

Pecans: The Native Tree Nut

Pecans are the only native tree nuts grown for commercial use in the United States. The other major tree nuts have their origins in Asia, the Middle East, and Australia. The black walnut is also a native American tree, however, its commercial production is very limited. Almost all the walnuts grown commercially in the United States are of the English walnut variety, originating in Iran.

Pecan production also differs from the other domestic tree nuts. Most of the other nuts are grown in concentrated areas, with the greatest concentration located in the Central Valley in California. Pecan production, on the other hand, is dispersed throughout many of the southern and southwestern States. The major production is from Georgia, Texas, and New Mexico. Other big producers include Arizona, Oklahoma, Alabama, and Louisiana. The United States Department of Agriculture's National Agricultural Statistics Service reports 14 States produce commercial pecan crops.

The pecan tree is native to the southwestern United States, along the Mississippi River up to Indiana and Illinois, and into Mexico. As a result, the United States ranks number one in the world in pecan production, with Mexican production ranking second, and growing. Chihuahua is Mexico's leading producer, accounting for about 70 percent of the country's crop. Smaller crops are also produced in Australia, Brazil, Israel, Peru, and South Africa.

Pecan production in the United States is divided into two groups, trees that are classified as native/seedling varieties and improved varieties. The improved varieties of pecan trees have accounted for over three-quarters of national production over the past 3 years.

The native/seedling variety is self-setting or grown from seed into a seedling. These trees have not been grafted or budded as are many fruit and nut trees today to obtain maximum production consistency and favorable attributes in the final product. Commercial varieties have been improved through selective breeding and grafting. Because the improved varieties have been created using the best attributes of

the tree, the nuts are larger and yields are higher. While both varieties are alternate bearing in nature, producing a large crop one year followed by a smaller crop the next year, native trees exhibit more alternate-bearing patterns, often producing extreme shifts in production levels from year to year.

Georgia Produces the Most Pecans in the United States

Georgia accounts for about a third of the U.S. pecan production during normal production years. In a year, such as 2002, where Georgia's crop declined sharply as a result of adverse weather conditions and the off cycle of production, its share of the national total fell to 25 percent. Improved varieties account for more than three-fourths of the State's crop.

Texas is the second biggest pecan producer in the United States, followed closely by New Mexico. According to the 1997 Census of Agriculture, Texas accounts for a third of all the pecan farms, acreage, and trees planted in the United States. In fact, Texas has almost twice the number of trees planted as Georgia, the State with the second greatest number of trees. While improved variety trees account for about two-thirds of Texas' production, the native/seedling varieties are still very prevalent in the State. There are many small growers, harvesting crops from small groves and even from backyard production.

New Mexico's pecan production is new, relative to Texas, and all of its production is from improved varieties. While it accounts for only 6 percent of the acreage, it accounts for about 12 percent of the trees. New, improved varieties do not need as much space between trees and can be more closely planted than the native varieties. As such, fewer acres are needed to produce a crop comparable in size to the bigger States. In 2001 and 2002, New Mexico's production accounted for about a fifth of the national total.

Oklahoma has the third greatest number of farms and acreage planted to pecans. Its production, however, ranks about fifth place because its crop is heavily reliant on native/seedling varieties.

The Pecan-Production Area is More Dispersed and Farms Are Often Smaller Than for Other Tree Nut Crops

Due to the large amount of native/seedling variety trees in pecan production today, there are more farms involved in pecan production than all other tree nut farms aggregated (according to the 1997 Census of Agriculture). For optimum production, the native/seedling varieties need to be planted with more space between them than most other commercially grown nut trees. As a result, pecan acreage is high, with more acreage in production than any other nut trees except almonds. In terms of quantity produced, however, pecan production ranks third, behind almonds and walnuts.

The geographic dispersion of native pecan production makes it difficult to survey and as a result there is no annual national level data on pecan acreage. A commercial pecan grower can have anywhere from a few trees in the backyard to many acres. Acreage, however, is reported by the Census of Agriculture. According to the 1997 Census of Agriculture, the average farm consists of 26 acres, with only Georgia farms, among the major producers averaging more acres than the national average.

