Pulse Crop Variety Update

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New varieties of lentils, chickpeas, peas, dry beans, and faba beans are consistently in development at the Crop Development Centre (CDC) at the University of Saskatchewan. These varieties are carefully selected to provide ongoing improvements such as increased yield, improved tolerance to disease and lodging, and early maturity. New varieties developed at the CDC are released at the Breeder seed level of Pedigreed seed production, to qualified seed growers through the Saskatchewan Pulse Growers’ (SPG) Variety Release Program. Pedigreed seed production takes at least four to six years, depending on how fast the seed can be multiplied, to produce enough certified seed to be commercially available to producers. This means that varieties that were released to seed growers in 2016 likely have limited quantities available for 2019. Releases in 2017 could have limited seed available as early as 2020. If commercial seed is not be available for newer releases, growers should take advantage of opportunities to see how these new varieties perform in the field or on tours. To find out who has varieties of interest in your area, visit the Select Seed Grower Directory on saskpulse.com or the Canadian Seed Growers’ Association program.

Varieties are evaluated annually through co-op and regional trials, a performance testing system that is conducted across Saskatchewan and funded by SPG. The data from the regional trials is published in the SaskSeed Guide by the Saskatchewan Seed Growers Association. On-farm yield data is also available through Saskatchewan Crop Insurance Corporation’s Sask Management Plus program.

PEAS

Yellow Peas
One of the newest yellow pea varieties available for commercial production in 2019 is CDC Inca. This variety consistently yields among the top performers in the Saskatchewan co-op and regional trials. Over six years of testing, it yields 104 per cent of the check variety CDC Amarillo in the Brown, Dark Brown, and southern region of the Black soil zones, and 100 per cent in the Dark Gray and northern region of the Black soil zone. It also brings good resistance to seedcoat breakage.

Another variety just beginning to make its debut is CDC Spectrum, a high yielding variety in both the southern (104 per cent) and northern (102 per cent) regions, compared to CDC Amarillo. It has good standability similar to CDC Amarillo.

CDC Inca

CDC Spectrum has relatively high protein levels, which may provide a potential marketing advantage. Released in 2016, limited quantities of certified seed will be available in 2019. CDC Amarillo is rapidly gaining in seeded acreage year-over-year and has captured a large percentage of the yellow pea acres in Saskatchewan. It yields over 10 per cent higher than CDC Meadow and is the standard check variety against which all other varieties are compared in co-op testing and regional variety trials (RVT). It has excellent standability and is rated moderately resistant to Fusarium root rot. The only caution for this variety is that it is prone to seedcoat breakage and therefore should be handled carefully.

CDC Saffron is also gaining in popularity. Although it yields slightly less than CDC Amarillo in RVTs, on-farm yield data in 2017 had it out-yielding CDC Spectrum. It is earlier maturing and, despite having a larger seed size, has good resistance to seedcoat breakage.

An early maturing yellow pea variety, CDC Canary, has recently been released (2017) and is one to watch in 2020. It has the early maturity of CDC Meadow but yields over 10 per cent higher in northern regions and has very good standability.

Green Peas

CDC Striker has been the dominant green pea variety over the past number of years however, many of those acres are being replaced with CDC Razer. This variety has proven to be a consistent performer with high on-farm yields, relative to CDC Striker.

Newer varieties of green peas, CDC Limerick and CDC Greenwater, are higher yielding and increasing in acreage. CDC Limerick combines good green colour that is sought after in the marketplace with good standability, excellent resistance to seedcoat breakage, and high protein. CDC Greenwater combines the good standability of CDC Striker with 18 per cent higher yield in RVTs, and improved disease resistance. Seedcoat breakage is rated fair so careful handling is key in producing this variety.

The newest release, CDC Forest (2017) is one to watch over the 2019 growing season as it had the highest yield of all green peas over five years of testing in co-op and RVTs. Good performance in both the south and north geographies is indicative of consistent performance over variable conditions, providing yield stability for the growers. Of particular note is the improvement in seedcoat integrity to complement the high yield.
Forage Peas
CDC Horizon is a commercially available yellow cotyledon forage-type variety with greater biomass and seed yield than the forage pea check variety 40-10. A newer variety, CDC Jasper (2016), has even higher grain and dry matter yields, as well as very good standability. CDC Jasper is a variety to evaluate during 2019.

