EXTENSION OF CORN FARMER GROUPS IN HANDLING DOWNY MILDEW IN DUKUH SEPAT, PONOROGO USING JAGO AND MONTOK CORN SEED VARIETIES

Pramudito Tunggal Moeliono, Khairunnisa Etika Sari, Muhammad Syifaul Janan, Arsyad Shalehudin, Nurbaeti, Suryani

UIN Sunan Kalijaga, Yogyakarta
syifauljanan29@gmail.com

Abstract – *Agriculture plays a vital role in the Indonesian economy, including through extension services that help farmers optimize agricultural resources. Ponorogo Regency is known as one of the leading corn producing areas, with yields reaching 10.2 to 12.4 tons per hectare. Extension services conducted in Sepat Hamlet, Suru Village, aim to empower corn farmers through participatory and group methods. Hybrid corn, which is widely used due to its high yield potential and resistance to pests, requires seed replacement every planting season. Major challenges in corn cultivation include downy mildew and stem rot, which require preventive measures. Good post- harvest practices, such as drying and storage, are essential to maintaining corn quality and preventing losses. Through proper extension and care, farmers can increase corn productivity and quality.*

Keywords: *Corn, Agricultural Extension, Hybrid Corn, Downy Mildew, Post-Harvest*

1. INTRODUCTION

Indonesia is a country that has extensive agricultural land. The vastness of the land makes the agricultural sector a job that is widely carried out by the Indonesian people. Agriculture is considered to be able to support people's lives as well as being a mainstay of the economic system in Indonesia. Agriculture is considered successful in building an agricultural sector that is not only in its condition but also lies in agricultural extension that is able to help farmers in utilizing and maximizing the potential of science in order to develop existing agricultural resources. (Mudmainah, 2023) According to research conducted by Nurida (2024), farmers have a major role in life in Indonesia. This is because the community that has an increasing need for food so that farmers are required to have reliable abilities in order to apply agricultural principles (Nurida et al., 2024).

Ponorogo Regency is one of the corn producing areas in Indonesia. The corn harvest is recorded until 2023 to reach an average of 10.2 tons per hectare or even able to reach 12.4 tons per hectare. Corn planted in the Ponorogo area is considered to have advantages in extreme weather changes. This can be seen when the weather is rainy or the dry season, corn can still grow optimally in the Regency. In terms of nutritional content, Ponorogo corn or nicknamed Reog 234 Variety Corn has a carbohydrate content of 85.43%, protein 9.10% and fat 3.95%. Therefore, the Governor of East Java, Mrs. Khofifah Indar, asked the Regent of Ponorogo to immediately register this variety of corn with Intellectual Property Rights (IPR) to the Directorate General of Intellectual Property of the Ministry of Law and Human Rights so that this variety gets patent rights as one of the works of the Ponorogo community.

Maximizing the potential of corn in Ponorogo and the low potential of corn can depend on the amount of production produced can depend on the area of land available. One of the things that affects the level of other production is the quality of farmer resources to manage their business. Farmers must actively seek new knowledge to improve the quality of corn produced to be more optimal. Farmers can increase this knowledge by participating in counseling that teaches about the values of more effective and efficient corn farming (Novianda Fawaz Khairunnisa et al., 2021).

The effectiveness of agricultural extension can be achieved if the interests and needs of the community can be prioritized and pay attention to existing resources to be maximized. Agricultural extension workers play a major role in the strategic role of bridging the government, farmers and also external stakeholders. The capacity of agricultural extension workers must be able to prepare agricultural plans and carry out extension based on the needs of their targets, namely farmers. The performance of good agricultural extension workers will have an impact on improving the performance of farmers in farming so that it is expected to increase agricultural production. (Novianda Fawaz Khairunnisa et al., 2021)

PT Advanta Seeds is a company engaged in the agricultural sector, one of which is corn. Advanta has extensive experience in developing superior corn variety research. They have the innovation and technology to support the agricultural sector, especially corn in Indonesia. PT Advanta Seeds has an agricultural extension program aimed at

Indonesian citizens to improve the quality of agriculture. Therefore, PT Advanta is considered capable of providing extension with extension workers who are experts in the field to share their knowledge with the surrounding community.

