

HINTS & STRATEGIES FOR STRAIGHT-COMBINING CANOLA

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Saskatchewan
Ministry of
Agriculture



AGRICULTURAL DEMONSTRATION OF TECHNOLOGIES & PRACTICES



Brett Young



WHY STRAIGHT-COMBINE?

Reasons for Swathing

- ✘ Hastens and evens out maturity & desiccates green weeds
- ✘ Reduced potential for shattering under most conditions
- ✘ Flexible harvest timing relative to straight-combining



WHY STRAIGHT-COMBINE?

Incentives for Straight-Combining

- ✘ Eliminate swathing cost and reduced labor requirements (narrow window for swathing)
- ✘ Reduced risk under some conditions (ie: sparse stubble, short or badly lodged crop)
- ✘ Improved seed quality (ie: larger seeds, higher oil content)



WHAT ARE GROWERS DOING?

2009 CCC Agronomy Survey says...

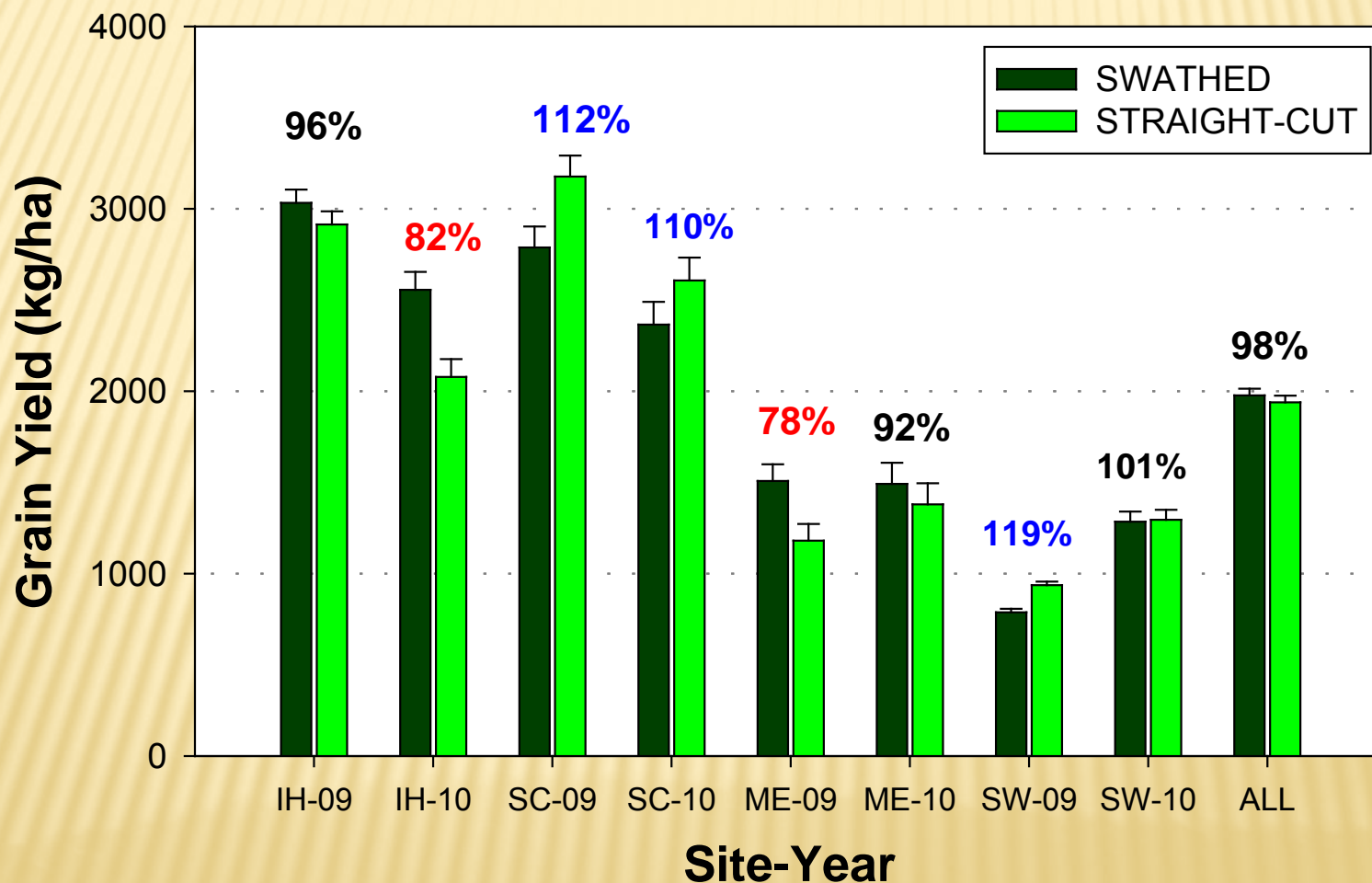
- × 14.6% straight-combine
- × 13.8% want to increase straight-combined acres

Why aren't more straight-combining?

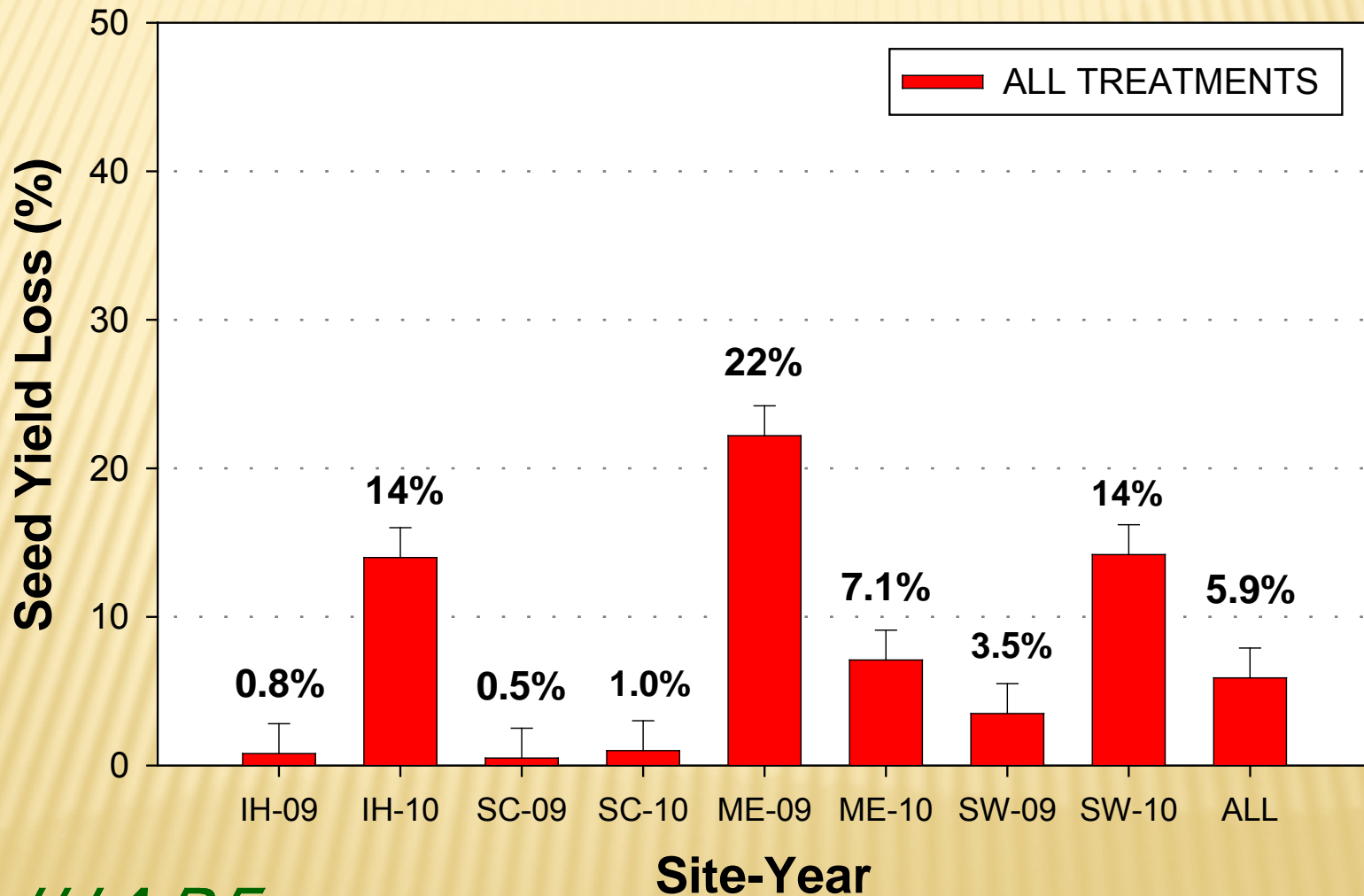
- × RISK!!!
- × Conflicting reports from researchers & growers with no consensus as to which practice is better



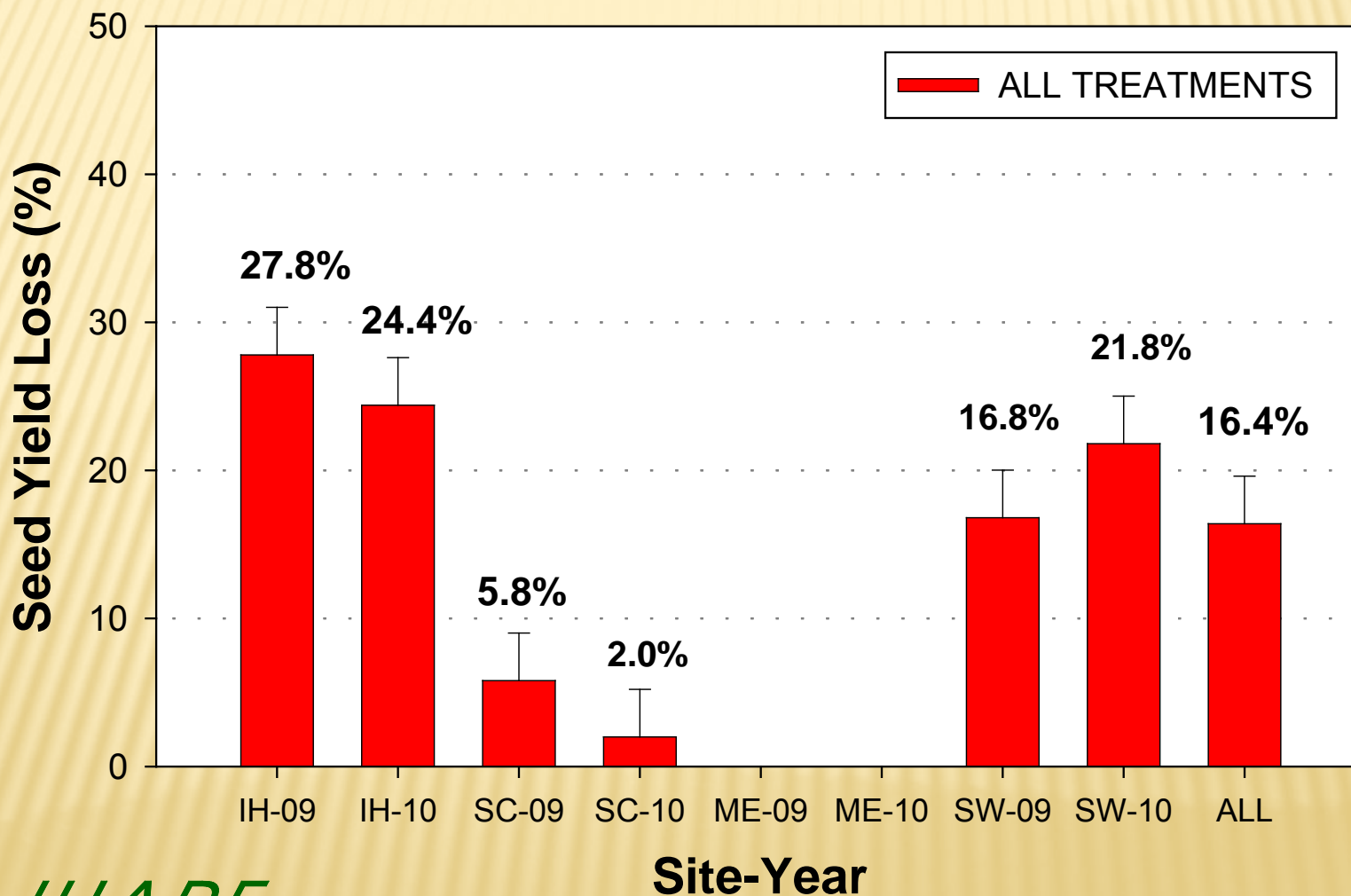
STRAIGHT-COMBINED VERSUS SWATHED (SMALL PLOT TRIALS)



