

2020

InVigor[®] **Patented Pod Shatter Reduction**



We create chemistry

Robert Haman – Seed Advisor
Roseau, MN December 10, 2019

Agenda

- Pod Shatter Background
- BASF's Pod Shatter Technology
- Why Pod Shatter?
- Proof is in the Results
- Summary

IMPACTS OF POD SHATTER

- Pod Shatter can occur due to:
 - ▶ Adverse weather
 - ▶ Lengthened time before harvest
 - ▶ Impact from harvest machinery
- Pod Shatter can result in substantial seed loss leading to:
 - ▶ Decreased yield
 - ▶ Greater number of volunteers in following crops



BOTANY 101: PARTS OF A POD

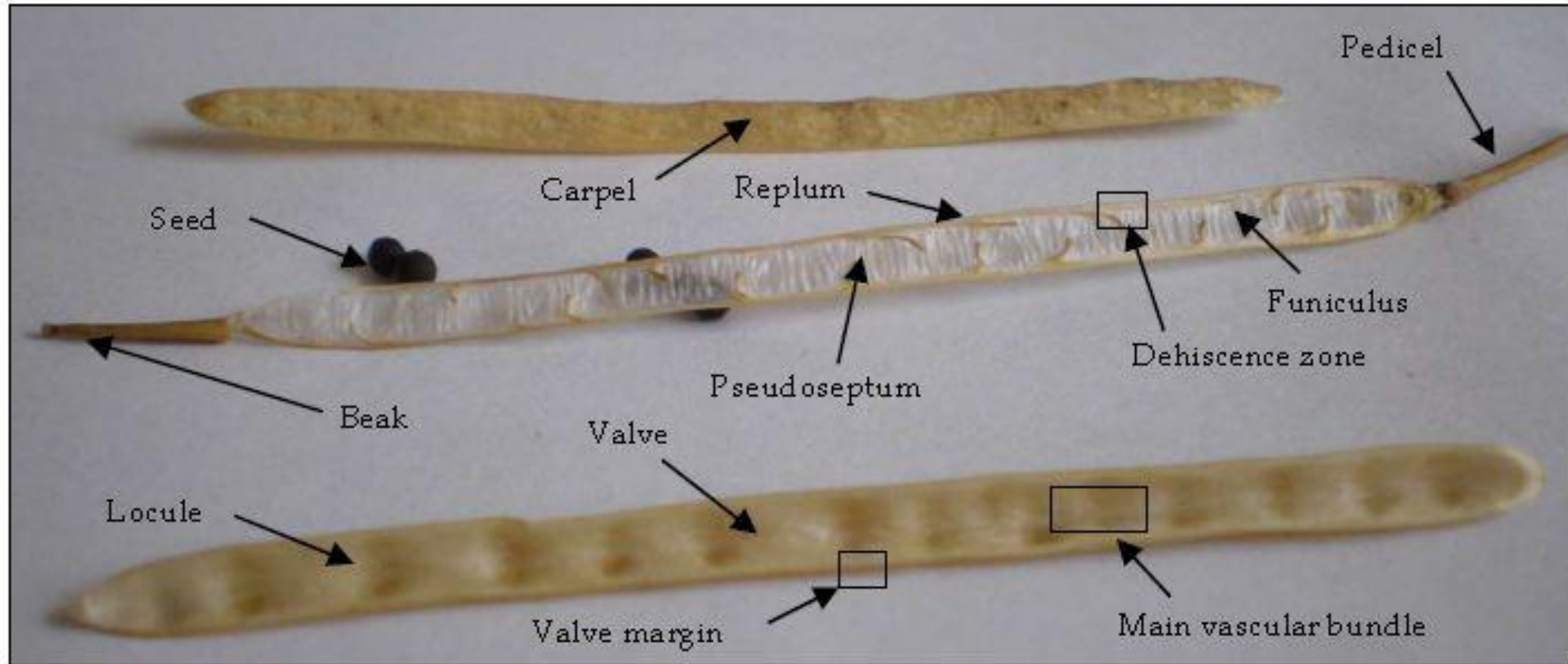
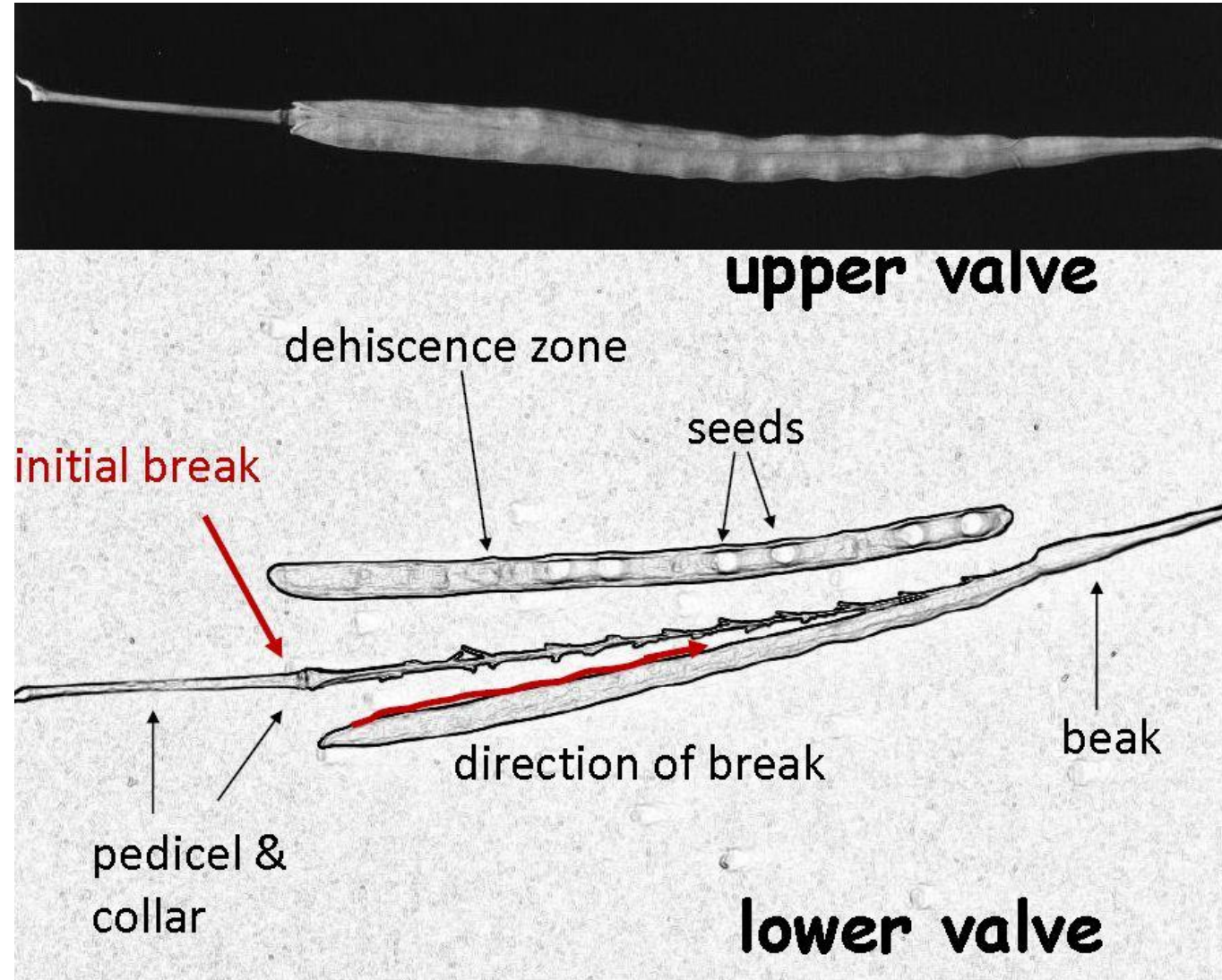


Fig. 1. The main structural features of a *Brassica napus* seed silique (from Kadkol, 2009)

HOW DOES SHATTERING OCCUR?

