

Agricultural Research - Yorkton

Mike Hall
Researcher/Instructor
Parkland College



East Central
Research
Foundation



PARKLAND
COLLEGE

Celebrating 40 Years
1973-2013



Parkland College and East Central Research Foundation sign a memorandum of understanding to pursue agricultural research.



**Michael Cameron,
Director of Training &
Business Development at
Parkland College**

**Glenn Blakley, President
of the East Central
Research Foundation**

East Central Research Foundation

- Established in 1996 on land just west of Canora
- Has run successfully in the past conducting applied research in agriculture.
- However, over the last few years it has struggled to find a suitable a suitable research coordinator



Parkland College

- Established 40 years ago
- five campus locations including Canora, Esterhazy, Fort Qu'Appelle, Melville and Yorkton. Training centres are in Kamsack and Yorkton.
- Parkland college wants to become involved in field research but has no equipment to do so.



City of Yorkton

- Dave Putz (City Manager) was responsible for introducing Parkland College and East Central Research Foundation.
- The city provided us with a 5 year lease of land just south of Yorkton (108 acres)
- In 2014 the city will also lease us (60 acres) just west of Yorkton



Parkland College



Gwen Machnee
Co-ordinator for university and
applied research

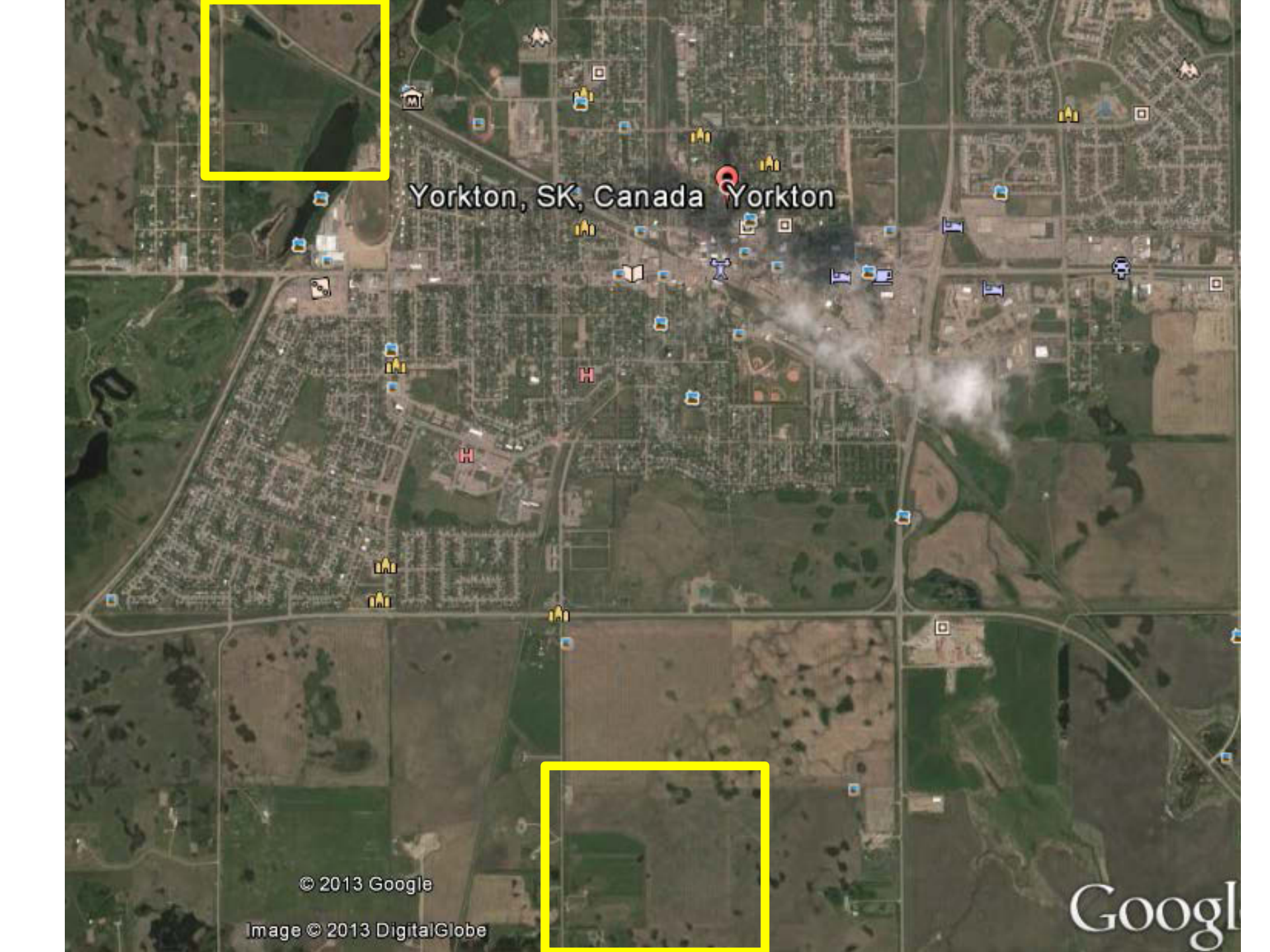


Research experience: 1988-2005

Strengths of the Partnership

- Enabled Parkland College to become the first regional college in Saskatchewan to undertake an applied research program. It fits with one of the college's mandates "to serve regional economic development"
- Both ECRF and Parkland College benefit from each other's expertise and connections.
 - ECRF and Parkland College have access to different funding sources.
 - The research farm provides a place to train students and offer summer job opportunity.





Yorkton, SK, Canada Yorkton

© 2013 Google

Image © 2013 DigitalGlobe

Google

We had a good start!



We had a good start!



TH 33003

NSC Libau RR2Y

Objectives:

- to evaluate in the Yorkton area the maturity, yield and first internode length of ten soybean varieties developed by NorthStar Genetics.
- to evaluate impact of warming the soil with cultivation prior to seeding soybeans on maturity, yield and first internode length.



NorthStar
GENETICS
Demonstration Plot

A white sign with a green top section and a grid pattern. The text is in black. The sign is placed in a field of soybean plants.

Variety	Maturity	Description
1. NSC Moosomin RR2Y	2300 CHU	Ultra early variety (<2300 CHU); short ; excellent yield potential. Good cold tolerance
2. NSC Reston RR2Y	2325 CHU	Very early maturing. Very good line for solid seeding. Reston has been rated as Excellent for Iron Deficiency Chlorosis tolerance, and Very Good for white mold.
3. Blank		
4. NSC Anola RR2Y	2350 CHU	Early maturing. Limited branching. Ideally suited for solid seeding.
5. NSC Vito R2	2350 CHU	Very tall. Tall first internode better for uneven topography.
6. NSC Libau RR2Y	2375 CHU	Early stable line. Excellent standability. Top yielder for maturity class. Poor Cold tolerance.
7. TH 33003	2375 CHU	Good cold tolerance
8. NSC Gladstone RR2Y (registration pending)	2375 CHU	
9. NSC Tilston RR2Y	2375 CHU	Early season variety, rated at 2375 CHU. Very tall with very good pod clearance and exceptional standability. Yielded 104% of check in 2012 Manitoba provincial trials. Performed very well in terms of yield and maturity vs other varieties in trials where conditions were particularly cool. Good cold tolerance.
10. NSC Elie RR2Y	2425 CHU	Top midseason yielder (exceptional). Very stable strong looking line in the field. Suitable for solid seeded or row planted.

It's a Demonstration, no replication and thus no statistics.



