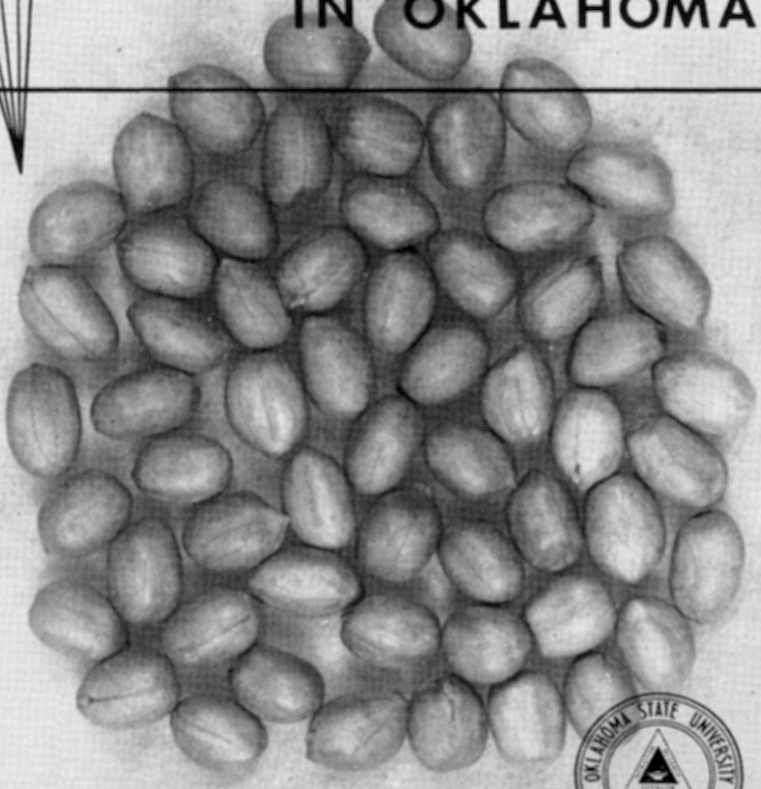
Peanut Production

IN OKLAHOMA



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Peanut Production in Oklahoma

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Peanuts are an important cash crop in Oklahoma. They are grown mainly in the southern half of the state. Farmers in that area received nearly $14,400,000 for the 1958 peanut crop. In addition, peanut hay and peanut meal provide forage and protein for livestock feeding on many farms in the state.

Although allotments limit the number of acres that may be planted to peanuts, many growers can increase their income from this crop by making full use of current information about better varieties, improved cultural methods, fertilization, disease and insect control, and mechanized harvesting.

Soil Requirements

Peanuts are adapted on well drained sandy and sandy loam soils with friable, sandy or sandy clay subsoils. The pegs can penetrate these soils readily and the crop is usually harvested without soil clinging to the nuts. The plants can also be plowed out with very few peanuts remaining in the ground.

Fine textured soils, such as clay loams and clays, may produce good yields when mosture conditions are favorable, but these soils often form crusts which the pegs cannot penetrate readily. If pegs do get into the soil and set a crop, harvesting is difficult. Many of the pegs will break off, leaving nuts in the ground. Dark colored soils will discolor the hulls, which is objectionable; and in clay soils, particles of dirt may cling to the nuts, which lowers the grade.

Maintaining Soil Fertility

The peanut is a member of the legume family and takes nitrogen from the air, but the manner in which the crop is harvested and utilized creates a soil condition which requires careful management.

A grain drill may be used to plant a cover crop of rye or rye and vetch immediately after the peanut crop is harvested. Peanut land usually needs this protection from wind erosion.

When both the vines and nuts are removed, the soil is left without protection from wind and water erosion during the winter and early spring, unless a winter cover crop can be planted. The peanut crop also removes large quantities of plant nutrients from the soil. The loss is made more serious by the fact that most of the sandy soils used for peanut production are deficient in organic matter, nitrogen, phosphorus and potassium.

Where winter cover crops can be grown successfully, they protect the soil from wind and water erosion during the winter and early spring. When plowed under they add organic matter and nitrogen to improve soil fertility. Plowing under a cover crop also increases moisture efficiency and reduces the hazard of wind erosion on sandy land. Cover crops following peanuts are most successful on irrigated land where adequate moisture is available for plant growth.

Rye is an excellent cover crop for sandy soils where peanuts are grown. The best legumes for winter cover are vetch and winter peas. The legumes can be planted alone, or vetch can be planted in mixtures with rye or winter oats.

Where winter cover crops are not dependable, strip cropping will aid

Where winter cover crops are not dependable, strip cropping will help in controlling both wind and water erosion. Sorghum is used as the strip crop here.

in controlling both wind and water erosion. The alternate strips are usually planted to an erosion-resisting crop such as grain sorghum, Sudan grass, or one of the other forage sorghums. A suggested width of strips is 8 to 12 rows of peanuts and 8 to 12 rows of the erosion-resisting crop. Part or all of the stalks of the sorghum crop can be left on the land during the winter.