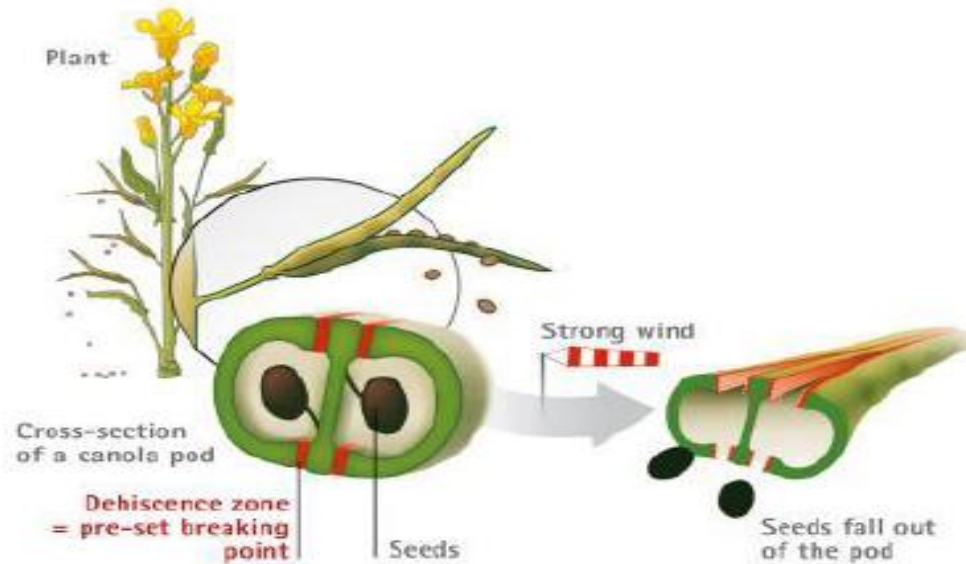




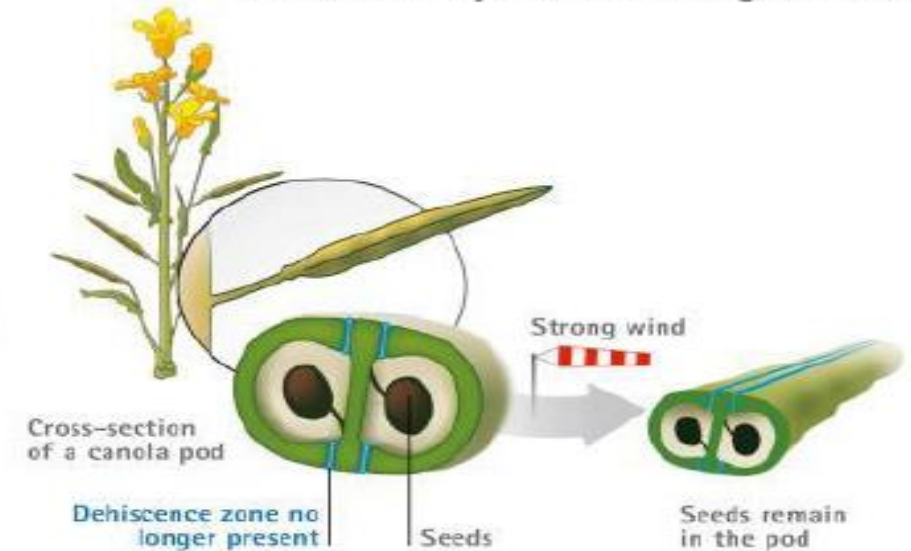
POD SHATTER REDUCTION TRAIT

By modification of a key gene (Indehiscent or IND) controlling the formation of the “seam tissue” or “dehiscence zone” in the seed pod

Source: the Bayer Scientific Magazine nr.26, 2014



Conventional canola shatters



Modified canola does not shatter



POD SHATTER REDUCTION TRAIT



InVigor L140P with
pod shatter tolerance.

