AGRICULTURAL PRACTICES

FOR

PEANUT GROWING AND HARVESTING

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A. PROCESS DESCRIPTION

The production of high quality, flavorful and wholesome peanuts begins at the farm level. The quality of the farmer stock peanuts delivered to the buying point dictates to a large degree the value of peanuts to the producer. The producer is an important industry component in the production of high quality peanuts for the consumer.

The quality concerns of the entire peanut industry; namely, aflatoxin, foreign material, chemical residues, flavor and maturity, are all affected by the management and cultural practices applied to the crop during the growing season.

The following practices implemented into an overall management and production program should produce the highest quality peanuts under current technology.

B. CRITICAL AREAS

1. Land Selection and Rotation

- Well-drained, sandy to sandy loam soils are best for quality peanut production. Peanuts should be grown on the same land no more often than one year out of three. On this schedule, peanuts should be rotated with crops that are resistant to Cylindrocladium black rot (CBR), nematodes, white mold, Sclerotinia blight and other diseases affecting peanuts. Recommended rotational crops include corn, sorghum, grass sods, small grains, corn, and cotton (especially where there is a nematode problem). Avoid rotating with legumes including soybean and certain vegetables since those crops may build up nematodes and soil borne diseases.

TABLE 1. EFFECT OF ROTATION LENGTH ON YIELD OF RUNNER MARKET TYPES

	Previous crop			
Rotation length	Corn	Cotton	Soybean	Peanut
1 year	3460	3150	3360	-
2 years	3750	3370	3550	-
3 years	4270	4230	3680	-
Continuous peanut – 3 year average				2840

Flowers, R. A. University of Georgia, Unpublished

TABLE 2. VIRGINIA MARKET TYPE RESPONSE TO ROTATION

Rotation (1997-2006)	Peanut Yield in 2006
Corn-Cotton-Corn-Peanut-Corn-Corn-Corn-Corn-Corn-Peanut	5540
Peanut-Cotton-Corn-Peanut-Cotton-Corn-Peanut-Cotton-Corn-Peanut	4840
Peanut-Corn-Corn-Peanut-Corn-Corn-Peanut-Corn-Corn-Peanut	4850
Peanut-Cotton-Cotton-Peanut-Cotton-Cotton-Peanut-Cotton-Cotton-Peanut	4730
Corn-Peanut-Corn-Peanut-Corn-Peanut-Corn-Peanut-Corn-Peanut	4170
Cotton-Peanut-Cotton-Peanut-Cotton-Peanut-Cotton-Peanut-Cotton-Peanut	4200
Peanut-Soybean-Corn-Peanut-Soybean-Corn-Peanut-Soybean-Corn-Peanut	4130
Peanut-Soybean-Cotton-Peanut-Soybean-Cotton-Peanut-Soybean-Cotton-Peanut	4330
Peanut-Peanut-Peanut-Peanut-Peanut-Peanut-Peanut-Peanut-Peanut-Peanut	3050

Jordan, D. L. North Carolina State University, Unpublished

- Good rotations improve both peanut yield and quality by reducing diseases, foreign material and chemical residue. Long rotations usually reduce the severity of diseases in peanuts and thereby permit more efficient production by reducing pesticide applications. Planting a disease-resistant variety can partially compensate for disease that develops in a short rotation. Weed control efficiency is improved because many weed species that are difficult to control in peanuts can be more easily controlled in rotational crops. This reduces weed problems, permits easier harvest, and lowers foreign material.

TABLE 3. EFFECT OF CBR-RESISTANT VARIETY AND ROTATION ON PEANUT YIELD

Rotation (2001-2006)	Susceptible variety (Gregory)	Tolerant variety (Perry)
Corn-Corn-Corn-Corn-Corn-Peanut	3310	3540
Corn-Corn-Tobacco-Corn-Corn-Peanut	3670	3940
Corn-Corn-Peanut-Corn-Corn-Peanut	2330	3030
Tobacco-Corn-Peanut-Tobacco-Corn-Peanut	2000	2970

Jordan, D. L. North Carolina State University, Unpublished

- Recommended fertilization practices in rotational crops will also reduce the need for direct fertilization of the peanut crop. The deep tap-rooted peanut plant is very efficient in using residual soil fertility. Indirect fertilization lowers the potential problem of having high potassium levels in the fruiting zone. (High potassium levels interfere with calcium uptake by the peanut plant, which can result in lower kernel quality, and increase pod rot and the number of empty pods or "pops".)

