International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Production Pratices and Challenges of White Corn in Lower Apayao

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ABSTRACT

White corn, a distinctive and often underutilized maize variety, is drawing growing interest because of its unique traits and potential advantages. Farmer cultivation practices in white corn are quite similar with yellow corn. Its production Apayao is often limited due to many factors. This research study was conducted to document the practices employed and challenges encountered by farmers engaged in white corn production in lower Apayao.

Utilizing a descriptive approach, data were gathered through semi-structured interviews and focus group discussions with a total of sixty (60) white corn farmers, enumerated on varying sizes and years of experience. Data gathered were respondents' profile, production profile, their production practices, challenges encountered and its proposed solutions, and their recommendations to improved white corn production.

The findings provided that most of the farmers' production practices were modernized, key challenges still exists. Key challenges identified includes lack of credit access, lack of technical support, limited access to quality seeds, biotic and abiotic stresses, poor soil quality, limited market and low farm gate price, high production inputs, and stealing.

This research contributes valuable insights for the development of context-specific agricultural extension programs and policies aimed at enhancing the sustainability and productivity of white corn farming in the province.

Keywords: White corn, maize cultivation, farmer practices, agricultural challenges, Apayao agriculture, sustainable farming, crop production, agricultural extension, farming constraints, rural development

1. INTRODUCTION

White corn, a unique and underutilized variety of maize, has gained increasing attention due to its distinct characteristics and potential benefits. As a staple food crop, understanding the production practices and challenges associated with white corn is crucial for enhancing its cultivation and ensuring food security.

White and yellow maize are biologically and genetically very similar, differing mainly in kernel pigmentation. As a result, their production conditions and cultivation methods are largely identical. This includes similar soil preparation, planting techniques, and pest management strategies.[10]

In 2023, the Philippines produced 8.41 million metric tons of corn, including both white and yellow varieties. White corn production in 2023 was 1.12 metric tons per hectare, compared to 3.42 metric tons for yellow corn. While total corn production increased from 8.26 million metric tons in 2022, both white and yellow corn saw a decrease in yield per hectare. [6]

In the Cordillera Administrative Region (CAR), white corn production was reported at 15,308 metric tons in 2023. This represents a significant portion of the total corn production in the region, which is estimated at 171,771.54 metric tons. Apayao, a province within CAR, specifically saw a decrease in corn production

from January to March 2023, with a total output of 1,258.42 metric tons, a decrease of 32.3% compared to the previous year's first quarter, according to the Philippine Statistics Authority (PSA). [7]

One of its key potentials lies in its nutritional composition highlights the rich anthocyanin content in pigmented corn varieties, particularly purple corn, known for its antioxidant and potential health-promoting properties. Though focuses on pigmented corn in general, it implies the potential health benefits extend to other varieties including white corn. [5]

From an agronomic perspective, white corn demonstrates adaptability to diverse climates (2024), making it a viable crop in various regions. Additionally, indicates that advancements in CRISPR/Cas technology hold promise for improving crop traits, including those of specialty corns like white corn, potentially enhancing yield, disease resistance, and nutritional content. The development of improved white corn cultivars can further contribute to increased productivity and address the challenge of limited availability of superior hybrids. [11]

Recently, the Philippine corn industry has been confronted with problems that cause low productivity and marginal profitability. The very low adoption of modern production technology and the use of inappropriate corn cultivars for a particular locality are among the major constraints to productivity. [8]

One of the primary challenges is the limited availability of improved white corn cultivars. Researchers have focused more on the development of high-yielding yellow corn varieties, leaving white corn relatively neglected in terms of genetic improvement and the introduction of superior hybrids.

Additionally, white corn production is often subjected to various abiotic and biotic stresses, such as drought, pests, and diseases, which can significantly impact yields. Appropriate crop management strategies, including the use of drought-tolerant varieties, integrated pest management, and the adoption of sustainable farming practices, are crucial for mitigating these challenges.

Another challenge is the lack of market awareness and demand for white corn, especially in regions where it is not a traditional staple. Efforts to promote the nutritional and culinary benefits of white corn, as well as the development of value-added products, can contribute to increasing its market acceptance and demand.

