CHAPTER I INTRODUCTION

A. Background

The development of the agricultural sector in Indonesia has been good so far. This is undeniable considering that Indonesia has a substantial natural resources, thus providing opportunities for developing agricultural businesses. The development of the food crop subsector is part of the development of the agricultural sector and agriculture as a whole (Nurhayati, 2015). One of the food crops is corn, which is a commodity that is widely cultivated by the community. This is because this commodity has a high economic value and is strategic and suitable for increasing farmers' income.

Corn is one of the sub-sector commodities of food crops, one of the strategic agricultural commodities, and has high economic value. In addition to being an alternative staple food, corn is widely processed into animal feed ingredients and ethanol production materials and has a reasonably dominant composition as stated by Abbas that the corn component reaches a relatively high proportion in the animal feed industry, which is 51.4%. In addition, corn can also be made food products with economic value such as corn flakes, pop corn, and corn flour (Suarni 2013).

As an intermediate product of rice cultivation, corn is also produced intensively in several areas of Indonesia: corn-producing areas. In the province of West Sumatra, corn is one of the leading food crop commodities. Many efforts have been made to increase corn production through intensification or extensification programs. The program to increase corn productivity is expected not only to increase production but also to increase farmers' income and achieve self-sufficiency. In addition, corn has many advantages over other crops. These advantages include the harvest period is faster, the final weight is heavier than other varieties, and the weight is tighter so that it is resistant to pests and diseases and does not rot quickly, as well as higher productivity (Togatorop, 2010).

The need for corn will continue to increase from year to year in line with the improvement and progress of the animal feed industry so that efforts are needed

to increase production through human and natural resources, land availability, potential yields, and technology. However, the government has targeted self-sufficiency in corn plants to achieve the national corn production standard needed by the animal feed industry. To realize this, the government has made several efforts, including collaborating with private parties engaged in the animal feed industry and food that uses corn as its raw material. So that the government (in the effort to develop corn plants) will be developed in areas that have been known as corn production centers.

West Pasaman Regency is the main center of corn production in West Sumatra and one of the largest corn production (Table 1). In the 2017-2021 period, corn farming in West Pasaman Regency has undergone changes along with changes in technology and changes in land use itself. Agricultural land that is getting less and less will positively reduce corn production both regionally and nationally, the transfer of land use has an impact on decreasing production levels (Remedy, 2015).

Table 1. Corn Production (Ton) in West Sumatera Regency 2017-2021

Regency	2017	2018	2019	2020	2021
Mentawai Island	10	25	93	39	123
South Pesisir	169,102	147,081	127,751	231,776	189,746
Solok	4,018	3,733	7,897	5,454	3,256
Sijunjung	2,956	3,807	3,599	5,675	7,664
Tanah Datar	52,046	42,333	35,721	35,229	28,451
Padang Pariaman	80,270	76,820	53,468	47,923	53,462
Agam	111,738	130,426	119,690	118,675	119,624
50 Kota	30,252	38,840	41,354	39,290	42,636
Pasaman	79,690	73,063	108,718	80,751	106,073
South Solok	89,539	94,878	100,451	101,800	95,211
Dharmasraya	23,357	15,271	5,259	4,352	14,177
Pasaman Barat	340,916	364,291	311,723	263,880	283,114

In the context of production theory about agriculture, essential factors in managing production resources are natural factors, capital, and labor, as well as management factors. The capital in question includes purchasing fertilizers, pesticides, and seeds (Wulansari *et. al*. 2018). Soekartawi (2013) states that production factors affecting production are divided into two groups: (1) biological factors such as agricultural land with its type and level of fertility, seed varieties, types of fertilizers, drugs, weeds, and so on, (2) social factors economy, such as production costs, prices, labor costs (number of households), education level, income level, availability of credit institutions, uncertainty and so on.

Then what is the big picture of the condition of the corn commodity in West Sumatra? Corn production in West Sumatra is the tenth-largest in Indonesia, accounting for 3% of the total corn produced. The need for corn in West Sumatra belongs to two types of consumption, namely the need for sweet corn consumed by humans and the need for feed corn consumed by livestock, especially poultry, which is usually bred in the District of Lima Puluh Kota, and several other areas. With the increase in the population of West Sumatra every year, of course, the need for sweet corn consumption continues to increase. However, sweet corn production is only around 13% of the total corn production. This means that almost 87% of corn production is allocated as animal feed ingredients, especially poultry.

B. Problem Formulation

The need for corn is increasing rapidly along with the increasing need for food, animal feed, and industrial raw materials. According to Suwandi (2021) In general, the annual need for corn for feed, consumption and the food industry is 14.37 million tons. The proportion of corn use of the total demand was 45-50% for feed raw materials, 30% as raw materials for the food industry, and the rest as direct consumption (food) materials for the community. To fulfill some of these needs, Indonesia is still importing large amounts of corn.