The best practice is to grow peanuts in rotation with erosion-resisting and soil improving crops. This will aid in maintaining soil fertility and controlling the common peanut diseases. When peanuts are handled in this manner, they will provide a good income from sandy soils where most other crops are less profitable.

Irrigation

Peanuts respond well to irrigation. In 1957, slightly more than 18 percent of the total peanut acreage in Oklahoma was irrigated. The 19,942 acres of irrigated land produced 44 million pounds, or 51 percent of the total state production for one year.

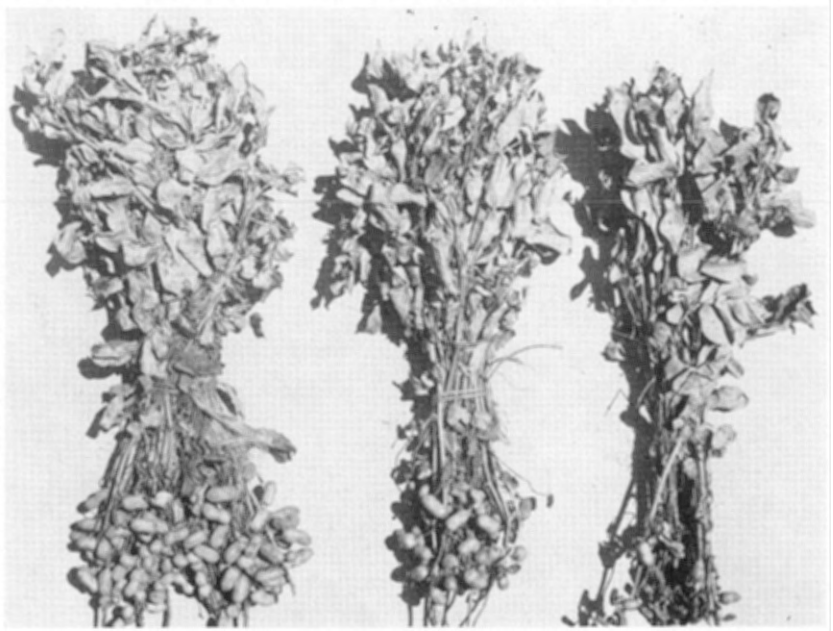
The total water requirement for peanuts is about 25 inches. Considering the benefit from average rainfall, 13 to 16 inches of irrigation water will usually be needed. Before planting time, it is advisable to care-

fully check the amount of moisture in the soil to a depth of approximately 3 feet. When timely rainfall has failed to provide a good reserve of moisture in the root zone, a pre-planting irrigation may be advisable. If soil moisture is adequate at planting time, the first irrigation can usually be delayed until the plants start blooming. Available moisture is needed during the critical period of blooming and nut development.

Because of the sandy textured soils on which they are normally grown and the medium-depth rooting habit of the plants, peanuts require more frequent irrigation than most other crops. Applications of approximately 3 to 3.5 inches of water are needed at 7- to 11-day intervals in late July and through August. The best time for the last application will generally be about September 15; however, this may vary slightly, depending on soil and weather conditions and the stage of development of the crop. Applications made too late will result in immature nuts and excessive moisture at harvest time.

Seedbed Preparation

Land for peanuts is prepared in the same manner as for cotton,



Peanuts on left got high level irrigation (9%), produced 2,121 lbs. airldried nuts per acre, plants in center got medium irrigation level (5%), yielded 892 lbs. per acre while those at right with no irrigation produced only 215 lbs. of air-dried nuts per acre.

corn, sorghums and other row crops. It should be plowed early enough for cover crops, or residues from the previous crops, to decay before the peanuts are planted. If peanuts follow a winter cover crop, plowing the land at least three weeks before planting time is advisable.

In the main peanut section of Oklahoma, especially where soil blowing is likely to occur, land is often prepared by listing and relisting. A field cultivator can then be used in working the ridges down to a smooth surface for planting.

It is very important that the land be completely free of vegetation at planting time. Young peanut plants cannot compete successfully with weeds and grass for moisture and plant nutrients. A well prepared seedbed insures a more uniform stand of plants and makes cultivation easier.

Fertilization

The response of peanuts to fertilizer treatments has been somewhat variable. Peanuts grow during the summer, and yields depend to a large extent on the amount and distribution of rainfall in July, August and September.

On fertile soils, fertilizers usually do not increase the yield of peanuts. On soils of medium to low fertility the use of fertilizers is generally profitable in seasons when moisture conditions are favorable for plant growth.

When peanuts are planted on soils that are low to very low in organic matter and minerals, an application of 150 to 200 pounds per acre of a 5-20-20, 6-24-24, or an equivalent amount of a similar grade, is recommended. For soils low in organic matter and phosphorus but medium to high in potassium, 100 to 150 pounds per acre of an 8-32-0 or a similar grade would be satisfactory.