Table 1. Status of corn production in Lower Apayao (Luna, Sta. Marcela and Pudtol)

Municipalities	**Total area (hectare/s)**	**Average Yield (metric tons)**
Luna	2.0	3.0
Sta. Marcela	8.0	3.2
Pudtol	2.0	3.0
Total	**14.0**	

Source: Local Government Units Sta. Marcela, Luna, and Pudtol, Apayao

According to LGU Pudtol, Luna, and Sta. Marcela, only few farmers are planting white corn. The total white corn production yields in these municipalities were ranging from 3.0-3.2 metric tons per hectare with a total area of 14 hectares.

This study aims to document the current production practices of white corn farmers, including land preparation, seed selection, planting methods, fertilization, pest and disease management, and harvesting techniques. To identify the major challenges faced by farmers in white corn production, such as climate variability, pest and disease outbreaks, access to quality seeds, market access, and financial constraints.

To assess the impact of these challenges on white corn yield and quality. To explore potential solutions and recommendations for improving white corn production and addressing the identified challenges.
Goals of this research were to address the following SDGs: primarily, zero hunger (SDG 2) focusing in the improvement of its production which directly support food security especially in regions were white corn is a staple food; secondly, responsible consumption and production (SDG 12) were sustainable white corn production practices ensure the efficient use of natural resources and reduce environmental impact; and no poverty (SDG 1), most of the white corn producers are smallholder or subsistence farmers where improving their productivity and addressing production challenges helps lift them out of poverty.

Statement of the Problem

The research sought to explore the production practices and challenges of white corn in Lower Apayao. Specifically, it aimed to answer the following questions:

1. What is the profile of the corn farmers in terms of age, gender, religion, marital status, education level, household composition?
2. What is the production profile of corn farming in lower Apayao in terms of volume of production, area planted, years engaged in farming, yield per hectare, quality of produce, and access to storage?
3. What are the white corn production practices of farmers in terms of farming system, nutrient and water management, crop protection, postharvest, and marketing?
4. What are the challenges encountered by corn farmers in white corn production?
5. What intervention can be crafted to address challenges faced by white corn farmers?

Conceptual Framework

This study adopts the Input-Process-Output (IPO) model as its conceptual framework to systematically explore the production practices and challenges of white corn farmers in Lower Apayao.
This study began with the input stage which includes three critical components: farmer demographics, farming techniques, and the challenges they encounter. Demographic variables such as age, gender, education level, marital status, religion, and ethnicity provide insight into the social profile of the farming population. Farming techniques involve land preparation, variety selection, seeding methods, fertilization, pest and weed control, and harvesting practices. Also incorporated at the input level are the challenges faced by the farmers, such as low yield, pest infestations, poor soil fertility, limited access to financial resources, and inadequate support services. These factors form the foundation for assessing the current status of white corn production.
The process involves gathering and analyzing data through observation, individual interviews, and focus group discussions. These tools enable the researcher to validate the information gathered from farmers, understand the context of their production environment, and obtain deeper insights into both technical and experiential aspects of their farming practices.
The output of this framework focuses on the documentation of existing white corn production practices and the specific challenges associated with them. By mapping these elements, the study identifies critical areas for intervention and development.

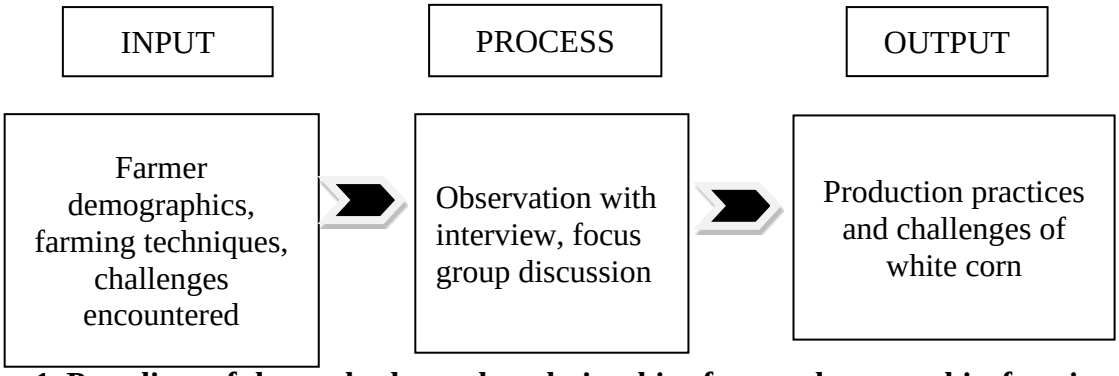

Figure 1. Paradigm of the study shows the relationships farmer demographic, farming techniques and challenges, focus group discussion and production practices and challenges of white corn.