2. METHOD

The socialization of the extension was carried out directly face to face and through dialogue between farmer groups and PT Advanta Seeds located in Suru Village, Sepat Hamlet. This socialization aims to develop the village potential of Suru Village. The extension carried out for residents of Sepat Hamlet was in the form of empowering corn farmers. The empowerment carried out was a form of effort to increase the potential capabilities of the community, so that the community was able to realize their identity to survive and develop corn farming.

The communication technique used in the socialization of the farmer extension took place in the form of a discussion forum, carried out face to face. Extension methods in socializing corn farming in Sepat hamlet include:

A. Participatory Approach

This method involves farmers actively in every stage of the extension activities. Extension invites farmers to share their experiences and local knowledge, which will then be integrated with PT Advanta Seeds. Farmers' involvement in group discussions, and the knowledge provided by PT Advanta Seeds will increase their understanding of the material presented.

B. Group-Based Counseling

In this method, farmer groups receive counseling that is tailored to the needs of corn farming, for example on how to farm or what farming techniques can increase harvest yields. The counseling conducted in groups included discussions between the farmer group and PT Advanta Seeds.

C. Utilization of Media

During the counseling event, we used various media such as videos, posters, and PPTs provided directly by PT Advanta which contained information on corn cultivation techniques, and how to handle pests and farming that can produce what is expected. In this method, agricultural extension materials are received by the target through the senses of sight and hearing, including; distribution of printed materials, slides, and photo albums.

3. RESULTS AND DISCUSSION A. Types of Corn, Pests and Their Control

Hybrid corn is a type of corn produced from the crossing of two different varieties or pure lines of corn. This process is carried out to combine the superior traits of both parents, such as increased yields, disease resistance, and adaptability to certain environmental conditions.

The main advantage of hybrid corn compared to non-hybrid (*open- pollinated*) corn is its higher and more uniform productivity. However, hybrid corn seeds usually cannot be reused for subsequent plantings because the next generation will not retain

the superior traits of the parent plant. Therefore, farmers who use hybrid corn usually have to buy new seeds every time they plant.

Hybrid corn has several advantages, including 1) high yield potential, which can reach around 8-12 tons/ha; 2) has new desired characteristics, such as better resistance to pests and diseases; 3) has better adaptability to various environmental factors, such as drought, high humidity, or extreme temperatures; 4) more uniform plant growth so that it has a more uniform level of maturity at harvest; and 5) produces corn cobs and grains that are more uniform in size and shape (BSIP SOUTH SUMATRA News, 2024).

Downy mildew is a disease of corn plants caused by a virus transmitted by insect vectors, especially from the aphid group (check *Thysanoptera* and *Homoptera*). Symptoms of downy mildew are characterized by chlorosis on young leaves and corn cobs that become hollow as the strongest indicator (PPID IPB, 2022). This disease is also known as downy mildew. Typical symptoms of downy mildew include the appearance of yellow lines or stripes on corn leaves, curled or twisted leaves, and stunted and stunted plant growth.

If downy mildew attacks occur in the early stages of plant growth, it can cause crop failure because the plants are unable to produce optimal corn cobs. To control downy mildew pests, farmers usually implement strategies such as planting corn varieties that are resistant to downy mildew, good soil and plant management, and the use of pesticides if necessary to control the vectors that transmit this disease.

Controlling downy mildew in corn plants requires an integrated approach that includes prevention, monitoring, and direct handling. Controlling and overcoming corn affected by downy mildew can use the following methods: *First*, is the selection of corn seeds that are resistant to downy mildew. One of the most effective preventive measures is to plant corn varieties that have been developed to be resistant to downy mildew. Certain hybrid varieties have been designed to be more resistant to this disease; *Second*, rotating crops with non-corn crops after the corn planting season can help reduce the vector population and reduce the risk of downy mildew infection in the following season.