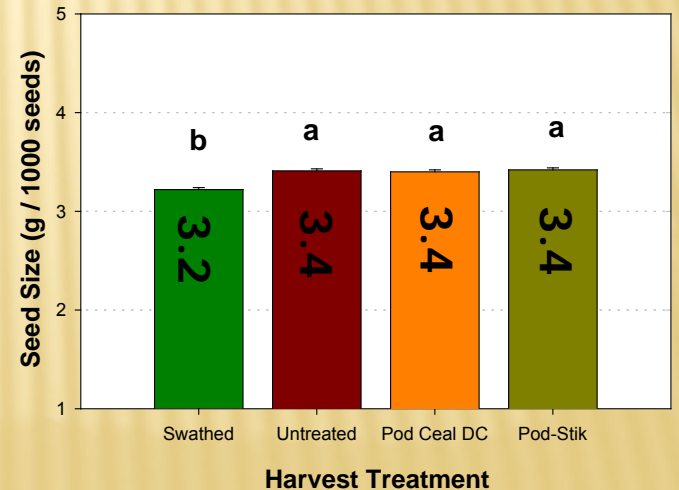
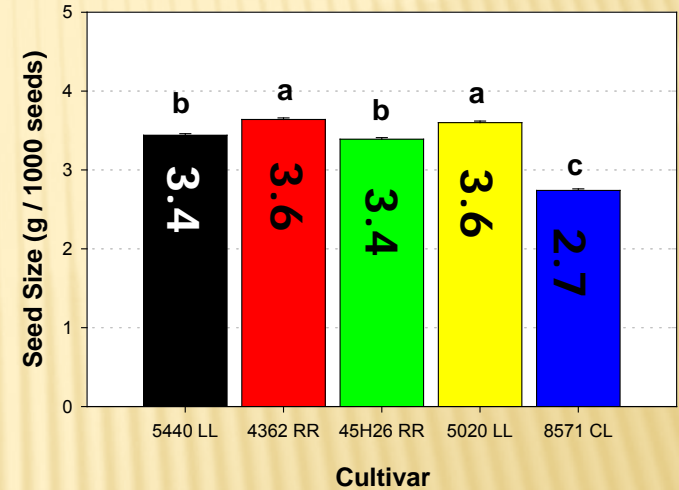
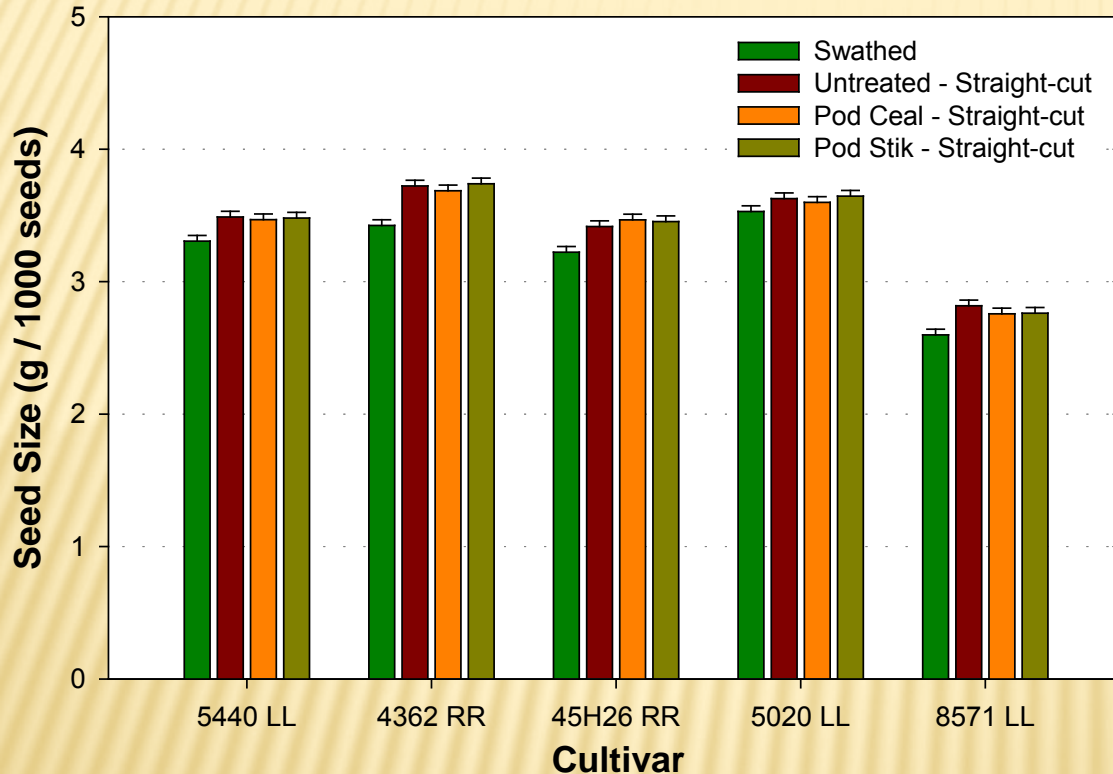
OBSERVED SEED LOSS (TIME OF HARVEST)



OBSERVED SEED LOSS (2-3 WEEKS PAST HARVEST)

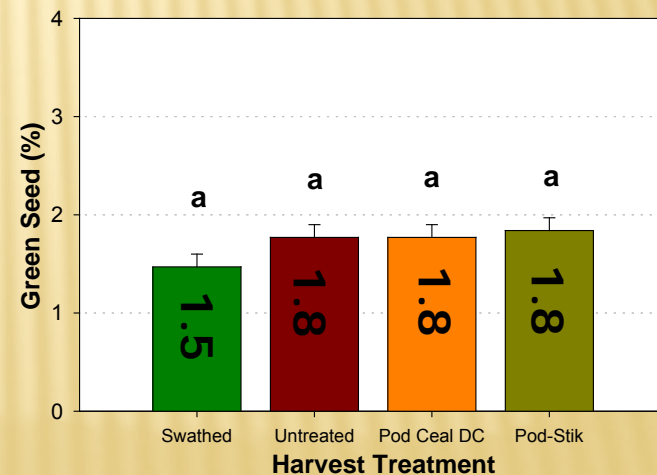
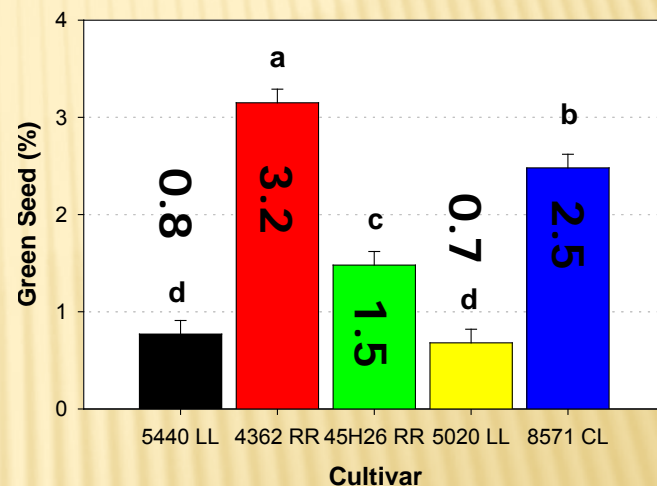
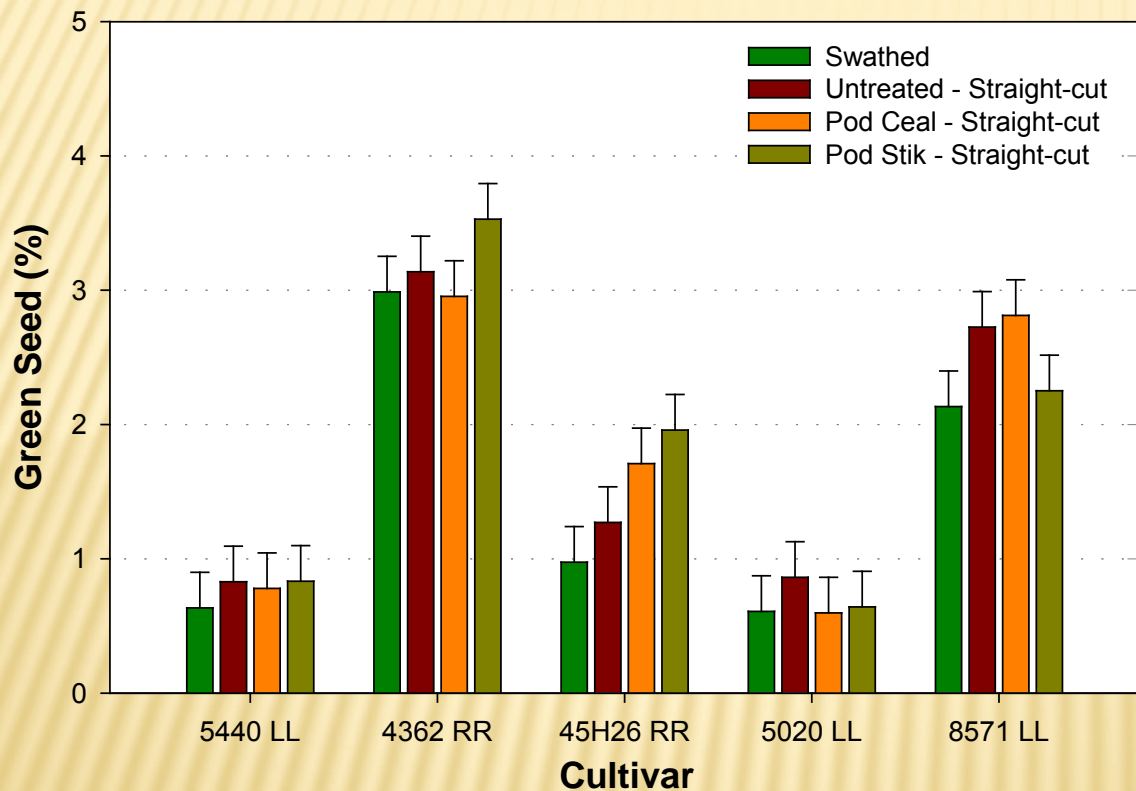


CULTIVAR & HARVEST METHOD EFFECTS ON SEED SIZE



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 January 11, 2013
 Crop Production Week, Saskatoon, SK

CULTIVAR & HARVEST METHOD EFFECTS ON GREEN SEED CONTENT



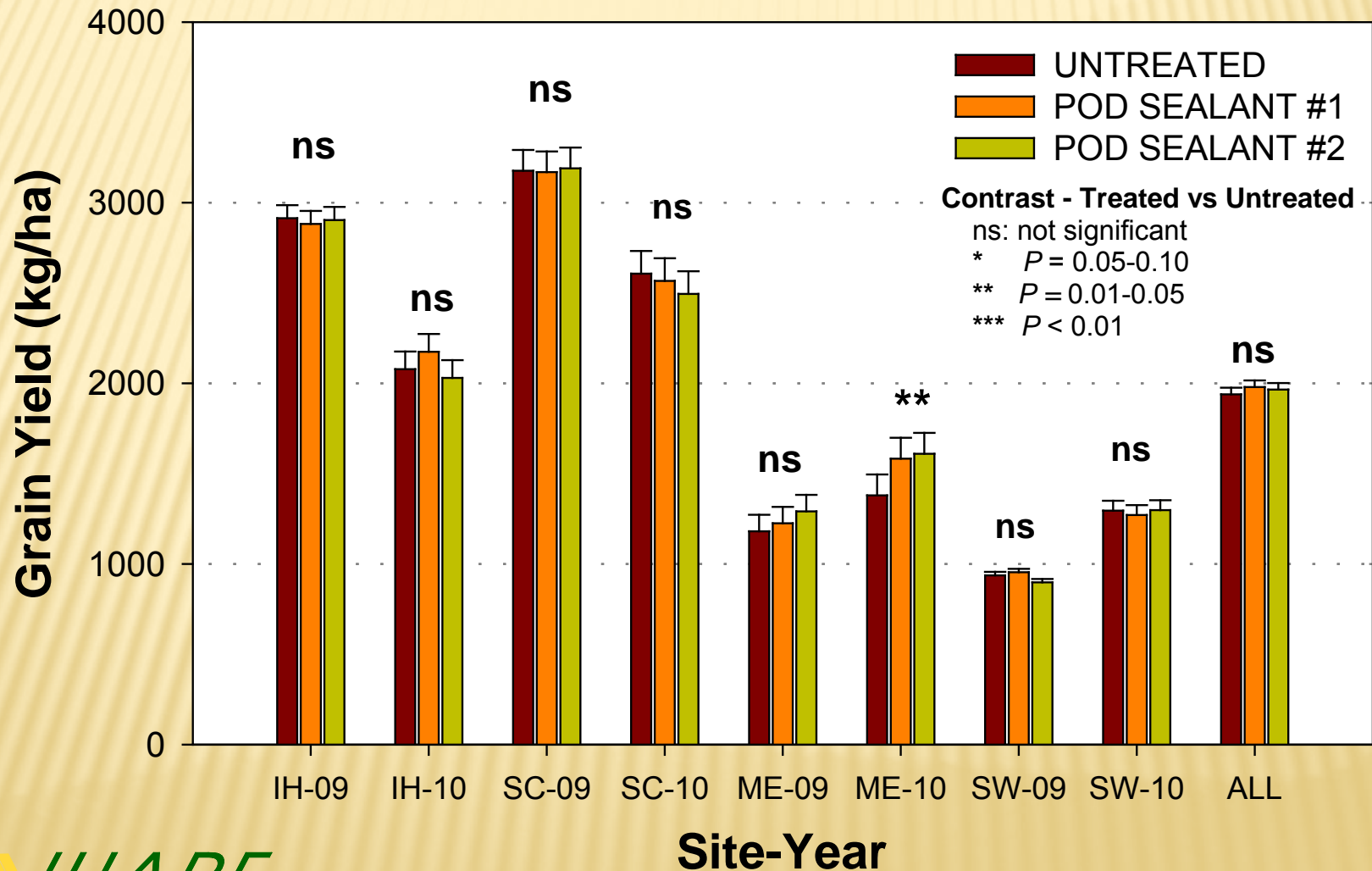
WHAT ABOUT POD SEALANTS?

