CHAPTER 2

GOOD AGRICULTURAL PRACTICES

FOR

BUYING POINT OPERATIONS

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These Good Management Practices are not standards nor are they mandatory, but represent consensus thinking and experience on the best practices in managing buying point operations and are recommended to achieve the highest level of success in business and maintenance or enhancement of the quality of the crop.

A. PROCESS DESCRIPTION

Peanut buying points are the receiving stations for the nation's peanut crop. Buying Points:

1. Receive and in most cases mechanically cure (dry) the peanut crop which includes providing the manpower, logistics, and equipment needed to move the crop from the field to the facility.
2. Provide certified truck scales and USDA approved inspection equipment necessary for value determination of all four types of peanut crops.
3. Provide the office personnel needed to negotiate the eventual sale of a grower's peanuts to a buyer/sheller and they execute the proper documentation for the transaction in a timely manner creating value for both the seller and the buyer.
4. Provide cleaning of the crop, material-handling equipment designed to transfer peanuts to transport trucks, and in some cases on and off site storage.
5. Provide an interaction point of value to both the buyer and seller by providing a level of customer service and physical process that is necessary to convey the peanut from the original form in the field to the next level of processing.
6. Be the front line of quality control and food safety management identifying any field borne contamination and preventing all contamination while on site or in storage.

The peanut buying point is the first commercial point of contact with the nation's peanut crop. The peanut harvest is a time sensitive event in a semi-perishable crop, which is exposed to various extremes of weather causing eventual degradation. A delay in the harvest will likely have adverse effects on the quality of the crop such as increase in splits, LSK values, loss of pods in the field at threshing, and potential for more serious damage from frost, freeze, or other weather based damage. Therefore, the buying point must be sensitive to the volume of peanuts expected to be handled at the facility and provide adequate equipment for that volume. Any practice or policy imposed on the buying point by any element of the industry that hinders or restricts the flow of peanuts from the field to safe and secure storage must be scrutinized carefully to determine if such policy or practice jeopardizes the quality of the crop.

The buying point is the first point of sale where peanuts transfer from the grower to the sheller, or the sheller's agent. Buying point practices include handling all paper work to facilitate purchase, receiving, curing, cleaning, grading, and preparation for transport to either storage or the shelling plant. Buying points vary in capabilities from only receiving, curing, and shipping one type of peanut to curing, cleaning, shipping, and storing up to three or four types of peanuts along with maintaining segregation of these and generations of seed and multiple varieties per type. Buying points may also offer agronomic consulting services, educational meetings on quality, production, marketing as well as an interface point with the buyer/sheller, researchers, and end manufacturers. Execution of good management practices for the buying point is essential to maintain or enhance the quality, food safety, flavor potential, and shelling characteristics of peanuts delivered by the grower. Finally, it is imperative that the buying point work to secure the facility in such a fashion that no possibilities of tampering from outside sources are possible. The following good management practices for buying point operation include personnel training and conduct, and maintenance and operation of facilities, curing and handling equipment, grading, cleaning, and transportation

Food safety is an important part of the buying point responsibilities. It is critical for buying points to review their systems and work in key areas to establish GMP’s for buying point operators to deliver a safe product to the next level of processing.

B. CRITICAL AREAS

1. Personnel

The operations conducted at the buying point, especially curing, are crucial to maintaining the quality of the product delivered by the grower. Therefore, personnel should be trained in all tasks that they may be assigned. Make sure they know the importance of their duties. Conduct periodic checks of each person's ability to follow instructions. Make personal safety equipment, such as hearing protection (disposable ear plugs or ear muffs), dust masks, and possibly hard hats, available and enforce their use. All dryer operators and other personnel when near the dryers should wear hearing protection due to the loud, high frequency noise produced by the fans. Dust masks should be used in dusty environments such as around the dump pits, elevators, and cleaners. Personnel should have safety training, and routine safety inspections should be conducted for all equipment.

