants; but too small of a group would not be representative of the entire region (Pedroza et al. 2017). Verhaagh, Deblitz and Rohlmann (2018) in their SOP agri benchmark on the creation of a typical pig farm also noted that group size can impact the efficacy of the project. The authors found that four to six farms were sufficient for a specific analysis but that twelve farms would "reflect all relevant farming situations" (qtd. In Verhaggh, Deblitz and Rohlmann 2018, 8). They also highlighted the importance of preventing biases caused by a dominant participant or participants. Willingness of all participants to engage in the discussion and disclose information is instrumental in generating useful data.

For the data collected at focus group meetings to be accurate and useful, the structure of the group meeting has to be carefully designed. This not only ensures that the data is collected efficiently and consistently across groups but helps researchers be confident in their results and future predictions. Using technical data gathered from an experimental farm and a typical farm model, Basson (2017) used a multidisciplinary expert group to help determine the parameters of the typical farm budget model. Basson (2017) outlined a set of steps taken to create a successful focus group meeting including creating criteria for joining based on the main objective of analyzing different integrated crop-livestock production systems, inviting a multi-disciplinary group in order to include a diverse set of opinions, provide a clear outline of discussion topics, and required information to participants three weeks before the discussion.

Expert Groups

For researchers interested in gathering economic data at the farm level, focus groups can provide data from individuals directly involved in the studied sector (Coulter et al, 2016). Researchers may choose to invite different experts from a particular field to participate in the group. The expert group approach "relies on the principle of eliciting expert knowledge from groups of individuals who deliberate upon a given topic area" (Pedroza et al. 2017, 301). This approach brings together a group of experts from a variety of backgrounds to debate and discuss until a consensus is reached on technical parameters such as productivity indices, production costs and input prices. Used widely in agri benchmark studies on sustainable agricultural production, the data collected from this session can then allow researchers to determine what Feuz and Skold (1992) describe as a 'synthetic' or 'typical' farm (a weighted average of all farms in a group). Researchers can establish what a farm might look like in a particular region given a set of parameters determined using the data collected from the focus group.

Analysis

Equipped with the data gathered through focus group meetings, the creation of a typical farms can help researchers measure changes to variables including technological change, land values, government program participation and profitability on various types of farms in different regions (Deblitz et al. 1998; Feuz and Skold 1992). For example, Siqueira and Duru (2016) established what a typical Amazonian beef farm might look like using a focus group methodology approach. In collaboration with experts from the Center for Advanced Studies on Applied Economics and technical staff at the local farmers' unions in a specific region of Brazil, the authors collected typical farm data using Excel spreadsheets at focus group meetings. The economic and technical aspects of the typical farm system in the region were the main questions focused on at group meetings composed of local farmers and technical staff (Siqueira and Duru, 2016).

Furthermore, using the data collected through focus group meetings which is then used to create typical farms, researchers can create future predictions for production systems based on changes to variables including prices and management practices. Bruggemann (2011) and Krug (2013) used typical farms created with data gathered by focus groups to look at future outcomes. Bruggemann (2011) examined potential beef producer reactions in Germany to a reduction in EU tariff rates. Krug (2013) examined how technological transfer could change the profitability of marginal production sites in Germany and compared this to a scenario where farms did not have access to EU single payments. The potential to explore what future farms may look like given changes in certain variables is especially important to this

research project which seeks to explore how changes in practices could result in a more sustainable beef cattle production system.

Networking Possibilities

The opportunity to meet others may serve to empower participants and encourage information sharing (Fontanta and Frey 1998; Robson 2011). It may also encourage future collaboration between researchers and producers. Bosma et al., (2003) highlighted this aspect of group data collection. The authors noted that, in a study of northern Vietnamese farms, meetings with farmer focus groups helped to establish a relationship between researchers and farmers, allowing for more accurate collection of farm expenditures and income data over the course of the study. A final group meeting came at the end of the project and provided the researchers a chance to present study results and incorporate farmers' feedback, identifying relevant new research topics and potential policy initiatives. It also provided an opportunity for farmers to share experiences and market information with each other. For the purpose of this proposed research study, the potential for new connections both between producers and researchers as well as between producers who attend the focus group meeting may help form a network from which future data can be collected.