Third, remove and destroy plants showing symptoms of downy mildew. This is to prevent the spread of the disease to other plants; *Fourth*, although not completely effective, some fungicides can be used to protect healthy plants if the disease has not spread widely. Fungicides must be applied according to the dosage and schedule according to the age of the corn; *Fifth*, farmers need to be educated about the symptoms of downy mildew, effective prevention and control methods. A good understanding of this disease is essential for better management; and *Sixth*, regular monitoring of symptoms carried out by farmers to detect early symptoms of downy mildew so that preventive and control measures can be taken immediately.

Advanta Seeds was founded in 1994 and has grown into one of the major players in the seed industry (Advanta Indonesia, 2024), especially in the development of hybrid varieties for various crops such as corn, sorghum, sunflower, rice, and vegetables. Advanta Seeds utilizes cutting-edge technology and scientific research to produce

seeds that meet the needs of farmers in various environmental conditions. Advanta Seeds is a company engaged in the development, production, and distribution of high-quality seeds, including hybrid corn. In Indonesia, they focus on developing corn varieties that suit local needs, such as disease resistance, high productivity, and adaptability to tropical weather conditions.

In Indonesia, Advanta Seeds is known for its commitment to providing hybrid seeds that suit local needs. The company focuses on developing varieties that can increase crop productivity and resistance to pests, diseases, and changing tropical climate conditions. In addition to providing quality seeds, Advanta Seeds Indonesia also plays an active role in providing counseling and training to farmers. They work with the government, non- governmental organizations, and farming communities to ensure that the latest agricultural technologies can be implemented effectively in the field.

Some of Advanta Seeds Indonesia's leading products include hybrid corn varieties such as Montok and Jago, which are known for their high yields, disease resistance, and adaptability to a variety of soil and climate conditions in Indonesia. These products are developed through intensive research and field trials to ensure that they meet high quality standards and provide maximum benefits to farmers.

Hybrid corn Montok and Jago are two hybrid corn varieties produced by Advanta Seeds Indonesia. Both varieties are designed to meet the needs of farmers in Indonesia with certain advantages. 1) Plump Hybrid Corn

- **Characteristics:** The Montok variety is known for its high yield and large, uniform corn cob size. This corn also has good seed quality, with a bright yellow color that is in demand in the market.
- **Hardiness:** Montok is designed to have good resistance to several diseases and challenging environmental conditions, including drought.
- **Advantages:** This variety is generally preferred by farmers due to its good yield stability and high harvest potential, thus providing greater profits (ADV Montok, 2024).

2) Jago Hybrid Corn

- **Characteristics:** The Jago variety is known for its high resistance to diseases, especially downy mildew. This makes it a good choice for farmers who face disease problems in their fields.
- **Productivity:** Jago also offers high yields, with large cobs and quality kernels.
- **Environmental Adaptation:** This variety is able to adapt well to various environmental conditions in Indonesia, including land with varying levels of fertility (ADV Jago, 2024)

B. How to Care for Corn Plants Properly and Correctly

For corn farmers, there are several things to consider when planting corn. Although corn plants are said to be very easy to cultivate in Indonesia because of the supportive climate, farmers must still choose superior seeds , find fertile land, provide extra care to maintain the leaves, stems, and corn fruit (Agro Media, 2007).

1) Selecting Suitable Land and Paying Attention to Soil PH

Corn plants are plants that can grow in both highland and lowland areas, and are very capable of adapting to the climate in Indonesia. There are several types of land that farmers need to pay attention to, namely; dry land, sufficient water, rain-fed, improved gambus land, and land that is very good for planting corn is former rice field land. And to keep corn plants growing well, farmers must prepare large and open land so that corn plants can get full sun nutrition for 8 hours every day. In addition to paying attention to the above, farmers must also know how much PH (Potential of Hydrogen) is suitable for corn plants. So quoted from the book (Hybrid Corn Cultivation) explains that the suitable soil pH for corn plants is 6.8.