Food safety training for personnel is important as a first line of defense for physical, chemical, and microbial hazards. The following information should be covered with all buying point personnel:

- Train all employees on GMPs, sanitation, foreign material control, cross contamination, worker safety, and pesticide use.
- Proper equipment calibration, maintenance, and operation.
- Proper equipment sanitation.
- Train on the risk of water around peanuts at the buying point.
- Train on the risk of purposeful outside contamination and prevention of such situations which may include fencing and security for the facility

2. Facilities

The buying point facility should promote the production and storage of a clean food product. The area should be well drained, paved or kept graded to prevent collection of water. Gravel should be applied to unpaved surfaces to reduce dust. Before arrival of farmer stock peanuts, the buying point manager should ensure the following:

Clean all buildings, grounds, shelters, pits, sampling areas and equipment of old peanuts, foreign material, glass, and other potential sources of contamination of the new crop. Remove all litter and debris from around the buildings. Keep weeds and grass cut to prevent pest harborage. Fencing may be considered for food safety protection. **Glass containers of any kind should not be permitted on the facility**.

Clean drying trailers of old peanuts, grains, dirt and all other foreign material. Clean trailer plenums with high-pressure washers and compressed air; ensure trailers are thoroughly dry before use. All trailers should be completely dry prior to use including washing and any rain events. Conduct preventive maintenance to control rust, loose paint, loose fasteners and metal fragmentation that may contaminate peanuts. Check tires for general condition and proper inflation. Obtain spare tires for peanut trailers prior to harvest. Lubricate wheel bearings, tighten lug nuts to proper tension, and check lights for proper operation. Trailers should be equipped with the Slow Moving Vehicle (SMV) sign. During the harvest all damaged or contaminated peanuts should be cleaned up regularly from yard and storage areas.

Drying sheds should be kept clean to prevent bird and pest activity. Remove all bird nests and maintain netting or some type of bird control to reduce birds nesting. Do not store chemicals under or near the drying shelters. All lights under the drying shed must be adequately shielded.

Examine and ensure efficient drying equipment operation by checking burner function, gas flow, airflow capacity (manufacturers' specifications), thermostat accuracy, and humidistat accuracy. The thermostat should make/break the circuit within 4°F of the air temperature. The difference in temperature when the thermostat switches off (example - 95°F) and the temperature when it turns back on (example 92°F) should be no more than 8°F. Thermostats can generally not be repaired or adjusted. Therefore, replace thermostats when they no longer perform within specifications.

Inspect and repair dryer plenums, air ducts, dryer connectors, control gates and transition sections to prevent air leaks.

Inspect and repair drying shed roofs to prevent moisture leaks. Remove potential foreign material within the structure such as bird and wasp nests.

Thoroughly clean the dump pit of foreign materials and water. Insure that trailer lifts are in safe, operational condition.

Install or inspect all lockout locations for injury prevention.

Inspect the condition, speed and efficiency of operation of elevators and conveyors. Thoroughly clean elevator buckets, boots and other surfaces used in the handling of peanuts. Belt speed for *horizontal* or *inclined* conveyors should not exceed 200 fpm. Acceptable maximum belt speeds for elevators depend on the diameter of the head pulley *(See Table 1)*.

Calibrate scales.

Ensure that all sampling equipment required by the FSIS is in proper working condition (See "Farmer Stock Peanut Inspection Instructions," USDA, 2014).

3. Curing

Mechanical curing offers advantages over windrow curing because it provides a controlled curing environment and reduces the risk of damage due to adverse weather conditions in the windrow. With this method, peanuts are allowed to remain in the windrow 2 to 5 days after digging to moisture contents ranging from 20 to 15%. Peanuts at these moisture levels sustain less mechanical damage during combining and subsequent handling, than when they are very green or very dry. Excessive drying times are required to cure peanuts with initial moisture contents greater than 20%, and may cause a backup at the drying facility. Even when cured properly, peanuts combined at moisture contents greater than 25% are subject to more split kernels and skin slippage. Encourage producers to dig peanuts at optimum maturity, then combine, weather permitting, after adequate windrow curing at peanut moisture contents no higher than approximately 20% moisture, wet basis, using optimum combine settings to minimize foreign material (FM), loose shelled kernels (LSK), and cracked or broken pods.

