



BRIEFING

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Lentils: Trends in Production, Trade, and Price

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Lentils are used as a protein source for human consumption primarily in side dishes, soups, and stews. Over the past 10 years, lentil production has increased substantially in North America. Montana and North Dakota have become the two largest lentil-producing states. This Briefing Paper outlines recent trends in lentil production, prices, and trade.

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Background

Lentils, *Lens culinaris*, are a cool-season annual legume or pulse crop. The Latin word *Lens* is descriptive; lentil seeds are shaped like a lens. Lentils are a shallow-rooted plant, adapted to drier growing season conditions and limited rainfall. As a legume, lentils convert atmospheric nitrogen into soil-borne nitrogen that can be used by subsequent crops. Hence, lentils can be beneficial in rotations with cereal crops. Lentils were introduced to the United States in 1916 in the Palouse region of Washington and Idaho.

Generally, lentil varieties are distinguished by seed size and color. Lentil seed sizes are grouped into two types: Chilean, or large seed

varieties, and Persian, or small seed varieties. Common seed colors are green, red, and brown. Green varieties (the commercially prominent varieties planted in the United States) are classified as small, medium (or regular), and large, and often referred to by varietal name. Common medium green lentil varieties include Brewer and Richlea. Red and brown lentils serve important niches: red lentils are generally consumed in South Asian markets and brown, or Pardina-types lentils are used in Spain.

Production

*World*¹: World lentil production has almost quadrupled since 1980 (Figure 1) at an average annual percentage growth rate of 2.9 percent over the period 1980 to 2012.

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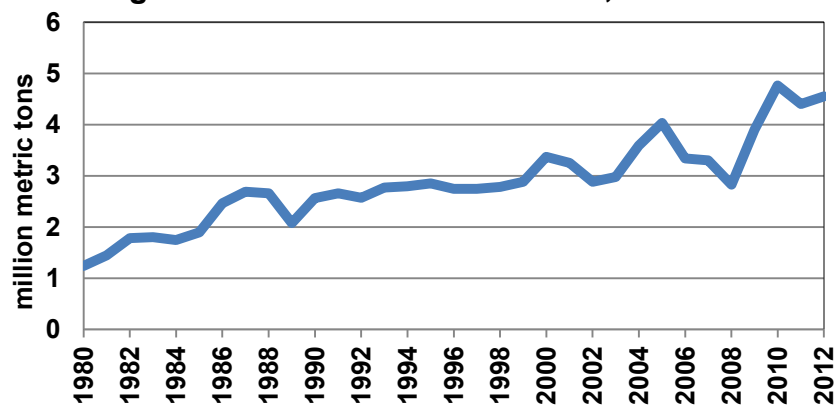
Objective

Analysis For

Informed

Decision Making

Figure 1. World Lentil Production, 1980-2012



Source: FAOSTAT

¹ Data on world production of lentils is compiled from the FAOSTAT database of the Food and Agriculture Organization of the United Nations, which is compiled on a calendar year basis. Marketing year and crop year information collected by the National Agricultural Statistics Service and other U.S. organizations may differ slightly from FAOSTAT data.

In contrast, the world's human population has increased at an annual growth rate of 1.5 percent; hence per person consumption of world lentil production has increased at an annual rate of about 1.4 percent for the last thirty years. On a global basis, lentil production was flat in the mid and late-1990s, but lentil production has increased and become more variable from year to year since 2000. In 2012, world lentil production was approximately 4.6 million metric tons, or just over 10 billion pounds which is only slightly less than the record 4.8 million metric tons produced in 2010.

Lentils are grown commercially in over 50 countries, but global production is concentrated in just three: India, Canada, and Turkey. Jointly, these three countries typically comprise about two-thirds of world

lentil production (Figure 2). Canadian lentil production has grown considerably, from less than 100,000 metric tons annually in the early 1980s to 1.5 million metric tons in 2012. In 2005, Canada surpassed India as the world's largest producer and currently produces 37 percent of all lentils.

United States: U.S. lentil production has been increasing since 1980 and accounted for 6 percent of world production in 2012 (Figure 3). Unlike Canadian production, however, U.S. production did not expand substantially until the late 1990s. Most of the increase in U.S. production has occurred in the Northern Great Plains. Total U.S. lentil production has increased at an annual average rate of 5.1 percent over the period 1980 to 2012.

