LEAP TO ADVANCEMENT: LOCAL FARMERS' VIEW ON TECHNOLOGICAL ADVANCEMENTS IN FARMING NOW AND THE LAST 30 YEARS

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In partial fulfilment of the
requirements in the subject
Practical Research I

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RESEARCH ABSTRACT

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KEY WORDS : Agricultural machinery, Agricultural technologies, Technological innovations and inventions, Agricultural production, economically unattainable, Advantages and disadvantages of agricultural technologies

ABSTRACT: Several breakthroughs in the agricultural industry have resulted in increased productivity. Farmers, on the other hand, have differing perspectives on these developments. This study aims to explore the various viewpoints of local farmers on technological innovations and inventions in the agriculture industry during the last thirty years. This study utilized a qualitative research approach, specifically a phenomenological type. Twelve local farmers from the municipality of Balaoan, La Union were selected as respondents through non-probability sampling, particularly purposive and convenience sampling. A one-on-one interview, specifically a semi-structured interview, was used to collect data. Data collection was done ethically. Data analysis revealed that these modern technologies promote more effective and time-saving farming methods while increasing agricultural yield. Adjustment phase was likewise simple. However, some require more adjustment time. Although this progress has improved farmers' lives and farming quality,

agricultural technologies have drawbacks, notably in terms of expenses. Machineries are typically expensive, making it economically unattainable for small-scale farmers. Farmers, majority of whom lacked machinery, perceived lack of machinery training as a hindrance as well. Furthermore, the industry appears to be unprogressive due to lower profitability and income and inexpensive sales. The researchers concluded that, despite the benefits of advanced technology, local farmers' views on these vary, educating the general public about the experiences of farmers in the sector. It is also suggested that more research be conducted on this issue. The infographics may also be used in information dissemination about the effects of agricultural technologies.

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CHAPTER I

INTRODUCTION

Agriculture is extremely important in every Filipino's life. It is the primary source of income for the majority of Filipinos, particularly those living in rural regions, contributing around 10% of the country's Gross Domestic Product. It undoubtedly gives several job opportunities as it is subdivided into four subsectors: farming, fishery, livestock, and forestry. Agriculture provided food and raw materials for other sectors, making it the backbone of everything the world has today. There would never have been a civilization in the present without it (Ramos, 2022).

In the long view of human history, the first human species to exist on the planet, homo sapiens, hunted, gathered, and scavenged sustenance from the wild. Throughout this period, humans mostly relied on what the environment could offer. They made use of stones as a primary component of their tools and equipment and obtained foods from their surroundings for survival. However, they had to move to another place once there is a scarcity of materials in their current location. This hunter-gatherer, nomadic lifestyle of the people took place for about 200,000 years until a new way of living in favor of permanent settlements and reliable food supply superseded. According to Hillel (2016), from as early as 11,000 BCE, people began a gradual shift away from a hunter-gatherer lifestyle towards cultivating crops and raising animals for food. The transition of lifestyle paved a way to trigger a change in the society and the way of living of the people. Having the ability to

meet the demand of the people in terms of food security, civilizations emerged, and the population rose – all these because of agriculture (National Geographic, 2019).

Agriculture refers to the process of cultivating land or soil, growing crops, and raising livestock to produce food and other raw materials that the entire population may utilize to make other manufactures. From the food that every individual consumes, to the materials used in producing various products such as fabrics, paper products, and construction materials – everything is a product of agriculture. Additionally, agriculture also provides a variety of job opportunities to the people. According to statistics provided by Clark (2021), the agriculture sector employed 873 million people worldwide, while the services sector employed 1.6 billion people, and the industries sector worked over 693 million people. With the given data, it is clear that agriculture is the primary source of income of the vast majority of the world's workforce. Thus, the significance of agriculture in the lives of individuals and industries is undeniable.

The agriculture sector comprises of four subsectors: livestock, fishery, forestry, and farming. However, it is a common misperception that farming is synonymous with agriculture. Agriculture, according to Real Farm Lives (2018), is a wide phrase that incorporates everything that goes into growing crops and raising animals to give food and materials for humans to use and enjoy. Farming, on the other hand, entails cultivating land to grow crops like rice and corn as well as raising livestock. It is the practice of putting agriculture in action. Farming has advanced over time to meet the demands of the population. Over the years, several countries, including the Philippines, have gone through major changes in farming and agriculture in general in order to provide enough supplies for the population.

Farming is used to be done on a small scale, centered on single families, and concentrated on numerous crops. The aim was to grow food for the family as well as sell and barter any surplus in good years. Muscle power was provided by humans using hand tools and animals pulling basic equipment, which limited production. Harvesting was a workforce issue; a family could not harvest more crops than it could preserve and store in the period permitted. More recently, motorized equipment, such as tractors, were used to pull implements for cultivating the soil and harvesting the crops, making farming easier. Larger swaths of land were cultivated as technology improved the capacity to farm. The John Deere plow, for example, revolutionized large-scale farming by allowing farmers to cultivate more land in less time than ever before (Dyer, 2014). According to the research on agricultural technological change conducted by Otchia (2013), governments choose to adopt technology that can increase the productivity of the scarce or low-quality element. Countries with limited land but plenty of workforce are more likely to use land-saving technologies like chemical and biological high-yield technologies. Nevertheless, as opportunities to expand operations arose, farming goals evolved, the nature of the farm shifted, and several reactions from farmers regarding these changes emerged (Dyer, 2014).

Possessing large areas of agricultural land and having a desirable location, Philippines' primary source of income is agriculture. According to Statista Research Group (2021), 24.8% of the country's labor force was employed in agriculture and 10.2% of the Gross Domestic Product (GDP) of the country came from the agricultural sector. However, over the years, several problems in the sector have arisen making it harder to sustain the necessities of the people. Some of these issues were exacerbated by the Green Revolution in the 1960s, when which farmers in the country depended extensively on degenerative

agricultural practices. Due to the exorbitant expense of chemical fertilizers and pesticides, which degraded the soil and poisoned waterways over time, these strategies drove millions of farmers into debt. The International Rice Research Institute (IRRI) was founded more than half a century ago by the Philippine government, with support from the Ford Foundation and the Rockefeller Foundation. The IRRI crossed Dee-Geo-woo-gen and Peta rice strains in 1962 to produce IR8, or "miracle rice," which accounted for more than 80% of all rice production in the Philippines by 1981. The "wonder rice" yielded ten times more than ordinary rice varieties, allowing the Philippines to transition from a rice importer to a global exporter. While the Philippines' agricultural production grew at this period, the benefits of the Green Revolution were short-lived. Farmers were outweighed by growing debt-related expenses, declining income, and the environmental repercussions of chemical-intensive agriculture. Many developing countries have been victims of huge agricultural corporations selling high-yielding seeds that generate productive harvests the first year but require significant increases in chemical inputs the following year (Gardiner, 2020).

The enticement of high but unsustainable crop yields has resulted in a society of enslaved farmers whose farmlands have turned barren in the absence of synthetic and chemical inputs. Pesticides kill vital soil microorganisms and reduce the soil's ability to absorb nutrients and water over time, rendering farmers more vulnerable to droughts, floods, pests, and crop diseases. Small-scale farmers are at risk of going bankrupt as a result of this increase in production expenses (Gardiner, 2020). Additionally, the growing population is another factor to consider in agricultural production. In the present, Philippines has a total of 105 million population growing at a rate of 1.9%. To make food more accessible, the cost of production must be reduced, and people's wage generating

capacity must be increased. As a response to this, the Department of Agriculture produced different steps to ensure food security and to generate jobs and foreign earnings. One of these steps include intensive technology updating and sharing, modernization and mechanization (Piñol, 2016).

Farms and farming systems are all different from small subsistence farms, large-scale mechanized agriculture, and high-tech hydroponics and greenhouses. Each of these agricultural methods has its own set of obstacles and limits that influence the type and quantity of crops produced. Different farming methods have a wide range of environmental consequences, including global climate change. As the world continue to progress, agriculture is tremendously shaped by technological advancements. Research into innovative technology and farming methods is crucial to addressing food security issues and the need for sustainable agriculture. From the invention of the plow to GPS-driven precision farming equipment, humans have devised innovative techniques to make farming more productive and generate more food for the entire population (National Geographic, 2022).

The operations of farming are diverse for which machines are utilized. Handling of crop residues; primary and secondary tillage of the soil; fertilizer distribution and application; seeding, planting, and transplanting; cultivation; pest control; harvesting; transportation; storage; premarketing processing; drainage; irrigation and erosion control; and water conservation are all part of crop production. Livestock production, which once relied solely on the pitchfork and scoop shovel, today employs a multitude of complicated and extremely sophisticated machines for handling water, feed, bedding, and manure, as well as the several unique activities involved in producing milk and eggs. In the early

nineteenth century, animals were the primary source of power in farming. Later in the century, steam power rose to prominence. During World War I, gasoline (petrol) powered tractors became commonplace, and diesel engines soon followed. The number of farm workers in developed countries has continuously fallen over the twentieth century, but agricultural production has increased due to the utilization of machinery. Farm machinery pertains to mechanical devices used in farming to save labor, such as tractors and implements. Farm machinery range in complexity from simple hand-held implements used since prehistoric times to the complex harvesters of modern mechanized agriculture (Augustyn & Tikkanen, 2021).

Some of the modern equipment in farming are the following: (1) Plows - prehistoric digging staff was the plow's antecedent. The very first plows were certainly digging poles with handles for pulling or pushing. There are three variety of plows, and these are disk plows which are typically made up of three or more separately placed concave disks that are sloped rearward to obtain maximum depth; rotary plows or tillers (also known as rototillers) which are powered by a horizontal shaft with curved cutting knives; and subsoiler and chisel plow which are deep tillage devices that are primarily used to break up hardpan and compacted soils. (2) Farm tractor - is used in plowing, tilling, disking, harrowing, and planting to tow and push agricultural machinery. (3) Harrow - a tool used to cultivate the soil's surface. (4) Cultivator equipment - a piece of agricultural machinery used to aerate and loosen the soil after growth, eliminate weeds, and agitate and pulverize the soil before planting. (5) Cultipacker - a piece of farm machinery that smashes soil clods, removes air pockets, and presses down tiny stones to achieve a smooth, solid seedbed. (6) Rotating hoe, motorized tiller, or rotary plow - a motorized grower that works the soil with

rotating blades. (7) The trip-till method - a tillage management technique that uses the least amount of tillage possible. By disrupting only, the portion of the soil containing the seed line, this combines the benefits of traditional tillage for soil drying and heating with the benefits of no-till soil protection. (8) Seed drill - a device for planting seeds at a consistent rate and depth, with or without the option of covering them with soil in a continuous flow in furrows. This ensures that the seeds are equally spread. The seed drill sows the seeds at the precise seeding rate and depth, ensuring that the seeds are completely covered by soil. This protects them from being eaten or dried up by animals due to exposure to the sun. (9) Fertilizer spreader - a tractor tool used to spread crop, lime, or fertilizer. (10) Sprayer - a machine that applies herbicides, pesticides, and fertilizers to agricultural crops. (11) Combine harvester - a machine that combines the planting, threshing, and cleaning of grain crops into one machine. Planting corn, soybeans, flax (linseed), and oats is the main goal. (12) Plant harvesting machinery - a mechanical tool that is designed to harvest forage crops grown in the upland or field while also forming roll bales. Moving, harvesting, and a portion of the baler make up the system.

In developing countries, the adoption of innovative agricultural technologies is always at the forefront of policy considerations. Despite the obvious benefits of many new agricultural technology, such as machinery and management approaches, farmers either do not embrace them or take a long time to start and scale up the adoption process (Mottaleb, 2018). In the agricultural industry, several breakthroughs have been developed, and the results of these developments is evident in the improved productivity of the sector. Farmers, on the other hand, have different perspectives on these changes. Thus, the study, Leap to Advancement: Local Farmers' View on Technological Advancements in Farming

Now and the Last 30 Years, was conducted to know the different takes of local farmers on the various technological innovations and inventions in the agricultural sector.

This study aimed to explore about local farmers' perspectives on agricultural technological advancements in the last 30 years. Similarly, it sought to answer the following questions: (1) How do local farmers adjust to the continuous improvement of farming technologies? (2) What are the thoughts of farmers on the different agricultural technologies? (3) How do these agricultural technologies affect the farmers? (4) What interventions can be proposed with the results of the study?

Change is constant. Technology has been advancing and is yet to be more improved in the next years to come. This concept can be viewed from different Agricultural sub-sectors: farming, fisheries, livestock, and forestry. This study only focused on the farmers' view on different technological farming improvements or advancements, significantly over the last thirty (30) years of high-tech development. The researchers gathered data from the local farmers of La Union. How they perceive farming with innovative technologies, how they adjusted to these modifications and highlight their in-depth knowledge of the modernizations of agricultural tools were looked upon. Those who refused to be interviewed were not considered as participants. The researchers conducted the study in March 2022 to June 2022 and utilized the Descriptive and Phenomenological Research Design.

Farming is one of the largest sub-sectors here in the Philippines, with our terrain and tropical climate condition. Farming is considered a relevant livelihood amongst Filipinos. Thus, the knowledge that will be derived from this study, having the purpose of learning about local farmers' perspectives on agricultural technological advancements, is

significant. Now that excellent quality products intended for a sufficient farming movement are being offered, knowing how the main beneficiaries, the local farmers, will give these such tools and equipment a review is something to be really considered. The results of this study will provide sufficient information to the farmers and those who aspire to be part of the agricultural field on how to cope with the changes in the agricultural sector, the benefits of the emerging technologies in farming, as well as the effects of the agricultural technologies on their environment. Similarly, the secondary beneficiaries – authorities in charge, such as the Department of Agriculture, industries responsible for machinery production, and the entire agricultural labor force – will benefit from this study for they will be provided information that will help them improve their ability to provide better services and production to the sector. Furthermore, the tertiary beneficiaries, which covers the entire community, will acquire more knowledge about how local farmers utilize various technologies, their advantages, and the environmental implications of these technologies.

To better discuss the content of this study, the following terms are defined according to how they are utilized in this study.

