



Lentil Variety Report 2015/16

Donna Fleury, P.Ag. and Bruce Barker

The University of Saskatchewan's Crop Development Centre (CDC) is the only lentil breeding institution in Canada and is led by Dr. Bert Vandenberg. At the CDC, the main lentil breeding and research program objectives are:

- Improving and maintaining resistance to *Ascochyta* blight and anthracnose, and minor diseases like *stemphylium* blight
- Improving tolerance to herbicides
- Improving tolerance to lodging
- Improving seed characters that affect marketing
- Improving yield for current and future market classes (about 10 of them)

With the help of Dr. Kirstin Bett's lab and some work in Dr. Bunyamin Tar'an's lab, along with funding from Saskatchewan Pulse Growers, in 2014 the CDC lentil breeding program started using molecular markers to screen for imidazolinone tolerance. This helps reduce cost and increases their ability to efficiently select herbicide tolerant plants in the breeding program. The main priority is for high lentil yields and disease resistance, but they are also investigating the genetics of resistance to diseases that may become increasingly important in future, such as *stemphylium* blight, botrytis grey mold, sclerotinia, and possibly *aphanomyces* root rot and fusarium wilt.

The CDC breeds for quality improvements like seed coat color, color retention, and seed shape for green lentils, For red lentils in particular, they are attempting to research ways to improve milling characteristics for local processors to be able satisfy global markets as a means of adding value here, and reducing shipping costs.

The CDC is also working on a long-term breeding strategy that includes biofortification, or improvement of the level of bioavailable micronutrients like iron, zinc, selenium, folates, and carotenoids.

Some investigations into the genetics of drought tolerance are also being initiated at the CDC. Developing lines with improved yield potential, combined with tolerance to imidazolinone (Group 2) herbicides, and reduced potential for lodging (stiffer stems and better recovery from heavy rains) are also current objectives.

Variety Updates

Extra Small Red

The most popular variety of extra small red lentils in 2015 was CDC Impala followed by CDC Imperial. Both are imidazolinone tolerant.

New Extra Small Red Varieties in Pedigreed Seed Production

CDC Roxy (3959-6)

- Released to seed growers in 2014
- Plump seed





- Consistently higher yielding than CDC Maxim (103%)
- Not imidazolinone tolerant
- Seed supply for this variety will be limited but it is one to watch and should be commercially available by 2018

Small Red

Small red lentil is the most popular class grown in Saskatchewan. CDC Maxim had the highest acreage in 2015 followed by CDC Dazil, CDC Imax, and CDC Impact with all four top varieties being imidazolinone tolerant. **CDC Cherie** is a newer variety released in 2012 is not imidazolinone tolerant but is high yielding (109% of CDC Maxim). Commercial seed of CDC Cherie may be available for 2016 in limited supply.

New Small Red Varieties in Pedigreed Seed Production

CDC Impulse (IBC 479)

- Higher yielding especially in the south (108% of CDC Maxim)
- Slightly larger seed than CDC Maxim
- Slightly taller than CDC Maxim
- Slightly later emerging plants than CDC maxim
- Imidazolinone tolerant

IBC 550

- Higher yielding than CDC maxim
- Imidazolinone tolerant

3646-4

- Similar to CDC Maxim
- Thicker seed than CDC Maxim
- Higher yields than CDC Maxim
- Not imidazolinone tolerant

CDC Impulse and IBC 550 were released to seed growers in 2014 and 3646-4 in 2015 so certified seed will not be available for a few years.

Large Greens

Large green lentils are sometimes called Laird lentils as that was the original variety developed and registered in 1978. Many improvements have been made from this original variety including earlier maturity, better resistance to ascochyta and anthracnose, as well as improved yield potential. The most widely grown large green lentil variety in 2015 was CDC Greenland followed by the imidazolinone tolerant varieties CDC Impower and CDC Improve.

CDC Greenstar is a newer large green lentil that has high yield potential but is not imidazolinone tolerant. Seed supply may be limited for CDC Greenstar for 2016. New varieties are under development that have improved yields combined with imidazolinone tolerance but have not yet been released for pedigreed seed production.





Small Greens

Small green lentils are sometimes referred to as Eston lentils as this was the original variety registered in 1980. Improvements in yield, disease tolerance, and more determinate nature have made the newer varieties much more attractive. CDC Invincible (imidazolinone tolerant) was the most widely grown small green variety in 2015 followed by CDC Viceroy.

New Small Green Varieties in Pedigreed Seed Production

3592-13

- Released in 2014
- Similar to CDC Viceroy
- Better lodging than CDC Viceroy
- Much higher yielding than CDC Viceroy and CDC Maxim
- Not imidazolinone tolerant
- Limited seed may be available in 2017

Specialty Lentils

These are different classes of lentils that have unique characteristics and special markets that they may fit into:

- French green** market class lentil has a green marbled seed coat with yellow cotyledons. Seed size is smaller and most similar to small reds. These lentils retain their shape better than small reds or greens upon cooking. CDC Peridot is the only imidazolinone tolerant variety currently available, but is lower yielding than conventional variety of CDC Marble.
- Green cotyledon** market class lentil (Queen Green) has green cotyledons with small-to-medium seed size. CDC QG-2 is the highest yielding variety with earliest maturity. CDC QG-3 is imidazolinone tolerant but lower yielding. Green cotyledon varieties are grown under contract with AGT Food and Ingredients as part of Saskatchewan Pulse Growers tender release program.
- Spanish Brown (SB)** market class lentil has a gray dotted seed coat with yellow cotyledons. This class is sold primarily into Spain. Seed size is smaller and most similar to small reds. **SB-2** is the latest variety with higher yield and improved disease resistance. SB varieties are now trademarked under the brand Iberina™ and are grown under contract through Simpson Seeds as part of Saskatchewan Pulse Growers tender release program.
- Large red** market class lentils have red cotyledons with much larger seed size compared to small red lentils, hence the name King Red (KR). CDC KR-1 (not imidazolinone tolerant) and CDC KR-2 (imidazolinone tolerant) are higher yielding than CDC Maxim in lentil growing areas, and are grown under contract with AGT Foods and Ingredients as part of Saskatchewan Pulse Growers tender release program.

For more information on Saskatchewan Pulse Growers tender release program, [click here](#).

