

What's New in Straight-Combining Canola?

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Indian Head Agricultural Research Foundation



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NEW HOLLAND
AGRICULTURE



Honey Bee
Harvest Faster



SEEDMASTER
DIRECT SEED WITH PINPOINT ACCURACY.

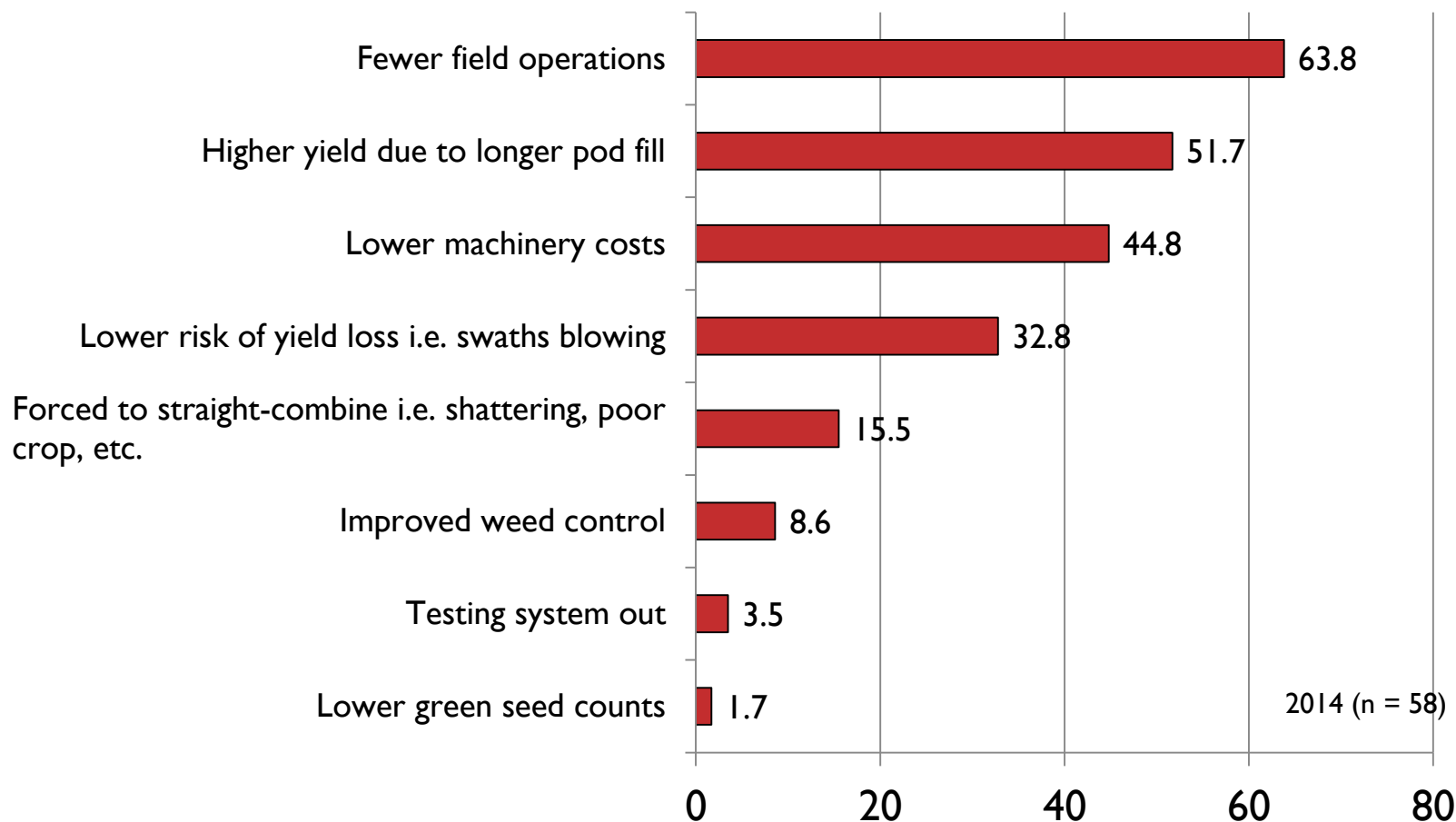
Incentives for Straight-Combining

- Reduced labour / equipment cost
- Reduced risk of yield loss under some conditions (ie: swaths blowing, sparse stubble, short / badly lodged crop)
- Difficult to swath entire canola crop at optimal time (narrow window for swathing)
- Improved seed quality (ie: larger seeds, higher oil content, reduced green seed)
- Fall weed control opportunities with pre-harvest applications
- Crop and seed dry quicker after rains during harvest



Reasons for straight-combining provided by canola growers who currently do so (BASF)

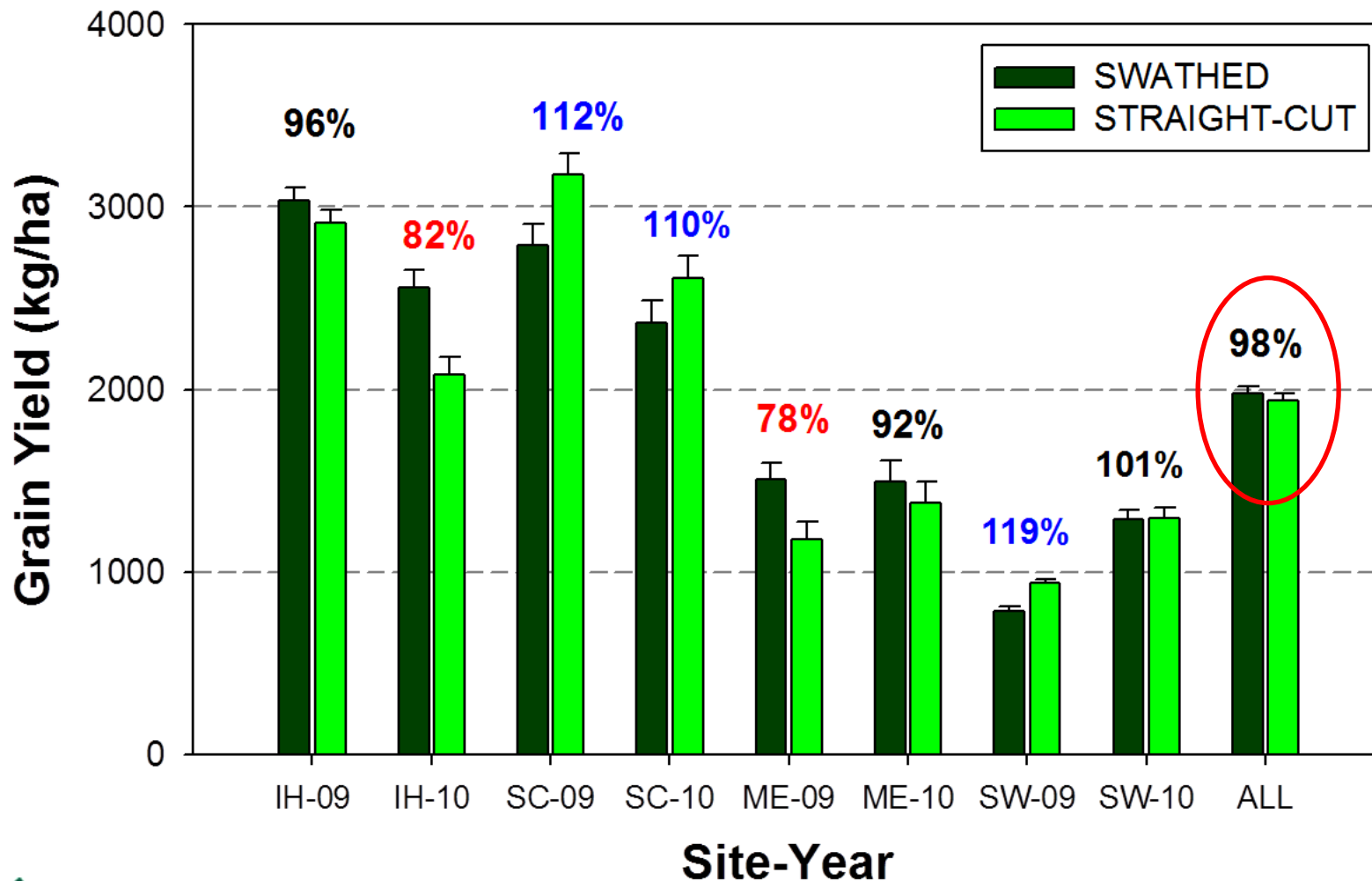
Percent of respondents



Swathing also has Risks

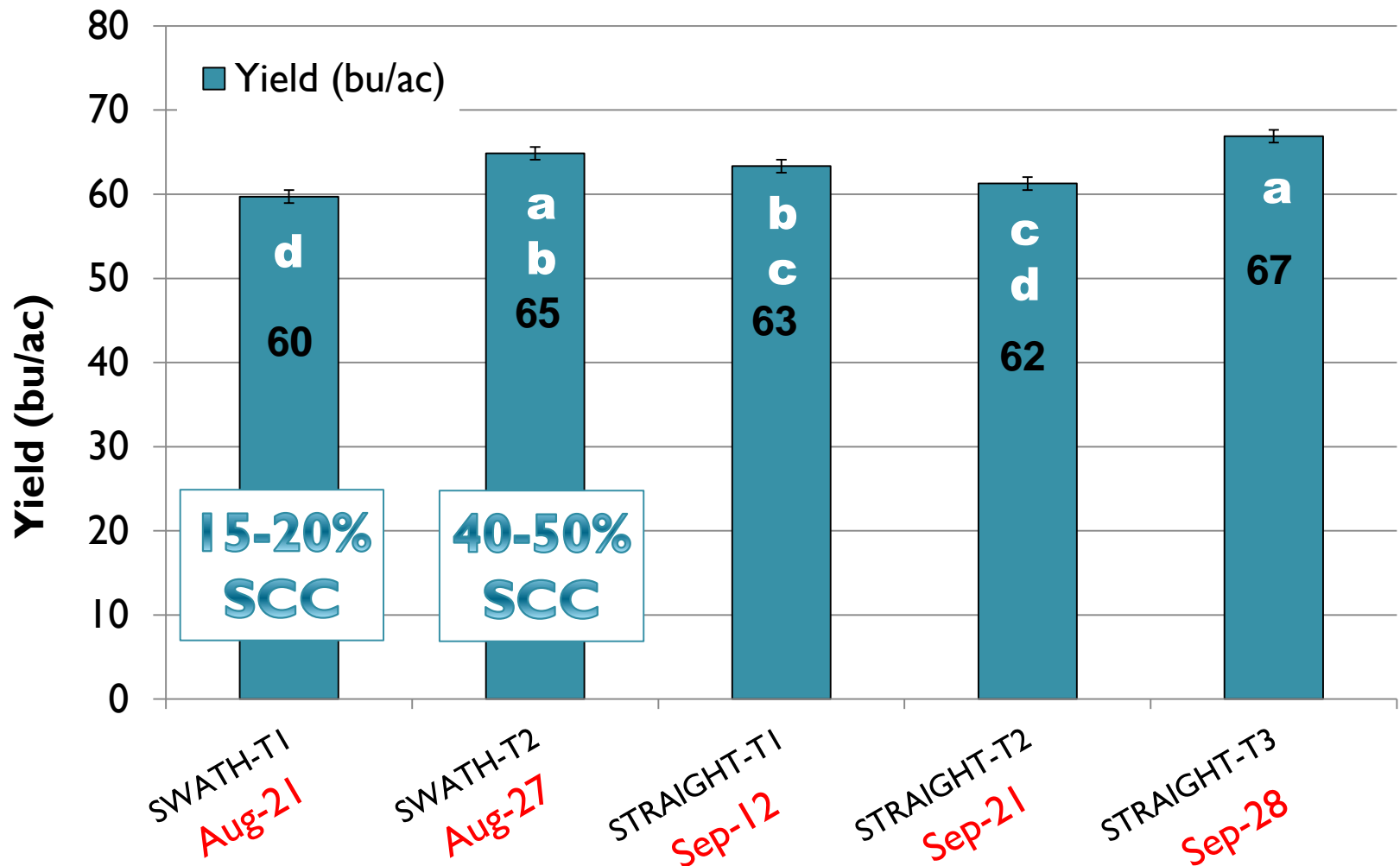
- U of SK research on commercial farms showed that total seed losses (environmental + header + threshing) for swathed and straight-combined canola were equal and ~10% on average (Haile et al. 2014. Can. J. Plant Sci. 94:785-789)
- 2012 was the worst year in recent memory for swaths blowing with estimated yield losses >>50% in many cases
- Swathing too early results in significant yield loss due to smaller seeds and can lead to higher green seed counts, particularly under hot, dry conditions
- Swathing too late results in yield loss due to pod shatter
- Similar to straight-combining, the risks of environmental and header losses increase with the length of time that canola swaths remain in the field

How do yields between swathed and straight-cut canola compare?