2) Caring for Stems to Avoid Diseases and Pests

Corn plants have unbranched stems, are cylindrical in shape, and consist of a number of segments and nodes. The nodes develop into productive cobs. The stem has three main tissue components, namely the skin (epidermis), vascular tissue (vascular bundles), and the center of the stem (pith).

In the process of cultivating corn plants, the presence of diseases and pests must be closely monitored because the presence of insects on corn stems greatly affects the quality and quantity of cultivated corn, especially bacterial diseases whose main factors can be identified by acidic and moist soil conditions. So that (Erwinia chrysanthemi pv. Zeae) which is a bacteria that causes stem rot disease is very easy to grow and develop. This stem rot disease in corn plants can be prevented by forming land with beds and drainage during the rainy season so that water can flow into the drainage that has been made, so that corn plants will not be submerged by rainwater continuously in the long term which causes stem rot. Then, in addition to paying attention to drainage, farmers must also pay attention to the planting period and planting distance.

The next prevention that can be done by farmers is by sprinkling agricultural lime before planting or land cultivation. By sprinkling agricultural lime, it is expected to be able to manipulate or reduce the acidity of the soil which will prevent the arrival and development of corn stalk rot bacteria. When the plant is about 25 days old, prevention that can also be done is by spraying bactericide and fungicide amistar. Then after carrying out several forms of prevention above, farmers must also continue to control their land and plants regularly. This is done so that stem rot disease that will attack at any time will be quickly resolved because the plants and land are always controlled (Suci Wulandari, 2024).

3) Leaf Care

As a plant that is widely planted by Indonesian people besides rice, corn also needs to be considered during its growth period, especially in the leaves because the leaves also have a very important role in growth. Because if the disease on the corn leaves has been affected by pests and diseases, the growth of the corn will be hampered. Disease factors that attack corn leaves result in low corn production.

To keep corn leaves looking healthy and good, the following suggestions can be made:

a. Adequate Watering

By doing adequate watering, farmers must be able to ensure that corn plants get enough water, especially in the dry season (summer). With regular watering, it will be able to prevent leaves from wilting, using the drip irrigation method or irrigation can be more effective and save water.

b. Fertilization

Fertilization is one of the forms of preventing rotting and damage to corn leaves, namely by providing nutrient fertilizers using fertilizers rich in phosphorus, nitrogen, and potassium to support leaf growth. This fertilizer must also be scheduled by being carried out periodically according to the instructions on the product packaging, so that corn leaves will be protected from unwanted diseases and pests.

c. Control

Pests and diseases carry out regular routine checks to detect pests such as caterpillars or aphids.

d. Weeding

Removes weeds from the area around the plants to remove weeds that compete with the corn plants for nutrients and water.

e. Pruning

Involves pruning dry leaves or those infected with disease so that they do not spread to other parts of the plant.

f. Adequate Lighting

Make sure the corn plants are exposed to sunlight for approximately 6-8 hours per day.

g. Planting Distance

Make sure that the right distance is given at the time of planting because corn with sufficient distance will produce good air circulation, preventing excess moisture which can cause disease (Agro Media, 2007).

By following the steps above you can keep corn leaves healthy and productive. Here are 4 main types of diseases in corn leaves, namely:

1. Leaf rust disease
2. Leaf spot disease
3. Leaf blight disease, and
4. Leaf spot disease

Of the 4 main types of diseases in corn leaves, these can be identified directly by the human eye because the shape and color of the leaves will change if they have been attacked by the disease (Imron Rosadi & Lutfi, 2021).