Select the proper dryer unit for the trailer or trailer combination. Consult the manufacturer's specification for airflow, and size the dryer units to obtain a minimum of 12.5 to 15 cu ft/min (cfm) per cubic foot of peanuts in the drying trailer. Consider for example, a dryer rated for 10,500 cfm at 1-inch static pressure. The actual air delivered would be 5-10% less or approximately 9,450 cfm, since manufacturer's airflow ratings are specified for fans without burners. This dryer could supply 19.4 cfm/cu ft for a 14-ft (488 cu ft) trailer, 12.9 cfm/cu ft for a 21-ft (732 cu ft) trailer, and 9.7 cfm/cu ft for a 28-ft (977 cu ft) trailer. Thus the dryer is adequate for 14- and 21-ft trailers, but undersized for a 28-ft trailer. *(See Table 4 for minimum airflow requirement for various trailers or trailer combinations.)*

Assure efficient identification and handling of loaded trailers to avoid trailer or vehicle build-up at the facility and delays in curing. The depth of peanuts in the standard curing bin/trailer should be no more than five feet. For each 5 percent of moisture above 25 percent, reduce the depth of the peanuts in the bin by one foot. In semi-trailers, the depth of peanuts should be no more than eight feet and moisture should be 25% or less. Airflow for both standard peanut trailers and semi-trailers should be between 12.5 and 15 cubic feet per minute for each cubic foot of peanuts in the curing bin. This will assure that curing in semi-trailers will be comparable to that for standard peanut trailers. It is also important to distribute the peanuts evenly within the curing bin for uniform airflow and curing. These guidelines allow the entire mass of peanuts to begin curing within 18 to 24 hours.

Hopper bottom semi drying trailers are designed to dry peanuts in thin layers. Generally all peanuts are within 3 feet or less from the source of the drying air throughout the trailer. Trailers are equipped with dampers to regulate drying between top and bottom of the load. Start with the dampers open so that the dry air reaches the top and bottom of the wet peanuts in the initial heat-up period. After the initial heat-up period, close the dampers for more efficient use of the drying air.

Apply natural or heated air as soon as possible to prevent hot spots and growth of bacteria and fungi. Control (minimize) temperature during curing to ensure high flavor quality and low split kernel out-turns in shelling. Ambient air temperature and relative humidity influence maximum thermostat settings and desired degree temperature rise above ambient. The rate of moisture removal can be controlled by regulating the temperature-rise above ambient. High temperature and low relative humidity will cure peanuts too rapidly and may result in over curing. Under no circumstances should the thermostat be set above 95°F. Temperature rise above ambient should be no more than 15 - 20°F. Curing temperature rise above ambient can be regulated by burner orifice size and gas pressure. If the orifice/gas pressure method is not used in conjunction with a thermostat to limit the temperature rise, the thermostat can be set to closely approximate the optimum curing condition based on minimum daily temperature. Temperatures in the trailer plenum should be checked at least as frequently as the moisture content (*See Table 2*). Be alert for cold fronts and reset thermostat so that a 20 degree F rise is not exceeded.

The thermostat location is crucial to accurate temperature control. Attach the thermostat permanently in the plenum transition at the location that best senses the temperature cycling for the dryer. This is usually on the transition vertical support member or at a location just to the right of the center. Measure plenum temperature by drilling a small hole in the trailer plenum opposite the heated air entry and insert a stem thermometer. Infrared (IR) thermometer "guns" may be used to check the curing trailer's external temperature, but remember, IR guns measure only the temperature of the surface at which they are aimed.

To set the temperature rise using the burner orifice/gas pressure method, set the thermostat at the highest temperature setting so that the burner will stay on and not cycle. Measure the temperature in the trailer plenum at the end or side away from the dryer, and adjust the gas pressure to achieve the desired temperature rise above the ambient (usually 15 to 20 degrees F). Check the temperature in more than one location as the plenum temperature may vary. When the desired temperature rise is obtained, tighten the lock nut on the gas pressure regulator. The burner will run continuously and maintain the desired temperature rise regardless of ambient temperature. Reset the thermostat to 95°F, and the thermostat will serve as a high limit switch, limiting the maximum temperature in the plenum to 95°F. Control of temperature rise may also be accomplished with microprocessor-based dryer rate controllers. These controllers sense the temperature and relative humidity of the incoming air and adjust the temperature rise according to prescribed algorithms.