The typical pecan orchard averaged 19 trees per acre, according to the Census data. Georgia averaged 15 trees per acre, while New Mexico with only improved varieties, averaged 42 trees per acre. The planting pattern for improved pecan trees is similar to the English walnut with an average of 44 trees per acre, but much lower than either almonds or pistachio plantings that average 90 and 116 trees, respectively.

Due to the wider spacing between trees in native/seedling pecan groves, many producers also include livestock grazing as part of their management programs. Intercropping with other crops, such as vegetables and field crops is also common, especially in the spring before the trees form their leaf canopy. By incorporating other commodities growers are able to improve their returns on their pecan acreage.

Most of Pecan Crop Sold During the First Few Months Following the Harvest

Unlike other tree nuts, pecan growers usually sell their crop right after harvesting. Because so many producers are small, they do not have the proper

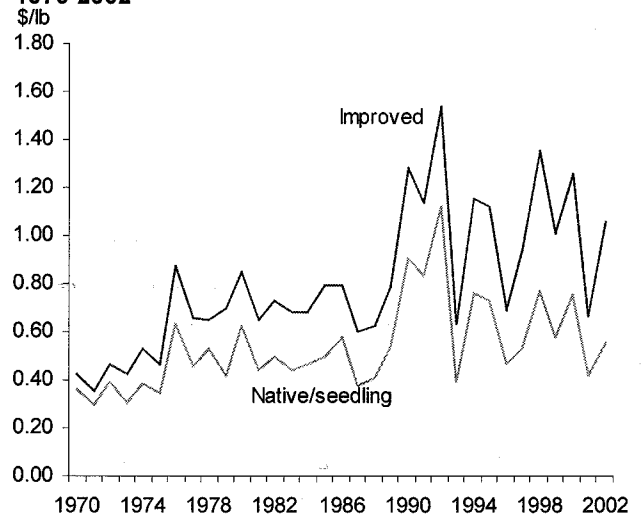
facilities to store their crop and sell it throughout the year, which could help stabilize and/or boost prices.

Instead, growers sell their nuts, in-shell to accumulators. Accumulators act as brokers who sell the nuts to shellers and pay the growers a percentage based on the final price they receive for the crop. In turn, shellers sell the processed (shelled nuts) to end users, such as confectioners, ice cream makers, and similar products. Industrial end users account for almost 90 percent of the market.

Nut Attributes Important Factor In Determining Grower Price

The price growers receive for their pecans depends on the crop's quality as well as the size of production for the year. Quality is determined by the percentage of kernel in the shell, the color of the kernel, with light brown color being more highly favored, shell thickness, and the oil content of the kernel. Improved variety pecans tend to have more of the favorable attributes demanded from pecans and as a result they command a higher price (fig. 5). Both the light color and the more-perfect halving of these varieties make them more highly demanded by the retail sector, further increasing prices. Improved varieties also

Figure 5
Pecans: Seasonal average grower prices by variety, 1970-2002



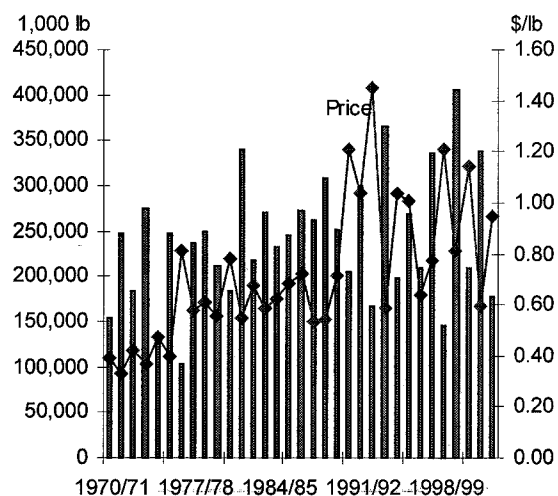
Source: National Agricultural Statistics Service, USDA.

have thinner shells, a favorable attribute for shellers because they reduce processing costs since a nut needs fewer hits to release the kernel from the shell. Offsetting the higher returns to improved variety growers is the higher cost of managing the orchards, compared with managing a native grove.