Agriculture – sector by which people cultivate soil, grow crops, and raise livestock

Crops – cultivated plants grown as foods, especially grains, fruits, or vegetables

Degenerative – decline or deteriorate

Enticement – something used to convince, persuade, or attract

Exorbitant – unreasonably high charge

Farming – act of cultivating the soil, planting, and growing crops, and raising livestock

GPS – Global Positioning System; utility that provides users with positioning, navigation, and timing (PNT) services

Homo sapiens – the primate species to which modern humans belong; humans regarded as a species

Innovative – featuring new methods; advanced and original

Lifestyle – the way in which a person or group lives

Livestock – farm animals regarded as an asset

Mechanization – the introduction of machines or automatic devices into a process, activity, or place

Nomadic – lifestyle by which one moves from one place to another

Prevalent – widespread in a particular area or at a particular time

Scarcity – the state of being scarce or in short supply; shortage

Surplus – an excess of production or supply over demand

Swaths – a row of cut grain or grass left by a scythe or mowing machine

Synthetic – imitation of a natural product; unnatural

Tillage – agricultural preparation of soil by mechanical agitation of distinct types, such as digging stirring, and overturning.

CHAPTER II

METHODOLOGY

The research method that is used to explore the different perspectives of local farmers on the various technological advancements in farming now and in the last thirty (30) years were discussed in this section. It is composed of the research approach and the research design being used in the study, as well as information about the respondents and qualifications in choosing them. The data gathering procedure and data analysis procedure were also discussed further.

Qualitative research is gathering and analyzing non-numerical data in order to better understand concepts, views, or experiences. It can be used to learn more about a subject or to produce new research ideas (Bhandari, 2020). The focus of this approach is the systematic gathering, arrangement, and description of written, verbal, or visual data (Dixon-Woods et al. 2006 as cited in Young et al., 2014).

In this study, a qualitative research approach was chosen because the methods were used to answer questions concerning the views of local farmers on technological advancements in farming now and the last 30 Years. Based on the study conducted by Hammarberg (2016), the qualitative method involves collecting non-numerical and non-statistical data. Most often, this is used to answer queries concerning experiences, meaning, and perception from the participants' standpoint. Furthermore, qualitative research techniques are used in investigating beliefs, attitudes, and concepts of various behavior; to seek views on a particular area of study or topic; to understand a certain experience,

condition, or event based on a personal perspective; and to learn about distributed or private knowledge.

According to Neubauer et al. (2019), phenomenology is defined as an approach to research that aims to characterize the essence of a phenomenon by exploring it through the viewpoints of individuals who have experienced it. The goal of phenomenology is to describe what and how people have experienced specific phenomena. Moreover, the subjective experience is the emphasis of the phenomenology research design, with participants' personal lived experiences examined as a method of making sense of the world (Benner, 1985 as cited in Borrow, 2017). The aim of this study is to learn and explore about various technological advancements in farming through the viewpoints and experiences of the participants, the local farmers. Hence, the phenomenology research design was utilized.

A descriptive research design was also used since this approach is used to describe a phenomenon and its dimensions. According to Doyle (2020), the purpose of qualitative descriptive research is to provide a complete summary of specific events experienced by individuals or groups of individuals. The nature of the specific situations under investigation is discovered through data collecting in qualitative descriptive research. Thus, data collection entails small to moderately sized participants, structured, open-ended, individual, or focus group interviews. Data collection, however, may also include observations and thus the examination of records, reports, and such. In conclusion, when a straightforward description of a phenomenon is desired, a descriptive research design is used.

The subject of the study involved local farmers from the municipality of Balaoan whose source of living, for thirty (30) years or more, is farming. The Municipality of

Balaoan was chosen as the location of the study because the utilization of different advanced technologies, equipment, and types of machinery in farming was observed by the researchers. Previously, it has been recommended that qualitative studies should require a sample size of at least twelve (12) to acquire data sufficiency (Vasileiou et al., 2018; Clarke & Braun, 2013; Fugard & Potts, 2014; Bunce et al., 2006). Thus, twelve (12) participants from the said municipality were selected by the researchers for the data gathering.

In the article written by McCombes (2019), non-probability sampling is a method of selecting participants based on random criteria, and not every individual has the chance of being included in the study. This sampling technique is often used in exploratory and qualitative research, in which the aim is not to evaluate a hypothesis about a broad population but to develop an initial understanding of a smaller or more specific population. Under the non-probability sampling method, purposive sampling is being utilized. Purposive sampling is a sampling technique that is mainly used in qualitative research and is commonly used to identify and select information-rich cases related to the phenomenon of interest of the researchers (Palinkas et. al., 2015 as cited in Lopez et al., 2021). On the other hand, combining sampling procedures is also considered in order to attain the objective of the study and for the research to be more appropriate to its goal. Thus, the researchers also make use of convenience sampling since the target participants of the study are within the access of the researchers. According to McCombes (2019), convenience sampling involves individuals or target respondents who are most accessible to the researchers.

In a study, specifically on qualitative research, a research instrument was used to gather data from the participants of the study. One type of research instrument used in data

gathering is the interview. Interviewing comprises asking questions and receiving responses from participants. Individual, face-to-face interviews and face-to-face group interviews are all examples of interviewing. In this study, the researchers made use of a semi-structured interview. According to George (2022), a semi-structured interview is a type of data collection in which questions are asked within a preset theme framework. Semi-structured interviews are often qualitative in nature in research. In marketing, social science, survey technique, and other research domains, they are commonly employed as experimental tools. They are also common in field research with a large number of interviewers, providing everyone with the same theoretical framework but letting them study diverse aspects of the research issue. Semi-structured interviews are frequently open-ended, which allows for flexibility. Setting questions in a predetermined order provides for easier comparison between responders, but it might be restrictive. Less structure can help you detect trends while still allowing you to compare responders. When the study questions are exploratory in character, semi-structured interviews work well. Participant responses can help you establish a stronger knowledge basis for future study by guiding future research topics. Semi-structured interviews are sometimes referred to as "the best of both worlds," since they combine parts of structured and unstructured interviews, giving semi-structured interviews the benefits of both: comparable, trustworthy data and the freedom to ask follow-up questions.

As part of the data collection process, a one-on-one interview, specifically a semi-structured interview, was conducted in Balaoan, La Union. Semi-structured interviews, as defined in the previous paragraph, are those in-depth interviews where the respondents must answer preset open-ended questions. Semi-structured, in-depth interviews are utilized

extensively as interviewing format possibly with an individual or sometimes even with a group (Jamshed 2014). This enabled the researchers to be prepared and appear competent during the interview, with both allowing informants to express themselves in their own words.

Invitation Letters were given to the participants to read and to formalize their agreement to be part of the research study. The researchers made use of the semi-structured interview to gather information or data from the participants. Relevant questions were prepared and formulated by the researchers to comply with the necessary requirements for the conduct of the interview. The questions were centered on exploring local farmers' views on the different technological advancements in farming.

Before conducting the interview, the researchers were tasked to subject their interview questions to validation by experts whose expertise was related to research. The researchers chose a Mathematics Teacher, a Science Teacher, and a Social Sciences Teacher as validators.

The validity of the interview questions as the research tool for this study was interpreted using the five-point Likert-Scale. The scale is as follows:

Table 1. Level of Validity of Interview Questions

Point Value	Statistical Range	Descriptive Equivalent Rating
5	4.51-5.00	Very High Validity (VHV)
4	3.51-4.50	High Validity (HV)
3	2.51-3.50	Moderate Validity (MV)
2	1.51-2.50	Poor Validity (PV)
1	1.00-1.50	Very Poor Validity (VPV)

In order for the interview questions to be appropriate for gathering information that is aligned with the study's objective, a minimum average of 2.51 rating score will be needed. The researchers acquired an average score of 4.00 which indicates a high validity. This means that the interview questions were appropriate and aligned with the aim of the study. Moreover, comments and recommendations given by the validators were taken into consideration by the researchers.

In the interpretation of the gathered data from the interview, the researchers used the thematic analysis approach to analyze the results. According to Caulfield (2019), the thematic analysis, which is originally developed for psychology research by Virginia Braun and Victoria Clarke, is currently a method used for qualitative studies. This process is usually applied to a set of texts, such as an interview or transcripts. There are various approaches to conducting thematic analysis, but the most generic form follows a six-step process. The researchers get a thorough overview of the data and highlight sections to produce a description of the highlighted sections. After highlighting sections, patterns among the gathered data, such as similar contents and concepts, were identified to produce a theme. The themes recorded from the gathered data were reviewed to verify their accuracy and relevance before defining and naming each for the write-up.

Following ethical guidelines is important for a variety of reasons. These standards foster research objectives and values that are essential to collaborative research. They also contribute to the public's trust in researchers. Furthermore, ethical research principles help with the development of public research support as well as the upholding of other important moral and social ideals (Resnik, 2020). Thus, to preserve the integrity of the study, ethical considerations were observed.

Before conducting an interview, the researcher took the consent and permission of the respondents. They acknowledged that the respondent has the option of accepting or refusing the study's request.

It is the researchers' obligation to maintain the respondents' identities secure and confidential. Their identities were kept hidden from everyone except the respondent and the researchers.

The researchers likewise acknowledged their cultural and religious origins. During the interview, they did not intimidate the participants, allowing them to disclose their true feelings and opinions. Even though the respondents' perspectives differed from the researchers', they were all reflected in the study. The results were not tampered with, and the data were accurate. The researchers gathered all of the responses in one place – no more, no less. They were honest in every part of the study. Likewise, no act of plagiarism or manipulation occurred in the researchers' favor.

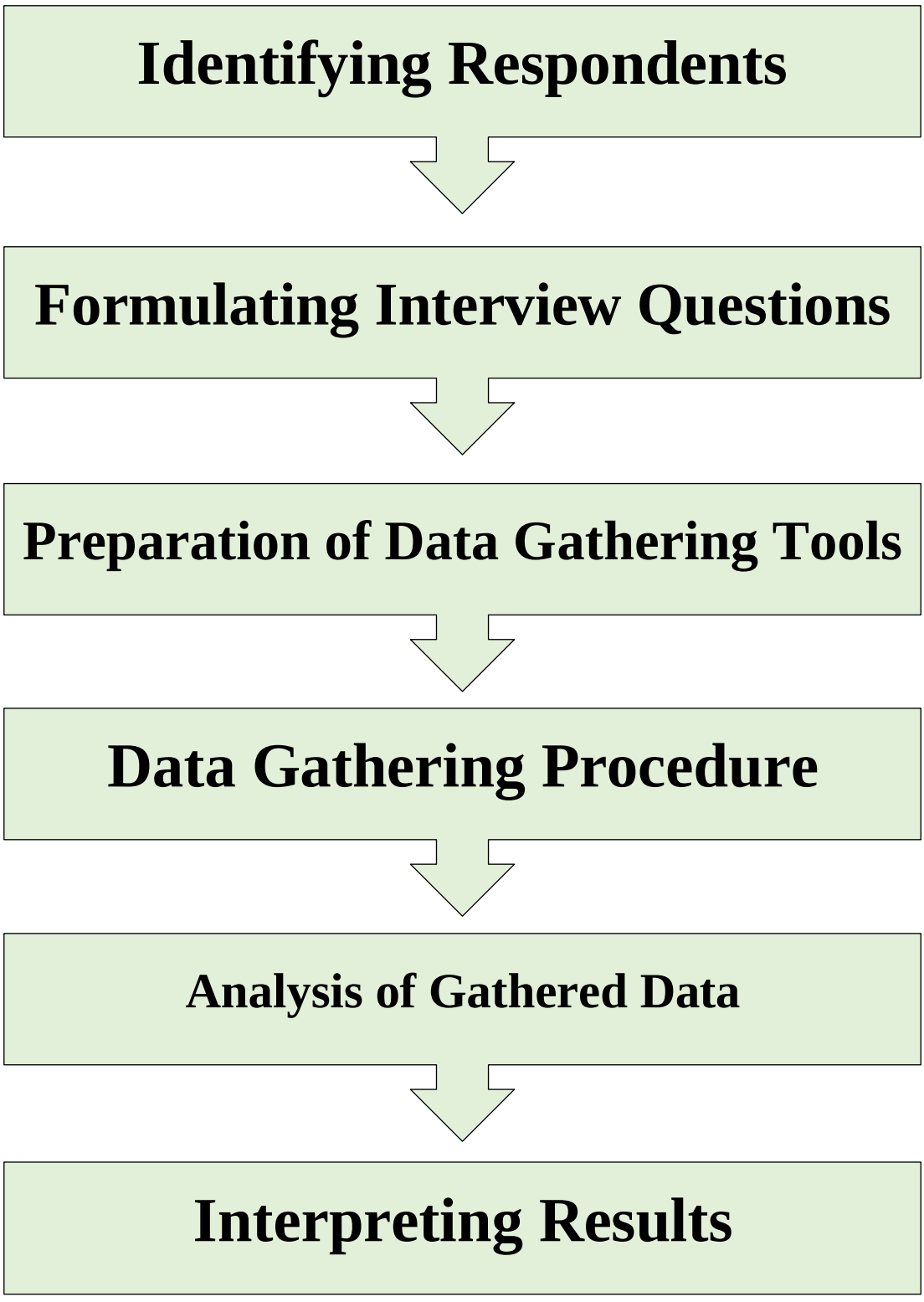

Figure 1. Flowchart of the Data Gathering Process

CHAPTER III

RESULTS AND DISCUSSION

In developing countries, the adoption of innovative agricultural technologies is always at the forefront of policy considerations. Despite the obvious benefits of many new agricultural technology, such as machinery and management approaches, farmers either do not embrace them or take a long time to start and scale up the adoption process (Mottaleb, 2018). In this study, the local farmers talked about their views and opinions regarding the different technological advancements in farming now and in the last thirty years – their adjustment phases to the continuous improvement of farming technologies, their thoughts and takes on the different agricultural technologies, and to the effects of agricultural technologies on them.

Ten themes had emerged from the answers of the respondents entitled, “Quick Jumpstart”, “Give me time”, “Agricultural Tollgate”, “Obstacles Along the Way”, “Status Dependency”, “Blooming to Progression”, “It’s not what it seems like”, “Inverse Relationship: Work and Profit”, “We Can’t Turn Back Time”, and “To the Good Old Days” in order.

Quick Jumpstart

Technology's impact on agriculture has been shaped significantly by technological advancements over time. Humans have devised innovative techniques to make farming more productive and raise more food, from the invention of the plow to precise agricultural equipment powered by GPS (National Geographic, 2021). This section entitled “Quick

Jumpstart'' discusses the adjustment period of farmers the first time they handled new and unfamiliar farming technologies. After the researchers finished with the transcription and analysis of data, it is found that almost all of the participants easily adapted to the innovative technologies in farming as these machineries share similarity with the traditional equipment in farming in which they were immersed with. Moreover, further immersion and firsthand experiences in utilizing these technologies allow them to adapt easily.

