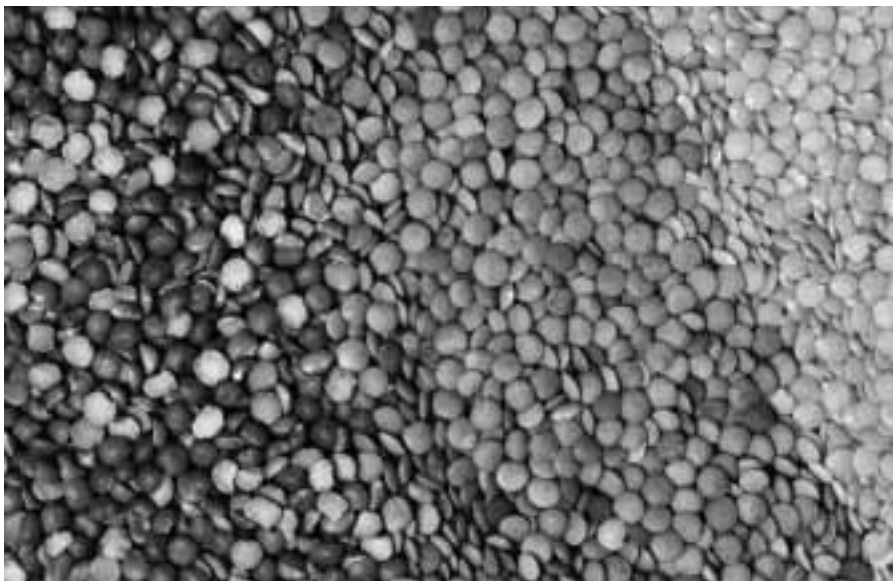


Commodity Spotlight



Will the Farm Act Get Pulses Racing?

Dry peas, lentils, and small chickpeas—pulse crops—are relatively minor in acreage, supply, and use in the U.S. compared with corn, soybeans, and wheat. However, pulses could be poised for expansion due to their inclusion in the 2002 Farm Act. New marketing loan benefits, combined with agronomic advantages and a growing number of processors, may increase the attractiveness of planting pulse crops, particularly in the Northern Great Plains. Accommodating increased supply is likely to hinge on expanding current markets and creating new ones.

Location, Location...

In the U.S., dry peas and lentils have traditionally been produced in the Palouse, an area centered along the borders of eastern Washington, northern Idaho, and northeast Oregon. Chickpeas, on the other hand, have long been grown in California. Since the mid-1990s, acreage of all 3 crops has expanded to the Northern Great Plains, with North Dakota emerging as the region's leader.

Most dry peas grown in the U.S. are green, but yellow pea acreage increased 12-fold between 1993 and 2001. Harvested acreage of green peas and lentils has

trended upward slightly over time. Chickpea acreage has soared since the late 1980s, reaching 128,000 in 2001.

The relatively flat terrain of the Northern Great Plains is more conducive to large-scale pulse production than the steep hills and valleys of the Palouse. Pulse production in the Pacific Northwest requires specialized harvesting equipment, while farmers in the Northern Great Plains use standard equipment (the same machinery as for cereal grains) to harvest their crops, giving them a cost advantage over growers in the Palouse. Abundance of relatively inexpensive land in the Northern Great Plains compared with the Pacific Northwest is another factor in the rapid expan-

Small Chickpeas: How Small?

Small chickpeas are defined as those that drop through a 20/64 screen. Both the desi and kabuli types can meet this definition. Desi chickpeas are naturally small, but the kabuli type is generally larger. Kabuli chickpeas may fall through the sieve if they are small-sized varieties or have been affected by adverse weather and/or agronomic conditions.

sion of pulse production in the Northern Great Plains.

The two regions differ somewhat in the pest problems they face. Pulse production in the Palouse may be affected by insect pests, fungi, and diseases. While farmers in the Northern Great Plains typically do not experience severe insect infestations, they deal with more severe fungi and disease problems than do farmers in the Palouse. However, this situation may change if aphid and lygus bug infestations become more severe and economically costly in the Northern Great Plains.

One of the primary problems affecting pulse crops is aschochyta blight, a lesion-causing fungus that devastates chickpeas and severely damages lentils. Peas may be afflicted by powdery mildew, which stunts growth and affects seed yield and quality, and by fusarium wilt, which results in seed decay and collapse of the plant from rotting roots. Lentils can be adversely affected by powdery mildew as well as by sclerotinia white mold.

Lack of commercial pesticides makes pest control difficult. In the past, chemical companies did not register their products for these crops with regulatory authorities due to the high research and development costs and the relatively small sales compared with other field crops. In crop protection, there are two types of approval for chemical usage: full-label and Section 18. Full-label products are granted complete approval, and sales are unrestricted. Section 18 approval allows the U.S. Environmental Protection Agency to permit emergency use of unregistered pesticides for a temporary period of time—usually one growing season—under special circumstances, such as disease, heavy pest pressures, or ineffectiveness of other products. Producers will have more pest control options as chemical companies register their products for pulses.

