Green Peanut Production

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Variety Selection

Green peanut production can be a profitable venture for many growers in South Carolina from the small hobby farmer to large commercial growers. Like commercial peanut production, one of the most important decisions a grower can make is “which variety to grow?” Green peanut markets can be locally specialized. That is, consumer acceptance and marketability is influenced by factors such as pod size, shape, kernel skin color, multi-kernel pods, and flavor. Despite this influence of tradition, a bright-hulled peanut with good flavor usually sells well and develops a market. Valencia, Virginia, and Runner type peanuts are commonly grown in South Carolina for the green peanut market. Below is a description of each of the peanut types and some of the recommended varieties for each type.

Valencia - Some consumers prefer the distinctive flavor, multi-kernel pod characteristics, and red seed coat of Valencia peanuts. In general Valencia peanuts have lower yield than Virginia types and their smaller pod size is also a disadvantage in hand picking.
  • Georgia Valencia: A high-yielding variety with large pods and seed size and compact bunch growth habit. It also has improved disease tolerance but similar early maturity compared to other Valencia varieties.
  • Georgia Red: Tends to yield higher and have darker red seed coat than other Valencia types.
  • Valencia A/ Valencia C: These varieties have a high percentage of three- and four-seeded pods. Valencia C yields as well or slightly higher than most other Valencia varieties.

Virginia types - Virginia type peanuts are desirable in the green market because of their high yield, large pod size and good flavor.

  • Bailey and Sullivan: These varieties are similar, with high yields, early maturity, high levels of resistance to TSWV (Tomato spotted wilt virus), CBR (Cylindrocladium Black Rot) and white mold (southern stem rot). Pod size is similar to NC-V11. Of the two, Sullivan is high oleic.
  • CHAMPS: This large-seeded and early maturing variety has moderate resistance to TSWV. CHAMPS is considered to be susceptible to most other diseases.
  • Florida Fancy: This is a medium maturing variety with good yield potential. It produces a large percentage of fancy pods and is similar in seed size to NC-V11 and Perry. The growth habit resembles runner varieties. It is resistant to TSWV and moderately susceptible to white mold and leaf spot.
  • Gregory: This variety’s large pods and bright hull make it an excellent choice for green peanut production. Gregory also has moderate TSWV resistance. Gregory is very susceptible to late leaf spot and white mold. Gregory is particularly susceptible to drought stress and calcium deficiency because of its large pod size, and therefore does best under irrigation. Seed have become limited.
  • Georgia 11J: Georgia 11J is high oleic, with very large pods and late maturity (150 days). This variety has resistance to TSWV but is susceptible to white mold and late leaf spot. The large pods of this variety make it a candidate for the specialty green peanut market, but later maturity is a disadvantage.
  • Sugg and Wynne: These varieties have resistance to TSWV, some resistance to CBR and white mold, and have larger seed than CHAMPS. Of the two, Wynne is high oleic.
  • Titan: Titan has exceptionally large pods and moderate to early maturity but is very susceptible to late leaf spot, white mold, and hopper burn. Yields can be relatively low if not irrigated.

Runner types - Runner type peanuts get their name from the fact that they tend to have a prostrate or running growth habit. These are the “peanut butter peanuts” and although they have excellent flavor, most varieties are too small for efficient hand-picking.

  • C99R: This variety has a relatively large pod for a runner type and has the advantage of high yield and good TSWV resistance. Its disadvantage is slower maturity.
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- Florida-07: This is a medium-to-late runner market-type peanut with excellent yield potential. Seed is similar in size to C-99R and, for this reason, gypsum is recommended for additional calcium. It has good-to-excellent resistance to TSWV with moderate levels of resistance to white mold and tolerance to leaf spot.
- Georgia-07W: This is a high-yielding, TSWV and white mold resistant variety. Georgia-07W has more of a runner growth habit, dark green foliage and medium maturity similar to Georgia Green.
- Georgia-06G: Georgia-06G is a high-yielding, large-seeded variety with a high level of resistance to TSWV. Georgia-06G has an intermediate runner growth habit, dark green foliage and medium maturity similar to Georgia Green.
- TufRunner 297 and TufRunner 511: These varieties are high yielding, large-seeded, high oleic, and moderate in maturity. Both are resistant to TSWV and have some white mold resistance, with 297 being a little better with TSWV and 511 being a little better with white mold.

