Apoyando Las Ferias Agroecologicas de la RAA

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Abstract

La Red Agroecológica del Austro (the RAA) is an organization that supports agroecological producers in the region of Azuay, Ecuador in part by providing agroecological fairs for them to sell their goods. We worked closely with agroproducers from organizations within the RAA to establish a database of the producers that our sponsor can use as evidence and data to support their local fairs. Additionally, we provided various media templates to help advocate for food sovereignty as well as a map to showcase the distance traveled for each agroproducer to arrive in Cuenca to sell their produce.

Resumen

La Red Agroecológica del Austro (la RAA) es una organización que apoya a los productores agroecológicos de la región del Azuay, en parte brindándoles ferias agroecológicas para que vendan sus productos. Trabajamos estrechamente con agropoductores de organizaciones dentro de la RAA para establecer una base de datos de los productores que nuestro patrocinador utilizará como evidencia y datos para apoyar la apertura de ferias locales. Además, proporcionamos varias plantillas de medios para ayudar a defender la soberanía alimentaria, tambien un mapa para mostrar la distancia recorrida por cada agroproductor para llegar a Cuenca a vender sus productos.

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Executive Summary

Introduction

Agroecology is defined as the application of ecology to agriculture (Agroecology in Action, n.d). The concept emerged in the 1980s in response to the limitations of conventional farming, traditional organic farming, and the exclusion of rural agroproducers from supermarkets and municipal markets. Agroecology has since evolved into a community-driven initiative to advocate for food sovereignty and to fight food insecurity. In Cuenca, there has been a struggle to adapt to agroecology since municipal markets mainly consist of Peruvian and Nothern Ecuadorian produce. Agroproducers in the province of Azuay have also faced struggles due to geographic constraints, such as altitude and lack of rain. Furthermore, the increase in North American immigrants to Ecuador has created a more competitive market for farmed goods, which further harms the advancement of an agroecological food system.

By promoting agroecology and food sovereignty, we can take steps towards bridging the gap between the supermarkets and agroecological fairs. The goal of this project was to inform the public about the importance of supporting local producers and to assist La Red Agroecológica del Austro (RAA) with their efforts to change local legislation in support of agroecology. Our project established a database for the RAA that organizes information about its agroproducers and creates a series of deliverables; social media content, a map, a plant registry, and a plan to advocate for food sovereignty and the importance of supporting local agroproducers.

La Red Agroecológica del Austro's Mission

La Red Agroecológica del Austro (RAA) is an organization committed to promoting agroecology and food sovereignty in the region of Azuay, Ecuador. In the words of the RAA: "agroecology is key in the transition towards sustainable food systems and fair trade" (Red Agroecológica del Austro RAA., n.d.). They aim to uplift rural agroproducers and indigenous knowledge through the advocation of agroecology and supporting the rights of agroproducers while also advocating against the use of pesticides, GMOs, and chemicals, promoting a healthy and ecologically conscious life.

Deliverables

Based on feedback given by our sponsor, we organized our deliverables into four major categories:

1.) The Database

This project's main objective was to create a database with questions created by the team and questions from our sponsor. We worked closely with 18 agroproducers associated with the RAA to gather information about their crops, animal products, travel time to fairs, size of farm, and information regarding their local organization. This information was added to a Google Sheets database created by the team that allows for the existing data to be analyzed and for new data to be entered easily.

We recommend for the RAA to continue using this database for future data collection of the remaining agroproducers. Additionally, we suggest that our sponsor uses the data collected to aid in their fight for creating more agroecological fair spaces within Cuenca and strengthening the connection between local producers and local consumers (Figuero, 2020). More information regarding the data collection and data breakdown can be found in section 4.1.

2.) Plant Registry

While the RAA has a detailed plant registry on file, our task was to improve the existing registry by adding pictures of the plants each agroproducer possesses. The goal of this registry is to showcase the agro-biodiversity within the RAA and the products brought to the local fairs. From the interviews conducted, we noticed that many of the producers share the same wide variety of crops. When directly asked what they grew, a frequent answer was that they "practically plant everything. And that's practically it for me. That is, having it as a product, but healthy." In addition, many of the agroproducers have a *chacra*, which is a large plot of land where different types of maize, squash, and bean are grown together (see Figure 4.9).

As with the database, this registry was also made in Google Sheets to allow easy access and changeability for our sponsor. The registry we created represent a list of the plants we encountered in English and Spanish with pictures taken from the farms to accompany (see section 4.2 for more details). We recommend combining this effort with the pre-existing registry to construct a completed plant registry.

3.) Medias for the RAA

To assist the RAA in their fight for food sovereignty and inform the public about the importance of supporting local agroproducers, we created various media-driven deliverables to help this process. Based on the interviews conducted, we were able to code and gather definitions of

agroecology to tailor our media templates and deliverables to this idea. As noted in section 4.3.1, many producers note the importance of not using chemicals as the main reason for being agroecologists. From these quotes, media templates for our sponsor's Instagram and Facebook pages were created (see Figure 4.11).

Furthermore, at the request of our sponsor, we created QR Code Infographic Cards for each agroproducer interviewed (see Figure 4.10). By scanning the QR Code provided, a view-only Google Document page will appear, listing important information about that specific agroproducer. Details, such as name, location, and products are viewable for the customer, all based on the data collected from the interviews. We recommend that our sponsor continue creating QR codes based on the templates provided. All documents are accessible to our sponsor, hence allowing them to change the information pages if needed.

4.) Map of the Agroproducers and *Ferias*

The final deliverable requested by our sponsor was a map of the agroproducers and *ferias* in the region. During each interview, a member collected the coordinates of the farm which helped us to create this map. We created two maps tailored to two different audiences. The first map (see first photo in Appendix H) is specifically for our sponsor to show in their data to the local legislature. This includes the exact location and altitude of each *finca* (farm or estate) visited as well as the location of the three *ferias* we focused on (Cristo Rey, La Chicheria, Vergel). The second map (see second photo in Appendix H) is made for the local customers shopping at the *ferias*. This map includes the same information as the previous, yet also displays some photos of produce from the agroproducers. Section 4.4 contains more information regarding the creation and appearance of the maps.

Results

From the data collected as discussed above, many reoccurring themes appeared throughout our time working with the RAA. These include what it means to be agroecological and what the future holds for this practice (see section 4.3.1 for more details). Additionally, the time and effort of each producer to arrive at the *ferias* was observed through questioning and through our own personal experiences (see section 4.1.2). It was also observed how diverse the products are from the *ferias*; many agroproducers cultivate more than just one type of product, reducing monoculture, increasing crop diversity, and preventing the disappearance of native crops.

Recommendations

While the agroproducers work extremely hard to create crop diversity without the use of chemicals, maintaining space for them to sell their products has been a challenge in the past. To ensure that their work continues to be noticed, we recommend that representatives of the RAA continue interviewing agroproducers we were unable to reach during our time here. Furthermore, continuing improvements to the database, plant registry, and maps will allow them to remain updated on the organizations within their association. Our group would also like to note that observing the dynamics of the *ferias* will allow for the importance of the *ferias* in both a consumer and social context to surface.

Resumen Ejecutivo

Introducción

La agroecología se define como la aplicación de la ecología a la agricultura (Agroecología en Acción, s.f.). El concepto surgió en la década de 1980 en respuesta a las limitaciones de la agricultura convencional, la agricultura orgánica tradicional y la exclusión de los agroproductores rurales de los supermercados y mercados municipales. Desde entonces, la agroecología se ha convertido en una iniciativa impulsada por la comunidad para defender la soberanía alimentaria y luchar contra la inseguridad alimentaria. En Cuenca, ha habido una lucha por adaptarse a la agroecología ya que los mercados municipales se componen principalmente de productos peruanos y del norte de Ecuador. Los agroproductores de la provincia de Azuay también han enfrentado dificultades debido a limitaciones geográficas, como la altitud y la falta de lluvia. Además, el aumento de inmigrantes norteamericanos en Ecuador ha creado un mercado más competitivo para productos agrícolas, lo que perjudica aún más el avance de un sistema alimentario agroecológico.

Promoviendo la agroecología y la soberanía alimentaria, podemos dar pasos para cerrar la brecha entre los supermercados y las ferias agroecológicas. El objetivo de este proyecto fue informar al público sobre la importancia de apoyar a los productores locales y ayudar a La Red Agroecológica del Austro (RAA) en sus esfuerzos para cambiar la legislación local en apoyo de la agroecología. Nuestro proyecto estableció una base de datos para la RAA que organiza información sobre sus agroproductores y crea una serie de entregables; contenidos para redes sociales, un mapa, un registro de plantas y un plan para abogar por la soberanía alimentaria y la importancia de apoyar a los agroproductores locales.

Mission de La Red Agroecológica del Austro

La Red Agroecológica del Austro (RAA) es una organización comprometida con la promoción de la agroecología y la soberanía alimentaria en la región del Azuay, Ecuador. En palabras de la RAA: "la agroecología es clave en la transición hacia sistemas alimentarios sostenibles y un comercio justo." (Red Agroecológica del Austro RAA., s.f.) Su objetivo es elevar a los agroproductores rurales y el conocimiento indígena a través de la defensa de la agroecología y el apoyo a los derechos de los agroproductores, al mismo tiempo que abogan contra el uso de pesticidas, OGM y productos químicos, promoviendo una vida saludable y ecológicamente consciente.

Entregables

Según los comentarios de nuestro patrocinador, organizamos nuestros entregables en cuatro categorías principales:

1.) El Base de Datos

El principal objetivo de este proyecto fue crear una base de datos con preguntas creadas por el equipo y preguntas de nuestro patrocinador. Trabajamos estrechamente con 18 agroproductores asociados a la RAA para recopilar información sobre sus cultivos, productos animales, tiempo de viaje a ferias, tamaño de finca e información sobre su organización local. Esta información se agregó a una base de datos de Google Sheets creada por el equipo que permite analizar los datos existentes e ingresar fácilmente nuevos datos.

Recomendamos que la RAA continúe utilizando esta base de datos para la futura recopilación de datos de los agroproductores restantes. Además, sugerimos que nuestro patrocinador utilice los datos recopilados para ayudar en su lucha por crear más espacios de feria agroecológica dentro de Cuenca y fortalecer la conexión entre los productores locales y los consumidores locales (Figuero, 2020). Puede encontrar más información sobre la recopilación y el desglose de datos en la sección 4.1.

2.) Registro de los Cultivos

La RAA tiene un registro de plantas detallado, pero nuestra tarea fue mejorar el registro existente agregando fotografías de las plantas que posee cada agroproductor. El objetivo de este registro es visibilizar la agrobiodiversidad dentro del RAA y los productos llevados a las ferias locales. De las entrevistas realizadas, notamos que muchos de los productores comparten la misma gran variedad de cultivos. Cuando se les preguntó directamente qué cultivaban, una respuesta frecuente fue que "prácticamente plantan de todo. Y eso es prácticamente todo para mí. Es decir, tenerlo como un producto, pero saludable." Además, muchos de los agroproductores tienen una chacra, que es una gran parcela de tierra donde se cultivan juntos diferentes tipos de maíz, calabaza y frijol (ver Figura 4.9).

Al igual que con la base de datos, este registro también se realizó en Google Sheets para permitir un fácil acceso y capacidad de modificación para nuestro patrocinador. El registro que creamos representa una lista de las plantas que encontramos en inglés y español con fotografías

tomadas de las granjas para acompañar (consulte la sección 4.2 para más detalles). Recomendamos combinar este esfuerzo con el registro preexistente para construir un registro de plantas completo.

3.) Medios Para la RAA

Para ayudar a la RAA en su lucha por la soberanía alimentaria e informar al público sobre la importancia de apoyar a los productores agrícolas locales, creamos varios entregables impulsados por los medios para ayudar en este proceso. Con base en las entrevistas realizadas, pudimos codificar y recopilar definiciones de agroecología para adaptar nuestras plantillas de medios y entregables a esta idea. Como se señaló en la sección 4.3.1, muchos productores señalan la importancia de no utilizar productos químicos como principal razón para ser agroecólogos. A partir de estas citas, se crearon plantillas de medios para las páginas de Instagram y Facebook de nuestro patrocinador (ver Figura 4.11).

Además, a pedido de nuestro patrocinador, creamos Tarjetas Infográficas con Código QR para cada agroproductor entrevistado (ver Figura 4.10). Al escanear el código QR proporcionado, aparecerá una página de documento de Google de solo lectura, que enumera información importante sobre ese agroproductor específico. Los detalles, como el nombre, la ubicación y los productos, son visibles para el cliente, todos ellos basados en los datos recopilados en las entrevistas. Recomendamos que nuestro patrocinador continúe creando códigos QR basados en las plantillas proporcionadas. Todos los documentos son accesibles para nuestro patrocinador, lo que les permite cambiar las páginas de información si es necesario.

4.) Mapa de los Agricultores y Ferias

El entregable final que hicimos para nuestro patrocinador fue un mapa de los agroproductores y ferias de la región. Durante cada entrevista, un miembro del grupo recopiló las coordenadas de la finca, eso nos ayudó a crear este mapa. Creamos dos mapas adaptados a dos audiencias diferentes. El primer mapa (ver la primera foto en el Apéndice H) es específicamente para que nuestro patrocinador lo muestre en sus datos a la legislatura local. Esto incluye la ubicación exacta y la altitud de cada finca visitada, así como la ubicación de las tres ferias en las que nos enfocamos (Cristo Rey, La Chichería, Vergel). El segundo mapa (ver segunda foto en el Apéndice H) está hecho para los clientes locales que compran en las ferias. Este mapa incluye la misma información que el anterior, pero también muestra algunas fotos de productos de los

agroproductores. La Sección 4.4 contiene más información sobre la creación y apariencia de los mapas.

Resultados

A partir de los datos recopilados como se analizó anteriormente, aparecieron muchos temas recurrentes a lo largo de nuestro tiempo trabajando con la RAA. Estos incluyen lo que significa ser agroecológico y lo que depara el futuro para esta práctica (ver sección 4.3.1 para más detalles). Además, se observó el tiempo y esfuerzo de cada productor para llegar a las ferias a través de cuestionamientos y de nuestras propias experiencias personales (ver sección 4.1.2). También se observó cuán diversos son los productos de las ferias; muchos agroproductores cultivan más de un tipo de producto, reduciendo el monocultivo, aumentando la diversidad de cultivos y evitando la desaparición de cultivos nativos.

