Do You Eat the Red Ones Last?
Breeding New Classes of Coloured Beans for Adaptation to Saskatchewan

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Importance to Producers

- Dry bean is a relatively new pulse crop in Saskatchewan. Many bean types are poorly adapted to the northern prairie.
- Bean markets are diverse and dynamic, with many sizes, shapes and colours that are specific to various markets.
- Breeding new market classes is a long-term investment, but is a key part of the strategy to increase the value and diversity of pulses grown in Saskatchewan.
- Examples of target market classes are: for Mexico – flor de mayo, flor de junio, yellow, bayo; for Colombia – large round red; for Asia – large red.

Methods

- Pulse Canada identifies potential market classes, for example in Central or South America or Asia.
- We use traditional plant breeding methods. Growth rooms and greenhouse facilities are used to control daylength and temperature to match flowering times of diverse bean lines.
- Locally bred varieties contribute genes for adaptation; exotic varieties contribute genes for colour, size and shape; and marker assisted selection is used to facilitate transfer of disease resistance and quality traits.
- The first step is to understand the genetics of seed coat characters in order to plan an appropriate breeding strategy for each market class.
- Field screening for yield and agronomic characters starts early in the breeding program (1 - 3 years). The entire process may take 7-10 years before breeder seed is available.

Breeding Flor de Mayo Bean

- First variety released in 2001 (CDC Floral).

Breeding Flor de Junio and Yellow Bean

- Bean lines of diverse market classes were crossed to select for lines with desired plant type, early maturity, and desired seed colour, size and shape.
- First variety may be released in 2007.

Breeding Large Red Bean

- The F_1 hybrids were produced after 8 months of the initial cross because of specific daylength and temperature requirement of the large round red parents.
- Hybrids show extreme variation for colour, pattern, size and shape of seed.
- Some large red parents require 10 h days and cool temperatures to induce flowering.
- Large red seed type is not recoverable after one cycle of crossing.
- Desired size, shape and colour can be selected only after a second or third round of selection and hybridization.
- First variety may be released in 2008.

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