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## The Future of Red Lentils in Canada

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Lentil is the fifth largest grain legume crop in the world after bean, pea, chickpea and fababean. The major producers are India (domestic consumption), Turkey (export) and Canada (export). Most of the lentils produced in India and Turkey are the red cotyledon type which is preferred by people of Indian and near Eastern origin. Accordingly, about 70% of the lentil produced in the world is of the red cotyledon type.

In the late 1980s, the Turkish government launched a major subsidy program to replace fallow with red lentil in the winter wheat-fallow rotation in the Anatolian Plateau. As a result, lentil production increased dramatically and Turkey became a major producer and the largest exporter of lentil (mostly red cotyledon types). However, in recent years the subsidy has been reduced or eliminated, resulting in a dramatic reduction in the production and export of red lentil. In addition, a major irrigation project with about 20 major dams was initiated in the early 1990s and this will flood many of the lower areas where yellow cotyledon lentils are grown. This project will not be completed until about 2010, but will result in major increases in the production of cotton and high value fruits and vegetables at the expense of lentil. These factors are causing a shortage and a premium price for red lentil in recent years.

Meanwhile, Canada was increasing lentil production and became the leading lentil exporter in 1994 or 1995. However, all of Canada's lentil production was of the yellow cotyledon type with a pale green seed coat (the "green" lentil in the trade).

### **Production of Red Lentil Seed**

The United States released a large-seeded, red cotyledon lentil called Red Chief about 1970. The export market demands a small-seeded red cotyledon lentil, preferably split, and so Red Chief was not acceptable to the export market. However, a private company developed a technique for dehulling Red Chief lentil seeds without splitting them, resulting in "footballs". These "footballs" found a market as a coloured component of a dry soup mix and at last word about 10,000 acres are grown every year for this niche market.

In 1990, the Crop Development Centre (CDC) released a medium large-seeded, red cotyledon lentil called Rose. The market potential was deemed limited, but United Grain Growers (UGG) accepted the challenge. Unfortunately, a series of wet years with high levels of seed coat discoloration and ascochyta infection resulted in poor quality product that was not saleable for one reason or another. The dehulling equipment available at that time in Canada was incapable of doing an acceptable job, especially on poor quality seed. Accordingly, both the CDC and UGG gave up and Rose lentil disappeared.

In 1994 the CDC released a small-seeded, ascochyta-resistant, red cotyledon lentil called CDC Redwing exclusively to the Saskatchewan Wheat Pool (SWP), who won the tender. A small acreage was grown in 1994 and 1995, about 8,000 acres in 1996 and about 20,000 to 25,000 acres in 1997. SWP advises that it will contract up to 50,000 acres in 1998. The CDC-SWP contract specifies that SWP will make seed of CDC Redwing lentil "generally available to the public" in the spring of 1999. The CDC will release an improved small-seeded, red cotyledon lentil with resistance to ascochyta blight by 2000.

Meanwhile, the USDA pulse breeding program at Pullman WA released an Egyptian cultivar and named it Crimson. Crimson lentil is susceptible to ascochyta blight. Crimson lentil is a small-seeded, red cotyledon lentil with a coloured seed coat, whereas CDC Redwing has a pale green seed coat. Thus, these two red cotyledon lentil cultivars are easy to distinguish. In addition, Crimson lentil is susceptible to ascochyta blight, but this is a problem only in wet growing seasons and can be controlled by one or two timely sprays with Bravo. It is estimated that about 500 acres were grown in Canada in 1997 and that over 8,000 acres will be grown in 1998. Thus, red lentil acreage in Canada will be at least 60,000 acres and possibly 75,000 acres in 1998, resulting in loss of the premium for red lentil.

Meanwhile, Australia has been rapidly increasing its lentil acreage, largely through the efforts of The Lentil Company (TLC). Early on, they found they could not grow Laird lentil, so they introduced a small-seeded, red cotyledon lentil with ascochyta resistance from Syria and began growing it successfully. They grew about 20,000 acres in 1996 and increased it to 100,000 acres in 1997. With the current premium for red cotyledon lentils, it is likely Australia will plant over 150,000 acres of red lentil in 1998, further increasing the supply and reducing the premium for red lentils. One interesting thing about the Australian lentil crop is that it is grown as a winter crop, requiring seven months to mature. Thus, they plant lentil in late May - early June (their late fall) and harvest it in November and early December. Thus, Canada can harvest its lentil crop in August and September and take advantage of any price premium that may exist before Australia can enter the market.

### **Value Added Processing of Red Lentil Seed**

The red lentil market prefers small-seeded, bright orange-red cotyledon lentils that have been dehulled properly and split with a minimum of chips in the edge of the hemisphere-shaped cotyledon. Dehulling and splitting lentil seed is both an art and a science. If the

machines are not properly adjusted, badly chipped cotyledons result and splitting losses are high.

Four companies in Saskatchewan currently have the capacity to dehull and split red lentil seeds. Unfortunately, only two of them have been producing any volume of split red lentils to date: BC Pulses at Rowatt and Belle Pulses at Bellevue. Parkland Pulses at North Battleford is currently adjusting its machines for red lentil and Canadian Select Grains at Eston is currently adjusting its machines for desi chickpea.

### **Summary**

Lentil production in western Canada is concentrated on yellow cotyledon lentils and has stabilized at about 400,000 tonnes on some 750,000 acres. However, development of ascochyta resistant red cotyledon lentils and construction of four plants capable of dehulling and splitting red lentils will allow Canada to tap additional lentil markets. Thus, lentil production should increase to some 500,000 tonnes on some 900,000 acres by 2005.