When peanuts are grown on irrigated land, fertilizers can be applied at higher rates to balance fertility levels and produce maximum yields. On soils that are low to very low in organic matter and minerals, an application of 250 to 350 pounds per acre of a 5-20-20, 6-24-24, or an equivalent amount of a similar grade will be needed. An application of 200 to 250 pounds of an 8-32-16 or a similar grade may well be made on soils that are only slightly deficient in potassium. If the soil is not deficient in potassium, an application of 200 to 250 pounds per acre of 8-32-0 or a similar grade may be used.

A soil test is a valuable aid in determining the fertilizer requirements for peanuts on soils of varying fertility levels.

Peanut plants at far left yielded only 875 lbs. of nuts per acre without fertilizer. Those in center and right produced 1,810 lbs. per acre when properly fertilized.

Fertilizer Placement

The method of fertilizer placement for peanuts is very important. When fertilizers containing nitrogen and potassium are placed in direct contact with peanut seed, there is considerable danger of injury to germination and seedling development.

On Dry Land: For direct application of fertilizer under dry land conditions, the best placement is in a continuous band along the row, 2 to 3 inches to the side and 2 to 4 inches below the seed.

Many peanut growers plant and fertilize a cover crop with the kind and amount of fertilizer needed for peanuts. The cover crop is then plowed under 3 to 4 weeks before planting the peanuts. This is an der irrigation, it is safer to apply two-thirds of the fertilizer broadcast excellent method of fertilizing the peanut crop.

On Irrigated Land: At high rates of fertilization, normally used unand work it into the soil before planting the peanut crop. The remaining one-third can then be applied at planting time in continuous bands along the rows, to the side and below the level of the seed.

Where a cover crop is used, an excellent plan is to fertilize the cover crop with the kind and amount of fertilizer needed for peanuts. Very little, if any, additional fertilizer will be needed for peanuts if the cover crop is worked into the soil before planting time. On low to very low fertility soils, it may be advisable to apply two-thrids of the fertilizer that will be needed for peanuts on the cover crop. The remaining one-third can then be applied as a direct treatment when the peanut crop is planted.

Limestone and Gypsum

When peanuts are grown on soils that are very low in available calcium (lime) an application of either limestone or gypsum (calcium sulfate) may increase the yield and improve the quality of the nuts. Calcium deficiency has very little effect on the vegetative growth of the peanut plants, but there will be many unfilled pods if the deficiency is not corrected.

Superphosphate contains calcium in addition to phosphorus. Where peanuts are fertilized with superphosphate or with a mixed fertilizer containing superphosphate, the use of gypsum is not likely to be profitable.

In some areas, peanuts are irrigated with water containing considerable quantities of gypsum which supplies adequate calcium for peanuts.

Direct applications of limestone or gypsum to supply calcium are, therefore, not needed on most peanut soils in Oklahoma.

Peanut Varieties

The Spanish strains of peanuts are the only ones grown for commercial use in Oklahoma. They are in demand for shelling and for oil because of their excellent flavor and high oil content.

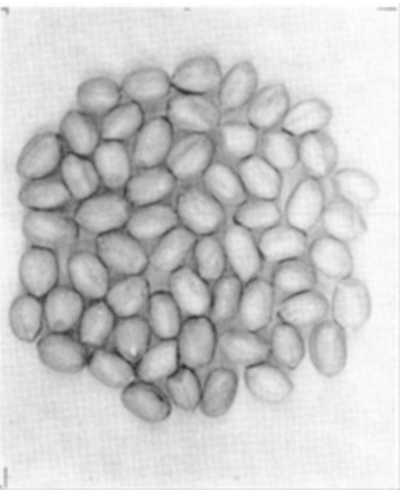
Within recent years, several new and improved strains of Spanish peanuts have been developed. These include Argentine, Dixie Spanish and Spantex.

Argentine—A high-yielding Spanish variety adapted to both irrigated and dryland conditions. The plants are vigorous and upright in growth habit. The pods, which form in clusters around the base of the plants, show very little constricton. Seeds of Argentine are about 1/32 inch larger in diameter than those of Spantex, and slightly higher in oil and protein content than those of Spantex and Dixie Spanish.

Argentine, a recommended variety, is an improved Spanish variety.

Large size nuts, high in oil and protein are yielded by Argentine variety.

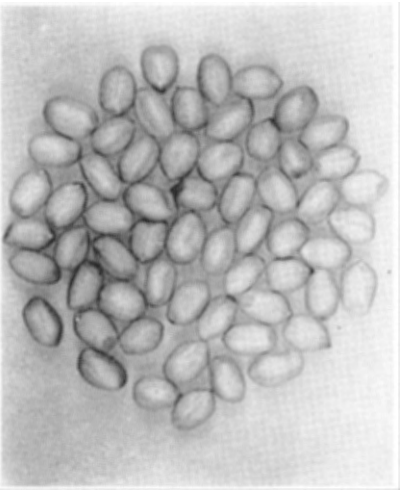
Dixie Spanish peanuts resemble Agentine in yield potential.