2. Land Preparation

Providing optimum soil conditions for rapid germination, good root penetration and growth, and continuous plant and pod development is essential to peanut culture. In recent years reduced tillage production of peanut has become more popular especially in the southeastern states where tomato spotted wilt infestations are high. Pod yield of small-seeded runner market type peanut is often similar under conventional and reduced tillage production. Although pod yield of large-seeded Virginia market type peanut respond positively to reduced tillage in many fields, yields are often lower on finer-textured soils in reduced tillage systems compared with conventional tillage systems.

3. Soil Fertility

A major benefit of an effective crop rotation program is that peanuts respond better to residual soil fertility than to direct fertilizer applications. For this reason, the fertilization practices for the crop immediately preceding peanuts are extremely important.

- Soil test in the fall and apply sufficient lime to maintain a soil pH of 5.8-6.5. If a soil sample analysis recommends additional fertilizer, apply it before final land preparation and deep turn it prior to planting. Avoid over-liming peanut soils to an excessively high pH. Increasing soil pH reduces the plant’s ability to absorb manganese and iron. Deficiencies can lead to leaf chlorosis, yellowing and slow vegetative growth. If soil pH is too low zinc levels can become toxic and cause retarded plant growth, stem splitting and in some cases plant death.

TABLE 4. PEANUT YIELD RESPONSE TO SOIL pH

Soil pH	2001	2003	2004
4.4	1960	1820	1270
4.9	2430	1670	1630
5.4	3150	2450	1970
5.9	3500	3300	2550

Jordan, D. L. North Carolina State University, Unpublished

- Utilize a balanced fertility program that maintains adequate levels of phosphorus, potassium, calcium, magnesium and micro nutrients based on soil testing.

- Avoid high levels of potassium fertilizer in the upper four inches of soil. This can lead to increased incidence of "pops" and pod rot which will affect peanut quality and yield.

- Monitor the pegging and fruiting zone for calcium and potassium nutrition. A lack of calcium can lead to empty pods and darkened plumules in seed (concealed damage), poor germination and potentially increased risk of aflatoxin when soil conditions are favorable for *Aspergillus flavus* mold development. Adequate calcium must be available in the pegging zone during seed and pod development. Excessive potassium can interfere with calcium uptake by pods.

- Take a soil test 10-14 days after planting at a 3" depth to monitor pegging zone calcium levels. Supplemental calcium (gypsum) should be applied to all Virginia type peanuts and all peanuts grown for seed purposes regardless of soil test results.

- Use finely ground gypsum or granular gypsum rather than gypsum by-products to minimize gypsum contamination in shelled peanuts and to avoid detecting undissolved by-product gypsum in peanuts prior to roasting.

- Ensure soil has an adequate level of boron. Boron deficiency will cause hollow heart (concealed damage) in the seed. If farming in an area where boron deficiencies exist, growers should apply boron to all peanuts each year. Boron can be applied as a foliar spray not later than normal gypsum application time or it may be mixed with fertilizer or herbicides and applied prior to planting. Sandy soils are often low in boron. Do not exceed maximum recommended amounts of boron as plant toxicity may result.

- Peanuts are efficient legumes that synthesize their own nitrogen requirements through association with specific *Rhizobium* soil bacteria that is already present in most peanut soils. However, peanuts should be inoculated at planting with a commercial liquid or granular inoculant or in-furrow spray <u>if peanuts have not been grown in</u> that soil during the past four or five years. Depth of planting can influence peanut response to in-furrow application of inoculant. Shallow planting on soils exposed to high temperatures can result in death of *Rhizobium* and lack of inoculation.