2. Methodology

This chapter presented the research methodologies that were employed in gathering information on the production practices and challenges of white corn in Lower Apayao. The discussion in the chapter was structured around the research design, locale and sampling population, instrument used, data gathering procedure, and statistical tools.

Research Design

This study employed a **descriptive research design,** which is aimed at identifying production practices and challenges of white corn in lower, Apayao. Descriptive research design was ideal for gathering information, documenting, and understanding the experiences and perceptions of the white corn farmer beneficiaries regarding the program.

Locale of the study

Lower Apayao consists of municipalities such as Luna (the capital), Pudtol, and Sta. Marcela. The population is a mix of Isnag, Ilocano, and migrant settlers from other provinces. The main languages spoken are Ilocano, Isnag, and Filipino.

Lower Apayao is known for its vast agricultural lands, primarily producing rice and corn, with white corn being a significant crop in municipalities like Sta. Marcela, Luna and Pudtol. The area benefits from irrigation systems, particularly in rice-producing areas.

The economy is agriculture-driven, with farming and fishing as the primary sources of income. There are small-scale businesses, cooperatives, and trading centers where farmers sell their produce.

Respondents of the Study

The respondents of this study were the total enumeration of white corn farmers as they represent a sample that accurately reflects the overall farming community in the municipalities.

Data Gathering Procedure

The study began with the secondary data from the Municipal Agriculture Office (MAO) on production (area, and yield per hectare).

After collecting secondary data, the next step was developing and designing a comprehensive survey questionnaire. This process involved carefully crafting a set of structured questions that was effectively

captured the relevant information from the white corn farmers. The questionnaire was designed to address key areas of interest, ensuring that it aligns with the study's objectives and provides clear, reliable data for analysis.

Focus Group Discussions (FGDs) was organized with a diverse group of participants, including farmers, agricultural extension officers, and other relevant stakeholders such as local government officials or experts in agriculture. These discussions were provided an opportunity for in-depth dialogue and the sharing of experiences, challenges, and recommendations.

The survey involved the distribution of a structured questionnaire to white corn farmers.

Confidentiality of the responses was ensured to encourage honest and unbiased feedback from the participants. Additionally, respondents were fully informed about the purpose of the study, their role, potential risks, and benefits before giving their voluntary consent.

Statistical Tools

Quantitative data from the surveys was analyzed using descriptive statistics and appropriate statistical tests. Qualitative data from FGDs was analyzed thematically.

In this study on white corn production practices and challenges, combining descriptive analysis with thematic analysis offers a holistic approach to understanding both the broader trends and the deeper, different experiences of the farmers.

RESULTS AND DISCUSSION

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

Profile of the Respondents

The respondents were predominantly **male** (34 or 56.67%) compared to **female** (26 or 43.33%). The age distribution shows that most respondents were in the **older age groups**, particularly at 65 and above with 12 respondents (20%); 45-49 and 55-59 with 10 respondents (16.67%) each; 50-54 with 8 respondents (13.33%). While some of the age groups have fewer respondents, particularly at 40-44 and 60-64 with 6 respondents (10%) each; 35-39 with 4 respondents (6.67%); 25-29 with 3 respondents (5%); and the least was at age group 30-34 with 1 respondent (1.67%). The **mean age is 54.32 years**, indicating that the majority of white corn farmers are middle-aged to older adults.

Most respondents were **married** (50 or 83.33%), while a small portion were **widowed** (7 or 11.67%) and **single** (3 or 5%). This shows that farming is often a family-based activity, where married individuals, likely with family labor support, are most engaged.

A majority of the respondents were **Roman Catholic** (38 or 63.33%), followed by **Iglesia ni Cristo** members (12 or 20%) and other religions (10 or 16.67%). This religious profile is consistent with the general religious landscape of many rural areas in the Philippines.

The respondents were predominantly **Ilocano** (49 or 81.67%), with smaller representations from **Isneg** (5 or 8.33%), **Igorot** (4 or 6.67%), and **Kankana-ey** (2 or 3.33%). This suggests that white corn farming is primarily practiced by the Ilocano ethnic group in the study area, reflecting the local demographic makeup.