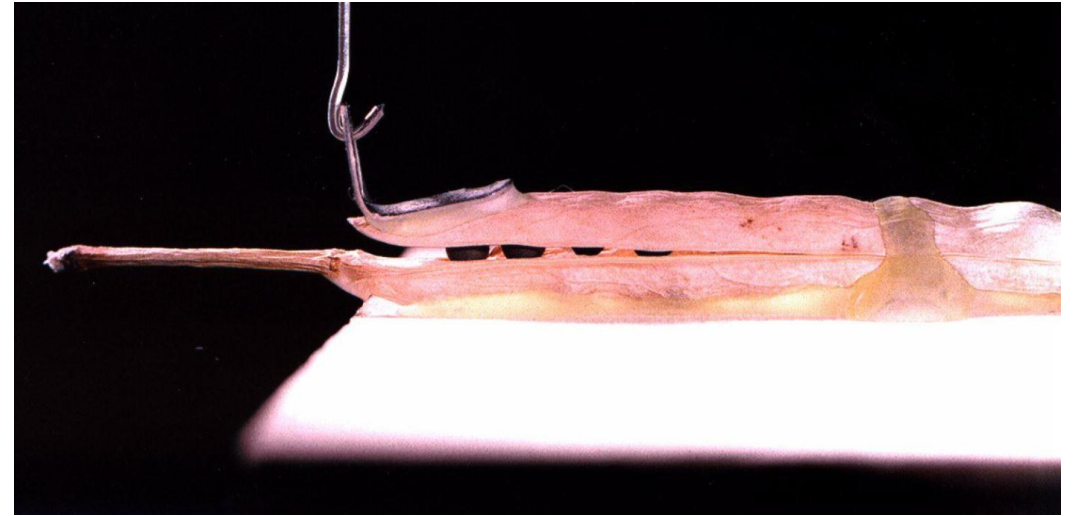


Canola variety without
pod shatter tolerance.

PATENTED TECHNOLOGY



Random Impact Test



Tensile Strength Test

What makes the InVigor Pod Shatter Trait Unique?

- Patented Technology

- ▶ Although there is some genetic variation in current genetics of *B. napus*, the level of resistance is genetically considered inadequate to avoid swathing
- ▶ InVigor 5440 and InVigor L130 were considered among the “best of the rest”

- Minimal pod drop with the InVigor PSR hybrids as well

Harvest freedom.

Giving growers the ability to straight cut or delay swath canola without sacrificing yield potential, the **patented Pod Shatter Reduction technology** from InVigor hybrid canola continues to revolutionize the way canola growers approach their entire season.

POD SHATTER:

refers to the pre-harvest release of seeds, when the pod seam and connective tissue break apart and release seeds.

POD DROP:

indicates the loss of an entire pod from a weakened stem.