Table 1. Causes of disease and symptoms of damage to corn leaves

No.	DISEASE	SYMPTOM	REASON
1.	Fungal disease	1. Leaf Rot 2. Leaf Spots	1. Helminthosperium 2. Various types of mushrooms
2.	Bacterial disease	1. Chlorosis 2. Wilt Disease	Caused by the bacteria Xanthomonas
3.	Viral disease	1. Yellow Virus 2. Dwarf Virus	Leaves turn yellow, shrink and become stunted
4.	Pest	1. Caterpillar 2. Beetle	Damages leaves and reduces photosynthesis
5.	Environmental Factors	1. Lack of Nutrition 2. Excessive Humidity	Lack of nutrients: nitrogen, phosphorus and potassium which causes fungus to appear
6.	Genetic Factors	Disease	Certain variations determine the quality

From the example table of causes of disease and some of the symptoms above, it can inform farmers that there are several important points that must be considered in planting corn, such as maintaining the plant environment so that it is not overgrown with pests or grass that triggers the arrival of caterpillars and beetles, and farmers can choose corn seed variants that have been tested for quality.

4) Corn Fruit/Seed Care

After maximizing the prevention of disease growth, pests, and whiteflies on corn stems and leaves, then the maintenance and prevention of the fruit is also very important because the fruit is the main part that will be processed and taken by farmers to produce high selling value. Therefore, corn fruit must be of good quality, smooth and without any disease that attacks so that the corn seeds that will be produced will be more and larger in size.

The size and quality of the corn seeds themselves greatly affect the taste, weight, and price, therefore farmers must know how to cultivate and care for corn plants so that they produce perfect corn seeds as expected.

Basically, corn seed varieties or corn brands provide different corn kernel variations with their own characteristics. In general, the type and shape of corn kernels depend on the variety. Here are some types and shapes of corn kernels: a. Types of Corn

1. Sweet Corn (Zea Mays Saccharata)

This type of corn is often used for direct consumption or food products because of its sweet and delicious taste.

2. Corn Kernels (Zea Mays indentata)
   Have larger and harder kernels, usually used to make flour and animal feed.
3. Small Corn (Zea Mays Everta)
   Has a hard skin and can pop when heated or what we now know as (popcorn). This type of corn is what can produce popcorn.
4. Rice Corn (Zae Mays Amylacea)
   Has a softer textured kernel and is usually used for making cereals.

b. Corn Seed Shape
   1. Oval Seeds
      Are usually found in sweet corn, these seeds are rounder and tend to be oval.
   2. Flat Seeds
      In corn kernels usually have hard and flat seeds, and often these corn kernels are more like rectangles.
   3. Small, Round Seeds
      Are usually used to make popcorn, because the smaller, rounder seeds have a hard skin.

c. Seed Color
   1. Yellow
      Is the color of corn that is often found in the type of corn kernels that are shaped like shells.
   2. White
      Is mostly found in sweet corn and some local varieties.
   3. Red
      Often found in local variants and used for specific purposes.

With various types, shapes, and colors above, corn has many applications in the food industry, animal feed, and bioenergy. To get perfect corn seed results, besides preparing good seeds, you also have to pay attention to how to cultivate corn plants properly and correctly, such as paying attention to land and soil, paying attention to nutrition and adequacy of water and sunlight for corn, and the most important thing is to provide planting distance between trees so that they can grow without obstacles.

C. Seeding and Planting

To obtain quality and durable seeds, the harvested seeds need to be dried to a certain water content (for example, rice 13%, soybeans 11%), then cleaned and sorted. To maintain seed quality during storage until planting time, seeds must be packed in airtight containers such as jars, cans, or polyethylene plastic (Sulardi & Ocdy, 2023).

One week after the land is sprayed with herbicide, corn seeds can be planted directly. Planting can be done using two methods, namely digging holes in the soil using a sharp tool (ditugal) or using the coklak system, where only the planting hole is dug as a place for the seeds. Each hole is filled with two corn seeds with a planting distance of

75-80 cm x 40-50 cm. The hole is then covered with soil, compost, or manure to protect the seeds from pests such as birds. Replanting is done to replant if there are corn plants that do not grow or grow stunted. Replanting is done when the plants are 10 days old. Fertilization is done three times: first as base fertilizer, then the first follow- up fertilizer, and finally the second follow-up fertilizer.