Production Extremes Increasing In Recent Years

While alternate-bearing production is common for nut trees, and pecans in particular, in recent years, the swings in the size of the annual pecan crop has grown more extreme (fig. 6). As a result, price swings have also increased. The increase in swings is largely due to improved variety trees planted in the early nineties becoming mature. Once the trees mature, growers need to control the size of the orchard canopy to allow the maximum amount of sunlight to get through to the trees and provide enough light for the trees to maximize nut production. Many growers, however, have not been doing the necessary pruning, partially

Figure 6
Pecan production and grower price, 1970/71-2002/03f



f = forecast.
Source: National Agricultural Statistics Service, USDA.

due to reduced prices lowering the amount of inputs, including labor, into orchard management. Hence, both production and price have grown volatile in recent years.

As a result of the strong production and price correlation that have become quite evident in recent years, end users have increasingly shifted their purchases to big crop years when prices will be lower. As a result, they have reduced purchases during the off years, which has been putting downward pressure on prices during those years when they would normally be higher. In response to this trend, many growers of native variety trees are putting less management time and inputs into their groves during the off season, which may affect production down the road. Growers of improved varieties need to continue their management practices if they are to benefit from planting improved varieties.

Pecan Prices Peaked in the Nineties

Pecan grower prices were the highest in the early nineties when returns averaged \$1.23 a pound. Prices grew at an average rate of 12 percent annually throughout the nineties. The rapid growth has continued in recent years, and over the past 3 years, growers have been experiencing an annual growth averaging 17-percent since 2000. The rapid growth in prices in the nineties is likely a result of the increased proportion of the crop that is the higher valued, improved variety. Since the late nineties, improved variety pecans comprised about three-quarters of the annual crop. In the seventies, they accounted for only about half of production.

As a result of improved prices for growers beginning in the nineties, pecan growers began receiving higher prices for their nuts than have producers of several of the other major, domestically produced tree nuts. Since 1990, on a per-pound, shelled basis, pecan grower prices have been higher than they have been for walnuts, almonds, and hazelnuts. Only prices for macadamia nuts and pistachios averaged higher.

The value of the pecan crop has averaged \$257 million annually over the past 3 years. The crop reached its peak value in 1999/2000 at \$330 million when a record crop was produced following a low production year. As a result, while prices fell cyclically since then, they were still strong. Since 1999/2000, crop value has returned to more normal levels.

Imports Increasingly Important Part of the U.S. Market

The U.S. market has become increasingly reliant on pecan imports, almost all from Mexico, to fulfill supply needs. Until the mid-eighties, the United States had been a net exporter of pecans, however, since then imports shot up, and have been increasing since the mid-nineties. Mexican pecans are reported to be of high quality since much of what is exported is from improved variety trees. The lower humidity in Mexico's production region, compared with Georgia and Texas, produces a light-color nut and high percentage of kernel to shell, commanding higher prices than growers would receive on the Mexican market. As a result, Mexico ships its best pecans to the United States, leaving the lower quality nuts for its domestic markets. If domestic supplies are low, imports of lower-quality pecans from the United States are brought in to make up the difference.

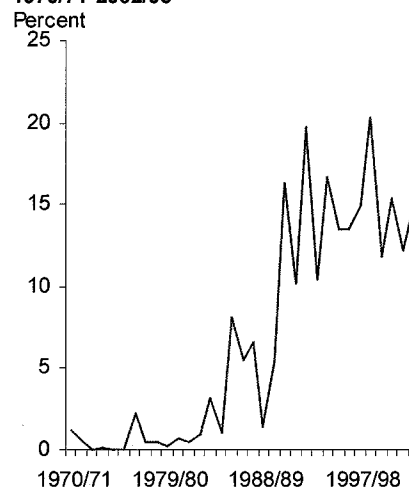
Imports as a share of domestic supply have increased from less than 1 percent in the early seventies to an average of 14 percent during the past three marketing seasons (fig. 7). The growth in Mexico's production, along with the volatility of the U.S. crop, and increased international demand for U.S. pecans have all driven the rising imports.