Seeding into rotovated soil versus direct seeding

Expectation

- Plants to emerge more vigorously
- Longer first internode
- Earlier maturity
- Better yield

What actually happened

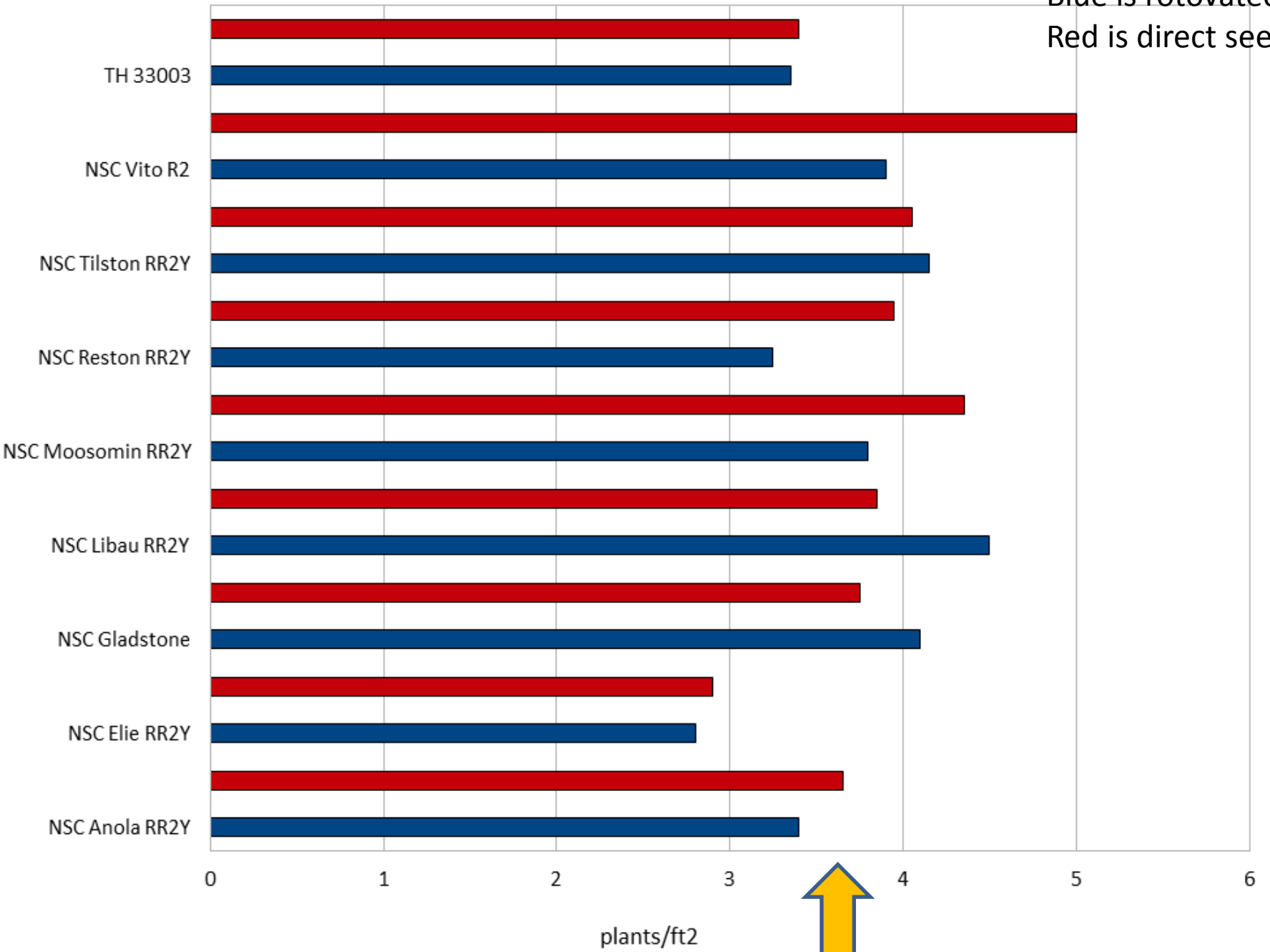
- Plants to emerged the same
- Shorter first internode
- Earlier maturity
- Poorer yield

Did we seed too deep into the softer rotovated soil?