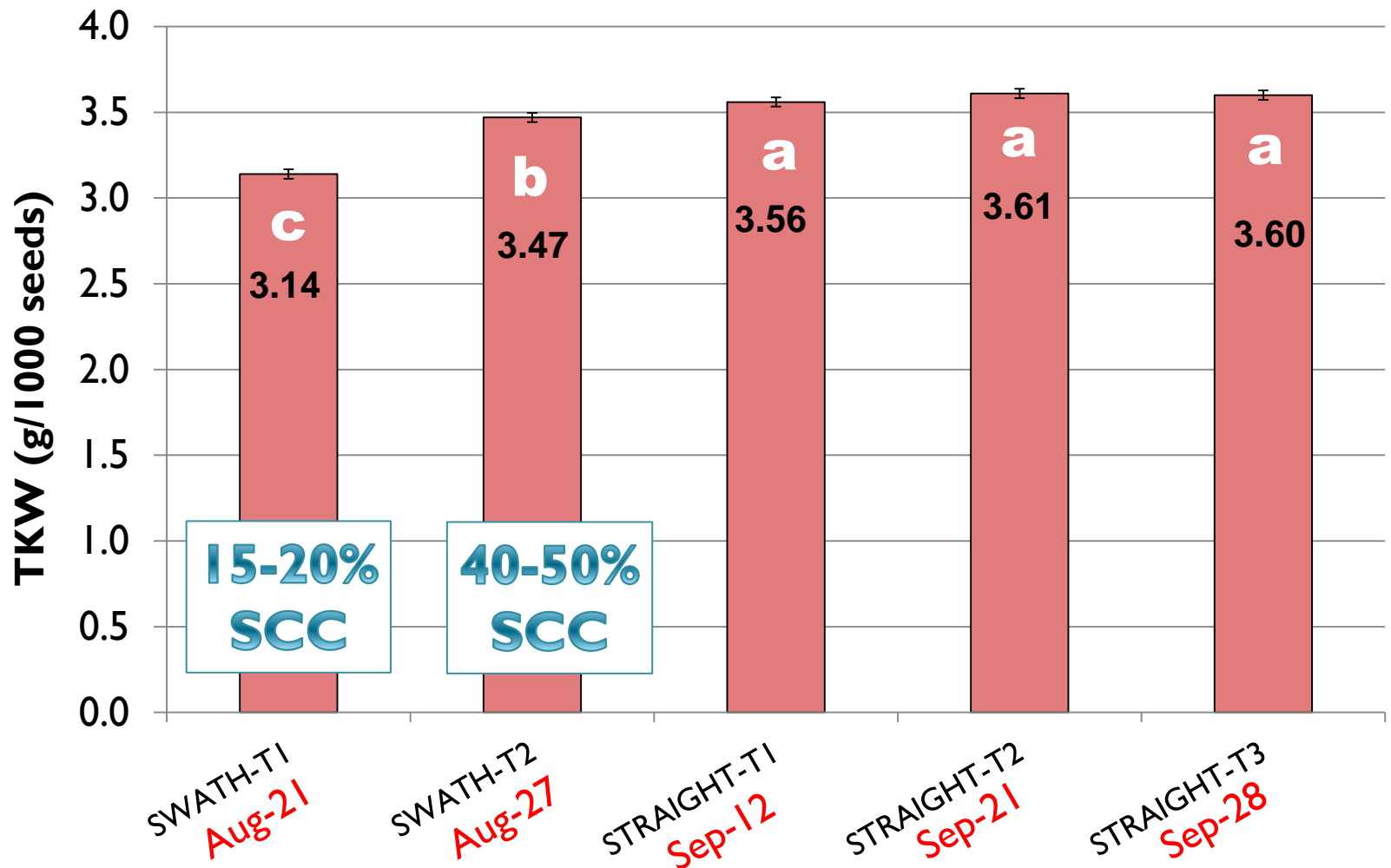
ADOPT Canola Harvest Demo

Indian Head 2013 – Seed Yield



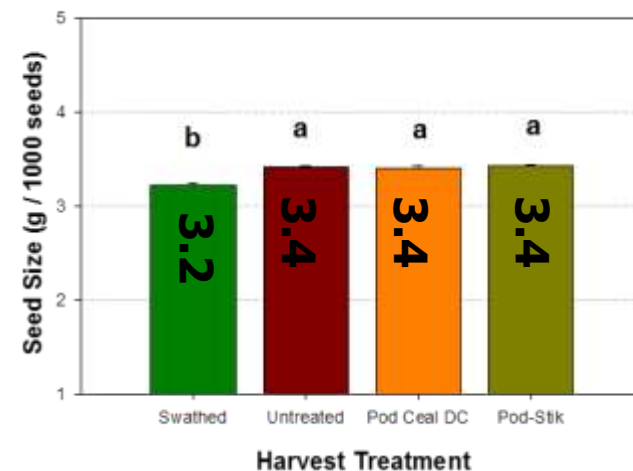
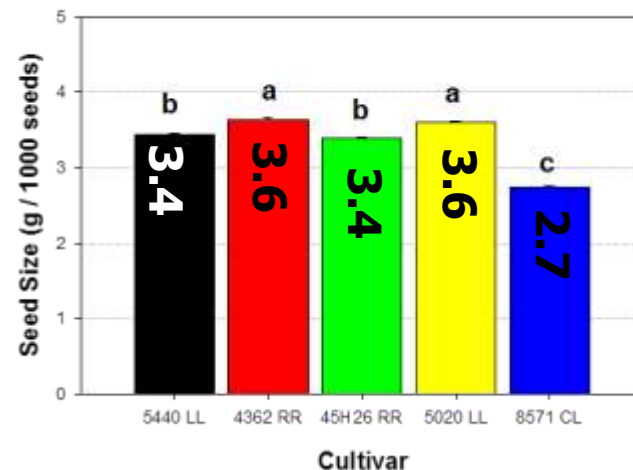
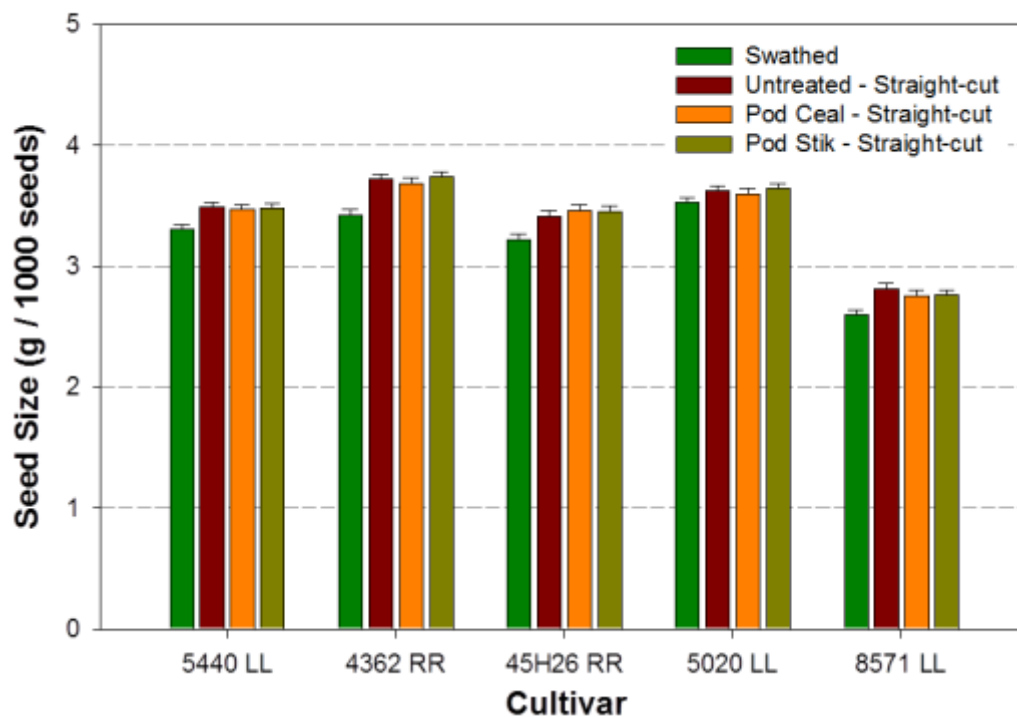
ADOPT Canola Harvest Demo

Indian Head 2013 – Seed Size



Cultivar x Harvest Method

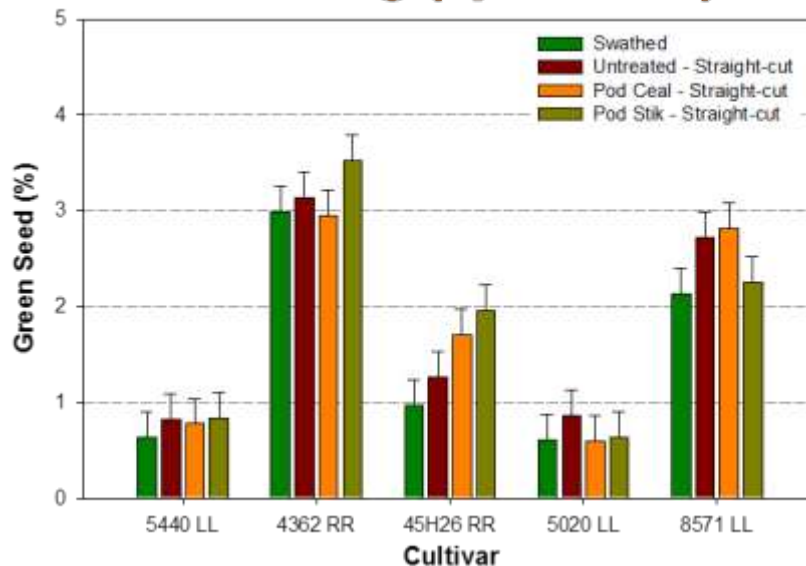
Effects on Seed Size Averaged Across 8 Sites