Figure 2. World Lentil Production Shares by Country, 2008-2012

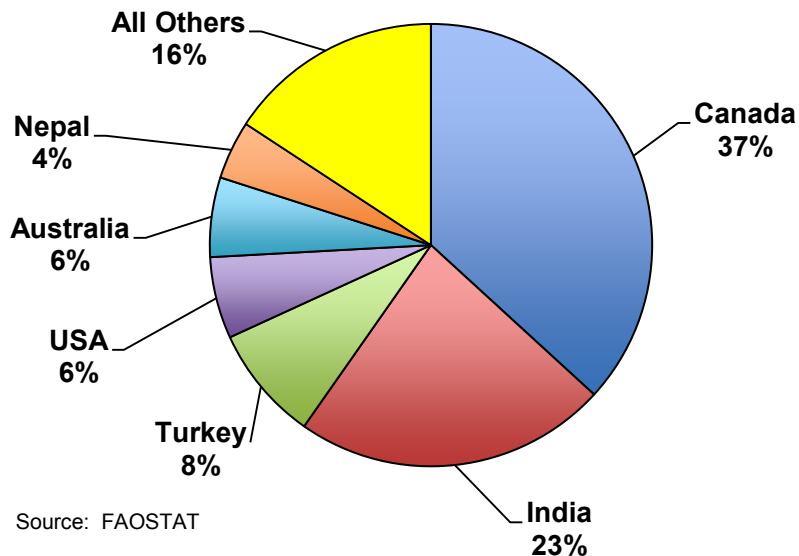
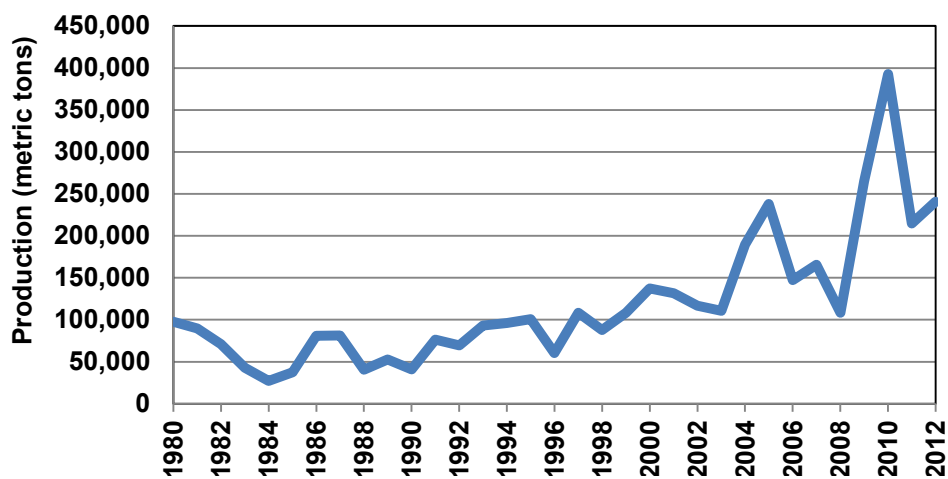


Figure 3. U.S. Lentil Production, 1980-2012



Acreage planted to lentils and total lentil production in the United States peaked in 2010, when 658,000 acres were planted to the crop and 392,675 metric tons of lentils were produced (Table 1). Production declined to 240,495 metric tons in 2012. Preliminary 2013 data indicate that lentil production declined from 2012 levels. Lentil production is estimated to be 198,401 metric tons in 2013, although growers harvested relatively high yields but on substantially less acreage. In general, considerable year-to-year variation in lentil production has occurred because farmers have shifted acreage among crops in response to changes in crop prices. Yields have fluctuated because of weather variability.

Montana: Montana lentil production increased at an average annualized rate of 20 percent from 1998 to 2012. Over the period 2008 to 2012, Montana was the largest lentil producing state in terms of planted acres and production, accounting for 42 percent of acres and 38 percent of U.S. production. Montana lentil output first exceeded all other states in 2011 when North Dakota lentil production was severely curbed by adverse planting conditions.

In 2012, Montana planted 205,000 acres of lentils with total production of 97,295 metric tons (Table 2). Preliminary 2013 data indicate a substantial acreage reduction (120,000 acres) relative to 2012. Montana 2013 lentil production, however, will be close to 2012 levels because of higher yields.