Cultural and Agronomic Practices

Field Choice: Sandy soils are best for producing bright hulls. Soils with too much clay can give peanut shells a reddish color that can be undesirable.

Land Rotation: It is very important to maintain a minimum 3-year rotation (2 years out of peanuts or any other legume, 3 years is better). Rotation is the basis for managing foliar and soilborne diseases. Managing diseases like pod disease are essential for maintaining yield potential and to obtaining a bright marketable hull.

Planting Date: Green peanuts are planted for the market window rather than for optimal production conditions. The ideal time to plant peanuts in South Carolina is the first to second week of May. This timing minimizes damage from TSWV and gives the shortest production interval (about 100 days after planting). Since some green peanuts have to be planted much earlier (late-March to April) to hit the best market price window, they can have more TSWV damage and a longer development period (see virus management below).

Seeding Rate: A good stand and rapid ground cover helps control TSWV and can suppress weeds. The recommended number of seed to plant per foot of row is 5 seed. For lower germ seed you may need to plant more in order to obtain a final stand of at least 4 plants per foot of row.

Row Spacing: Conventional row spacing is typically 36 to 38 inches. Narrower row spacing and/or twin-row production help to reduce tomato spotted wilt virus and weed problems by covering the ground more quickly.

Fertility: Peanut has a lower fertility requirement than other agronomic crops. You may not need to apply fertilizers if your soil fertility has been maintained at an adequate level for other agronomic crops. Before planting, take a soil sample and send it to the Clemson Soils Lab (https://www.clemson.edu/public/regulatory/ag_svc_lab/soil_testing/) for analysis in order to determine what type and rate of fertilizers need to be applied.

- Peanuts need an application of Rhizobium (Bradyrhizobium) inoculant to ensure that nitrogen fixation takes place, especially on new peanut land. The inoculant should be specific to peanuts. Liquid in-furrow inoculants are best. Seed treatments are less reliable, and in-furrow granular inoculants usually stop-up in the delivery tube. Nitrogen application (30 - 90 lb/ac actual N = 143 – 428 lb/ac ammonium sulfate) is recommended on new ground if the inoculant fails. Poorly inoculated fields usually do not show up until 45 days after planting (DAP). Check for the presence of large (1/8” or larger) nodules on the taproot by uprooting plants with a shovel. At 45 DAP an average of 15 large nodules per taproot is considered good; less than 10 per taproot is marginal and less than 5 indicates poor inoculation.

- Target pH should be between 5.8 - 6.2.
- P and K - should be applied according to soil test results. Peanuts respond best to residual fertilizer. Adequate residual potash is especially important if you don’t bottom plow. Excess K in the pegging zone interferes with Ca uptake causing pod rot, so avoid potash application in the spring if you can’t turn it under.

- Calcium - High soil Ca is critical to quality peanut production, especially for Virginia types. Apply 300 lb/ac of Ca (1,500 lb landplaster) at first bloom to reduce pod rot and brighten hulls. Half this amount can be used if it is applied in a band over the pegging zone. Fall liming is also beneficial in maintaining at least 600 lb Ca/ac and a 3:1 Ca to K ratio in the pegging zone.