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

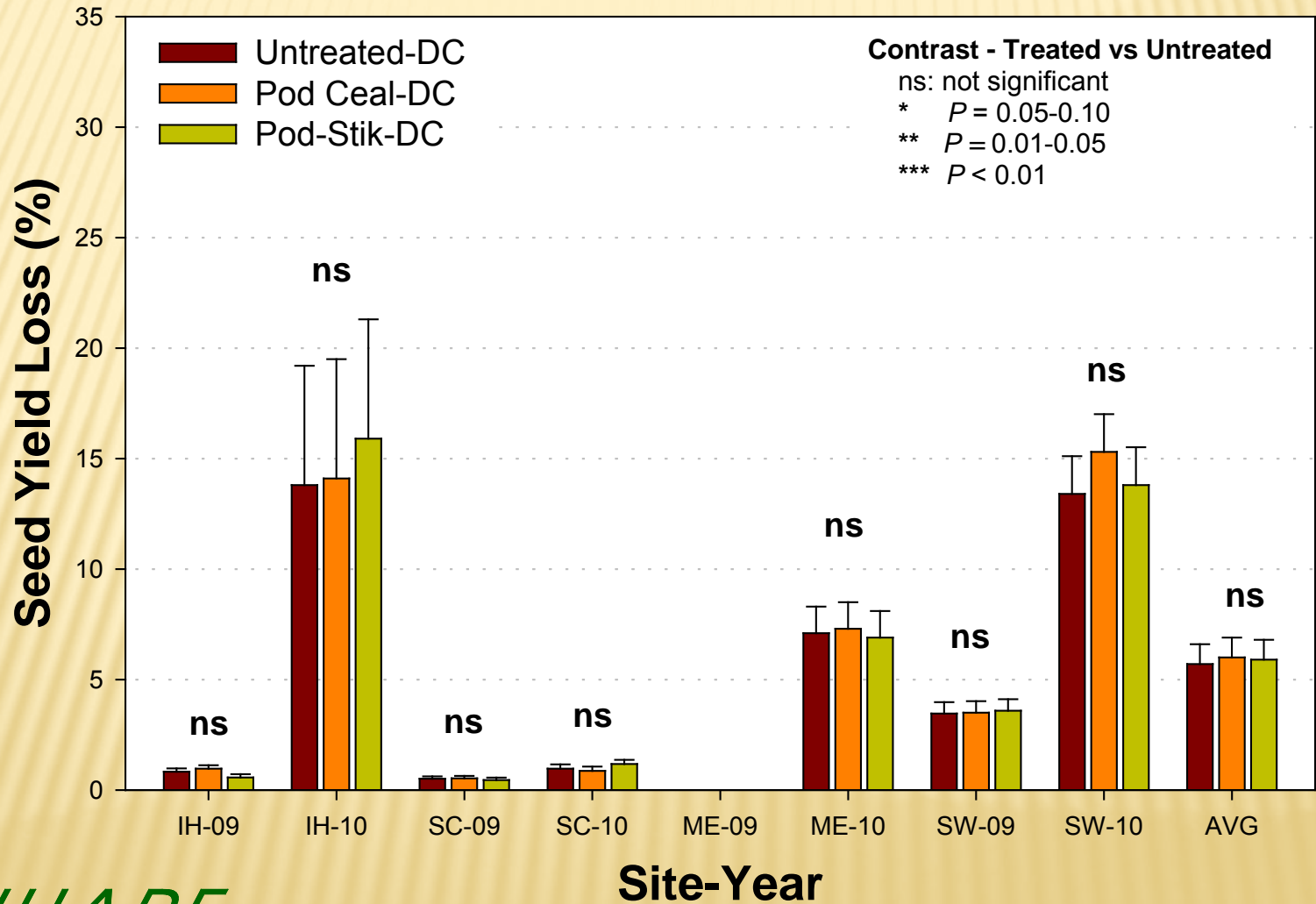


POD SEALANT EFFECTS ON YIELD

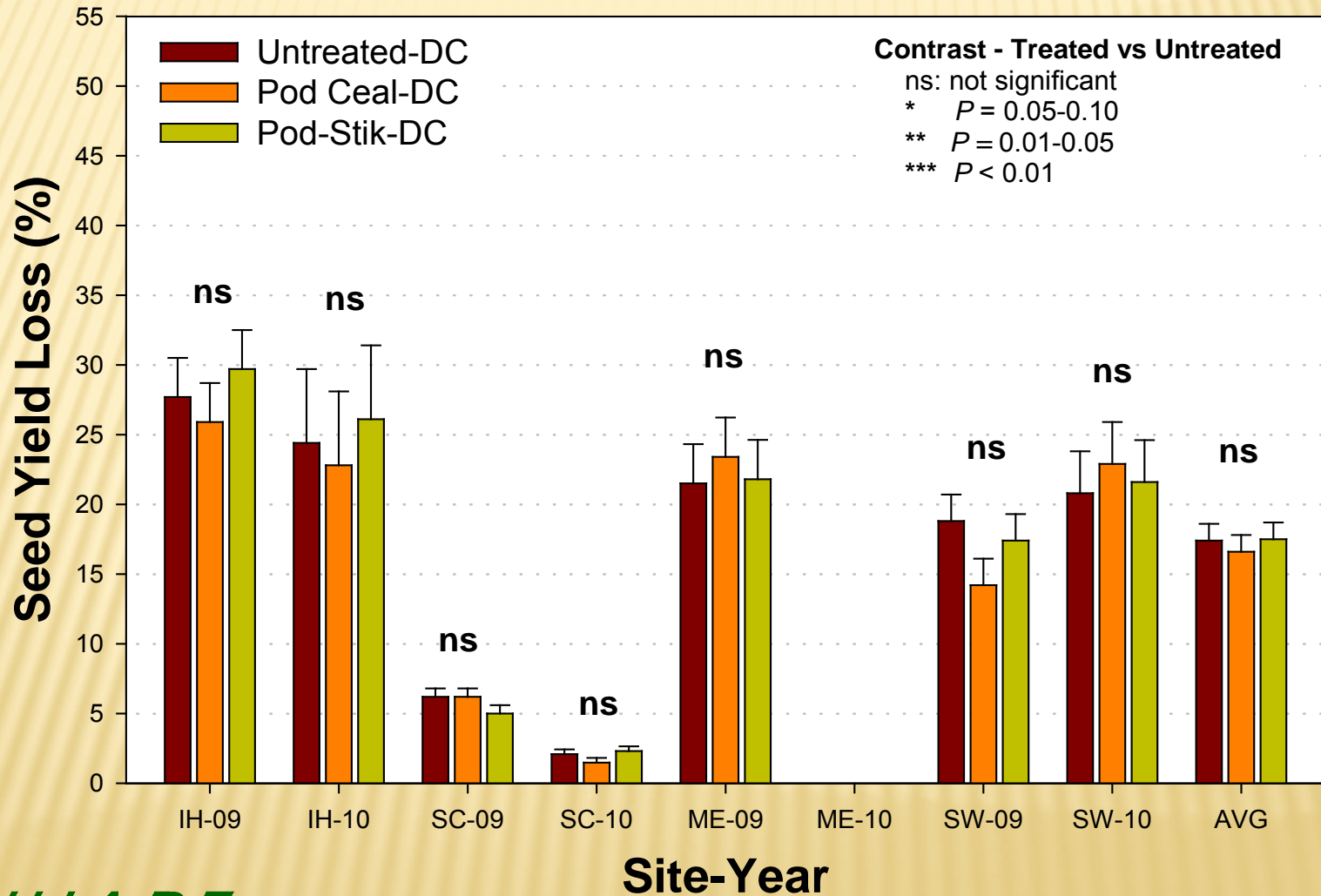
(ALL TREATMENTS STRAIGHT-COMBINED)



POD SEALANTS EFFECTS ON SEED LOSS (TIME OF HARVEST)



POD SEALANTS EFFECTS ON SEED LOSS (2-3 WEEKS PAST HARVEST)