Table 1. United States Lentil Acreage, Yield, and Production, 2008-2013

Year	Acres Planted	Acres Harvested	Yield (lbs/acre)	Production (lbs)	Production (metric tons)
2008	271,000	261,000	917	239,300,000	108,545
2009	415,000	406,000	1,440	584,400,000	265,080
2010	658,000	634,000	1,365	865,700,000	392,675
2011	428,000	411,000	1,151	473,200,000	214,640
2012	463,000	450,000	1,178	530,200,000	240,495
2013P	340,000	331,000	1,321	437,400,000	198,402

Note: Figures for 2013 are preliminary
Source: USDA-NASS

Table 2. Montana Lentil Acreage, Yield, and Production, 2008-2013

Year	Acres Planted	Acres Harvested	Yield (lbs/acre)	Production (lbs)	Production (metric tons)
2008	83,000	79,000	770	60,800,000	27,578
2009	122,000	116,000	1,380	160,100,000	72,620
2010	260,000	247,000	1,360	335,900,000	152,362
2011	260,000	247,000	1,100	271,700,000	123,241
2012	205,000	195,000	1,100	214,500,000	97,296
2013P	120,000	115,000	1,800	207,000,000	93,894

Note: Figures for 2013 are preliminary
Source: USDA-NASS

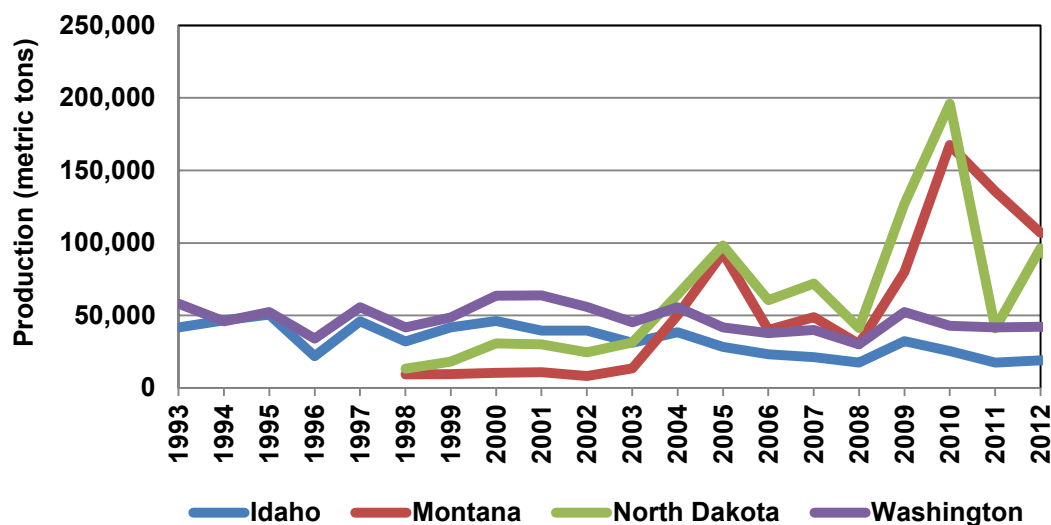
Other States: U.S. lentil production is almost exclusively concentrated in four states - Montana, North Dakota, Washington, and Idaho (Figure 4) - but acreage has shifted from the Pacific Northwest to the Northern Great Plains. North Dakota acreage and production is now similar to levels in Montana; over the period 2008 to 2012, North Dakota had 34 percent of acres and 37 percent of production. Farmers in the states of Washington and Idaho respectively produced 16 and 8 percent of U.S. lentil output over the same period.

Trade

A substantial portion of world lentil production is traded internationally. Between 2008 and 2011, approximately 45 percent of world lentil production was exported. Exports from all producing countries were nearly 2 million metric tons in 2011.

