

Productive and Profitable Corn Systems

Cooperator: Harold Smith

Location: Beaufort County

Planting Dates: April 3, April 17, May 1, May 15

Tillage: No-till

Equipment: Kinze planter

Seeding Depth: 1.5" Seeding Rate: 32,000 seeds per acre

Introduction

Profitable corn production depends on obtaining consistent yields from year to year. Unfortunately, shallow rooting depths, high potential evaporation, and erratic rainfall make it difficult for corn growers in the southeast to produce high yields every year. In this type of environment, the best management choices are those that have the highest odds of producing good yields despite the irregularities in the weather. The problem lies in determining which combination of management practices are better over time. Most research studies examine only one or two management practices over a limited period. This results in recommendations that may not produce consistent results. The purpose of this research is to examine the entire corn management system across the range of environments likely to be encountered in the southeast. The goal will be to provide not only recommendations regarding crop management practices that provide a measure of yield stability, but to give producers an idea of the risk involved in selecting certain management strategies. The objectives of this study are (i) determine the ideal combination of management practices (planting date, hybrid selection, row width, population, fertilizer and herbicide applications) that contribute to yield stability over the range of climate conditions frequently found in North Carolina, and (ii) examine the costs and returns from these systems to determine which one would lead to the highest long-term profits.

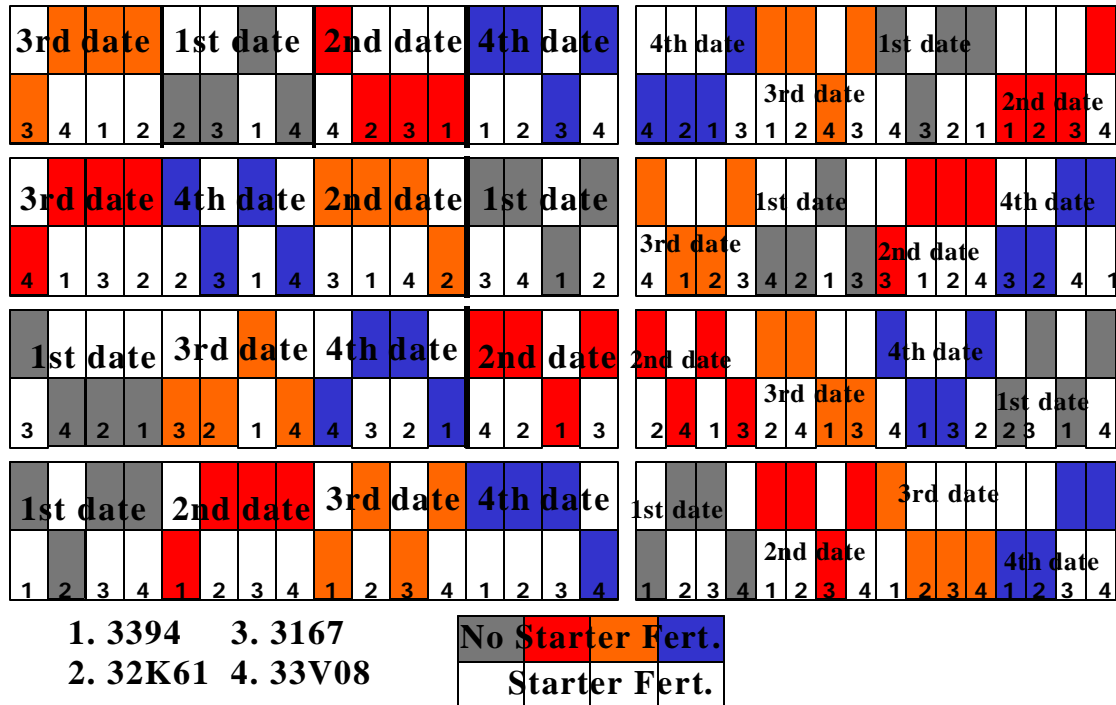
Methods

Four corn hybrids with different maturity ratings (Pioneer 3394, 33V08, 32K61, and 3167) were planted at four different planting dates (April 3, April 17, May 1, and May 15) at two row widths (18 and 36 inches) (Fig. 1). Within each planting date, two starter treatments were used: no starter N and 30 pounds of N to the acre. Silking date (Stage R1) was recorded for each plot. Grain yield will be measured at harvest.

Discussion of 2000 Growing Season

Unusually cold soil temperatures during the last two weeks in April decreased germination and emergence for the April 3^d and 17th planting dates. However, higher temperatures during May and June resulted in an increase in the accumulation of growing degree days and rapid plant development (Fig. 2). When compared to 1999, silking dates were slightly earlier for all four planting dates (See graphs on last two pages). The other important difference between

the 1999 and 2000 growing seasons is that rainfall events were greater and more frequent in 2000. Although weather was dry during early May, all four planting dates in 2000 had adequate rainfall during the critical pollination period. In



comparison, the onset of dry weather in 1999 occurred later in May and continued into late June. This decreased corn yield at the first planting date. It appears that the key factor in differentiating corn yields among the four planting dates and hybrids in 2000 will be the early problems with emergence.

Fig. 1. Plot map of corn cropping systems study at the Harold Smith farm.

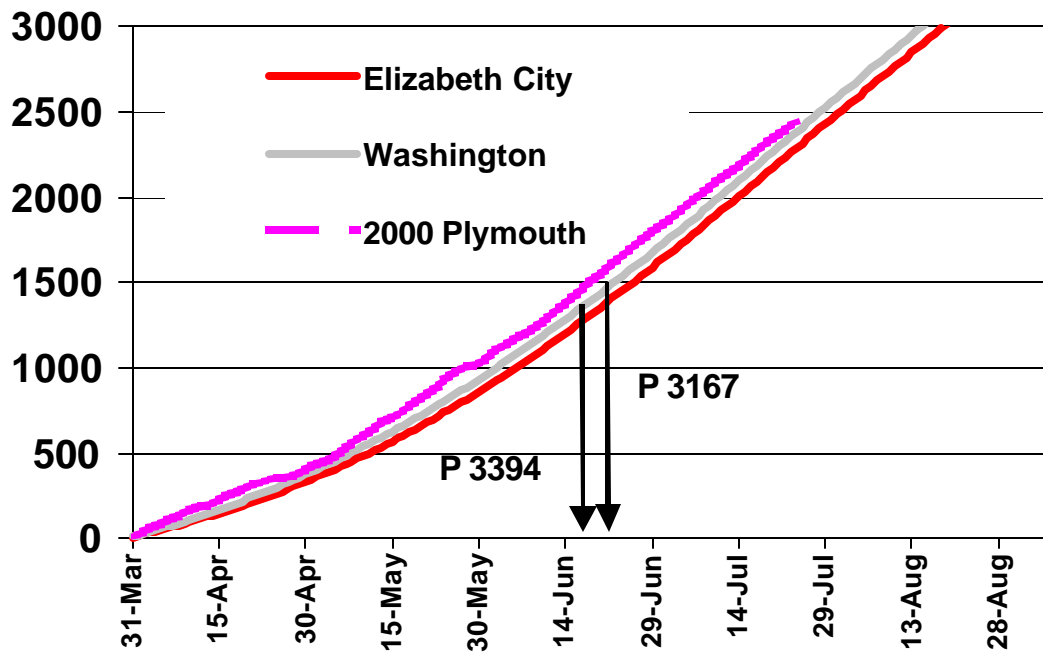


Fig. 2. Growing degree days for Plymouth in 2000 and 10-year averages for Elizabeth City and Washington.