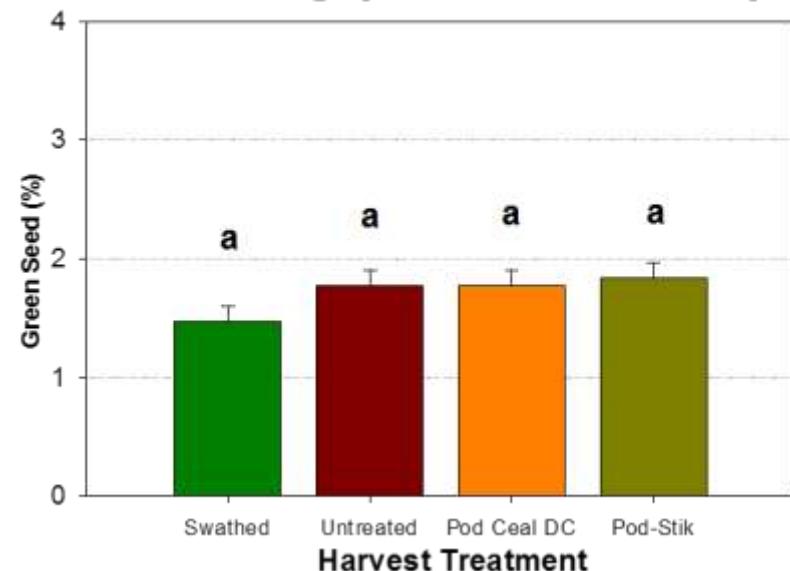
Harvest Method Effects on Percent Green Seed are Inconsistent

- Less green seed sometimes identified as an advantage to straight-combining but this is not always the case
- Actual results vary depending on relative timing of operations, crop uniformity & weather leading up to harvest

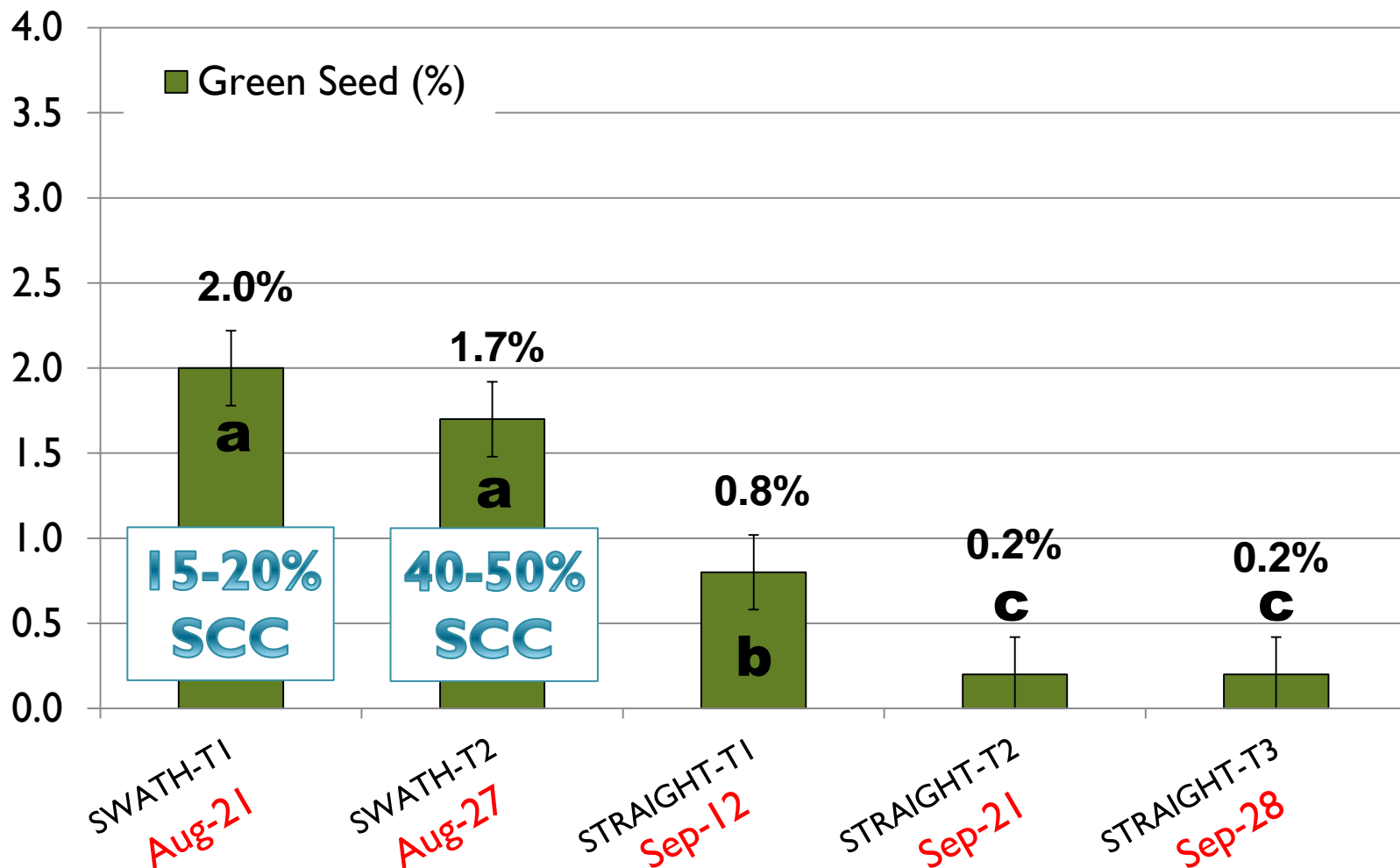
8 site avg (by cultivar)



8 site avg (across cultivars)



ADOPT Canola Harvest Demo Indian Head 2013 – Percent Green Seed

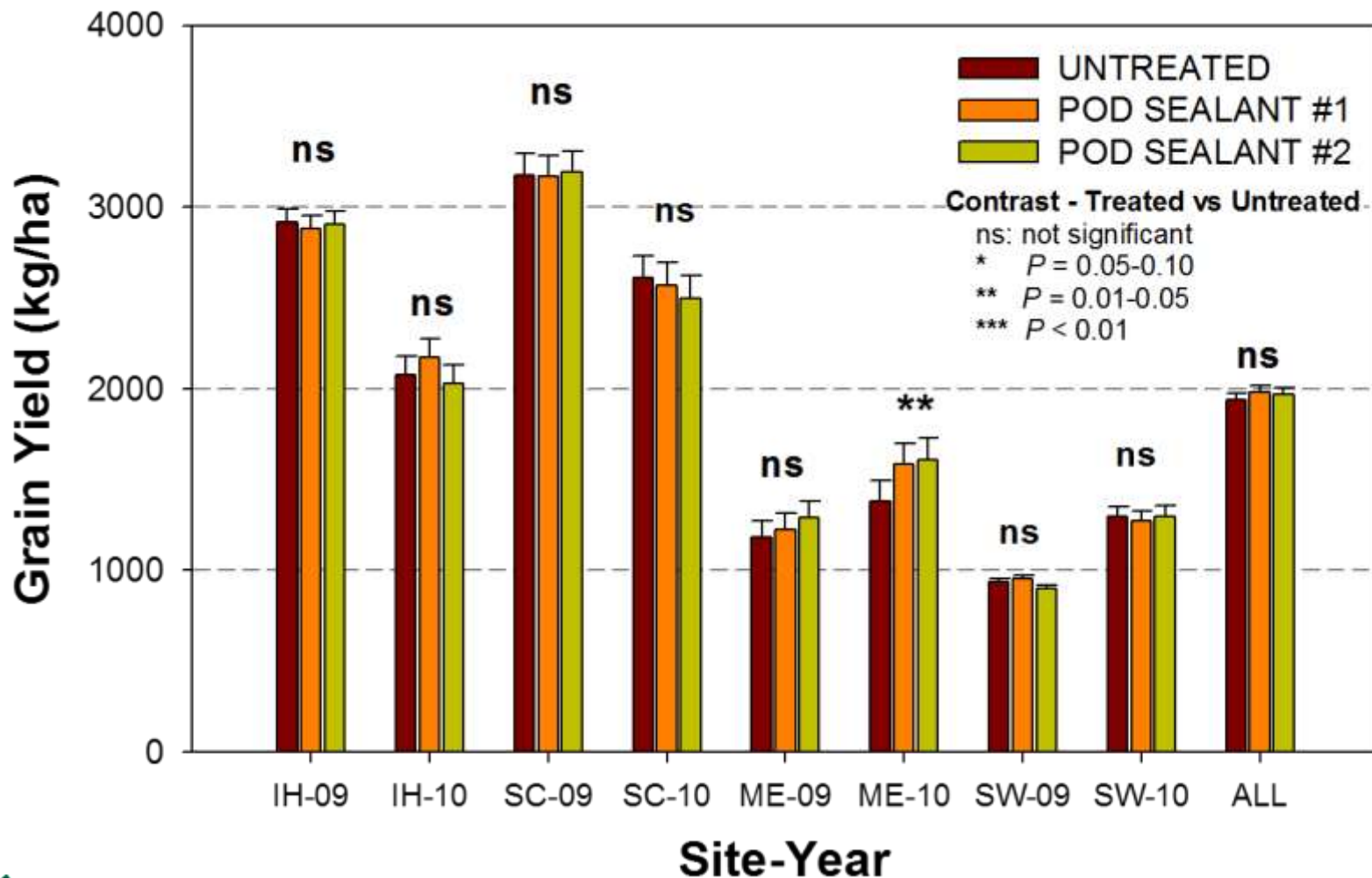


What about Pod Sealants?

- Commercially available in Western Canada since 2008, examples include...
 - Pod Ceal DC™ (discontinued)
 - Pod-Stik™
 - Desikote Max™
- Modes of action vary but designed to reduce pod shattering and extending the harvest window to make shatter-prone crops better suited for straight-combining



Pod Sealant Effects on Straight-Combined Canola Yield (by site)