The bulk of lentil exports are concentrated among a few countries, while imports are spread among many (Table 3). Canada is the world's largest exporter, by a substantial margin, accounting for more than fifty

Figure 4. U.S. Lentil Production by State, 1993-2012



Source: USDA-NASS

Table 3. Average Lentil Exports and Imports by Country, 2008-2011

Exporting Country	Average Annual Quantity (2008-2011)	Importing Country	Average Annual Quantity (2008-2011)
Canada	1,109,619	Turkey	213,269
United States	180,835	India	143,460
Turkey	151,887	Sri Lanka	124,093
Australia	136,125	United Arab Emirates	114,433
United Arab Emirates	45,883	Bangladesh	110,890
Nepal	33,322	Egypt	89,807
Syria	28,436	Pakistan	75,673
China	20,098	Algeria	75,129
Sri Lanka	11,529	Colombia	63,672
Ethiopia	10,660	Iran	54,421
Others	53,000	Others	638,962
World Total	1,781,392		1,703,807

Source: FAOSTAT

percent of world exports between 2008 and 2011. The United States, Turkey, and Australia are other important exporting countries. Turkey is an important lentil importer and exporter. Turkish imports slightly exceed exports. Australia is also a substantial net exporter. Australian exports have grown from practically zero to their current position as the fourth largest exporting country.

Since the 1990s, U.S. lentil exports volume has approximately tripled. Between 2008 and 2011, the United States exported about 180,000 metric tons of lentils annually. India (26 percent) and Spain (15 percent) were the most important destinations for U.S. lentil exports during this period.

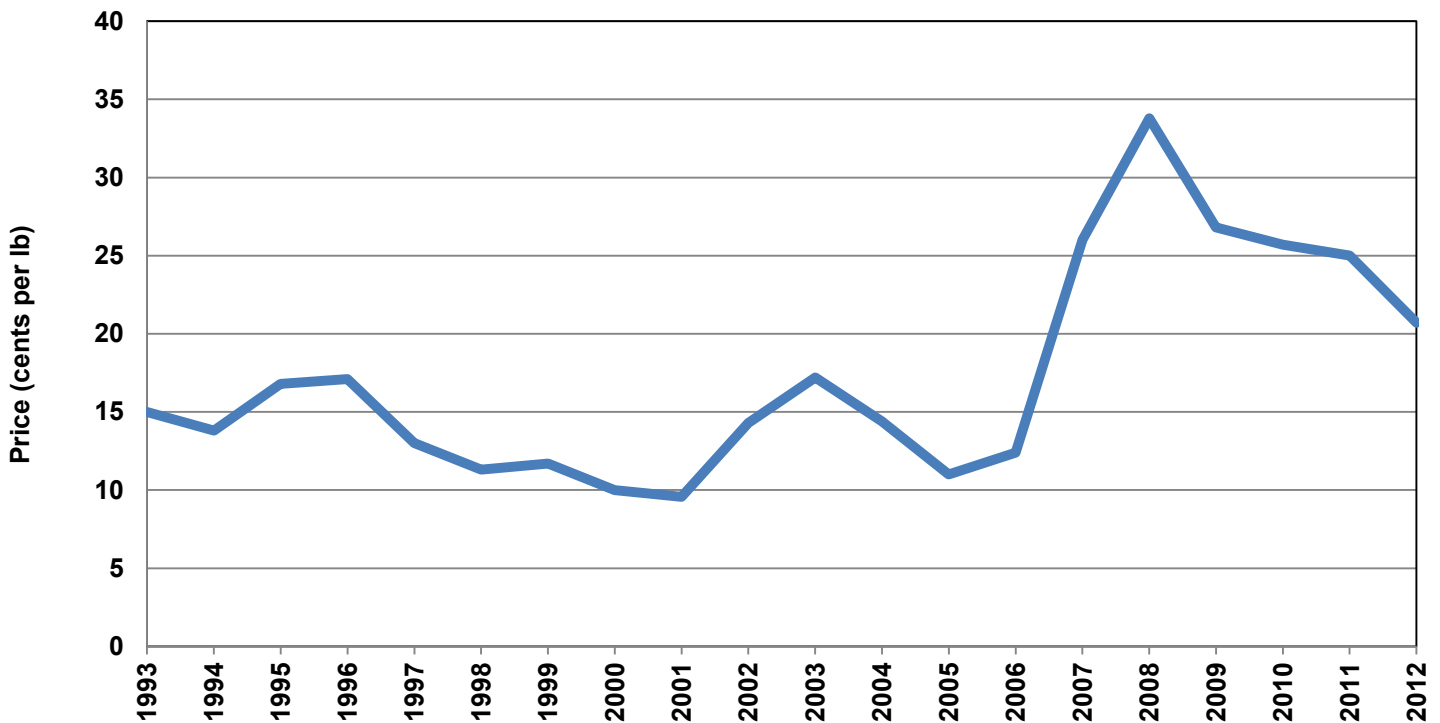
Although lentil imports are more diffuse across countries than exports, Turkey and South Asian countries such as India, Sri Lanka, Bangladesh, and

Pakistan are important lentil export markets. India is the world's second largest lentil producer and was a net exporter in the late 1990s and early 2000s. Since 2007, however, India has become a substantial net lentil importer.