Maple Peas
The variety CDC Blazer represents a significant yield increase over previous varieties. In three years of testing in the co-op and regional trials in Saskatchewan, it yielded 19 per cent higher than CDC Mosaic in the south, where it equalled the yield of CDC Amarillo. Limited quantities of certified seed of this variety will be available in 2019.

Dun Peas
CDC Dakota is the top yielding dun pea variety. In three years of testing, it yielded 103 per cent of CDC Amarillo in the south and 99 per cent in the north. This variety is enjoying a resurgence of popularity and seed is in short supply. Dun peas have purple flowers, pigmented seedcoats, and yellow cotyledons. They are dehulled and sold in human consumption markets similar to yellow pea varieties. The pigmented seedcoats provide natural protection to various root rot diseases, so typically dun (and maple) pea varieties are quick to emerge with good stand establishment.

**Table 1. Agronomic Performance for CDC Jasper (2012 to 2015) Pea Silage Elite Trials (10 Site Years)**

<table>
<thead>
<tr>
<th>Variety</th>
<th>Year Released</th>
<th>Yield % of 40-10</th>
<th>Height</th>
<th>Lodging</th>
<th>Maturity (1-3)</th>
<th>Seed Weight (g/1000)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>40-10 (check)</td>
<td>n/a</td>
<td>100</td>
<td>133</td>
<td>7.8</td>
<td>3</td>
<td>128</td>
<td>Small seed size and tall. Fully leaved variety with speckled seedcoat. Poor lodging.</td>
</tr>
<tr>
<td>CDC Tucker</td>
<td>2006</td>
<td>140</td>
<td>92</td>
<td>4</td>
<td>2.5</td>
<td>158</td>
<td>High biomass. Improved protein and relative feed value compared to Trapper and 40-10.</td>
</tr>
<tr>
<td>CDC Leroy</td>
<td>2008</td>
<td>124</td>
<td>84</td>
<td>5.2</td>
<td>1.8</td>
<td>132</td>
<td>High biomass. Improved protein and relative feed value compared to Trapper and 40-10.</td>
</tr>
<tr>
<td>CDC Horizon</td>
<td>2010</td>
<td>130</td>
<td>97</td>
<td>3.8</td>
<td>2.3</td>
<td>142</td>
<td>High biomass with similar feed value to Trapper and 40-10.</td>
</tr>
<tr>
<td>CDC Jasper</td>
<td>2016</td>
<td>133</td>
<td>98</td>
<td>3.9</td>
<td>2.5</td>
<td>175</td>
<td>Highest biomass, combined with high grain yield, and high relative feed value.</td>
</tr>
</tbody>
</table>

Lodging score: 1 = upright, 9 = completely lodged

Source: Crop Development Centre, University of Saskatchewan

**Small Green Lentils**
CDC Kermit is the most recent release in this class and is the highest yielding in both the north and south geographies. Certified seed first came available in 2017 and although acres were limited, on-farm performance data looks promising. Although it is not imidazolinone tolerant, it is worth considering for its superior performance.
CDC Kermit yielded 12% higher than CDC Invincible and 7% higher than CDC Viceroy in the brown and dark brown soil zones and 19% and 1% higher (respectively) in the black and dark grey soil zones.

**Large Green Lentils**
CDC Greenstar is increasing in acres in Saskatchewan. This variety was the highest yielding large green lentil variety in eight years of testing in yield trials. Although it is not a Clearfield® variety, it out-yields the only Clearfield® variety in its class, CDC Impower, by 18 per cent in the south and 17 per cent in the north. On-farm performance data also looks good however, the yield advantages are not as pronounced. It has good resistance to Ascochyta and improved resistance to Anthracnose (race 1), compared to other large green lentil varieties, and its vigorous growth habit gives it increased competitiveness.