Field-Scale Canola Harvest Trial Indian Head 2010-2011

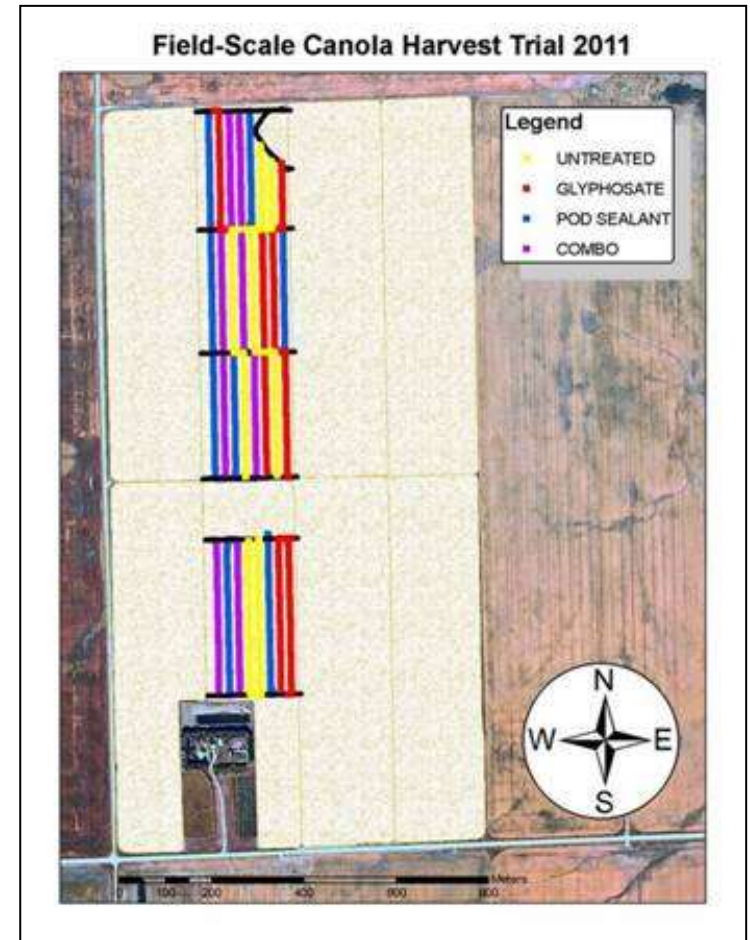
Harvest Methods

- 1) Swathed
- 2) Straight-Combined

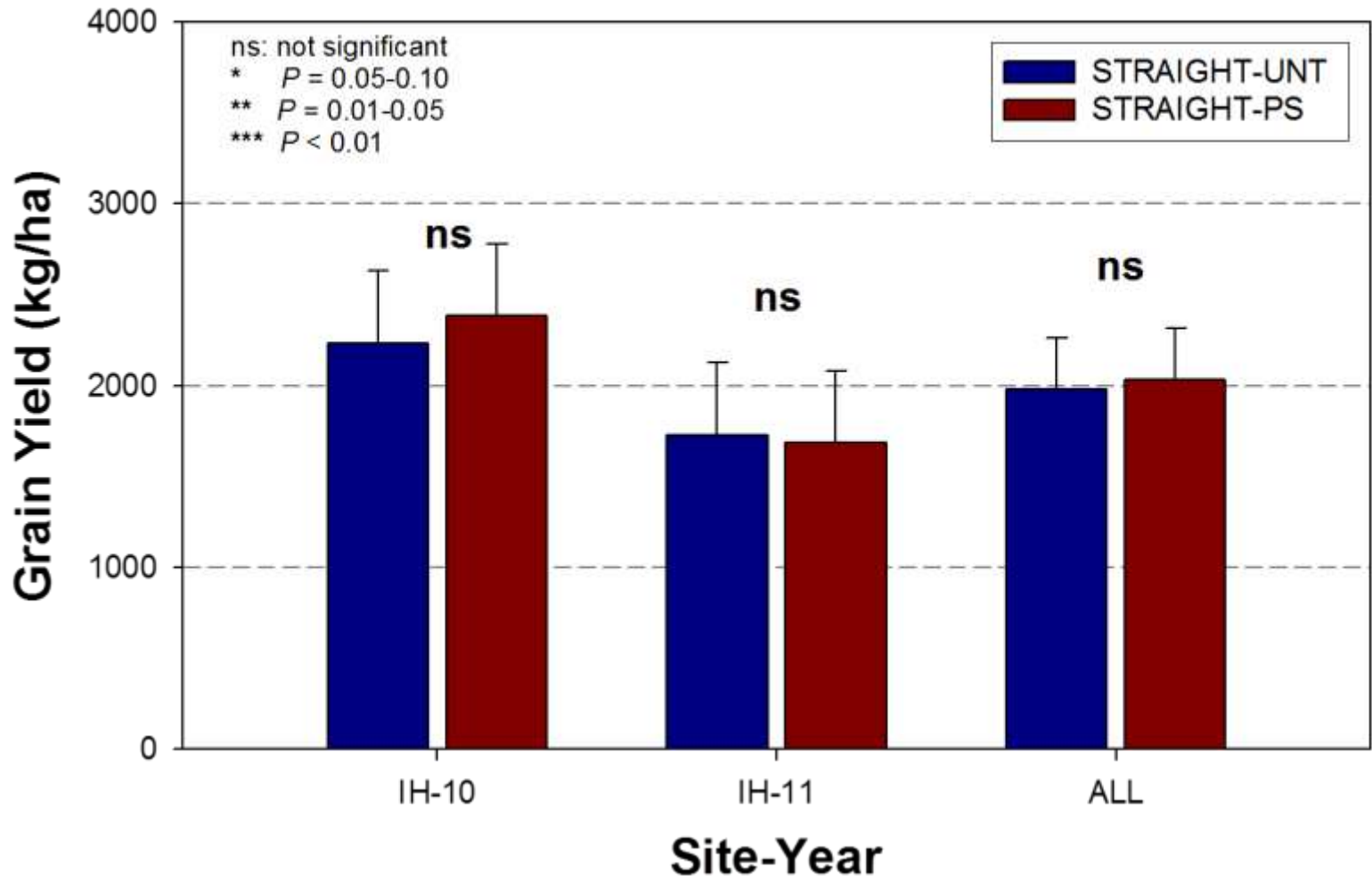
Foliar Treatments*

- 1) Untreated
- 2) Pod Sealant
- 3) Glyphosate
- 4) Pod Sealant & Glyphosate

*applied at 30-40% pod colour change

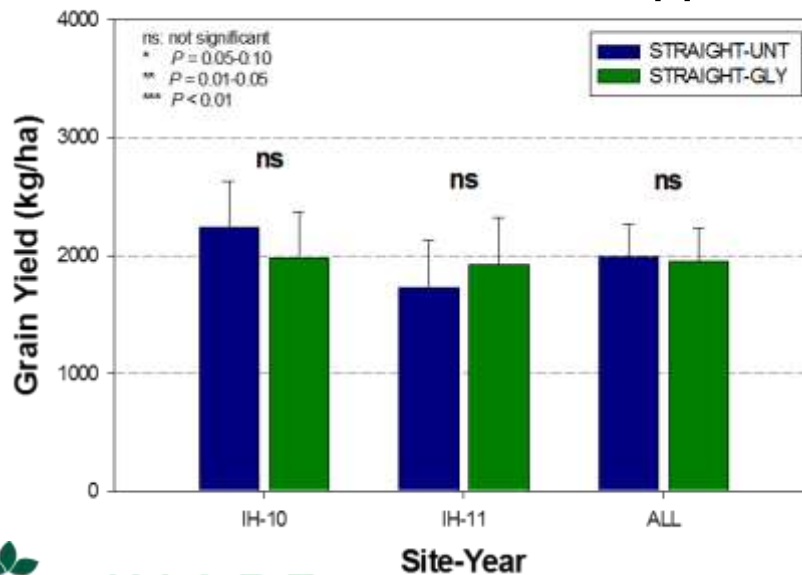


Field-Scale Canola Harvest Trial Indian Head 2010-2011



Pre-harvest applications not always necessary but can have benefits

- Glyphosate is not a desiccant and only a potential harvest aid for Liberty Link® and Clearfield® canola
- HEAT now registered for pre-harvest application on canola
- Can facilitate earlier & easier harvest, even out variable fields and make field operations easier to time
- Perennial weed control opportunity with straight-combined canola



Equipment Considerations



WCA Canola Header Evaluation (Seed Yield)

Wheatland Conservation Area Inc.  Practical Solutions for Today's Agricultural Questions

A partner in innovation through the Saskatchewan Agri-ARM network.

2005

2006

2007

----- bushels / acre -----

Stripper

22

n/a

n/a

Rigid

25

31

25

Draper

n/a

32

26

BISO

28

37

29

WCA Canola Header Evaluation (Header Losses)

Wheatland Conservation Area Inc.  Practical Solutions for Today's Agricultural Questions

