I. INTRODUCTION

1.1. Background

Sweet corn (*Zea mays saccharata* Sturt) is a significant horticultural commodity that has garnered considerable public interest, prompting an increase in cultivation among farmers. The popularity of sweet corn is attributed to its sweet flavor, aromatic qualities, high nutritional content, and a shorter harvest time relative to grain corn. It serves as a valuable ingredient in the food and beverage industry, contributing to products such as corn sugar, corn syrup, and sweet corn yogurt. Furthermore, sweet corn has potential benefits for individuals managing diabetes through its role in regulating insulin levels.

The production of sweet corn in Indonesia has exhibited fluctuations from 2020 to 2023, resulting in instability within the sector. In 2022, the total production reached approximately 165 27272.61 tons, but this figure declined to approximately 14460601.32 tons in 2023 (BPS, 2023). This decrease of 12.5% in national sweet corn production over the specified period highlights the need for effective cultivation practices to enhance output.

Fertilization is a critical component of sweet corn cultivation as it directly addresses the nutritional requirements of the plants. Insufficient soil nutrients can adversely affect both the quality and yield of sweet corn. Consequently, fertilization strategies must be tailored to the specific soil characteristics and the plants' nutritional needs. Sweet corn requires a significant amount of nitrogen to achieve optimal yields. The appropriate application of nitrogen not only enriches soil nutrient levels but also promotes root development, increases cob weight, and enhances overall yield.

Nitrogen plays an essential role in the formation of chlorophyll within corn plants. These plants continuously absorb nitrogen throughout their growth cycles until seed maturation; therefore, maintaining a consistent supply of nitrogen during these phases is crucial. Suitable nitrogen fertilizer sources for sweet corn cultivation include urea, ammonium sulfate (ZA), and potassium nitrate (KNO_3). Additionally, attention should be given to planting distances.

Planting distance denotes the spatial arrangement allocated for each plant. Establishing the ideal planting distance necessitates an understanding of the specific characteristics of the plants being grown. Adopting an appropriate planting distance can mitigate competition for water and nutrients among plants, thus optimizing their growth and development to achieve maximum production levels.

To enhance the growth and development of sweet corn, a systematic approach is required to attain optimal outcomes. Accordingly, research focused on the application of nitrogen fertilizers, appropriate planting distances, and the synergistic effects of these treatments is imperative for increasing sweet corn yields. Fertilization plays an important role in sweet corn cultivation. Fertilization is related to meeting nutritional needs and adding nutrients. A lack of nutrients in the soil can reduce the quality and yield of sweet corn, which in turn reduces production. Fertilization must be adjusted to the type of soil and the needs of the plant. Sweet corn requires a lot of nitrogen to optimize its yield. The right amount of nitrogen can enrich the soil's nutrient content, accelerate root growth and development, increase the weight of the cobs, and increase the yield of sweet corn.

1.2. Problem Formulation

a. Can the type of nitrogen fertilizer affect the growth and yield of sweet corn Variety NB Super F1?
b. Does planting distance affect the growth and yield of sweet corn of the Variety NB Super F1?
c. Is there an interaction between the type of nitrogen fertilizer and planting distance on the growth and yield of sweet corn Variety NB Super F1?

1.2. Research Objectives

a. To determine the interaction between the type of nitrogen fertilizer and planting distance on the growth and yield of sweet corn Variety NB Super F1
b. To determine the effect of the type of nitrogen fertilizer on the growth and yield of sweet corn Variety NB Super F1
c. To determine the effect of planting distance on the growth and yield of sweet corn Variety NB Super F1

1.3. Research Benefits

a. Reference material on the growth response and yield of sweet corn Variety NB Super F1 to the type of nitrogen fertilizer and planting distance.

b. To increase insight and knowledge regarding the growth and yield response of sweet corn Variety NB Super F1 to the type of nitrogen fertilizer and planting distance.

c. Reference materials on the potential benefits of sweet corn Variety NB Super F1 for the agricultural industry.