1 Growth and Development of a Cotton Plant

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A better understanding of cotton (Gossypium hirsutum L.) growth and development in commercial production is important in the continuing efforts of growers to produce lint and seed yield more efficiently and profitably. The cotton plant has perhaps the most complex structure of any major field crop. Its indeterminant growth habit and sympodial fruiting branch cause it to develop a four dimensional occupation of space and time which is difficult to analyze (Mauney, 1986). Associated with this complex growth habit is an extreme sensitivity to adverse environmental conditions which is reflected in excess fruit abscission.

MAIN STAGES OF GROWTH AND DEVELOPMENT

Plant development in cotton proceeds through a number of stages, which for practical reasons (in relation to production management), may be divided into five main growth stages: (1) germination and emergence, (2) seedling establishment, (3) leaf area and canopy development, (4) flowering and boll development, and (5) maturation. However, the transitions between these successive stages are subtle and not always clearly distinguishable. Furthermore, each stage may have different physiological processes operating with specific requirements. If growers are aware of these stage-dependent differences in cotton growth and requirements, then many problems in crop management can be avoided resulting in increased yields and profits. Understanding each of the above stages involves a knowledge of the morphology and the physiology of the plant. This paper describes the growth and development of a typical Mid-South cotton plant from seed germination to boll maturation, and briefly summarizes the main

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