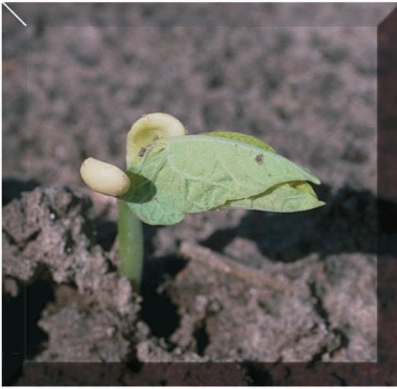


# Growth and Developmental Stages of the Bean Plant



## I. EMERGENCE AND EARLY VEGETATIVE GROWTH

The hypocotyl emerges from the soil (crook stage).

VE

The two cotyledons visible above ground at node 1.  
The two primary leaves (unifoliolate) unfolded at node 2.

VC <

The first trifoliolate leaf unfolded at node 3.

V1 ⊕

The second trifoliolate leaf unfolded at node 4.

V2 ⊕

The third trifoliolate leaf unfolded at node 5.

V3 ⊕



## II. BRANCHING AND RAPID VEGETATIVE GROWTH

The fourth trifoliolate leaf unfolded at node 6.

t

e

V4 t

Branches develop in the leaf axes and rapid growth occurs as new nodes develop on the main stem and/or branches every 3 to 5 days.

i

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The (n)<sup>th</sup> trifoliolate leaf unfolded at node (n+2).

Vn ⊕



## III. FLOWERING AND POD FORMATION

One open flower (early flower).

R1 ⊕

50% open flowers (mid flower).

⊕

R2

One pod has reached maximum length (early pod set).

⊕

R3

50% of pods have reached maximum length (mid pod set).

⊕

R4



## IV. POD FILL AND MATURATION

One pod with fully developed seeds (early seed fill).

⊕

⊕

50% of pods with fully developed seeds (mid seed fill).

R5

⊕

R6

One pod has changed from green to mature color such as striped, yellow, tan, purple (physiological maturity).

i

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R7

80% of pods have changed to mature color (harvest maturity).

⊕

R8

\* For determinate (Type I/bush) beans, stems and branches terminate in an inflorescence.

\* For indeterminate (Type II & Type III/vine) beans, stem and branch terminals remain vegetative.

**Figure 5.** The four major stages in the vegetative and reproductive development of a determinate or indeterminate bean plant.

Dry Bean Production & Pest Management, 2nd Ed. Bull. 562A, 2004, Regional Publication

Produced by Colorado State Univ., Univ. of Nebraska and Univ. of Wyoming. H. F. Schwartz et al. (eds)