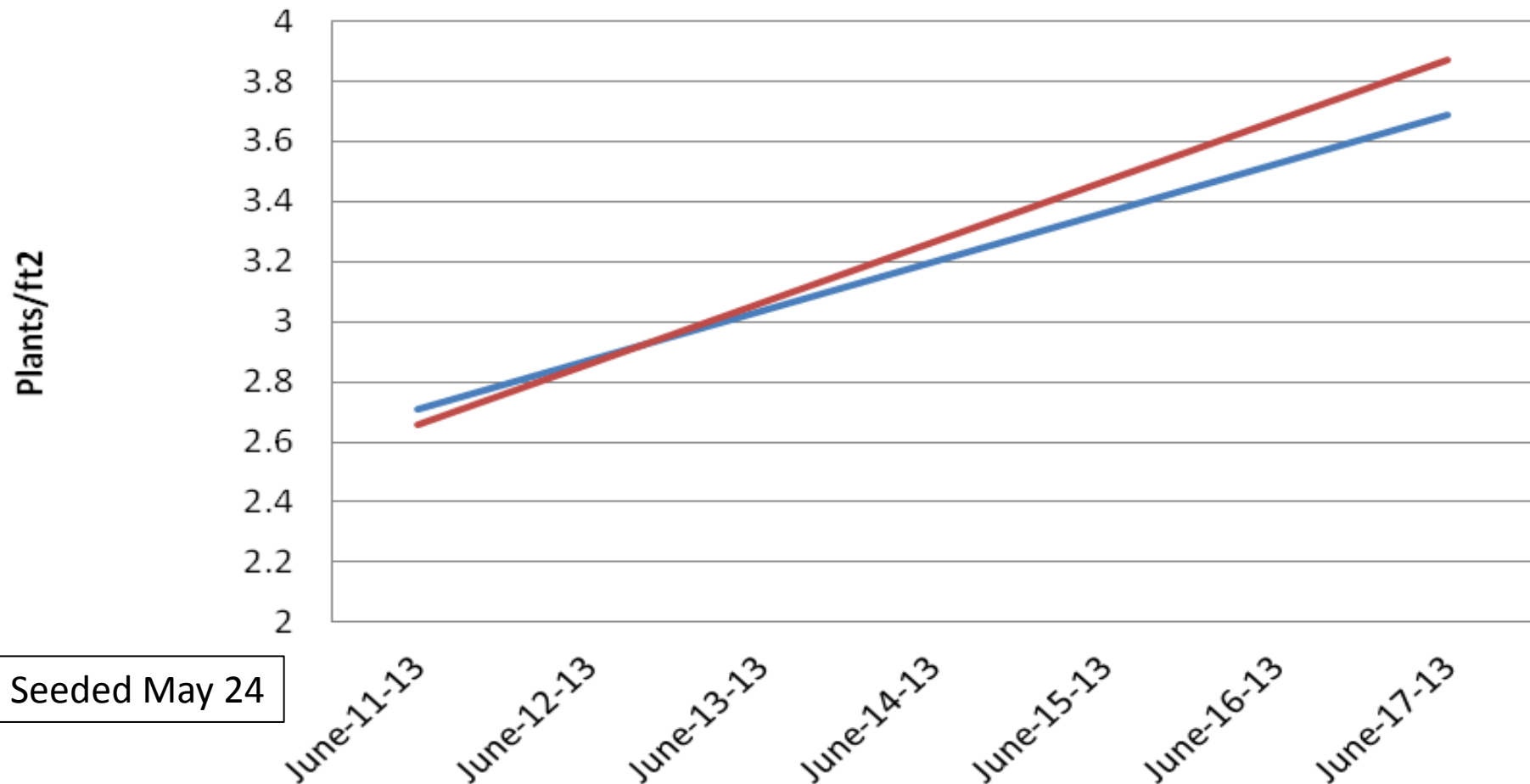


Final emergence soybean emergence counts

Blue is rotated
Red is direct seeded



Emergence of cultivated and direct seeded soybeans averaged across varieties



	June-11-13	June-17-13
Cultivated	2.71	3.69
Direct seeded	2.66	3.87

Libau

Rotovated

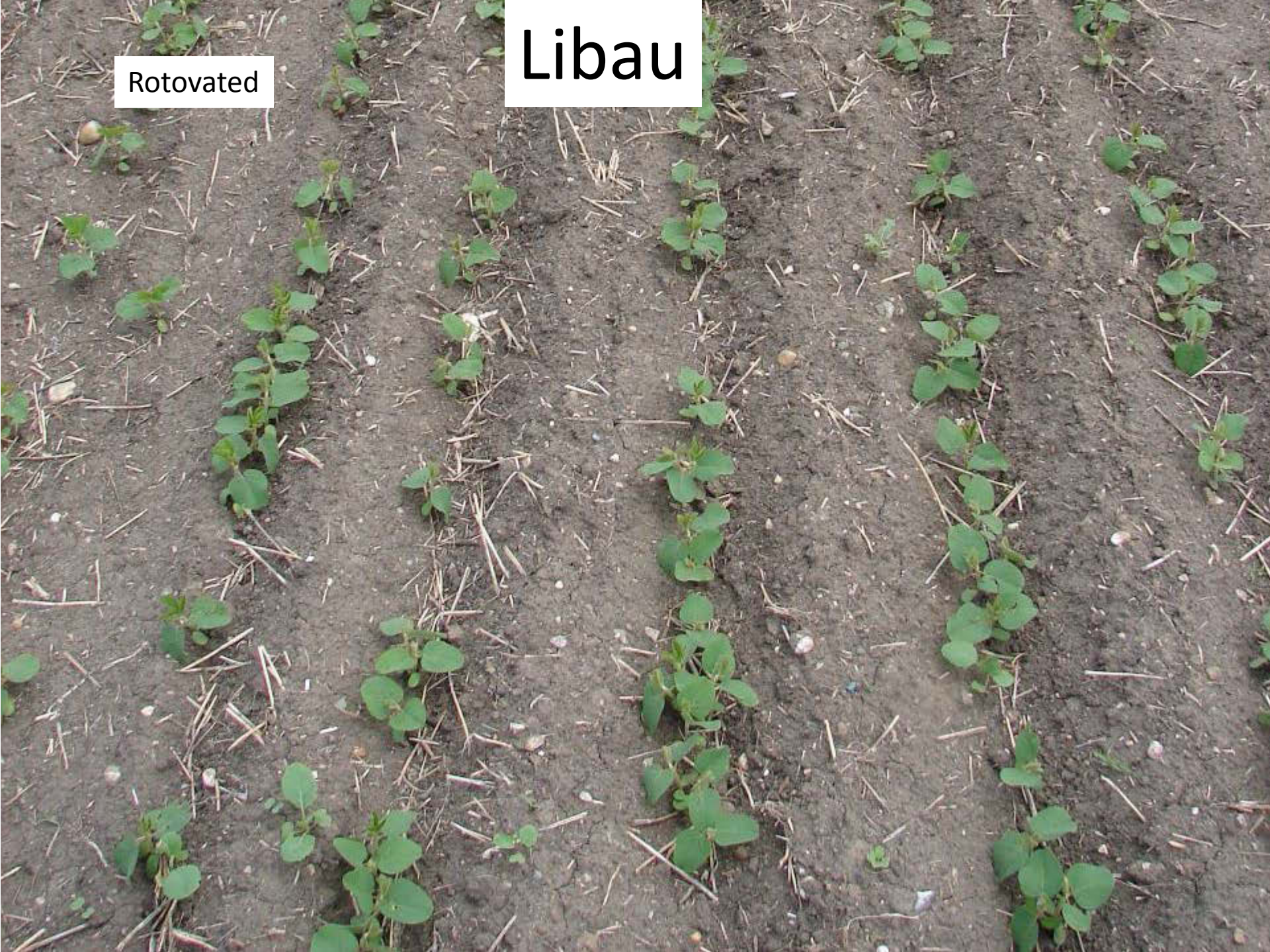


Direct Seeded



Rotovated

Libau




Libau

Direct Seeded



Tilston





Rotovated

Tilston

Tilston

Direct Seeded



Plant Height and Height of lowest pod averaged across all varieties

Soil Disturbance	Plant Height	Height of lowest pod
Direct seeded	27.5	2.5
rotovated	22.7	2.3