All moisture samples should be taken with a probe from several locations in the trailer or bin and represent all depths in the trailer. Note that a single sample taken at the top front of a rear-air-entry trailer may be slightly drier than the average of the load. The sample should be at least 250-300 g to obtain 200-250 g of kernels. Kernel moisture should be determined with a moisture meter, the

accuracy of which has been verified by the manufacturer or the Federal State Inspection Service (FSIS).

After curing, the distribution of kernel moisture contents should be determined using a single kernel moisture meter. Those lots having a wide variation in moisture contents may be segregated and/or shelled immediately to prevent the potential loss by molding in storage.

Initial moisture of each load should be checked and sampling frequency should be adequate to prevent over drying. Sampling frequency should be determined according to the moisture content of the load of peanuts, with frequency increasing as the peanuts approach the desired cutoff. Mechanical curing should end at approximately 10.5-11% to result in final kernel moisture content of 9-10% by residual curing. *Table 3* shows a range of curing times for various moisture content peanuts, with the shorter time for clean, mature peanuts being cured during a period of cool, dry conditions. Curing time will increase if the peanuts are deeper than the recommended 5 ft., have high moisture foreign material, are immature, or weather conditions are warm and humid.

After curing, protect peanuts from rain and other contamination throughout grading and unloading. Do not cover peanuts with plastic or canvas covers, unless rain is imminent and no other suitable shelter is available.

Pay close attention to trailer maintenance throughout the drying season. Periodically clean build-up of dirt and debris from plenums. Reduce foreign material going into the warehouse when dumping from rear-air-entry trailers by clamping a piece of plywood across the air inlet.

4. Grading

The Fresh Products Branch of the U.S. Department of Agriculture's Agricultural Marketing Service administers the peanut grading program and publishes the Farmer Stock Peanut Inspection Instructions (last revised 2014). These instructions are used by Federal State Inspection Service (FSIS) personnel to grade peanuts. Equipment used in grading farmer stock peanuts should be examined and repaired as needed to assure proper operation. FSIS personnel should note the presence of adverse quality characteristics on the official note sheet and notify buying point management personnel of those characteristics. Items that should be noted include the presence of high moisture foreign material, offensive odors, high percentages of bald kernels, foreign material (FM), and loose-shelled kernels (LSK), and uncharacteristically low grades.

5. Cleaning

Cleaning all peanuts before storage will improve quality because the removal of LSK, high moisture foreign material and dirt reduces the risk of insect and fungus damage in storage.

Farmer stock peanuts with excessive troublesome foreign material (>4% suggested), such as gherkins, citron pieces, rock, dirt clods, etc., or excessive LSK (>5% suggested) should be cleaned.

- Cleaning equipment may be sand screens, belt screens or other cleaners capable of removing the wide range of foreign material occurring in farmer stock peanuts.

- Keep the farmer stock cleaner area clean and free of debris and foreign material that may attract pests. Pest control stations must be maintained around the farmer stock cleaner. All bird nests should be removed and netting or some other type of bird control should be used. Lights around the farmer stock cleaner must be adequately shielded.

6. Handling

- Avoid excessive handling, belt speeds and drops through conveyors and elevators to minimize damaging the farmer stock. *Horizontal* or *inclined* belt conveyors should not exceed 200 fpm. Maximum speed for bucket elevators depends on the diameter of the head pulley (*See Table 1*). Handling should drop peanuts less than 8 ft. to reduce cracked and broken pods and LSK.

- Maintain discipline at dump pit to insure that foreign materials, such as glass, do not fall into the pit. Prevent dirt and other foreign material in trailers from being dumped into the pits.

- Dump pits should be kept clean and free of peanut debris and foreign material to prevent the attraction of pests. Proper rodent control around the dump pits should be maintained. When possible, dump pits should be covered to prevent contamination from pests and foreign material. Dump pits should be inspected prior to use for foreign material and moisture and anytime there is a moisture event. If other crops are handled at the location during the off season, all products which may cause cross contamination such as corn, pecans, soybeans, grain sorghum, etc., should be removed.