The increase in imports of corn drains the country's foreign exchange which is large every year. This was even stronger during the world food crisis, which caused a spike in the prices of agricultural commodities, including corn. This

condition adds to the concerns of the feed industry, considering that almost 60% of feed raw materials still have to be imported, while world corn prices have soared causing production costs to rise. Therefore, the solution that is considered the best at this time is to increase domestic production. Through various technological breakthroughs specific to the dissemination of high-yielding varieties and improvements in farming efficiency, it is hoped that maize production will increase further and be able to meet domestic demand, and if possible exports can be further increased. For this reason, domestic corn production continues to be increased with various policies implemented. To increase national corn production, hybrid corn production technology has been developed. However, the realization of hybrid maize development until 2009 only reached 50%. According to Rusastra and Kasryno (2007), farmers' reluctance to use hybrid corn production technology is caused by several things, including (1) the price of hybrid corn seeds is expensive and can only be planted once; (2) the need for more fertilizers, so the production costs are high; (3) longer life; (4) requires relatively fertile land; (5) weak capital of farmers so that there is not enough capital available to buy seeds, fertilizers, and medicines needed; (6) the supply of seeds is often delayed so that the planting time is not on time; and (7) the lack of production stimulation provided by the market to corn farmers. As a result, the resulting corn production is not as expected.

In efforts to increase corn productivity in each field, farmers are faced with the problem of using the correct input. Increased production can be achieved by regulating the combination of inputs such as land, seeds, manure, chemical fertilizers, pesticides, and labor appropriate, dosed, and suitable. The choice of a variety of the use of these factors will get maximum results.

Technical efficiency includes the relationship between inputs and outputs. It can be technically efficient if the product with the most significant result uses the right combination of several inputs. The variety can see the efficiency of corn production in the Kinali sub-district of production factors used by local farmers to produce corn. Production factors include land area, seeds, fertilizers, pesticides, and labor (Purwaningtyas, 2014). Based on field observations conducted by researchers in the Kinali District, the use of production factors is still not optimal.

The allocation of the number of production factors by farmers in corn farming is different. Production factors in the form of seeds, fertilizers, pesticides, and labor are expected to affect the efficiency of agriculture managed by farmers. This condition indicates the social factors of farmers such as age, number of family members, and education level. Material ownership can affect the level of production obtained. In line with Soekartawi's (2013) opinion, the factors that influence production are divided into two groups, namely biological factors and socio-economic factors, which manage biological factors consisting of agricultural land with the type and level of fertility, seeds, varieties, fertilizers, medicines, as well as weeds. Meanwhile, socio-economic factors can be seen in the level of education, income level, sources of capital.

West Pasaman Regency has a vast potential for food crops and secondary crops. Based on data from the Central Statistics Agency, West Pasaman Regency consists of 11 sub-districts that cultivate corn. One of the largest corn-producing centers is the Kinali sub-district, with a total production in 2020 of 48,942 tons. Viewed from the ecological aspect, Kinali District is a suitable area for developing corn plants.

Table 2. Corn Production in Kinali from 2017-2020

Year	Production (ton)
2017	64.359
2018	95.820
2019	59.612
2020	48.942

From Table 2 we can see there are decline in production from 2018-2020. Based on data this data, there were fluctuations in corn production. This fluctuating condition indicates that corn farmers in their farming activities experience problems. From the results of the pre-survey and initial interviews with several farmers, it is known that these problems are related to the availability and access of farmers to the required inputs. When farmers do not get inputs from seeds and

subsidized fertilizers, farmers reduce the planted corn area and move to other farms temporarily. Moreover, vice versa, if the inputs are available well, the farmers switch again to farming corn.

From the results of the pre-survey and the data obtained, it can be seen that corn production in the Kinali sub-district has problems. This problem is caused by the imperfect use of production factors used during the production process.

Farming in the face of competition against imported commodities must produce in a state of high efficiency, namely in terms of physical and agroecological (technical efficiency), which are necessary conditions (Marhasan, 2005). Therefore, the study of the technical efficiency of corn farming in the Kinali sub-district is the focus of this research.

The possibility that occurs in corn farming in the research area is that the use of production factors is still less efficient. It is hoped that the efficiency of agriculture can be increased so that production will also increase. The use of production factors is still inefficient due to the difficulty of measuring the use of appropriate agricultural technology in increasing production and farmers' welfare.

Based on the background that has been stated above, the problems raised in this study are:

1. What production factors significantly affect the corn production level in Kinali District, West Pasaman Regency?
2. What is the level of technical efficiency in the use of corn production factors in Kinali District, West Pasaman Regency?
3. What social factors affect the technical efficiency of corn farming in Kinali District, West Pasaman Regency?

Based on the formulation of the research questions, this research will look at the factors that affect the production of feed corn and from this research a solution can be found for every problem of feed corn production in the Kinali sub-district. Therefore, this research is entitled "**Technical Efficiency Analysis of Feed Corn Production in Kinali District, Pasaman Barat Regency".**

C. Research Objective

Based on the background and formulation of the problem, the objectives of this study are:

1. Analyze the factors that significantly affect the corn production level in Kinali District, West Pasaman Regency.
2. Analyzing the technical efficiency level in corn farming production factors in Kinali District, West Pasaman Regency.
3. Analyzing social factors that affect technical efficiency in Kinali District, West Pasaman Regency.

D. Research Benefits

The results obtained from this research activity are expected to provide the following benefits :

1. For farmers, it is hoped that the results of this research can be used as Knowledge in increasing farming activity so as to be able to provide better revenue.
2. For the government, the research results are expected to be a source of thoughts and considerations in formulating a policy regarding corn farming.