Height: rotovated versus directed seeded Vito

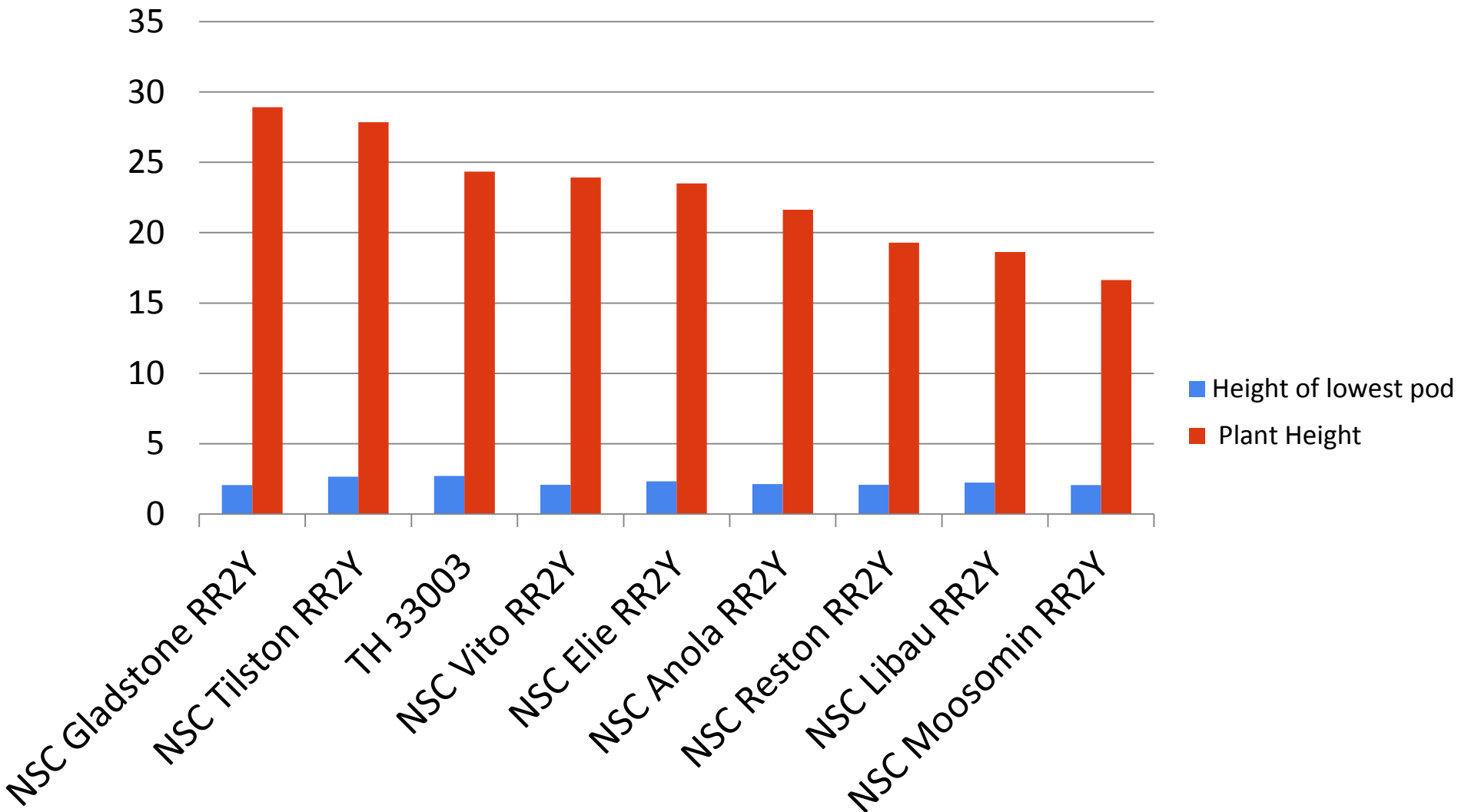
Vito rotovated

Vito direct seeded

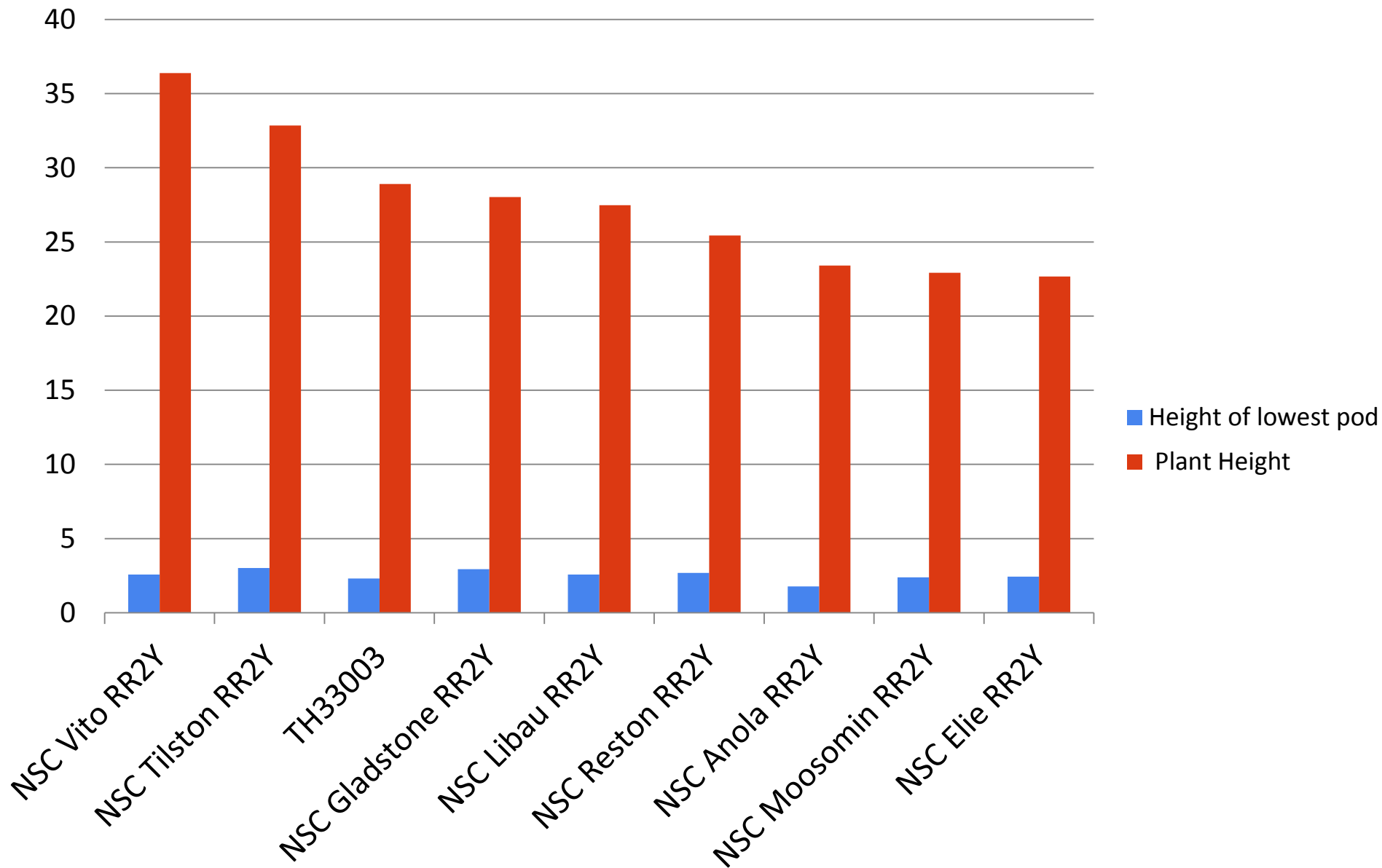
Sept 23, 2013



Average Soybean height and height of lowest pod (inches) by variety on rotovated soil.



Average Soybean height and height of lowest pod (inches) by variety direct seeded



Days to 10% yellow pods

date	Days after seeding	Direct seeded	Rotovated
September 4, 2013	103	NA	NSC Moosomin RR2Y
September 6, 2013	105	NSC Moosomin RR2Y NSC Tilston RR2Y	TH 33003 NSC Reston RR2Y NSC Tilston RR2Y
September 9, 2013	108	TH 33003	NSC Vito R2 NSC Anola RR2Y NSC Gladstone RR2Y
September 12, 2013	111	NSC Gladstone RR2Y NSC Vito R2 NSC Anola RR2Y NSC Reston RR2Y	NSC Elie RR2Y NSC Libau RR2Y
September 16, 2013	115	NSC Libau RR2Y NSC Elie RR2Y	