The majority of farmers had attained **high school level or graduate** (35 or 58.33%), followed by **elementary level or graduate** (13 or 21.67%), **college level or graduate** (11 or 18.33%), and only one with **vocational training** (1.67%). This suggests that most farmers have at least a basic education, which may positively affect their ability to adopt new technologies or extension services, though only a minority reached tertiary-level education.

All respondents belonged to **nuclear households** (60 or 100%). This suggests that farming is carried out within small family units, possibly with shared labor among household members.

The data shows that respondents were engaged in white corn production in 6-10 years with 20 respondents (33.33%), 1-5 years with 17 respondents (28.33%), 20 years and above with 11 respondents (18.33%). The **mean farming experience is 10.28 years**, indicating that most respondents have substantial experience in white corn farming.

Most farmers tilling **small-scale farms**: 0.26-0.5 ha with 31 respondents (51.67%), 0.25 ha and below with 17 respondents (28.33%). Other farmers tilling larger farms: 0.51-0.75 hectares with 4 respondents (6.67%), 0.76-1.0 hectares with 3 respondents (5%), and 1.1-3.0 hectares with 5 respondents (8.33%). The **mean farm size is 0.49 ha**, reflecting limited landholding typical of smallholder farmers in the province.

Table 2. Profile of the respondents

Profile		**Frequency (n=60)**	**Percentage**
Gender	Male	34	56.67%
	Female	26	43.33%
Age	25-29	3	5.00%
	30-34	1	1.67%
	35-39	4	6.67%
	40-44	6	10.00%
	45-49	10	16.67%
	50-54	8	13.33%
	55-59	10	16.67%
	60-64	6	10.00%
	65 and above	12	20.00%
Mean = 54.32			
Civil status	Single	3	5.00%
	Married	50	83.33%
	Widow/er	7	11.67%
Religion	Roman Catholic	38	63.33%
	Iglesia ni Cristo	12	20.00%
	Other religion	10	16.67%
Ethnicity	ilocano	49	81.67%
	kankana-ey	2	3.33%
	igorot	4	6.67%
	isneg	5	8.33%
Educational Attainment	Elementary level/Graduate	13	21.67%
	HS Level/Graduate	35	58.33%
	College Level/Graduate	11	18.33%
	Vocational	1	1.67%
Types of household	Nuclear	60	100.00%
	1 year & below	5	8.33%
	1-5 years	17	28.33%

No. of Years Engaged in White corn production	6-10 years	20	33.33%
	11-15 years	5	8.33%
	16-20 years	2	3.33%
	20 years and above	11	18.33%
Mean = 10.28			
Area size (ha/s)	0.25 and below	17	28.33%
	0.26 - 0.5	31	51.67%
	0.51 - 0.75	4	10.00%
	0.76 - 1.0	3	5.00%
	1.1 and above	5	5.00%
Mean= 0.49			

Production practices of the respondents

Table 3 shows the production practices apply by the respondents in producing white corn.

Most of the respondents (43 or 71.67%) prepare their land using mechanical means, while only 17 farmers (28.33%) rely on manual preparation. This indicates a strong adoption of mechanization in land preparation, reflecting progress in modern farming practices among white corn farmers.

The most common variety is **Sweet Purple** (51.67%), followed by **Sweet Pearl** (30.00%). **Other varieties** like **OPV** (8.33%), **Glut 7** (6.67%), **Abra variety** (1.67%), and **Glut 4** (1.67%) are less commonly used.

The majority of respondents (51.67%) source their seeds from **Online Shops** (e.g., Shopee, TikTok), which highlights the increasing trend of digital platforms being used for agricultural input sourcing. Agricultural supplies (33.33%) and Local Government Unit / Department of Agriculture (8.33%) are also mentioned, but digital platforms have a clear dominance in seed procurement. Other smaller sources like **Alcala, Cagayan** (1.67%), **Tuguegarao City** (1.67%), Abra (1.67%) and **Eastwest company** (1.67%) reflect more localized or specific seed distributors.

Mechanical planting (71.67%) is also the preferred method, similar to land preparation. This is consistent with respondents' use of mechanical tools for various farming operations. **Manual planting (28.33%)** could indicate smaller-scale operations, or a preference for traditional methods on certain types of land.

