

GROWTH AND DEVELOPMENT

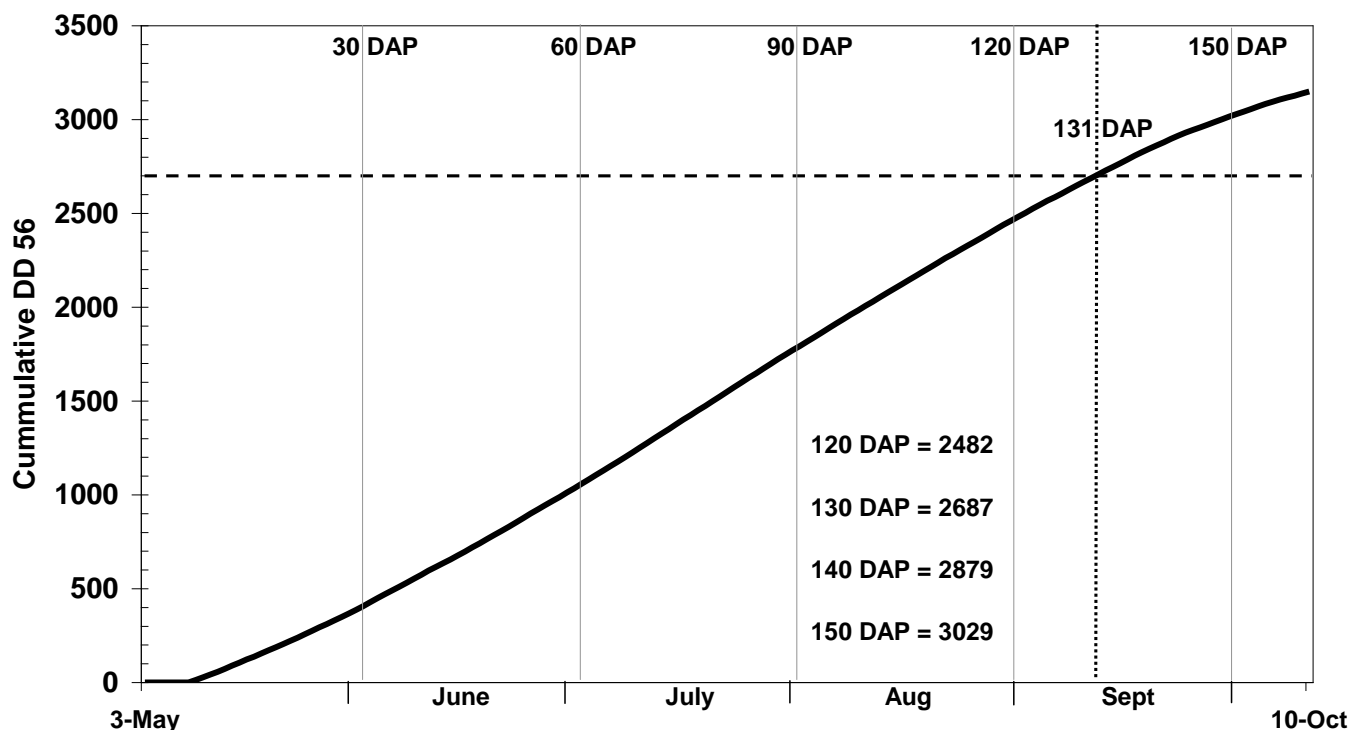
Peanut growth and development is temperature dependent, with 86° F being about optimal. High temperatures (over 95° F) slow plant growth and there is little growth below 60° F. Drought stress reduces flower production and pollination, and extreme soil surface temperatures cause peg abortion.

Peanut is an indeterminate plant capable of recovering from drought stress even during the reproductive period to rebloom and produce another crop of pegs. However optimal yields are produced when drought stress is avoided and extreme temperatures are minimized during the critical 60 – 100 DAP interval.

Temperature requirements can be thought of in degree days where the base developmental temperature (56° F) is subtracted from the average daily temperature and summed over a period of time. As an example, a medium maturity virginia type peanut such as NC-V11 requires about 2700 degree days (DD) after emergence.

Based on the 20-year temperature average shown below for Blackville SC, it takes about 124 days to accumulate 2700 DD if the crop emerges on 10 May. So adding 7 days for emergence, **under optimal moisture conditions it should take about 131 DAP to mature NC-V 11 variety at Blackville if we plant on 3 May**. Many factors influence harvest maturity. Never dig based solely on days after planting. **See the harvest maturity section to determine when to dig.**

**Peanut Degree-Day Accumulation
20-year average
Blackville, SC**



High Temperature Effect on Pollination and Seed Set:

Peanut pollination and seed set hold up well under hot weather as long as daily maximum temperatures do not exceed 97° F.

Even under the most ideal conditions, maximum peanut pollen viability is about 90% and maximum seed set is about 75%. Above 97° F maximum temperature there is some decline in both pollination and seed set. If the daily high temperature reaches 104° F pollen viability can drop to around 70% and seed set to around 50%. Although standard weather station temperatures seldom reach 104° F, keep in mind that the air temperature within the peanut canopy may be greater than that measured in weather station shelters.

PEANUT GROWTH STAGES

Approx. Days After Planting*	Growth Stage	Description
7	Emergence	Seedling “cracking” the ground and cotyledons visible
35	Bloom (R1)	One-half of the plants with a bloom
45	Peg (R2)	Half of the plants with a visible peg
50	Swollen Peg (R3)	Half of the plants with a peg tip swollen to twice the peg diameter
60	Full Size Pod / Begin pod-fill (R4-R5)	Half of the plants with a full size pod (R4) and a visible seed beginning to form (R5).
75	Full Size Seed (R6)	Half of the plants with a seed filling the pod cavity.
100	Early Maturity (R7)	Half of the plants with a pod having interior hull color and orange to brown mesocarp.
130-140	Harvest Maturity (R8)	70 % of harvestable pods have an orange, brown, or black mesocarp (scrape pod saddle with knife) and interior hull color (crack pod open).
150	Over-mature (R9)	Kernels in oldest pods develop tan-brown seed coat and pegs may have deteriorated; over-mature pods have coal-black mesocarp color.

* Based on adequate soil moisture and average temperature conditions for a mid-maturity (130-140 day) variety.

Peanut Management Calendar: For a brief step-by-step management timing outline based on days after planting and growth stage see the Peanut Management Calendar at the back of this book.

Growth Regulator: If vine growth control is needed for digging, Apogee (7.25 oz/ac) can be applied when 50 % of the laterals touch in the row middle. A second application is made at 100 % row closure. Treating “marker rows” such as the middle two of a 6-row digger pass is more cost-effective than broadcast treatment.

Effective uptake of Apogee requires addition of nitrogen to the spray solution. Use 1 pt urea / ammonium nitrate (UAN) or 1 lb ammonium sulfate (AMS) per treated acre. One quart crop oil concentrate per treated acre is also recommended.