Maturity: rotovated versus directed seeded

Vito

Vito rotovated

Vito direct seeded

Sept 9, 2013



Maturity: rotovated versus directed seeded

Vito

Vito rotovated

Vito direct seeded

Sept 12, 2013



Maturity: rotovated versus directed seeded

Vito

Vito rotovated

Vito direct seeded

Sept 16, 2013



Maturity: rotovated versus directed seeded

Vito

Vito rotovated

Vito direct seeded

Sept 23, 2013

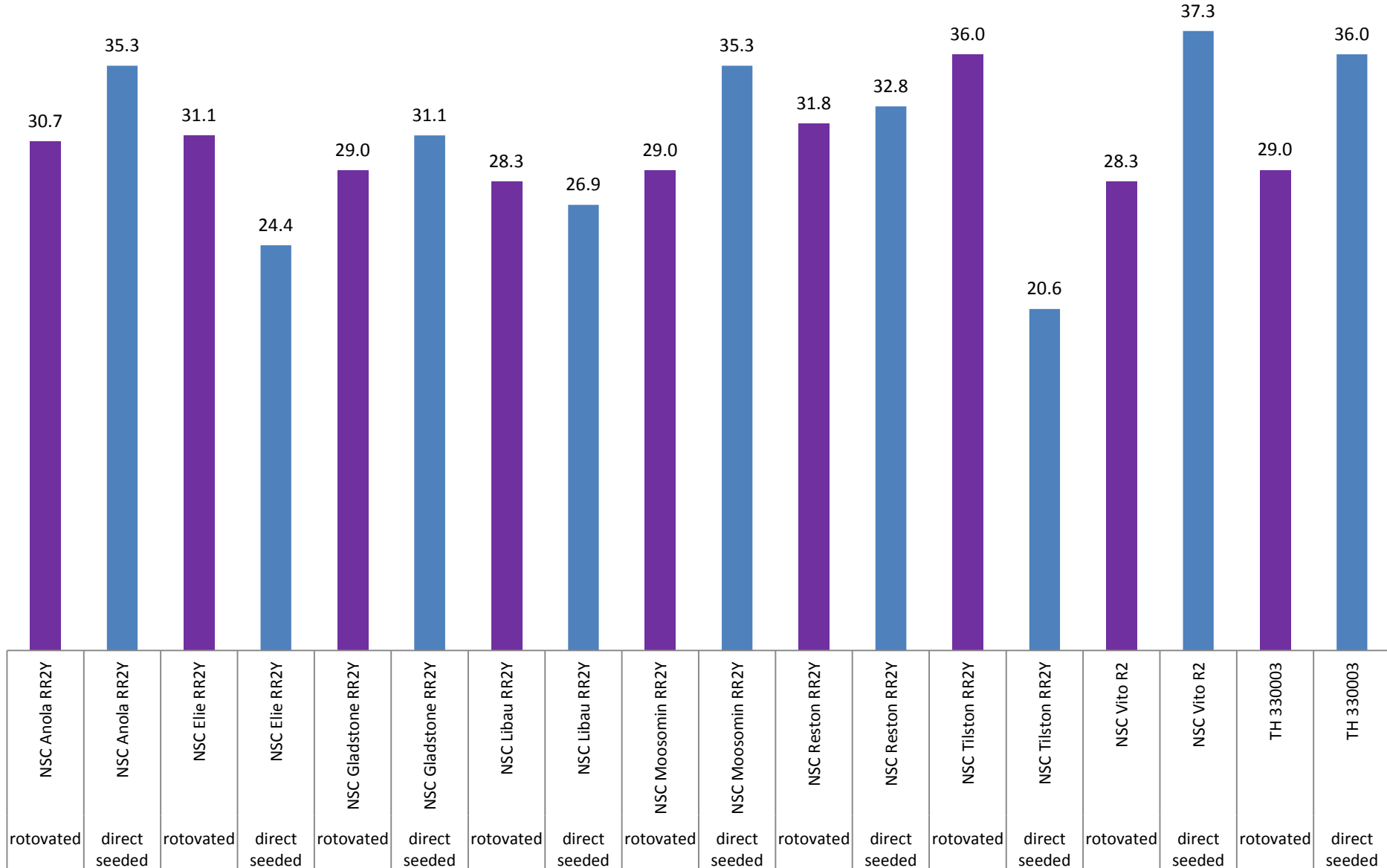


Variety	Maturity	Description
1. NSC Moosomin RR2Y	2300 CHU	Ultra early variety (<2300 CHU); short ; excellent yield potential. Good cold tolerance
2. NSC Reston RR2Y	2325 CHU	Very early maturing. Very good line for solid seeding. Reston has been rated as Excellent for Iron Deficiency Chlorosis tolerance, and Very Good for white mold.
3. Blank		
4. NSC Anola RR2Y	2350 CHU	Early maturing. Limited branching. Ideally suited for solid seeding.
5. NSC Vito R2	2350 CHU	Very tall. Tall first internode better for uneven topography.
6. NSC Libau RR2Y	2375 CHU	Early stable line. Excellent standability. Top yielder for maturity class. Poor Cold tolerance.
7. TH 33003	2375 CHU	Good cold tolerance
8. NSC Gladstone RR2Y (registration pending)	2375 CHU	
9. NSC Tilston RR2Y	2375 CHU	Early season variety, rated at 2375 CHU. Very tall with very good pod clearance and exceptional standability. Yielded 104% of check in 2012 Manitoba provincial trials. Performed very well in terms of yield and maturity vs other varieties in trials where conditions were particularly cool. Good cold tolerance.
10. NSC Elie RR2Y	2425 CHU	Top midseason yielder (exceptional). Very stable strong looking line in the field. Suitable for solid seeded or row planted.

Days to 10% yellow pods

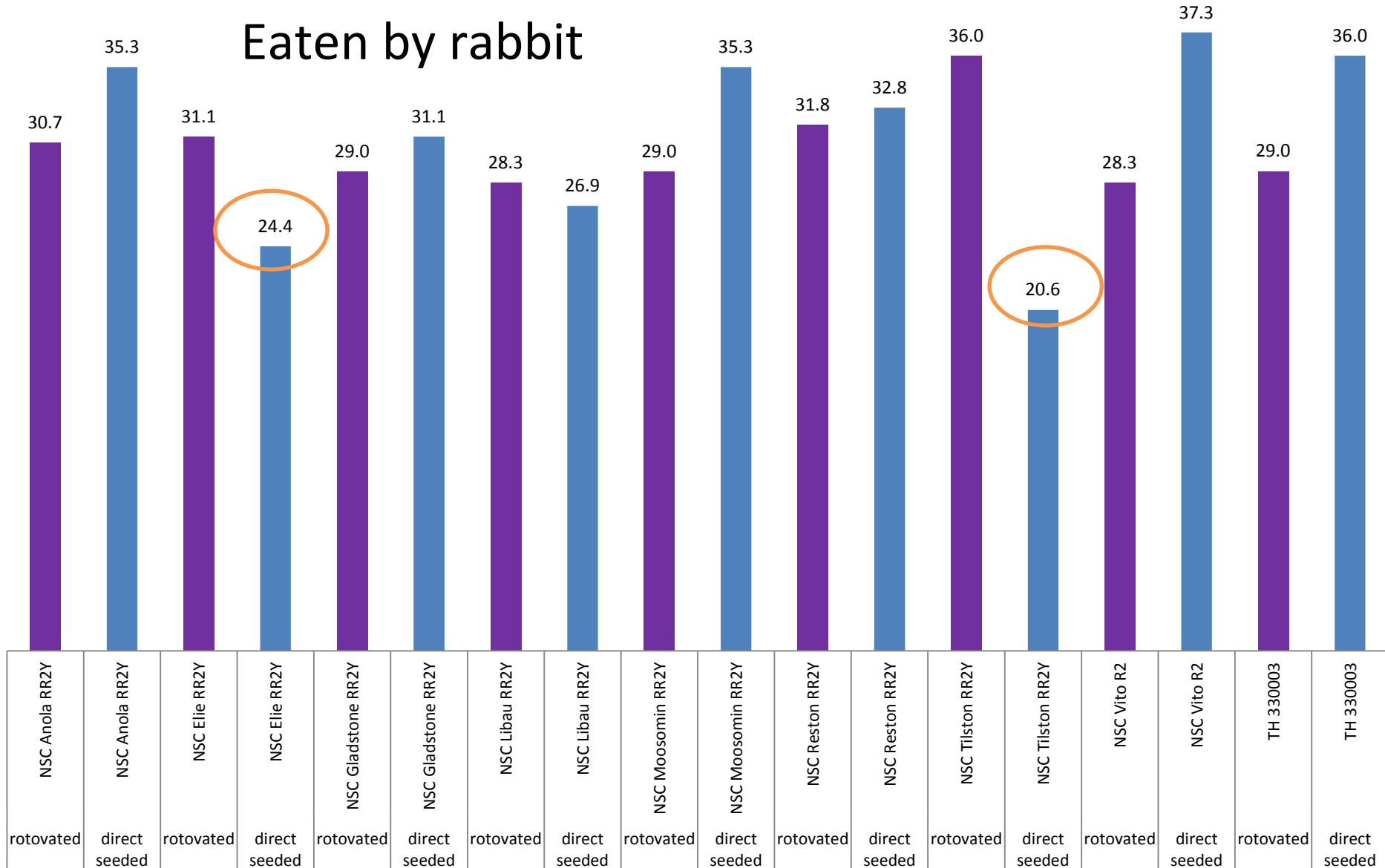
date	Days after seeding	Direct seeded	Rotovated
September 4, 2013	103	NA	NSC Moosomin RR2Y
September 6, 2013	105	NSC Moosomin RR2Y NSC Tilston RR2Y	TH 33003 NSC Reston RR2Y NSC Tilston RR2Y
September 9, 2013	108	TH 33003	NSC Vito R2 NSC Anola RR2Y NSC Gladstone RR2Y
September 12, 2013	111	NSC Gladstone RR2Y NSC Vito R2 NSC Anola RR2Y NSC Reston RR2Y	NSC Elie RR2Y NSC Libau RR2Y
September 16, 2013	115	NSC Libau RR2Y NSC Elie RR2Y	