D. Harvest

Corn cultivation is one of the sources of carbohydrates that also has many benefits that can be processed as food, industrial raw materials and livestock materials, in the process of corn cultivation there are obstacles, namely uncertain climate change and resulting in plants being susceptible to disease attacks (Rico Paleva, 2022). Corn cultivation is said to be successful if it produces a quality corn harvest in large quantities. Good corn quality affects the nutritional content contained therein.

In general, corn plants can be harvested from 105 days old depending on the variety. The characteristics of corn ready for harvest include 80 percent of the leaves are dry, the skin or corn husks are also dry, the corn fruit is solid and hard, and the corn fruit looks clear or shiny (Siti, 2024). It should be noted that corn that is ready to harvest or ready to be picked has seeds that are soft enough to be pierced and the juice looks like milk. After the corn is picked, it is then dried in the sun until dry. After drying, the corn can be stored or milled to separate the corn kernels from the corn cobs.

The post-harvest process of corn consists of a series of activities starting from picking and drying the cobs, shelling the cobs, packing the seeds, and storing them before being sold to collectors. If all of these processes are not handled properly, they will reduce the quality of the product due to changes in the color of the seeds due to fungal infection, corn rotting, and being mixed with foreign objects that are harmful to health.

Harvesting and post-harvest are activities that can determine the quality and quantity of production. Mistakes in handling harvesting and post-harvest can result in huge losses. Therefore, proper handling of harvesting and post- harvest needs to be prioritized in the farming production process. One of the most important food crops is corn. According to Suma (2008), much of the domestic corn production is not absorbed by feed mills because of its low quality, such as high water content, many damaged grains, non-uniform color, and dirt content exceeding tolerance limits. This happens because post- harvest handling of corn receives less attention. To produce good quality corn that is competitive, proper post-harvest handling is needed. In accordance with the quality requirements requested by the industrial sector (Varielana Darwis, 2018).

Therefore, to maintain the quality of our harvest, we need to prepare handling as an anticipation of post-harvest corn damage. Post-harvest handling of corn greatly affects the quality of the selling price of corn, therefore we must apply several things as follows:

1) After harvest, corn must be dried first. The most common way to dry corn is by drying it in the sun.

2) Damage to corn can still occur during the drying process, especially when harvesting corn during the rainy season.
3) Corn that is wet is very susceptible to fungal attacks. Fungal attacks can damage the yield and quality of corn harvests by more than 50% (Cultivation Farming, 2024).

It is important to immediately provide post-harvest corn handling, because if there is a delay in post-harvest handling, corn has the potential to increase fungal infections. Delays in drying have the greatest contribution to increasing Aspergillus flavus fungal infections which can reach above 50%. According to Firmansyah, the fungus produces aflatoxin type mycotoxins which are mutagenic and are suspected of causing esophageal cancer in humans. The toxins released by the fungus are also dangerous for livestock health. One way to prevent it is to know early on the mycotoxin content in corn seeds.

In the form of corn biomass, it is generally used as animal feed *(silage, or ensilage),* especially for young corn plants. By using a corn harvesting machine, corn cobs can be separated from other biomass such as stalks and leaves. Corn harvesting can be done manually and mechanically. Manually, it can be done by picking corn cobs, while biomass other than corn cobs is cut down to be used as animal feed. Mechanically, it is done using a corn harvesting machine *(corn / maize harvester*). Corn harvesting machines can be distinguished based on the final harvesting results. If the final result is corn cobs that are separated from the stem and leaf biomass, it is called a corn harvester or corn combine harvester, while if the final result is in small pieces (chopped) of the entire corn biomass, it is called *an ensilage harvester.*

The corn harvesting machine harvests all the biomass of the corn plant above the ground surface with the following corn harvesting process:

1) Directing the corn stalks in a row into the corn stalk cutting section. 2) Cutting the corn stalks
3) Transporting pieces of corn stalks;
4) Separating cobs and other biomass such as stems and leaves
5) Chopping stem and leaf biomass
6) Hold the cob or place it behind the machine on the ground
7) Flowing the shredded corn stalk and leaf biomass to the transport equipment/vehicle beside or behind the machine.