A partner in innovation through the Saskatchewan Agri-ARM network

2005

2006

2007

----- seeds per tray -----

Stripper

215

n/a

n/a

Rigid

60

80

444

Draper

n/a

67

411

BISO

10

21

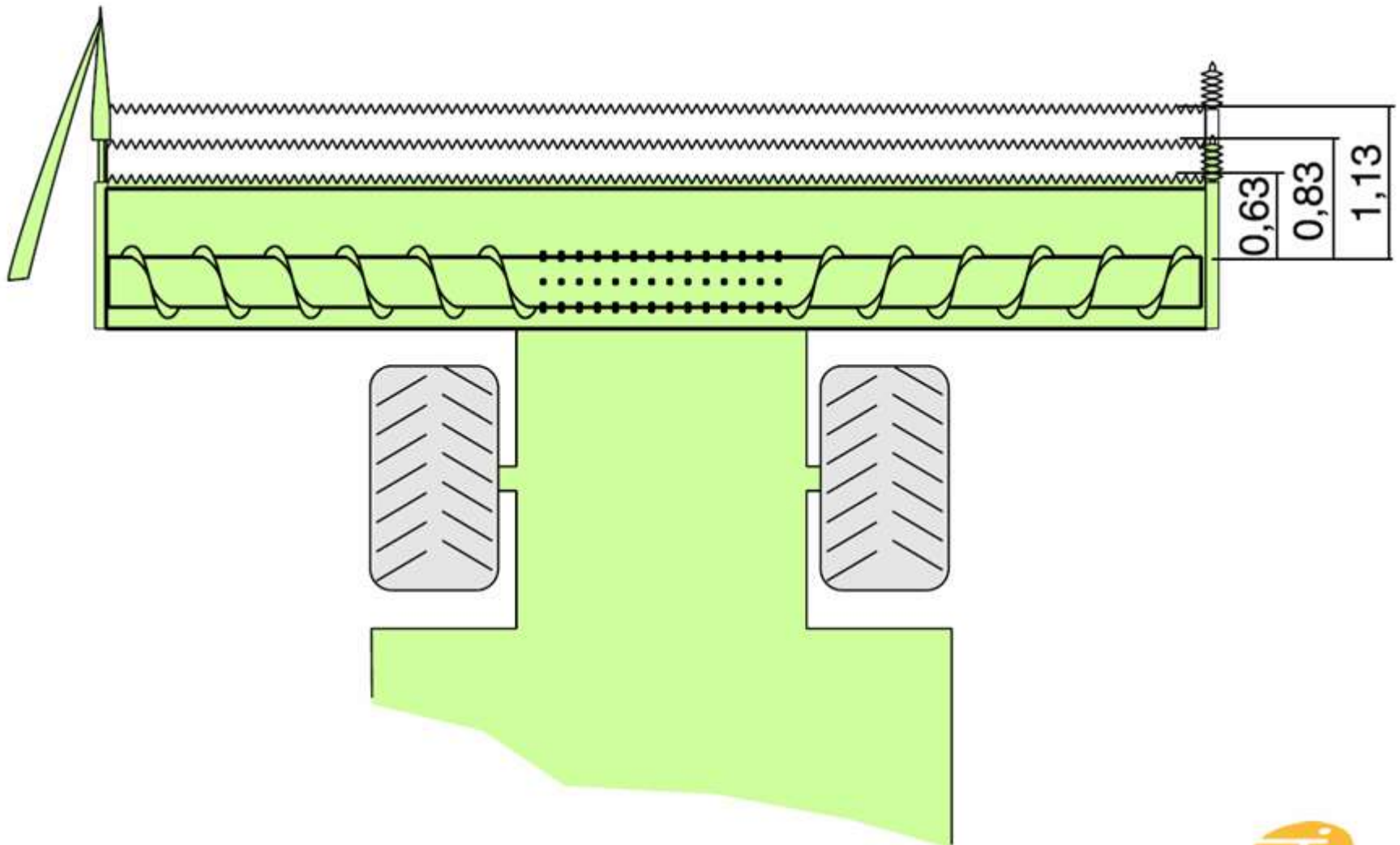
151

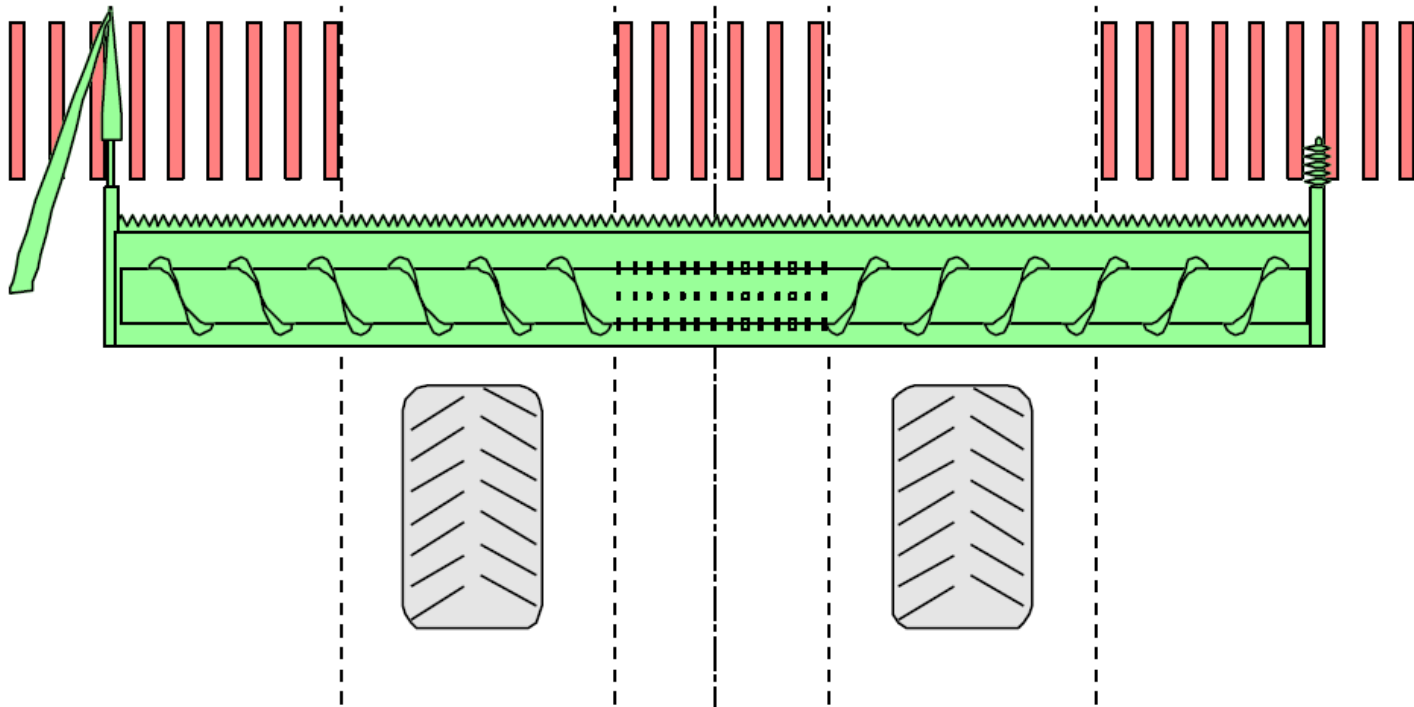


Premium Flow (Zürn)

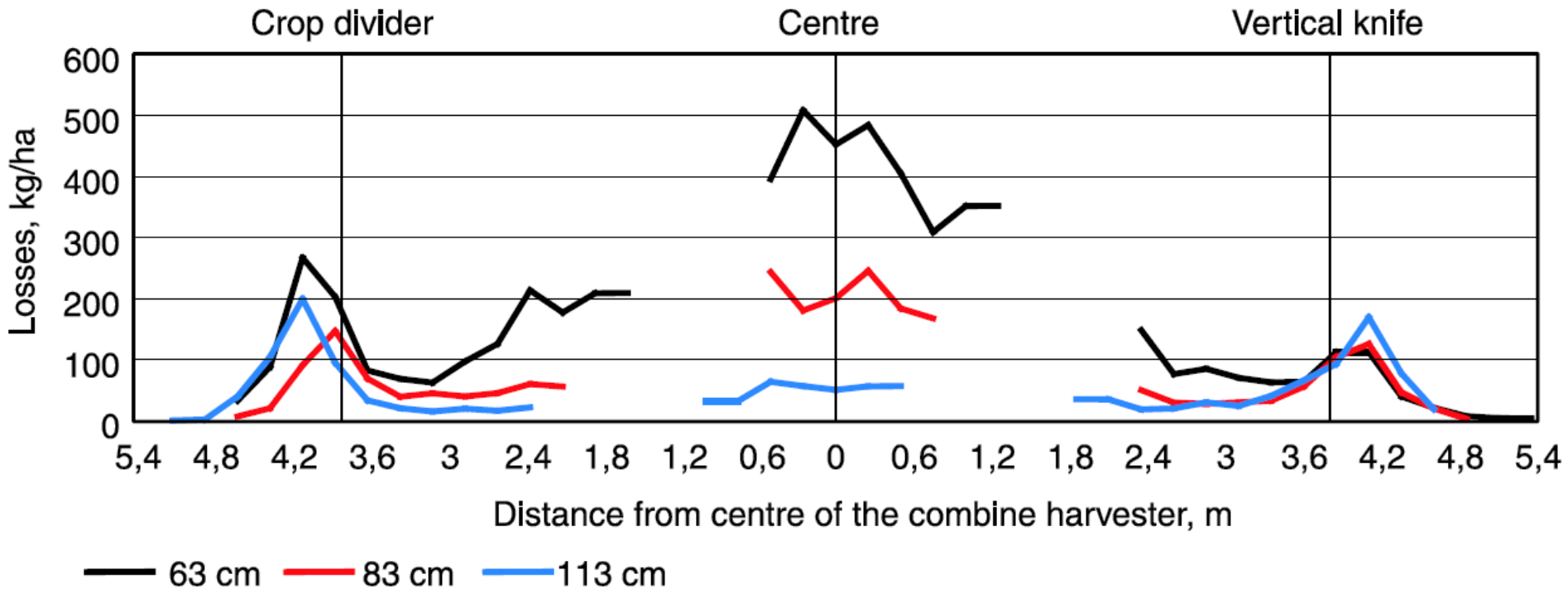
Sausse 2011 - 13th International Rapeseed Congress







Header losses at different header lengths during 2007



New Holland 760CG Varifeed™ Header



- One of several modern commercial rigid header that utilize similar principles as header extensions (23" of knife travel, vertical knives optional)

New Equipment Research in 2014

- ADF, SCGA, WGRF, Honeybee, CNH & Bayer CropScience partnered to fund a 3 year evaluation of commercial straight-cut headers for canola



Harvest Treatments*

- Swathed
- Honeybee Draper Header
- CNH Varifeed (retracted)
- CNH Varifeed (extended)

* Harvest treatments evaluated on 2 varieties – LI30 and LI40P

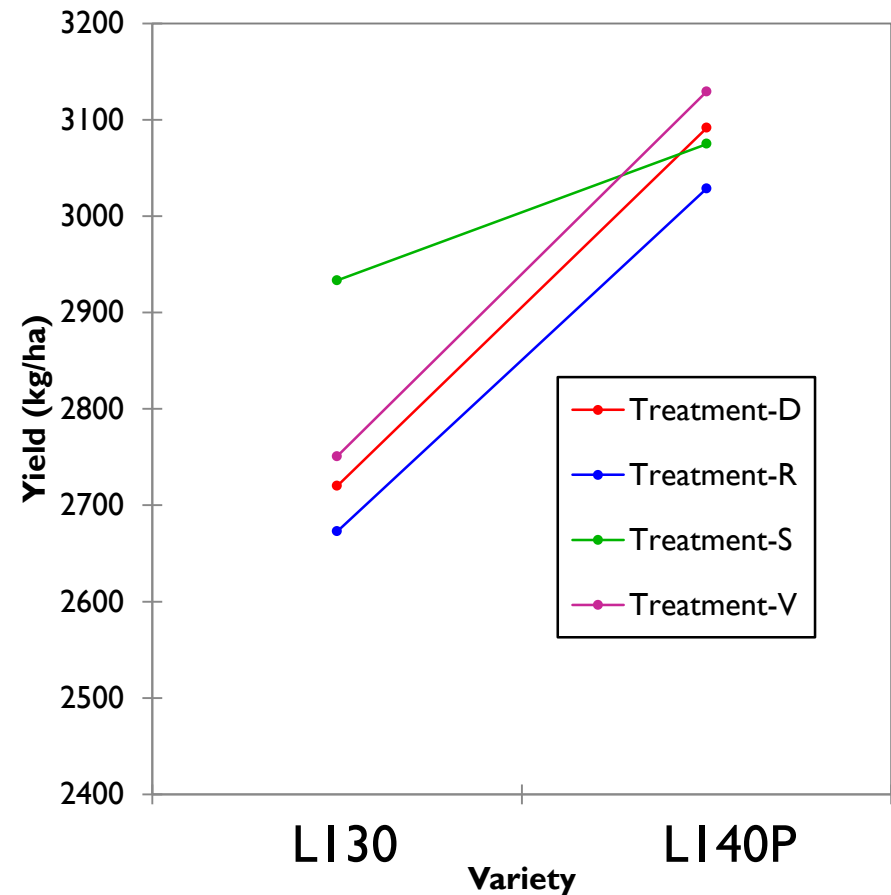


Preliminary Results – Seed Yield

- Indian Head 2014
- Good harvest conditions but delayed by wet weather



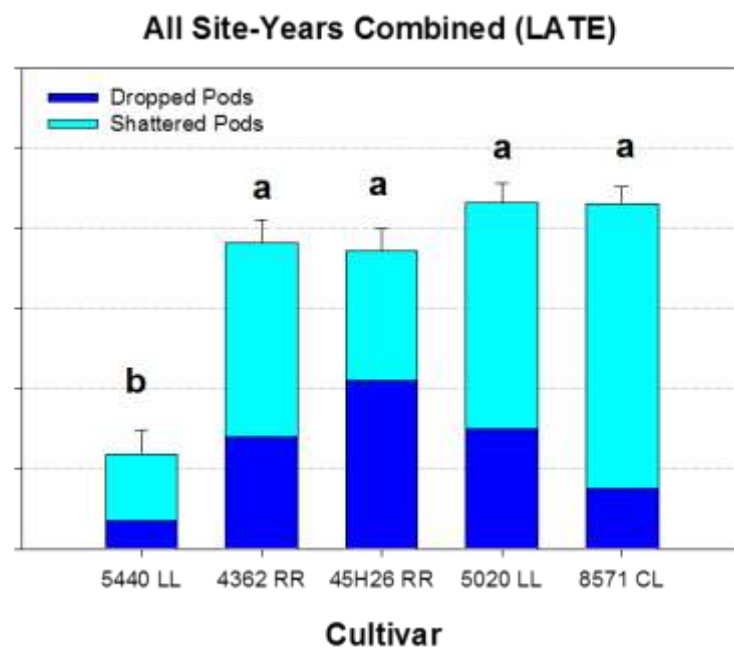
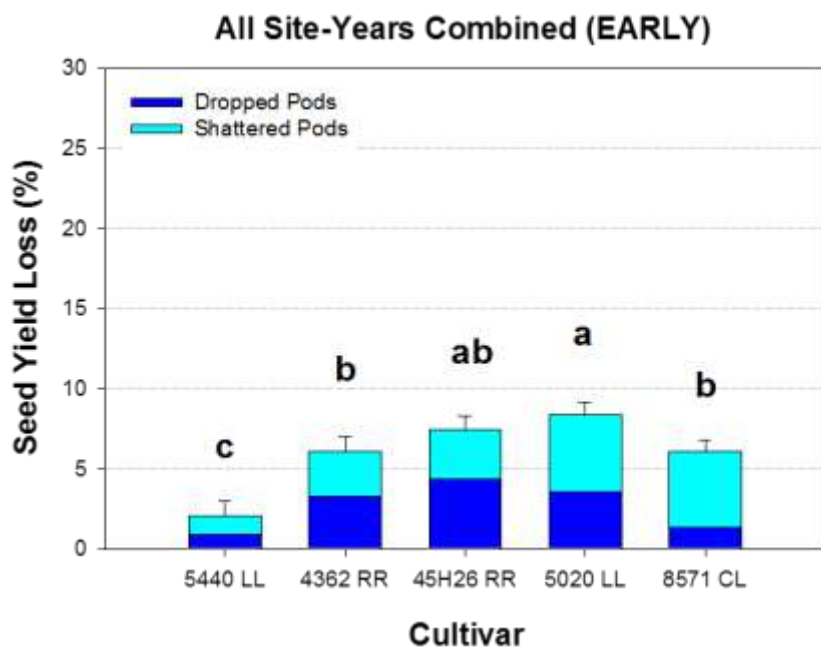
Variety*Treatment