- Soil test and accumulate a history of soil nutrient levels in your cropping systems. Tracking your fields' fertility history can help to avoid overlooking potential soil fertility problems which can lead to reduced yields and inferior quality peanuts.

4. <u>Seed Selection and Planting</u>

Erratic emergence and irregular plant growth can lead to non-uniform pod set and uneven maturity which can result in harvest problems and reduced grades.

- Use high quality seed of a recommended variety. Plant at the recommended plant population based on a given row spacing and seed count. A few varieties have poor shelf life, poor milling quality, or inferior flavor and should be avoided. Consult with shellers on market acceptance of peanut varieties.

- Plant sound, well-matured, disease-free seed of known pedigree, purity and performance. Certified seed, which are grown under stringent regulations and close supervision, are true to variety and of high quality.

- Plant peanuts as soon as soil conditions are favorable for rapid germination and development. Late planting dates generally reduce yield and quality and increase the risk of freeze damage and late season drought to peanuts. Contact local Cooperative Extension personnel for optimum plantinf dates for tomato spotted wilt management.

- Prepare seed beds carefully to assure seed germination and emergence. Seed beds should be free of crop or weed residue and sufficiently smooth to provide good soil-to-seed contact at a uniform, optimum depth. Soils should have sufficient moisture and temperature for quick emergence. Adjust planting depths to soil type, temperature, moisture conditions and planting date. If soils are extremely dry, irrigate prior to planting to obtain favorable soil moisture and seed environment rather than planting and then irrigating. When planting in a conservation tillage system, surface applied herbicides can be irrigated immediately following planting.

5. Crop Protection – Quality Enhancement

There are many pests which reduce both yield and quality of peanuts. Flavor, wholesomeness and gross value are affected if these pests are not controlled to manageable levels in most peanut crop years. The grower utilizes pesticides, cultural practices, biological control and crop management techniques to help prevent these pests from economically impacting peanut quality and yield. Pesticides must be used according to their label requirements. Pesticide residue levels in foods (tolerances) have been set by the EPA in an attempt to assure the wholesomeness of the food supply. Tolerances are based on extensive residue research studies and are established with many-fold safety factors taken into account. The major pesticides used on peanuts fall into the following classes:

Herbicides	-	weed control
Nematicides	-	nematode control
Insecticides	-	insect control
Fungicides	-	disease control
Fumigants	-	disease control

Integrated Pest Management (IPM) is an effective approach to pest control which uses all of the best available methods to prevent pests from adversely affecting crop yields and quality. The goal of IPM is to blend pest control methods to reduce costs, keep pests below economically damaging levels, reduce unnecessary pesticide use, assure food safety and help growers produce the most profitable crop possible.

General Pesticide Use

- Contact local Cooperative Extension Service offices for recommended pest control materials and methods.

- To assure optimum product performance, avoid wasting costly materials and to ensure application to the target, calibrate all pesticide sprayers and granular applicators to deliver the recommended rate of pesticide per acre. Check nozzle tips and other metering parts of application equipment often to ensure that they function properly. Make sure the pesticide is delivered only to the target area by avoiding applications when high winds may cause the product to drift into other non-target areas.

- Properly identify the pest and use the most efficient pest control method. When considering potential impact upon the environment, read all labels thoroughly. Some products may serve multiple purposes and therefore reduce the number of total applications or amount used. Use recommended surfactant or stickers to ensure that the pesticide does not wash off nor drift to a non-targeted area.

- Apply pesticides only as directed. Read the label on each pesticide container before each use. Apply pesticides only to labeled crops in amounts specified and at times in the plant growing cycle as specified by the label. Label instructions are developed through extensive testing and are approved by the Environmental Protection Agency (EPA) to assure efficacy and to avoid harmful residues or negative environmental effects.

- Some soil pesticides (nematicides/insecticides) enhance crop growth and promote uniform maturity, (i.e., indirect benefits). Protect groundwater by properly storing unused pesticides; disposing of empty containers in a manner specified on the label; and never mixing pesticides near wells, ditches and streams or other water sources where ground water may become contaminated by spills.