The most common combination used is **ammonium phosphate and urea with 2:2 ratio** (53.33%), followed by complete, ammonium phosphate and urea with 1:1:2 ratio (25%), complete and urea with 2:2 ratio (16.67%). A smaller number of respondents (3.33%) use **organic fertilizers**, signifying that organic farming practices are not widespread in the province.

Manual weeding (41.67%) and **cultivation (33.33%)** are the most common methods, indicating that labor-intensive methods remain the primary approach to weed control. **Herbicide spraying** (25%) is also used but less commonly.

Corn borer (38.33%) and **rats** (41.67%) are the most significant pest problems for the respondents. **Fall Armyworm (FAW)** (18.33%) and **aphids** (1.67%) are less frequently reported but still present as concerns. The high incidence of **rats** and **corn borers** suggests that these pests pose considerable challenges in both the field and postharvest phases.

The most common pest management practices include **spraying insecticides (41.67%)** and **manual picking** for **corn borers (10%)**. **Arsenate use** for **rats (41.67%)** is also common, suggesting a significant challenge in managing rodent pests. The use of **bio-n for earwigs (6.67%)** reflects an effort to manage pests through biological control methods.

A large majority (85%) of respondents harvest their white corn at the **2-month mark**, which suggests they are harvesting corn at the **milking stage** for fresh consumption. A smaller group (6.67%) harvest at **60-65 days**, likely targeting a slightly later stage, and another (8.33%) harvests when the corn is dry (110-120 days), indicating different harvest timing practices based on intended use.

A significant portion (91.67%) of farmers do **not practice postharvest methods** because they harvest at the **milking stage** for immediate consumption, indicating that the corn is not stored for long-term use or further processing. Only a small group (8.33%) engages in **drying and storing** the corn, likely for future cropping or seed production.

Table 3. Production practices of the respondents

		Frequency n=60	**Percentage**
Land Preparation	Mechanical	43	71.67%
	Manual	17	28.33%
Seed varieties	Glut 4	1	1.67%
	Glut 7	4	6.67%
	OPV	5	8.33%
	Sweet pearl	18	30.00%
	Sweet purple	31	51.67%
	abra variety	1	1.67%
Source of white corn seeds	Alcala, Cagayan	1	1.67%
	Agricultural supply	20	33.33%
	Tuguegarao City	1	1.67%
	Abra	1	1.67%
	Ilocos Norte	1	1.67%
	Online shops (shopee/ tiktok)	31	51.67%
	LGU/DA	5	8.33%
Planting method	Manual	17	28.33%
	Mechanical	43	71.67%
Fertilizer types and amount use	16-20-0 (2 bags) & urea (2 bags)	32	53.33%
	T14 (2 bags) & urea (2 bags)	10	16.67%
	T14 (1 bag), 16-20-0 (1 bag) & urea (2 bags)	15	25.00%
	urea(4 bags)	1	1.67%
	organic fertilizers	2	3.33%
Weed management	spraying of herbicide (clear more, athrazine)	15	25.00%
	Cultivation	20	33.33%
	Manual weeding (lamon)	25	41.67%
Pests and diseases incidence	Corn borer	23	38.33%
	aphids	1	1.67%
	Fall army worm (FAW)	11	18.33%

	rats	25	41.67%
Pests and diseases management	Manual Picking (borer)	6	10.00%
	spraying insecticides (virtaco, prevathon, gold)	25	41.67%
	arsenate (rats)	25	41.67%
	earwigs with bio-n	4	6.67%
Harvest time	2 months	51	85.00%
	60-65 days	4	6.67%
	dry (110-120 days)	5	8.33%
Post-harvest practices	almost of the farmers said no post-harvest practices because they are harvesting at milky stage	55	91.67%
	drying, storing to storage building for the next cropping	5	8.33%

Table 4. Challenges encountered by respondents in white corn production

No.	**Challenges**	**Frequency**	**Rank**
1	High production input (labor, fertilizer, maintenance)	19	7
2	Biotic stress such as ACB, susceptability, pest, etc.	40	4
3	Abiotic stress (extreme heat, drought, etc.)	34	5
4	Stealing (human)	1	8
5	Limited access to quality seeds	55	3
6	Lack of access to credit	60	1
7	Limited market and low farm gate price	23	6
8	Lack of Technical Support	56	2
9	Poor Soil quality in terms of holding capacity, hardiness, compaction and acidity)	34	5