C. FOOD SAFETY PLAN

Under the current Food Safety Modernization Act (FSMA) rules peanuts are defined as a "fruit or vegetable". Therefore peanuts are not exempt from the preventive controls rule at a Buying Point as a 'facility solely engaged in the storage of raw agricultural commodities intended for further distribution or processing'. However, a Buying Point that is jointly owned by a farm or a cooperative or group of farms may be considered a secondary activities farm if the majority of the raw peanuts harvested, packed, and/or held by the Buying Point come from the primary production farms of the farmers in the cooperative. Therefore, these Buying Points do not have to register with FDA and are not subject to the preventive control rule. Peanut farms are also not subject to the produce rule because they are rarely consumed raw.

The new requirements for the non-farm Buying Points would include maintaining and implementing a written food safety plan that includes:

- Hazard Analysis: The plan must identify and evaluate hazards for each type of food manufactured, processed, packed, or held at the facility.

- Preventive Controls: The plan must identify preventive controls that significantly minimize or prevent hazards. Preventive controls include process controls, food allergen controls, sanitation controls, and a recall plan.

- Monitoring Procedures: The plan must document procedures to ascertain that preventive controls are consistently performed.

- Corrective Actions: The plan must identify steps to take if preventive controls are not adequately implemented, to minimize the likelihood of problems reoccurring, to evaluate the food for safety, and to block problem food from entering commerce.

- Verification: The plan must spell out verification activities and document that preventive controls are effective and consistently implemented.

Details of implementing a food safety plan are available on FDA's website. Training curricula and guidance documents are being developed for delivery to organizations once all the FSMA rules are final. The American Peanut Council is directly involved in these efforts and will make resources available to help organizations comply with the new rules.

Buying Point Checklist

Personnel Training

- Emphasize critical nature of job

- Personal safety equipment
  - hearing protection
  - eye protection
  - dust masks

- Safety procedures
  - tractor
  - conveyors
  - cleaners
  - first aid
  - inspectors

- Proper curing methods
  - sampling
  - moisture measurement
  - dryer controls
  - 15-20ºF above ambient
  - or no higher than 95ºF

Pre-season Preparation

- Clean all handling equipment
  - belt conveyors
  - cleaners
  - hoppers
  - dump pit(s)
  - drying trailers/bins
  - grading equipment

- Check equipment operation
  - conveyor and elevator speeds
  - dryer fan
  - burner control circuit components
  - dryer thermostat
  - pneumatic sampler
  - grading equipment
  - truck scales
  - lifts

- Obtain spare parts
  - spare trailer tires
  - elevator and conveyor bearings
  - dryer components
    - ducts
    - thermostats
    - flame probes
    - gas regulators
    - gas solenoids
    - spark plugs
    - spark transformers

Harvest Operations

- Encourage harvesting mature crop
- Encourage windrow curing (partially)
- Sample trailers according to moisture content and expected drying time
- Allow moisture content to equilibrate after mechanical curing prior to grading (~ 4h)
- Clean damaged contaminated peanuts from yard and storage areas

Post-Season Operations

- Clean all handling equipment
- Clean peanut trailers
- Repair all equipment including on-road and off-road rolling stock
- Repair shelters
- Clean up yard

Table 1. Maximum belt velocity recommended for farmer stock peanut elevators (Smith, J.S., Jr., Considerations for farmer stock peanut warehouses, National Peanut Council, Alexandria, Virginia, 1994).

Head Pulley Diameter, inches	Head Pulley RPM	Belt Velocity feet/minute
8	96	201
10	82	215
12	73	228
14	66	241
16	60	252
18	56	264
20	52	274
22	49	285
24	47	295
26	45	304
28	43	314
30	41	323
32	40	332
34	38	340
36	37	349

Table 2. Recommended thermostat settings for peanut dryers without burner orifices to limit the temperature rise to 15°F above ambient.

Daily Minimum Temperature ºF	Thermostat Setting ºF
less than 60	70
60	75
70	85
80	95
90	95

Taken from Figure 11, "Chapter 12: Harvesting, curing, and energy utilization," in *Peanut Science and Technology*, assuming that relative humidity is between 60 and 90 percent when the daily minimum temperature occurs.