- Boron – If soil test shows B less than 0.4 lb/ac, apply 0.5 lb B/ac (2½ lb/ac Solubor or 3lb/ac boric acid) at early bloom or split into two 0.25 lb/ac applications. Boron can be tank-mixed with the first herbicide or fungicide application.
• Zinc toxicity - Peanuts are very sensitive to zinc. Stunted plants with split stems are a sign of zinc toxicity. Check zinc levels on any new land prior to planting, especially in old peach orchards or where zinc has been used for high yield corn production. Zinc toxicity also occurs on old building sites or around stock pens which had galvanized roofs. Soil test zinc levels as low as 6 lb/ac can cause toxicity when the soil pH is below 6.0. Liming to increase soil pH can reduce zinc toxicity in contaminated soils.

Irrigation: Peanut’s greatest need for water is from pegging until a week before digging. A rule of thumb is to supply 1.5 inches per week minus rainfall. Irrigation is critical in peanut production because it allows you to take advantage of other inputs. Irrigation is used to water in herbicides (e.g. Prowl, Sonalan, Dual, and Cadre), fungicides (Abound, Folicur) and insecticides (Lorsban). Without timely rain or irrigation these inputs are much less effective.

Pest Management
Insect Management:
• Thrips – Thrips need to be controlled at plant or shortly after emergence. Effective control of thrips will reduce/suppress TSWV. In-furrow applications of Thimet 20G at 5 lb/ac or foliar application of Orthene after emergence will help reduce feeding by thrips and subsequent transmission of TSWV. Products with imidacloprid (e.g., Admire Pro, Velum Total) are also effective at controlling thrips and reducing their damage, but these products tend to increase amounts of TSWV stunting and are best used with highly virus-resistant varieties (e.g., Bailey, Sugg).
• Soil Insects - Apply Lorsban (13 lb/ac) at early pegging (about 45 DAP) to reduce pod damage by lesser cornstalk borer and wireworm. In addition to reducing pod damage, Lorsban helps brighten hull color by improving white mold control. Unfortunately Lorsban also causes outbreaks of corn earworm, granulate cutworm, and spider mites later in the season. However, irrigation and the shorter growing season used in green peanut production lessens the possibility that these pests will require control.
• Foliage caterpillars – Foliage feeding worms (corn ear worm, beet armyworm, fall armyworm, velvetbean caterpillar) typically become a problem during the last week of July and the first week of August. The treatment threshold is 4 worms per row foot for stressed and non-lapped peanuts. Rank-growing peanuts can tolerate up to 8 foliage feeding worms per row foot. Asana, Karate, Baythroid 2, Belt, and Lannate are some insecticides labeled for peanut. Granulate cutworm can also be a problem late in August where Lorsban was applied.
• Spider mites - Irrigation is the best spider mite defense. Comite and Omite are labeled for mite control. Use of Danitol is not recommended for spider mites. An application of Lorsban tends to aggravate spider mite problems.

Disease Management:
Diseases can significantly reduce peanut yield and quality if not managed. Therefore, effective disease management relies on resistance, cultural practices, and the application of fungicides.
• Tomato spotted wilt virus (TSWV): This virus is transmitted to peanuts by thrips. TSWV reduces yield and causes shriveled, misshapen pods. The disease is more of a problem on green peanuts due to the use of early planting dates followed by a sequence of later plantings for staggered market availability.

Management strategies to reduce TSWV Risk:
1. Varietal Resistance – Resistance is the first line of defense against TSWV. Varieties like Bailey, Georgia-07W, Georgia-06G, and Sugg have moderate to high levels of TSWV resistance.
2. Planting Date - Planting the first two weeks of May reduces TSWV, but this is not practical for green peanut production. Staggered planting dates in the same field increase virus problems on later plantings.
3. Seeding Rate – a seeding rate of 5 to 6 seed per foot of row is recommended to guarantee a uniform stand, which can help minimize the feeding habits of thrips and reduce TSWV risk.
4. Thimet In-furrow - Thimet 20 G (5 lb/ac) reduces TSWV injury.
5. Strip-tillage with a cover crop reduces TSWV compared to conventional tillage.
6. Twin-row – Planting peanuts in a twin row configuration allows for faster ground coverage which also can mean less TSWV.