Recomendaciones

Si bien los productores agrícolas trabajan muy duro para crear diversidad de cultivos sin el uso de productos químicos, mantener espacio para vender sus productos ha sido un desafío en el pasado. Para garantizar que su trabajo siga siendo notado, recomendamos que los representantes de la RAA continúen entrevistando a los productores agrícolas a los que no pudimos llegar durante nuestro tiempo aquí. Además, las mejoras continuas a la base de datos, el registro de plantas y los mapas les permitirán mantenerse actualizados sobre las organizaciones dentro de su asociación. A nuestro grupo también le gustaría señalar que la observación de la dinámica de las ferias permitirá que surja la importancia de las ferias tanto en el contexto social como de consumo.

1.0) Introduction

In Ecuador, specifically within the Azuay region, there have been gaps in the availability of agroecologically produced foods. Due to the migration of roughly 8000 North American retirees to cities such as Cuenca (Hayes & Celleri, 2023), markets are compelled to sell their produce at unreasonably low prices to appeal to this new customer (Soper, R. 2016). This situation creates a rift in relationships between the community and rural peasant agroproducers, as this approach seems to exploit their work who are already the backbone of agricultural production. To mitigate this disconnect, we must create a sustainable food system that considers the well-being of both consumers and peasant agroproducers (Soper, R. 2016).

Promoting agroecological benefits and impacts on community development will greatly reduce the gap between availability and demand. According to Loconto et al. (2018), individuals in Ecuador are willing to invest in and buy agroecological products because of ethical values regardless of the price. A good way of promoting the consumption and purchasing of agroecological foods would be to educate the public on the known self-benefits and the opportunities it brings for local agroproducers and their local economies. Support of agroecologically grown products will increase city development and ensure peasant agroproducers are being adequately supported (León-Vega et al., 2020). In addition, supporting these markets and products also ensures women are involved in the process. Women agroproducers in Ecuador are roughly 67% of all agroproducers, possessing a fundamental role in the production and commercialization process (Naciones Unidos Ecuador, 2023). These markets utilize short commercialization chains, reducing the necessity of intermediates. Through this process, agroecological markets can create a food network that not only provides safe and clean food but also incorporates the main producers into the system.

The goal of this project was to inform the public about the importance of supporting local producers and to assist the RAA with their efforts to change local legislation in support of agroecology. Our project established a database for the RAA that organizes information about its agroproducers and creates a series of deliverables; social media content, a map, a plant registry, and a plan for the future; to advocate for food sovereignty and the importance of supporting local agroproducers. We accomplished these goals by using semi-structured interviews to gather the information of the agroproducers and code a database in Google Sheets that represents what was

captured. Additionally, we wish to increase the knowledge of agroecologically grown products by informing the public through other electronic media. The results of this project included establishing a database to assist the RAA in presenting a concise dataset to lawmakers, in addition to creating awareness of food sovereignty and agroecology through various media. By achieving these goals, we helped the RAA fight for agroecological practices and inform locals of the issue's importance.

1.1) Introducción

En Ecuador, específicamente dentro de la región del Azuay, ha habido brechas en la disponibilidad de alimentos producidos agroecológicamente. Debido a la migración de aproximadamente 8.000 jubilados norteamericanos a ciudades como Cuenca (Hayes & Celleri, 2023), los mercados se ven obligados a vender sus productos a precios irrazonablemente bajos para atraer a este nuevo cliente (Soper, R. 2016). Esta situación crea una brecha en las relaciones entre la comunidad y los campesinos agroproductores rurales, ya que este enfoque parece explotar su trabajo, que ya es la columna vertebral de la producción agrícola. Para mitigar esta desconexión, debemos crear un sistema alimentario sostenible que considere el bienestar tanto de los consumidores como de los agroproductores campesinos (Soper, R. 2016).

La promoción de los beneficios y los impactos agroecológicos en el desarrollo comunitario reducirá en gran medida la brecha entre disponibilidad y demanda. Según Loconto et al. (2018), las personas en Ecuador están dispuestas a invertir y comprar productos agroecológicos debido a valores éticos independientemente del precio. Una buena manera de promover el consumo y la compra de alimentos agroecológicos sería educar al público sobre los conocidos beneficios para sí mismos y las oportunidades que trae para los agroproductores locales y sus economías locales. El apoyo a los productos cultivados agroecológicamente aumentará el desarrollo de las ciudades y garantizará que los agroproductores campesinos reciban el apoyo adecuado (León-Vega et al., 2020). Además, apoyar estos mercados y productos también garantiza que las mujeres participen en el proceso. Las mujeres agroproductoras en Ecuador representan aproximadamente el 67% de todos los agroproductores y poseen un papel fundamental en el proceso de producción y comercialización (Naciones Unidas Ecuador, 2023). Estos mercados utilizan cadenas de comercialización cortas, lo que reduce la necesidad de intermediarios. A través de este proceso, los mercados agroecológicos pueden crear una red alimentaria que no solo proporcione alimentos seguros y limpios sino que también incorpore a los principales productores al sistema.

El objetivo de este proyecto era informar al público sobre la importancia de apoyar a los productores locales y ayudar a la RAA con sus esfuerzos para cambiar la legislación local en apoyo de la agroecología. Nuestro proyecto estableció una base de datos para la RAA que organiza información sobre sus agroproductores y crea una serie de entregables; contenido de redes sociales, un mapa, un registro de plantas y un plan para el futuro; abogar por la soberanía alimentaria y la

importancia de apoyar a los agroproductores locales. Logramos estos objetivos mediante el uso de entrevistas semiestructuradas para recopilar la información de los agroproductores y codificar una base de datos en Google Sheets que represente lo capturado. Además, deseamos incrementar el conocimiento sobre los productos cultivados agroecológicamente informando al público a través de otros medios electrónicos. Los resultados de este proyecto incluyeron el establecimiento de una base de datos para ayudar a la RAA a presentar un conjunto de datos conciso a los legisladores, además de crear conciencia sobre la soberanía alimentaria y la agroecología a través de varios medios. Al lograr estos objetivos, ayudamos a la RAA a luchar por las prácticas agroecológicas e informar a los locales sobre la importancia del tema.

2.0) Background

In order to assist the RAA in its support of agroproducers and fairs, it is meaningful to identify the cultural and environmental significance of agroecological farming. In this section, we discuss the importance of community interactions and connections, as well as how the involvement of Ecuadorian consumers stimulates city development. We will also examine the history of sustainable farming and current agroecological farming methods to establish successful practices. Finally, this section explores how fairs in Cuenca currently operate to display how they support local agroproducers and development.

2.1) History of Sustainable Farming in Ecuador

Agroecology is a sustainable farming practice commonly defined as a scientific discipline, a set of practices, and a social movement all working symbiotically. The scientific disciplines of agroecology study the interactions present in an agrosystem, the practices seek sustainable production, and the cultural movement strengthens identity and economic viability of rural areas (Valdivia-Díaz M, Le Coq JF, 2022).

Agroecology in Ecuador was first a form of resistance against industrial commercialization by indigenous and peasant movements. Later, when articulation between organizations, academia, and public institutions was more prominent agroecology grew in depth conceptually, politically, and nationally. In the 1980s, Ecuador experienced an expansion of agro-industrial models of production. At this time, peasant farming organizations struggled to recognize their political rights, economic wellbeing, as well as their ethnic and cultural identity. This resulted in a heightened need for viable alternative propositions and implemented agroecological proposals by professionals, enthusiasts, and NGOs, which are forms of resistance pioneered by peasant and indigenous movements (Intriago, 2018). The construction and politicization of this group and similar civil groups assisted in the evolution of agroecology in Ecuador. There was support from European and American professionals, as well as volunteers who brought knowledge of biological and organic farming. Some international volunteers began training sessions for the demonstration, production, and research on developing organic agriculture (Intriago, 2018).

While Ecuador received outside assistance in alternative agriculture, many internal debates within Ecuador helped the evolution of sustainable farming. A peaceful indigenous uprising led by

the CONAIE (Confederation of Indigenous Nationalities of Ecuador), ECUARUNARI (Confederation of Peoples of Kichwa Nationality), and other civil organizations ended with the Ecuador government accepting the 16 points presented by the CONAIE in 1990. This resulted in the incorporation of agroecology in social, political, and economic sectors. Examples of this include forcefully reclaiming production, development of alternative agriculture, protection of diversified farms, and agroecology in higher education. In addition, agroecological peasant farmers shifted to utilizing short commercialization systems. This is very important considering the "... increasing desire on the part of the private sector to control agroecological production...." One of the indigenous and peasant agroproducers' key demands was for the revitalization of traditional forms of production and subsistence (Intriago, 2018, p. 322).

While we see much evolution regarding the history of sustainable farming in Ecuador, we still strive to promote the recovery of control over the history of sustainable farming in Ecuador for the indigenous and peasant communities. To achieve this, we note that peasants' agroecology visions promote food sovereignty[1] by a means to improve peasant economies, personal health, the sustainability of resources, and the independence of production and commercialization by marketing agroecological foods.

2.2) Agroecological Farming Methods

In this section we discuss the geographical and environmental dynamics in Cuenca, Ecuador, in relation to agroecological farming methods. With a high range of altitudes, Cuenca's diverse topography influences factors like temperature, atmospheric pressure, and steep slopes which pose concerns about soil erosion and runoff. Additionally, environmental variations such as precipitation patterns impact crop choices and irrigation strategies. Because of these factors, agroproducers in Cuenca must adapt their agroecological strategies and techniques based on their surrounding environment.

2.2.1) Geographic-Environmental Landscape in Cuenca

Understanding the environmental factors is crucial when considering agroecological farming methods. Cuenca is in the Sierra region of Ecuador, with an altitude ranging from 2,500 to 4,000

[1] Food sovereignty is the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems ("Food sovereignty," USFSA, n.d.).

meters as shown in Figure 2.1 in orange and gray. Temperature, atmospheric pressure, and oxygen levels are some of the factors influenced by the variation in altitude. The steep sloping topography introduces the concern of soil erosion and runoff when implementing agroecological methods. The topographical challenges can be faced with contour farming, agroforestry, and other techniques to meet agroecological standards. Variations in precipitation can impact crop selection and irrigation strategies in agroecological farming. Lack of rain in certain areas may produce water scarcity, influencing the choice of crops and water-efficient farming methods in those regions (Morris, 1997).

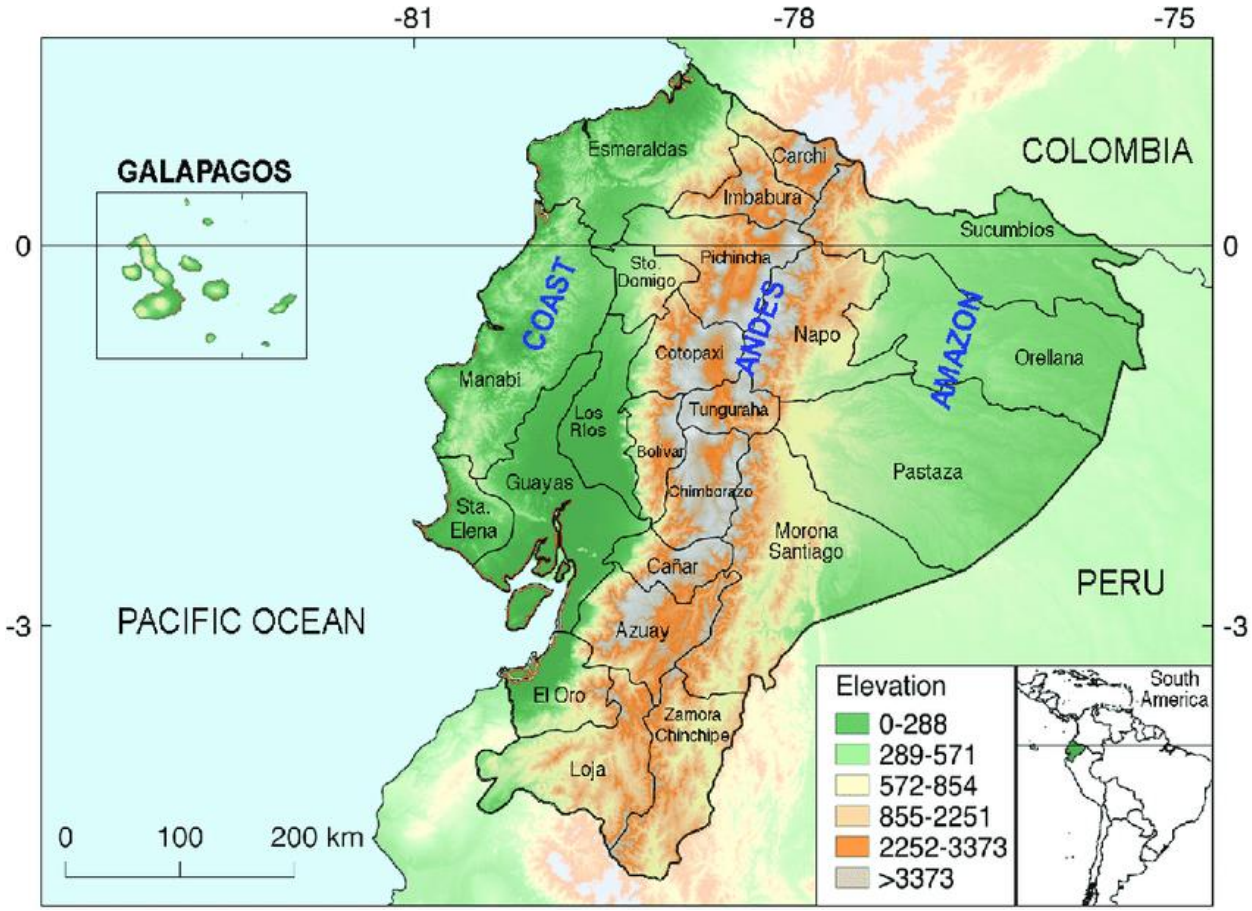


Figure 2.1 Geographic Regions in Ecuador (Calvopiña et al., 2022)

Due to the listed variations in the environment, agroproducers in Cuenca must use diverse agroecological strategies based on altitude, topography, and climate variations to enhance the sustainability and productivity of their farming practices (Morris, 1997).

2.2.2) Andean Agroecosystem and Sustainable Practices

The use of an agricultural calendar linked to traditional Andean indigenous celebrations is one way that farming practices adapted due to these variations (Vallejo-Rojas et al., 2022). The agricultural calendar shown in Figure 2.2 is specific to the Andean agroecosystem in the canton and province of Loja which has similar environmental factors as the province of Azuay where Cuenca is located.