- If cultivation is used in weed control, avoid throwing soil onto the peanut plant. This "dirting" of peanut plants can lead to increased disease problems and inhibition of normal flowering and pod development thus reducing quality and yield.

- If available, consider using disease forecasting to reduce the need for pesticides. Forecasting has been especially effective in helping reduce fungicide applications for leafspot and other diseases in all production areas.

- If disease forecasting is not used, leafspot disease control management should usually begin no later than 30 days after planting or follow recommended practices for the production area. In these areas, leafspot diseases must be controlled by timely applications of a fungicide applied at regular spray intervals.

- Control soil insect pests that damage pegs and pods since they reduce yield and quality and may predispose peanuts to invasion by *Aspergillus flavus* which can result in aflatoxin contamination. Lesser cornstalk borers, cutworms, wireworms and southern corn rootworms are significant economic problems in peanuts and therefore must be controlled.

6. Irrigation

Irrigation is helpful in maintaining yield and quality during drought years when natural rainfall is inadequate during the peg and pod filling period. Irrigated fields should have a good weed and disease control program to prevent excessive losses in yield and quality. There are three major stages in the peanut life cycle when moisture stress can cause a significant reduction in the quantity or quality of peanuts produced:

1. Germination through early vegetative growth.
2. 50-110 days after planting (the critical flowering, pegging, pod initiation, and pod fill period.)

3. 110 days until harvest-water requirement is reduced; extreme drought and high temperatures during this period can predispose the pods to increased aflatoxin levels.

- Use irrigation (if available) to avoid reduced peanut yields and poor nut quality from prolonged drought stress during the critical flowering, pod set and pod maturation growth periods.

- Irrigation should be scheduled as recommended by your County and State Extension Service. Properly scheduled irrigation will result in more uniform pod set, uniform crop maturity, improved yields and higher quality.

- Maintain adequate moisture to reduce lesser cornstalk borer damage, improve herbicide effectiveness and seed germination.

- Water according to needs dictated by the growing conditions. The actual amount and frequency of water required will depend on the growth stage of the plant, soil type, and predominant weather conditions (temperature, rainfall, wind speed and relative humidity).

- Contact the county Cooperative Extension Service for more detailed information on irrigation systems and scheduling and to evaluate feasibility and the economic impact of adding irrigation to non-irrigated fields.

Computer models such as Irrigator Pro used to schedule irrigation are also available through many county extension offices (especially in the SE) that are good tools in the efficient application of irrigation as well as fungicides. Chemical cost may be reduced and aflatoxin risk is minimized if not eliminated. Irrigator Pro was developed by the USDA/ARS.

Irrigation Water Quality

Salinity is an issue in many areas of the peanut belt. As water quality and cropping patterns change, some areas may experience injury and reduced yields as a result of marginal quality water. Each crop has its own susceptibility range to marginal quality water. Peanuts are not very tolerant, so it is imperative that water quality be assessed before determining where to plant peanuts.

Water quality is determined by the total amounts of salts and types of salts present in the water. A salt is a combination of two elements or ions, one has a positive charge (sodium) and the other has a negative charge (chloride). Water may contain a variety of salts including sodium chloride sodium sulfate, calcium chloride, calcium sulfate, magnesium chloride, etc.

Salty irrigation water can cause two major problems in crop production: 1) salinity hazard, and 2) sodium hazard. Salts compete with plants for water. Even if a saline soil is water saturated, the roots are unable to absorb the water and plants will show signs of stress. Foliar applications of salty water commonly cause marginal leaf burn and in severe cases can lead to premature defoliation and yield and quality loss. Sodium hazard is caused by high levels of sodium which can be toxic to plants and can damage medium and fine-textured soils. When the sodium level in a soil becomes high, the soil will lose its structure, become dense and form hard crusts on the surface. To evaluate water quality, a water sample should be analyzed for three major factors: total soluble salts, sodium hazard, and toxic ions.