*****Temperatures in western Texas, the Texas Panhandle, or areas of Arkansas and northern Mississippi will not effectively cure peanuts at the standard 15 degree ambient rise as many times daily temperatures in the late season may be in the 50s or less. In consideration of this situation it is suggested that the rise be at least 20 degrees when daily temperatures are below 65 and 25 degrees when temperatures are below 55.

Table 3. Approximate drying times for a typical load of peanuts with adequate airflow and less than 5 feet deep.

Peanut Moisture Content %	Drying Time H
30	40 to 64
25	30 to 48
20	28 to 36
17	20 to 28
15	12 to 18
13	8 to 13

Table 4. Minimum airflow requirements for various trailer combinations.

Manufacturer's Airflow Rating	Manufacturer's Airflow less 10% for burner[2]	CFM per Cubic Foot of Peanuts for Various Trailer Sizes[1]						
		One 14-ft (488 ft^3) [3]	One 21-ft (732 ft^3)	One 28-ft (977 ft^3)	Two 14-ft (977 ft^3)	Two 21-ft (1465 ft^3)	Two 28-ft (1953 ft^3)	45-ft Semi (2616 ft^3)
cfm @ 1-in S.P.[4]	*cfm @ 1-in S.P.*[4]	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*
9,000	8,100	16.6	11.1	8.3	8.3	5.5	4.1	3.1
9,500	8,550	17.5	11.7	8.8	8.8	5.8	4.4	3.3
10,000	9,000	18.4	12.3	9.2	9.2	6.1	4.6	3.4
10,500	9,450	19.4	12.9	9.7	9.7	6.5	4.8	3.6
11,000	9,900	20.3	13.5	10.1	10.1	6.8	5.1	3.8
11,500	10,350	21.2	14.1	10.6	10.6	7.1	5.3	4.0
12,000	10,800	22.1	14.7	11.1	11.1	7.4	5.5	4.1
12,500	11,250	23.0	15.4	11.5	11.5	7.7	5.8	4.3
13,000	11,700	24.0	16.0	12.0	12.0	8.0	6.0	4.5
13,500	12,150	24.9	16.6	12.4	12.4	8.3	6.2	4.6
14,000	12,600	25.8	17.2	12.9	12.9	8.6	6.5	4.8
14,500	13,050	26.7	17.8	13.4	13.4	8.9	6.7	5.0
15,000	13,500	27.6	18.4	13.8	13.8	9.2	6.9	5.2
15,500	13,950	28.6	19.0	14.3	14.3	9.5	7.1	5.3
16,000	14,400	29.5	19.7	14.7	14.7	9.8	7.4	5.5
16,500	14,850	30.4	20.3	15.2	15.2	10.1	7.6	5.7
17,000	15,300	31.3	20.9	15.7	15.7	10.4	7.8	5.8
17,500	15,750	32.3	21.5	16.1	16.1	10.8	8.1	6.0
18,000	16,200	33.2	22.1	16.6	16.6	11.1	8.3	6.2
18,500	16,650	34.1	22.7	17.1	17.1	11.4	8.5	6.4
19,000	17,100	35.0	23.3	17.5	17.5	11.7	8.8	6.5
19,500	17,550	35.9	24.0	18.0	18.0	12.0	9.0	6.7
20,000	18,000	36.9	24.6	18.4	18.4	12.3	9.2	6.9
20,500	18,450	37.8	25.2	18.9	18.9	12.6	9.4	7.1
21,000	18,900	38.7	25.8	19.4	19.4	12.9	9.7	7.2
21,500	19,350	39.6	26.4	19.8	19.8	13.2	9.9	7.4
22,000	19,800	40.6	27.0	20.3	20.3	13.5	10.1	7.6
22,500	20,250	41.5	27.6	20.7	20.7	13.8	10.4	7.7
23,000	20,700	42.4	28.3	21.2	21.2	14.1	10.6	7.9
23,500	21,150	43.3	28.9	21.7	21.7	14.4	10.8	8.1
24,000	21,600	44.2	29.5	22.1	22.1	14.7	11.1	8.3
24,500	22,050	45.2	30.1	22.6	22.6	15.1	11.3	8.4
25,000	22,500	46.1	30.7	23.0	23.0	15.4	11.5	8.6
25,500	22,950	47.0	31.3	23.5	23.5	15.7	11.8	8.8
26,000	23,400	47.9	32.0	24.0	24.0	16.0	12.0	8.9
26,500	23,850	48.8	32.6	24.4	24.4	16.3	12.2	9.1
27,000	24,300	49.8	33.2	24.9	24.9	16.6	12.4	9.3
27,500	24,750	50.7	33.8	25.3	25.3	16.9	12.7	9.5
28,000	25,200	51.6	34.4	25.8	25.8	17.2	12.9	9.6
28,500	25,650	52.5	35.0	26.3	26.3	17.5	13.1	9.8

Table 4. Minimum airflow requirements, continued.