Shelled Dixie Spanish peanuts are similar to those of Argentine variety.

Dixie Spanish—Similar to Argentine in plant characteristics, seed size, and yield potential. It is well adapted to both irrigated and dryland conditions. The pods of Dixie Spanish are slightly constricted, and seeds are somewhat lower in oil and protein content than those of Argentine.

Spantex is early maturing variety, similar to Common Spanish in plant type.



Spantex nuts are same size as Common Spanish but yields are higher.

Spantex—An early maturing variety, similar in plant type to Common Spanish. The usually constricted pods contain seeds of excellent quality, but are smaller in size than those of Argentine and Dixie Spanish. In yield, Spantex ranks lower than the other varieties, but higher than Common Spanish.

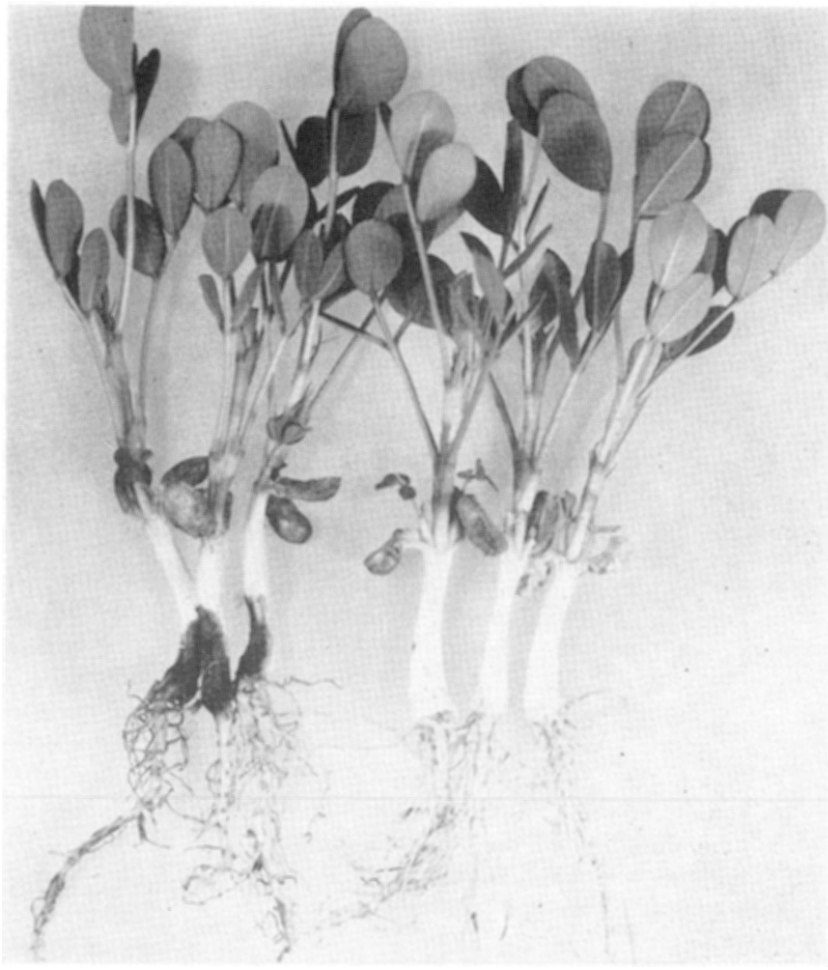
Seed Treatment

When peanuts are planted, the seeds and young seedlings may be attacked by disease organisms which live on the seed and in the soil. These harmful bacteria and fungi cause rotting of seed and injury to seedling before or soon after emergence. Such conditions often result in thin stands, weak seedlings and retarded plant growth.

Much of the loss from seedling diseases can be prevented by proper treatment of the seed before planting. Chemically treated seed generally produces more even stands of stronger, healthier plants than untreated seed. This is one of the cheapest and surest way to obtain better stands, increase yields and improve crop quality.

The chemicals used for treating peanut seed include Arasan, Thiram 50, Spergon, Phygon and Dow 9-B.

Seed treatment chemicals should aways be applied as recommended by the manufacturers. Arasan and Thiram 50 are used at the rate of 2 ounces per 100 pounds of seed. For Spergon, Phygon and Dow 9-B, the



Diseased seedling on left grew from untreated seed. Clean, healthy seedlings on right show importance of seed treatment in growing a profitable peanut crop.

