

Pulse Variety Update

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The Crop Development Centre (CDC) at the University of Saskatchewan has been developing varieties of peas, lentils, chickpeas, faba beans, and dry beans over the last 20 years. During this time, there have been improvements in yield, disease tolerance, standability, and other important traits such as early maturity. Herbicide tolerance in lentils and imidazolinone (IMI)-tolerant chickpeas provides improved weed management for growers.

CDC Pulse Varieties Released Since 2011

Crop type & market class	2011	2012	2013	2014	2015	2016	2017
Yellow Pea	CDC Saffron	CDC Amarillo			CDC Inca	CDC Spectrum CDC Athabasca	CDC Canary
Green Pea	CDC Raezer	CDC Limerick		CDC Greenwater		CDC Spruce	CDC Forest
Forage Pea						CDC Jasper	
Maple Pea					CDC Blazer		
Small Green Lentil		CDC Asterix		CDC Kermit			
Large Green Lentil			CDC Greenstar				
Extra Small Red Lentil		CDC Rosie		CDC Roxy			
Small Red Lentil		CDC Cherie CDC Scarlet		CDC Impulse CL CDC Proclaim CL	CDC Redmoon	3674-15 4371-4	
French Green Lentil			CDC Marble				
Kabuli Chickpea	CDC Leader			CDC Palmer			
Desi Chickpea		CDC Jade CDC Ebony	CDC Consul				
Faba Bean		CDC Snowdrop					

Yellow Peas

Although CDC Meadow continues to dominate in terms of acreage, acres of newer varieties are increasing as a result of higher yields. CDC Amarillo yields approximately 13 per cent higher than CDC Meadow and has become the new standard check variety in co-op testing and regional variety trials (RVT). CDC Saffron is also gaining in popularity. CDC Inca is the highest yielding yellow pea in the southern regions, yielding 106 per cent of CDC Amarillo in the 2016 RVT. Released in 2015, limited quantities of certified seed are just becoming available to farmers in 2018. Another variety to be aware of is CDC Spectrum. CDC Spectrum yielded high in both the south (104 per cent) and north (103 per cent) as compared to CDC Amarillo, while maintaining good standability. Certified seed for CDC Spectrum should be available in 2019.

The most recent yellow pea variety release is CDC Canary. In research plots, CDC Canary has the early maturity of CDC Meadow, but is yielding over 10 per cent higher in northern regions.

The early maturity of CDC Canary is evident compared to an experimental yellow pea line on the left and CDC Athabasca on the



2017 Ag In Motion Plots (L-R): Experimental line, CDC Canary, and CDC Athabasca.

right. It will be a few years before certified seed of CDC Canary will be



2017 Ag In Motion Plots: CDC Inca (left) and CDC Canary (right) yellow pea varieties.

available for production acres.

Green Peas

Currently, the green pea acreage is dominated by CDC Striker, a variety released in 2002. As in yellow peas, newer varieties of green peas with higher yields such as CDC Raezer, CDC Patrick, and CDC Limerick are increasing in acreage. The highest yielding green pea in the 2016 RVT was CDC Greenwater. This variety combines the good standability of CDC Striker with 17 per cent higher yield and improved disease resistance versus CDC Striker. The newest releases, CDC Spruce (2016) and CDC Forest (2017), will have a few years before seed is available. CDC Spruce had the highest yield in the 2016 RVT in the north where it yielded 100 per cent of CDC Amarillo. CDC Forest has also shown high yields in co-op and regional trials. Worth noting is that it performed equally well in the north and south.

Forage Peas

In 2016, the forage pea CDC Jasper was released. This variety has a small seed size and high biomass production. The grain yield and dry matter surpassed that of the forage pea check (variety 40-10) and previous CDC forage pea varieties. It has very good standability, significantly better than the check variety.

Maple Peas

The variety CDC Blazer was released in 2016 based on its yield improvement over previous maple pea varieties. In 2016 co-op and regional trials in Saskatchewan, it yielded 18 per cent higher than CDC Mosaic and nearly equalled the yield of CDC Amarillo in the south. Certified seed of this variety should be available starting in 2019.



CDC Blazer seed

Small Green Lentils

There are two recent small green lentil releases CDC Kermit, released in 2014, and the extra small green lentil CDC Asterix, released in 2012. CDC Asterix yields similar to CDC Maxim and has a seed weight of 26 grams per 1,000 seeds. CDC Kermit is a high-yielding small green lentil with improved lodging tolerance. This variety has very similar plant characteristics and seed to CDC Viceroy but is higher yielding. CDC Kermit is well-suited to the Dark Brown and Brown soil zone regions. In seven years of testing in the co-op and regional trials, it yielded 106 per cent of CDC Maxim in the Brown and Dark Brown soil zones, and 102 per cent in the Black and Dark Grey zones. CDC Kermit is also high yielding relative to other small green lentils, yielding 10 per cent higher than CDC Invincible and nine per cent higher than CDC Viceroy in the Brown and Dark Brown soil zones, and 19 per cent and four per cent higher in the Black and Dark Grey soil zones.