INDIVIDUAL BASED DATA COLLECTION

In contrast to the consensus-based data collection approach, individual based data collection allows researchers to collect detailed accounts of participants. Because of the opportunity this approach provides to gather thorough and complete data, individual interviews can help build consistent and detailed data sets. This data can then be compared across a number of individual respondents. The collection of this detailed information can help researchers be relatively confident in the results and recommendations for that specific farm or small group of farms because of the detailed information they are able to collect (Feuz and Skold 1992). The interview process can also illuminate what aspects of the research are of particular relevance to the participant and can help design targeted response plans (O'Keeffe et al. 2015).

Detailed and specific information

Individual interviews provide opportunities to resolve conflicting information or to clarify a response because the researcher can directly ask the participant (Boyce and Neale, 2006). Due to the direct and immediate feedback, individual interviews can help fill in information gaps that might be present in data collected through other means. Jurgena, Muska and Aispurs (2018) examined grain pre-processing

complexes in Latvia using different data sources including crop surveys and individual interviews to understand production capabilities in Latvia and the needs of potential consumers. Individual interviews conducted using a structured interview of 11 questions with representatives of four farms helped the researchers identify "whether the construction of new grain pre-processing complexes was sufficiently efficient and if the investment would pay off" (qtd. In Jurgena, Muska and Aispurs, 2018; 136).

There are opportunities for researchers to build a personal connection and develop a rapport with the participant as a result of the interview process (Rabionet, 2011; Boyce and Neale, 2006). In some cases – and depending on the context in which the research is being conducted – the individual interview process can encourage greater sharing by those being interviewed. For example, O'Keeffe et al. (2015) used the semi-structured interview approach to collect data on farmer irrigation practices in India and noted that one advantage of this approach is the opportunity for participants to share new information during the interview on topics related to irrigation and production in specific regions of the country.

Sample size challenges

However, data collection conducted through an interview is more than a conversation. Structured individual interviews using a questionnaire require a significant amount of time and resources to be conducted properly with each additional participant in the study increasing the time and resources required (Boyce and Neale 2006). This process may not be possible in all regions and this may reduce the amount of data that can be gathered thus limiting the ability of researchers to make comparisons. The limited applicability of the individual interview approach is identified by Feuz and Skold (1992) in their work on different methods of agricultural research. While individual farm data allows researchers to confidently gather data, unless farms are selected from a carefully designed random sample, the potential to make general statistical inferences to a broader group of farms is limited (Feuz and Skold 1992). Additionally, there are no opportunities for networking or information sharing between participants to occur (Rabiee 2004).

Combining Approaches

There are instances, however, of researchers utilizing both consensus based group data collection and individual interviews being used by researchers studying agricultural production systems. For example, Bosma et al., (2003) made use of both these methods in a study on farmers in northern Vietnam. Beginning with one to two hour focus group sessions, the researchers gathered data on land issues and production costs. The insights gained from the data gathered at the group session was used to inform

questions on labour needs, feeding practices, labour distribution by gender and finances asked in later individual semi structured interviews with households. While this process was time consuming and limited to a specific region in Vietnam, the combination of these two methods helped build a thorough, comprehensive data set and provided researchers with an opportunity to provide producers with specific feedback to their individual operation at the end of the study (Bosma et al., 2003).

Conclusion

Both consensus and individual data collection methods offer their own strengths and weaknesses. The consensus-based data collection approach offers a number of benefits both in terms of efficiency and cost; but also in terms of being able to collect data on different production systems across varied regions. Through well-structured and led focus groups it is possible for researchers to gain a more comprehensive view than can be achieved using an individual interview approach. Furthermore, this data can also be used to make predictions about what future production systems may look like given changes to different variables including production practices.

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