CAUTION: Most of the chemicals used for seed treatment are poisonous. Some of them may cause skin irritation if not properly handled. Precautions given by the manufacturers should be carefully followed. Do not leave treated seed where it will be accidentally eaten by people or fed to livestock.

dosage is 3 ounces per 100 pounds of seed. Uniform mixing of the chemical with the seed is necessary for effective disease control and to prevent seed injury.

Inoculation

Chemical treatment of seed for disease control should not be confused with inoculation. Seed disinfectants are used to destroy harmful organisms that cause seed and seedling diseases. Inoculating culures contain beneficial bacteria which form nodules on the roots of legumes and take nitrogen from the air.

Since most soils are naturally inoculated with the proper strain of bacteria for nodule development on peanuts there seems to be little need for inoculating peanut seed; however, inoculation may be advisable on some soils where peanuts have not been previously grown.

Chemical treatment of peanut seed is usually more effective than inoculation in improving stands and increasing yields. If inoculation is desired, it is best to treat the seed for disease control and then apply the inoculant just before planting. A separate distributor may be attached to the peanut planter to distribute the inoculating culture along the rows as the seed is planted.

Planting

Time of Planting

Peanuts should not be planted until the soil is warm. Planting too early often results in seed decay, poor germination, and thin stands. Early plantings, too, often need more hoeing and cultivation than later plantings. In the main peanut growing section of Oklahoma, peanuts are usually planted between May 15 and June 15. Later plantings are occasionally made, especially in the southwest part of the state.

Depth of Planting

Level or medium-deep furrow planting of peanuts has consistently given better results than deep furrow planting in tests conducted by research scientists of the Oklahoma Agricultural Experiment Station. Shallow planting places the seed in warmer soils for quicker germination and better emergence. There is also less danger of seed rotting, which often occurs when peanuts are planted in cold, wet soils.

There is no apparent advantage in planting deeper than necessary to place the seed in moist soil. This will usually be about 2 to 3 inches in humid areas and 3 to 4 inches in the drier areas of the state.

Plant Spacing, and Rate of Planting

An average of one plant every 3 to 4 inches in the row is considered a good stand. To accomplish this, the planter can be set to drop an average of 3 to 5 viable seeds per foot of row. This will require 40 to 45 pounds of seed per acre of the Argentine and Dixie Spanish varieties, and 35 to 40 pounds of Spantex and Common Spanish.

When peanuts are grown under irrigation, a larger plant population per acre is required for maximum yields. This can be accomplished by closer spacing of the rows. The common practice is to use a row spacing of 28 to 30 inches. With the same spacing of plants in rows as used under dryland conditions, this will require 65 to 75 pounds of seed per acre for the Argentine and Dixie Spanish varieties, or 50 to 60 pounds for Spantex and Common Spanish.

Planting Equipment

The greatest difficulty in planting peanuts results from the seeds being crushed or damaged by the dropping plates. The seed coats are very brittle and the kernels are easily damaged. Planter boxes with inclined plates, which can be obtained for some planters, are better than those with horizontal plates for planting peanuts. It may be necessary to enlarge the holes in regular peanut planting plates for large size seed.

Careful testing and regulation of the planter for accuracy in droping and covering is important in obtaining satisfactory stands.

Most planters do not operate satisfactorily when the tractor is driven too fast. A tractor speed of 3 to 5 miles per hour will usually result in more even dropping, more uniform covering, and less damage to the seed.

Size of Seed

The size of peanut seed selected for planting is important.

Experiment station tests indicate that medium and large size seeds produce vigorous seedlings that make more rapid early growth and produce higher yields than small seeds.* There is not sufficient plant food in the small seeds to produce full stands of strong, healthy plants in most years.

Cultivation

Cultivation to control weeds should be started as soon as the plants

*Small seeds are those passing through a 15/64 inch screen and designated in market grades as "Small Shriveled Kernels (SSK)."

are up. The rotary hoe is an excellent implement for breaking crusts, loosening the soil, and destroying small weeds along the rows. It can be used for one or two early cultivations. Either flat sweeps or shallow-cutting shovels can be used for later cultivation.

Frequent stirring of the soil close to the rows, and moving soil in around the peanut plants, apparently increases the damage from Southern blight. If this disease is present, close cultivation should be only enough for weed control.

Peanut rows at left got pre-emergence treatment to control early weed growth. Untreated plot at right is already hidden by rank growth of weeds.

Pre-emergence Treatment for Weed Control

Current research indicates that herbicides, applied as pre-emergence treatments, will give fair to good control of grass and weeds in peanuts for several weeks after planting. The degree of injury to the crop depends upon rates used and the amount of rainfall following treatment.

The herbicides which have given the best results are Alanap 3 and EPTC. Alanap is used at the rate of 3 pounds per acre and EPTC at 3 to 5 pounds per acre. The chemical is mixed with water and sprayed in bands approximately 12 inches wide, di-

rectly over the row. It will usually require 12 to 15 gallons of water per acre. A constant spray pressure of approximately 40 pounds is desirable. Accuracy in application rates is essential. If the rate is too low, treatment will not be effective. If too much chemical is used, severe damage to the peanut plants may occur.