In 2018, the large green Clearfield® lentil variety CDC Lima was released. Growers can look forward having high yield in a Clearfield® variety once seed becomes available in three to four years.

**Extra Small Red Lentils**
The extra small red lentil varieties most commonly grown are the Clearfield® varieties CDC Imperial and CDC Impala with CDC Impala having 10 per cent higher yield. CDC Roxy, a non-Clearfield® variety, is a much higher yielding with a 10 per cent yield advantage over CDC Impala and 20 per cent over CDC Imperial.

Growers will have a new higher yielding Clearfield® variety in three to four years once the newly released CDC Imp becomes available.

**Small Red Lentils**
CDC Maxim has been a mainstay for many Saskatchewan farmers. However, the Clearfield® varieties CDC Proclaim and CDC Impulse are beginning to capture some of the acres. These varieties were released in 2014, became commercially available starting in 2017 with limited seed, and then in a bigger way in 2018.

In eight years of testing, CDC Impulse yielded 108 per cent of CDC Maxim in the Brown and Dark Brown soil zones. The seed is larger in diametre with a higher seed weight, 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 represents an advantage for lentil dehulling.

Another variety worth considering is the non-Clearfield® variety, CDC Redmoon. It is the highest yielding small red lentil, in the co-op and regional trials in Saskatchewan.

**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 a non-Clearfield® variety, it out-yields Peridot by 18 per cent in the south and four per cent in the north. French green lentils are a small, niche market class of lentils occupying less than 10,000 acres annually.

**CHICKPEAS**
Chickpeas occupied over 300,000 acres in 2018, an increase over previous years. The majority of chickpeas grown in Saskatchewan are Kabuli-type, by there are some acres of Desi chickpeas as well.

**Desi Chickpeas**
CDC Consul is a high yielding Desi chickpea with good resistance to Ascochyta blight and the medium-sized seeds are plump, with a light tan seedcoat colour, suitable for whole, dehulled/split seed markets and milling.

**Kabuli Chickpeas**
The leading Kabuli chickpea variety in terms of acres of production is CDC Leader, followed closely by CDC Orion. Both have similar high yields in yield trial testing, where they yield approximately 108 per cent of the check variety Amit, as well as in on-farm yield data. CDC Leader is earlier maturing and has smaller seed size than CDC Orion.

The newest Kabuli chickpea variety is CDC Palmer and it 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, and southeastern Alberta. It has a large seed size and medium to late in maturity which puts it between CDC Leader and CDC Orion for both seed size and maturity.
FABA BEANS

The majority of faba beans grown in Saskatchewan are the smaller seeded, zero-tannin, white-flowered types used in the feed market. Snowbird is the dominate variety being grown in Saskatchewan and Alberta in 2018 due to its higher yield. The variety CDC Snowdrop is slightly lower yielding than Snowbird but its smaller seed size makes it easier to seed and harvest.

Large-seeded tannin varieties have coloured flowers and are produced for human consumption. There are several good varieties available to growers, including those developed by the CDC. Currently released CDC varieties, such as FB9-4, no longer require a production contract and are now openly available to all growers.

DRY BEANS

Typically beans have been grown only in the irrigated areas near Outlook and Lake Diefenbaker, but more recently there has been an increase in dryland acres in Saskatchewan. Varieties best suited for dryland production in Saskatchewan should have early maturity, upright plant structure, with high pod clearance, as well as marketable traits such as good colour and large seed size. For pinto beans, a good option is CDC Marmot. This variety has both early maturity and growth habit needed for combining with conventional equipment. It has moderate yield potential however, higher yielding options may not mature in time to avoid frost or to develop good seed colour and size.

CDC Blackstrap is a black bean variety that has proven to succeed on dryland production with narrow-row seeding. This variety has high pod clearance and growth habit that is suitable for straight combining. In yield trial testing, it had high yield under both irrigation and dryland conditions, yielding 119 per cent (irrigation) and 116 per cent (dryland) of the check variety CDC Pintium. It is early maturing and has resistance to common bacterial blight.

Varieties developed and more suited to irrigated acres in Saskatchewan include CDC Sol yellow beans and CDC WM-2 pinto beans.