Total soluble salts measures salinity hazard by estimating the combined effects of all the different salts that may be in the water. It is measured as the electrical conductivity (EC) of the water. Salty water carries an electrical current better than pure water, and EC increases as the amount of salt increases.

Sodium hazard is based on a calculation of the sodium adsorption ratio (SAR). This measurement is important to determine if sodium levels are high enough to damage the soil or if the concentration is great enough to reduce plant growth. Sometimes a factor called the exchangeable sodium percentage may be listed or discussed on a water test; however, this is actually a measurement of soil salinity not water quality.

Toxic ions include elements like chloride, sulfate, sodium and boron. Sometimes, even though the salt level is not excessive, one or more of these elements may become toxic to plants. Many plants are particularly sensitive to boron. In general, it is best to request a water analysis that lists the concentrations of all major cations (calcium, magnesium, sodium, potassium) and anions (chloride, sulfate, nitrate, boron) so that the levels of all elements can be thoroughly evaluated.

TABLE 5. CRITICAL VALUES FOR SALTS IN IRRIGATION WATER FOR PEANUT

Measurement	Critical Value for Peanut
Total dissolved salts (EC)	1344 ppm
Sodium Adsorption Ratio (SAR)	5 to 7 (no units)
Boron	0.75 ppm
Chloride	400 ppm
Sodium	400 ppm

Lemon, R. G. and M. L. McFarland, Texas Cooperative Extension Service

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7. Determining When to Harvest

The indeterminate fruiting nature of the peanut makes timing crucial to obtaining maximum yield, grade and quality. Immature peanuts have poor flavor, are more difficult to cure, often deteriorate faster in storage and are more likely to be affected by undesirable mold growth. Immaturity may result from digging too early or from a split crop on the plants. A split crop can result from pod set occurring during two or more periods of favorable weather that occurs several weeks apart, separated by a period of drought stress.

Digging at optimum maturity is extremely important for achieving maximum yield, grade, dollar return, and consumer quality. It is not unusual for peanuts to gain from 300-500 lbs. and 1-2 percent in grade in the last two weeks prior to the optimum harvest date. The following data illustrates the average loss over four years from digging too early or too late:

TABLE 6. HARVESTING RUNNER MARKET TYPE PEANUT AT OPTMUM MATURITY

Timing of digging operation	Pounds per acre lost	Value per acre lost ($0.25/pound)
2 weeks early	744	186
1 week early	253	63
Optimum maturity	0	0
1 week late	500	125
2 weeks late	541	135

Williams, E.J. USDA/ARS Tifton, Unpublished

TABLE 7. HARVESTING VIRGINIA MARKET TYPE PEANUT AT OPTIMUM MATURITY

Digging date	Pod yield	% Fancy pods	% Extra large kernels	% Total sound mature kernels
September 14	3150 (-1800)	90	41	68
September 23	4110 (-840)	92	47	68
September 30	4210 (-740)	89	49	69
October 6	4950 (optimum)	90	53	71
October 13	4440 (-510)	85	53	72
October 20	3360 (-1590)	84	53	73

Jordan, D. L. North Carolina State University, Unpublished

- Target to harvest peanuts using the "Hull Scrape" maturity assessment; however, timing of harvest frequently depends on risk-benefit analysis. Adverse weather at harvest can result in the loss of the more mature peanut pods due to weakened pegs, pod rots and digging losses.

- Target to harvest when pods of runner types are 70-80% mature, and when Virginia types are 60-65% mature, to maximize milling quality and flavor of peanuts. Harvesting peanuts prematurely results in yield and grade loss, flavor problems, increased costs of curing and risk of aflatoxin.

The state Cooperative Extension Service has detailed information on determining when to harvest including a description of and instructions for using the "Hull Scrape" method for determining optimum maturity. Many extension offices and shellers have pod blasting equipment available for use by growers that will help reduce the time required to run the "Hull Scrape" maturity assessment.

8. Digging, Combining, and Curing

Peanut handling starts each year with digging and ends with peanut products in the homes of consumers. Each handling process will either maintain the peanut quality it receives or reduce it.