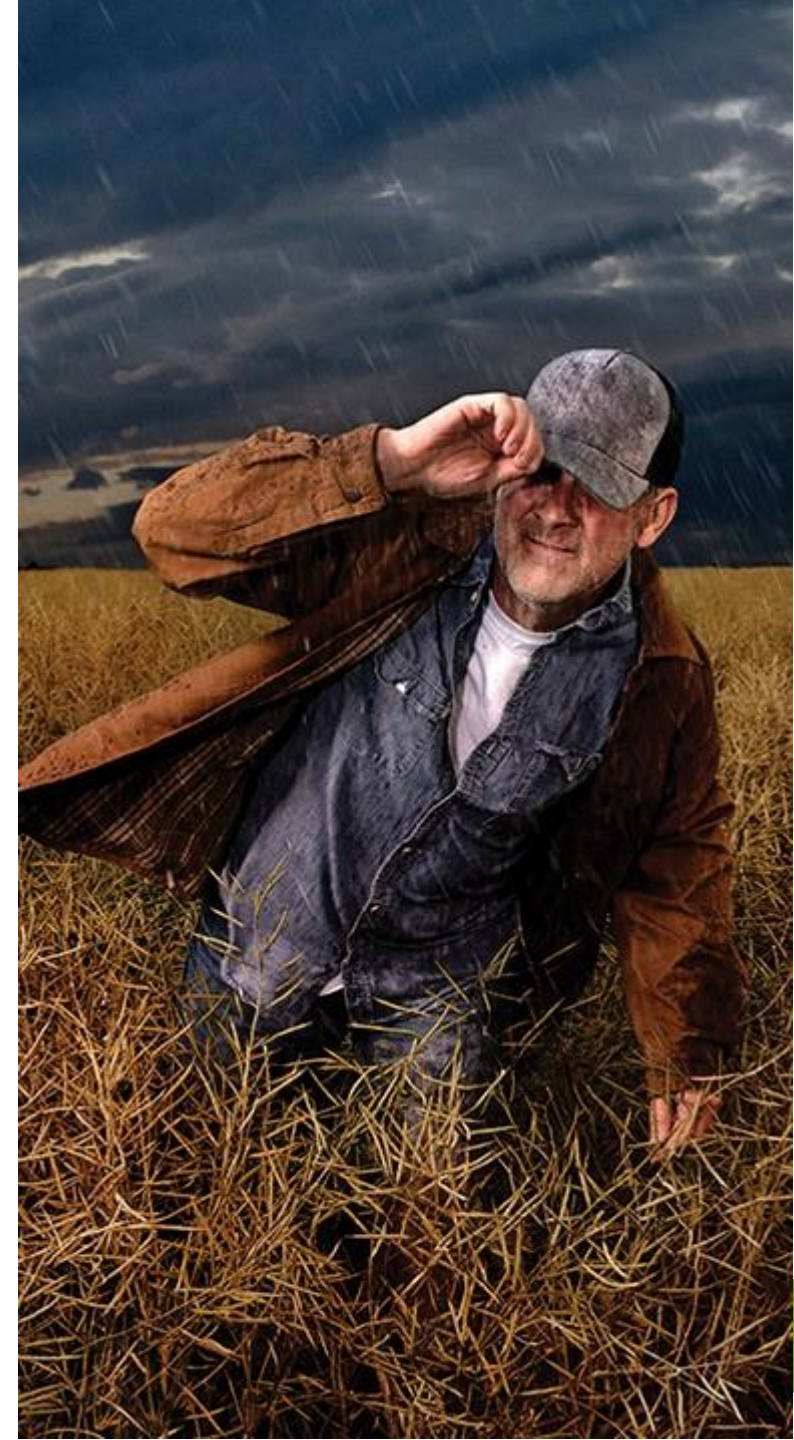
The patented Pod Shatter Reduction trait naturally strengthens pod seams and stems to give the plants excellent pod drop characteristics and safely retain the seeds in the pod until you are ready to harvest. These yield-enhancing properties can result in a fuller pod, larger seeds and lower green seed counts.

NEW
InVigor
L345P

InVigor
L233P

InVigor
L234P

InVigor
L255P



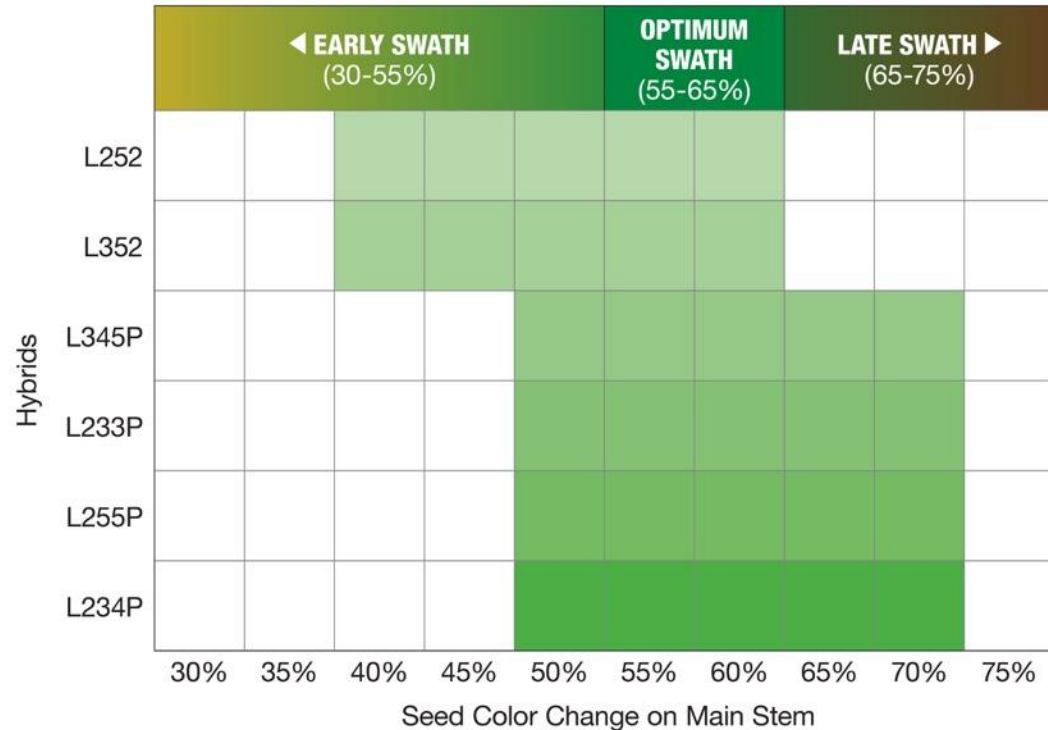
Make late swathing a real harvest option