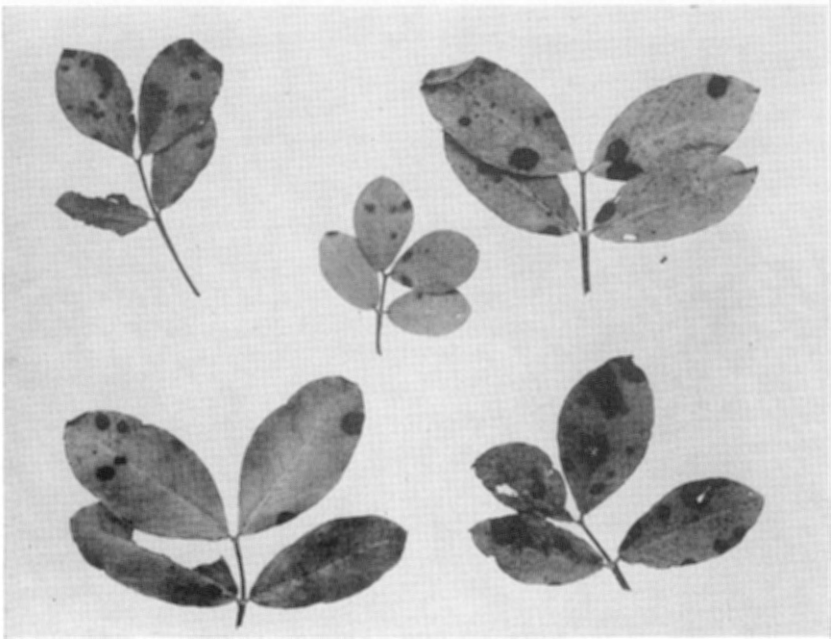
The use of herbicides applied as pre-emergence treatments may be cheaper than hoeing and cultivation to control early weed growth in peanuts.

Peanut Diseases

The most destructive diseases of peanuts in Oklahoma are seed rot, leaf spot, Southern blight, and root-knot nematodes.

Leaf Spot

The black spots on peanut leaves are caused by a fungus parasite known as Cercospora. Severely infected leaves lose their vigor, usually turn yellow and drop from the plant. If many leaves are lost, the



Leaf spot, a destructive disease of peanuts affects leaves like this. Control it with 10-90 peanut dust or by spraying with one of the Dithane formulations.

plants become weakened and yields are reduced. The disease may cause severe injury if there is wet weather during the latter part of the growing season.

Leaf spot can be controlled with dusting sulphur (at least 93% passing through a 325-mesh sieve), if treatment is started early. A copper-sulphur formulation, known as 10-90 Peanut Dust, is somewhat more effective in controlling leaf spot than pure sulphur.

When there is likelihood of serious leaf spot damage, dusting should be started before the spots appear on the leaves. It is best to start dusting when the plants are about 40 days old, using 15 to 20 pounds per acre. Continue the dusting at intervals of 10 days to 2 weeks as long as necessary. If rain removes the dust within 24 hours, repeat the treatment.

Another fungicide known as Dithane has also given good control of leaf spot on peanuts in some areas. This material is prepared in both dust and wettable powder formulations and should be applied according to directions provided by the manufacturer.

Seed Rot

Seed rot is caused by disease organisms which may attack the seed soon after it is planted. Seed decay is most serious when cold, rainy weather occurs at planting time. Chemical treatment of planting seed with a recommended fungicide will give good control in most instances. Recommendations for seed treatment are given on page 11.

Southern Blight

Southern blight, also known as stem rot, is a very destructive disease of peanuts. The organisms attack peanut plants at or near the ground line, destroying the soft tissues of the bark and producing a white fungus growth.

The fungus organism over-winters in the soil and on stems and leaves of the previous crop, from which the disease spreads rapidly when weather conditions are favorable. Peanut leaves and young stems covered with soil during cultivation may be rapidly attacked. Affected branches or entire plants may be killed. Pegs may be destroyed at any stage of development. The disease often attacks and destroys pegs late in the season, leaving nuts in the soil at harvest time.

Southern blight cannot be controlled with regular seed disinfectants. Cultivation without moving soil in around the plants seems to retard

the development of the disease. Pre-emergence treatment to control weeds may make it possible to eliminate early cultivation and thus give some protection to the young plants. Losses from Southern blight and other diseases can be substantially reduced by rotating peanuts with corn, sorghums, small grains, cotton and other crops not affected by these diseases.