During the interview, a respondent answered, *"Kanyak a ket kwa, idi 1980's ngamin (kalla agpada). Hanak naikaw-kawa ta daydi father ko ket nakaprovide met ti makinarya na, dagitay hand tractor." (During the 1980's, I did not feel any differences in handling these new machineries as they were similar with the traditional ones.)* Similarly, another respondent said, *"Iti kuliglig a ket idi damo, makius-usarak iti sabali. Haan met a kasusuro datuy panagusar ti kuliglig ta nu makitkitam diyay padam a mannalonen, ammom diyay ar-aramiden na isu nga haan narigat a kasusuro." (It is not hard to manipulate unfamiliar machineries the first time I handle them. For instance, the first time I handled a compact tractor, which I borrowed from a friend, I easily adapt how to use it just by watching how other farmers utilize it.)* These can be proven by a study conducted by Upadhyaya (2020).

Education level, land holding size, and prior experience with new technologies are important factors in the adoption of the current new technology. However, they may occasionally notice another adoption and wish to obtain information from them in order to apply properly. If their neighbors have had success with that technology, there is a good possibility that the technology will be adopted.

“Give me time”

Life goes on as time flies. People strive and at the end, they reap what they sow. But as time passes by, an eternal yet unchangeable factor of its run is change. Science tends to fly with time, and it strives to keep up by making practicality more technologically inclined. Thus, modern agricultural methods tend to rely on products and methods of technology to attain bearable and more convenient results through more convenient solutions.

Not everyone can adjust to the different technological advancements in farming in a short span of time. Some need a longer amount of time to fully adapt to the emerging technologies. This section entitled, “Give me time" discusses the adjustment phases of the farmers in utilizing various agricultural machinery.

During the interview, one *respondent said, “Idi damdammo a ket syempre narigat mo pay nga ammo ta kabarbaro.” (It was still difficult to operate at first because it was new to us.)* Another respondent responded similarly, *“Hanko payla ammo paandaren idi. Nu mapaandar diay makin-ammo ah ket pagin-inayadak met ah nga sursurwen. Ngem idi damo nga makakita ak kasdiay, sipsiputak dagijay mapapamay-an jay imun-unna nga gimmamiten tattan. Idi kwan metten kayat ko met masursuro metten. Pinadas-padas kuma ngem di nasursurok metten, sarsarilyek metten." (I am not sure how to use it at first. If someone else uses the same machine, I will watch and gently operate it. When I initially saw the machine, I focused on the folks who knew how to operate it. After a minute, I would want to give it a shot as well. After much practice, I got the hang of it.)*

Understanding how to use contemporary agricultural technology is complex. Farmers farm using traditional ways and adopting modern technology in farming is difficult for them since they do not completely understand the mechanics in utilizing agricultural technology for the first time (Chukwuemeka, 2022).

Agricultural Tollgate

This section entitled "Agricultural Tollgate'' discusses how the different agricultural technologies affect local farmers and how they view them in terms of its advantages and disadvantages.

Advancements in agricultural technologies have played a vital role in the lives of the farmers and in the quality of farming. However, just like any other innovations and advancements in different industries, these agricultural technologies also have setbacks, particularly in expenses. According to the majority of the respondents, the advancements in agricultural technologies allowed them to work more efficiently than before when they were utilizing the traditional method of farming. Nevertheless, one of the setbacks they have observed in adapting modern technologies were the expenses.

In the interview, a respondent answered, *"Nu ikomparak tatta, tatta ket nalag-an ti panagtalonan ngem nagasto kaysa idi. Narigat idi ngem nalaklaka nga amang ti magastos. Sunga nalaklaka (ti magastos) nga amang idi umuna a panaggtalonan. Nalaklaka ti expenses. Tatta ket nagngina pay ti magastosen, naglaka py ti apiten mi a irik." (If I would compare farming methods today from before, today were a lot easier and more efficient but costly. Previously, working in the farm needed lots of strength and effort. However, it was more income-producing as necessities in farming were less expensive.)* Similarly,

another respondent answered, *"Nu ikumparam idi ken tatta nagpaspasen a nga talaga ngem ti madi laeng ngarod diyay met magasto ta kastuy metten presyo it maapit tatta."* (*If you would compare farming today from before, it was more efficient. The process was a lot faster. Nevertheless, problems regarding the expenses arose as prices of sales of products decrease.)*

Technology has significantly increased agricultural production; farmers can now accomplish more work with less effort and in less time. There are various advanced technological equipment and techniques available to farmers to assist them increase their farming yield. Farmers may operate more efficiently, with less effort, and in less time with the aid of contemporary technologies. Work that once needed a large number of people and an extended period of time may now be completed quickly and cheaply due to contemporary technology. Farmers are not required to charge a separate fee for their services. Similarly, Modern technology and machines function at a far rate faster than people. Modern agricultural technology significantly minimizes farmers' efforts (Chukwuemeka, 2022).

On the contrary, managing machinery and equipment require a lot of expenses. Purchasing equipment constitutes a significant capital outlay that can have a considerable influence on your company's solvency and liquidity. The volume of usage, the cost of fuel and labor, the size of the equipment, its efficiency, and the level of maintenance all have an impact on operating expenses. Annual repair expenses vary depending on the type of machinery and its age, as well as its use and degree of maintenance. The cost of repairs will skyrocket as the piece of equipment matures and more parts wear out and need to be replaced. Fuel and lubricant expenses are largely associated with tractor or self-propelled

equipment use and are affected by engine size, load, operating speed, and field conditions. Labor is also a significant expense in equipment operations and should be included when comparing the costs of operating different quantities of machinery or determining if custom hiring makes sense. The farmer normally provides labor for machine operation, although this is not always the case. Another essential factor to consider while managing your machinery investment is the availability and quality of workers (Kime, 2016).

Obstacles Along the Way

Agricultural mechanization is the process whereby farmers utilize equipment, implements and machineries to increase food and agricultural production in order to solve drudgery problem in production (Folaranmi, 2014). Majority of farmers recognized the advantages of using machinery. Nonetheless, 50%–79% of farmers clearly indicate a low or neutral intention to use machinery. Farmers' intention to use machines was hampered by small scale of farmland, land fragmentation, excessive cost of purchasing machines, and farmers lack of machinery training (Huo et al., 2022). This section, titled "Obstacles Along the Way," discusses the difficulties and challenges of operating these machineries that local farmers' usually face.

After the completion of the data transcription and analysis by the researchers, it was discovered that the efficiency of agricultural mechanization can be limited by a variety of factors. Agricultural machinery is typically expensive, and good brands are less subsidized, making it economically unattainable for small-scale farmers. Farmers' desire to purchase new machines and renew old equipment is hampered by the low efficiency of mechanized production. According to Kime et al. (2016), Annual repair costs depend on machinery type and age and vary with use and the level of maintenance. New equipment frequently

come with warranties, and repair expenses are typically inexpensive in the first few years of ownership. The cost of repairs will increase rapidly as the piece of equipment ages and more parts wear out and require replacement. During the interview, one respondent has said, *"Dagiti problema tatta kadagituy panagusar ti baro a makina ket maintenance na a talaga, tay panagpasimpa. Haan met nga kanayon nga nakakondisyon ti makina, adda latta met tay panagperdi na. Nalaka met agbirok ti materyales ngem ti kaadwan na tattan, adu ngamin dagiti partes ti makmakinan nga narukop. Isu nga nu agpasimpa kam makina, biruken mi talaga diyay original na." (The problem with using modern machines is the maintenance itself. The machine is not always in the right condition, there will always be a time for it to fail. It is simple to obtain materials for the machine, but the majority of those materials are of inferior quality. So, when repairing a machine, you must find original ones already).*

Farmers, most of whom were without machines, saw lack of machinery training as a barrier as well. Several participants who had their own machines said they struggled to operate them too for their first time. As a result of a lack of effective training, some farmers have poor ability to operate machinery, particularly medium and large machines, potentially causing damage to the machineries. According to one participant, *"Ang naging problema ko sa paggamit ng makina ay sa pagpwesto nito dahil medyo may kabigatan, gano'n din ang pagpapaandar." (I had difficulties in positioning the machine and so was the operation because it was a bit heavy).* Likewise, another participant has said, *"Narigatanak di damdammo ta syempre maam-amak ka, mabutbuteng ka aglalo diay di tambak nu kumalay-at kasdiay mapattog. Adda latta met diay panagbuteng ah ngem idi narwamak ket nalaklakan." (I had a tough time at first because of course I was worried, I*

was scared, especially when the machine rose, because it might fall. Of course, there is still real fear, but it will be easy once you get used to it.)

Status Dependency

Small-scale farmers dominate agricultural production in the Philippines. According to the 2012 Agricultural Census, about 90% of agricultural land holdings are less than three hectares, and most farmers rely on many layers of middlemen to concentrate and transport their products to ultimate markets.

Farmers' reliance on these marketing platforms grew as they move further away from their markets. In these circumstances, intermediaries frequently barter down prices without passing the savings on to customers.

Farmers' lack of bargaining strength when dealing with intermediaries is exacerbated by high trade expenses, which allow the latter to engage in price gouging. When trade costs are low, more intermediaries compete in both producer and consumer markets, lowering prices while benefiting farmers. Lower trade costs, according to studies, take pricing power away from middlemen. For example, in Sub-Saharan African countries, intermediary earnings are higher in remote places and are likewise associated with higher consumer costs. Reduced trade costs can change the distribution of revenues throughout the marketing chain, benefiting farmers

The consequences could be significant. Almost all farms in the Philippines are run by families. A quarter of the Philippine work force is employed in agriculture, and agricultural products account for more than 20% of the overall volume and value of domestic marine trade in 2019 (Go, 2021).

In the agricultural industry, several breakthroughs have been developed, and the results of these developments is evident in the improved productivity of the sector. Farmers, on the other hand, have different perspectives on these changes. This section entitled "Status Dependency" discusses and answers the thoughts of farmers about the different agricultural technology and how they are affected by it.

During the data gathering, seven farmers had the same thought, which is that the progression only depends on the status of farmers. On the interview, respondent #12 answered, *"Nu ibagak iti agpayso haan nga progresibo tatta ti mannalon gappo ta dagituy a nagbaba a presyo ti apit tas inngato da met iti presyo alikamen di ket awan mabagi min a mannalon, agpayso nga adu tattan ti makinarya nga nagmamayat nga mangpakita nga progresibon ngem ti agpayso dagitay la batnangen ti mabenipsyuwan ngem dagitay narigat a ket awan" (To tell the truth, farmers nowadays are not progressive because of the low prices of harvested rice crops. The price of materials used also increased resulting in us, farmers, having insufficient profit. It is true that there is a lot of delicate machines to prove that it is progressive but one thing for sure is that only the well-off will be benefited but the less privileged one gain nothing).* In addition to this, respondent # 1 mentioned that *"Ngem iti dakes na ngarud, narigat ti rumang-ay panagbiag na nu awan ti puhunan na a dakkel. Nu makitaltalon ka laeng, awan ti mabirukam." (A farmer's life cannot be progressive unless significant investment is made. You have the smallest possibility of making a profit if you are merely a pre-worker or a laborer.)* furthermore, respondent #2 answered, *"Depende ngamin. Haan amin a mannalon ket adda makinarya na. Isunga iti mas progressive dagiti adda makinarya na. Ngem nu dagiyay makitaltalon kuma, adda met maincome ngem haan a kasla dagiti adda makinarya na. Isuda dagiyay ti talaga nga*

makaurnong ta pagbirok da dagitay makinarya da. Haan ngamin amin a mannalon ket maikkan (ti makinarya).” (The progress of farmers is determined by their standing. That is why the only progressive farmers are those who own their own equipment and utilize it to make money by renting it out, while those who do not have their own equipment can still make money, but it is inadequate to maintain.)

In developing countries, the adoption of innovative agricultural technologies is always at the forefront of policy considerations. Despite the obvious benefits of new agricultural technology, such as machinery and management approaches, farmers either do not embrace them or take a long time to start and scale up the adoption process (Mottaleb, 2018).

While the Philippines' agricultural production grew at this period, the benefits of the Green Revolution were short-lived. Farmers were outweighed by growing debt-related expenses, declining income, and the environmental repercussions of chemical-intensive agriculture. Several developing countries have been victims of huge agricultural corporations selling high-yielding seeds that generate productive harvests the first year but require significant increases in chemical inputs the following year (Gardiner, 2020).

Blooming to Progression

The way local farmers perceive the effects of agricultural technologies to them and to the industry varies from one another. To some, making use of advanced technologies in farming results to a more progressive sector but, it was not the same with everyone. This section entitled, “Blooming to Progress” discusses the perceived productive and positive

effects of the agricultural technological advancements to the farmers and to the progression of the agricultural industry.

Four out of the twelve respondents answered that the sector would be more progressive when using advanced technologies in farming as it increased crop productivity, is less time-consuming, and more efficient. *"Iti pagsayaatan na dagituy baro a technologies tatta, napapartak nga makalpas iti pannagtalon mo."* A respondent answered. *(Being able to finish farming activities more efficiently is one of the positive impacts of these agricultural technologies.)* On the other hand, two of the respondents answered, *"Mas mabilis ang proseso, diyay pinagtalunan tattan kumpara idi mas magaan na ang trabaho." (Farming process turns out to be less time-consuming than before. Working in the farm is more effortless.)*

Modern farms and agricultural operations are vastly different from those of a few decades ago, owing to technological breakthroughs such as sensors, gadgets, machinery, and information technology. Robots, temperature and moisture sensors, aerial photographs, and GPS technology are all often used in agricultural today. Precision agriculture and robotic technologies, as well as modern equipment, enable enterprises to be more lucrative, efficient, safe, and environmentally friendly (Bakar & Radhi, 2020).

"It's not what it seems like"

Agricultural technologies are created to boost crop productivity and to address chemo-physical, biological, and socioeconomic restrictions (Suresh Chandra Babu, 2017). When it comes to agricultural technologies, this sector has experienced numerous breakthroughs during its long history. It has seen it all, from tilling to crop rotation to

plowing and the use of contemporary agricultural machinery. However, agricultural technology has their own set of downsides, such as the overuse of pesticides and fertilizers. Therefore, it is critical that we investigate the whole influence of agricultural technology (Behrens, 2018).