Management Programs for Foliar and Soilborne Diseases:
The primary strategy in disease management is resistance. Varieties like Bailey could save you several fungicide applications and/or reduce dependence on expensive fungicides. Cultural practices like tillage and rotation can also reduce the impact of diseases on peanut. Unfortunately, resistance and cultural practices cannot eliminate diseases. With this in mind, fungicides have remained an important part of the fight against diseases in both green and commercial peanuts.
Fungicide programs used for green peanuts are the same as recommended for dry peanut production with the exception that the green peanut production period is much shorter (about 100 days vs. 140 days) and the crop value is higher.

The key to producing a bright-hulled cosmetically pleasing product is to prevent white mold and Rhizoctonia limb rot from getting started. Alternating different fungicide chemistries reduces the potential for developing resistant strains of soil-borne and foliar diseases. Alternating fungicides also gives some insurance against the failure of one product alone. Read fungicide labels for application rates and preharvest intervals before applying a fungicide.

The following schedule is only a guideline.

| 1st Application | 45 DAP | Bravo 1.5 pts + Tebuconazole 7.2oz |
| 2nd Application | 60 DAP | Provost 10.7 oz OR Priaxor 8 oz |
| 3rd Application | 75 DAP | Bravo 1.5 pts + Convoy 16 oz OR Bravo 1.5 pts + Convoy 16 oz |

All application rates are per acre.

DO NOT use any adjuvants, stickers, or crop oil with fungicides. The goal is to wash some of the fungicide into the soil. Applying fungicides before irrigation can increase soilborne disease control. However, to ensure leaf spot control, wait 24 to 48 hours to irrigate after fungicide application.

CBR - Cylindrocladium black rot is caused by a soilborne fungus which occurs in the same fields from year to year, often in low spots. Resistance, rotation and fumigation (Vapam 10 gal/ac) can be used to control CBR. Bailey, Sugg, Sullivan, and Wynne have some resistance to CBR. The application of Propulse 13.6 oz/ac or Proline 5.7 oz/ac in-furrow at planting has been shown to suppress CBR.

Weed Management:
Good weed control is the key to limiting yield loss from direct plant competition and harvest loss. Starting with a weed free seedbed, either through mechanical land preparation or chemical burndown is a must. Cultivation is an economical method for early season weed control in peanut and needs to be performed before canopy closure and/or when peanuts begin to peg. Mechanical cultivation is beneficial when herbicides are not effective or if an organic production system is required. Care should be exercised to prevent the placement of cultivated soil onto the peanut foliage. If herbicides will be utilized for weed control there needs to be a combination of pre-emergence and post-emergence herbicides for the most successful weed control program. There are a lot of possible variations in weed control programs for the many combinations of problem weeds, but an example program would be: Prowl or Sonalan PPI; Dual PRE (watered in); Gramoxone + Basagran to kill the first flush of small weeds; or Cadre (note 90 day preharvest interval) possibly followed by 2,4-DB (Butyrac) for escaped broadleaf weeds or Select for escaped grassy weeds. Note, Excessive rates of DNA herbicides (Prowl, Sonalan) in the pegging zone cause severe peg injury and yield reduction. Take care to observe all preharvest application intervals for herbicides used in green-market peanut production.

For pesticide response charts and more detailed information on product rates and application timings consult the 2016 Clemson Pest Management Handbook or 2016 Peanut Money Maker.

Marketing of Green Peanuts:
In South Carolina sales of green peanuts are usually done at the farm, local farmers markets, roadside stands, or through contracting with wholesalers. Depending on the buyer Good Agricultural Practices (GAP) certification maybe required for more information on getting your farm GAP certified visit https://agriculture.sc.gov/divisions/agency-services/grading-inspection/.

For More information Contact your local county Clemson Extension Agent or: Dr. Dan Anco, Peanut Specialist Office: 803-284-3343 Ext. 261 danco@clemson.edu