

DETERMINING HARVEST MATURITY

D. Anco and J.S. Thomas

Determining when to dig is highly important because peanut maturity determines grade and yield. Over-mature peanuts can quickly lose peg strength, resulting in significant yield loss. There are many practical considerations which affect digging date such as vine health, weather forecast, total acreage and combine capacity. A sound disease management program in the critical 60 – 105 DAP interval provides the vine health needed later in the season to leave the crop in the ground to build grade, weight and crop value. Late season storms may also require leaving the crop in the ground longer than planned. If a large acreage is planted late, some fields may have to be dug before reaching maximum grade to reduce overall risk. It is seldom practical to dig every field at optimum maturity, but there are some useful guidelines to determine when to start digging, and which fields are most mature.

Days After Planting (DAP) should never be used as the sole basis for determining digging date, but it is a good guideline for when to check fields and can be used in combination with other methods. Peanuts can reach harvest maturity from 120 – 150+ days in S. C. depending on variety and growing season, but 130 – 140 days is typical for medium maturity varieties, with Virginia types generally on the short end and runners on the long end of this interval. Never dig at less than 130 DAP without verifying maturity by checking pod color. Once peanuts reach 150 DAP (140 days for Virginia types), the risk of declining peg strength on over-mature pods goes up significantly on mid-maturity varieties. Over-mature pods often have a slight pink tint to the outside of the pod (see pictures), a coal-black mesocarp, a tan-brown seed coat, and may have visible deterioration of the peg.

Simplified Three Pile Hull Color Method: Pod maturity can be determined by scraping away the outer hull layer with a pocket knife or blasting with a pressure washer to reveal the color of the middle layer or mesocarp. Put the pods in a 12” diameter wire basket made of ¼” hardware cloth. A small electric pressure washer with 1,300 – 1,600 psi is adequate, but make sure it has an oscillating or “turbo” type nozzle.

As peanuts mature the mesocarp color changes from white to yellow, orange, brown, and then black. Kernels in pods with an orange mesocarp color, and even most kernels in late-yellow stage pods are mature enough to ride the grade screen (sound mature kernels). Although these yellow and orange pods may produce sound mature kernels, they will continue to increase both yield and grade by adding weight as they mature.

Pull up a clump of 2 – 3 plants from a representative area of the field, and remove all full-size pods (100 – 200). Be sure to remove all full-size/harvestable pods rather than selecting just the most mature. Scrape the upper surface or “saddle” of each pod and place in one of three piles corresponding to color (white to yellow, orange, and brown to black).

Count the pods in each pile and determine the percentage for each color pile. **For Virginia types, the maturity target is to have 70% of pods in the orange, brown and black categories combined, 30% of pods in the brown and black categories combined, and 1-2% coal black. For runners the target is to have 75 – 80% in orange + brown + black categories, 40% in brown + black categories, and 5% coal black.** The objective of these guidelines is to attain at least a 70% grade (total sound mature kernels). It takes about 10 – 14 days for pods to move from the midpoint of one color category to another. The brown-black category will increase by about 1% per day under adequate soil moisture and temperature conditions.

RELATIONSHIP BETWEEN PLANT AGE AND HARVEST MATURITY

Days after planting	Pod mesocarp color categories	Maturity comments
120	Late yellow and orange color categories have the most pods.	Check fields by hull color, planting date, and variety to begin to determine the order of digging and which will mature first.
130	Orange to brown mesocarp color categories have the most pods.	130 DAP is considered an early digging date for medium maturity runner varieties under typical weather conditions, but medium maturity Virginia types can mature in 132 – 135 days. Mature peanuts should produce grades of at least 70% TSMK under adequate rainfall conditions.
140	30 – 40% brown/black mesocarp color; some pods have slight pink exterior color indicating over-maturity.	Medium maturity runners mature; Virginia types can become over-mature. Grade should be excellent (at least 72% TSMK) assuming normal rainfall.
150	Over 40% of harvestable pods in brown/black category. Seed coat turns tan to copper color on over-mature pods and some pegs may be deteriorated.	Deteriorating peg strength on over-mature pods can cause significant loss, particularly on Virginia types.

NEVER RELY ON PLANT AGE ALONE TO DETERMINE DIGGING DATE. THIS IS ONLY AN EXAMPLE UNDER TYPICAL GROWING CONDITIONS. MANY FACTORS INFLUENCE ACTUAL MATURITY.

Maturity Board: Pods are collected and scraped or blasted as described above to reveal mesocarp color. The pods are then laid out on a color chart to predict days to maturity.

Shell Out Method: This is a traditional method used for Virginia type peanuts. Pods are twisted or snapped open to check for internal hull color. When 65% of pods have some darkening on the inside of the hull and veins apparent on the seed coat, the sample is considered mature.

Digger Operation: More yield is lost from improper digging date decisions and digger operation than any other aspect of peanut production. The digger has to stay centered on the row. Check taproot length on inverted peanuts to see that pods are not being sheared off from running too shallow. Also check the inverted row for “stars” on the end of pegs which indicate excessive pod loss. These stars are formed from pieces of the hull when the peg breaks at the point of pod attachment. When pegs break at the pod attachment point, it indicates a physical problem such as dull blades, improper angle or depth, hard ground, or shaker speed not matching ground speed. If pegs break in the middle instead of at the point of pod attachment, there will be no “stars” on the ends of the pegs and the pods will still have a short length of peg attached. This condition indicates that pod loss is being caused either by disease or over-maturity.

Digger ground speed should match pto speed such that the vines flow smoothly up over the digger. As a general guide, losing one pod per row ft equals at least 40 lb/A yield loss on runners, or 60 lb/A loss on large Virginia types. Waiting even a single day can sometimes make a dramatic difference in harvest loss on wet soils. Combine setup is critical to maintaining grade. Try to avoid having peanuts weather after digging since wetting and drying causes loose shelled kernels (LSK). LSKs are correlated with [aflatoxin](#) contamination. Prolonged wetting after inversion can also cause mold and sprout problems.

The following chapter includes greater details on these subjects.