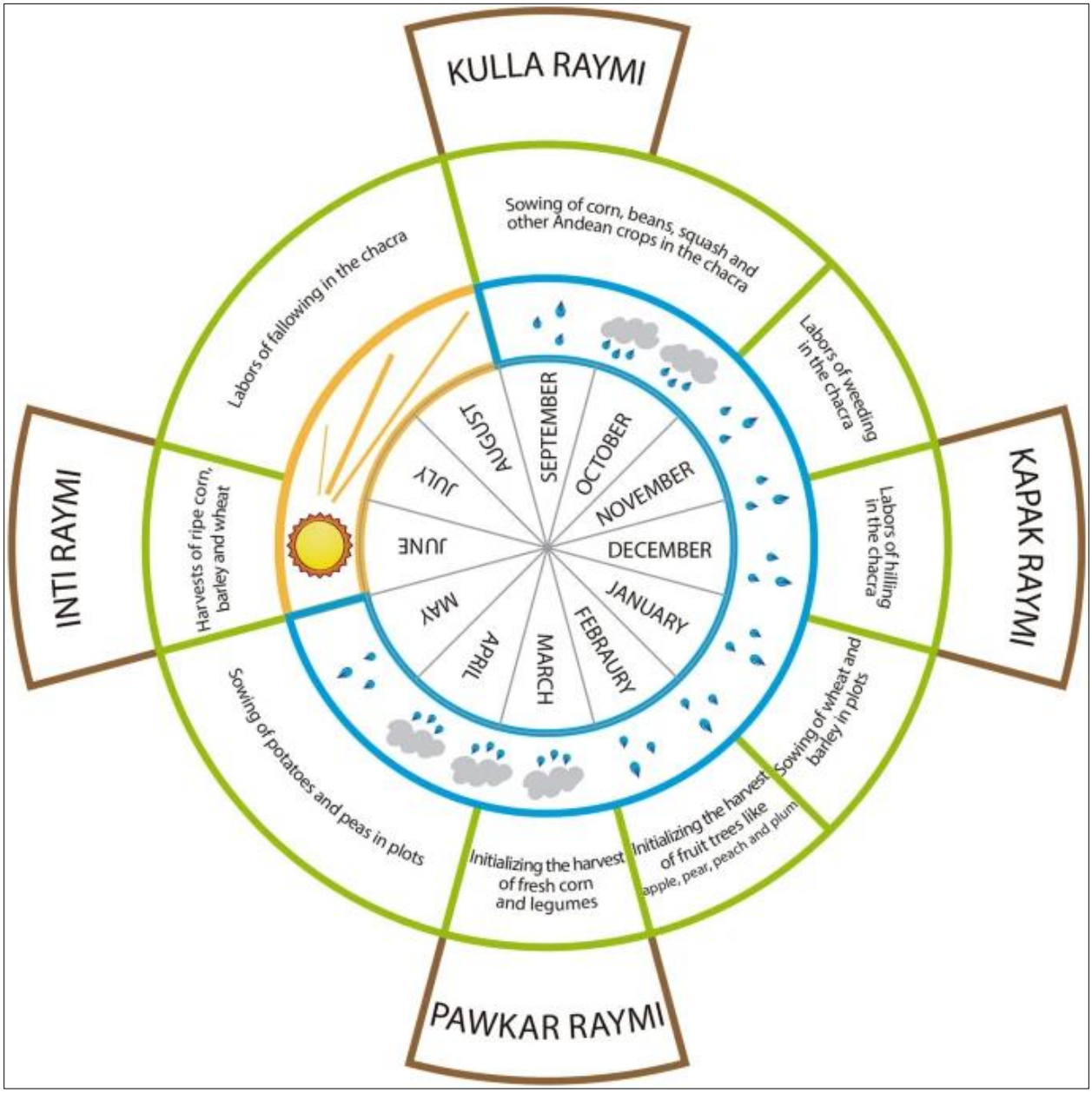


Figure 2.2 Agricultural Calendar for canton of Loja, Ecuador (Vallejo-Rojas, 2022)

The local calendar has a clear division between a rainy season (September to May) and a dry season (June to August) with crops distributed based on altitude. High rainfall occurs typically in October and March through April during the rainy season (Vallejo-Rojas, 2022). Thus, during the rainy season, corn is cultivated along with beans, squash, and other Andean crops. Following the summer solstice, barley and wheat are planted in January, while April sees the cultivation of potatoes and peas. The term *chacra* refers to the area where corn is grown alongside other typical Andean crops such as beans and potatoes and *huerta* is mainly dedicated to planting short-cycle vegetables (Vallejo-Rojas, 2022). The interconnection between the agricultural calendar, indigenous festivals, and the cultivation of various crops is an example of agroecology already in place that deals with diverse growing conditions and environment.

It is crucial to recognize that not all agricultural practices align with sustainable principles. Transitioning from agroecology's interconnected approach, monoculture has substantial negative impacts on the environment. It is defined as the cultivation of one crop in an area; it is problematic due to its negative impacts on biodiversity, increased vulnerability to pests and diseases, soil degradation, water depletion, erosion, reliance on chemical inputs, economic risks, and the loss of traditional knowledge (Ecuador, nd). Afforestation was developed in response to the monoculture of maize that many small farms practiced. Afforestation is the establishment of a forest or group of trees to improve soil conditions, erosion, and other significant factors to farming. It became a part of the Centro de Reconversión Económica del Azuay's (CREA) plan to rebuild small-scale farming and end maize monoculture. Taking place as early as 1970, increasing in development in the 1980s, and still in operation today, CREA's program, with some modifications, has agroproducers plant provided trees with technical guidance (Morris, 1997). Small-scale projects are what CREA relies on to diversify the rural community away from maize monoculture. These projects are forestry, "lining… irrigation canals," and "small-scale dairy farming" (Morris, 1997, p. 36).

However, cultural benefits and calls to be environmentally friendly are not enough for widespread adoption of sustainable practices like agroecology. The reality is that for many rural communities, economic considerations play a pivotal role in decision-making regarding land use and agricultural practices. To effectively promote agroecological farming methods and markets in Cuenca, it is crucial to understand the challenges of a region.

2.3) Challenges in Implementing Sustainable Fairs in Cuenca

There have been many challenges and limiting factors through the history of sustainable farming in Ecuador, sometimes in the form of political and institution constraints, while others are rooted in societal beliefs. Keeping these factors in mind proved to be crucial for the success of our project, as it provides important information to understand the context of the problem.

2.3.1) Challenges Relating to Competitive Pricing in Ecuador

In the agricultural sector, overproduction often occurs, a situation where the market is saturated with more products than consumers willing or able to purchase. This surplus often creates a competitive environment among producers, as each one strives to attract buyers by offering lower prices. While this might seem beneficial to consumers in the short term, it has a ripple effect on the economy, particularly impacting agroproducers. As prices fall due to heightened competition, agroproducers' revenues begin to dwindle. This reduction in income can have severe consequences for their livelihoods and the agricultural industry's sustainability (Minten B., 2008, p. 482).

To mitigate these financial challenges, many agroproducers turn to international markets. Exporting their products frequently allows them to command higher prices than what they would receive domestically. The global market's demand for diverse agricultural goods can lead to more stable and equitable pricing, providing agroproducers with a sense of financial security. The emphasis on local consumption and the push for consumers to buy domestically produced goods can sometimes overshadow a complex historical narrative. Urban populations have historically favored policies and market conditions that drive down national food prices in their pursuit of lower living costs. This is achieved at the expense of rural agroproducers, who are compelled to sell their produce at unfairly low prices. This exploits the labor of rural peasants, who are the backbone of agricultural production. (Soper, 2016).

This project's main objective was to create a database with questions created by the team and questions from our sponsor. We worked closely with 18 agroproducers associated with the RAA to gather information about their crops, animal products, travel time to fairs, size of farm, and information regarding their local organization. This information was added to a Google Sheets database created by the team that allows for the existing data to be analyzed and for new data to be entered easily it is essential to address the underlying issues of market volatility and economic

inequality. A balanced approach that considers the welfare of both urban consumers and rural producers is necessary to create a fair and sustainable food system (Soper, 2016).

Challenges of COVID-19

During Covid-19, some agroecological circuits faced a hardship due to implemented regulations that impede the functioning of these circuits by creating barriers that disproportionately benefit corporate entities in the food sector. This was made clear by the policies preventing the increase of agroecological production and distribution which included the requirement of daily permits for inter-provincial travel making it difficult to drive. Additionally, actively disregarding the World Food Program disaster contingency plans, which emphasized the importance of short-chain distribution from peasant production, suggests a systemic bias against small-scale, local agriculture in favor of more centralized, industrial food production systems (Lyall et al., 2021).

2.3.2) Challenges of Implementing Agroecological Farming Methods in Ecuador

Four unique categories of limiting factors to implementing sustainable markets have been identified in the political-institutional environment. The first group includes structural factors such as lobbying in favor of the agro-export market in Ecuador. The second group consists of both formal and informal institutional factors, such as culture and beliefs. Institutional factors may also include things such as convenience. The third group of political limiting factors consists of technical and political factors. Laws surrounding agriculture and agroecology are not unified at the national level, meaning that each state and canton is responsible for their own laws on farming, creating a greater disconnect in the law. There is also a lack of funding and incentives to promote agroecology at the national level. The final group of limiting factors is related to the actors in the government. There is a general sense of mistrust from the government and the groups promoting sustainable farming on the part of the movements of the state. (Valvadia-Díaz, 2021).

2.4) Evolution of Community and Tradition

This section delves into Cuenca's markets and the impact of demographic shifts on its community and cultural landscape. As integral parts of the city's social fabric, these markets face challenges of urbanization from the influx of North American retirees, which has spurred economic growth but also cultural and urban dilemmas. We examine how these changes affect traditional

practices and the preservation of community ties, emphasizing the need to balance economic development with cultural richness and social cohesion.

2.4.1) Importance of Community in Cuenca

With the influx of roughly 8000 North American retirees, Cuenca has become the epicenter of transnational investment leading to a cultural and urbanization crisis. As a result of the large number of migrants to the city, Cuenca has been pushed into expanding their urban development sector resulting in a "densification" around the historic center (Hayes & Celleri, 2023, p. 152). While the arrival of retirees poses an immediate success to the city's economy, it also launches a rift between locals and their historic center. Due to the creation of high-rise buildings, large condominiums and apartments, accessibility to the center becomes challenging for low-income families, causing a connectivity gap between the differing income classes.

Noted in a case study conducted by Molina et al. (2023) in the Journal of Cultural Heritage Management and Sustainable Development, it depicts the importance of a cultural heritage center for Cuencanos. Based on the results of surveying locals about the heritage values the center provides, the authors state, "The historic centre continues to have a central character, as a space that is alive and where there is interaction amongst locals and visitors, regardless of whether it is a WH site." (Molina et al., 2023, p. 11) This signifies the importance a central location plays and the principles it relays in the perspective of Cuencanos. The historic center is an example of a gathering place that permits Cuencanos to share their heritage and customs with others. Additionally, Cuenca's ability to promote migration to its city has been a "source of pride" for Cuencanos (Jara, 2019, p. 98). Conservation of cultural traditions, gatherings, and food not only revives a fading aspect of Cuenca but also fosters widespread community involvement and stimulates community development.

2.4.2) Culture, Traditions, and History of Cuencan Markets

In Cuenca, the operation of existing markets is not only about commerce; but it is an important part of the city's cultural fabric. Municipal markets and free fairs are essential elements of urban life, contributing to a significant portion of household spending. Women in Cuenca often take on central roles in managing food budgets and meal preparation, which shows their importance in maintaining familial and cultural traditions.

However, these markets face challenges that affect their safety. For example, the Feria Libre market has gained notoriety for instances of pickpocketing and theft (Castleman, Morrill, 2021), particularly targeting valuables like jewelry and electronics. Additionally, the markets serve as venues for illegal transactions, including the sale of homemade alcohol and drugs. Cleanliness is also a concern, with unrefrigerated raw meat exposed to contamination, posing health risks and emphasizing the need for improved hygiene practices to protect public health and preserve the market's cultural significance.

Haggling remains an important part of Cuenca's market culture, reflecting long-standing commerce practices and leading to social connections within the community. At the heart of Cuenca's market scene is the vibrant Mercado 10 de Agosto, which serves as a cultural epicenter for locals and visitors. Within Mercado 10 de Agosto, visitors can experience the unique *limpias* rituals conducted by spiritual women on Tuesdays and Fridays (Megs, 2022). These soul-cleansing ceremonies incorporate herbal plants, egg ceremonies, and alcohol sprays, offering insight into traditional healing practices deeply rooted in Ecuadorian heritage. The market's "Mama's Aisle" features vendors selling healing plant medicines, magic potions, and other traditional remedies, providing a glimpse into Ecuador's rich folk medicine traditions.

Culinary delights are also a highlight of the Mercado 10 de Agosto experience, with the famous *hornados*—a traditional Ecuadorian dish featuring a slow-roasted pig, *llapingachos*, salad, and more—being a favorite among locals and visitors alike (Megs, 2022). Beyond Mercado 10 de Agosto, other markets such as Mercado 9 de Octubre and Mercado 3 de Noviembre contribute to the city's cultural importance with their diverse offerings of fresh produce, food stalls, and artisan crafts (Castleman, Morrill, 2021). These markets, along with artisanal markets and day trips to nearby villages, provide visitors with immersive experiences that showcase the cultural heritage of Cuenca and its surrounding regions. In essence, Cuenca's markets serve as more than just places of trade; they are living embodiments of tradition, community, and cultural identity.

2.4.3) Gender and Agroecology in Ecuador

The topic of gender is innately intertwined with the topic of agroecology and food sovereignty. In Ecuador, women make up approximately 67% of the total number of agroproducers and agricultural workers in the country (Naciones Unidos Ecuador, 2023). Unfortunately, domestic violence is extremely common in Ecuador, with roughly 60% of women experiencing some form of

domestic violence at some point in their lives. In the countryside, these rates tend to be higher, as the domestic violence rates tend to decrease as education level increases (Boira, 2017).

Agroecology provides an outlet for women to support themselves and their families as agroproducers without being seen as a commodity in the farming industry. Through agroecological farming, women are not only able to financially support themselves, but they are able to grow food for themselves and their families. "The garden is right now a place of recreation, where they can go to distract themselves, to obtain healthy food, to converse, to learn, and yes, to be fulfilled." (Trevilla Espinal et al., 2021)

Agroecology also has a unique connection with femininity due to the indigenous beliefs rooted within the agricultural practices. One such belief is the concept of Pachamama, an Incan goddess usually portrayed as the earth, akin to the idea of "Mother Earth" in Western culture. Pachamama is still very prevalent in modern culture, and the traditional Incan portrayal of the earth as a woman creates a sense of familiarity and safety. In post-colonial Latin America, Pachamama remains important but is often portrayed as the Virgin Mary, who is the most important woman figure in Christianity (Tola, 2018). The portrayal of the earth as a modern religious figure has solidified Pachamama/Mother Earth as something sacred and to be respected, and as a result, there is a stronger sense of respect for the earth as well as for women in indigenous culture.