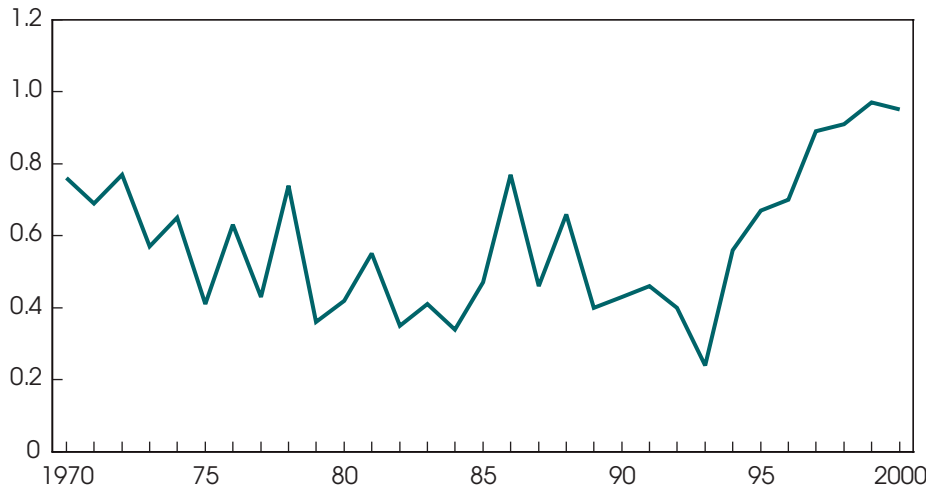
Marketing at Home & Abroad

The USA Dry Pea and Lentil Council (USADPLC), an industry group, is the primary organization promoting dry peas, lentils, and chickpeas. The USADPLC emphasizes premium quality, and thus, most U.S. pulses are channeled to food use (domestic and export). Current studies

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U.S. Dry Pea and Lentil Consumption Has Grown Rapidly Since Early 1990s

Lbs. per capita



Economic Research Service, USDA

conducted by USDA's Agricultural Research Service and land-grant universities on dry peas and lentils are focusing on increasing yields, multiple disease resistance, sustainability and agronomic adaptation, seed shape and color, and cooking characteristics. For chickpeas, these organizations are working to increase resistance to aschochyta blight and to develop a large seed. In some markets, such as in India, price premiums are paid for larger seeds. State trade associations are also involved in marketing and research.

Low prices in the domestic and world markets (relative to U.S. production costs) have limited pulse production in the U.S. Also dampening production prior to 2002 was uncertainty over benefits relative to other crops that receive government payments—the marketing loan gains and loan deficiency payments that shield growers from substantial price risk. Thus, many producers opted for program crops with marketing loans, and grew pulses only when they were agronomically beneficial.

Virtually all pulses are marketed through processors. Pulses are sold to processors who clean, sort, and grade them. Processors decorticate (shell) lentils and split peas for the domestic market, but exports are usually cleaned only. Chickpeas are not typically split.

A portion of production is grown under contract, but over 80 percent is sold in the spot market. Contracts usually specify both quantity and price. Processors may contract with growers to ensure that they fulfill their own contracts with food manufacturers. In many cases, growers sell their crops to the processors that sold them seed. Longstanding relationships have developed between producers and processors, since the number of processors is relatively small.

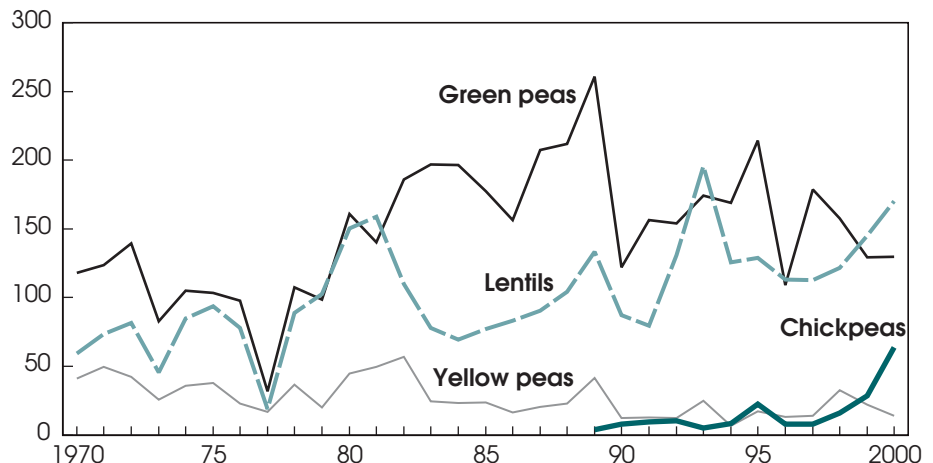
Domestic pulse prices are based on USDA grading standards. While prices are discounted for lower quality, premiums are sometimes paid for quality superior to the U.S. No. 1 grade (e.g., Spanish-quality lentils and high-quality green peas). Some processors believe that the quality of pulse crops in the Palouse is more consistent than in the Northern Great Plains.