FIELD-SCALE CANOLA HARVEST TRIAL (2010-11) TREATMENTS

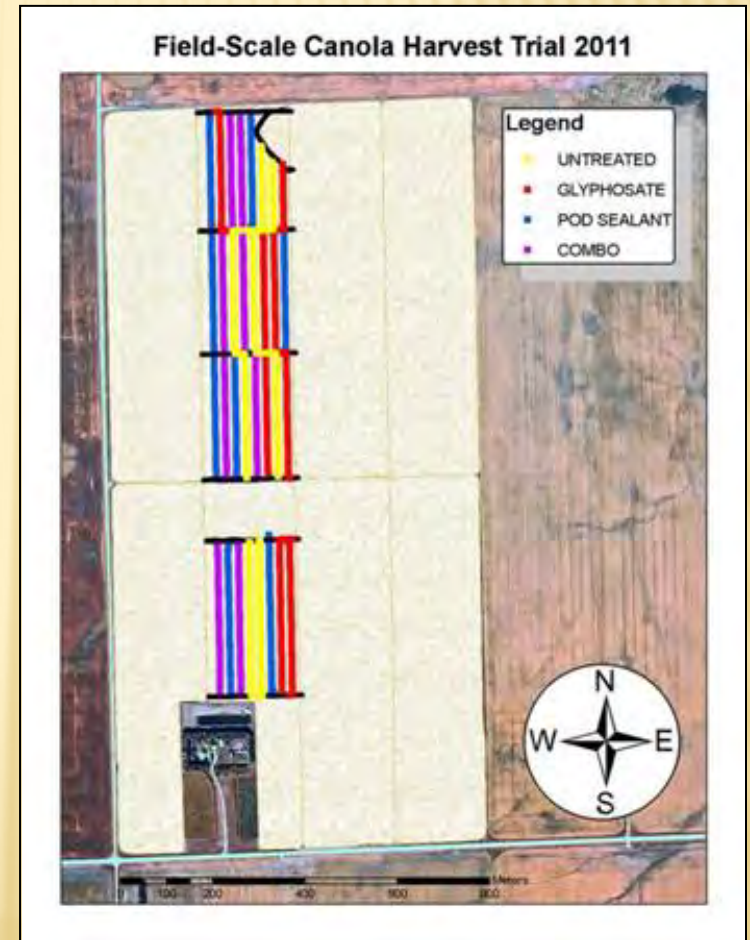
Harvest Methods

- 1) Swathed
- 2) Straight-Combined

Foliar Treatments*

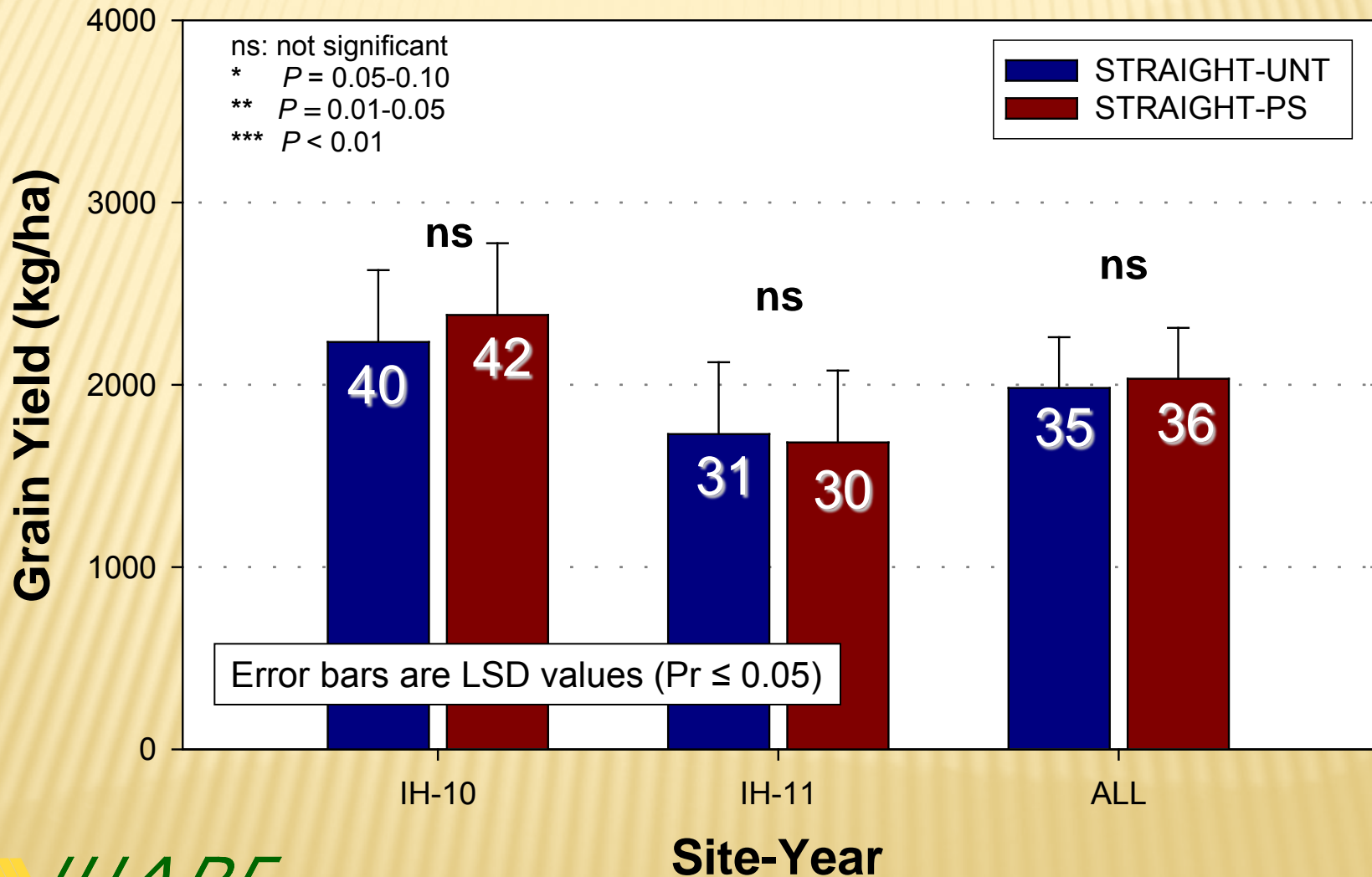
- 1) Untreated
- 2) Pod Sealant
- 3) Glyphosate
- 4) Pod Sealant & Glyphosate

*applied at 30-40% pod colour change



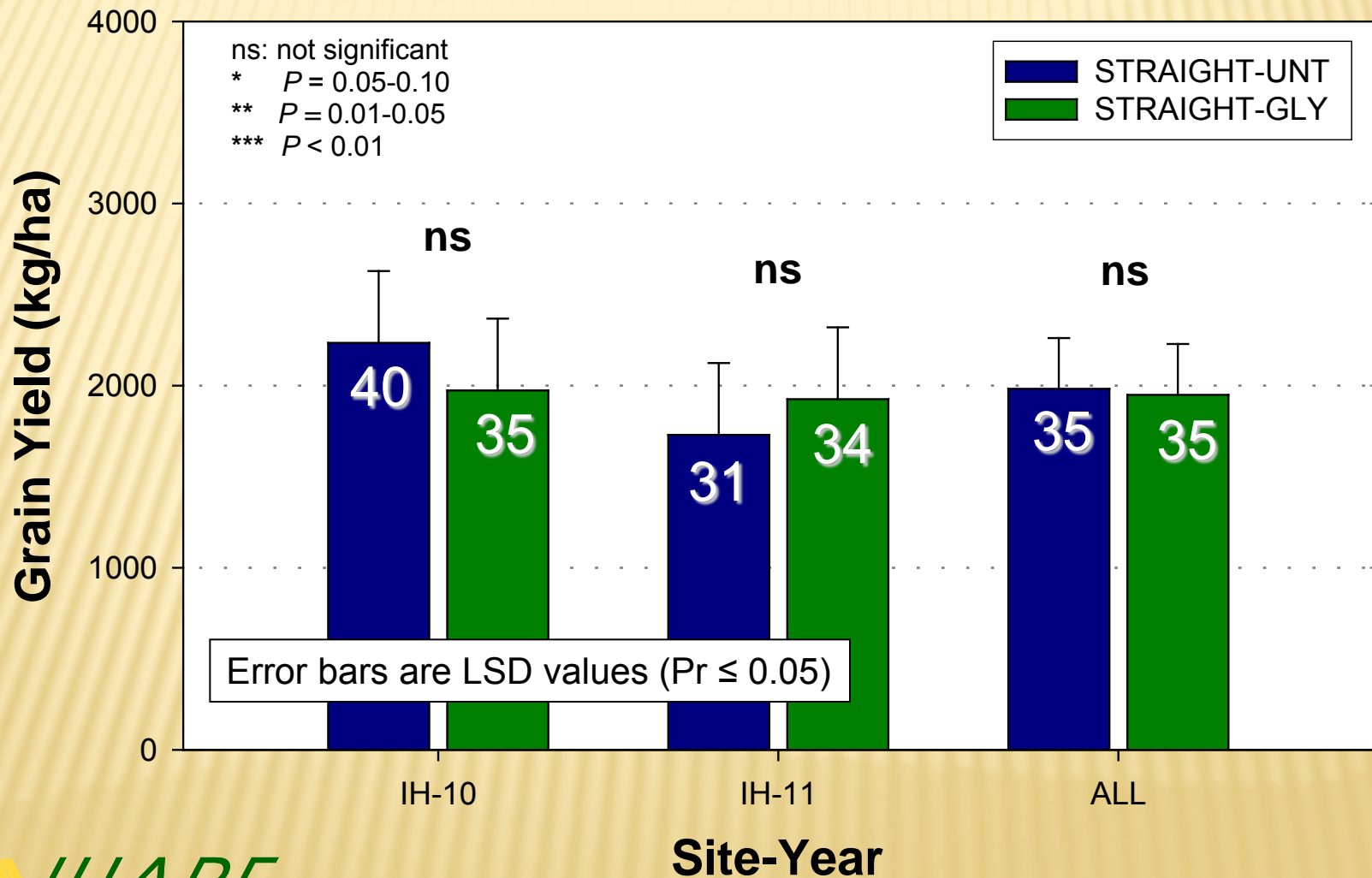
FIELD-SCALE CANOLA HARVEST TRIAL

UNTREATED VS SEALANT (STRAIGHT-COMBINED)



FIELD-SCALE CANOLA HARVEST TRIAL

UNTREATED VS GLYPHOSATE (STRAIGHT-COMBINED)



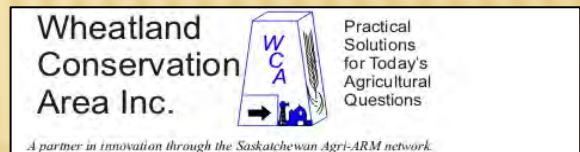
GLYPHOSATE EFFECTS ON MATURITY



- Impact on seed yield not consistent, but pre-harvest glyphosate helps even out maturity, accelerate harvest, provides weed control benefits and make timing of straight-combining easier

EQUIPMENT CONSIDERATIONS

- ✘ Project at Swift Current evaluated canola header losses & seed yields when straight-combined using varying types of headers (Wheatland Conservation Area; 2005-07)
- ✘ Measured seed loss during the harvest operation & the header types evaluated were:
 1. Rigid header
 2. Draper header
 3. Stripper header
 4. BISO header extension



WHEATLAND CANOLA HARVEST STUDY (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

WHEATLAND CANOLA HARVEST STUDY (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



Premium Flow (Zürn)