Conventional harvesting methods as often done by corn farmers, namely by cutting the stalks of the plant, collecting them and then peeling the corn skin/husk and picking the corn cobs. Corn harvesting using machines, the harvesting stages above are done by a corn harvesting machine, namely cutting, collecting, separating the fruit from the stalks and skin/husk and then entering the selep process so that it comes out as corn kernels. The corn harvesting machine does it all in one step, compare it with the conventional method which takes a long time, a lot of manpower, automatically the costs will be high. Harvesting using a corn harvesting machine can be easier and more efficient, only taking 2 hours/hectare.

BBP Mektan has produced various mechanization technologies for post- harvest handling of corn, such as corn peeling machines, corn shelling machines, corn drying machines with biomass fuel such as rice husks or corn cobs, and other agricultural machinery. Among these agricultural machinery, corn shelling machines are the most developed post-harvest agricultural machinery in the community (Varielana Darwis, 2018). Post-harvest handling of corn is a very important process, because it determines the quality of the corn kernels produced. If in the field the orientation of maximum production is the main goal, then in post-harvest handling the orientation of maximum quality is the main priority. Even though the production is high, but in post- harvest handling is not right, the quality of the corn kernels will be poor so that it will affect the selling price. Post-harvest constraints will also affect the quantity of the harvest, namely the reduction in the number or weight of the total harvest and affect the quality of the harvest itself (Rahmat, 2020).

4. CONCLUSION

Corn is one of the important commodities in Indonesia that functions as food, animal feed, and industrial raw materials. To obtain optimal harvest results, farmers need to understand the right corn cultivation techniques and how to deal with pests that have the potential to damage plants.

One type of corn that is often used is hybrid corn. This variety has many advantages, including high yield potential, resistance to pests and diseases, and the ability to adapt to various environmental conditions. However, due to the hybrid nature, this corn seed cannot be reused for subsequent plantings so farmers need to buy new seeds every planting season.

Although hybrid corn has good resistance to disease, there is still a threat from downy mildew. This disease is caused by a virus transmitted by aphids and can result in stunted plants and poorly developed cobs. To overcome this problem, farmers must take several preventive measures, such as planting downy mildew-resistant varieties, rotating crops, and implementing regular monitoring. Counseling for farmers is also very important to increase their knowledge of the symptoms and how to control this pest.

In addition to downy mildew, farmers must also pay attention to stem rot caused by bacteria. This disease can be prevented by improving the drainage system, sprinkling agricultural lime before planting to reduce soil acidity, and spraying with bactericidal materials.

The care process does not only focus on the stems and leaves, but also on the corn fruit or seeds. Healthy corn fruit will produce good quality seeds. Watering, sufficient fertilization, and regular pest and disease control are essential to maintain the quality of the fruit. In addition, proper lighting and planting distance also affect the overall growth of corn.

In the post-harvest phase, the role of farmers is crucial in maintaining the quality of corn seeds. Harvested corn must be dried in the sun to prevent rotting and quality degradation due to fungi or other foreign objects. This process includes picking, drying

the cobs, shelling, and storing corn seeds before they are sold. Improper post-harvest handling can cause major losses, such as excessive water content and damaged seeds.

Therefore, good corn cultivation and post-harvest practices will greatly affect the productivity and quality of the corn produced. With the right seed selection, appropriate care, and proper post-harvest handling, farmers can increase corn production while maintaining its quality to compete in the market.

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