Terraclor, a new chemical fungicide, can be used for effective control of Southern blight, according to research scientists of the Texas Agricultural Experiment Station. The chemical may be mixed in the seedbed before planting, mixed in the surface soil over the rows immediately after planting, or sprayed on the soil around the peanut plants with each cultivation. If applied over the row or during cultivation, Terraclor is used at the rate of 15 to 20 pounds of a 75 percent dust per acre. If the chemical is mixed in the seedbed before planting, the rate of application is 20 to 27 pounds per acre. High cost of the treatment will probably limit its use, at least for the present, to irrigated peanut soils where Southern blight is a serious problem.

Root-knot Nematodes

Root-knot nematodes cause considerable damage to peanuts in some areas, particularly on irrigated land. The meadow nematode has also been found in Oklahoma.

The root-knot nematode produces relatively inconspicious knots or galls and excessive lateral roots. Affected root systems appear matted. Plants are stunted and peanut yields, in severely infested fields, may be reduced as much as 75 percent.

If clean land is available, fields known to be infested with nematodes should not be planted to peanuts. If infested land must be used for peanuts, they should be rotated with non-susceptible crops such as cotton and small grains.

If nematode infestation becomes severe, the use of a soil fumigant such as D-D or Telone may be advisable. These materials should be applied in accordance with manufacturer's recommendations.

Harvesting

Peanuts are ready for harvest when the leaves begin to turn yellow, the kernels are fully developed, and the veins inside the pods begin to darken in color.

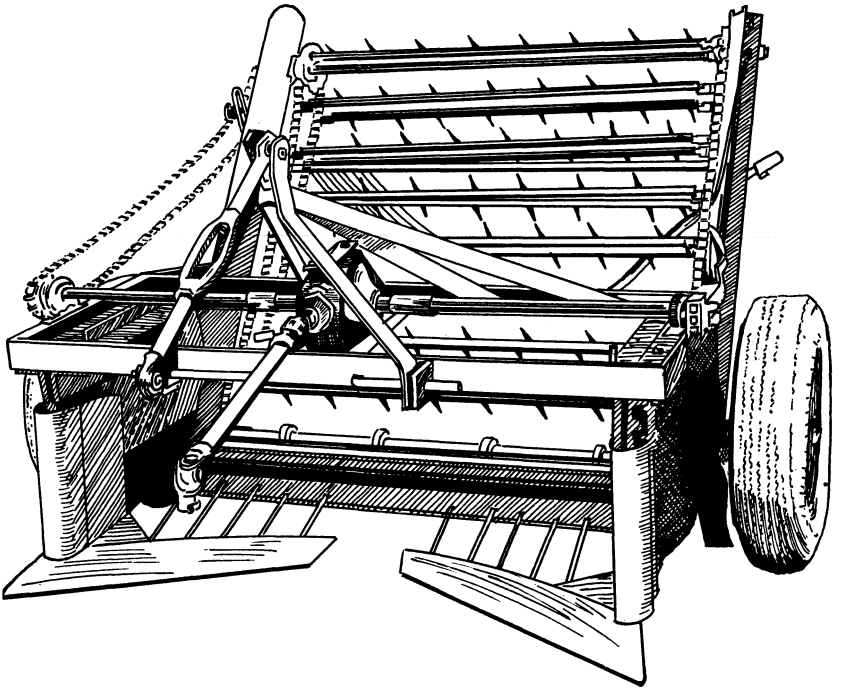
Proper timing of harvest is very important. The branch crop seldom

matures, and waiting for it merely delays harvest beyond the time when the best combination of yield and grade can be obtained. Digging too early will cause shriveled, light-weight kernels. Digging too late may result in losses from sprouting of kernels. Nuts that have matured too long may also separate from the vines in digging, and remain in the soil.

Digging

Peanut vines are loosened from the soil with sharp digger blades that will cut the taproots just below the clusters of nuts. Sweeps or long-bladed half sweeps mounted on the front cultivator frames have generally been used for this purpose. The sweeps cut the taproots and lift the vines out of the soil with the nuts attached. The vines are then moved into windrows with a side-delivery rake or with a shaker-windrower. On dryland where the vines are usually small, these methods are satisfactory.

Digger-shakers are now in general use on most farms where peanuts are grown. These specially designed machines remove the vines from the



Digger-Shaker-Windrower machines like this remove plants from the ground, clean soil from roots and leave peanuts ready for air-drying.

soil, shake, and drop them in rows. More recently, a combination digger-shaker-windrower has been successfully used in some areas. This machine leaves the peanut vines placed loosely in windrows. Thus, all of the hand labor formerly required to shake the vines, place them in rows, and later in stacks, has been eliminated.

According to actual field tests, putting up poles, plowing, shaking, and stacking peanuts requires 18 to 20 man hours per acre. With complete mechanization, less than one man hour per acre is needed.

Curing

The method of forming windrows is important in determining the quality of peanuts. Loose, fluffy windrows permit good air circulation which insures more uniform curing of the nuts. The result is higher yields with better grades that sell for higher prices.