This section, entitled "It's not what it seems like," discusses how local farmers are affected negatively by these adjustments and evolving agricultural technologies. Eight out of twelve respondents answered that with these agricultural technologies, the sector turned out to be unprogressive as it affected the labor of small-time farmers. Additionally, the insufficient suggested retail price of products, less profitability in the sector, less generated income, and inexpensive sales of products were the respondents' reasons why the sector is not progressive even though advanced technology is being utilized.

As what respondent #11 said, *"Ngem adda latta met ti pagmadi'an ti maysa banag. Maysa adiay magastos ken dagiyay makitaltalon nakissayan ti pakitrabahuwan da ta panay met makinaryan ti aggunay." (There is always a negative impact with every conception. Agricultural technologies have a negative impact. The first is the expenses. It also affects our small farmers because today's agricultural technology machineries cover up the role of manpower or our farmers.)* As addition to this, another respondent answered, *"Ti met pagdaksan na ngimmato iti usaren kalla kuma arawaten ti makina ngimmato met amin aglalo unay ti krudo. Anya ngay ti maincome mo nu ad-ado met magasto, naglaka iti irek, nagngina iti mausar, kasatno ngay a adda mabati kinka?" (Farmers today are suffering from poor revenue due to increasing prices, particularly gasoline, while product prices are falling.)*

Many methods to reduce hunger and poverty concentrate around improved farming, as 60 percent of the world's poor work in agriculture (Olinto et al. 2013). Agricultural research for development has produced a plethora of technological possibilities for increasing agricultural production quantity, quality, or efficiency, and these technologies have been widely distributed among poor, rural populations. We must understand how technology alleviate, sustain, or exacerbate existing socioeconomic inequities if we are to leave no one behind in our efforts to lift people out of poverty.

Since people differ in terms of desire and capacity to implement a technology, technology adoption among resource-poor farmers is constantly variable. There is a wealth of research on the characteristics of persons who use recommended technologies and those who do not. Although wealth and the usage of advanced technologies are frequently linked, it is difficult to tell if money is a result or an enabler of technology use (Mendola 2007; Alwang et al. 2019).

Inverse Relationship: Work and Profit

The benefits brought by the different technological advancements in farming were clearly seen on the efficiency of work and increased productivity in the sector. However, despite the obvious advantages, several farmers still take a long time to adopt to the changes due to some disadvantages they have observed. In the previous section, some problems encountered by farmers in handling machineries and equipment were discussed. In this section entitled, “Inverse Relationship: Work and Profit,” the disadvantages of the emerging agricultural technologies to the people were discussed.

There are several reasons why some of the participants considered the emerging agricultural technologies as disadvantageous in some way. One reason is that not all farmers have the ability to purchase machineries or be given one by the government. As what a participant said, *"Napintas dagituy baro a programa ti gobyerno panggep ti panagtalon ti baro a teknolohiya a kunada ngem saan nga amin, maiyapply kadagiti mannalon ta panagkunak ket kasla ngay masagsagat dagiti tao a mabenepisyaran. Haan nga amin a mannalon ket maikkan." (The government's scheme for employing various agricultural technology in farming was an excellent concept. However, the scheme does not apply to all farmers. Only those who had been chosen benefitted.)* Another respondent also gave another reason, *"Adda met pagdaksan na ta naikkat ti pagbirukan dagiti tattao." (One of the drawbacks of new agricultural technology is the unemployment of small farm laborers.)* On the other hand, one participant answered, *"Nu adda man kayat ko maisubli idi diay fair pricing tapnu nalaklaka kuma metla makabawi ti pada a mannalon ta tatta gaminen ket agpayso a pimmaspas ngem pati panagawan kwarta pimmaspas." (If there is one thing from the past that I would like to bring back today, it would be the fair pricing. It is true that farming methods were a lot easier today, but it was also easier to spend money as the prices of goods and necessities increase.)*

The statements provided by the three participants were proven by Chukwuemeka (2022) in his article entitled, "Advantages and Disadvantages of Technology in Agriculture." One of the disadvantages of technology in agriculture is unemployment. Workers' services are at risk of being replaced by machines as a result of agricultural technology improvements. Some of these technologies drastically diminish the demand for human labor, resulting in the creation of hazardous unemployment. One disadvantage of

agricultural technology is the hefty maintenance expenses. The high maintenance expenses of the equipment make it difficult for small businesses and farmers to manage. Farmers struggle to keep up with technology because they cannot afford the high maintenance expenses of modern technological machinery. Furthermore, owning, and operating machinery is costly. Purchasing equipment constitutes a significant capital outlay that can have a considerable influence on your company's solvency and liquidity. Although most farmers prefer to own and run their own equipment, doing all duties using owned equipment may be overly expensive (Kime, 2016).

We Can't Turn Back Time

In the previous sections, it is found that for some local farmers, utilizing agricultural technologies would not make the agricultural sector more progressive. It is due to the reason that expenses were a lot higher than their profit. During the interview, the researchers asked the participants that if there is a chance to bring back the traditional methods of farming, would they choose to bring it back or not. Majority of the respondents answered that they would not want to bring back the traditional methods as it would be another adjustment for them, and if they would consider their present abilities and the abilities of the younger farmers, it would be hard for them. This section entitled, "We can't turn back time" discusses the effects of modern technology to farmers and their thoughts on it with respect to the traditional methods of farming.

Farmers do not anticipate the return of the traditional farming methods if ever this will happen because it would be harder for the farmers to adjust again given the fact that they are already in the process of adapting modern methods of farming. Scarcity of materials used in the traditional method of farming is also observed. According to a

respondent, "*Nu mabalbalin, adda latta ti kayat ko a panagsubli tay kadaanan ta kunakon, maipanggep ti gastos ta sikami a bassit a mannalon, umut-utang kam lang ti usaren mi. Napintas met ketdi ti kunak ta nalag-an (ti trabaho) nu adda ti baro a makinarya. Ngem nu daydi kadaanan nu maminsan, narigat maisublin sunga akseptaren tay lattan ti sitwasyon tayon (tatta).*" *(If there would be a chance, I would like it if we would return the traditional method of farming as expenses were least of our problem back then. Small farmers like us, today, would sometimes borrow money just to manage our farms. However, the modern way of farming using agricultural technologies are of significant help because working in the farm became more efficient. The traditional way of farming is hard to bring back today, that is why we have to accept our current situation, which is utilizing agricultural technologies.)* Another respondent also answered, *"Maymayat iti baron a ta naparpartak ka nga makalpas nga agtrabaho. Awan iti kaddaananen, manmanon, manmanno pay iti nuwangen kada pasagad nga makita mon." (It is better if we utilize the new method of farming using agricultural technology. It is now hard to find equipment used during the traditional method of farming. Only few carabaos and farming sled can be seen today.)* This was also similar to the answers of other two respondents.

As what Mogato (2018) said in her article, in recent years, both the government and the private sector have worked to improve food security by introducing hybrid seeds, advanced farming practices, and agricultural technology. Carabaos, as means of farming during the past few years, are hard to use in the present. Primitive farming methods, which depend on traditional tools and the climate of a particular place, cannot be used forever as some farmers already adapt modern methods in farming (Piñol, 2018).

To the Good Old Days

Although traditional agriculture is still practiced in some parts of the world, modernization has altered the face of agriculture. Traditional agriculture employs primitive knowledge, traditional tools, and organic fertilizers, whereas modern agriculture employs technologically advanced tools and machinery, as mentioned in the article “Traditional Agriculture Vs Modern Agriculture” (2020). Traditional farming methods have been used since ancient times. It is an old farming technique. Traditional farming methods are still widely used and popular. Farmers use these methods to provide cultural and ecological services to humans. The traditional method has aided in the conservation of natural resources, the preservation of biodiversity, and the improvement of food security. As technology advances, modern equipment is introduced to make farming more efficient and quicker (Shamitha, 2021).

Meanwhile, this theme called "To the Good Old Days" addresses how local farmers contrast their experience in modern farming with the use of advanced technological tools and machinery to their experience in traditional farming back then. After the researchers analyzed the data obtained, they discovered that some of the respondents would want to restore traditional farming practices, not just because it is way more low-cost, but to preserve its essence for the next generations. Some of them also claimed that traditional farming was more fun despite how tiring and time-consuming it is. One respondent stated *“Adda latta met jay tiyempo nga kayat ko ti pinagtalonan ti kadaanan ta mas naenjoy nga aramiden ngem nabannog.” (There are still times when I wish to bring back to the old way of farming because it is more fun but just tiring.)* A study of Maragelo (2008), found that farmers are happy to follow traditional farming methods to produce their food crops.

Traditional farming tools such as the hoe and animal traction are the main implements used to prepare land. Household members are the main source of farm labor with men mainly responsible for ploughing activities while the bulk of planting, weeding, and harvesting activities is the responsibility of women. Farmers were able to generate some income from their efforts and this contributes to local economies and household food security. Farmers value their farming methods and see their farming as efficient despite challenges. Given the importance of traditional farming in rural people's livelihoods, agricultural scientists and extension officers must incorporate the information farmers already have while developing technologies suitable for farmers' environments.

Another respondent also mentioned, *"Mayat met nu maisubli diyay kuma ta masursurwan pay dagiti kabataan, makasursuro da dagitay trabaho ti panagtalonan." (It would be better to reintroduce old farming techniques so that the youth may learn how things work in traditional farming.)* According to some source, from an article titled "Engaging Youth in Agriculture – The Key to a Food Secure Future?" (2013), engaging youth in agriculture has been a prominent topic recently and has risen the development agenda, as there is growing concern worldwide that young people have become disenchanted with agriculture. With most young people – around 85% – living in developing countries, where agriculture is likely to provide the main source of income it is vital that young people relate to farming. There are many challenges ahead for the sector, but if young people are given agricultural education, a voice at policy level and in the media, and are engaged in innovation, the agriculture business can attract youth once again. As we seek ways to feed a world of billions of people by 2050, it is this new generation, when working together, that can contribute to global progress.

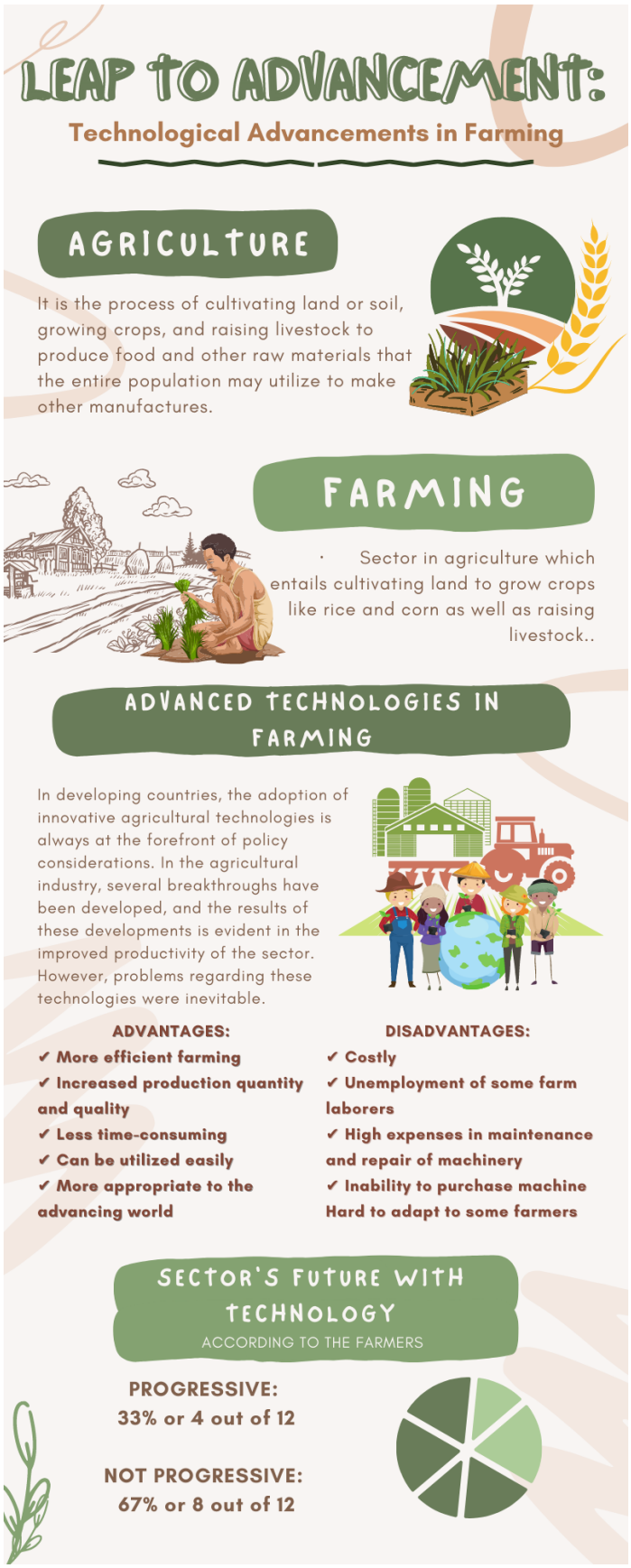

Figure 2. Dissemination Information Infographics

CHAPTER IV

RESULTS AND DISCUSSIONS

The world is continuously evolving. The advancement of everything affects the way of living of all people, making life more convenient. Throughout time, technological advancements in agriculture, farming in particular, are being implemented in the sector. Sophisticated technologies such as robots, temperature and moisture sensors, aerial images, and GPS technology, are being employed as they were proved to allow the sector and labor works to be more profitable, more efficient, safer, more environmentally friendly, and easier to utilize. Despite the obvious positive impacts of the advanced agricultural technologies, some local farmers took time to adapt them due to various reasons. They have different views and opinions regarding the technological advancements in farming.

Based on the findings of the study, majority of the local farmers view the modern agricultural technologies as something that could make farming more efficient. Previously, farming required a lot of effort and consumed much of a farmer's time. The emergence of the agricultural technologies in farming allowed them to work efficiently and less time-consuming, allowing them to do other activities or to rest. Additionally, majority of the local farmers found it easy to adapt the agricultural technologies as it only took them little time to learn how to manipulate them. However, some of the local farmers needed time to adjust because of the unfamiliarity of these agricultural technologies. Despite the positive views of the local farmers to the emerging machineries and equipment, some disadvantages were also observed. Purchasing, maintenance, and repair of the different agricultural technologies are expensive. Given the fact that the prices of sales or the suggested retail price of their products are too low, local farmers are left with little to no profit or income.