InVigor® L252, L352, L345P, L233P, L255P and L234P feature patented pod shatter reduction technology, which gives growers the flexibility to consider delayed swathing at harvest.

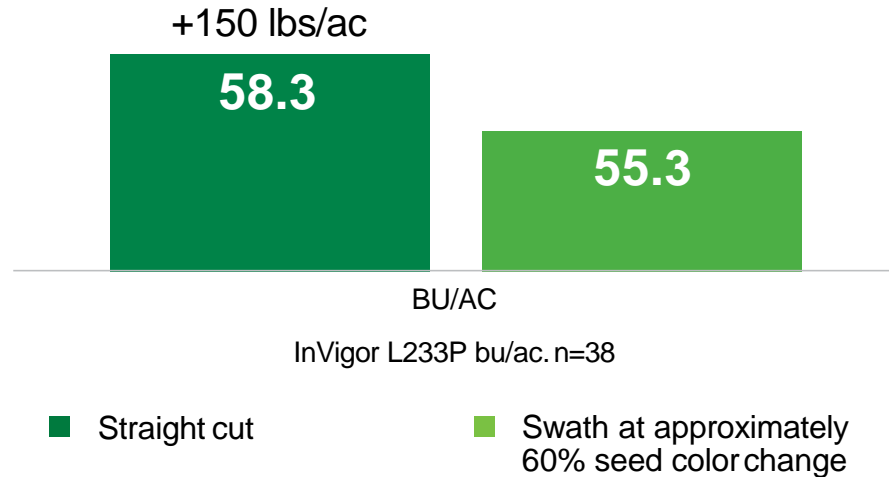
- Reduces harvest timing pressure
- Maximizes yield potential by allowing pods to fill for a longer period resulting in:
 - Larger seeds
 - Fuller pods
 - Potentially lower green seed counts
- Quicker crop drydown
- Better overall results
- Fewer canola volunteers due to fewer shatter losses

Swathing InVigor Hybrids Timing Options



The Same Genetics

Three-bushel yield increase for InVigor L233P when straight cut.



38 InVigor DSTs featuring InVigor L233P (2016-2017).

Results may vary on your farm due to environment factors and preferred management practices.

The Pod Shatter Reduction advantage

- The ability of manage multi-stage crops
- Harvest flexibility to delay swath or straight cut- time & labor management
- Minimize the impact of late-season wind, hail and snow
- Longer pod fill resulting in larger seeds and maximizing yield
- Reduces harvest loss and volunteer canola
- Selected for both patented pod shatter reduction and pod drop