Large Green Lentils

In 2013, the large green lentil CDC Greenstar was released. This variety yields higher than the current leading large green lentil variety, CDC Greenland, by 12 per cent in the south and eight per cent in the north. Although it is not IMI-tolerant, it out yields the only IMI-tolerant variety in its class, CDC Impower, by 16 per cent in the south and 10 per cent in the north. It has moderate resistance to Ascochyta and improved resistance to Anthracnose (Race 1)



2017 Ag In Motion: CDC Greenland (left) and CDC Greenstar (right) large green lentils.

compared to other large green lentil varieties, and its vigorous growth habit gives it increased competitiveness.

Extra Small Red Lentils

Extra small red lentil acres have been predominantly IMI-tolerant varieties CDC Imperial and CDC Impala. These are older varieties which were released in 2006 and 2007, with CDC Impala being the highest yielding of the two. The most recent variety in this class, CDC Roxy, is a non-Clearfield® variety with a 10 per cent yield improvement versus CDC Impala, and 20 per cent versus CDC Imperial in RVT.

Small Red Lentils

Over half of the 3.4 million lentil acres seeded in Saskatchewan in 2016 were small red lentils. The majority of these acres were CDC Maxim. CDC Maxim has been a mainstay for many Saskatchewan farmers, however the IMI-tolerant CDC Dazil and CDC Imax are on the rise. Both of these varieties are well adapted to the southern regions with CDC Dazil out-yielding CDC Maxim by four per cent. Since the release of CDC Dazil in 2010, two IMI-tolerant varieties released in 2014 have higher yields and improved resistance to Anthracnose, compared to both Dazil and Imax based on RVT. In seven years of testing in the co-op and regional trials, CDC Impulse yielded 108 per cent of CDC Maxim in the Brown and Dark Brown soil zones. The seed is larger in diameter and has a higher seed weight, which is acceptable for specific segments of the dehulled red lentil market. CDC Proclaim yielded 105 per cent of CDC Maxim in the Brown and Dark Brown soil zones. The seeds are plumper which is an advantage for lentil dehulling. As a non-Clearfield® variety, CDC Redmoon yielded 115 per cent of CDC Maxim in six years of testing in the co-op and regional trials.

French Green Lentils

The most recent variety of French green lentil, CDC Marble, was released in 2013. This variety is gaining momentum and is capturing acres from its predecessor CDC Peridot. Although it is not IMI-tolerant, it out-yields Peridot by 23 per cent in the south and nine per cent in the north. French green lentils are a small, niche market class of lentils occupying only 7,000 acres in Saskatchewan in 2016.



CDC Marble French green lentil seed

Chickpeas

Chickpeas 91,000 acres in Saskatchewan in 2017. Although the majority of chickpeas grown in the province are Kabuli-type, Desi chickpeas are also grown. The most recent Desi chickpea variety, CDC Consul, was released in 2013. It is a high yielding chickpea, yielding 113 per cent of Amit, and has good resistance to *Ascochyta* blight. The medium-sized seeds are plump, with a light tan seedcoat colour, suitable for whole and dehulled/split seed markets and milling.

The leading Kabuli chickpea variety in terms of acres of production is CDC Leader followed closely by CDC Orion. These varieties were released in 2011 and 2010. Both are high yielding, however CDC Leader has a slight edge over Orion, yielding 109 per cent of the check variety Amit in the south, and 108 per cent in the north. The newest Kabuli chickpea variety is CDC Palmer, which was released in 2014 and is just beginning to be grown commercially. It is well-suited to all current chickpea growing areas in the Dark Brown and Brown soil zones of southern Saskatchewan. It has a large seed size, larger than CDC Leader, but not quite as large as CDC Orion. It has mid-to-late maturity, which is earlier than CDC Orion.

Faba Beans

Faba beans were grown on approximately 37,000 acres in Saskatchewan in 2016. The majority of faba beans grown in the province are the zero-tannin, white flowered types used in the feed market. These are smaller seeded than tannin types used for human consumption, and are therefore easier to grow using conventional equipment. The variety CDC Snowdrop was released in 2012 and continues to occupy a similar number of acres as Snowbird. Although it is slightly lower yielding, CDC Snowdrop's smaller seed size makes it easier to seed and harvest. A new variety is anticipated to be released in 2018 to Select Seed growers.

Dry Beans

The dry bean breeding program is producing bean varieties with greater adaptation to Saskatchewan growing conditions. To date, dry bean acres have been limited partly due to the length of the growing season required for most dry bean varieties, as well as the specialized equipment for seeding and harvesting. Recent varieties have been better adapted and are gaining acres in the bean growing areas near Outlook and Lake Diefenbaker. Pinto beans are the main type of dry bean grown in Saskatchewan, however a new yellow bean variety is showing promise with earlier maturity than its predecessor CDC Sol. Equally promising is the black bean variety CDC Blackstrap. This variety combines early maturity with good pod clearance, making it a good candidate for harvesting with conventional equipment. It has also shown potential for dryland production.