Table 5. Challenges and proposed solutions

Rank	**Challenges**	**Possible solutions**
1	Lack of access to credit	• Some of the farmer suggested that government should provide more credit programs with no collateral needed. • Some also suggested that introduction of credit institutions with no or lower interest rates.
2	Lack of Technical Support	• A farmer said, "Nu puraw nga mais, awan ti technician nga mangtarabay kanyami nu kasla nga adda peste ken problema iti mula mi. Adda

		koma technician nga makaamo iti pinagmula iti puraw nga mais."
3	Limited access to quality seeds	• Trainings in white corn seed production.
4	Biotic stress such as ACB, susceptability, pest, etc.	• Strengthen Integrated Pest Management (IPM) programs. Access to high yielding, and pest-resistant white corn varieties. Provide technical support and timely distribution of pesticides/ bio-pesticides.
5	Abiotic stress (extreme heat, drought, etc.)	• A farmer qouted, "Nakaro ti epekto ti layos ken tikag aglalo iti diket nga mais. Kailangan mi ti mas maymayat nga klase iti buket nga maimula)." It means that introduction climate-resilient corn varieties. • Establish irrigation systems or water-harvesting technologies to mitigate drought. • Disseminate timely weather forecasts to guide planting and harvesting schedules.
5	Poor Soil quality in terms of holding capacity, hardiness, compaction and acidity)	• There should trainings on soil conservation practices, organic matter improvement, liming for acidity, and water conservation techniques.
7	Limited market and low farm gate price	• Government agencies and LGUs should help strengthen farmers' marketing capacity and improve price negotiations.
8	High production input (labor, fertilizer, maintenance)	• One of the possible solution is provision of subsidized seeds, and fertilizers. One of the respondents said,"Adda koma ited da(government) nga libre nga bin-i ken abono, tapno malag-anan kami iti pinansiyal". • Introduce mechanization or labor-saving technologies to reduce drudgery.
9	Stealing (human)	• Planting buffers. One of the respondents said,"Saan nga maaladan ti tao, isu nga iti aramiden mi ditoy, iyalad mi ti dadduma nga mula mi."

Yield and Quality

Most of the farmer respondents said that they preferred to harvest their produce at milking stage with an average of 3,480 pieces of cobs per hectare. This yield level is typical for farmers targeting the **fresh market,** where consumers prefer soft, sweet, or glutinous corn at the milking stage. Only a smaller

proportion of respondents report their yield on a **dry basis (1.0–4.2 t/ha, average 2.60 t/ha),** showing that dry corn production is less common in this area.

The quality of white corn produced by the respondents is characterized by several important traits. Kernel size varies across harvests, with some cobs having smaller kernels while others are larger, often depending on the variety used and field conditions. The color of the kernels is also variety-dependent, with Sweet Pearl and OPV producing white kernels, while Sweet Purple yields a distinctive purple-white color that can appeal to niche markets. In terms of cooking and eating quality, the farmers describe their corn as soft and sweet, especially when harvested at the milking stage, making it highly preferred for fresh consumption. Cleanliness is a key indicator of quality, with buyers expecting produce free from dirt, molds, and insect damage. For farmers who dry their corn for storage, achieving the proper moisture content of 14% is essential to prevent spoilage. This is typically done by sun-drying the corn for about two days. Overall, these quality factors—appearance, taste, cleanliness, and proper moisture management—are crucial for meeting market standards and ensuring the value of the produce.

Almost all the respondents reported that they have no access to storage facilities, primarily because they sell their corn harvest at the milking stage, locally referred to as 'lilingtaen.' While some of the respondents, particularly those associated with the research outreach station, reported that they do have storage facilities available. However, they emphasized that these facilities are not adequate or ideal for producing and maintaining high-quality seeds. While they have space for storage, the conditions—such as temperature control, ventilation, humidity management, and protection from pests—are often lacking, which can compromise seed quality over time.