Processors base payments to producers, in part, on processor margins and world prices. In the case of dry peas, U.S. prices are greatly affected by Canadian supply. Canada is the world's largest producer of dry peas, and Canadian infrastructure keeps shipping costs relatively low. Canadian dry peas are transported by rail to export ports in bulk quantities, and the newer and larger port facilities have invested in high-speed equipment that loads product directly onto ocean vessels without damage.

Prices received by U.S. lentil growers depend primarily on demand from India, where consumption is high and production usually falls short of use. In that country, wheat and rice are more attractive because they are higher yielding and more profitable than pulses. The Indian government also offers procurement programs and higher support prices for wheat and rice. Exportable supplies from major

U.S. Expanding Chickpea and Lentil Exports

Million lbs.



Source: Global Agricultural Trade System, Foreign Agricultural Service, USDA.
Economic Research Service, USDA

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Pulses Add Nitrogen to the Mix

Dry peas, lentils, and small chickpeas fall within the general category of “pulse crops,” which are members of the *leguminosae* (pea) family. The ability to fix nitrogen in the soil reduces the need for fertilizers. For this reason, pulses are generally grown in rotation with other crops.

Specifically, bacteria in the soil called rhizobia infect the roots and form nodules that take gaseous nitrogen from the air and convert it into a form plants can use. Pulses have a high nitrogen requirement, and inoculants are often used to increase the rhizobia population in the soil and aid the nitrogen fixation process. Inoculants may be used to treat either the seed or the soil. Granular-based inoculants are costly but popular, due to their ease of use.

competitors (Australian and Canadian) also affect U.S. lentil prices.

Domestic chickpea prices depend on conditions in major foreign markets such as Turkey and Mexico. Stiffening global competition and larger domestic supply have led to declining U.S. pulse prices.

Dry peas, lentils and chickpeas are branded by processors in the Palouse, but not in the Northern Great Plains where the industry is still developing. Product branding will likely appear in North Dakota in the near future. Processors use brand names and logos to invoke images of quality and instill loyalty among customers. In most instances, one brand covers several different kinds of pulses. Some processors use different brand names to indicate various quality levels. Several firms use different product lines for domestic and export markets.

U.S. domestic food use of dry peas, lentils, and chickpeas is small, with pulses sold mainly to food manufacturers (e.g., soup makers) and bagged for sale in grocery stores. U.S. per capita dry pea and lentil consumption (all uses) has remained below 1 pound annually for three decades. While per capita consumption declined for many years, it rose rapidly in the latter half of the 1990s as output expanded in the Northern Great Plains, although it is unclear whether the additional supply was used for human consumption or for feed.

In recent years, 47 percent of dry pea and lentil production was exported for feed and food uses, including U.S. food aid. Export shipments of yellow peas and chickpeas were significantly smaller. In 2001, a large portion of dry pea exports

was shipped to the Philippines, the European Union (EU), Canada, and India. The EU uses dry peas for animal feed, while Canada is strictly a pass-through market, with U.S. shipments continuing on to other countries. In 2001, the U.S. exported most of its lentils to the EU and African countries. The primary markets for larger, U.S. kabuli chickpeas are India, Canada, and the EU (especially Spain). USDA's Commodity Credit Corporation (CCC) is a substantial purchaser of pulses. The CCC obtains commodities from processors and then ships them as food aid (particularly to African nations).

The USADPLC is attempting to expand sales of high-quality U.S. products (particularly lentils and canned peas) in the EU. Following successful efforts in Spain, the organization is focusing on Italy, Germany, and France. The association is also marketing food-grade peas and value-added items (snacks and canned peas) in Southeast Asia, especially the Philippines and Indonesia.

Feed peas are also being promoted in Southeast Asia and China, where they are used to manufacture starch. In addition, the USADPLC is taking steps to promote high-quality, branded U.S. products (such as chickpeas) in the Middle East and North Africa to meet demands of the rising middle class in those regions.

Most processors export through brokers rather than directly, as brokers typically have many contacts and specialize in certain markets. In addition, brokers are knowledgeable about designing contracts and have the financial capability to absorb risks (e.g., currency fluctuations and default). In certain instances, large proces-

sors export directly, usually to low-risk countries such as Europe and, to a lesser extent, Asia.