Unemployment rate among farm laborers also increase because the advanced technologies took their role in working in the farm. It was also mentioned that not all local farmers have the ability to purchase, own, or utilize the different farming technologies due to lack of budget and ability. Furthermore, majority of the farmers preferred the modern farming methods instead of the traditional due to its efficiency. However, the traditional method of farming would be a great experience to the youth as they will be able to engage with the hands-on practices of farming.

In the light of the findings, future researchers can use this study as a guide to venture more about the perspectives, views, and opinions of the laborers in the agricultural sector. This may also serve as an eye-opener to the public and to the authority regarding the experiences and thoughts of those who are working in the agricultural sector, particularly farmers. It is also recommended to conduct further studies along this subject and to also consider areas that are not covered by the study, such as views of those who will pursue a career path in the sector. Furthermore, the infographics must be used in any seminars or symposiums to disseminate information regarding the positive and negative impacts of different technological advancements in agriculture, specifically in farming.

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APPENDICES

Appendix A

Invitation Letter for the Respondents

Region I
La Union Schools Division Office
REGIONAL SCIENCE HIGH SCHOOL FOR REGION I

A Letter of Invitation in the Research Project Entitled:
Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years

Warm Greetings!

We are learners from the Regional Science High School for Region 1 and are currently conducting a research study entitled, **Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years,** in partial fulfillment of our requirements in the subject Practical Research 1. This study aims to explore and gain knowledge about local farmers' perspectives on the different technological advancements in farming in the last thirty years. With this, we respectfully request for your humble and voluntary participation for we believe that you are a qualified participant for the study.

The interview will take 45 minutes or an hour of your time. Within this timeframe, you will be asked questions related to the different technological advancements in farming. A day before the interview, a copy of the research instrument (interview questions) will be given as your guide.

Rest assured that all your responses to the interview questions and your personal information will be kept confidential. Furthermore, information provided is mainly for academic purposes only.

This letter of invitation is necessary for us to ensure that you understand the purpose and the conditions of your participation. Thus, you are encouraged to read the following:

- The interview will be recorded. From this, a transcript will be produced, and the actual recording will be kept confidential.
- As soon as the transcript is produced, you will be sent a copy and be allowed to correct any factual errors.
- Access to the interview transcript will be limited to the researchers and academic colleagues with whom they might collaborate as part of the research process.

- The interview transcript will be subjected to thematic analysis.
- The content of the interview may be used in: (1) academic/policy papers or news articles; (2) media that might be produced, for instance, spoken presentations; (3) feedback events; and (4) an archive of the research.
- Any interview content, whether made available through academic publications/outlets or not, will be anonymized to not reveal your identity.

Please note that your participation is voluntary, and you have the freedom to withdraw from the invitation any time. The researchers will respect your decision. However, we would sincerely appreciate it if you will consider granting this humble request.

Thank you and a pleasant day!

Respectfully yours,

CABAMONGAN, MAXIME KELLY JULIAN B.
TAN, CRYSTAN JHAY B.
RAMOS, GWYNETH U.
TORIO, LOVELLA MAY M.
Researchers

Appendix B

Invitation Letter for the Respondents (Iloko Translation)

Region I
La Union Schools Division Office
REGIONAL SCIENCE HIGH SCHOOL FOR REGION I

Surat ti Imbitasyon Para iti Research Project:
Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years

Nabara a Kablaaw!

Dakami nga agad-adal ti Regional Science High School for Region I ket addaan ti research study nga, **Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years**, a kas maysa kadagiti requirements iti subject a Practical Research I. Datuy nga research ket maaramid tapnu intay maawatan ken maamwan kadagiti local farmers ti kapanunutan da panggep kadagiti naduma duma nga aramaten nga aramid ti teknolohiya iti napalabas nga 30 tawen. Gapu datuy, inkami ngarud dawaten ti pammalubos ken kooperasyonyo ta mamati kami kadagiti eksperyensiyayo a kas nabayagen a mannalon.

Ti interview ket addaan 45 minuto inggana maysa oras. Ket inkami damagen dagiti sumagmamano nga damag maipanggep iti naduma duma nga aramaten nga aramid ti teknolohiya para iti panagtalon. Inkami ited ti kopya ti research instrument (dagiti madamag) nga agserbi a guide.

Namnamaenyo nga amin nga ingkay isungbat kadagiti damage ken iti personalyo nga impormasyon ket mailimed. Kasta met, dagiti impormasyon nga kasapulan ket para iti gandat ti akademya.

Datuy letter of invitation ket kasapulan tapnu inkayo maawatan ti tarigagay ken ti kondisyon ti koopersyonyo. Inkami dawaten nga basaenyo dagiti sumaruno;

- Ti interview ket mairecord. Ket ikkan da kayo ti transcript, ken ti aktwal nga panagrecord ket konpidensyal.
- Kalpasan a malpas ti transcript, maikkan kayo ti kopya ken mabalinyo nga aturen dagiti makitayo nga kammalina.
- Ti panagusar ti interview transcript ket limitado laeng kadagiti researchers ken academic colleagues a kas parte ken katulunganda iti daytuy research process.
- Ti interview transcript ket masakup ti thematic analysis.

- Ti launen ti interview ket mausar kadagiti: (1) academic policy papers wennu iti news articles; (2) maaramid a kas media, wennu maisao a panagpresentar; (3) feedback events ken (4) archive iti research.
- Anyaman nga nagyanna ti interview, maaramid man para iti academic publications/outlets wennu haan, ket limed tapnu maidulin ti katataoyo.

Maipakaammo nga ti panagpartisiparyo ket boluntaryo, ket mabalinyo ti umikkat iti interview anyaman nga oras. Respetaren dagiti researchers' ti desisyonyo. Ngem, inkami pagyamanan nu ingkay patgan datuy gandat mi.

Agyayaman kami!

Sidadayaw,

CABAMONGAN, MAXIME KELLY JULIAN B.
TAN, CRYSTAN JHAY B.
RAMOS, GWYNETH U.
TORIO, LOVELLA MAY M.
Researchers

Appendix C

Validation Tool for Interview Questions

Region I
La Union Schools Division Office
REGIONAL SCIENCE HIGH SCHOOL FOR REGION I

RESEARCH INSTRUMENT
VALIDITY TESTING TOOL

Research Title:	Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years
Proponents:	CABAMONGAN, Maxime Kelly Julian B. TAN, Crystan Jhay B. RAMOS, Gwyneth U. TORIO, Lovella May M.
Research Problem with Specifics:	This study aims to explore about local farmers' perspectives on agricultural technological advancements in the last 30 years. Similarly, it seeks to answer the following questions: 1. How do local farmers adjust to the continuous improvement of farming technologies? 2. What are the thoughts of farmers on the different agricultural technologies? 3. How do these agricultural technologies affect the farmers? 4. What interventions can be proposed with the results of the study?

Rate the Research Interview Questions according to its Content Validity. Put a check (√) mark as your rating for the instrument.

Criteria		5 Very highly valid	4 Highly Valid	3 Valid	2 Somewhat Valid	1 Not Valid
Content Validity	The test fully represents what it aims to measure.		/			

Comments & Suggestions:

In selecting your respondents, may I suggest to strictly consider only those people who are in the farming industry for the last 30 years.

Validator:

JERWIN M. TELACAS _____
Signature over printed name Date Validated

Research Instrument (Interview Questions)

1. How would you describe your experiences in farming before agricultural technologies emerge? Kindly mention the challenge/s you have encountered if there is/are.
2. What agricultural equipment and/or machineries have you utilized in farming? Kindly describe your experiences in terms of:
    2.1) Handling the equipment and machineries for the first time?
    2.2) Adjustment phase in using the machineries?
    2.3) Challenges you have encountered in utilizing them?
3. What are the differences you have observed when you start using new agricultural machineries compared to the traditional way of farming?
4. What do you think are the positive and negative impacts of the new technologies in farming?
5. Are there instances that you still prefer to utilize the traditional way rather than using new machineries in farming? Why?
6. Do you think the sector would be more progressive when using new technologies instead of the traditional way of farming?

Region I
La Union Schools Division Office
REGIONAL SCIENCE HIGH SCHOOL FOR REGION I

RESEARCH INSTRUMENT
VALIDITY TESTING TOOL

Research Title:	Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years
Proponents:	CABAMONGAN, Maxime Kelly Julian B. TAN, Crystan Jhay B. RAMOS, Gwyneth U. TORIO, Lovella May M.
Research Problem with Specifics:	This study aims to explore about local farmers' perspectives on agricultural technological advancements in the last 30 years. Similarly, it seeks to answer the following questions: 1. How do local farmers adjust to the continuous improvement of farming technologies? 2. What are the thoughts of farmers on the different agricultural technologies? 3. How do these agricultural technologies affect the farmers? 4. What interventions can be proposed with the results of the study?

Rate the Research Interview Questions according to its Content Validity. Put a check (√) mark as your rating for the instrument.

Criteria		**5**	**4**	**3**	**2**	**1**
		Very highly valid	**Highly Valid**	**Valid**	**Somewhat Valid**	**Not Valid**
Content Validity	The test fully represents what it aims to measure.	/				

Validator:

JEROME MARQUEZ
Signature over printed name

Date Validated

Research Instrument (Interview Questions)

1. How would you describe your experiences in farming before agricultural technologies emerge? Kindly mention the challenge/s you have encountered if there is/are.
2. What agricultural equipment and/or machineries have you utilized in farming? Kindly describe your experiences in terms of:
    - 2.1) Handling the equipment and machineries for the first time?
    - 2.2) Adjustment phase in using the machineries?
    - 2.3) Challenges you have encountered in utilizing them?
3. What are the differences you have observed when you start using new agricultural machineries compared to the traditional way of farming?
4. What do you think are the positive and negative impacts of the new technologies in farming?
5. Are there instances that you still prefer to utilize the traditional way rather than using new machineries in farming? Why?
6. Do you think the sector would be more progressive when using new technologies instead of the traditional way of farming?

Region I
La Union Schools Division Office
REGIONAL SCIENCE HIGH SCHOOL FOR REGION I

RESEARCH INSTRUMENT
VALIDITY TESTING TOOL

Research Title:	Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years
Proponents:	CABAMONGAN, Maxime Kelly Julian B. TAN, Crystan Jhay B. RAMOS, Gwyneth U. TORIO, Lovella May M.
Research Problem with Specifics:	This study aims to explore about local farmers' perspectives on agricultural technological advancements in the last 30 years. Similarly, it seeks to answer the following questions: 5. How do local farmers adjust to the continuous improvement of farming technologies? 6. What are the thoughts of farmers on the different agricultural technologies? 7. How do these agricultural technologies affect the farmers? 8. What interventions can be proposed with the results of the study?

Rate the Research Interview Questions according to its Content Validity. Put a check (√) mark as your rating for the instrument.

Criteria		**5**	**4**	**3**	**2**	**1**
		Very highly valid	**Highly Valid**	**Valid**	**Somewhat Valid**	**Not Valid**
Content Validity	The test fully represents what it aims to measure.			/		

Validator:

MAGDALENA PAZ H. LAZO
Signature over printed name

APRIL 27, 2021
Date Validated

Research Instrument (Interview Questions)

7. How would you describe your experiences in farming before agricultural technologies emerge? Kindly mention the challenge/s you have encountered if there is/are.
8. What agricultural equipment and/or machineries have you utilized in farming? Kindly describe your experiences in terms of:

    2.1) Handling the equipment and machineries for the first time?

    2.2) Adjustment phase in using the machineries?

    2.3) Challenges you have encountered in utilizing them?
9. What are the differences you have observed when you start using new agricultural machineries compared to the traditional way of farming?
10. What do you think are the positive and negative impacts of the new technologies in farming?
11. Are there instances that you still prefer to utilize the traditional way rather than using new machineries in farming? Why?

Do you think the sector would be more progressive when using new technologies instead of the traditional way of farming?

Appendix D

Interview Questions

Region I
La Union Schools Division Office
REGIONAL SCIENCE HIGH SCHOOL FOR REGION I

Research Instrument

Research Title:	Leap to Advancement: Local Farmers' View on Technological Advancements in Farming Now and the Last 30 Years
Proponents:	CABAMONGAN, Maxime Kelly Julian B. TAN, Crystan Jhay B. RAMOS, Gwyneth U. TORIO, Lovella May M.
Research Problem with Specifics:	This study aims to explore local farmers' perspectives on agricultural technological advancements in the last 30 years. Similarly, it seeks to answer the following questions: 1. How do local farmers adjust to the continuous improvement of farming technologies? 2. What are the thoughts of farmers on the different agricultural technologies? 3. How do the technological advancements in farming affect the farmers? 4. What interventions can be proposed with the results of the study?

1. How would you describe your experiences in farming before agricultural technologies emerge?

2. What agricultural equipment and/or machineries have you utilized in farming? Kindly describe your experiences in terms of:

2.1) Handling the equipment and machinery for the first time?

2.2) Adjustment phase in using the machineries?

2.3) Challenges you have encountered in utilizing them?

3. What are the differences you have observed when you start using new agricultural machineries compared to the traditional way of farming?
4. What do you think are the positive and negative impacts of the new technologies in farming?
5. Are there instances that you still prefer to utilize the traditional way rather than using new machineries in farming? Why?
6. Do you think the sector would be more progressive when using new technologies instead of the traditional way of farming? Why? Why not?

ILOKO TRANSLATION

1. Kasatnoyo maibaga ti kasasaad ti panagtalonyo idi un unana?idi awanpay dagiti agricultural technologies a mausar.
2. Anya dagiti us usarenyo wennu makina iti panagtalon? Pakibaga dagiti eksperyensiyayo maipanggep ti

    2.1.) Agdadamo a panagusar kadagiti makina

    2.2) Kasatnu ti panag-adjustyo ti panagusar dagiti makina?

    2.3) Anya dagiti problema bayat ti panagusaryo dagiti makmakina?