Direct seeded and rotovated Soybean yields by variety bu/ac



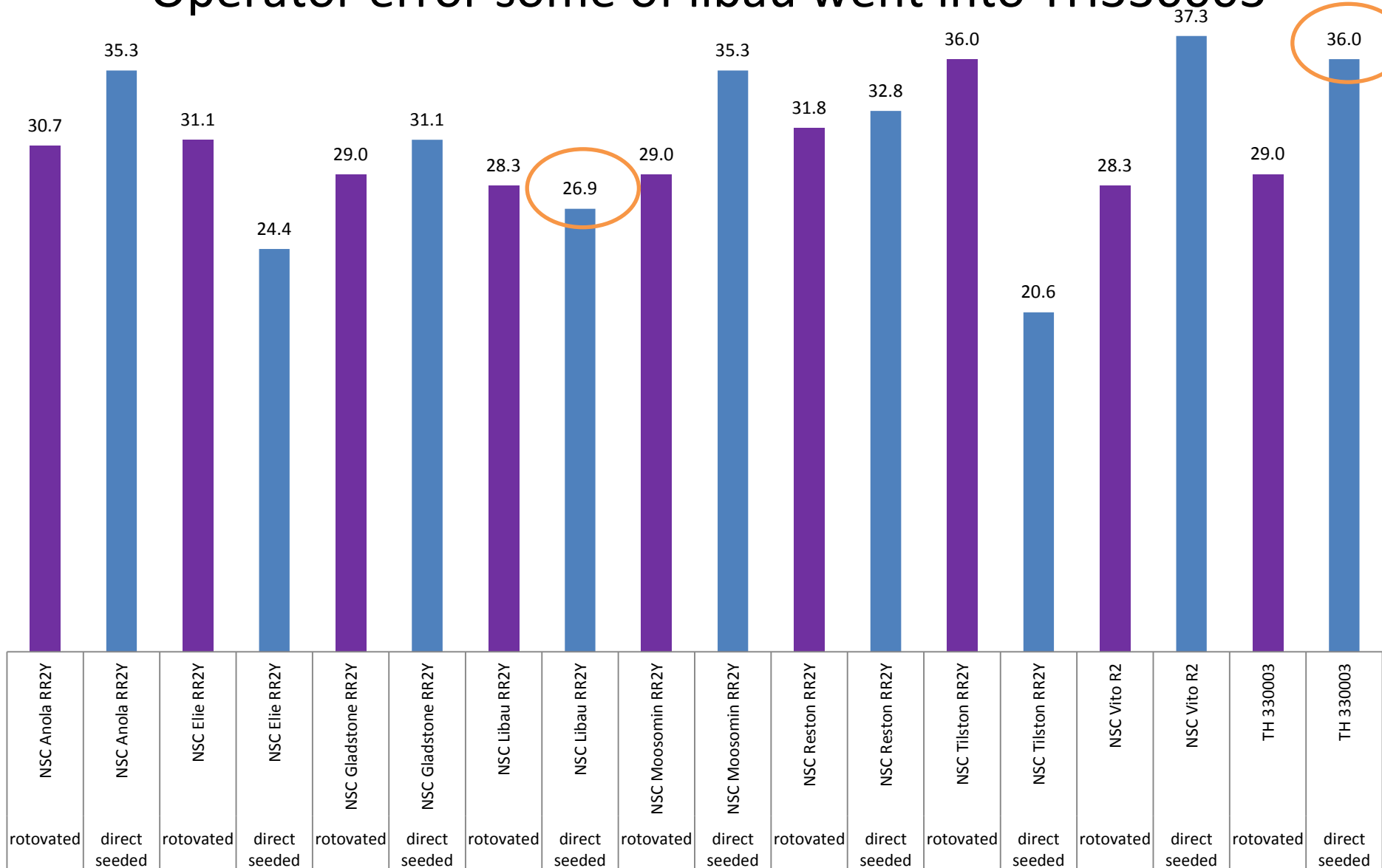
Direct seeded and rotovated Soybean yields by variety bu/ac

Eaten by rabbit



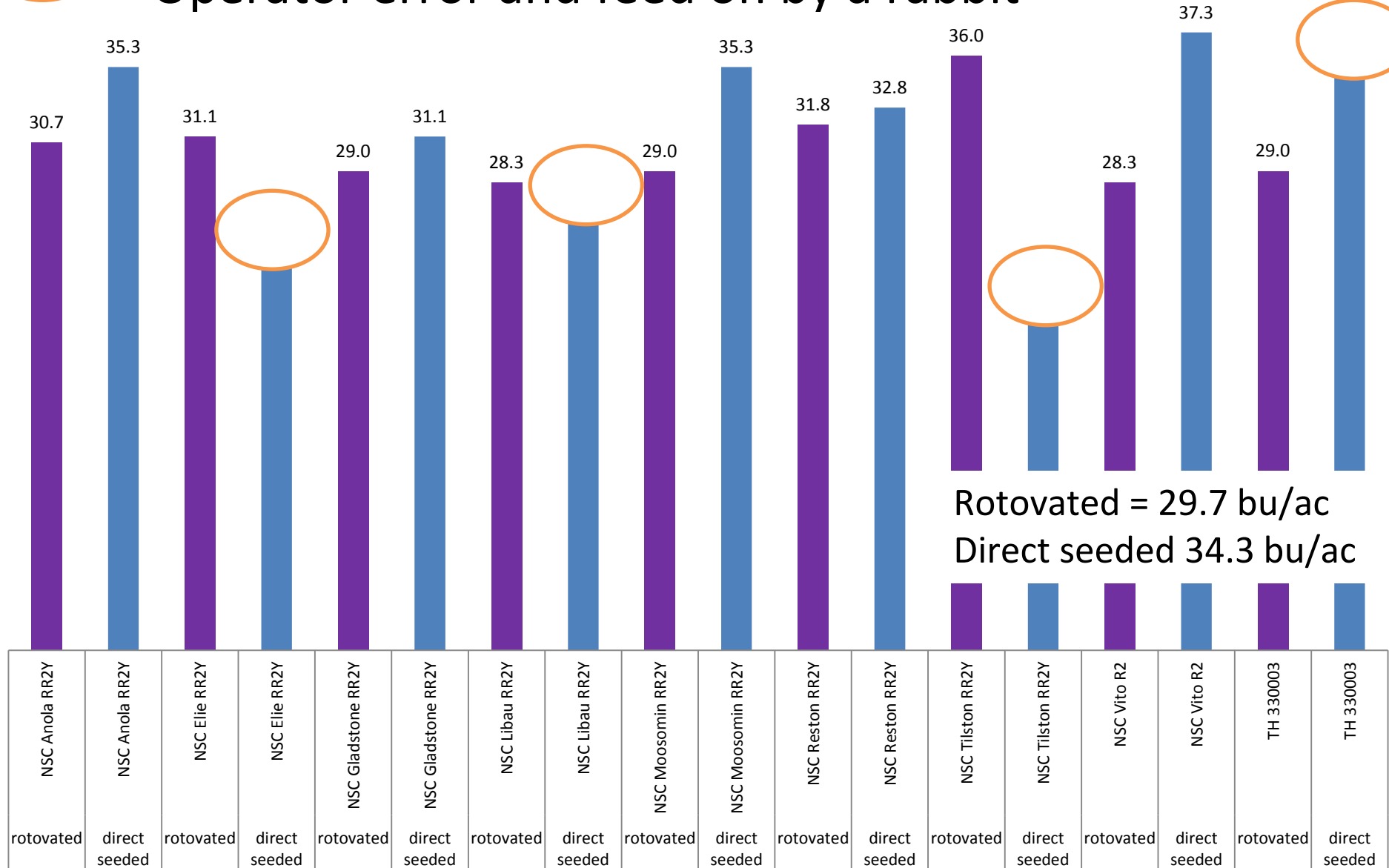
Direct seeded and rotoated Soybean yields by variety bu/ac