Manufacturer's Airflow Rating	Manufacturer's Airflow less 10% for burner[2]	CFM per Cubic Foot of Peanuts for Various Trailer Sizes[1]						
		One 14-ft (488 ft^3) [3]	One 21-ft (732 ft^3)	One 28-ft (977 ft^3)	Two 14-ft (977 ft^3)	Two 21-ft (1465 ft^3)	Two 28-ft (1953 ft^3)	45-ft Semi (2616 ft^3)
cfm @ 1-in S.P.[4]	*cfm @ 1-in S.P.*[4]	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*	*cfm/ft^3*
29,000	26,100	53.5	35.6	26.7	26.7	17.8	13.4	10.0
29,500	26,550	54.4	36.3	27.2	27.2	18.1	13.6	10.2
30,000	27,000	55.3	36.9	27.6	27.6	18.4	13.8	10.3
30,500	27,450	56.2	37.5	28.1	28.1	18.7	14.1	10.5
31,000	27,900	57.1	38.1	28.6	28.6	19.0	14.3	10.7
31,500	28,350	58.1	38.7	29.0	29.0	19.4	14.5	10.8
32,000	28,800	59.0	39.3	29.5	29.5	19.7	14.7	11.0
32,500	29,250	59.9	39.9	30.0	30.0	20.0	15.0	11.2
33,000	29,700	60.8	40.6	30.4	30.4	20.3	15.2	11.4
33,500	30,150	61.8	41.2	30.9	30.9	20.6	15.4	11.5
34,000	30,600	62.7	41.8	31.3	31.3	20.9	15.7	11.7
34,500	31,050	63.6	42.4	31.8	31.8	21.2	15.9	11.9
35,000	31,500	64.5	43.0	32.3	32.3	21.5	16.1	12.0
35,500	31,950	65.4	43.6	32.7	32.7	21.8	16.4	12.2
36,000	32,400	66.4	44.2	33.2	33.2	22.1	16.6	12.4
36,500	32,850	67.3	44.9	33.6	33.6	22.4	16.8	12.6
37,000	33,300	68.2	45.5	34.1	34.1	22.7	17.1	12.7
37,500	33,750	69.1	46.1	34.6	34.6	23.0	17.3	12.9
38,000	34,200	70.0	46.7	35.0	35.0	23.3	17.5	13.1
38,500	34,650	71.0	47.3	35.5	35.5	23.7	17.7	13.2
39,000	35,100	71.9	47.9	35.9	35.9	24.0	18.0	13.4
39,500	35,550	72.8	48.5	36.4	36.4	24.3	18.2	13.6
40,000	36,000	73.7	49.2	36.9	36.9	24.6	18.4	13.8
40,500	36,450	74.7	49.8	37.3	37.3	24.9	18.7	13.9
41,000	36,900	75.6	50.4	37.8	37.8	25.2	18.9	14.1
41,500	37,350	76.5	51.0	38.2	38.2	25.5	19.1	14.3
42,000	37,800	77.4	51.6	38.7	38.7	25.8	19.4	14.5

[1] Airflow should range from 12.5 to 15 cfm per cu ft of peanuts. Air flow less than 10 cfm/ft^3 is inadequate, while airflow exceeding 15 cfm/ft^3 results in excessive fuel and power use.

[2] Manufacturer's airflow ratings are for fans WITHOUT burners. Airflow rating with burner will be 5-10% less.

[3] Volume based on peanut depth of 4' - 6" for 14-ft to 28-ft trailers and 7' - 6" for semi-trailers.

[4] Ratings for semi-trailers are in cfm per cubic foot @ 2-in static pressure (S.P.).