In Ecuador, the prevalence of women in farming is due to both cultural and traditional factors. There is a cultural division of labor where men work in construction and women work in agricultural work. This comes from the tradition of women being the providers of nutrition for the home. Women were already farming to provide food for themselves and their families, so it was logical for women to become agroproducers due to their existing knowledge of cultivating crops.

2.5) Current Structure of Existing Markets

In this section, we specify the difference between *mercados* and *ferias* as well as examining the food network utilized within local markets in addition to the benefits of such agroecological businesses. Throughout the project, our sponsor has specified that the distinction between *mercados* and *ferias* is significant to their mission. The food network begins with the short commercialization circuit, based on local agroproducers providing for local markets, and it ends with the purchase of the product by the local consumers. This section depicts the relationship between the initial and final points, while also showcasing various positive reactions resulting from this rapport.

2.5.1) The Difference Between *Mercados* and *Ferias* in Cuenca

The RAA has established local fairs, or *ferias*, as an alternative to the municipal markets, or *mercados*, in Cuenca. Conversations with our sponsor and others associated within the markets of Cuenca reveal that many municipal markets, such as 10 de Agosto or 9 de Octubre, charge a fee for the vendors ranging from $10 to $50, without any requirement of the vendors selling local goods, which in turn does not help the local economy. In addition, these *mercados* are focusing more on gentrification and transformation into Shopping Mall equivalents. According to Briones Orellana et al., an administrator in Cuenca stated, "We are looking for the markets to have another ambiance, that the purchasing experience is different, that the citizen feels it is a safe place [...] we have all the facilities to become just another Shopping Center or Mall." (Briones Orellana et al., 2021) Changing the structure of these *mercados* to simulate commercial food stores eliminates the importance of social interactions within these social spaces.

In contrast, agroecological *ferias*, like those of Vergel or Cristo Rey in Cuenca, preserve the essence of traditional markets while fostering natural interactions between producers and customers. According to Luna Figuero, the importance of these *ferias* is to not only allow a space for the agroproducers to sell their products but also serve as a social and political movement to strengthen community ties (Figuero, 2020). These *ferias* play a vital role in ensuring consumers access local, fresh produce while facilitating meaningful social connections between agroproducers and buyers. Also, they serve a massive role in creating social connections and interactions between the local agroproducers and customers. In comparison, the *mercados* referenced above have "displaced the traditional inhabitants" (Briones Orellana et al., 2021) and have created a disconnect that the *ferias* are able to resolve.

2.5.2) Short Commercialization Circuits

The food system is defined in multiple ways based on research findings from multiple areas of the Global North and South, most notably it is the activities in relation to food such as "growing, producing, processing, distributing, marketing, retailing, storing, preparing, consuming and disposing" with added "environmental and social dimensions" (Cabannes et al., 2018, p. 24).

A short commercialization circuit (SCC) is a type of fair commercialization network within the food system that represents a direct economic and social participation mechanism for small producers in rural areas (Franco-Crespo et al., 2023). SCCs are crucial to the success of smaller fairs as they allow for much closer relationships between agroproducers, retailers, and agro-processors. SCCs also help with food security, diversification, preserving traditional systems of agroproducers, nutritional products, and developing cleaner food production processes. SCCs also place a strong emphasis on clean and ecological production by maintaining high standards for agroecological, socio-territorial, and economically sustainable food production.

Short commercialization circuits became popular for agroproducers because of their ability to reduce intermediates and increase profit. Supermarket chains are the direct competitors of SCCs. They have more capabilities and economic capital compared to the small-scale agroproducers who have a smaller production volume and less bargaining power on products due to local markets having lower prices (de Oliveira, 2021).

In a 2023 study, three types of SCCs were identified in rural Andean Ecuador. These include home delivery, local markets, and agroecological fairs. Short commercialization circuits that utilize home delivery often take the form of baskets with different crops delivered approximately every five days. This SCC is used by roughly 26% of agroproducers but has the lowest average crop diversity. Another type of short commercialization circuit identified in Ecuador is the local or traditional market. SCCs in the form of local fairs account for the greatest amount of agroproducer participation, at 40%. Participation in local markets is especially significant because the crops that are sold at markets often are not sold directly to the end consumer. Rather, food is often purchased by local restaurants or retailers. The final type of short commercialization circuit identified by the study is agroecological fairs, with a 36% agroproducer participation rate. Agroecological fairs have the greatest average crop diversity, with an average of 16 crops per agroproducer (Franco-Crespo, 2023).

It is worth noting that some agroproducers opt to participate in multiple short commercialization circuits as a method of increasing profits. After reviewing three main channels of commercialization in the SCC's model most agroproducers say the implementation of public space for the organization of fairs is the main strategy for the development of commercialization of agroecological foods for a sustainable marketing model.

In Ecuador, women make up the majority of the total number of agroproducers and agricultural workers (Naciones Unidos Ecuador, 2023). In the SCC's model, agroecological women also play a fundamental role in the process. This helps them gain sufficient economic independence from patriarchal customs. Agroecology and SCCs have also helped to create communities where women can discover their worth and support each other. Commercialization is also a task often undertaken by women, who carry their crops from farms to markets or homes. Women's participation is a pillar in short commercialization, which incorporates family income and economic independence, and food diversification in the territory. Utilizing short commercialization chains leads to women's involvement and sparks the participation of the local community to invest in a system that will lead to an increase in urban development.

2.5.3) Benefits of Agroecological Products and Business

Successful markets are a result of the positive impact they make on a community and how they can foster local development. By promoting locally grown products, advertising environmentally friendly farming practices, and promoting the self-benefiting factors associated with organic foods, residents are more prone to supporting these agroecological fairs. Juan Carlos Castro Analuiza et al. (2020) analyzed the purchasing behavior and factors of local adults in Ambato, Ecuador. Through the research, the team identified three distinct groups based on their purchasing behaviors. Approximately 42% of the purchasing population's ambition to buy organic and locally grown products lies in the interest of the self-benefiting factors corresponding to organic food (Castro Analuiza et al., 2020). In addition, the study notes how two of the three groups contribute to environmental upside as another reason to purchase from local fairs.

Furthermore, these fairs go beyond gaining support solely based on personal benefit and positive environmental outcomes. Loconto et al. (2018) notes how local input sources, such as local agroproducers, are viable sources to advertise their products as they give customers a sense of reliability. Creating value for the product includes an authenticity that local agroproducers can encapsulate and provide for the local purchasing population. Because of this, locals are willing to invest their capital in these fairs, as it plays a pivotal role in rural development, and yet another aspect that will benefit them. However, relying only on beneficiary factors to support and anchor a local fair fails to factor in the cost of the product. According to Loconto et al. (2018), individuals in Ecuador are willing to invest and buy agroecological products because of ethical values regardless of the price.

Yet, Analuiza, Checa, and Perea labeled this group as the least populous in their study. Simply lowering the price will also result in the population believing that the cheaper food is of lesser quality (Castro Analuiza et al., 2020). Instead, a possible tool to promote the consumption and purchasing of organic, agroecological foods would be to educate the public on the known self-benefits and the opportunities it brings for local agroproducers and their local economies.

Currently, Ecuador is striving to increase public knowledge of the advantages of organic and agroecological foods. A study conducted in collaboration with the Universidad Central del Ecuador introduced agroecological fairs and promoted events to the local communities. With these fairs and meetings, local agroproducers can produce large amounts of food for a greater audience while "guaranteeing healthier and cleaner food." (León-Vega et al., 2020, p. 61) Purchasing products grown locally ensures a healthy and reliable source of nutrients and enhances the local economy by supporting small businesses. Furthermore, due to local investment, urban development increases as a result, in addition to encouraging the involvement of local women (León-Vega et al., 2020). The emphasis on promoting agroecological and sustainable foods in Ecuador not only contributes to a healthier and cleaner food environment but also fosters economic growth and community development, creating a more sustainable and interconnected society.

2.6) Summary

To assist the RAA with their fight for food sovereignty and promotion of agroecological fairs, it is crucial to consider the background and history that surrounds Cuencan markets and agriculture. Agroecological farming methods are key to ensuring that the food and produce being sold in fairs are sustainable and do not contribute to environmental damage. Furthermore, the goal is to promote and sell this agroecological and sustainable food directly to fairs in Cuenca without the need for intermediaries. For our project, we must acknowledge the traditions and culture surrounding agroecological fairs in Cuenca to aid the RAA in its mission. With the help of the RAA, our team researched and collected data regarding the agroecological network to help establish a structured database for our sponsor. To create a well-informed database, we tied in all parts of our research to ensure the ecological, economic, and social importance of this project.

3.0) Methods

The goal of this project was to inform the public about the importance of supporting local producers and to establish a database for the RAA that organizes information of all their producers. As a result of insufficient disclosure regarding product origins, customers are unaware that many items bought from municipal markets originate from Peru or Northern Ecuador. The RAA is an organization that works to encourage locally farmed products. Their aim is to increase the agro-biodiversity of crops for local consumers and promote food sovereignty (Red Agroecológica del Austro RAA, 2017). We worked to assist the RAA by forming a database to organize their producers and inform the public on the importance of food sovereignty and agro-biodiversity. To achieve these goals, we identified two objectives to guide our project:

1. Establish a database for La Red Agroecológica del Austro of where producers are and what they produce.

2. Advocate and inform the public about food sovereignty and the importance of supporting local agroproducers.

3.1) Objective 1: Establish a database for La Red Agroecológica del Austro of where producers are and what they produce

The RAA has been attempting to add better legal protections, such as an ordinance, for local agroproducers' fairs. A database that outlines all local agroproducers that the RAA represents is an instrumental tool for providing evidence and data to present to local government. This database also makes it easier for the RAA to organize agroproducers and decide how to direct them to diversify the agroecological fairs, creating a competing market. Lastly, this database was used to create different media and infographics on a customer level to show consumers where they can find certain vendors or certain produce.

3.1.1) Interview Producers

Our team visited communities in the outskirts of Cuenca to interview the agroproducers who work with the RAA. Before our visits, the RAA contacted the smaller organizations made up of these agroproducers and informed them about who we are, who we work with, and our purpose in

contacting them. We built a database for these organizations to organize all their producers, collecting information about them and what they cultivate. The interviews we conducted were semi-structured in nature (Shackleton et al., 2022). Providing participants with open-ended questions allowed them to give in-depth responses that could not be answered with a simple yes or no (Jundi, 2022). The group came prepared with interview questions (see Appendix C) and we recorded the interviews using the app Voice Recorder for later analysis. Using Mygoodtape, we were able to transcribe the interviews and it helped us recall more details from the interview (Jundi, 2022). Before every interview, a member of our team read the consent statement (see Appendix B) to reiterate the interview's purpose and specify the utilization of the participants' data. Due to the inherent nature and objectives of the data collection, personal identifying information, such as names, was recorded.

3.1.2) Interview Analysis

To comprehensively analyze the interviews conducted, we took our transcripts and put them through the qualitative data management software Atlas.ti to group relating responses between different agroproducers. Ensuring the security and confidentiality of our data, recordings and transcriptions have been stored in a dedicated, secure Google Drive folder. Subsequently, a curated list of specific interview highlights was compiled and documented within the same secure location, facilitating a focused and organized approach to the analytical process. Specific interview highlights were chosen by the uniqueness of the open response from the agroproducer. The members qualitatively encoded the data using inductive coding. The codes were derived from the data as shown in Figure 3.1. This enabled the commonalities between different agroproducers' open-ended responses to surface organically from the raw data without "preconceived notions of what the codes should be." (The Essential Guide to Coding Qualitative Data, n.d.)

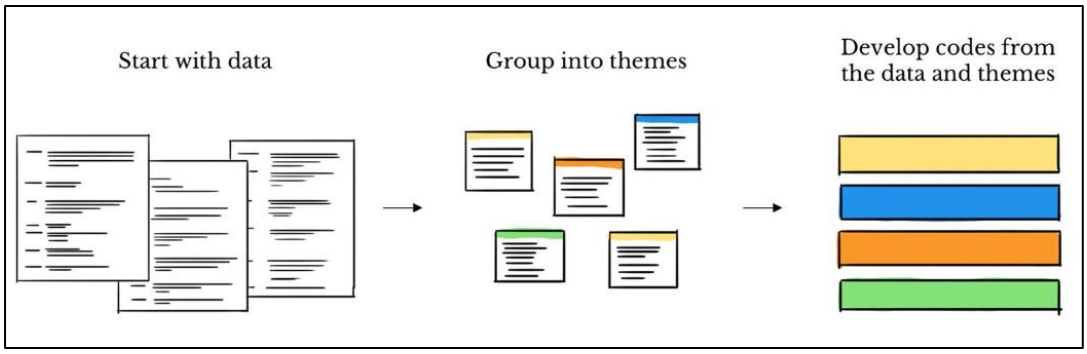


Figure 3.1 Inductive Coding (The Essential Guide to Coding Qualitative Data, n.d.)

The initial round of coding for qualitative data was done in a secure Google Sheet. Then, the qualitative codes were arranged into main categories and subcategories. Following this, additional iterations of qualitative coding were conducted. Lastly, we transformed codes and categories into the shared narrative of the agroproducers (Open-Ended Questions in Qualitative Research, 2023). As mentioned above, this narrative was used in Objective 2, for educating the public and spreading awareness about agroecology and food sovereignty.

3.1.3) Survey for producers to identify their products and product variety

The team created and conducted a survey to identify the products the agroproducers cultivate. The goal was to identify how product variety and crop diversity are reflected in farms and fairs. Crop diversity is a key concept in the practices surrounding agroecology (Franco-Crespo et al., 2023). The questions used in our survey on products and product variety can be found in Appendix D. All data collected from surveys was added to the database for the RAA. Section 3.1.4 discusses how the data is managed after the survey is completed.

3.1.4) Database Structure and Management

Constructing and developing this database of information for the RAA was crucial for the objectives and deliverables of this project. The information we wished to gain from the agroproducers included their contact information, personal details, farm details, production information, general documentation (including photos and videos), environmental and sustainable practices, and market and sales details. The photos and videos mentioned above were stored in the dedicated secure folders. We created a data entry form, shown in Figure 4.3, to make our data entry system easily integrated with the Google Sheets file. Additional questions can be added at any time, and any data can be found by using the built-in search function that is part of Google Sheets.

