



Pepper Production

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Production Requirements

Peppers are a warm season crop and require about the same growing conditions as tomato and eggplant. Peppers are very sensitive to light frost and grow poorly when temperatures are in the 40 to 60F range. Extreme summer heat in Oklahoma prevents fruit set in most peppers. Very little fruit set occurs when temperatures are above 90°F during the day or below 60°F at night. Fruits that do set at temperature above 85°F usually are small and poorly shaped. Best yields occur when temperatures range between 65° and 80°F during fruit setting. Some of the small-fruited pungent peppers are more tolerant to high temperature fruit set problems than bell type peppers. The expected yield of bell and other fresh market peppers in Oklahoma under good management is 350 to 400 30-pound cartons per acre.

Sites and Soils

A well-drained, sandy loam soil is ideal for pepper production. Other soil types can be used satisfactorily. Site selection can be important if early yield is desired. For early production the site should have a sandy soil and southern exposure causing the soil to warm quickly in the spring. The site selected should not have been cropped to pepper, tomato, eggplant, or potato during the previous two seasons to avoid diseases.

Types and Varieties

Bell types—Bells are sweet peppers which are grown primarily for fresh market. Their shape is blocky with 3 to 4 lobes and thick flesh. Most are green when immature and red when ripe. Varieties that perform well in Oklahoma are Keystone Resistant Giant, Yolo Wonder, California Wonder 300, Lady Bell, Hybelle, and Pip. Most require 75 to 80 days from transplanting to harvest.

Chili type—Chili peppers are pungent and thin fleshed. Chili varieties differ in size and shape from cherries to slender fruits up to 8 inches long. Varieties to grow include El Paso, College 64L, and Anaheim M. They require about 100 days from transplanting to mature green fruit and 140 days to red ripe fruit.

Other types—Several smaller fruited, pungent varieties are grown in Oklahoma for the fresh market. Jalapeno and Serrano are both green fruited. Caloro and Santa Fe Grande are yellow fruited varieties. Jalapeno varieties recommended are Jalapeno M and the mild jalapeno developed by Texas A&M University, TAM Mild 1. TAM Mild 1 jalapeno is reported to be about one-third as pungent as Jalapeno M.

Soil pH and Fertilizer

Peppers are fairly tolerant to soil pH as low as 5.5. Apply lime if soil pH is too low. Based on OSU soil test results the following amounts of P₂O₅ and K₂O are recommended.

Phosphorus per acre

When test shows	0-19	20-39	40-69	70 +
Add lbs. P ₂ O ₅ /A	80	60	30	none

Potassium per acre

When test shows	0-99	100-149	150-199	200-249	250 +
Add lbs K ₂ O/A	200	150	100	50	none

Nitrogen—Apply 50 lbs./A preplant incorporated along with recommended P₂O₅ and K₂O. When first fruit are set topdress or sidedress with an additional 50 lbs. N/A. Additional N may be needed later in the season if loss of N by leaching has occurred. The plants must grow rapidly after being transplanted to prevent blooming and fruit set while they are too small. Fruit-setting on small plants stunts their growth. Stunted plants fail to develop the size needed to produce a good crop of fruit and provide good foliage cover to protect fruit from sunscald. Apply one cup starter solution per plant at time of transplanting to reduce transplant shock and promote rapid early growth. A starter solution can be made using 3 lbs. of 15-30-15 per 50 gallons of water.

Planting and Spacing

Peppers are usually transplanted but can be direct seeded. Transplanting offers several advantages over field seeding: weed control is much easier; fruit set occurs before high summer temperatures develop; a field stand is much easier to obtain using transplants; and hybrid varieties can be used since only 4 ounces of seed are needed to grow plants for one acre compared to 2 pounds for direct field seeding.