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary of findings

1. The profile of the white corn farmers in this research area shows a male (56.67%) and aging (mean age of 54.32 years) population that is largely married (83.33%) members of the Roman Catholic religion (63.33%) and Ilocano ethnicity (81.67%). A large majority of the farmers are high school graduates or more (58.33%) and live in nuclear families (100%). They have significant experience in white corn production, averaging 10.28 years, and generally manage small farms, averaging 0.49 hectares.
2. At the level of production practices, the majority of farmers apply mechanical means for land preparation (71.67%). The most common variety of white corn is sweet purple (51.67%) that were purchased dominantly through online shops (51.67%). Synthetic fertilizers are most commonly applied with different ratios. Weed control is predominantly manual (41.67%) or with cultivation (33.33%). The most critical pest issues are rats (41.67%) and corn borers (38.33%), which are treated with chemical insecticides (41.67%) and arsenate (41.67%) most commonly. Harvesting is mostly in the milky stage (85%) at approximately two months for fresh corn cobs, with very few post-harvest operations recorded (91.67%).
3. The farmers encountered a number of challenges, such as production limitations (low yield, low income, labor intensity), biotic and abiotic stresses (natural disasters, pest attacks, prolonged rainfall), and socio-economic factors such as theft. Climate variability leads to high yield loss and poor crop quality. Although access to quality seeds is widely reported to be available, there is a high absence of access to agricultural credit and financial support. Marketing is problematic because of high competition, the lack of stable market for dry white corn seeds, low farm-gate prices, and limited

market access and linkages. Additionally, most of the farmers have insufficient agricultural extension support for the production of white corn. Infestation by pests and diseases is a big issue, and soil fertility problems, including poor water-holding capacity, hardness, and acidity, are also serious issues.

4. The absence of storage facilities, save for the few inefficient ones located at the research outreach station, holds back the prospect of dry corn and quality seed production.
5. In sum, white corn cultivation is the study area is defined by an aging yet experienced labor force involved in small-scale production, mainly addressing the fresh market with mechanized land preparation and sowing practices. Farmers in the area face many challenges associated with production, environmental conditions, socio-economic limitations, and limited support services, especially credit, marketing, and extension. Overcoming these challenges through enhanced access to resources, technology, information, and market linkages may improve the sustainability of white corn production in the province.

Conclusions

1. Based on the findings, the white corn farming population in the study area is also of a certain profile, that of an older, male-dominated population. They are predominantly married Roman Catholic Ilocanos. They are high school educated and live in nuclear families.
2. They have over ten years of experience in white corn production with smaller farm sizes. Though there was a high volume of production in the province some aspects like access to quality seeds, credit programs and other factors affects the assurance of good quality seeds produced.
3. While mechanized practices and access to quality seeds have been adopted, persistent issues such as soil fertility problems, pest infestations, and unpredictable climatic conditions hinder overall productivity and sustainability.
4. Farmers continue to face significant challenges, including environmental stresses, socio-economic constraints, and limited access to crucial support services such as financial credit, market linkages, and agricultural extension programs.
5. Addressing these limitations through improved resources, technology, and institutional support could enhance the viability of white corn farming in the province.

Recommendations

1. Implement subsidy programs and partnerships with seed producers to ensure farmers have access to affordable, high-quality seeds that enhance yield and resilience.
2. Farmers are encouraged to purchase seeds only from DA-accredited suppliers, cooperatives, LGU-certified agricultural supply stores, or directly from seed companies recognized by the Bureau of Plant Industry. For guaranteed quality and access to technical guidance, coordinate with the Municipal Agriculture Office (MAO) or Local Agricultural Technicians when sourcing white corn seeds and other critical inputs.
3. Develop farmer cooperatives and support initiatives that create a stable local market for dry white corn seeds, reducing reliance on external buyers and improving profitability.
4. Expand agricultural extension programs to equip farmers with modern techniques, pest control strategies, and sustainable practices through workshops and hands-on training.
5. Enhance government involvement through policy reforms, financial assistance, and infrastructure development, ensuring farmers receive adequate support across production, processing, and distribut-

ion.

6. Conduct awareness campaigns showcasing the nutritional benefits of white corn, encouraging wider consumer adoption and driving demand in both fresh and processed markets.
7. Promote soil testing programs to guide farmers on appropriate fertilization methods, improve soil health, and optimize crop productivity.
8. Advocate for government-led policies that address the challenges of white corn farming, including financial aid, market regulations, and research-driven interventions.
9. Enhance Package of Technology (POT) initiatives by integrating advanced farming techniques, mechanized solutions, and climate-smart agricultural practices to boost efficiency and sustainability.

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