Operator error some of libau went into TH330003



Direct seeded and rotovated Soybean yields by variety bu/ac

Operator error and feed on by a rabbit



Conclusions

- Rotovated plots were earlier maturing, shorter in stature, had lower pod height and were lower yielding. Why?
 - Possibly seeded deeper in softer soil. However, emergence was not drastically different.
 - Did rotovating change fertility aspects, mychorrhizal associations or nodulation success. Seed was coated with Nodulator Pro liquid inoculant and Hi-Flo spherical granules inoculant was banded to the side.
- For the yorkton area would stay away from long season varieties like Elie or libau
- For yorkton area would consider Moosomin but it has a short first internode
- For yorkton area Tilston is my first consideration because it is a short season variety, with the longest first internode and good yield. TH33003 is a tall early maturing variety.

June 22, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



July 25, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



August 13, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



August 31, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



September 5, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



Sept 9, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



September 12, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



September 16, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



September 23, 2013

Moosomin (short & early)



Tilston (Tall & short season)



Libau (very late)



September 23, 2013

Moosomin (short & early)
29 bu/ac



Tilston (Tall & short season)
36 bu/ac



Libau (very late)
28.3 bu/ac



RESEARCH FARM



PARKLAND
COLLEGE



East Central
Research
Foundation

City of
Yorkton

Special thanks to

Parkland College staff would like to thank



Crop
Production
Services

Tim Lutz
Family

Isiran
George

Craig Grunert
Family



MONSANTO



Questions?

Good Cold tolerance

- NSC Moosomin, TH33003, Tilston

Somewhat Cold Tolerant

- Reston, NSC Anola, dk23-10

Poor Cold Tolerance

- NSC Libau, Pekko

- Still trying to work out what exactly cold tolerance is and growth chamber studies have been initiated over the winter which we hope to correlate with field studies this year by seeding varieties early into cold soil and late into warm.
- We are not sure if it is the cold soils in early spring which lead to lower pod height, later maturity, and lower yield. It may have been the result of the cooler than normal June/July period where some varieties may have their progress put on hold while varieties such as Tilston continued with their normal progression despite those cool temps at flowering.

AirGuard Trial (Large Scale)

Objective:

to evaluate impact of AirGuard's seed brake technology on the following three openers in terms of seed depth distribution, emergence and yield

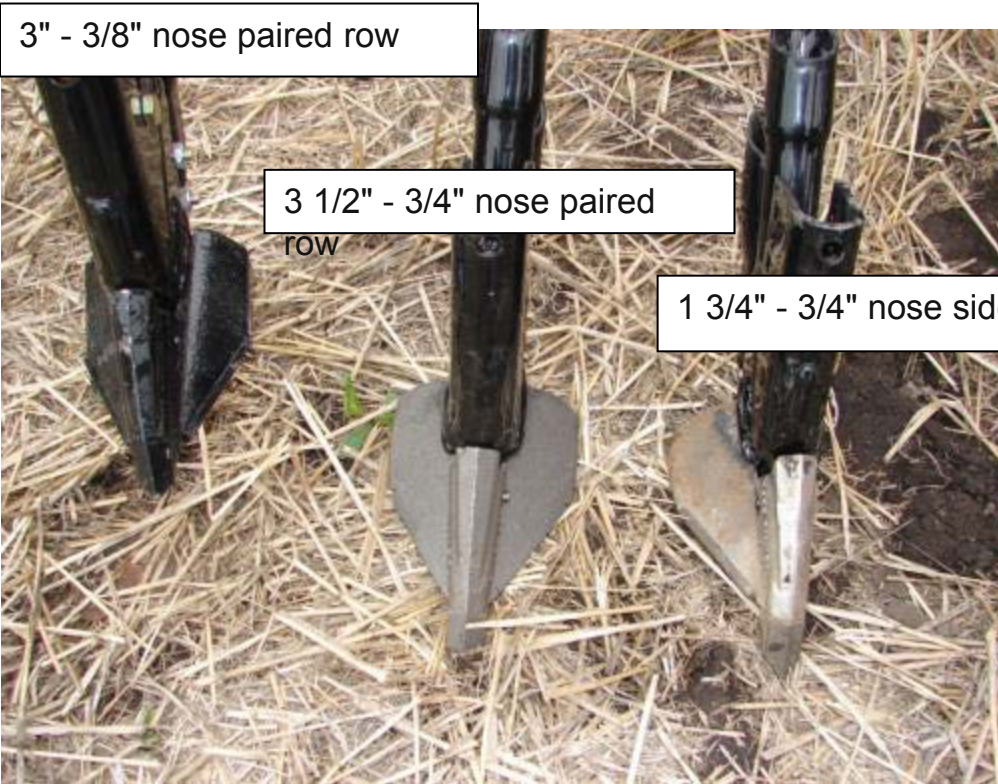
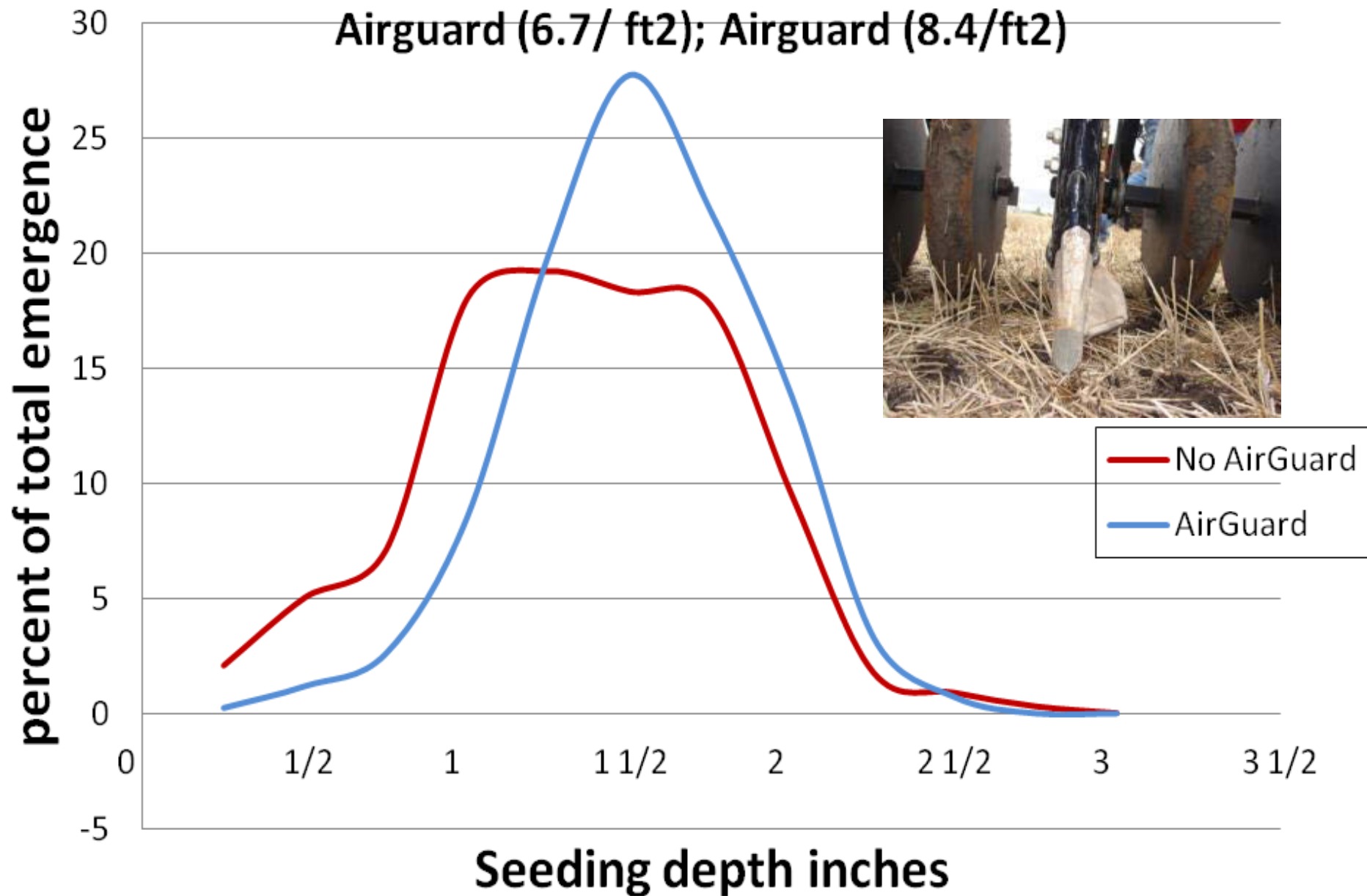