Sausse 2011 - 13th International Rapeseed Congress



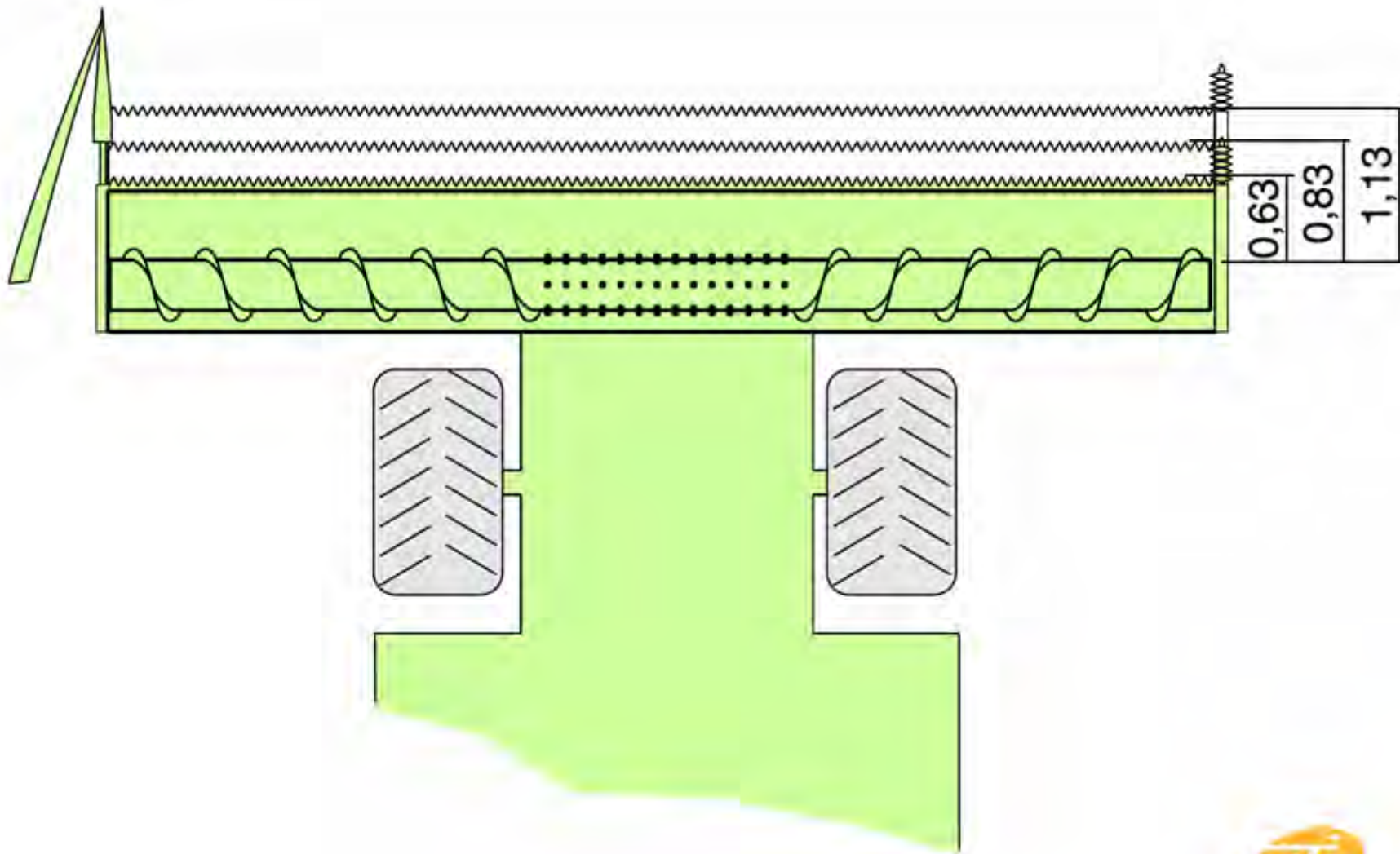


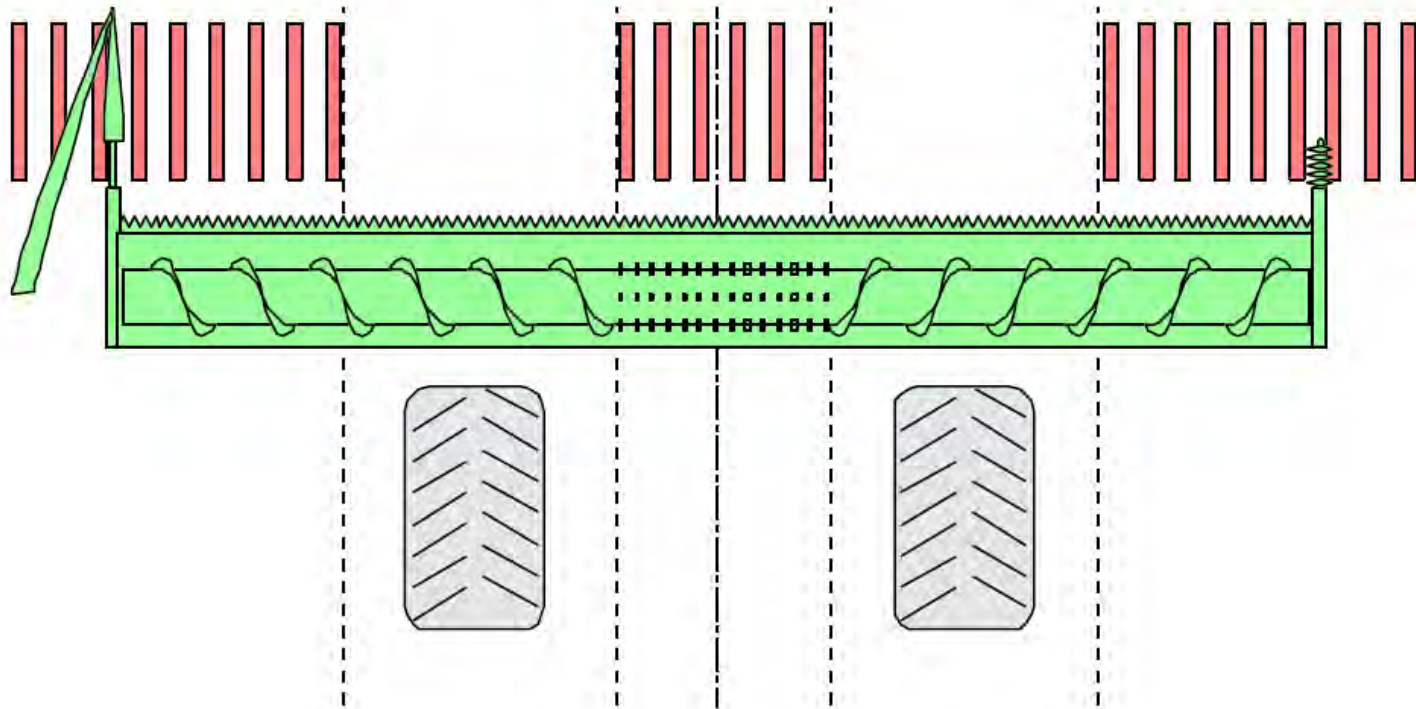
John Deere
TURN

JOHN DEERE

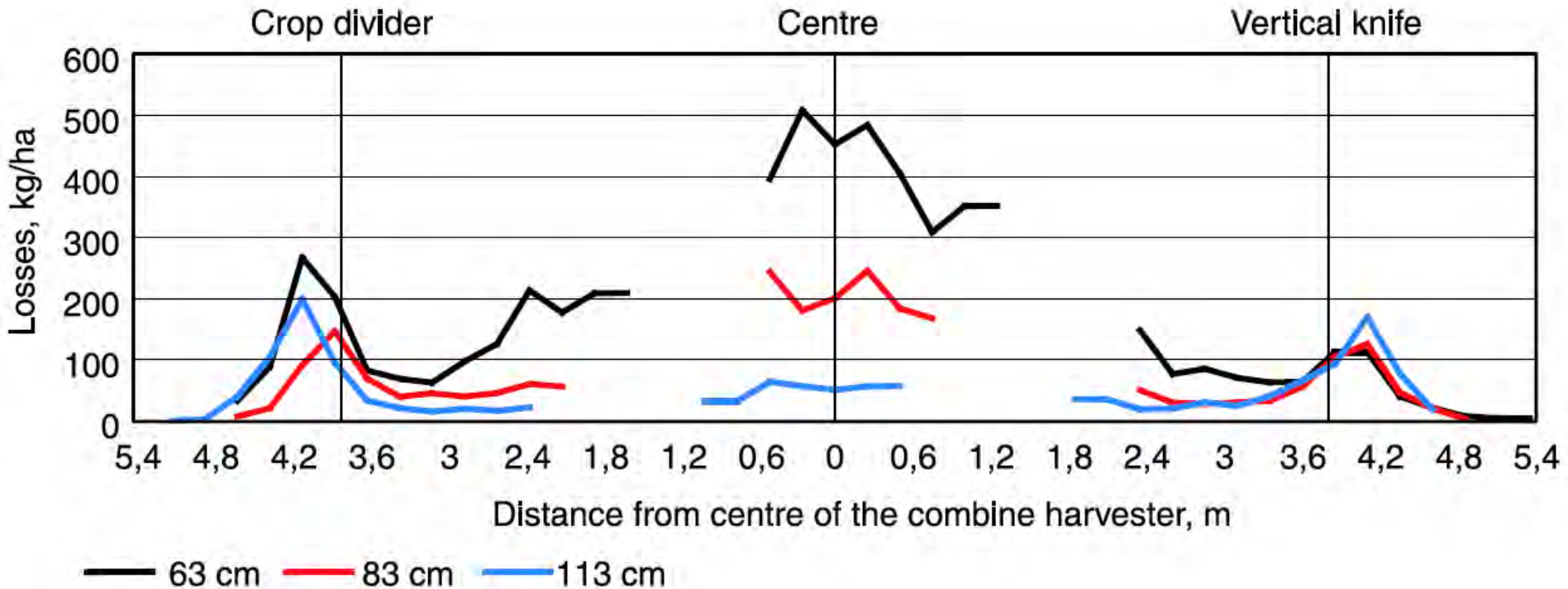


RAPS-PROFI II





Header losses at different header lengths during 2007



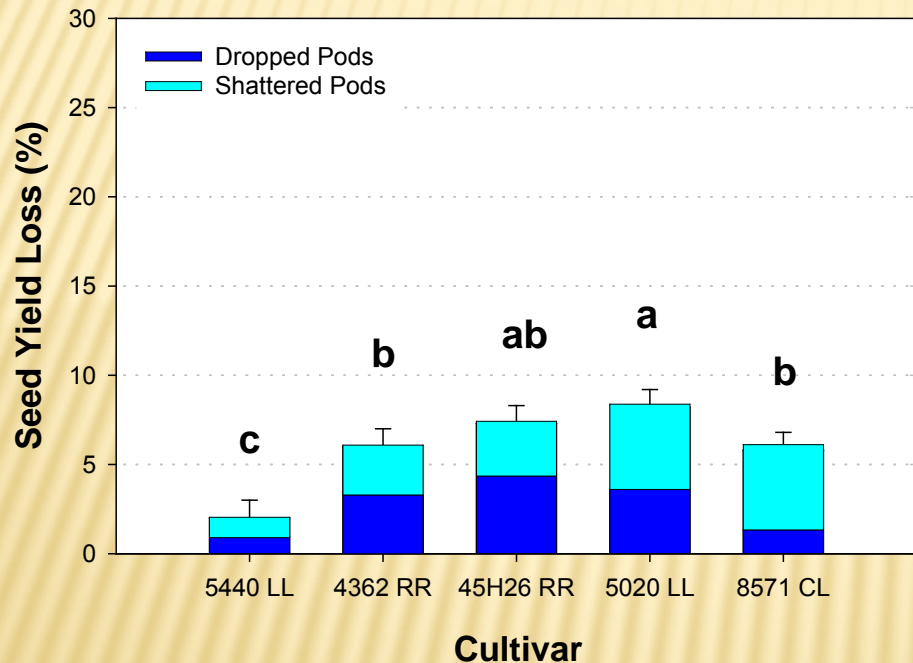
CULTIVAR CONSIDERATIONS



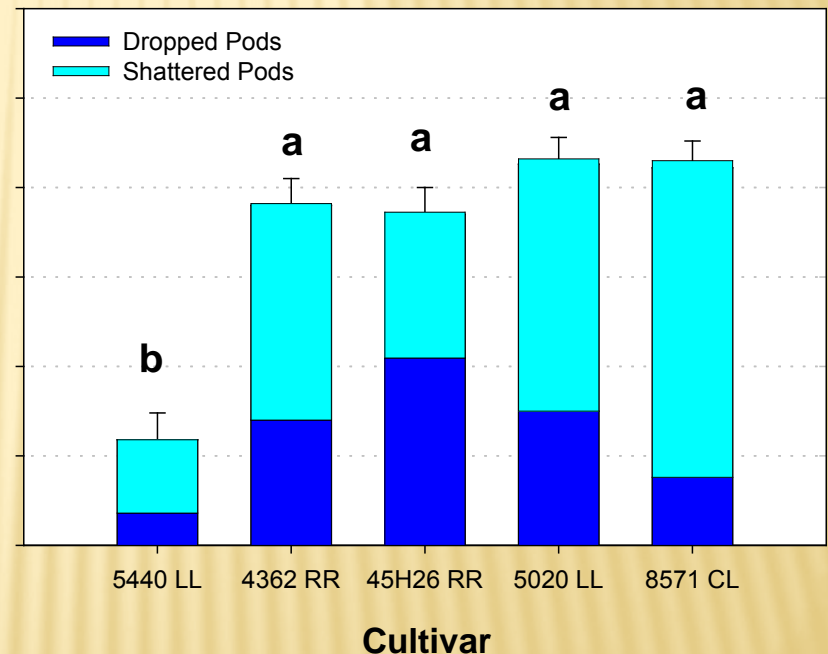
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CULTIVAR EFFECTS ON SEED LOSS (AVERAGED ACROSS 8 SITE-YEARS)

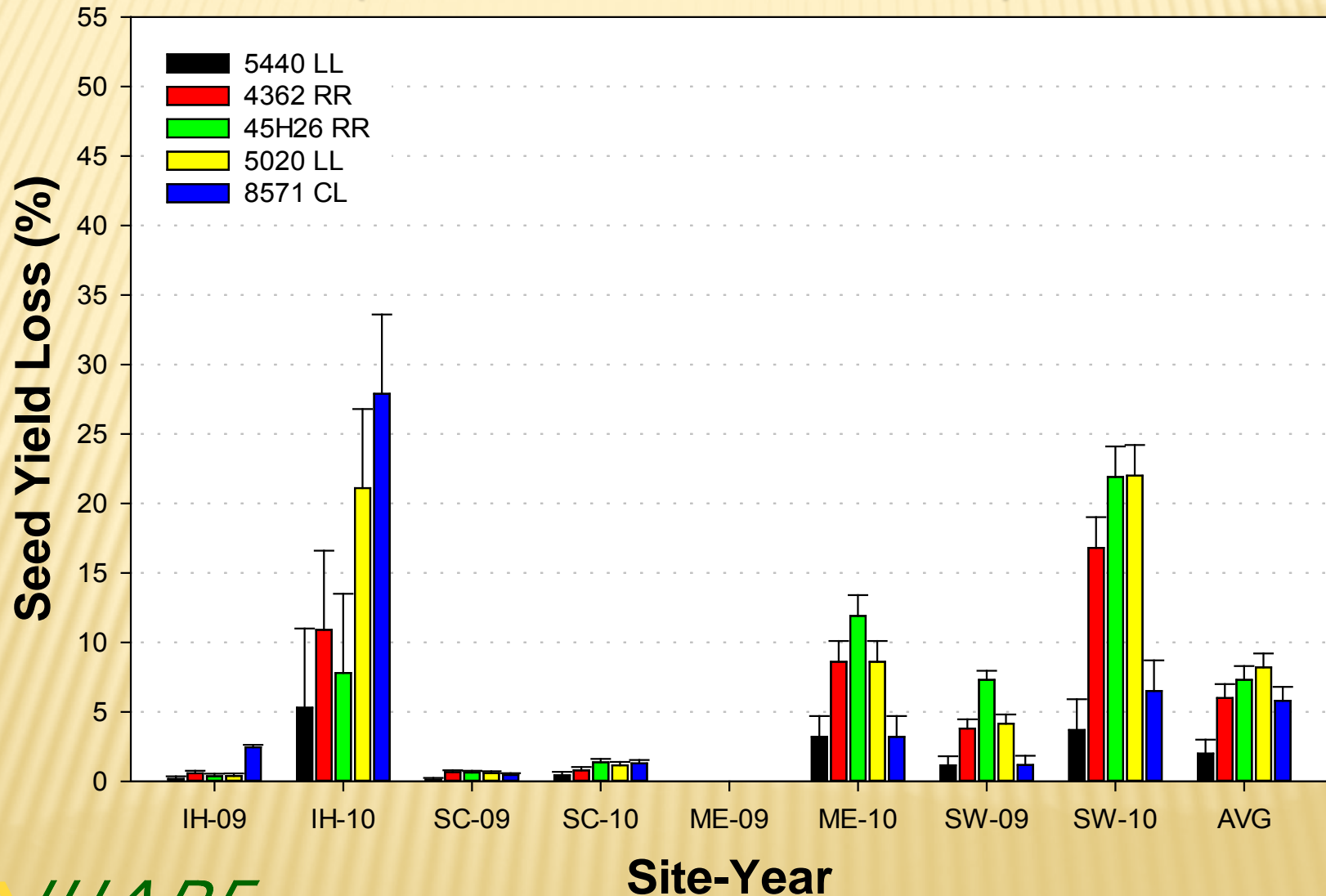
All Site-Years Combined (EARLY)