3. Anya dagiti nagdumaan dagiti makina idi nagusar kayon ti baro kompara kadagiti kadaanan nga aramaten ti panagtalon?
4. Anya kadi dagiti pagsayaatan/nagsayaatan ken haan ti baron ga teknolohiya ti panagatalon?
5. Adda kadi ti tiempo nga mas kaykayatyo latta ti kadaanan nga aramaten ti panagtalon kaysa iti baro nga aramaten/

6. Maibagayo kadi nga mas progresibo iti masektoran wennu mannalon gapu ti panagusar kadagiti baron ga teknolhiya kaysa ti kadaanan? Apay? Apay nga haan?

Appendix E.

Level of Validity of Interview Questions

Point Value	Statistical Range	Descriptive Equivalent Rating
5	4.51-5.00	Very High Validity (VHV)
4	3.51-4.50	High Validity (HV)
3	2.51-3.50	Moderate Validity (MV)
2	1.51-2.50	Poor Validity (PV)
1	1.00-1.50	Very Poor Validity (VPV)

Validator 1 score: 3

Validator 2 score: 4

Validator 3 score: 5

Average Validity Score: 4

Appendix F.

Interview Proper

Appendix G.

Transcribed Data

Questions	Responses	Descriptive Codes	Themes
Question No. 1: How would you describe your experiences in farming before agricultural technologies emerge? (Kasatnoyo maibaga ti kasasaad ti panagtalonyo idi un-unana, idi awanpay dagiti agricultural technologies, dagiti makina ken naduma-duma a aramaten a aramid ti teknolohiya, a mausar?)	**Respondent 1:** *"Nu ikomparak tatta, tatta ket nalag-an ti panagtalonan ngem nagasto kaysa idi. Narigat idi ngem nalaklaka nga amang ti magastos. Tatta ket abono laengen, nagnginan. Iti labor mi halos nagtriplen, dayti bayad ti tao per day. Sunga nalaklaka (ti magastos) nga amang idi umuna a panaggtalonan. Nalaklaka ti expenses. Tatta ket nagngina pay ti magastosen, naglaka py ti apiten mi a irik. Nalaklaka tatta (ti experience) ta adu dagiti machineries a mait-ited ti gobyerno, a aramaten ti panagtalonan kada ti mannalon. Ngem dakami, agbayad kami met laeng kadagiyay a makina."*	Costly More efficient	Agricultural Tollgate
	Respondent 2:		It's not what is seems like

	"Kasla ad-adu ti maurnong idi. Kaspagarigan kuma diyay maapit mi, makaidulin kami py iti kalkalaingan na a kankanen mi ti agingganan tu man tun panagaapiten. Addan tu man ti mausar min a pangkaan. Idi 1980's, halos parehas met la mechanics na ngem nuang ken baka (ti mausar). Awan ti makmakinarya a kas tractor. Nalaklaka idi ta haan py adu unay maiyab-abono idi ken nalaka ti pres-presyo ti magatang."	Costly Better soil quality	Agricultural Tollgate
	Respondent 3: *"Idi un-unana a ket talaga a narigat ta nu awan ti nuang mo uray adda dagam, narigat ka a agtalon ta awan ngarud ti usarem. Narigat py ti igatang animal isu ta makunak a narigrigat idi."*	Costly More efficient Lacking personal equipment	Agricultural Tollgate Inverse relationship: work and profit
	Respondent 4: *"Ket nabaybayag a iti pannagtalon idi ta awan garud iti maus-usar nga mak-makina. Tattan*	Lacking personal equipment More efficient	Inverse relationship: work and profit Agricultural Tollgate

	a adda ket nabibiit iti panagtalonen."		
	Respondent 5: *"Iti usussaren mi idi ket nuwang. Adda iti arado, sarunwen mi diyay nuwang, agarado kami. Kadakami idi ta isu iti nakasanayan mi, haan ko met maibaga a narigat. Okay latta met ta isu iti nakayruwaman."*	Heavy reliance on manpower Traditional	To the Good Old Days Inverse Relationship: Work and Profit
	Respondent 6: *"Narigat idi. Agsagad kami, nuwang iti ususaren mi lattan. Diyay arado guyguyuden aydiay nuwang, haan nga kasla tatta a tractor."*	Heavy reliance on manpower Traditional	Inverse Relationship: Work and Profit To the Good Old Days
	Respondent 7: *"Kung ikukumpara ko ang pagtatanim ngayon, masasabi ko na mas mahirap noon sapagkat malayong mga teknolohiya noon na mas makakatulong sa pagtatanim."*	More efficient	Agricultural Tollgate
	Respondent 8: "Diyay aradwem, di ket isarunom jay baka, sakan to pasagadanen	Heavy reliance on manpower	Inverse Relationship: Work and Profit

	sakanto raepan. Intuno naraepan inka lattan bisibisitaenen."		
	Respondent 9: *"Ay ket narigat ah. Nabayag ti panagtalon, mano-mano. Naparpartak kadagitoy adda makinarya na nga ususaren ti tao nga agtalon."*	Heavy reliance on manpower	Inverse Relationship: Work and Profit
	Respondent 10: *"Narigat a ta arado payla garud ken nuwang ket narigrigat a kontra tatta, pero nalaklaka idi iti magasto ngem diyay tatta makinarya. Mayat kuma met nu haan nangina ti usaren kalla kuma ta krudo kada ab-abono, napintas kuma met nu kalla idi ti presyo na ti magatgatang pero tatta kalla nakarkaro met (gastos) ti agtaltalon ta kastuy met garud ti magatgatang, tapos naglaka payla irek. Uray kabarbaro ti usaren tayo nga makmakinarya nu di met agbaliw presyo dagita krudo, usaren, haan*	Heavy reliance on manpower Costly More efficient Less profitable	Inverse Relationship: Work and Profit It's not what is seems like Agricultural Tollgate

	nga umunlad iti agtaltalon, aglalo ta dakami makitaltalon kami, anya ti mabingay mi? Sunga kakaasi kami latta nga agtaltalon, piya pay kuma ingato da met presyo irek. Malugi, karkaro nu haan napintas ti apit, awanen ta awan metten ti maited mo idiay pakitaltalunam kasta met kenkan nga agtaltalon awan mabati kenkan. Sunga kaasi latta ti biyag uray adda makmakinarya tattan, kalla karkaro pay rumigrigat ta adu met magasgasto. Uray makitaltalunan awan latta, uray isuda nga pakitaltalunam bassit latta ti maited mo nga apit, ta siyempre ta haan met napintas ti presyo na. Piya kuma ta kalla idi ti presyo na tas adda makinarya kada mayat presyo krudo mabalin. Umunlad met siguro bassit ti agtaltalon.''		

	Respondent 11: *"Idi a ket narigat ta ti usar mi paylang dagita pasagad, nuwang kaskada witiwit. Halos amin idi a mannalon ti kayat da makaurnong iti paggatang kuliglig kaskada dadduma pay uray met siyak a ta narigat pay met biyag idi."*	Costly Heavy reliance on manpower	Agricultural Tollgate Inverse Relationship: Work and Profit
	Respondent 12: *"Idi panawen mi, dadiay kaub-ubingan mi gamin agtaltalon kamin. Maibagak a narigat nu rugrugim ngem nu bumayag metten nasanay tumet da taon kalla mayat metten ngem adiay lang awan ti makmakinarya a mausar tanu napaspaspas kuma."*	More efficient Needs time to adjust	Agricultural Tollgate Give me time
	Respondent 1: *"Dagiyay kuliglig, dagiyay traktora, diyay harvester. Dagiyay laeng met ti maus-usar mi."*	Machineries (compact tractor, tractor, reaper, thresher)	
	Respondent 2: *"Adda ti dayta kuliglig, tractor. Adda iti waterpump tapnu inkaso nga*	Machineries (compact tractor, tractor, reaper, thresher, water pump)	

	mamagaan diyay talon."		
	Respondent 3: *"Ti laeng us-usaren mi, agpaarado kam ti tractor ta ti daga tay tattan ket natangkenen, isu nga ipaarado mi umuna iti tractor. Tapos adda met sarili mi a kuliglig, isu usaren min."*	Machineries (compact tractor, tractor, grass cutter, thresher, water pump)	
	Respondent 4: *"Kuliglig, tractor, dagiyayen a."*	Machineries (compact tractor, tractor)	
	Respondent 5: *"Kuliglig, tractor. Nu pagsibog metten ket dagiyay water pump."*	Machineries (compact tractor, tractor, water pump)	
	Respondent 6: *"Ti panagarado tattan, tractor. Kuliglig met nu pinagsasagaden kuma."*	Machineries (compact tractor, tractor)	
	Respondent 7: *"Ang pinakauna kong gamit na makina, ako'y nanibago. Sapagkat nakagisnan ko ang unang pagtatanim. Kuliglig, tractor at witiwit."*	Machineries (compact tractor, tractor)	
	Respondent 8: *"Kuliglig, Tractor, Arado."*	Machineries (compact tractor, tractor)	

	Respondent 9: *"Kuliglig, tractor, water pump, reaper."*	Machineries (compact tractor, tractor, water pump, reaper)	
	Respondent 10: *"Kuliglig isu ti pagsagad mi isu ti pagarado. Tractor ti barangay isu tatta ti gamgamiten mi imbes dagiyay kwa idi ta nadardaras''*	Machineries (compact tractor, tractor)	
	Respondent 11: *"Iti ususaaren mi kada nausar ko metten a makinarya a ket maysa ata kuliglig ken water pump. Idi nakaurnongn da tao sangkabassit nagala metten iti thresher, tractor ken ji kunkunada a sabsab. Ngem tattan a ket ta laengen water pump, tractor, ken adiay baro tatta nga reaper nga basbassit payen ti agoperate."*	Machineries (compact tractor, tractor, thresher, water pump, reaper,	
	Respondent 12: *"Ti nausar ko metten kada napadas a makinarya a ket diay tractor, kuliglig, sabsab, adiay thresher*	Machineries (compact tractor, tractor, thresher, water pump, reaper,	

	sabali pay adiay. Ta's tatta adiay reaper, agab-abang kamin ta nabibiit a talaga.."		
Question No. 2.1: Kindly describe your experiences in terms of handling the equipment and machinery for the first time. (Pakibaga dagiti eksperyensiyayo maipanggep ti agdadamo a panagusar kadagiti makina.)	**Respondent 1:** *"Nalaka met ta dagiyay hand tractor kadagita kuliglig ket nalaka met operate'n dagita kaysa diyay idi nga nuwang ti mausar nga agarado agmalmalem."*	Adaptable utilization	Quick Jumpstart
	Respondent 2: *"Kanyak a ket kwa, idi 1980's ngamin (kalla agpada). Hanak naikaw-kawa ta daydi father ko ket nakaprovide met ti makinarya na, dagitay hand tractor."*	Adaptable Easily operated	Quick Jumpstart
	Respondent 3: *"Iti kuliglig a ket idi damo, makius-usarak iti sabali. Haan met a kasusuro datuy panagusar ti kuliglig ta nu makitkitam diyay padam a mannalonen, ammom diyay ar-aramiden na isu nga haan narigat a kasusuro."*	Adaptable Easily operated	Quick Jumpstart
	Respondent 4:	Need time to adjust	Give me time

	"Idi damdammo a ket syempre narigat mo pay nga ammo ta kabarbaro."		
	Respondent 5: *"Kasla maykawa ka laeng. Ta siyempre diyay nagusarak iti kuliglig ket nabannog nga talaga ta siyempre makina ata sarsarunwamon kumpara diyay nuwang. Diyay nuwang nu nabannogen ket, agininnayad metten, diyay makina ket nu bumarbara ket pumaspaspas pay."*	Adaptable Unfamiliar	Quick Jumpstart Obstacles along the way
	Respondent 6: *"Nabiit met ta adda met operator da dagita a nasursurwanen."*	Adaptable	Quick Jumpstart
	Respondent 7: *"Sa pagtuloy na paggamit ko nito, ako'y nasanay na at unti unting natutunan ko na ang paggamit ng makabagong makina."*	Adaptable	Quick Jumpstart
	Respondent 8: *"Narigatanak di damdammo ta syempre maam-*	Apprehensive/doubtful	Obstacles along the way

	amak ka, mabutbuteng ka aglalo diay di tambak nu kumalay-at kasdiay mapattog. Adda latta met diay panagbuteng ah ngem idi narwamak ket nalaklakan."		
	Respondent 9: *"Hanak naikawa, nalaklaka pay ah ti kwa, diyay panagusar dagiyay makmakina ngem diay aradwem ti nuwang sakanto man sagadanen, nabayag adu aldaw ti mausar mo idiay sakanto makaraep."*	Easily operated	Quick Jumpstart
	Respondent 10: *"Mayat met idi. Kalla kwa met laengen a kalla mimmayat, kalla limmag-an ti trabaho uray limmag-an ta ti kunakon kalla narigrigat. Haan met kasla maymayat ngem idi. Limmaka, dimmaras ti ubra ti taltalon, napaspaspas, ngem narigrigat met laengen ta ngimmato met ti kwan (magastos). Maymayat kuma nu*	Easily operated	Quick Jumpstart

	kalla idi. Kalla kuma dagiyay paggapas, napinpintas a talaga, nalaklaka."		
	Respondent 11: *"Idi agdadamok agusar kalla tay kuliglig, haan met narigat ta nu buybuyaem tay padam met mannalonen a ket makasuro ka metten. Kalla ka la agiturturong ti nuwang a adda makina na nu kunada idi"."*	Adaptable	Quick Jumpstart
	Respondent 12: *"Idi siyak met agdadamok hanak narigatanen ta naghiligak nga apan ko buyaen dagitay adda makmakinarya agingga nasursurwak metten."*	Easily operated Adaptable	Quick Jumpstart
Question No. 2.2: Kindly describe your experiences in terms of your adjustment phase in using the machineries. (Pakibaga dagiti eksperyensiyayo maipanggep ti panag-adjustyo ti	**Respondent 1:** *"Nanamnam-ay ti panagtalonan tatta ngem idi. Nalaka nga masurotan dagiyay (operation) ti makmakina. Dayta makina nu pinaandar mon ket mayaten. Nu umay ta tractor ket haan met a sikan a*	User-friendly Adaptable	Quick Jumpstart Blooming to progress

panagusar dagiti makina.)	*mangtaltalon ti mangoperate diyay. Umay da la aradwenen, padalapusam met kuligligen, agmulan tun."*		
	Respondent 2: *"Tay kunakon, haanak narigatan ta adda metten naiprovide ni father ko idi a makmakinarya. Nalaka ak lang nakasurot ta nalaka ti proseso ken naparpartak mechanics na. Hanak naikaw-kawa."*	User-friendly Easily operated Adaptable	Blooming to progress Quick Jumpstart
	Respondent 3: *"Naparpartak ti panagtalon idi addan dagituy a makinarya. A kas tay kunakon a haan kasusuro ti panag-operate ta nu makitamon diyay padam a mannalon, nalakam a masuron."*	User-friendly Easily operated Adaptable	Quick Jumpstart Blooming to progress
	Respondent 4: *"Nu buybuyyaem, masursurwam tu metten. Masansanay kan ton."*	Adaptable	Quick Jumpstart
	Respondent 5: *"Nalaka met. Kasla haan ko met a*	User-friendly Easily operated	Quick Jumpstart Blooming to progress

	nadnadlaw ti panagritnak nga kasatnu iti pinagdepepensyaan na ta syempre haan met a sigud a nakaala kami iti kuliglig. Makitam met a nga apan mo buybuyaen diyay karubbam, apan mo kitkitaen. Ay, kastoy gayam."	Adaptable	
	Respondent 6: *"Nalaka met. Naikawa kami iti nadaras a pagsayaatan ken napaspas nga pannagtalon. Isu adiyay iti dakkel a kawa."*	Easily operated	Quick Jumpstart
	Respondent 7: *"Nalaka met diyay panag-adjust ta siyempre nalaka la nga sursurwen. Automatic."*	User-friendly Easily operated Adaptable	Quick Jumpstart Blooming to progress
	Respondent 8: *"Hanko payla ammo paandaren idi. Nu mapaandar diay makin-ammo ah ket pagin-inayadak met ah nga sursurwen. Ngem idi damo nga makakita ak kasdiay, sipsiputak dagijay mapapamay-an jay imun-unna nga gimmamiten tattan.*	Need time to adjust Adaptable	Give me time Quick Jumpstart