3.2) Objective 2: Advocate for food sovereignty and the importance of supporting local agroproducers

Fighting for food sovereignty goes beyond the buying and selling of food. Creating and fostering an agroecological space that promotes food sovereignty involves recognizing the work that producers have been doing for a long time. Agroecology is just as much of a social movement as it is a way of farming, and part of successful implementation of agroecology involves amplifying the voices of the agroproducers and recognizing the work that they do both economically and socially. The sponsor highlighted that our project should ensure that the people of Cuenca know where their food comes from and be able to make independent choices about the food they consume.

According to our sponsor, there is a social stigma against indigenous people and individuals who live outside the city of Cuenca. This includes the local agroproducers who produce the food sold at fairs. Both food sovereignty and agroecology highlight the importance of supporting agroproducers and we aim to educate locals in Cuenca about this.

3.2.1) Creating a pamphlet

Ensuring customers are informed about the origins of the food they buy and consume is vital to creating food sovereignty. Our sponsor stated that most food in municipal markets comes from the surrounding countries, such as Peru, or from Northern Ecuador. Most consumers remain uninformed about the origin of the food they purchase at markets. Our plan was to help consumers connect to the food they purchase and consume by creating an informative pamphlet which can be distributed at the fairs. This pamphlet includes brief definitions of agroecology and food sovereignty and a list of benefits to supporting and consuming agroecological fairs, and can be found in Appendix F.

3.2.2) Creating social media awareness

Another method of advocating for food sovereignty is through social media. We created templates of posts on the social media of our sponsor's choosing that promote knowledge of food sovereignty and agroecology. Having more than one form of media to promote food sovereignty

and agroecology increases the reach of our information and could lead to an overall larger audience.

3.2.3) Creating Maps of Agroproducer and Agroecological Fair Locations

To further support and advocate for local agroproducers, we created a map of the locations of agroproducers in the RAA and where the fairs they attend are. During each interview, we recorded the coordinates and altitude of each farm to assist with this process. After gathering the necessary information, the pinned locations were added to a map of the local region with additional photos to show where specific products come from. Additionally, we included the location of each fair (La Chicheria, Christo Rey, and Vergel) to show the distance agroproducers need to travel to be able to sell their products to consumers.

3.2.4) Infographics and QR Codes for Producers

With each producer's complete data collection, we constructed foldable identification cards to be placed on each stand. These infographics contain the name, location, picture, and a scannable QR code that provides more information about the specific agroproducer, such as type of products. The QR code scan opens a Google Doc that is viewable to the customer but cannot be edited or changed. Since a Google Doc allows the document's owner to constantly change the information it holds, our sponsor will be able to update or reformat these information pages without having to change the QR code. This foldable infographic allows customers to see the diversity of each agroproducer, the origin of the products they are purchasing, and allows for the consumer to further connect with both the agroproducer and the farm they are purchasing food from.

3.3) Summary of Methods

The objectives outlined in this section created qualitative data and measurable goals for our project and sponsor. Utilizing the discussed research methods and data analysis, we condensed the measured data into a concise database and other deliverables. A plan for a database of food producers and their produce was created. Lastly, an infographic using the data found was created to assist advocating and supporting local agroproducers. Our sponsor was interested in the data collected as a method to appeal to the local government regarding the current legality of non-municipal markets. In the past, our sponsor has tried to appeal to the local government regarding

laws against selling food in non-designated areas, and they know that with the addition of concise data their efforts will be met with greater success. With the addition of the data that we collected and presented for our project we have aided our sponsors in making a change in the local legislation.

4.0) Findings and Analysis

In this section we discuss our findings about agroecology and agroproducers from organizations within the RAA. The data provided below was collected using the methodology described in section 3. The design and content of the database, plant registry, and media materials were based on the data collected and provided to the RAA for future use and analysis.

4.1) The Database

The major deliverable of this project was the database of agroproducers. It was created with compiled data from the survey given to agroproducers from various organizations registered with the RAA.

4.1.1) Format

By establishing a tailored database infrastructure, our aim was to support agroecological producers by providing evidence to support the RAA's mission. The database is contained in a Google Sheet file as described in section 3.1.4. To simplify data entry, a data entry form (see Figure 4.2) was used, which is linked directly to our Google Sheets database. The data is sectioned by each question asked in the survey, with names being the first column, allowing easy retrieval and identification as shown in Figure 4.1.

ID #	Nombre	Edad	Experiencia Agrícola	¿Cuántas personas trabajan en la finca contigo o solo?	¿Cuanto tiempo has sido parte del RAA?	¿Para qué organización trabajas?	Tamaño de el organizacion	Tamaño de la Tierra de Cultivo

Figure 4.1 Database Headers

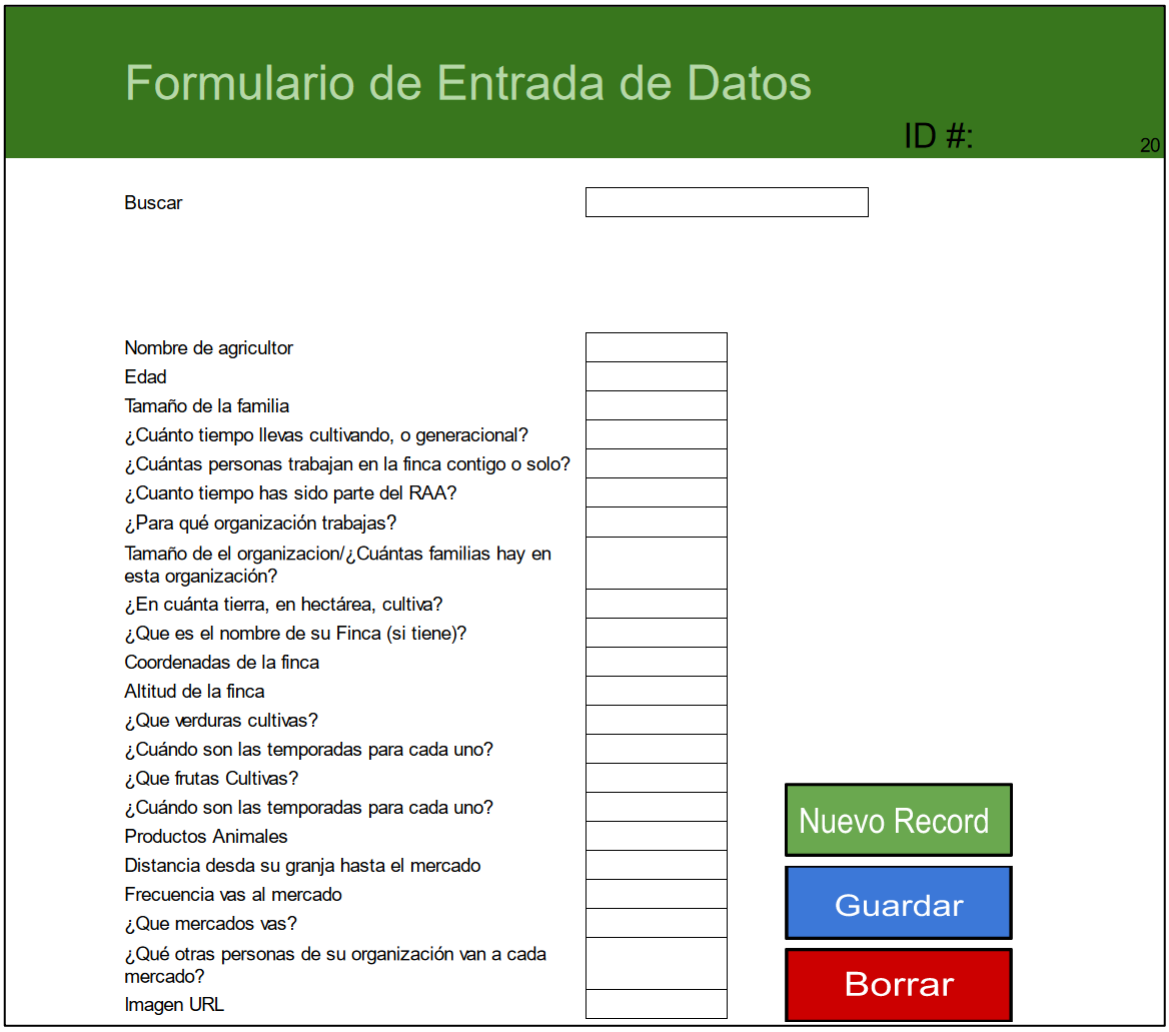


Figure 4.2 Google Sheets Entry Page

4.1.2) Travel and *Ferias*

Through comprehensive interviews, we have identified and distilled the common qualitative data and major topics referenced throughout the interviews. When asked about agroecology, the agroproducers commonly mentioned cultivation without chemicals. This is discussed in further detail in section 4.3.1 as a definition is formed and used for media materials. Another common

theme was transport. As several agroproducers live in rural areas, transport into Cuenca to sell at the agroecological fairs and markets can often be difficult (see map in section 4.3.2). A small percentage of agroproducers use their own vehicle for transport to the *ferias* while a large percentage of agroproducers rely on buses to and from the city. When discussing the buses, interviewee #7 commented on the importance of which bus she uses saying: "No, [the bus is] leaving. Quickly we have to get on that bus. And there is no way to carry the load [of produce] ... Running you have to go up [to the bus]. And there the bus leaves. The green ones do. They wait, load and there they go. They Yes. And other buses don't." Travel time can take anywhere from 1 to 2 hours per trip, leading many to accumulate more than 4 hours of total travel time. For interviewee #6 "it takes almost 15, 20 minutes for my mom to go home. I mean from there 1 hour and 40 minutes ... in total yes two hours" to return to her *finca*.

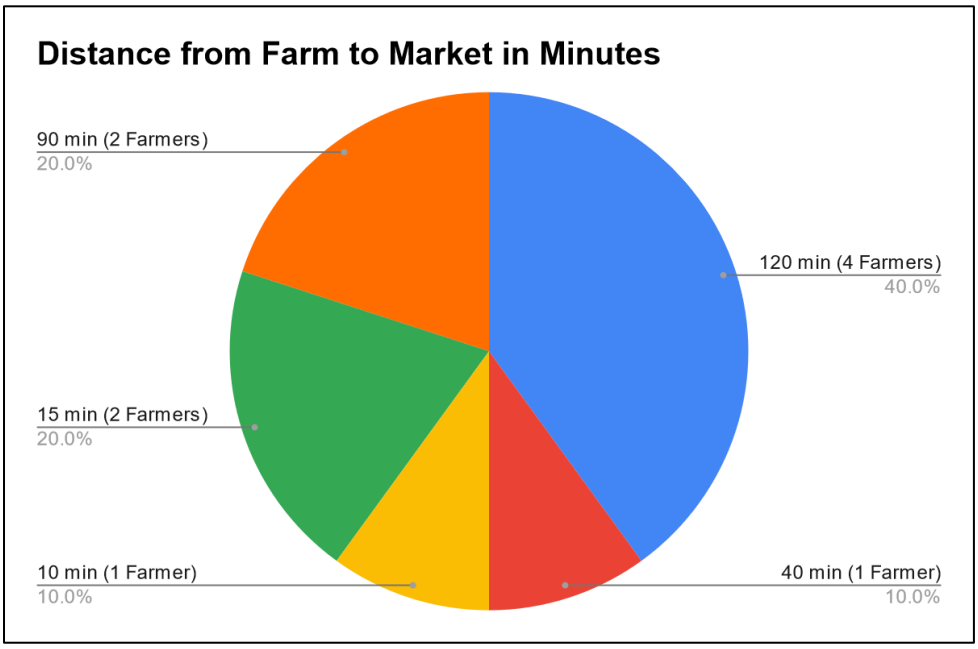


Figure 4.3 Pie Chart Showing Travel Time (in minutes) for each Agroproducer

Knowing that transportation is often an issue and that the agroecological fairs start around six in the morning, all producers must depart at an early hour. The agroecological fairs that most agroproducers attend are at Cristo Rey, Vergel, and La Chicheria. These fairs are held on Wednesdays and Saturdays in the morning from 6am to 11am. Many of the agroproducers do not have personal transport, so they are bringing what they can carry on public buses to and from the fairs multiple times a week.

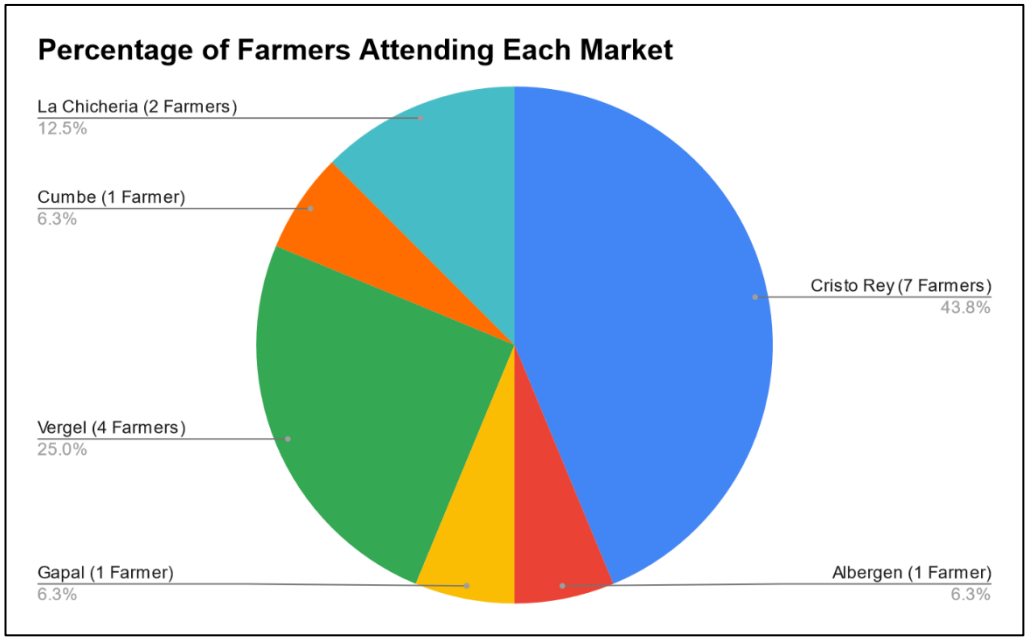


Figure 4.4 Pie Chart Showing Fair Attendance Frequency

Throughout the interviews it was mentioned that the members of the RAA are a part of smaller organizations. To be a part of the RAA, an agroproducer needs to be registered with the smaller organization they are a part of. Interviewee #8 said, "I practically began to be in La Red, I'm telling you, I'm not like [registered as me], but in La Red we are registered as a Calpa Warmi organization." These organizations generally consist of agroproducers that are geographically close to one another. The size of the organizations can range from as few as three people to as many as fifty. However, it has been noted that the organization's size has been dwindling with time and some see little hope for agroecology in the future (see section 4.3.1).