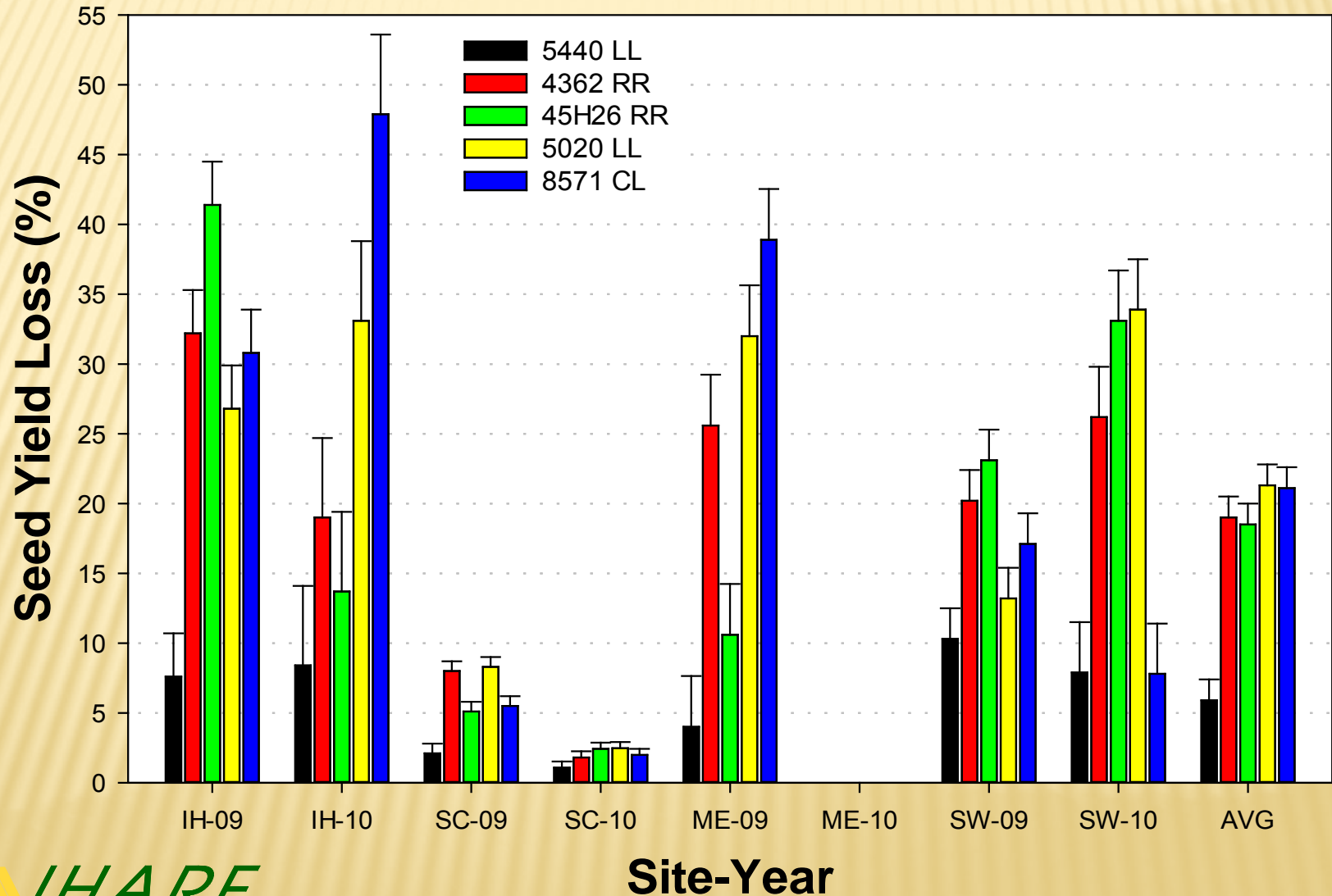
All Site-Years Combined (LATE)



CULTIVAR EFFECTS ON SEED LOSS (TIME OF HARVEST)



CULTIVAR EFFECTS ON SEED LOSS (2-3 WEEKS PAST HARVEST)



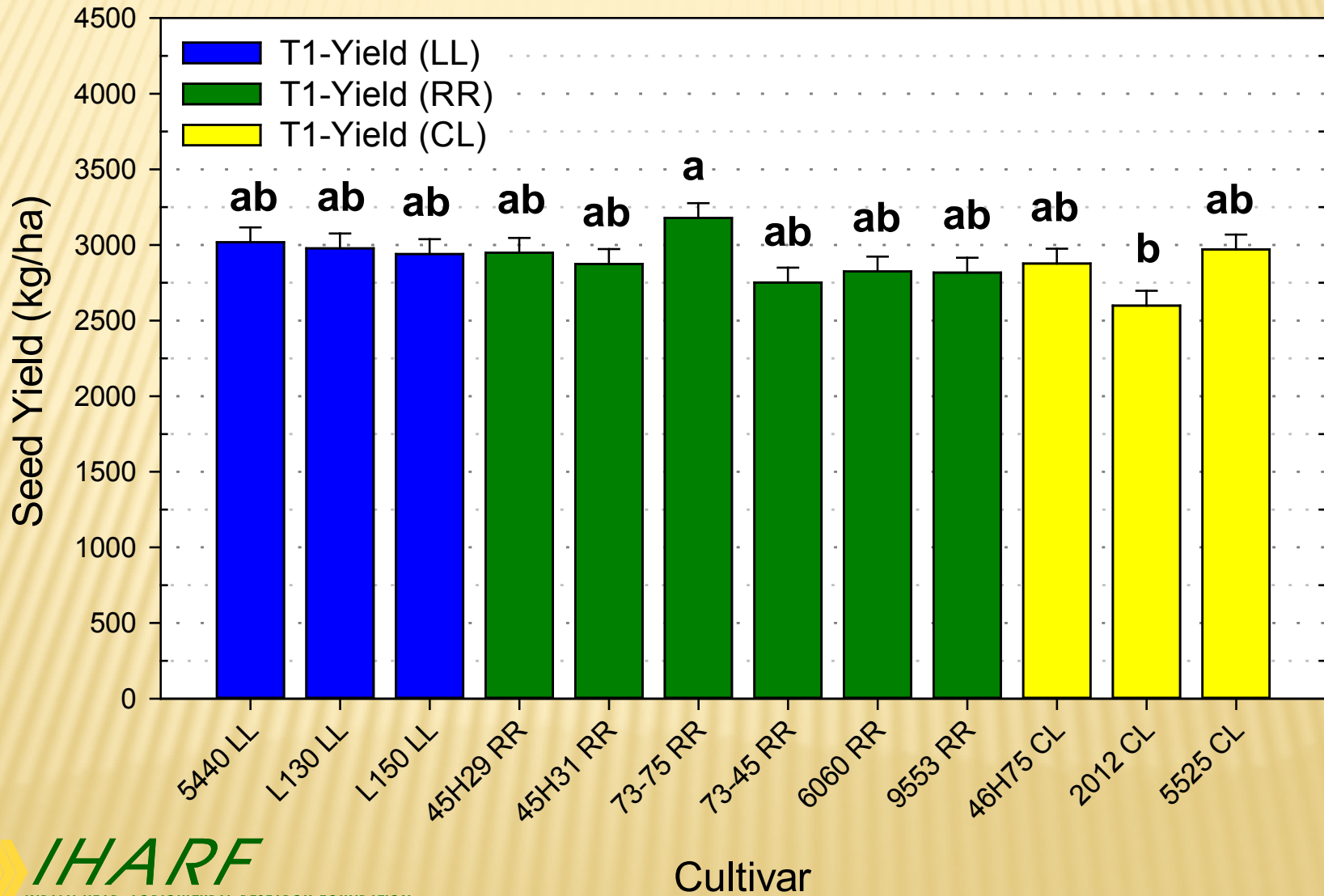
CURRENT RESEARCH

- ✘ Trials initiated in 2011 at Indian Head, Scott & Swift Current to further investigate importance of cultivar selection for straight combining
- ✘ Evaluating potential yield loss and measuring pod drop/shatter in 12 modern cultivars from various breeding programs / herbicide systems

InVigor 5540	Pioneer HiBred 45H29	Dekalb 73-45	Pioneer HiBred 46H75
InVigor L130	Pioneer HiBred 45H31	Brett Young 6060	Nexera 2012 CL
InVigor L150	Dekalb 73-75	Proven 9553	Brett Young 5525

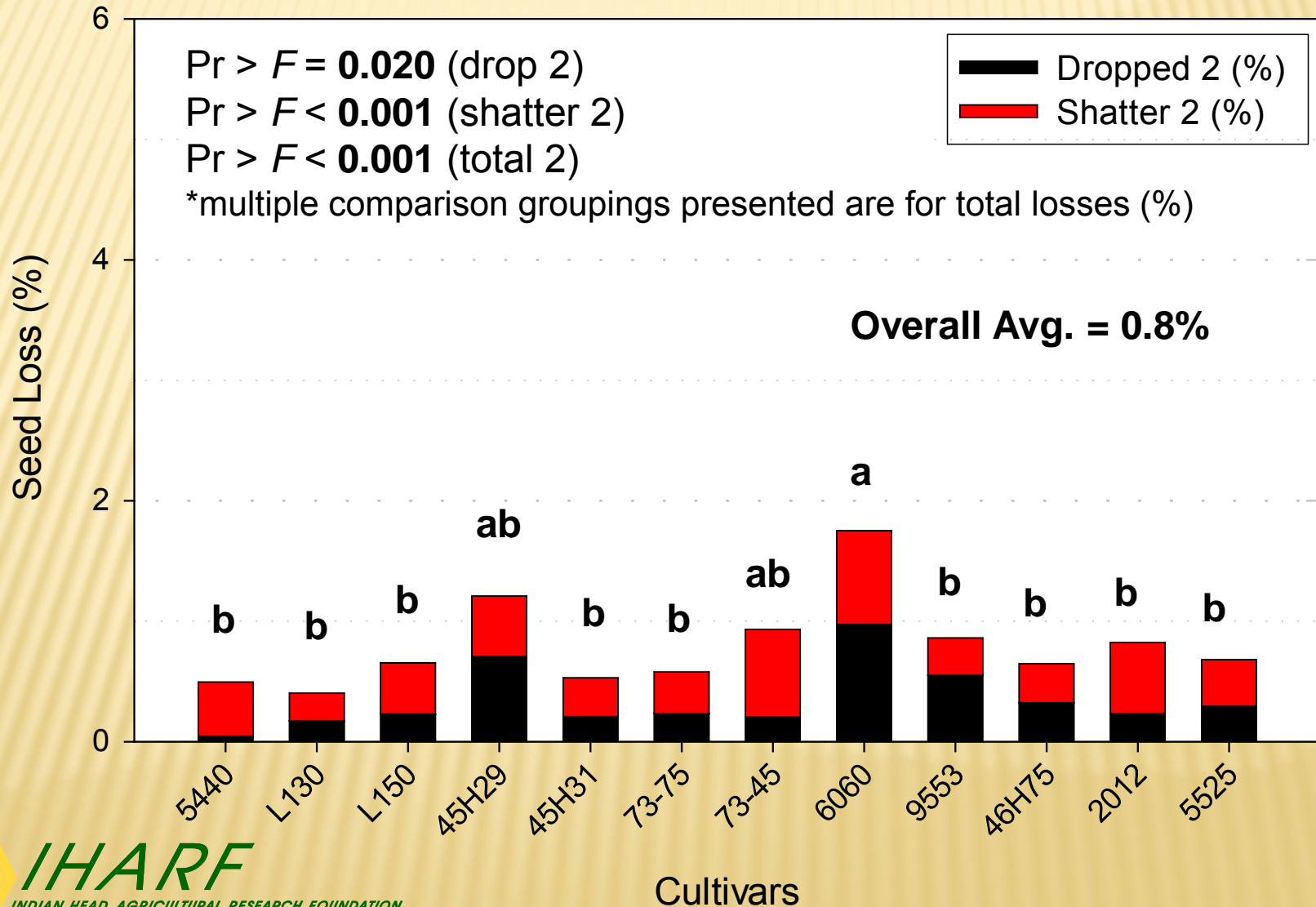
STRAIGHT-COMBINED SEED YIELD

(2011 ALL LOCATIONS: EARLY-OPTIMAL TIMING)