	Idi kwan metten kayat ko met masursuro metten. Pinadas-padas kuma ngem di nasursurok metten, sarsarilyek metten."		
	Respondent 9: *"Ket inut-inut ah, wen ah napartak maipanggep ti makinarya."*	Need time to adjust	Give me time
	Respondent 10: *"Awan met. diay lang talaga kwarta dagijay krudo a usaren,nu agpirdi ipatiramaan isu ti problema ta awan garud kwarta ta sikami makitaltalon laeng ngem nu adda met maapit mayat met ngem nu madalanan sakit, haan napintas danom. Nu adda man danom, mabagyo.''*	Costly Easily operated	Quick Jumpstart Agricultural Tollgate
	Respondent 11: *"Haanak met nga tay narigatan a nga talaga ta haan met kasdiay karigat nga ioperate, sumrek la talaga dita adiay sinnanay a kunada."*	Need time to adjust Easily operated	Give me time Quick Jumpstart
	Respondent 12:	Easily operated Adaptable	Quick Jumpstart

	"Awan met idi kanyak kalla nalaka met ta mabuybuya mi metten idi. Ti maysa laeng a talaga nga agadjust'n a ket tay bulsa tay a mannalon ta kastuy met ngaruden, karkaro tatta nangina magatangen.."	Costly	Agricultural Tollgate
Question No. 2.3: Kindly describe your experiences in terms of the challenges you have encountered in utilizing the machineries. (Pakibaga dagiti eksperyensiyayo maipanggep ti problema bayat ti panagusar dagiti makmakina)	**Respondent 1:** *"Awan met ti problema kadagita (panag-operate) makmakina. Nu agkadiperensya laeng, isu laeng ti problema kadagita. Diyay repair, diyay expenses. Nu ipan mo met ta makinam kadagiti shop, gumastos ka met idiay."*	Maintenance Costly Expenses	Agricultural Tollgate
	Respondent 2: *"Mostly nga (gamgamiten mi idi) diyay nuang. Agarado ka ngaminen, sinagadamon, mabalinen a raepanen. Diyay hand tractor ngamin met ket diyay ngay awan igatang mi ti gasoline. Agilako kam py irik tapnu makagatang. Maysa ket, hul-*	Costly Expenses High procurement for materials	Agricultural Tollgate Obstacles along the way

	hulugan mi met dagiyay. Bulbuluden mi met kadagiyay coop. Ngem iti pagdumaan da met tatta, halos haan mon maavail diyay presyo ti magasto panggep panagtalon."		
	Respondent 3: *"Dagiti problema tatta kadagituy panagusar ti baro a makina ket maintenance na a talaga, tay panagpasimpa. Haan met nga kanayon nga nakakondisyon ti makina, adda latta met tay panagperdi na. Nalaka met agbirok ti materyales ngem ti kaadwan na tattan, adu ngamin dagiti partes ti makmakinan nga narukop. Isu nga nu agpasimpa kam makina, biruken mi talaga diyay original na."*	Maintenance Costly Substandard machine parts/machineries	Obstacles along the way Agricultural Tollgate
	Respondent 4: *"Dagitay kasapulan iti makina, dagitay maintenance na."*	Maintenance	Agricultural Tollgate
	Respondent 5:	Costly Expenses	Agricultural Tollgate

	"Iti lang problema ngamin ti makinarya, dadiay nu agperdin. Diyay expenses na laeng. Diyay nuwang idi, mabannog laeng, diyay makina, syempre gumasto ka idiayen. Kailangam iti krudo, gasolina, asyete, gel oil. Nu agdadael dagidiay kadena na, agsukat ka iti kadena, agsukat ka ti bearing, dagidiay."	Substandard machine parts/machineries Maintenance	Obstacles along the way
	Respondent 6: *"Tatta, sobra nga dakkel unay pakaykawaan iti gastos, aglalo iti abuno, krudo. Isu diyay iti problema tatta, dakkel unay sa naglaka iti irik. Kwenkwentaen mi iti gastos tattan ket kasla nagtriple iti abuno, nagtriple met iti gasoline, krudo. Ti panangdan, iti dati idi a panangdan 200 laeng kuma, tatta ket nag-300 diyay pakanem, 350 tatta haan mo pakanen."*	Expenses Costly	Agricultural Tollgate
	Respondent 7: *"Ang naging problema ko sa paggamit ng*	Portability Manipulation	Obstacles along the way

	makina ay sa pagpwesto nito dahil medyo may kabigatan, gano'n din ang pagpapaandar."		
	Respondent 8: *"Dagidiyay krudkrudo na ah ta nagngina met. Agpayso ah nanam-ay diyay panagtalon tattta ngem dagiti usaren man metten ket nangina."*	Expenses Costly	Agricultural Tollgate
	Respondent 9: *"Nu agdadael, nu agperdi diyay makina isu diyay agproblema ka diay panag-tarimaan, maintenance ah. Isu dagiyay ah ti kwa pagproblemaan ti agiggem ti makina."*	Maintenance Expenses	Agricultural Tollgate
	Respondent 10: *"Awan met. Dagiyay a krudo a usaren, nu agperdi. Isu ti problema a ta awan met (paggastos)."*	Expenses	Agricultural Tollgate
	Respondent 11: *"Ti kalla nakwak metla nga problema tatta dagituy a makinarya ket jay maintenance ken mausar a krudo.''*	Maintenance Expenses	Agricultural Tollgate

	Respondent 12: *Ti maysa ken main a problema ket tay maintenance. Uray sino a farmer isu met ti problema da. Tas tatta ti maysa a sumabsabay ket ji presyo da ken dagiyay mausar nga krudo, gear oil, kada pag change oil ta nu awan met dagituy haan mo met mausar wenno mapagandar."*	Maintenance Costly Expenses	Agricultural Tollgate
Question No. 3: What are the differences you have observed when you start using new agricultural machineries compared to the traditional way of farming? (Anya dagiti nagdumaan dagiti makina idi nagusar kayon ti baro kompara kadagiti kadaanan nga aramaten ti panagtalon?)	**Respondent 1:** *"Ti nagdumaan da a ket napinpintas nga amang a tatta ta dagiyay babbaro a makinarya, napintas a ngem nu awan kwartam a ket haan ka met makagatang. Limmag-an ti tarabaho ngem ti expenses dumakdakkel met. Nadardaras ti panagtalonan tatta ngem nagasgastos."*	More efficient but costly	Agricultural Tollgate
	Respondent 2: *"Adayu ti diperensya da. Adu a tao ti masapul idi, adu ti tangdanam. Tatta ket, mano lang ti tangdanam (bassit), oras laeng ti mabilang,*	More efficient but costly Limited manpower	Agricultural Tollgate It's not what is seems like

	malpasen diyay. Napartaken tatta a adda makinarya."		
	Respondent 3: *"Nu maikumpara ti makinarya kontra diyay manual pay laeng, kasla tay kunak nasisyaat tatta ta makinarya ta naparpartak ti panagtrabaho inti taltalon. Nalaglag-an ti trabaho, nakasave ka pay ti oras mo. Makainana ka wenno mabalin ka py agmula-mula inti paraangan. Adu ti oras a maconsume mo inti kadaanan."*	More efficient but costly Less laborious	Blooming to progress Agricultural Tollgate
	Respondent 4: *"Diyay kadaanan idi ket dagidiay nuwang, baka, agsagad ka, tatta ket haanen ta puro makinan iti usarem."*	Less laborious	Blooming to progress
	Respondent 5: *"Dakkel iti nam-ay na ta nu ararigen kuma ket kasla scientificen tatta. Idi ket nu agtalon ka, agbunubun ka paylaeng, dadiay ngay palata kunada. Agsikka ka, agbunnag ka, kailangan*	More efficient but costly Less laborious	Blooming to progress Agricultural Tollgate

	agaramid ka iti kerker, apan kay agitarak. Tatta ket nu nagdirect seeding kan, automaticen. Nalaklaka tatta ngem nagasgasto."		
	Respondent 6: *"Ti metla napabaro tatta ket dagituy metla panaggapas. Datuy singmangbay tatta a reaper nga ususaren tatta, nabibiit laengen. Makaminus ka datuy kwa ti reaper ta datay insubo, kannem iti bingay, adiay lima nga kwakwaem nga mannalon, maysa kanyada. Ket datuy reaper tatta, sangapulo, upuppat pay pagmeriendaem, idi diyay ket nasurok da nga bainte. Isu dakdakkel iti tipid na datuy panaggapas tatta datuy barbaro."*	More efficient but costly Less laborious	Blooming to progress Agricultural Tollgate
	Respondent 7: *"Mas lalong gumanda ngayon ang mga makina. Mas malakas ang tubig na inilalabas nito. Mas matagal na masira.*	More efficient	Agricultural Tollgate
	Respondent 8:	Less laborious	Blooming to progress

	"Ti nagdumaan da ket nanamnam-ay laeng met datoy di addan dagita makinan. Haan kan diyay datay agbanbannog nga agsagsagad nga pagpagna nga mangsusuro diyay kwa wenno agsaksakayen idiay nuwang nga mamin-anon ton nga agliklikmot. Isu nga nanamnam-ay latta tatta met ngem ti lang pagkwaan (disadvantage) na ket diyay krudo."	Costly	Agricultural Tollgate
	Respondent 9: *"Ket nasaysayaat ti kwa tatta ah, naud-udi nga aldaw kasdiay kunak garud naparpartak ti trabaho ngem di ununana nga agusar ti dagita an-animal panagaradom nga manomano nga kas kunak. Napapartak kadagitoy ti panagtrabaho ta pinalag-an na ti trabaho ti tao."*	More efficient	Agricultural Tollgate
	Respondent 10: *"Kalla kwa met laengen a, kalla mimmayat, kalla limmag-an ti trabaho. (Ngem) uray limmag-an ta*	More efficient but costly	Agricultural Tollgate

	ti kunakon kalla narigrigat. Haan met kasla maymayat ngem idi (ngem) limmaka, dimmaras ti ubra ti taltalon."		
	Respondent 11: *"Iti maysa nadlaw ko a nagdumaan da nu ikumparam idi diyay kapaspas trabaho. Ta idi ngarod ket mano mano tas tattan makinarya met aminen. Ti maysa pay tatta launay ket diyay ibag-baga da nga manpower wenno man labor. Ta nu idi agsapol ka ti 12 inggana 20 a katao, tatta uray limlima kayon wenno uppat, makagapas kayon gapo dagituy a makinarya."*	More efficient Less laborious	Blooming to progress Agricultural Tollgate
	Respondent 12: *"Limmag-an ti trabaho, pimmartak ken uray nu kwa mabalin mo payen ibatbati kalla kuma nu agpalpalay-as ka mabalin mo lattan ipakat tay hose ken makina. Pagandarem, mayaten, makasusopen ti danom inti uneg. Haan nga kalla idi,*	More efficient Less laborious	Blooming to progress Agricultural Tollgate

	aguray ka payla tudo, saan ket urayem payla nga agibulos da danom tanu adda danom nan tay irigasyon. Makiununa ka tu metten a agikwa (ready) pagdalanan danom papan inti mulam."		
Question No. 4: What do you think are the positive and negative impacts of the new technologies in farming? (Anya kadi dagiti pagsayaatan/nagsay aatan ken haan ti baro nga teknolohiya ti panagatalon?)	**Respondent 1:** *"Adda met diyay naited na dagituy baro a teknolohiya iti panagtalonan, adda met datay (haan) ta nagastos laeng. Kompara diyay dati nga narigrigat ti panagtalonan ngem nalaklaka pay laeng iti magastos. Naparpartak (ti trabaho tatta) ngem nagastos laeng. Adda met pagdaksan na ta naikkat ti pagbirukan dagiti tattao. Ngem nu panpanunotem ngamin, nu manual pay laeng, mangala ak ti adu a tattao, ad-adu nga amang magastos ko kaysa diyay makinarya ta taltallo da wenno lima a pagmeryendaem."*	Costly Affects labor More efficient	Blooming to progress Agricultural Tollgate
	Respondent 2:	More efficient but costly	Blooming to progress