4.1.3) The Products

This database includes entries on all products, both plants and animals, for each agroproducer interviewed. Many of the interviewees share the same fruits (Figure 4.5), vegetables (Figure 4.6) and animal products (Figure 4.7), because they all support and seek biodiversity, a core theme of agroecology.

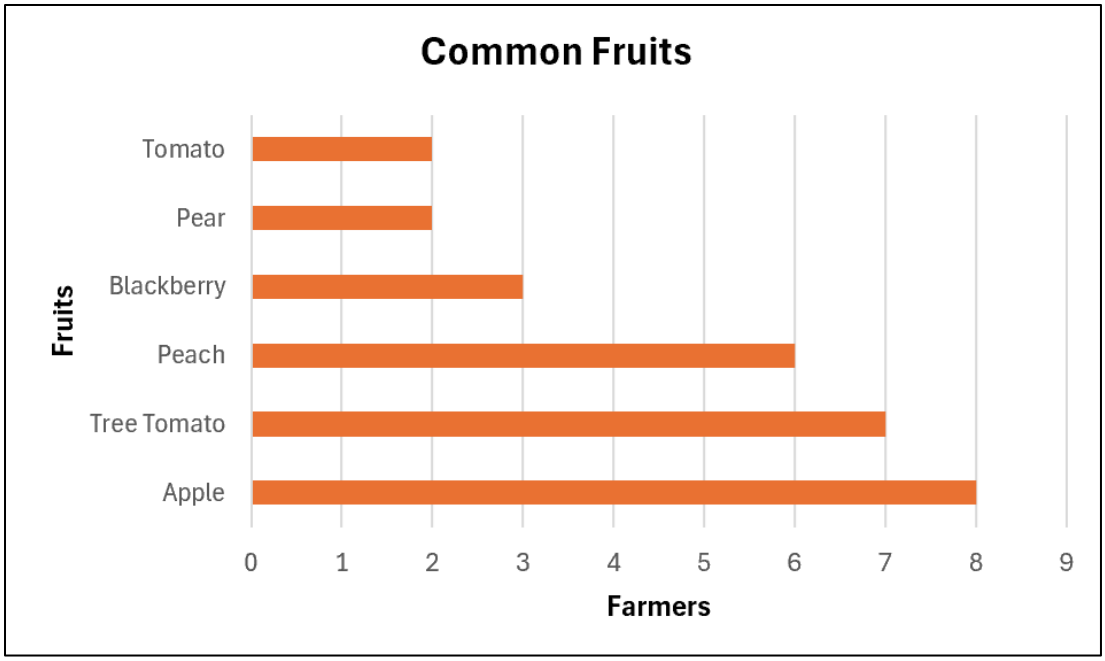


Figure 4.5 Common Fruits cultivated by the producers interviewed

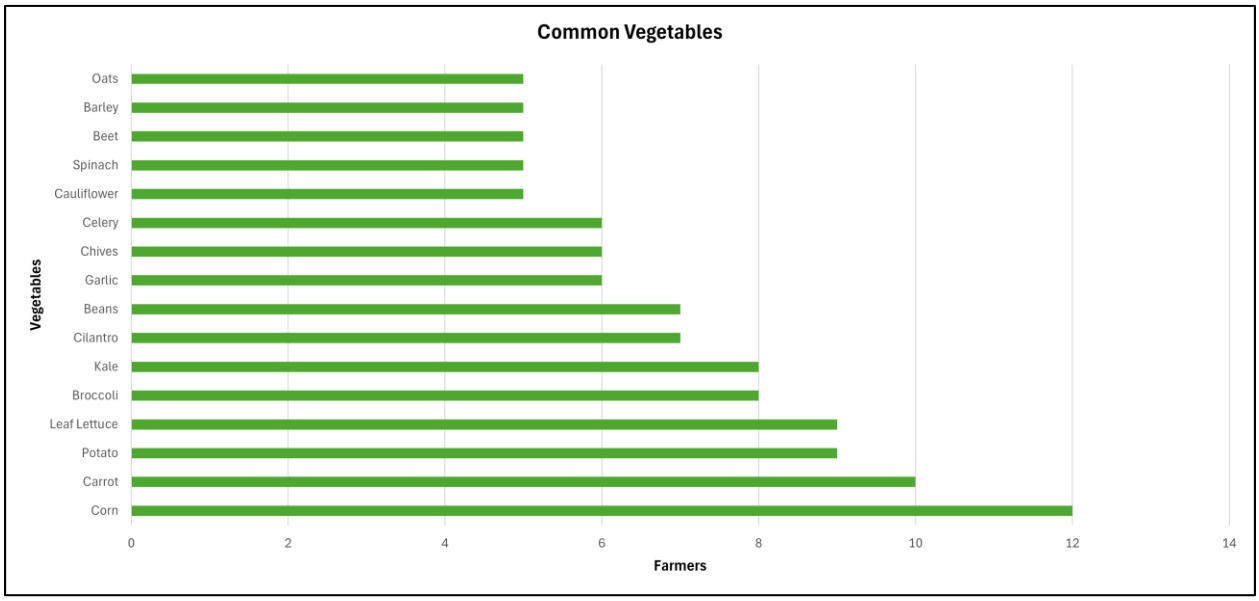


Figure 4.6 Common Vegetables cultivated by the producers interviewed

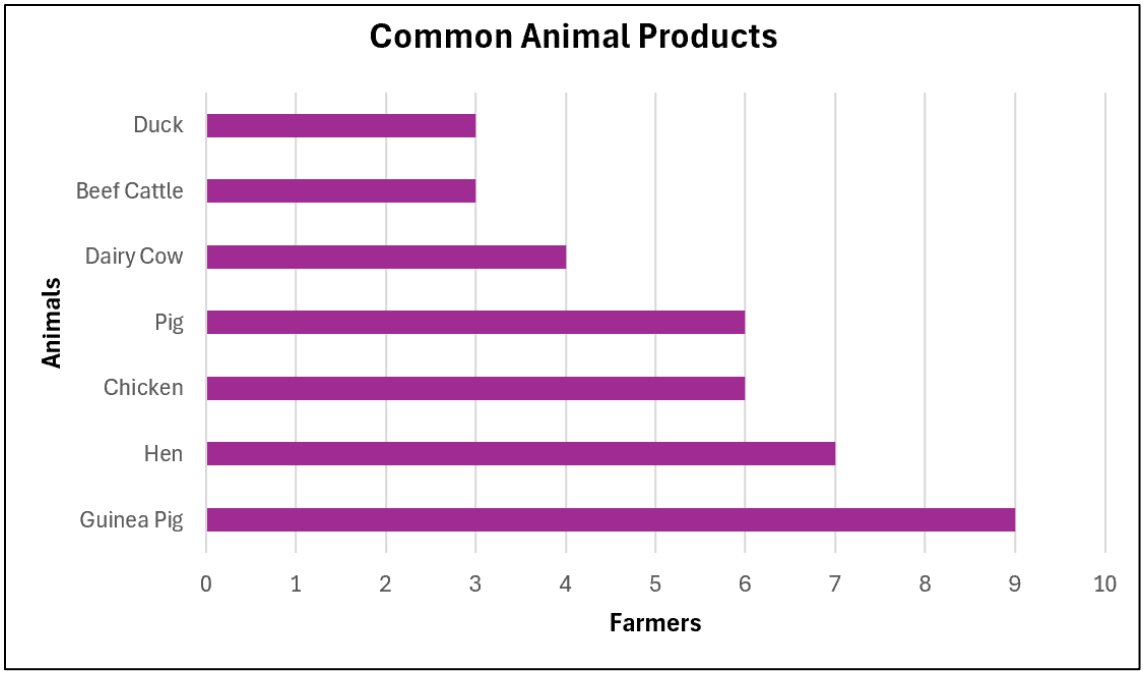


Figure 4.7 Bar Graph Showing Animal Products Raised by Farmers

The database is a very powerful tool for the RAA and provides excellent data to present to the local legislature on the variety and diversity these agroproducers bring from all over Azuay. This also assists in organizing data to easily read and focus on the commonality and differences between each agroproducer. While it is a fantastic tool, it is designed to be updated and given more information to further enhance the knowledge and data of agroproducers and organizations within the RAA.

4.2) Plant Registry

Part of the RAA's mission is to fight for agro-biodiversity. Through the visits with the agroproducers, a collection of photos from each *finca* was made. In combination with the survey and interview questions a plant registry was created to keep track of what each agroproducer brought to fair and grew for their own consumption. Figure 4.8 is a brief example of the plant registry.

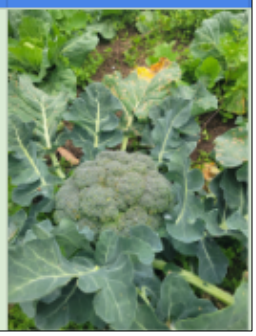
Nombre Común	Common Name	Productures	Temporada	Fotos
Brócoli	Broccoli		Constante	

Figure 4.8 Example Line of Plant Registry

During interviews and surveys, there were commonalities between the content of responses as well as how the agroproducers responded. When directly asked what they grew, a frequent answer, as quoted from interviewee #12 was that they "practically plant everything. And that's practically it for me. That is, having it as a product, but healthy." When asking for a more specific answer or when getting a tour of the land, the responses became more representative of all the crops they are growing.

Another commonality between interviews was the plants themselves. Every agroproducer has what is called a *chacra*, shown in Figure 4.9.

Figure 4.9 Chacra

This is a plot of land where several types of maize, beans, sambo, and broad beans are grown together. Along with the *chacras*, vegetables such as lettuce, broccoli, spinach, carrots and potatoes are common among agroproducers. However, there were only a few commonalities in fruits such as tree tomatoes (*tomate de arbol*) and some varieties of apples.

Ajo	Garlic
Cebollino	Chives
Apio	Celery
Papa	Potato
Maíz	Corn
Frijoles	Beans
Cebada	Barley
Avena	Oats
Atttaco	Amaranthus
Zanahoria blanca	White indiginous Carrot
Repollo	Cabbage

Table 4.1 Partial List of Plants

The RAA, at this moment, has a very in-depth plant registry that has names of various species from all different agroproducers. This plant registry's purpose was to assist in identifying the different plants through photographs taken at the farms.

4.3) Communication Medias for the RAA

In this section we showcase the various media-driven deliverables provided to the RAA. The purpose of creating media was to increase the visibility of the RAA to advocate for food sovereignty and spread awareness of local agroproducers and agroecological fairs. These medias include social media posts based upon common answers from the agroproducers, social media post templates, and infographic QR code cards for each agroproducers. Due to this project's short time frame, it is imperative that our sponsors continue making customizable media. Thus, the media materials will serve as a template for future media materials that can be used for other future deliverables.

4.3.1) Coding Findings

The data collected from the agroproducers helped to give us insight into what agroecology means to them. By using the software Atlas.ti, we were able to encode the interview transcripts to help us identify similarities and differences between the agroproducers' answers. The encoding process entails reviewing each line for meaningful information that is then coded or quoted to gather themes and patterns.

4.3.1.1) Defining Agroecology

After conducting our interviews, we received a wide range of answers that helped enrich our understanding and provide a broader context of the agroproducers' motivations and ecological stewardship. When asked about the significance of agroecology, a common pattern found was the importance of chemical free farming. These reoccurring patterns were analyzed to help provide a collective understanding of the agroproducers. According to interviewee #9, "And so we have, so, for me that means being agroecological because we don't... We don't use chemicals, we don't use this...Things like that to fumigate things that kill because we understand that microorganisms live on these fertilizers, they decompose. Because if we throw away chemicals, they die, so it says that they are the first workers of the earth." By embracing agroecological practices, agroproducers not only ensure chemical-free crops but also promote the resilience of their agricultural systems. This approach to farming acknowledges all elements within the ecosystem, from soil microorganisms to plant diversity and wildlife.

From the interviews, it became evident that for many agroproducers, agroecology goes beyond just sustainable practices. For example, some agroproducers highlighted the importance of patience and allowing mother nature to handle crops, embodying a holistic philosophy that emphasizes harmony with nature or rather Pachamama (Mother Earth). Interviewee #10 stated, "For me, being agroecological means first respecting our Pachamama, that is, our mother Earth, which gives us food. In other words, thank her for the food that she gives us every day and take care of her, take care of her by putting in each time if we can plant a new tree, much better. Make the variety of wild plants much better. For me it is that, that is, the more wild plants there are on our farm, the better." To other producers, agroecology supports the idea of sharing ideas and educating one another, helping to create a more resilient and beneficial community. For others, it is a sustainable livelihood past onto them from previous generations, as stated by interviewee #5 "we've been agroecological all our lives because my parents never used chemicals, never, never...." The significance of agroecology extends beyond the realm of agriculture to encompass broader societal and cultural values. Through our interviews, it became evident that agroecology is deeply intertwined with a sense of cultural identity and heritage for many agroproducers. By embracing agroecological principles, agroproducers not only contribute to environmental sustainability but also uphold cultural traditions and promote social cohesion within their communities.

4.3.1.2) What the Future Holds

When asked questions regarding the future of agroecology in Cuenca, some agroproducers' responses addressed regional issues like the popularity of agroecology and livelihood while others addressed more global issues like climate change. Regardless, there seems to be a sense of anxiousness regarding the topic. Interviewee #9 responds, "I don't know, I think, I don't know, it seems that all of us, a little, seem to be sowing and migration is coming, because of so many things that are happening now, the change of climate, because of all this." This also addresses an issue regarding the current decrease of agroproducers due to migration. This issue coupled with the fact that agriculture requires dedication to learning as stated by interviewee #11, "Anyone can do it, but they must dedicate it. As I say, even if it is not so profitable, but I know I am eating something good." This compounds into a bigger issue: the diminishing amount of youth interested in agroecology. This is made clear when interviewee #15 stated, "There aren't many agroproducers, especially young ones." Some agroproducers are fortunate to have their children take over the farm once they are old enough, but others are not. These trends all contribute to the stunting growth of agroecology. While most responses addressed many problems, some were very hopeful because of previous situations that agroproducers have strived through. When interviewee #10 stated "Hey, that is, until now we are fine because in this pandemic, we were made visible to the small producers and most of all to the agroproducers. Why? because we were the least affected and the ones who fed the city," we see determination towards uplifting agroecological food systems. The recognition garnered during the pandemic highlights the essential role of agroecology in ensuring food security and resilience in times of crisis. As such, there is a growing call for support and investment in agroecological initiatives to foster a sustainable future for agriculture and food sovereignty in Cuenca and beyond.