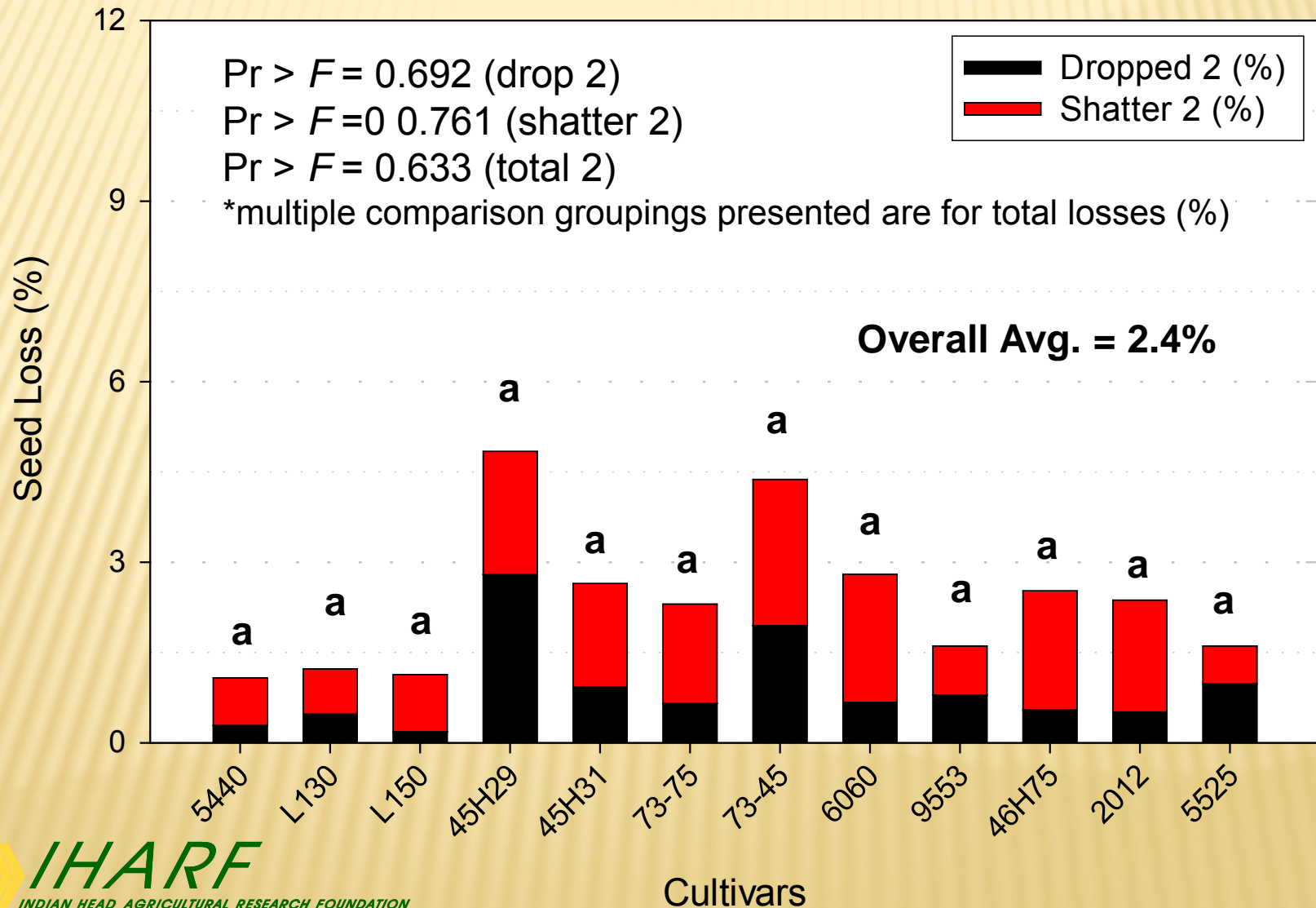
CANOLA SEED LOSS (LATE)

Indian Head - 2011



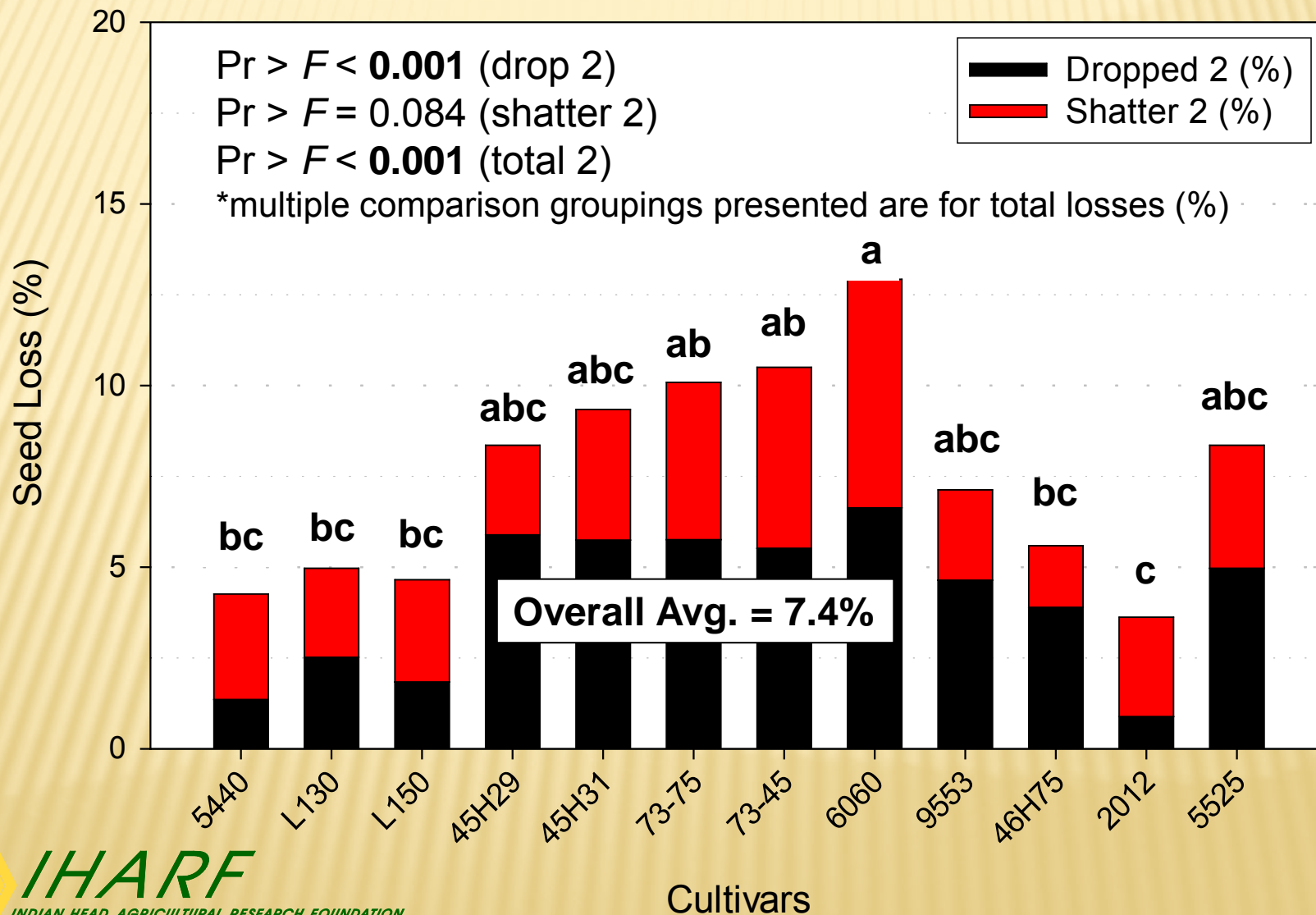
CANOLA SEED LOSS (LATE)

Swift Current - 2011



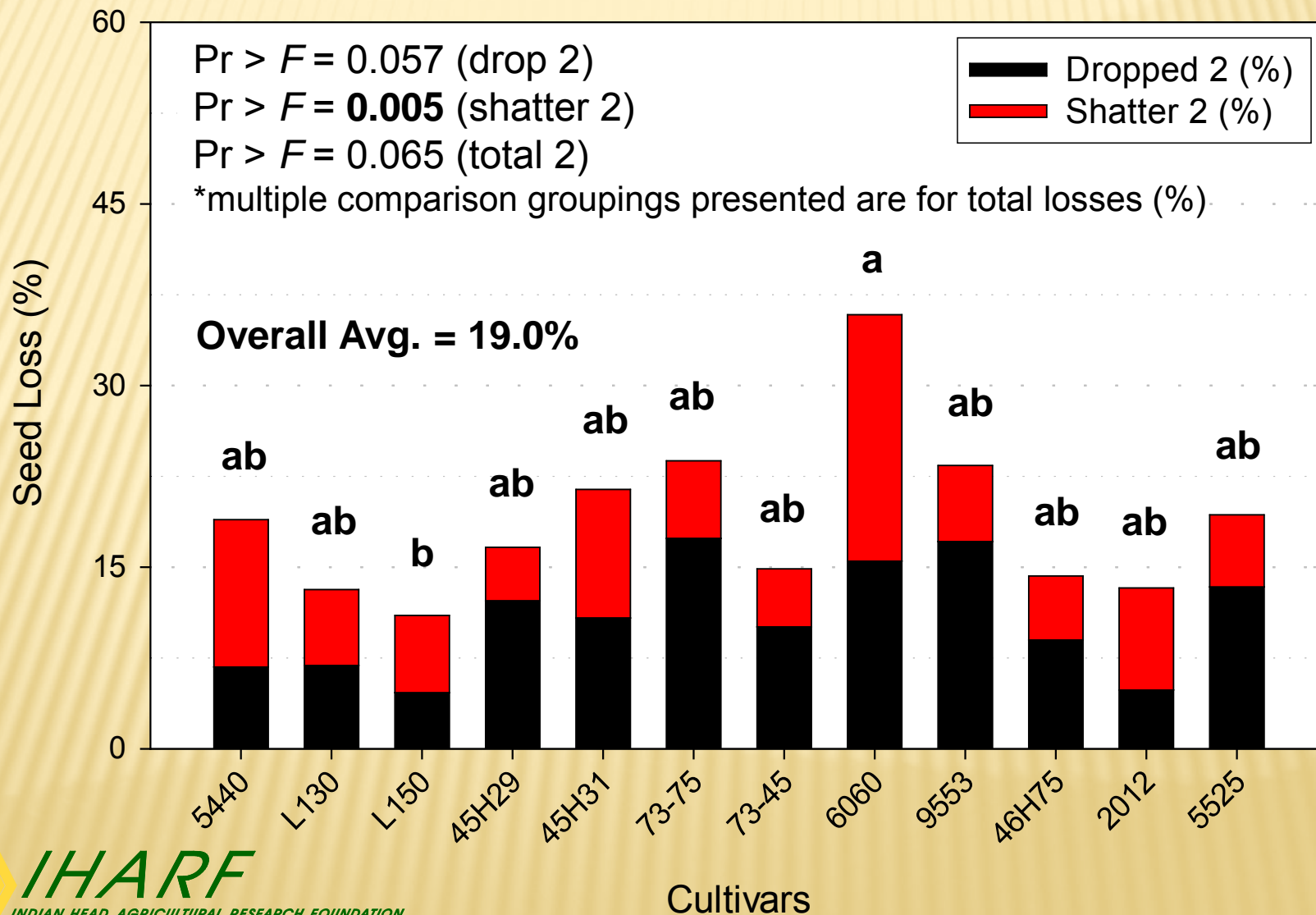
CANOLA SEED LOSS (LATE)