- When harvesting, do not co-mingle irrigated with non-irrigated peanuts in curing trailers or in storage since non-irrigated peanuts may be of lower quality. The exception would be during years of rainfall adequate to prevent drought stress.

- Harvesting involves digging, shaking, and combining--all mechanical operations, requiring proper setup and operation for both maximum yield and quality. After harvesting, the peanuts must be properly cured if desirable flavor, texture, germination and overall quality are to be maintained.

- Peanuts should be loaded on wagons level across the top and not mounded to provide uniform curing.

- Peanuts, in regions where applicable, should be put on mechanical controlled temperature dryers as soon as possible after harvest to beginning the curing process. Green peanuts that sit too long on trailers without air movement through them often have elevated alcohol levels leading to off-flavor as well as increased aflatoxin risk.

- Storage facilities for peanuts should be weatherproof and free from insect and disease bearing litter.

These three principles are elaborated in the following checklist.

CHECKLIST FOR HARVESTING AND DRYING TOP-QUALITY PEANUTS

- Dig for maximum maturity and $ value per acre. Delay harvest until the greatest amount of nuts reach maturity but before excessive sprouting or over-maturity occurs. Digging when 75-80% of pods have turned dark inside the shell will usually give the best grade and yield. Utilize the "Hull Scrape" method if at all possible.

- Clip vines (Only on those fields that have excessive weeds or vine growth). Use a rotary or flail type cutter with sharp blades to clip about 1/3 to ½ of the vines about 2-5 days or just prior to digging. Harrow field borders to rid the ends of fields of weeds and grasses.

- Inspect and adjust digger and sharpen blades - Set the blades with a slight pitch so that they will cut the taproot just below the pods. The forward speed of the digger must be synchronized with the PTO speed to get a smooth flow of vines over the lifter-shaker. Going too fast will cause pods to be ripped from the vines, whereas going too slow may result in soils not "flowing" properly over the blades.

- Ensure uniform, fluffy, well aerated windrows during the digging and inverting process. Pods should not touch the ground. If re-shaking is required, use very gentle action and extreme care.

- Allow peanuts to dry to 18-24% moisture in windrows. Peanuts are normally between 35 and 50% moisture at digging. Depending upon weather conditions, the peanuts will dry to 18-24% moisture in 2-4 days. Rainfall occurring on windrow peanuts with below 20% moisture provides excellent conditions for mold growth and an overall reduction in milling quality.

- Carefully adjust combine for your field conditions. Read your operator's manual for specific adjustments. The combine ground speed and the pickup speed reel must be carefully synchronized to lift the peanuts into the combine. Proper combine adjustment and speed will reduce pickup losses, percent of loose shelled kernels, hull damage, and foreign material. Excessive dirt and trash blown into the basket during combining will cause air-flow restrictions during the curing process and may result in uneven drying and mold development.

- Combine efficiency depends upon several variables including windrow condition, cylinder speed, forward travel speed, internal adjustments, and special modifications required for handling large-seeded peanuts. Impact and mechanical injury during harvest is largely associated with fast moving parts of the picking cylinder.

- Experience has shown that poorly adjusted combines, having loose belts, too little or too much picking action, or too rapid cylinder speeds are inefficient and may be responsible for excessive loose-shelled kernels and other mechanical damage. Variable moisture conditions of pods and vines within the windrow is a predominating factor affecting combine efficiency. A favorable moisture condition is best assured by uniformity of the windrow. Peanuts combine with minimum damage when kernel moisture is approximately 20% and where vines and pods have cured uniformly in the inverted windrows.

- Machine adjustments, such as cylinder speeds, should be set within manufacturers' recommendations as given in the instruction manual. Adjustments must be made as windrow moisture and picking conditions change within a field, or during the day as humidity varies. Operate at the lowest cylinder speeds that give good pod separation. A better measure of combining efficiency is evidenced by the quality of the peanuts coming into the bin rather than the amounts harvested in a given time.