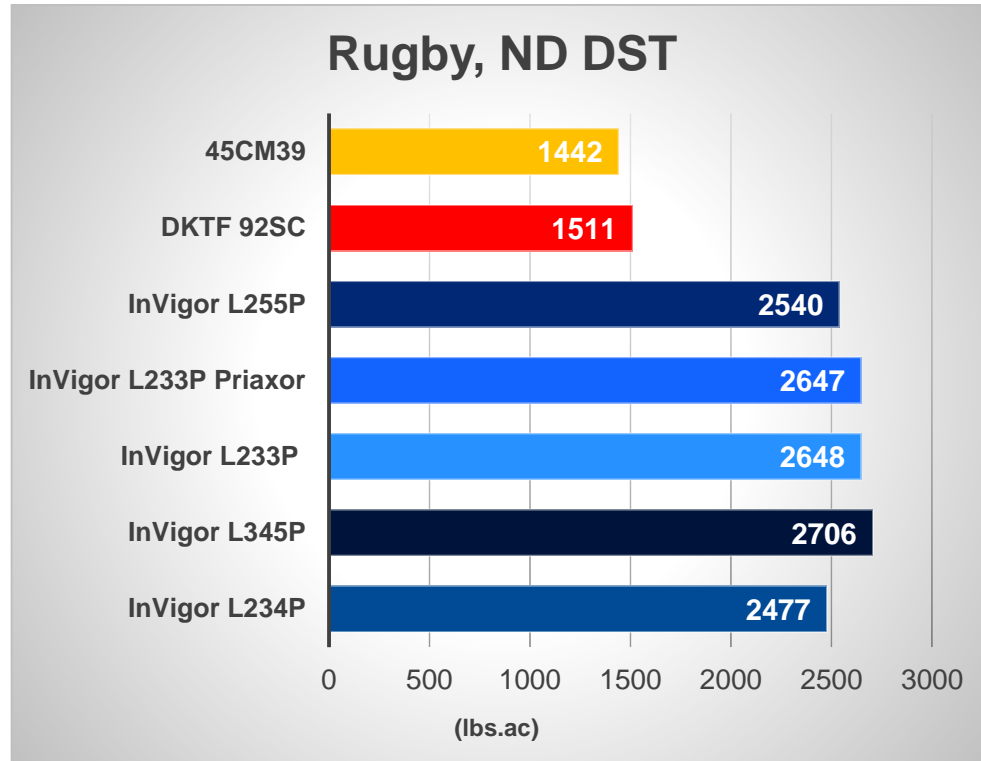


Early Indications

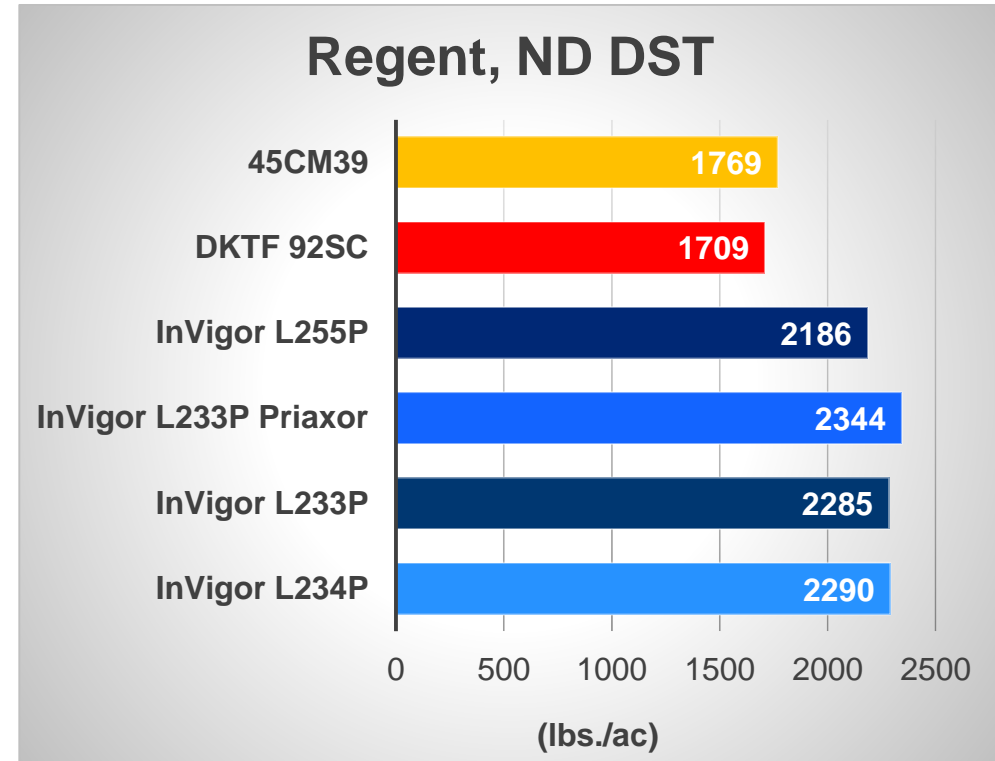
Volunteer Assessment , MB. SPRING 2015



InVigor 2019 DST Results

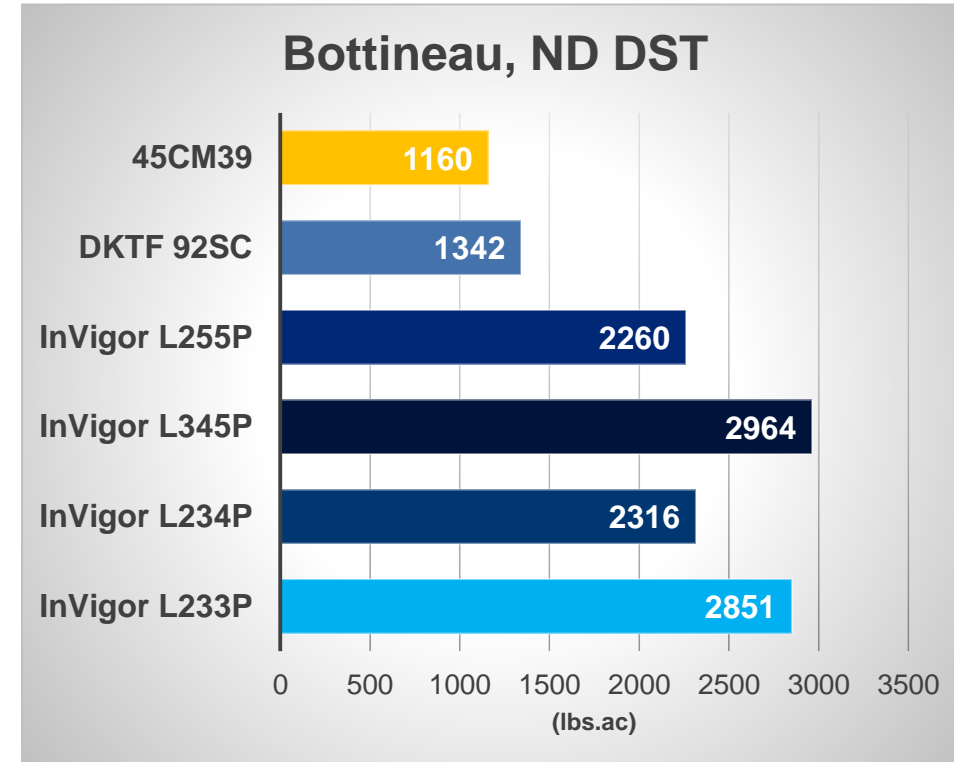


Seeded May 19, 2019 harvested Oct. 7, 2019



Seeded May 23, 2019 harvested Sept/ 19, 2019

Bottineau, ND DST Results



Seeded May 17, 2019, harvested Oct. 8, 2019



InVigor L233P
2851 lbs./ac

Competitor line
1159 lbs./ac

**Non-PSR
Liberty Tolerant
Hybrid**

InVigor L233P



AUGUST 27th 2019

Key Takeaway:

Remember there is no such thing as “same as” in the InVigor Canola World!!

THE BENEFITS OF PSR HYBRIDS

- Reduces impact of wind, hail & snow
- Ability to manage multi- stage crops
- Longer pod fill, larger mature seeds
- Higher yield
- Time management
- Increases harvest flexibility
- Reduces harvest loss
- Reduced volunteers
- Strong for both pod drop & Pod Shatter Reduction



InVigor®

■ BASF
We create chemistry



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