	"Tatta a adda makinarya, naparpartaken ti tarabaho. Ipagarop mo diyay tracer idi, adu a tao masapol, nabaybayag py kaysa diyay reaper tatta a basbassit la a tao agoperate ken oras laeng ti mabilang ket malpas tun. Ibunag da py diyay irik inti balay mon. A ngem tay kunakon, nanginngina tatta ti magastos."	Less laborious	Agricultural Tollgate
	Respondent 3: *"Makainana ka ken adu oras mo, makasave ka, ta naparpartak ti tarabaho tattan. Ngem adda latta rigrigat na nu maminsan ta nu maminsan. Napintas dagituy baro a programa ti gobyerno panggep ti panagtalon ti baro a teknolohiya a kunada ngem saan nga amin, maiyapply kadagiti mannalon ta panagkunak ket kasla ngay masagsagat dagiti tao a mabenepisyaran. Haan nga amin a mannalon ket maikkan."*	Timesaving Less laborious Inequality among beneficiaries	Blooming to progress Inverse relationship: work and profit

	Respondent 4: *"Iti pagsayaatan na dagituy baro a technologies tatta, napapartak nga makalpas iti pannagtalon mo. Iti lang pagdagsan na met, aglalo tattan, nagngina iti krudo kada aseten."*	More efficient but costly	Agricultural Tollgate
	Respondent 5: *"Idi ngamin ununana, inani. Datay ngay arakem iti usarem nga pagani. Tatta ket sabali metten, sako iti usaren tattan, pagkabananen, aglalo ket adda dadiay kunada nga combine harvesteren, atan iti usussaren mi tattan. Isu ata iti nam-ay iti aganin.*	More efficient	Agricultural Tollgate
	Respondent 6: *"Iti pinagsayaatan na tatta datoy baro a teknolohiya tayo, dagituy barbaro a makmakinarya tayo, nadardarras, isu ta nasaysayyaat iti tatta. Iti haan a pagsayatan na datuy lang a nababa a presyo iti produkto tayo."*	More efficient Inexpensive sales of products	Agricultural Tollgate It's not what is seems like
	Respondent 7:	More efficient but costly	Agricultural Tollgate

	"Mas mabilis ang proseso, diyay pinagtalunan tattan kumpara idi mas magaan na ang trabaho pero minsan mahal ang presyo ng gasolina at pambili sa mismong makina at iyon naman ang disadvantages nito kung tawagin."		
	Respondent 8: *"Pagsayaatan na ket nanam nam ay jay trabaho, pinalag-an na ti trabaho. Ti haan na pagsayaatan ket diyay kanen ti makina ta isu man diyay mausaren ket idi nalaka payla ti tangtangdan, nakukuwa (natiptipid) lang met idi, tatta nanamnam-ay ah ngem nangingina met dagiti usaren."*	More efficient but costly	Agricultural Tollgate
	Respondent 9: *"Haan na pagsayaatan, awan met maibagak, isu lang ah jay expenses nu nangina ti krudo, nu ngumina gasolina, adiay."*	Costly	Agricultural Tollgate
	Respondent 10: *"Ket napintas, pimmardas iti*	More efficient but costly	Agricultural Tollgate

	panagtalon ngem ti met pagdaksan na ngimmato iti usaren kalla kuma arawaten ti makina ngimmato met amin aglalo unay ti krudo. Uray mairigasyonan siyempre agusar ka metla ti krudo ta hanpay napintas ti irigasyon tatta ta kasta ngarod nga napirdi pirdi samet. Anya ngay ti maincome mo nu ad-ado met magasto,naglaka iti irek, nagngina iti mausar, kasatno ngay a adda mabati kinka? Hanmo metla a maritna nga napinpintas ti makinarya kumpara idi. Ti la pagnam-ayam nalaklaka, hanka agbannog unay, hanka agararadon kada kwa, ngem kasdiay ngarod, isu metla nga narigat.''	Inexpensive sales of products	It's not what is seems like
	Respondent 11: *"Nagsayaatanna datuy barbaro a makina tatta ket napaspas ti trabahon ngem adda latta met ti pagmadi'an ti maysa banag. Maysa adiay*	More efficient but costly Affects labor	Agricultural Tollgate It's not what is seems like

	magastos ken dagiyay makitaltalon nakissayan ti pakitrabahuwan da ta panay met makinaryan ti aggunay."		
	Respondent 12: *"Nu ikumparam idi ken tatta nagpaspasen a nga talaga ngem ti madi laeng ngarod diyay met magasto ta kastuy metten presyo it maapit tatta."*	More efficient but costly	Agricultural Tollgate
Question No. 5: Are there instances that you still prefer to utilize the traditional way rather than using new machineries in farming? Why? Why not? (Adda kadi ti tiempo nga mas kaykayatyo latta ti kadaanan nga aramaten ti panagtalon kaysa iti baro nga aramaten? Apay? Apay nga haan?)	**Respondent 1:** *"Mayat met nu maisubli diyay kuma ta masursurwan pay dagiti kabataan, makasursuro da dagitay trabaho ti panagtalonan."*	Youth experience Lack of traditional engagement	We Can't Turn Back Time To the Good Old Days
	Respondent 2: *"Tatta ket napinpintas lattan ti baro a teknolohiya, datuy agdaman ta tatta ngamin ket dituy ayan tayo irrigated metten (improved)."*	Advanced environment	We Can't Turn Back Time
	Respondent 3: *"Nu mabalbalin, adda latta ti kayat ko a panagsubli tay kadaanan ta*	Less expensive Acceptance of the present	We Can't Turn Back Time It's not what is seems like

	kunakon, maipanggep ti gastos ta sikami a bassit a mannalon, umut-utang kam lang ti usaren mi. Napintas met ketdi ti kunak ta nalag-an (ti trabaho) nu adda ti baro a makinarya. Ngem nu daydi kadaanan nu maminsan, narigat maisublin sunga akseptaren tay lattan ti sitwasyon tayon (tatta)."		
	Respondent 4: *"Maymayat iti baron a ta naparpartak ka nga makalpas nga agtrabaho. Awan iti kaddaananen, manmanon, manmanno pay iti nuwangen kada pasagad nga makita mon."*	Lack of traditional engagement More efficient	We Can't Turn Back Time Agricultural Tollgate
	Respondent 5: *"Iti panagritnakon ket ta lumakayak metten, kasla kaykayyat ko atuy kabaruwanan na. Sa ta awan pay iti nuwang ngaminen."*	More efficient Lack of traditional engagement	We Can't Turn Back Time Agricultural Tollgate
	Respondent 6: *"Kaykayyat ko a tatta baro. Nabiit tatta, idi*	More efficient	Agricultural Tollgate

	nagbabassit iti tractor, tatta nagdadakkel iti tractor idi nabibiit met lang. Nu agpapatractor ka ditan mabalin ka agpatpatrabaho dituyen."		
	Respondent 7: *"Adda latta met jay tiyempo nga kayat ko ti pinagtalonan ti kadaanan ta mas naenjoy nga aramiden ngem nabannog."*	Fun Experience	We Can't Turn Back Time To the Good Old Days
	Respondent 8: *"Ket no awan ti talaga nga usaren nga dagiti baro nga kwa ket diyay lattan ah kadaanan ngem ti mausaren ah ta awan garud ti usaren nga kwa makina."*	Based on availability	We Can't Turn Back Time
	Respondent 9: *"Ay awanen ah ta narigat garud ta nabannog."*	More efficient	Agricultural Tollgate
	Respondent 10: *"Nu mabalin nga isubli kuma, kaykayat ko. Maymayat pay kuma kitdin idi kuma ta haan nagasto unay. Napinpintas ti makinarya (tatta) ngem diyay presyo*	More efficient but costly	Agricultural Tollgate

	na laeng, isu pagrigatan."		
	Respondent 11: *"Tatta a ket haan kon kayat ta nabannog ken nu ikwak (consider) met tawen kon marigatanakon ken tatta uray adda nginnginana ket anusan lattan ta agararamid met dagituy agriculturist tayon ti paraan tanu nalaka tay makasugbot nu panagaapit.''*	More efficient Based on strength and ability	Agricultural Tollgate We Can't Turn Back Time
	Respondent 12: *"Nu adda man kayat ko maisubli idi diay fair pricing tapnu nalaklaka kuma metla makabawi ti pada a mannalon ta tatta gaminen ket agpayso a pimmaspas ngem pati panagawan kwarta pimmaspas."*	Fair pricing Costly	It's not what is seems like Agricultural Tollgate
Question No. 6: Do you think the sector would be more progressive when using new technologies instead of the traditional way of farming? Why? Why not?	**Respondent 1:** *"Adda met a ti progressive na tatta a panawenen ta adda dagiyayen a makinarya. Tay kunakon adu met ti naited da a pagsayaatan. Ngem iti dakes na ngarud,*	Progressive Dependent on farmer's status	Blooming to progress Status Dependency

(Maibagayo kadi nga mas progresibo iti masektoran wennu mannalon gapu ti panagusar kadagiti baro nga teknolohiya kaysa ti kadaanan? Apay? Apay nga haan?)	*narigat ti rumang-ay panagbiag na nu awan ti puhunan na a dakkel. Nu makitaltalon ka laeng, awan ti mabirukam."*		
	Respondent 2: *"Depende ngamin. Haan amin a mannalon ket adda makinarya na. Isunga iti mas progressive dagiti adda makinarya na. Ngem nu dagiyay makitaltalon kuma, adda met maincome ngem haan a kasla dagiti adda makinarya na. Isuda dagiyay ti talaga nga makaurnong ta pagbirok da dagitay makinarya da. Haan ngamin amin a mannalon ket maikkan (ti makinarya)."*	Dependent on farmer's status Availability of machineries	Status Dependency We Can't Turn Back Time
	Respondent 3: *"Ti panagkunak ket awan ti progresibo ti mannalon ta maipanggep ngarud tay kunakon nga ti gastos ti mannalon ket nangina launay ket nu aglako ti irik (nababa presyo na). Isu nga ti panagkunak ket awan progresibo ti mannalon iti datuy*	Not progressive Dependent on farmer's status Insufficient SRP of products	It's not what is seems like Status Dependency

	magmagna a kalakaran ti magatgatang ken panaglako ti produkto ti mannalon."		
	Respondent 4: *"Wen a, maymayyat tattan a. Naprogprogresibo tatta dagiyay maapit mo ngem iti lang problema nagngina iti kasapulan. Dagita abono tatta ket nagngina, ngem nu aglako ka met iti irik, naglaka met. Ingato da kuma met a iti irik ta ingato da met amin nga kailangam iti pannagtalon."*	Progressive Insufficient SRP of products Costly	Blooming to progress It's not what is seems like Agricultural Tollgate
	Respondent 5: *"Wen, ti tattato ngamin idi pagingana da lang grade 6 kakasta, agtalonen iti trabaho ti tao idi. Baka awan tun iti agtalon panagkunak ket, baka panay tu makinan.*	Progressive Dependent on farmer's educational attainment	Blooming to progress Status Dependency
	Respondent 6: *"Napipintas tatta baro nga technology ta pinagkunak tatta nasirsirrib dagitay*	Progressive Dependent on farmer's status	Blooming to progress Status Dependency

	agriculturists nga mangisursurro kanyatayo."		
	Respondent 7: *"Masasabi kong oo dahil mabilis at napapadali ang proseso ng pagtatanim na ibubuhos mo pa ang ilang oras sa ibang bagay maliban ang trabaho sa bukid."*	Progressive More efficient	Blooming to progress Agricultural Tollgate
	Respondent 8: *"Kasla kwa, kaykayat ko diyay umununa nga panagtalunan ta hanka agususar ti krukrudo idi, hanka agususar ti ab-abono uray nu maraepam nu hanmo maabonoan. Wen, mas progresibo idi. Agpayso nga narigrigat trabaho idi nalaklaka met tay masapol tayo. Tatta met nalaklaka ti panagtalon tayo ngem nangingina met ti usaren tayo."*	Not progressive Costly Insufficient SRP of products	It's not what is seems like Agricultural Tollgate
	Respondent 9: *"Wen ah, datoy garud kinakwa na, kinabiit ti panag trabaho maipanggep dagitoy makmakina,*	Progressive More efficient Less laborious	Agricultural Tollgate Blooming to progress

	naprogprogreso. Adu maaramid mo maysa aldaw maipanggep ti makina ta napartak ti trabaho garud."		
	Respondent 10: *"Naprogprogreso tatta nga agpayso ngem nanginngina ti mausar, ngem hanko makuna nga pumegreso ti mannalon nu diket kasla bumabbaba, ta dagiyay ngarod usarem ket nanginngina met, dika pay maabrot nga talaga uray kitaem awan. Haan nga agbalbaliw ti kasasaad ti agtaltalon ta kakaasi kami talagan nga agtaltalon. Uray bassit maapit adda latta kapilitam a bayadan ta utang ngarod ta isuda met akin bagi kasapulam met talaga a pustoran. Sunga kasla mabalin kuma kalla idi ti presyo mabalin kuma, wenno inginngina da kuma met ti irik kada bagas, niya serserbi na ngay ti baro a makinaryam nu awan met maubrot mo,*	Not progressive Insufficient SRP of products Costly More efficient but costly Less generated income	It's not what is seems like Agricultural Tollgate

	agpayso nga limmag-an ti trabaho ngem rimmigat ti panagbiyag ta awan met maparwar ti agtaltalon karkaro nu mapirdin apan aminem ti igatang mo mausar a pagsimpa. Nu dika met agtalon awan met pagalaan ti kanen, uray ingatngato da la kuman presyo na dagita maapit."		
	Respondent 11: *"Depende ata tatta ti maysa mannalon nu kasatno panagkita da ngem kanyak mas progresibo tattan nu ti saritaan laeng ket dagiyay alikamen ngem nu ti panaglako kada panagangkat mas kaykayat ko payla idi panawen daydi President Marcos nagmayat ti presyo apit."*	Progressive Dependent on farmer's status	Blooming to progress Status Dependency
	Respondent 12: *"Nu ibagak iti agpayso haan nga progresibo tatta ti mannalon gappo ta dagituy a nagbaba a presyo ti apit tas inngato da met iti presyo alikamen di*	Not progressive Insufficient SRP of products More efficient but costly Dependent on farmer's status	Agricultural Tollgate Status Dependency It's not what is seems like

	ket awan mabagi min a mannalon, agpayso nga adu tattan ti makinarya nga nagmamayat nga mangpakita nga progresibon ngem ti agpayso dagitay la batnangen ti mabenipsyuwan ngem dagitay narigat a ket awan."		

CURRICULUM VITAE

Personal Information

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Educational Background

Elementary:	**San Francisco Elementary School**
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CURRICULUM VITAE

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CURRICULUM VITAE

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CURRICULUM VITAE

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