Cultivar Considerations



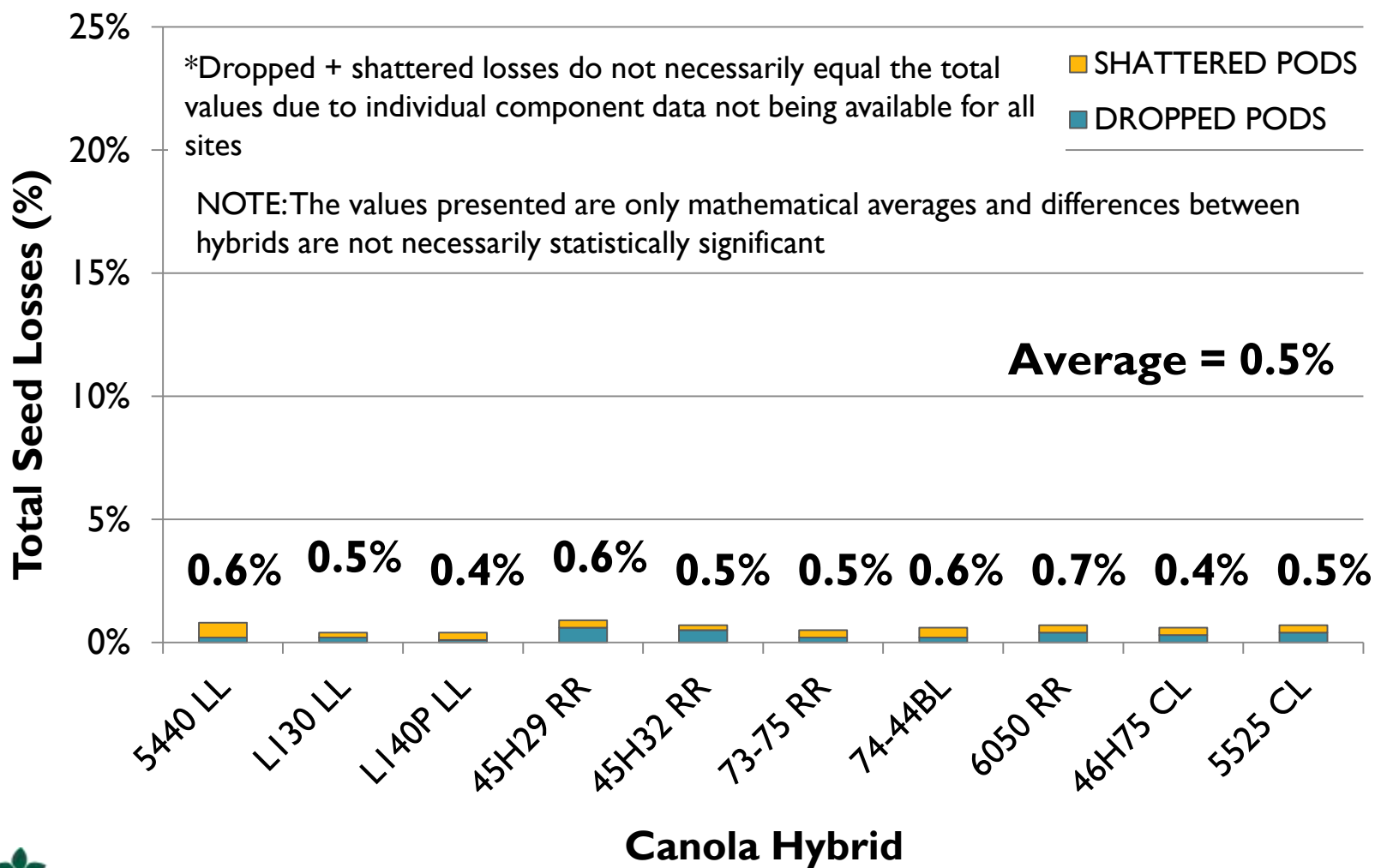
Cultivar Differences in Seed Loss from Standing Canola



8 Site Average – 2009-2010

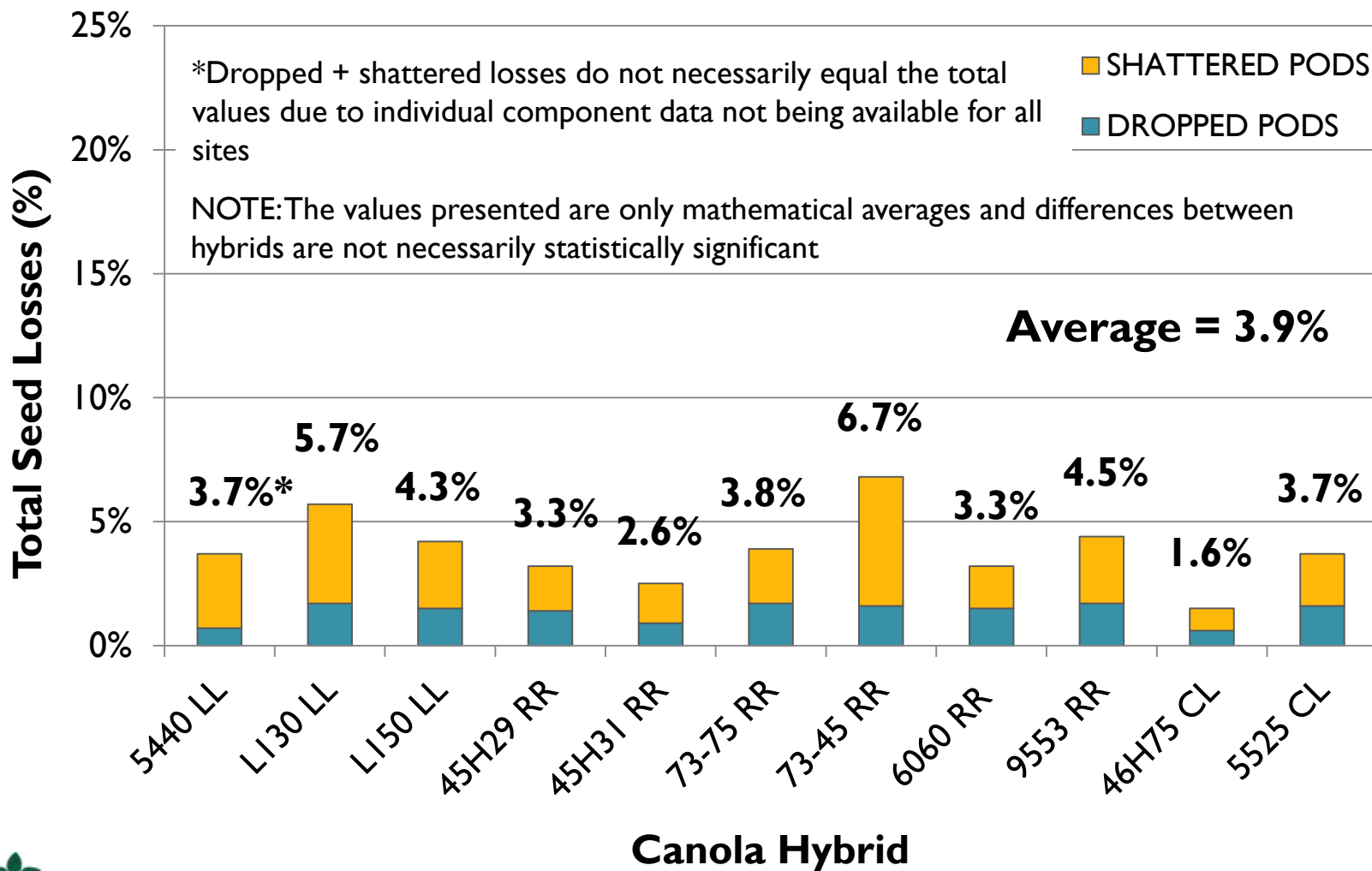
Seed Loss Summary 2013 (4 sites)

Total Seed Losses – Early Harvest



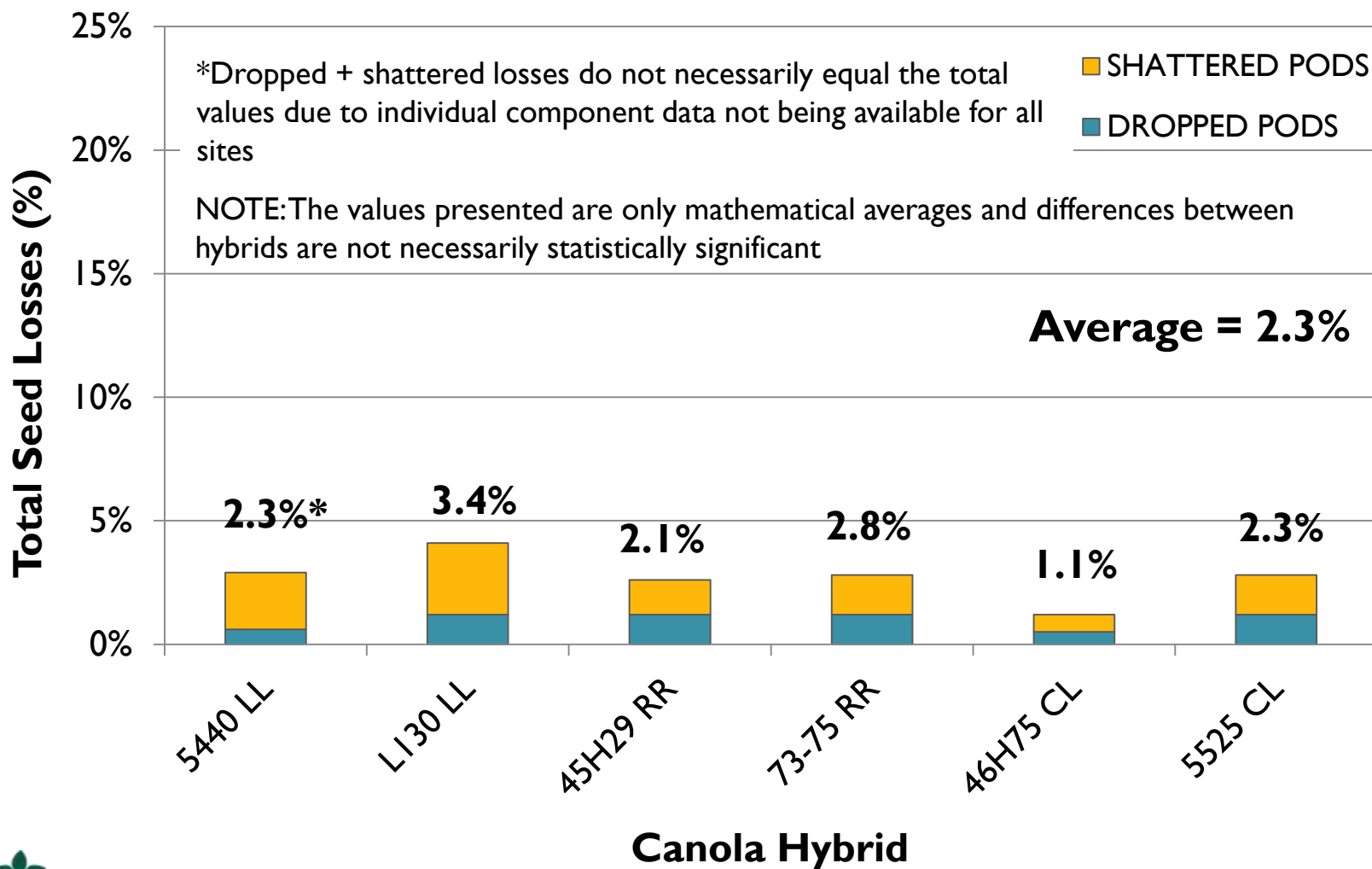
Seed Loss Summary 2011-12 (5 sites)