Scott - 2011



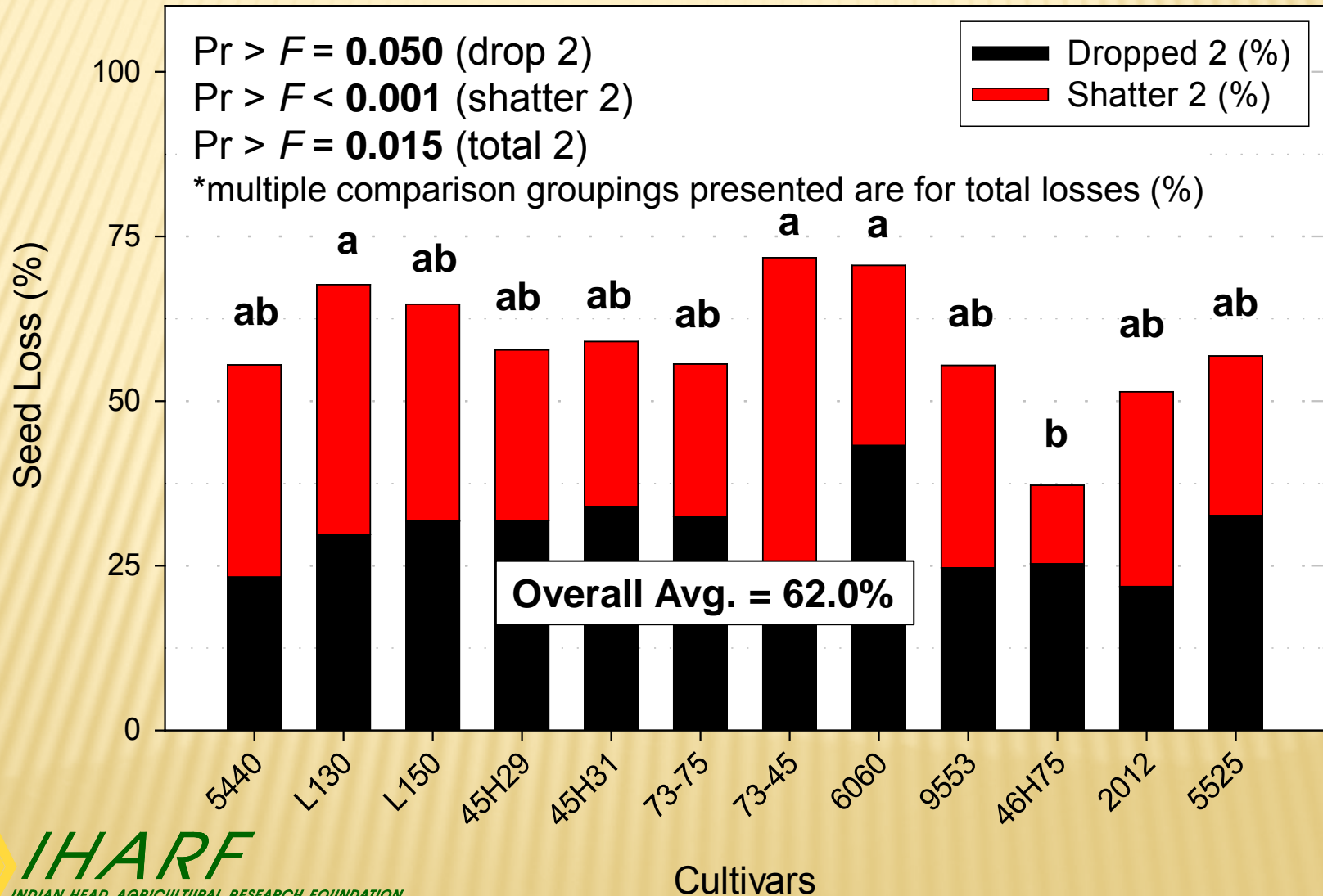
CANOLA SEED LOSS (LATE)

Swift Current - 2012



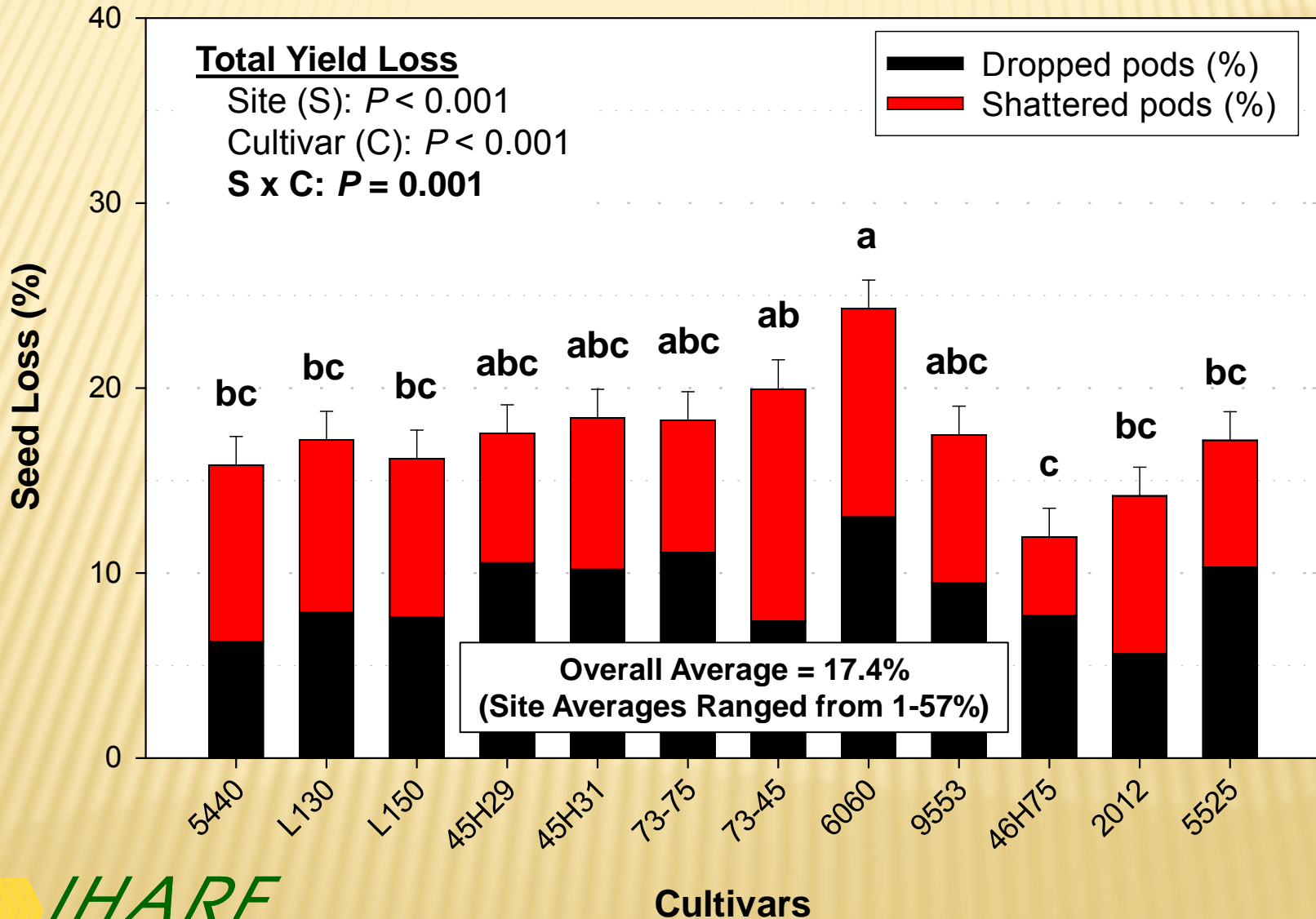
CANOLA SEED LOSS (LATE)

Indian Head - 2012



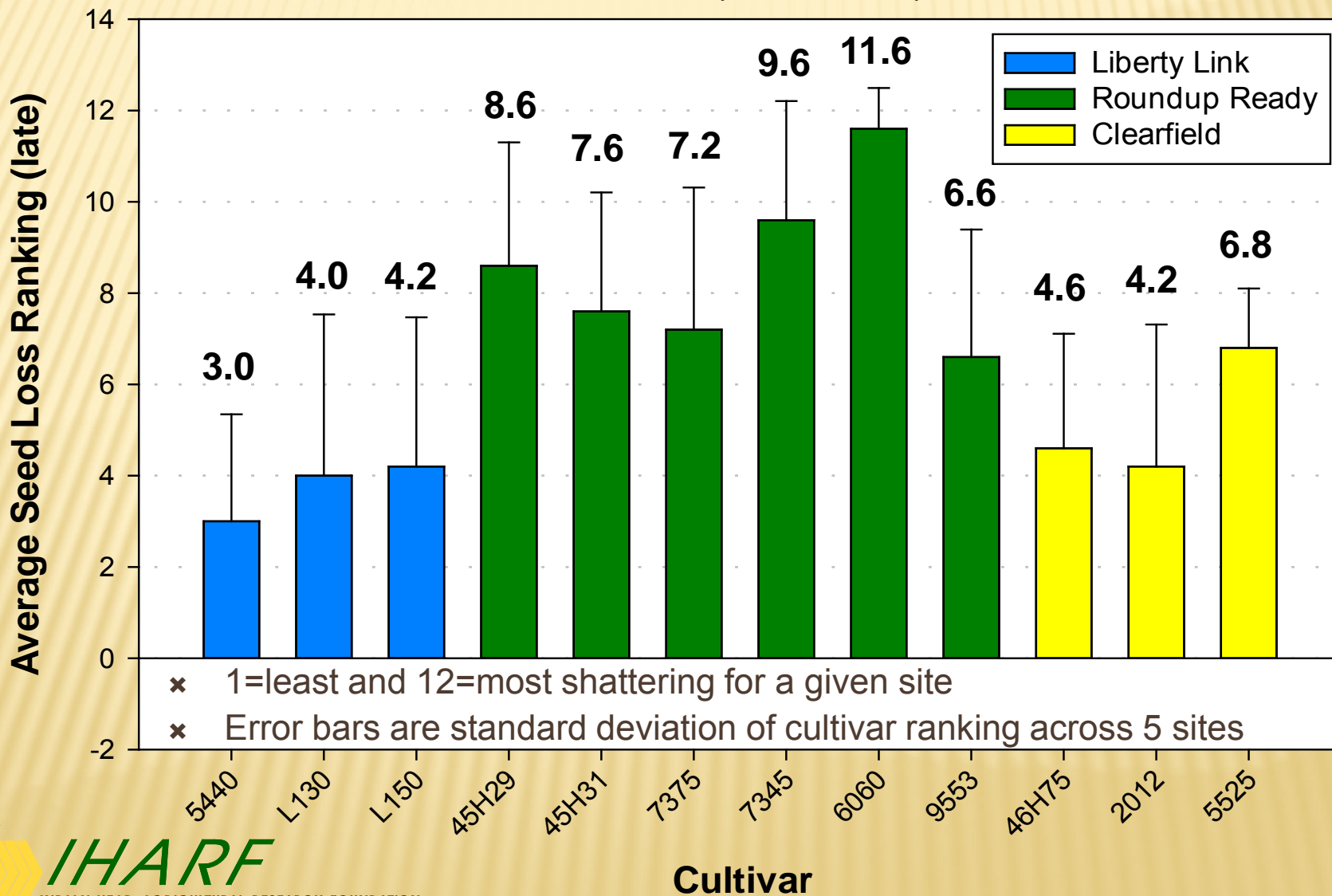
OBSERVED SEED LOSS

(5 SITE AVERAGE / DELAYED HARVEST)



CANOLA CULTIVAR RANKINGS

All Sites (2011-2012)



WHAT HAPPENED

in 2012?



FACTOR #1: DISEASE



- ✘ Adjacent canola fungicide trial used to quantify sclerotinia pressure at Indian Head (2012)
- ✘ 65% incidence (3.8% severity) on untreated check & avg. incidence of 37% (3.4% severity) with foliar fungicide
- ✘ Average yield increase of 19% with fungicide

FACTOR #2: WIND



- × Gusts approached 80 km/hour on Aug. 25 (early cultivars, diseased plants & swathed canola) & on Sept. 11-12 (unharvested straight-combined & swathed canola)
- × Wind speeds >31 km/hr 32/40 days preceding harvest
- × Extensive damage to swathed & straight-combined canola reported across vast areas of the Prairies

TAKE-HOME MESSAGES

- × **Do not be afraid to try straight-combining canola but understand the risks...and there are risks**
 - Harvest timing is critical compared to swathed canola
 - Limit straight-cut acres to what is manageable
- × **Consider cultivar differences whenever possible**
 - Differences in genetic resistance to environmental seed losses frequently observed amongst *napus* varieties but losses can be substantial for all under certain conditions
 - Information on relative shattering resistance of varieties would be useful but is still limited
- × **Pod sealants and/or pre-harvest glyphosate**
 - Pod sealants can be beneficial but have not shown a consistent return on investment in our trials
 - Pre-harvest glyphosate not a necessity but can have advantages in some cases
- × **Not all combine headers perform equally**
 - Header extensions perform well but availability is limited

Thank You!

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