4.3.2) QR Code Infographics

Based on the information gathered from the in-person interviews and surveys, personal information pages were able to be created for each agroproducer. An example of the QR code can be seen below.

Figure 4.10 Example of QR Code Infographic Card for the Agroproducers

The QR code brings the customer to a secure document which outlines the producer's location, products, and other information specified by the sponsor. Since this document is a view only Google Doc, our sponsors can update information as it changes.

4.3.3) Social Media

To promote the RAA, part of our deliverables was making media for their Facebook and Instagram pages, in addition to creating a physical pamphlet that can be handed out at the fairs. We took the data we collected and previous background research on the importance of buying local produce to make visually appealing media to promote the agroecological fairs. Figure 4.11 shows an example of an educational post template we created for our sponsors Instagram page.

Figure 4.11 Example Social Media Post

4.4) Map of Producers

The creation of the map of agroproducers and agroecological *ferias* has been a multi-part effort, drawing information from many interviews and surveys with agroproducers to outline the landscape of agroecological activity within the region. Central to this mapping effort are the coordinates of farmland obtained through these interviews, offering a geographical framework for understanding the distribution of agroproducers. Notably, our results show that there are considerable distances traveled by agroproducers to access fairs, with them often relying on bus transportation due to the remote nature of many rural areas. For instance, documented journeys, such as those close to the Amazon, illuminate the long trips taken by agroproducers, further shedding light on the logistical challenges inherent in bringing produce to fairs.

Our documentation of travel serves not only to raise awareness but also to emphasize the dedication and effort invested by the agroproducers in supplying fresh produce to consumers. Additionally, the map feature two versions tailored to different audiences: one providing exact coordinates for sponsors to visualize the agroproducer's locations within the region (see first photo in Appendix H) and another designed for consumers, offering user-friendly insights into the origins of their produce, and affirming its local sourcing (see second photo in Appendix H). Furthermore, the inclusion of agroecological fairs on the map enhances its utility by providing a comprehensive overview of the accessibility of fairs within a certain area.

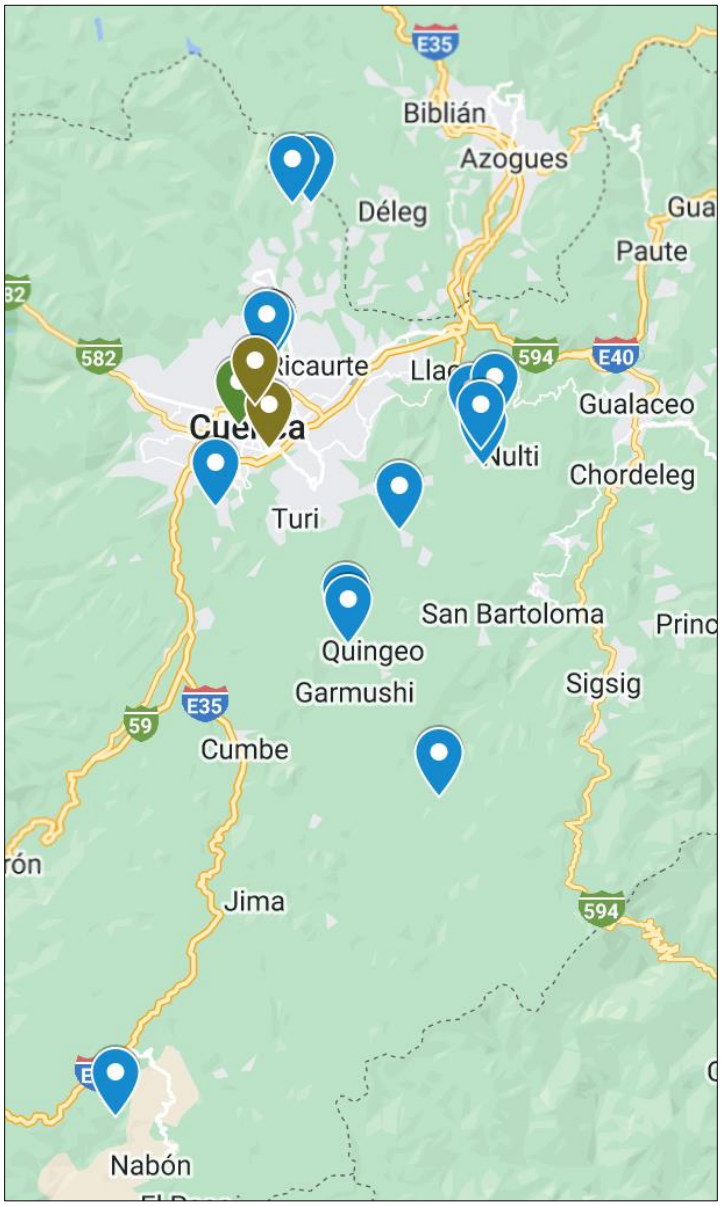


Figure 4.12 Map of the Agroproducers and Fairs

4.5) Conclusion of Findings

This section provides an examination of analysis and findings in the context of agroecology and agroproducers within the RAA. Key highlights include the development of a database capturing the diversity of the producers and their practices. Transportation emerged as a significant challenge, with agroproducers relying on public buses to access markets, highlighting the resilience of producers despite logistical hurdles. The plant registry is a complement to the database by documenting the diverse number of plants cultivated, emphasizing the importance of agro-biodiversity within farming. The communication media created, such as social media posts and QR code infographics, enhance the visibility of the RAA, promoting and educating about local produce and agroecology. Lastly, mapping efforts provide insights into agroecological activities. Overall, the findings of this project helped create our deliverables that promote biodiversity and advance food sovereignty within the region.

5.0) Recommendations for the RAA

To continue the work we did over the last two months, here we have outlined how our work can be continued. We went over each of our deliverables and how they can be expanded, as well as how to continue making more media to support the RAA. The last section goes over how future WPI groups can easily start where we left off and continue to help the RAA.

5.1) Database, Plant Registry, and Maps

Based on the deliverables and the intentions behind this project, we have identified possible recommendations for the RAA. With the aim to open more spaces for agroecological fairs, the plant registry, database, and maps provide sufficient evidence for the biodiversity of farmers within the RAA. Additionally, it showcases how the products are locally grown and the dedication of the agroproducers to not only farm without chemicals but arrive at the *ferias* from up to 2 hours away. We believe showcasing the database and plant registry to local legislature provides adequate evidence and collects data that the RAA was searching for.

We would also recommend to the RAA to continue the interviewing process and continue updating the database and plant registry. Due to the limited time we had in Cuenca, only a small number of producers affiliated with the RAA were able to be interviewed. The database is adjustable and can be updated without complications, thus requiring no coding fixes, however, there are instructions on how to use the database on the *Ajustes* sheet. Representatives of the RAA should reference the *Ajustes* for upkeep of the database. Regarding common changes for the database, there are multiple videos with step-by-step instructions. These are located in the *Base de Datos* folder in *¿Como a base de datos?*.

The plant registry follows a similar style to the one created previously by the RAA, and the pictures acquired by the team can be inserted into what the RAA has already done. When conducting further interviews at the *fincas*, we recommend continuing to take pictures to add to the plant registry.

Similarly, taking the coordinates and altitude of each new *finca* will allow the RAA to keep the maps updated with even more agroproducers. To update the map, go to the Google My Maps link in the Google Drive, open it and you will see a search bar at the top. If you are trying to add a new producer, you put the coordinates in the search bar, and at the top of the menu on the left click

the plus next to the location. If you want to search for a producer's location, type in their name and the first result will give their coordinates.

5.2) Communication Medias

In addition to the data-driven deliverables, we have outlined several social media templates and pillars to attract foot traffic on the RAA's Facebook and Instagram pages.

We have also created a template for the QR Code Infographic nameplates with both a design and the page the QR code brings the viewer to. As referenced in section 4.3.2, the foldable card showcases a picture of the producer as well as a scannable QR code that displays important information about the producer. The template of the card can be repurposed for any farmer by inserting an image of them taken by the team and uploaded in the respective Google Drive Folder. Furthermore, the QR code must be updated to match the new document of the respective farmer. The document can also follow the template laid out by the initial QR code created.

5.3) Future Collaborations

We understand that continuing these processes is not an easy task and takes a considerable amount of time. For these reasons, we recommend future collaborations between the RAA and WPI. Future collaborations with WPI students could include building on the work completed in this IQP, such as conducting more interviews, updating the databases, and providing more concrete social media templates and posts for the RAA. Help from future WPI groups could greatly reduce the amount of time RAA officials need to spend in the field, as well as more ideas from students to help assist the RAA in creating more agroecological fairs.

Another recommendation for future WPI groups is to observe and examine the dynamics of the *ferias* for community and communication media purposes. These community gatherings play a vital role in connecting producers and consumers. Students can spend a large amount of time recording their intricacies, such as social interactions, financial aspects, and local significance. Understanding the inner workings of *ferias* can offer valuable insights into their role in promoting sustainable agriculture. From this understanding, communication media materials can continue to be created and posted based on the style formulated by this project.

5.4) Recommendations Conclusion

Using the deliverables we have provided our intent is that the RAA will be able to continue following their mission of advocating for agroecological fairs and food sovereignty in the Azuay region. More agroproducers who work with the RAA can be interviewed, and posts for the RAA's social media pages can continue to be created and posted according to the media deliverables shown in Appendix F. Our work with the QR code cards can be continued and extended to each farmer who we interviewed. We also encourage future collaborations between the RAA and WPI. Future WPI IQP teams can work with the RAA to continue the work we have done; conducting more interviews with farmers who are a part of the RAA, creating more media for the recognition of farmers and agroecology, and contributing their own ideas to this project.

6.0) Conclusion

For our IQP "Apoyando Las Ferias Agroecologicas de la RAA", we were given the task to work with the RAA to increase the public knowledge of agroecology and food sovereignty to assist their efforts of changing local legislation to support agroecological fairs. We created a database for the RAA with information about 18 agroproducers part of the RAA. We also created a map of the *fincas* where the agroproducers live and grow their food. This map, along with the database, will be used when working with the local government. In addition, our group created social media content, a plant registry, a pamphlet, a set of recommendations for the future of this project, and recommendations for future collaborative work. The final results of our project included establishing a database to assist the RAA in presenting a concise dataset and accurate farm map to lawmakers, and media to support the RAA's mission. Through this project we have successfully helped the RAA with their mission of promoting agroecology and advocating for food sovereignty.

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Appendices

Appendix A. Sponsor Description:

For establishing markets in the neighborhoods of Cuenca, Tatiana Rodriguez is the main contact and sponsor for this project. Reddington, Boissonneault, Johannes, and Arnold imply in their IQP report that Tatiana is affiliated with the *Empresa Pública Municipal de Desarrollo Económico de Cuenca* (EDEC) (Reddington et al., 2019). The EDEC is a public government organization listed as a municipal public company. According to their Facebook page, the company was "born from the need to produce changes in the lives of the citizens who live in Cuenca, turning them into active subjects who exercise their quality of life options, through the incorporation of an organization that functions as the main actor in local development, focused on economic activity, productive growth and the needs of entrepreneurs."(Asociación El Cántaro de Sancapac, 2013) Pickett, Peterson, O'Neil, and Scanlon's report, centered on promoting the culture and traditions of Cumbre, shares a similar theme of community involvement displayed in our project goals and the EDEC's organizational standard (Pickett et al., 2018).

The Municipal Public Enterprise of Economic Development (EDEC) is organized based on an ordinance by the I. Cantonal Council of Cuenca. Governed by the Constitution of Ecuador and the Organic Law of Public Companies, EDEC actively participates in building a fair and sustainable economic system. It focuses on creating infrastructure, facilitating location facilities for businesses, promoting job creation, and contributing to municipal projects for economic development. As stated in the Ordinances and Regulations of the Alcalde de Cuenca, the organization is governed by a Board of Directors, composed of five members (ORDENZA DE CONSTITUCION, 2010). These members include a representative from the Mayor's Office of Cuenca (or delegate), an official from the Municipality of Cuenca responsible for the company's administrative area, a councilor appointed by the Cantonal Council, a citizen representative designated by ordinance, and a representative from the Association of Production Chambers of Azuay. The board holds legislative and supervisory powers, approves internal regulations, pricing mechanisms, and investment proposals, ensuring compliance with legal frameworks. The board holds legislative and supervisory powers, approves internal regulations, pricing mechanisms, and investment proposals, ensuring compliance with legal frameworks.

According to research on the company and statements from previously funded projects, the EDEC can provide funding for lodging infrastructure as well as English language support (Pickett et al., 2018). In addition to this information, collaborations with the EDEC should be pursued as they can aid in financial and promotional aspects.

Additionally, after further communication with our sponsor, Pedro Mosquera notes their affiliation with La Red Agroecológical del Austo. The network, which operates throughout the Azuay, Morano Santiago, and Cañar regions, works to fight for food sovereignty and agro-biodiversity in the southern part of the country (Red Agroecological del Austro RAA, 2017). Directed by peasant women, the RAA currently brings together over 24 peasant organizations throughout southern Ecuador and encompasses more than 400 families (Calero Mora, 2016). The RAA organizes local fairs in the urban areas of Cuenca to assist local agroproducers to promote and sell their products. Working with this network allows us to understand the challenges of promoting and embracing agro-biodiversity, while also aiding in their efforts to enforce change in local policies for agroproducers markets.

Our project's problem is of importance to EDEC and the RAA because neighborhood markets are a part of the economic development and agro-biodiversity of Cuenca. The food cycle is heavily involved with economics as food travels from farmer to consumer. As our sponsor's mission is to produce change in the lives of the people of Cuenca, unsustainable farming, inefficient market locations, and not having much access to local food is a problem (Trajano Bermeo Jaramillo, 2013). More specifically, the organization is concerned about the impact of current agricultural practices on people's well-being. Issues like degraded soil and inefficient farming methods directly affect the economy, health, and safety of communities. Agroecology offers a solution by promoting sustainable practices that not only address environmental concerns but also provide economic opportunities, improve public health, and ensure food safety. The proposed project aligns with the organization's mission by fostering resilient communities, supporting local economies, and enhancing overall well-being.

