



Producing Citrus in Florida

Congratulations, you've just inherited an orange grove. You are now one of 10,000 citrus growers in Florida, and you own 4,000 of your very own citrus trees! Each of your fellow classmates just became grove owners as well, and they also have 4,000 of their very own trees.

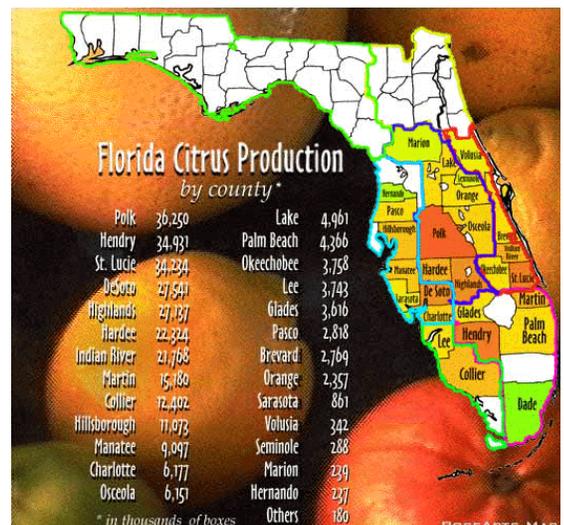
As a grower, you are up-to-date with the best methods and technology. Compared to growers who used to plant only 70 trees per acre, you can now plant 140 trees in that same acre, thus producing more fruit.

As a grove owner, you will need several things to successfully grow citrus fruit. Those needed things include: sunny warmth to grow fruit; insects such as bees, for pollination; rainfall to keep trees from wilting; cool nights to give color and taste to mature fruit; pest management strategies; well-drained soil so tree roots don't stay too wet; drip irrigation so trees get enough water (Florida's rain drains away in its sandy soil); and fertilizer application.

Your grove will take plenty of effort and costly equipment. As a grove owner, you might need the following: tractor, grove mower, fertilizing equipment, irrigation system, trucks, picking bags, other equipment. In addition to the cost of this equipment, many state, federal, and local regulations will add extra costs to your grove operations.

A mature orange tree can grow 1,250 oranges if you properly care for and fertilize the tree. In your grove, 75 percent of your 4,000 trees are orange trees and 50 percent of your orange trees are mature, thus producing at their peak; 1,200 oranges per tree. Another 40 percent of your trees produce about 600 oranges annually. While the other 10 percent of your trees are newly planted and too young to produce fruit for market.

Fortunately, you won't have to pick all these oranges yourself. You will hire grove workers that carry canvas, picking bags over their shoulders and can pick more than 7000 pounds of fruit per day. The pickers' bags are emptied into pallet boxes that can hold 900 pounds of fruit. The pallet boxes are then loaded onto trucks and your oranges are taken to a nearby packing house or processing plant.





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Name _____

Based on what you read, answer the following questions. Show your work for each problem.

1. How many trees are you and your class as “growers” caring for all together?
2. On how many acres are your 4,000 trees growing?
3. Suppose your technology wasn't up to date and you could still only plant 70 trees per acre. How many acres would it take to plant your 4,000 trees?
4. If you had the 29 acres that it would currently take to plant your 4,000 trees, but could only plant 70 trees per acre compared to 140 per acre, how many trees of your 4,000 could not be planted?
5. How many oranges might you be picking each year? (Refer to the last paragraph to help you determine this.)
6. How many of your orange trees are newly planted and unable to produce fruit?
7. Use one of the scales and weigh 10 oranges. Record the weight for each orange. Find the average weight. If grove pickers were picking the same type of oranges you weighed, approximately how many oranges could they pick each day?



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Name Answer Key

Based on what you read, answer the following questions. Show your work for each problem.

1. How many trees are you and your class as “growers” caring for all together?

4000 trees × number of students in the class

2. On how many acres are your 4,000 trees growing?

4000 ÷ 140 = approximately 29 acres

3. Suppose your technology wasn't up to date and you could still only plant 70 trees per acre.

How many acres would it take to plant your 4,000 trees?

4000 trees ÷ 70 trees per acre = 57 acres

4. If you had the 29 acres that it would currently take to plant your 4,000 trees, but could only plant 70 trees per acre compared to 140 per acre, how many trees of your 4,000 could not be planted?

140 ÷ 70 = 2 4000 ÷ 2 = 2000 trees could not be planted

5. How many oranges might you be picking each year? (Refer to the last paragraph to help you determine this.)

75% of 4,000 total trees (.75 x 4000) = 3000 orange trees

50% of 3,000 citrus trees (.5 x 3,000) = 1500 mature trees

1,500 mature trees x 1,200 oranges per tree = 1,800,000 oranges

40% of 3,000 citrus trees (.4 x 3000) = 1200 trees

1,200 trees x 600 oranges per tree = 720,000 oranges

1,800,000 oranges + 720,000 oranges = 2,520,000 total oranges picked each year

6. How many of your orange trees are newly planted and unable to produce fruit?

10% of 3000 trees (.1 x 3000) = 300 newly planted trees with no fruit

7. Use one of the scales and weigh 10 oranges. Record the weight for each orange. Find the average weight. If grove pickers were picking the same type of oranges you weighed, approximately how many oranges could they pick each day?

Average weight of oranges x 7000 lbs. of oranges per day = approx _____ oranges