

Days to Soybean Physiological Maturity

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Some plants sense changes in night length and initiate flowering only after the night is longer (and days grow shorter) than a critical length. Although technically incorrect, such plants are termed "short-day" plants. The length of the required dark period depends on the species and variety of a species.

Soybean is a short-day crop and its development is largely determined by variety-specific daylength requirements that initiate floral development. In other words, as the days grow shorter soybean will flower and enter into reproductive development stages. Due to this photoperiod requirement, days from planting until maturity cannot be accurately estimated for soybean due to variation in planting date and other environmental variations.

After flowering, temperature drives development and the days until maturity can be estimated. The number of days from floral initiation (R1) until physiological maturity (R7) is usually independent of variety, but will vary slightly from year to year due to temperature differences between years.

Although most sensitive to daylength, soybean flowering will be delayed to some extent with later planting dates. However, later planted soybean initiates flowering during a warmer time of the year; therefore, post-flower development speeds up. The precise number of days from full flower (R2) until R7 cannot be predicted, but Table 1 gives fairly reliable estimates.

In Virginia, most full season soybean planted in May will enter into floral development in late-July to early-August, depending on the variety. For soybean planted after small grain, flower initiation can be delayed two to three weeks. Soybean maturity may also be delayed by stresses (biotic or abiotic) that cause flower or pod abortion. Drought is the most common cause of flower and pod abortion, but insect feeding may do the same. If pods are not set, soybean will continue to produce flowers and remain in the R2 development stage until the stress is relieved. Although the crop will be delayed, the number of days between R2 and R7 will likely decrease as it does for later-planted soybean.

Table 1. Days to physiological maturity of soybean after floral initiation.

Number	Description	Full Season	Double Crop	Extremely Late Planted
R2	Flowering	65	55	45
R3	Small Pods	53	47	39
R4	Full Sized Pods	44	38	32
R5	Small Beans	34	30	26
R6	Full Sized Beans	19	17	15
R7	Physiological Maturity	0	0	0