



SOYBEAN GROWTH AND DEVELOPMENT

Understanding how soybean plants develop from planting to maturity is important to ensure that management inputs are applied according to the stage of development of the plant.

Drs. Purcell, Salmeron, and Ashlock of the Univ. of Arkansas have summarized this subject in “[Soybean Growth and Development](#)”, which can be found in Chapter 2 of the Arkansas Soybean Production Handbook. The subject matter components of the chapter are listed below.

Seed. Describes components of the soybean seed.

Germination and Seedling Development. Describes the germination process and pictorially represents the stages of germination, emergence, and seedling establishment through the VE stage or when the cotyledons emerge through the soil surface.

Vegetative and Root Development. Describes root and shoot development in narrative and tabled form during the vegetative period of the plant up to the beginning of reproductive development [R1–beginning bloom].

Growth Habit. Describes the general differences between determinate and indeterminate varieties. Information in this section can be supplemented by results [[Crop Sci. 44:1855 \(2004\)](#)] from research

conducted at Stoneville Miss. which showed that plants of determinate MG V varieties do in fact produce significant increases in both height and number of nodes after R1. In that study, growth at R1 in determinate varieties was generally less than two-thirds of full height, and canopy closure at R1 had not been achieved regardless of planting date. Height and node number increases after R1 were significant, ranging from 4 to 8 in. and from 2 to 4.5 nodes in April plantings, and from 8 to 15 in. and from 3.2 to 5.7 nodes in May plantings. Stem termination [ST–final main-stem leaf full-sized] in determinate varieties occurred from 2 to 5 weeks after R1, depending on planting date. Thus, meaningful canopy development does occur after R1 in determinate varieties, and this ensures canopy closure at ST.

Reproductive Development. Describes reproductive development in narrative and tabled form.

Days Between Growth Stages. Describes how soybean development is influenced by temperature and daylength in both narrative and graphical form. Information in this section can be supplemented by results [[Crop Mgmt. Apr. 2005](#)] from research conducted at Stoneville, Miss.

A [slide show](#) compiled by Dr. Shawn Conley and colleagues Broeske, Gaspar, and Gaska of the Univ. of Wisconsin presents an excellent pictorial presentation of all phases of soybean growth and development.

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