Due to its relatively high pulse prices, the U.S. is at a disadvantage in the world market. The price levels are primarily the result of four factors:

- U.S. pulses are high-quality commodities, commanding price premiums. Many price-sensitive segments of foreign markets are unwilling to pay significant premiums for U.S. quality, especially when lower cost pulses from other countries are plentiful. For example, India imports many of its pulses from Burma, Canada, and Australia, where both prices and quality are lower than in the U.S.
- U.S. transportation costs are relatively high. Long distances cause high trucking costs, particularly in the Northern Great Plains. Rail rates to ports are also high.
- U.S. exporters bag and containerize shipments in order to maintain quality. While this results in less product damage, the process is more costly than bulk shipping.
- The high value of the U.S. dollar relative to other currencies makes U.S. exports more expensive than those from other countries.

The U.S. competitive position is also affected by the relatively small acreage planted to dry peas, lentils, and chickpeas. This makes it difficult for the U.S. to consistently produce enough pulses to supply countries that could rely on them as a primary source of protein (e.g., India) or animal feed.

New Marketing Loan Programs: How Much Impact?

The new marketing loan programs in the 2002 Farm Act mark the first time that pulse growers can receive farm program benefits if prices are low. Supporters expected these programs to help stabilize producer revenue, expand existing markets, and develop new ones. During the 2002/03 and 2003/04 crop years, loan

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rates are set at \$6.33 per cwt for dry peas, \$11.94 per cwt for lentils, and \$7.56 per cwt for small chickpeas. Loan rates will average about \$0.12 per cwt lower in the 2004/05-2007/08 crop years.

USDA's Farm Service Agency announced that the loan rates and repayment rates for these pulse crops will reflect U.S. No. 1 grade quality. However, discounts will be applied to both loan and repayment rates for grades of lower quality that are placed under loan. All grades of a particular commodity will be eligible for a marketing loan benefit payment equal to the difference between the commodity's national loan rate and repayment rate, thereby providing producers protection from low prices.

Despite the promise of marketing loan benefits to producers, acreage planted to lentils and chickpeas fell in 2002. At planting time, the 2002 Farm Act had not been passed, and pulse farmers apparently responded to low commodity prices rather than potential marketing loans. In contrast, dry pea acreage rose in 2002, due mainly to higher market prices.

This year's drought seems to have resulted in lower yields and some quality loss in the Northern Great Plains. However, damage to the Canadian crop is much more severe.

Will the new Farm Act significantly boost acreage? The incentive to plant dry peas, lentils, and small chickpeas would have

been higher if repayment rates had been based on U.S. No. 3 grade quality. Reduced price risk may encourage planting. High wheat prices will also likely discourage pulse plantings in 2003. Even with marketing loans, planting flexibility restrictions will limit the impact on small chickpea acreage.

Factors in addition to the Farm Act provisions will come into play when considering the future of the industry. Given relatively small domestic food use, other markets need to be developed and/or expanded in order to accommodate any increases in supply. Many processors and industry representatives believe that a significant increase in domestic pulse consumption is unlikely without the introduction of new food products. Potential avenues being investigated include value-added processing, which could help the development of such products as snacks, bread, noodles, and precooked/dehydrated products.

Research has shown that dry peas can be used successfully in feed rations, providing sufficient energy and protein. However, their relatively high price, combined with significant transportation costs from production regions to feed-deficit areas, make peas less attractive than corn and soybean meal. Feed use could be an enormous market if pea production expands and transportation infrastructure improves to the point where their delivered prices are competitive with other feed inputs. The U.S. industry is taking steps to develop new markets overseas with value-

added products and the inclusion of peas in feed rations in Asian countries.

Domestic transportation infrastructure has been a constraint, particularly in the Northern Great Plains. High transportation costs may hinder market expansion unless the situation improves.

Processors, exporters, and industry representatives generally agree that if production of these commodities does expand, it will likely occur in the Northern Great Plains rather than in the Palouse, because of greater land availability, lower land costs, and flatter terrain. While production outside this region is possible, expansion will likely be constrained by the fact that pulses are cool-season crops. Pulse acreage may increase in Nebraska, eastern Montana, Colorado, and Wyoming, while Arizona and New Mexico could see greater acreage planted to chickpeas.

Differences in the qualities produced may aid the industry's expansion. Producers in the Palouse foresee the market for these pulse crops becoming segmented, with the Palouse supplying premium grades and the Northern Great Plains producing feed-quality and lower quality food-grade pulses. A dedicated supply of lower grade pulses may increase the feasibility of a feed-pea market as well as boost the competitiveness of U.S. exports in the world market. **AO**

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Farmland Protection: The Role of Public Preferences for *Rural Amenities*

A new report in November from USDA's Economic Research Service

Watch for it on the web at www.ers.usda.gov/publications