Total Seed Losses – Early Harvest



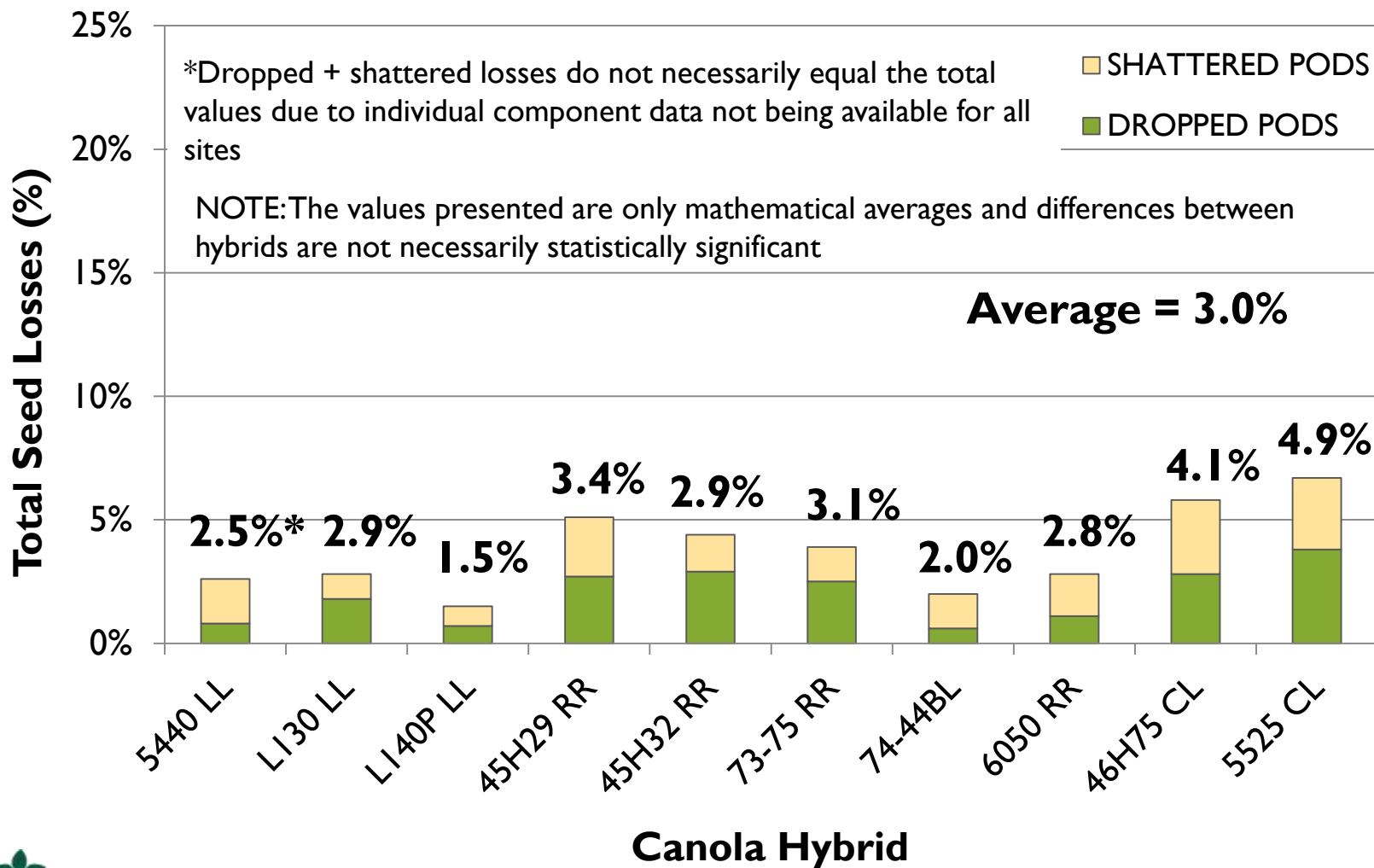
Seed Loss Summary 2011-13 (9 sites)

Total Seed Losses – Early Harvest



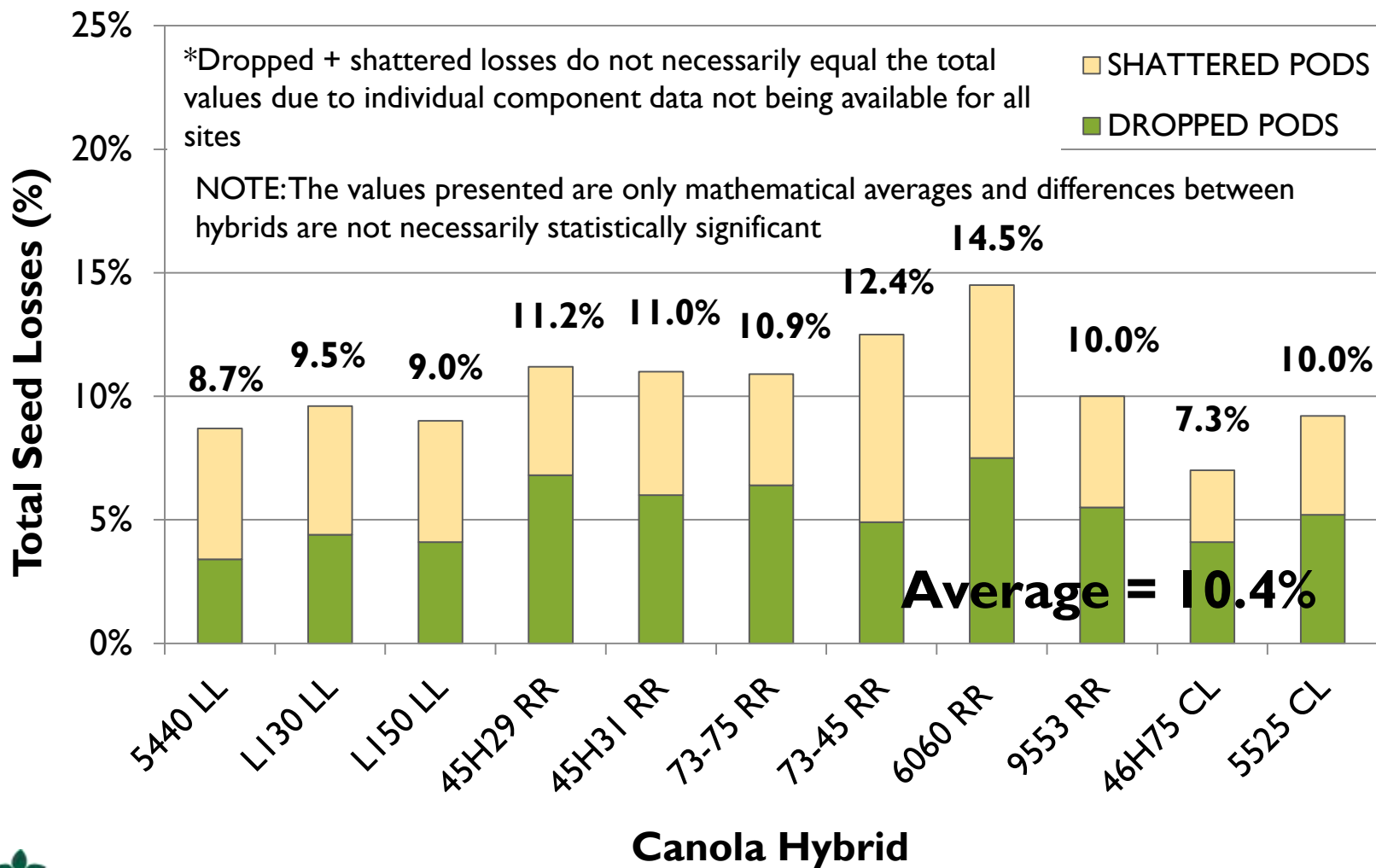
Seed Loss Summary 2013 (4 sites)