Prices

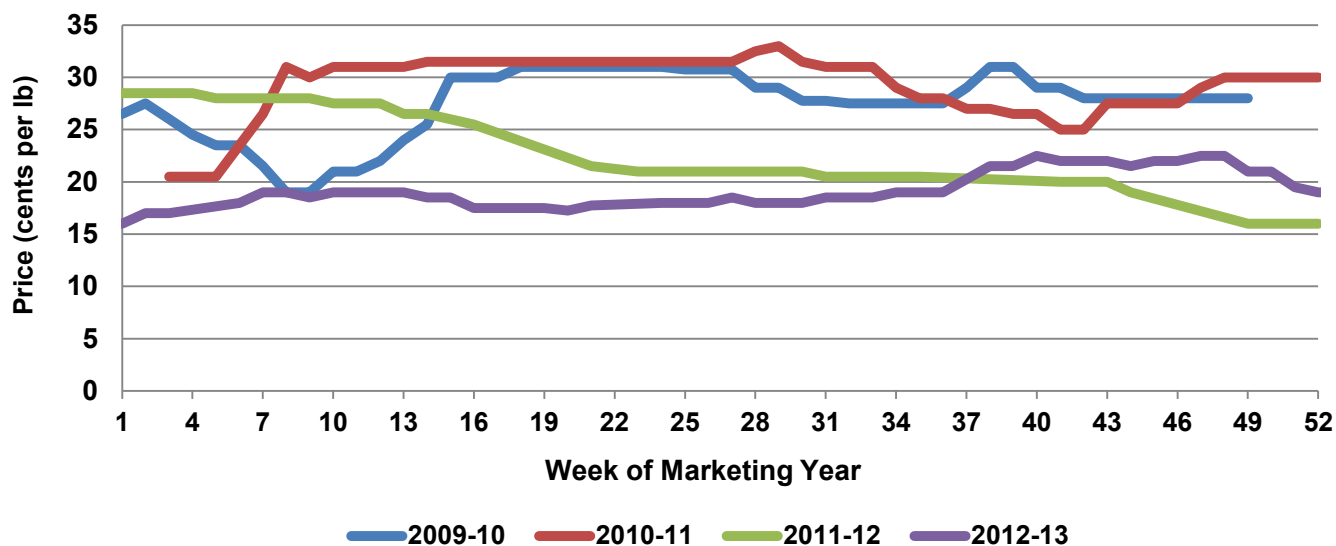
Lentil prices moved sharply higher in 2007, along with the prices for major field crops such as corn, wheat, and soybeans (Figure 5). U.S. marketing-year average producer prices peaked in 2008-09 at 33.8 cents per pound. Prices remained relatively high in the 2009-10 and 2010-11 marketing years which encouraged U.S. acreage and production expansion through 2010. However, lentil prices have declined since the 2010-11 marketing year.

Figure 5. U.S. Lentil Producer Prices Received, Marketing Years, 1993-2012



Source: USDA-NASS

Figure 6. Montana and North Dakota Price for Richlea Lentils, Midpoint of Reported Bids by Marketing Year, 2009-13



Source: USDA-Agricultural Marketing Service

The USDA Agricultural Marketing Service (AMS) reports weekly spot bids for Richlea (medium green) lentils in Montana and North Dakota (Figure 6). Prices tend to be lower at harvest when new crop production becomes available, and then increase during the marketing year to compensate stockholders for storage costs. An exception to this pattern was the 2011-12 marketing year when prices were high at harvest, but declined during the remainder of the marketing year.

Summary

World lentil production has increased steadily over the past thirty years and the United States has become an important production and export region, particularly in the Northern Great Plains states of Montana and North Dakota. Lentil production in the United States and in Montana peaked in 2010. Recent production declines are likely due to a decline in lentil prices relative to the prices of other crops.

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