Pepper transplants are usually greenhouse grown and require 6 to 8 weeks from seeding to transplant size. See OSU Extension Fact Sheet 6020 for detailed information on transplant production. Transplant only healthy and disease-free plants. Pepper transplants can be set by machine or hand. Firm the soil around the roots and apply a starter fertilizer solution for quick plant recovery. Peppers are usually transplanted 14 to 16 inches apart on 36 inch rows. About 11,000 plants are required per acre. Transplanting must be delayed until the danger of late spring frost is past to avoid frost injury.

Transplanting peppers through black plastic mulch will increase early plant growth and promote earlier production. A premium price must be expected from the early production to offset the added production expense from using plastic mulch.

Cultivation and Chemical Weed Control

Shallow mechanical cultivation and hand hoeing are needed to control weeds. Pruning roots with cultivating equipment slows plant development, reduces yield and promotes blossom end rot. Several preemergence herbicides are available that will control germinating weeds and grasses in transplanted peppers if used properly. Consult the most recent revision of OSU Extension Facts No. 6008 or the latest edition of the Extension Agents' Handbook.

Insects

Early in the season, cutworms are the most damaging pests of both seeded and transplanted peppers. Seeded peppers are also subject to attack by flea beetles when the cotyledon emerge. Green peach aphids can become numerous at any time but are probably more prevalent during the summer. Besides the stress created by aphids feeding on plant sap, their honeydew gets on the fruit and leaves. Honeydew is difficult to remove from the fruit and can render the fruit unmarketable. Its presence on the leaves, if heavy enough, can decrease photosynthesis due to the growth of sooty mold. Hornworms and blister beetles, if present in large numbers, may warrant treatments. Occasionally loopers will feed on the foliage, exposing the pods to sunscald. Fall and beet armyworms as well as the yellow-striped armyworms are possible pod feeders along with the variegated cutworm. The beet armyworm will also feed on the foliage. The corn earworm will feed on the pods and cause the pods to drop or to be unmarketable. For specific insect control measures, see the latest edition of the Extension Agents' Handbook or OSU Extension Circular E827.

Diseases

Bell peppers are subject to several diseases in Oklahoma. Seeds and seedlings may become infected with damping off fungi. Phytophthora root rot causes rotting of the roots and underground portions of the stems. Infected plants suddenly wilt and die. Most recommended varieties are resistant to tobacco mosaic virus; however, several other virus can infect peppers. Leaves may become infected by anthracnose fungi, by Cercospora leaf spot fungus, and by the bacterial spot bacterium. Pepper fruits are subject to blossom end rot, sunscald, bacterial spot, bacterial soft rot and to Alternaria fruit rot (ripe rot). Descriptions of the above diseases and recommended control measures are available in the Extension Agents' Handbook and Extension Circular E827.

Irrigation

Irrigate peppers with moderate amounts of water since they root 3 to 4 feet deep but have many shallow roots. Irrigate to maintain a uniform soil moisture to promote uniform growth and fruit setting. Long dry periods may cause plants to shed flowers and small fruits. Plants are likely to make a slow recovery after drought injury. Over-irrigation promotes Phytophthora and other root-rotting organisms.

Harvesting and Handling

Green bell peppers should be harvested before any chocolate or red color develops. They should be full grown and feel firm and crisp when squeezed. Fruits are snapped off by hand and carried from the field in buckets or sacks. Pepper plants have brittle branches that break easily during harvest. Use care during harvest to avoid yield reduction due to plant damage. Harvest at regular intervals to maintain production.

Grade and remove pods showing sunscald, disease, or damage. The size requirement for U.S. No. 1 peppers is a minimum of 2 1/2 inch diameter and 2 1/2 inch length. Marketable peppers should be carefully wiped with a soft cloth to remove soil and dust. Do not wash to minimize fruit rot after harvest. If peppers are to be sold on the fresh market, growers should pack in the type container desired by their market. Thirty pound cartons are commonly used containers.

Mature green peppers hold best at temperatures between 45° and 50°F. Do not hold at temperatures below 45°F. Under the best conditions peppers can be stored for about 2 weeks.

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