- Speed can be the enemy of peanut quality. Fast moving combine parts may damage a high percent of hulls and kernels. Both visible and non-visible damage opens the door to insect and mold infestations. These molds may be present at time of grading and result in a serious price penalty. Loose-shelled kernels are most readily infested by insects and are a serious storage problem encouraging infestation by insects and molds as well. Mechanical damage is the "number one" potential problem in machine harvest and only the grower is in position to exercise the care needed to avoid or reduce this damage. Grading procedures penalize the grower for loose-shelled kernels and damage and substantially reduce the price of peanuts which contain visible mold (*Aspergillus flavus*).

- Prevent peanut contamination by cleaning out all wagons, combines and other hauling equipment prior to harvesting. This will eliminate potential sources of aflatoxin and foreign material from previous crop residues. This will also prevent cross-contamination from other commodities i.e. pecans which may cause food allergy reaction.

- Avoid holding wet peanuts on trailers. After combining, be sure curing begins immediately. Leaving peanuts in wagons without curing greatly increases the opportunity for aflatoxin contamination.

9. Observe proper curing practices.

- Provide adequate air flow to peanuts. Provide enough fan capacity in the curing system to einsure a minimum air flow of approximately 50 cubic feet of air per minute per square foot of floor area while operating against static pressure of one inch of water.

- Proper Curing Temperatures. The proper curing temperature and relative humidity of the curing air will vary with the weather conditions. Proper curing requires frequent checking and adjusting the temperature controls to prevent over-drying. In normal weather, no heat will be needed during the daytime. At night, the temperature rise of the heated air passing through the peanuts should generally be no more than 15°F above ambient, and in no case should the temperature exceed 95°F. Desirable curing temperatures for varying temperature and relative humidity conditions are given in the table below.

TABLE 8. DESIRED CURING TEMPERATURE

Outside + Temperature (F)	Outside Relative Humidity (%)					
	Desired Temperature Rise (added heat)			Desired Curing Temperature		
	90	60	30	90	60	30
50	20	15	10	70	65	60
60	15	10	5	75	70	65
70	10	5		80	75	
80	5			85		

Glover, J. W. North Carolina State University

- Limit Curing Depths. Under no circumstance should drying depths exceed 5 feet in trailers or bins. Peanuts should be dried at the following depths and moisture: 5' at 25% moisture; 4' at 30% moisture; 3' at 35% moisture; and 2' above 35% moisture. If peanuts are harvested above 35%, do not put peanuts any deeper than 2 feet into the trailer. (A safe rule to follow is to lower the peanut depth by one foot for each 5% of moisture above 25%.) More uniform drying results when peanuts are distributed evenly over the entire drying trailer. Avoid mounding or heaping to increase trailer capacity.

- Avoid over-curing. Quality control depends on frequent moisture checks as peanuts approach 12% moisture. Under average conditions, the curers should be cut off when the peanuts reach 11.0-11.5% moisture. Curing continues as the "coasting" effect lowers the moisture content 1-1.5% below the cut-off point. This effect is due to unequal moisture levels between the hulls and the kernels. Do not allow average moisture content for any lot to go below 8.5%. Also, no part of the lot should contain less than 7% moisture or more than 10%.

10. On-Farm Storage

Some growers may store peanuts on the farm for marketing later in the year. The same principles apply to on-farm storage as warehouse storage (see chapter 3). Growers must be conscious of, and practice, good sanitation, ventilation and particularly insect control in the southeast.

Peanuts stored in curing trailers should be placed under shelters that are adequate to prevent blowing rain from wetting the peanuts. Two to three weeks after harvest when peanut moisture has dropped to 7-8%, close the ducts to the plenum to prevent continual circulation of air through the peanuts. Such circulation will usually lower moisture content even more and may result in excessive splits during shelling.

Peanuts in trailers should be protected from birds and insects. It may be necessary to spray the surface layer of peanuts to prevent insect infestation. Hardware cloth or some other screening material should cover the peanuts to protect them from bird damage. Plastic or canvas covers should not be used since they may cause condensation and moisture build-up that can lead to molds.