Peanuts cured in properly formed windrows during favorable weather are usually satisfactory, although there is some danger that the quality may be slightly lowered by the shift from stack to windrow curing.

Combining

Efficient operation of the combine is essential in getting good yields and high grades of peanuts. Good combining depends upon the

The modern peanut combine with pickup attachments separates peanuts from the vines after nuts have cured in the windrows.

This is another type of combine used for picking peanuts direct from the winarows. Stacking and threshing operations are less efficient than combining.

efficiency of the pickers, screens, and blowers in the threshing unit, and upon the operator's ability to properly adjust them. In combining peanuts, it is desirable to do three things:

1. Remove all soil particles, trash and other foreign material. A good job of combining will leave not to exceed 3 percent of foreign material.

2. Avoid cracking or breaking the peanut hulls. The presence of loose, shelled kernels (LSK) lowers the grade. Cracking can largely be prevented by proper spacing of the picker teeth and regulating the cylinder speed at not to exceed 400 revolutions per minute.

3. Maximum recovery of nuts. The percentage of nuts recovered in combining will vary, but should average 90 percent or better.

Combining or threshing is usually done while the moisture content of peanuts is still too high for keeping in storage. Curing is then completed by leaving them to air-dry in bags either in the field or under a shed. Peanuts should contain not more than 9 percent of moisture when they are ready for market.

Portable peanut pickers or threshers may still be found in some areas.

Artificial Drying

Under properly controlled conditions, artificial drying of peanuts is quite satisfactory. Drying equipment is expensive, however, and the

method is considered practical only in periods of rainy weather when drying under natural field conditions is not possible. At present, partial curing in the windrows, and finishing the process with artificial drying appears to be more feasible.

Before peanuts are placed in the drier, each lot should be cleaned to remove all stems, leaves, and other foreign material. In artificial drying of peanuts, it is advisable to keep the temperature of the air below 95 degrees. Rapid drying at higher temperatures will impair the flavor and lower the shelling quality of the peanuts. It will also reduce viability which causes deterioration in storage and makes the peanuts undesirable for planting purposes. Drying too slowly, with too little heat and air, may cause mold, discoloration and rancid nuts.

One of the most important factors in the operation of a peanut drier is to avoid over-drying. When the nuts are too dry, many of them will be cracked in shelling. It is advisable to stop the drying operation when the moisture content has been reduced to about 10 percent. The peanuts will lose 2 to 3 percent of moisture within 24 to 48 hours after artificial drying is stopped. The moisture is absorbed by the shells.

Most of the artificial drying of peanuts in Oklahoma is done at central locations, where experienced operators have properly designed equipment and are prepared to clean and dry each lot in a satisfactory manner.

Peanut Hay

Peanut hay of good quality is highly palatable and readily eaten by all kinds of livestock. Well cured, leafy peanut hay compares favorably with other legume hays for dairy and beef cattle. It provides a good legume roughage on many farms where alfalfa is not, or cannot, be grown.

The leaves and small stems of peanut plants are high in protein, vitamin A and minerals. The coarse stems are much lower in palatability and feeding value. Harvesting methods which preserve a high percentage of the leaves and small stems make the hay more valuable for feeding purposes.

Since most of the peanuts are now cured in windrows, the plants usually make poor quality hay. The long period of curing required for the peanuts may cause most of the leaves to drop off, leaving only the bare, coarse stems which are very low in feeding value. In periods of

rainy weather, the plants may become moldy. Furthermore, when the entire crop including nuts, vines and roots is removed from the land, soil fertility is depleted very rapidly. Consequently, it may be better to leave the peanut vines on the land for winter cover and for soil improvement. This is particularly true if the hay is of poor quality and peanuts are grown on the same land continuously.

Market Grades of Peanuts

Peanuts, as they are combined or threshed, often contain varying amounts of loose shelled kernels, and foreign materials such as pieces of stems, leaves and soil particles. These shelled kernels and materials are objectionable; consequently, they lower the grade and market value of the peanuts.

Grade requirements for unshelled Spanish peanuts are shown in the following table:

GRADE STANDARDS FOR UNSHELLED SPANISH PEANUTS

(Percentage based on total weight of sample)

Grade	Tolerance for other varieties	Sound Kernels	Tolerance for damaged kernels
U. S. No. 1	1%	With 70% sound	2% allowance
		With 71% or more sound	3% allowance
U. S. No. 2	1%	With 65% sound	2% allowance
		With 66% sound	3% allowance
		With 67% sound	4% allowance
		With 68% or more sound	5% allowance
U. S. No. 3	1%	With 60% sound	2% allowance
		With 61% sound	3% allowance
		With 62% sound	4% allowance
		With 63% sound	5% allowance
		With 64% or more sound	6% allowance

Peanuts which do not meet requirements for any of the above grades are classed as Sample Grade.

6-59/10M