Export Markets Also Growing Demand for Pecans

While the nineties saw a growth in imports of pecans into the United States, it was also a time when exports began to take off. While imports grew very rapidly in the seventies and eighties, the trend has slowed in recent years, with an average increase of 2 percent since the mid-nineties (fig. 8). Exports, on the other hand, have grown an average of 9 percent annually and show less variability from year to year. Similar to Mexico, U.S. shellers are likely selling their highest quality pecans overseas to get the highest prices and importing from Mexico to make up the difference as well as to reduce the valley and peaks in domestic supply.

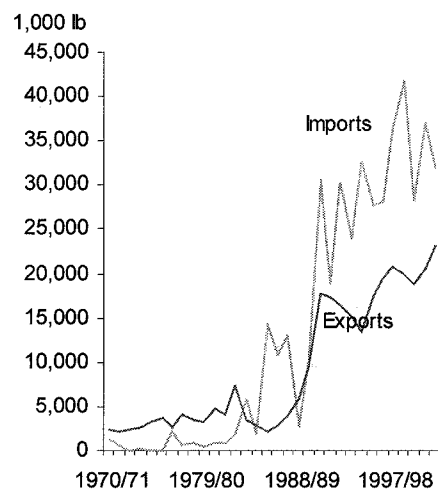
Mexico is the major market for in-shell pecan exports. It usually purchases about three-quarters of all the in-shell pecans that the United States exports, with some years being lower depending on its own

Figure 7
Pecan imports as a share of domestic supply,
1970/71-2002/03



Source: Economic Research Service, USDA.

Figure 8
U.S. pecan trade, 1970/71-2001/02



Source: Bureau of the Census, U.S. Dept. of Commerce.

crop size. Over the past 2 years, China's markets have been growing rapidly. In-shell pecan exports to China were nonexistent until 1999/2000 and as of March 2003, it has become the second biggest market. Hong Kong has periodically received pecan shipments throughout the nineties, but its demand for the nuts has grown substantially recently.

Canada and the European Union are the biggest customers for shelled pecans outside the United States. Canada typically accounts for about 40

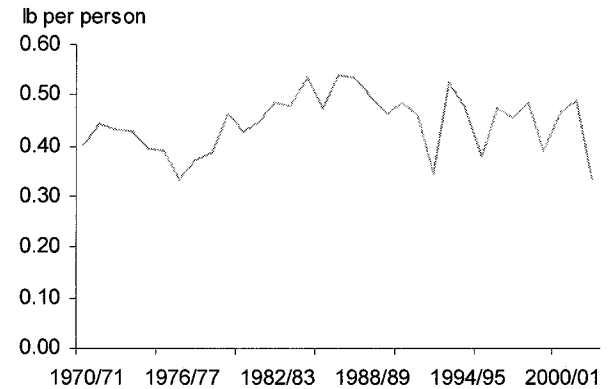
percent of the pecan shipments over the past several years. For the present marketing season through March, however, Canada's share has declined as shipments have leaped to Hong Kong and Mexico.

It appears that China has the potential in the future to become an increasingly important market for pecans. The Mexican market may also be shifting some of its demand to the more higher-valued products as incomes rise within the country.

Pecans Are the Second Most Popular Tree Nut Among Consumers

Per capita pecan consumption averaged 0.48 pound annually since 2000, slightly greater than walnut consumption but behind that of almonds. Pecan consumption has remained relatively stable over the past 30 years despite increased competition from other tree nuts due to the tremendous growth in almond and slower, but steady increase in walnut production (fig. 9). Domestic pistachio production was also introduced into the United States about 25 years ago and has grown rapidly. The movement

Figure 9
Annual average per capita pecan consumption, 1970/71-2002/03 f



f = forecast.
 Source: Economic Research Service, USDA.

towards increased production of improved, higher quality pecans has helped in maintaining consumption levels. Also, a big contributing factor is the traditional use of pecans in recipes during the fall and winter holidays, where substitutes are less acceptable.