Appendix B. Consent Statement Read to Participants:

We are a group from Worcester Polytechnic Institute (WPI) located in Worcester, Massachusetts. We are working on a project with La Red Agroecológical del Austro to create a database of agroproducers they represent and to inform the public about the importance of supporting local producers and establishing markets for agroproducers to sell locally produced goods. We are conducting interviews and surveys with agroproducers with the purpose of collecting quantitative data for the database and qualitative data to later be used in educational and media materials.

Do we have your consent to interview you for our project?

Your participation is completely voluntary, you may stop the interview at any time, and you can skip any question. We will record the interview for later translation and analysis of your answers. Your data will contain identifying information unless you wish for us to keep that confidential, in which case your identifying information will be stricken through. This data will be used for our project report that will be publicly available and will be given to La Red Agroecológical del Austro as evidence to support their mission.

Spanish Translation:

Somos un grupo del Worcester Polytechnic Institute (WPI) ubicado en Worcester, Massachusetts. Estamos trabajando en un proyecto con La Red Agroecológica del Austro para crear una base de datos de los agricultores que representan e informar al público sobre la importancia de apoyar a los productores locales y establecer mercados para que los agricultores vendan productos producidos localmente. Estamos haciendo entrevistas y encuestas con agricultores con el propósito de recopilar datos cuantitativos para la base de datos y datos cualitativos para luego utilizarlos en materiales educativos y de medios.

¿Tenemos su consentimiento para entrevistar a usted para nuestro proyecto?

Su participación es completamente voluntaria, usted puede detener la entrevista en cualquier momento y usted puede saltar cualquier pregunta. Grabaremos la entrevista para su posterior traducción y análisis de sus respuestas. Sus datos contendrán información de identificación a menos que usted desee ser anónimo, en ese caso su información de identificación será tachada. Estos datos se utilizarán para el informe de nuestro proyecto que estará disponible públicamente y se entregarán a La Red Agroecológica del Austro como evidencia para respaldar su misión.

Appendix C. Interview Questions:

Farmer Interview Questions

1. When and why did you become a part of RAA?
2. What does it mean to you to be an agroecological farmer?
3. Why do you farm agroecologically?
4. How long has your family been agroproducers?
5. Do you have any workers outside of your family?
6. Could you share what kind of techniques you use for farming?
    a. Why do you use [SPECIFIC] techniques?
7. How do you sell most of your produce? For example, a market or direct supply clients like restaurants.
8. What thoughts do you have on the future of agroecological farming in this region?

Spanish Translations

1. ¿Cuándo y por qué pasaste a formar parte de RAA?
2. ¿Qué significa ser agricultor agroecológico?
3. ¿Por qué cultivas agroecológicamente?
4. ¿Cuánto tiempo lleva su familia siendo agricultores?
5. ¿Tiene algún trabajador fuera de su familia?
6. ¿Podrías compartir qué tipo de técnicas utilizas para la agricultura?
7. ¿Cómo aprendiste tus técnicas?
    a. ¿Por qué utilizas esta técnica?
8. ¿Cómo vende la mayoría de sus productos? Por ejemplo, un mercado o suministro directo a clientes como restaurantes.
9. ¿Qué piensa usted sobre el futuro de la agricultura agroecológica en esta región?

Appendix D. Survey Questions:

Survey for Agroproducers

1. What is your full name?
2. How old are you?
3. How many people are in your family?
4. How long have you been farming?
5. How much land, in acres, do you grow crops on?
6. What organization do you work for?
7. How many family's are in this organization?
8. What *finca* are you part of?
9. How many people in your family?
10. Coordinates of farm?
11. Altitude of farm?
12. What vegetables do you grow?
    a. How many varieties of each crop do you grow (Provide scientific name if possible)?
    b. When is the planting season for each?
    c. When is the harvest season for each?
13. What fruits do you grow?
    a. How many varieties of each crop do you grow (Provide scientific name if possible)?
    b. When is the planting season for each?
    c. When is the harvest season for each?
14. What animal products do you produce?
15. What is the distance from your farm to market?
16. How often do you go to market?
17. What markets do you go to?
18. What other people in your *finca* go to each market?
19. What other people in your organization go to each market?

Spanish Translations

1. ¿Cuál es su nombre completo?
2. ¿Cuántos años tiene?

3. ¿Cuánta gente hay en tu familia?
4. ¿Cuánto tiempo llevas cultivando?
5. ¿En cuánta tierra, en acres, cultiva?
6. ¿Para qué organización trabajas?
7. ¿Cuántas familias hay en esta organización?
8. ¿De qué finca eres parte?
9. ¿Cuántas personas en tu familia?
10. ¿Coordenadas de la finca?
11. ¿Altitud de la finca?
12. ¿Qué verduras cultivas?
    a. ¿Cuántas variedades de cada cultivo cultiva (proporcione el nombre científico si es posible)?
    b. ¿Cuándo es la temporada de siembra para cada uno?
    c. ¿Cuándo es la temporada de cosecha para cada uno?
13. ¿Qué frutas cultivas?
    a. ¿Cuántas variedades de cada cultivo cultiva (proporcione el nombre científico si es posible)?
    b. ¿Cuándo es la temporada de siembra para cada uno?
    c. ¿Cuándo es la temporada de cosecha para cada uno?
14. ¿Qué productos animales produce?
15. ¿Cuál es la distancia desde su granja hasta el mercado?
16. ¿Con qué frecuencia vas al mercado?
17. ¿A qué mercados vas?
18. ¿Qué otras personas de tu finca van a cada mercado?
19. ¿Qué otras personas de su organización van a cada mercado?

Appendix E. Informed consent and confidentiality:

The research team will obtain informed consent from all participants. The consent statement includes information about the purpose of this project and how the data will be used.

Farmer participants' data from interviews and surveys will be used to populate a database and create educational and media materials for La Red Agroecológical del Austro as evidence to support their mission. Thus, personal identifying information, such as their names, will be included unless they choose to remain anonymous. In that case names and other identifying information will be stricken through in the interviews and surveys with only the unique identifier, given to each participant, left. The identifiers will be used for analysis, the database and official reports.

All data will be stored and analyzed in a manner that ensures participant confidentiality and privacy. Audio recordings, transcripts, photos and videos will be stored in a project folder, that is a password-protected on a cloud-based platform that is only accessible to research team members.

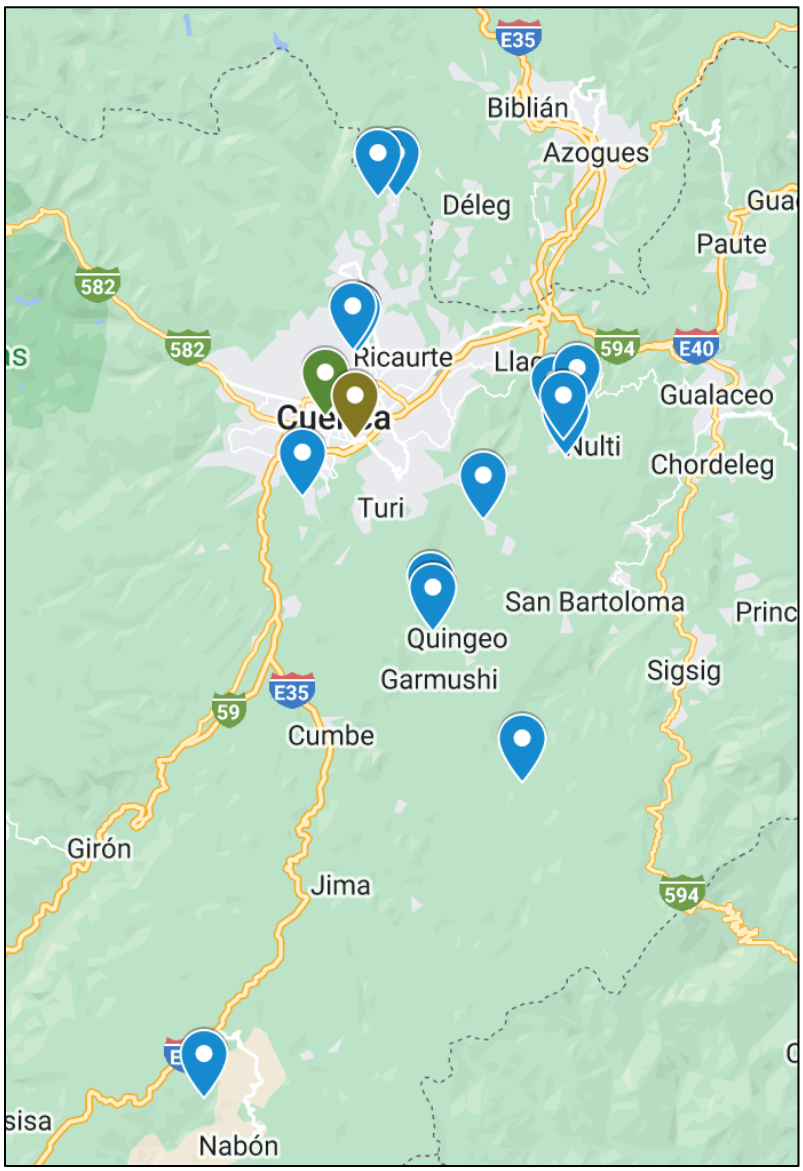
Appendix F. Communication Medias:

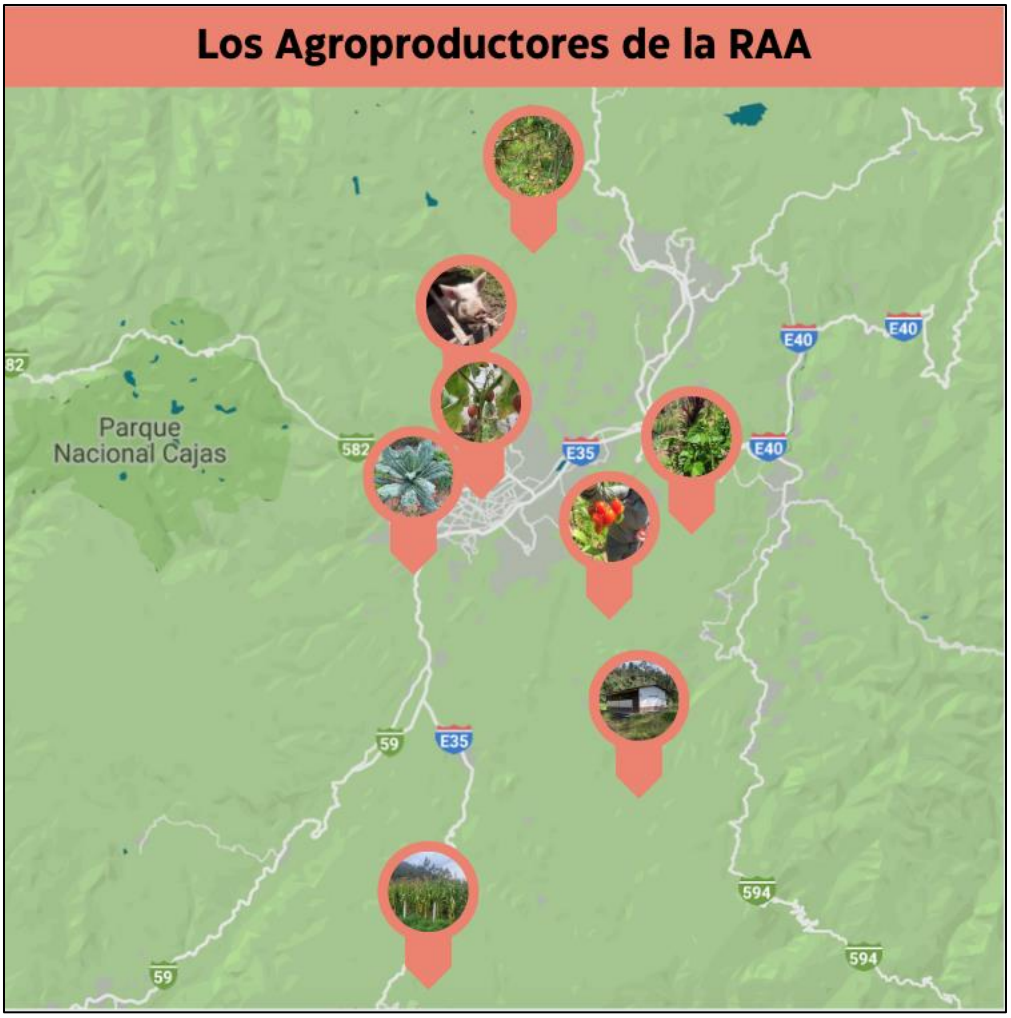

RED AGROECOLÓGICA
DEL AUSTRO
01
MISIÓN DE LA RAA- Apoyar el conocimiento de la agroecología y la soberanía alimentaria
02
MISIÓN DE LA RAA - Contribuir a la conservación de la agrobiodiversidad
¿QUÉ ES?
La agroecología es un enfoque integrado que aplica simultáneamente conceptos y principios ecológicos y sociales al diseño y gestión de sistemas alimentarios y agrícolas. Dentro de un marco de justicia y derechos, busca minimizar los aportes externos y optimizar las interacciones sostenibles entre plantas, animales, humanos y el medio ambiente en general.
@redagroecologicadelaustro
LA AGROECOLOGÍA


HECHOS
01
La Red Agroecología del Austro aporta el 60% de la canasta básica alimentaria
02
Las mujeres agroproductoras en Ecuador representan aproximadamente el 67% de todos los agroproductores y poseen un papel fundamental en el proceso de producción y comercialización (Naciones Unidos Ecuador, 2023)
03
La mayoría de los agroproductores tienen una chacra. Una chacra es maíz, zambo, y haba o frijoles. Son plantas que funcionan juntos.
RED AGROECOLÓGICA DEL AUSTRO
FERIAS AGROECOLÓGICAS EN CUENCA
Vergel
Cristo Rey
Gapal
La Chicheria
DONDE ESTAN NUESTROS PRODUCTORES
AZUL: PRODUCTORES
VERDE: FERIAS
Biblián
Azogues
Déleg
Paute
Ricaurte
Cuenca
Gualaceo
Chordeleg
Turi
San Bartoloma
Quingeo
Garmushi
Sigsig
Cumbe
Girón
Jima
Nabón

Appendix G. Open House Poster:

Appendix H. Maps for the RAA:




Los Agroproductores de la RAA
Parque
Nacional Cajas
582
E35
E40
E40
E40
59
E35
594
594
59