Total Seed Losses – Delayed Harvest



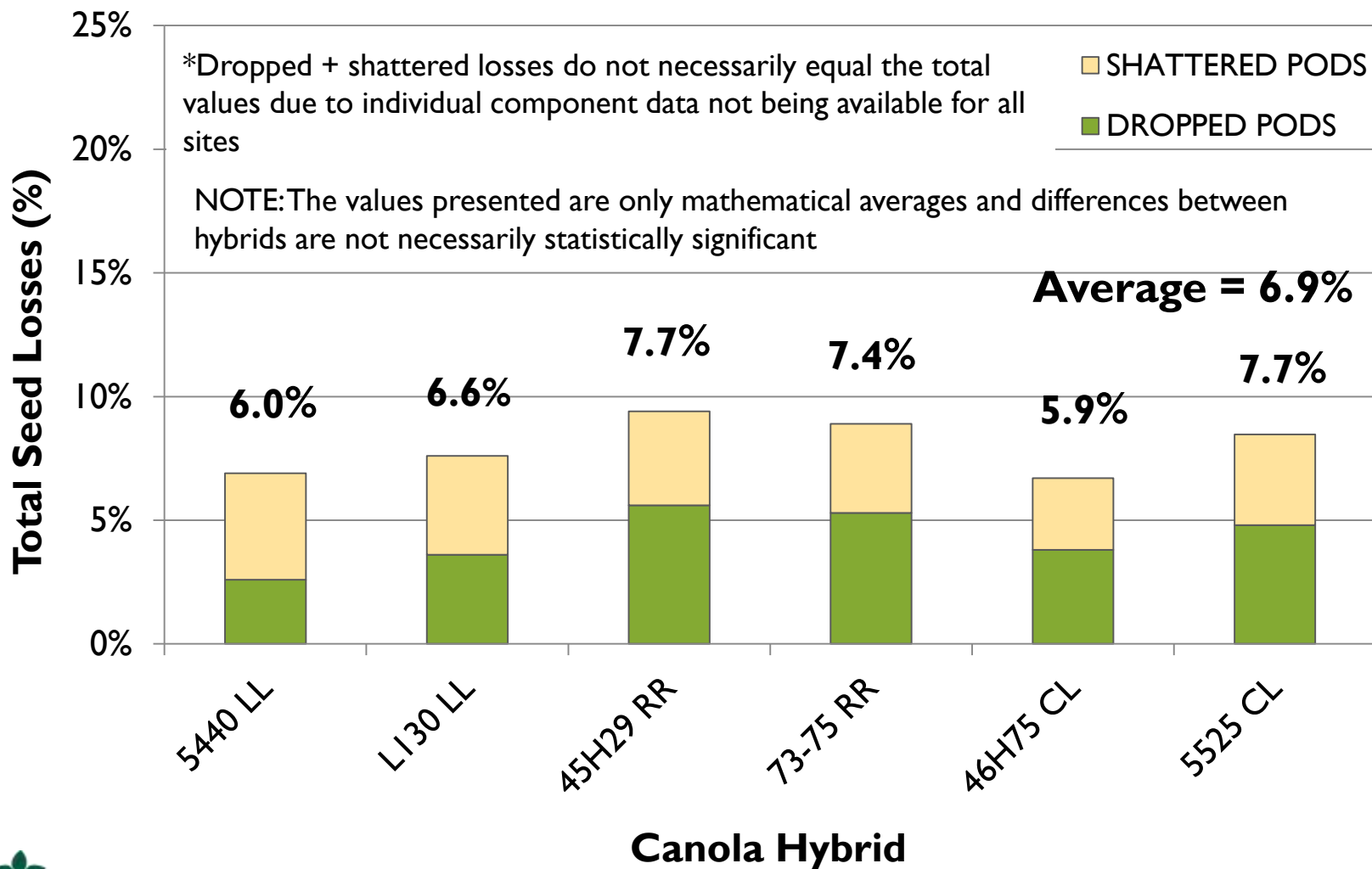
Seed Loss Summary 2011-12 (5 sites)

Total Seed Losses – Delayed Harvest



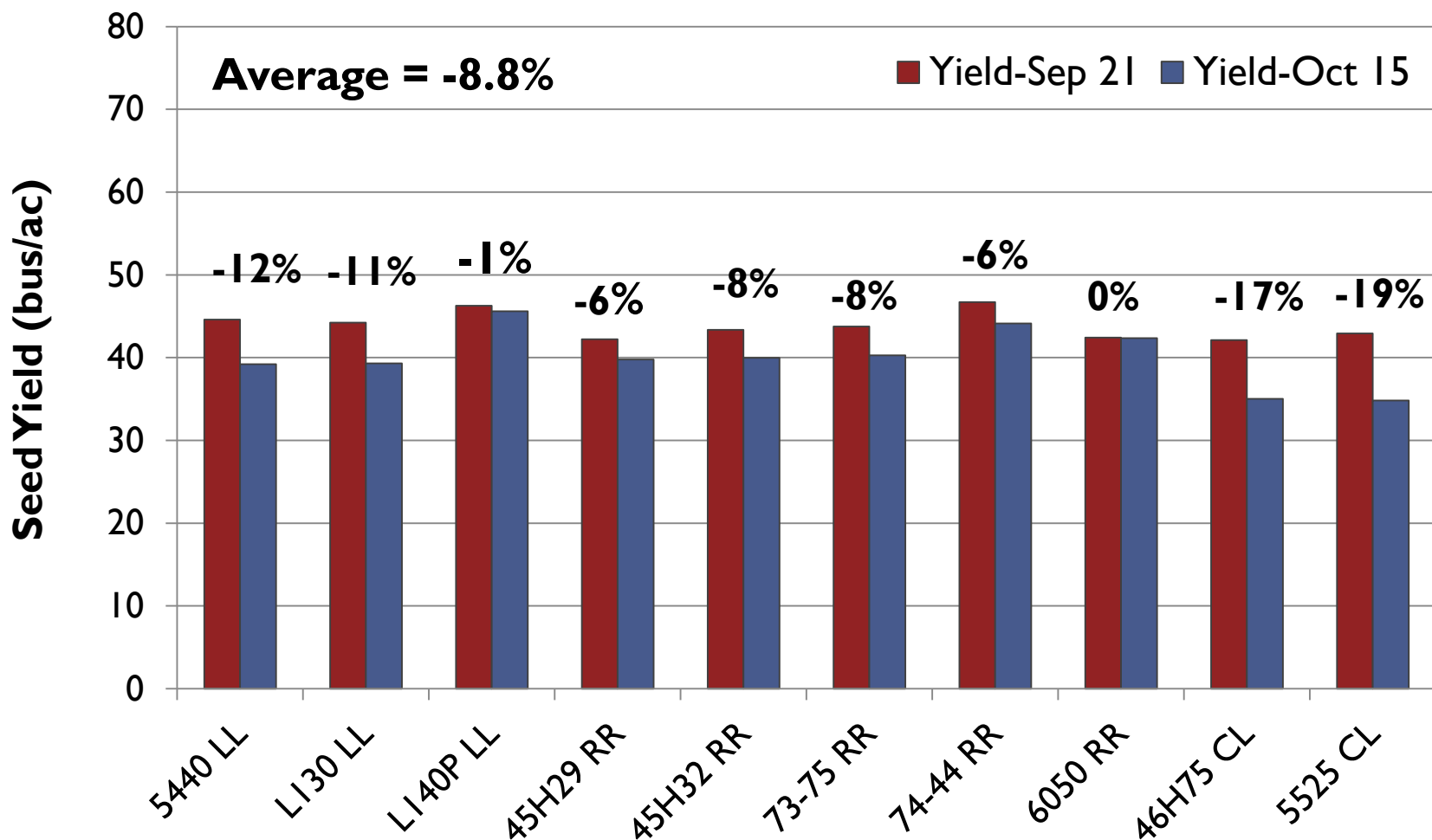
Seed Loss Summary 2011-13 (9 sites)

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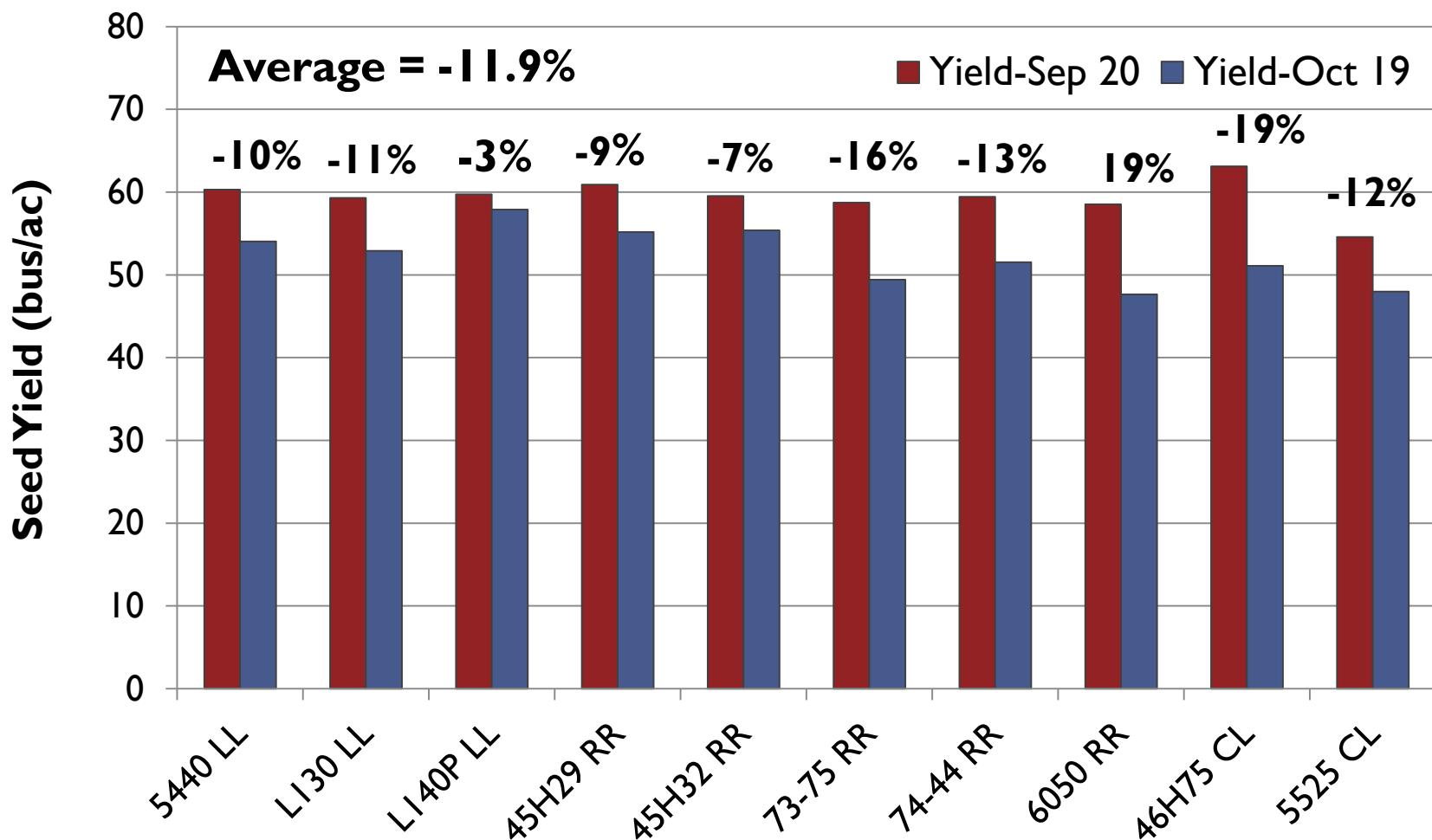
Indian Head 2013

Seed Yield by Harvest Timing



Indian Head 2014

Seed Yield by Harvest Timing



HAIL HAPPENS!

InVigor L140 P

InVigor L130

Take-Home Messages (1 of 2)

- Straight-combining canola is feasible but understand and minimize the risks
 - Harvest timing usually considered more critical than with swathing
 - Limit straight-cut acres to what is manageable
- Early seeding and adequate seeding rates will ensure as early and uniform crop maturity as possible
 - Less branching and smaller plants at higher populations that may dry down quicker and combine easier
- Consider cultivar differences whenever possible
 - Differences in yield loss frequently occur but are not always consistent & typically less important than environmental conditions
 - New shatter tolerant varieties lengthen the window for straight-combining and reduce the overall risk of yield loss

Take-Home Messages (2 of 2)

- Pod sealants to reduce shatter losses
 - Beneficial under certain circumstances but difficult to predict potential losses or probability of a response at the time when pod sealants need to be applied
- Pre-harvest glyphosate / desiccation
 - Chemical harvest aids not a necessity but can have advantages such as evening out maturity, earlier/easier harvest and weed control
 - Heat[®] is now registered for pre-harvest application in canola
- Equipment considerations
 - Header extensions significantly reduce header losses and are a good option for straight-combining large acres of canola – headers with variable knife position should provide similar benefits
 - Draper versus auger? Modifications to existing equipment?
 - Header performance is the subject of current research

Thank You!

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