Table 7. Plant emergence and yield for field scale trial.

AirGuard	Opener	Yield (bu/ac)	Emergence (plants/ft ²)
yes	3" - 3/8" nose paired row	58.5	6.6
no	3" - 3/8" nose paired row	57.9	5.8
yes	1 3/4" - 3/4" nose sideband	62.4	8.4
no	1 3/4" - 3/4" nose sideband	59.7	6.8
yes	3 1/2" - 3/4" nose paired row	61.7	5.0
no	3 1/2" - 3/4" nose paired row	61.1	5.1

The influence of AirGuard technology on seeding depth distribution of 1 3/4" - 3/4" nose sideband. No Airguard (6.7/ ft2); Airguard (8.4/ft2)



RESEARCH FARM



PARKLAND
COLLEGE



East Central
Research
Foundation

City of



Special thanks to

Yorkton

Parkland College staff would like to thank



Crop
Production
Services

Tim Lutz
Family

Tristan
Stange

Craig Grunert
Family



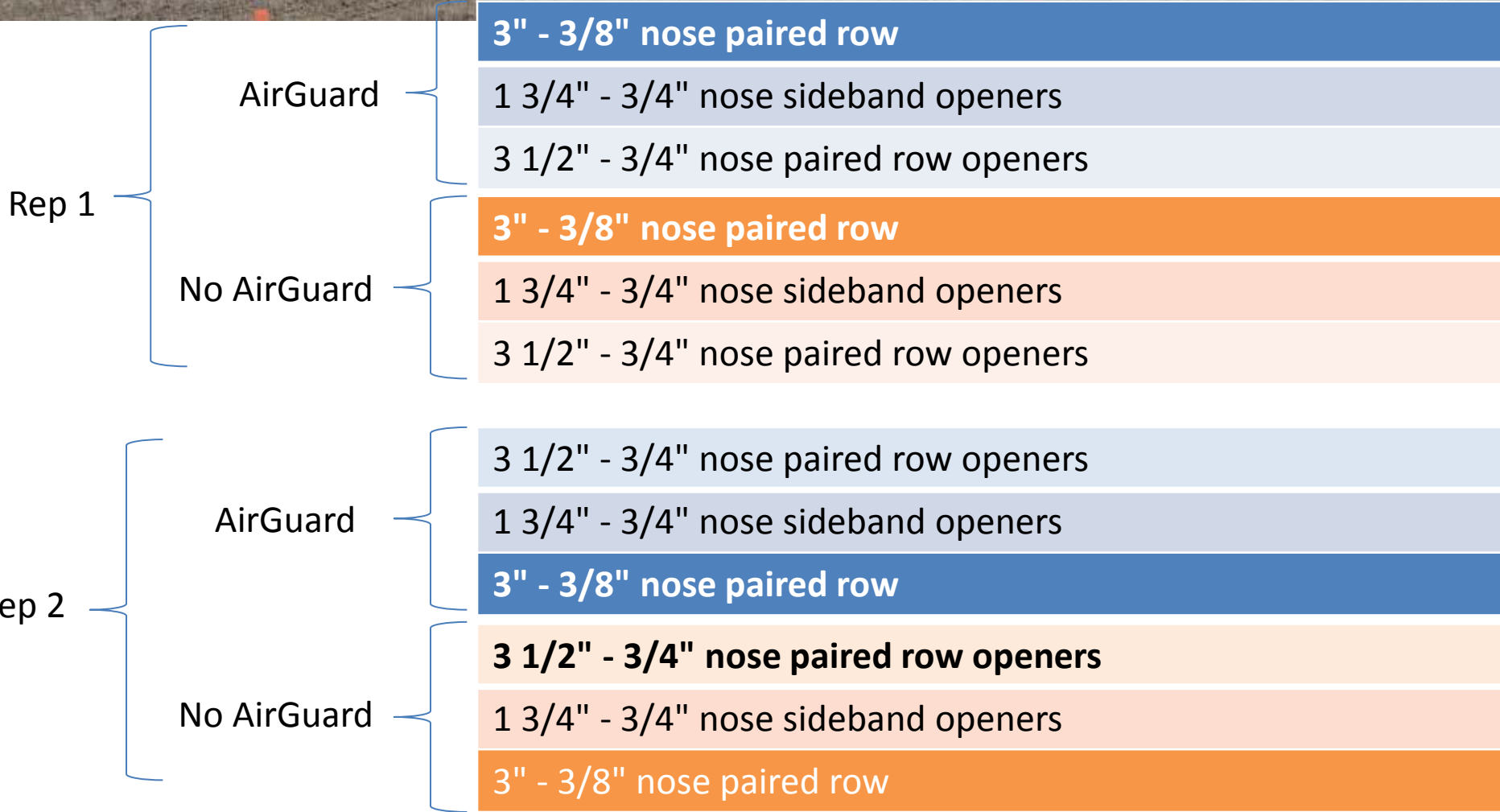
MONSANTO



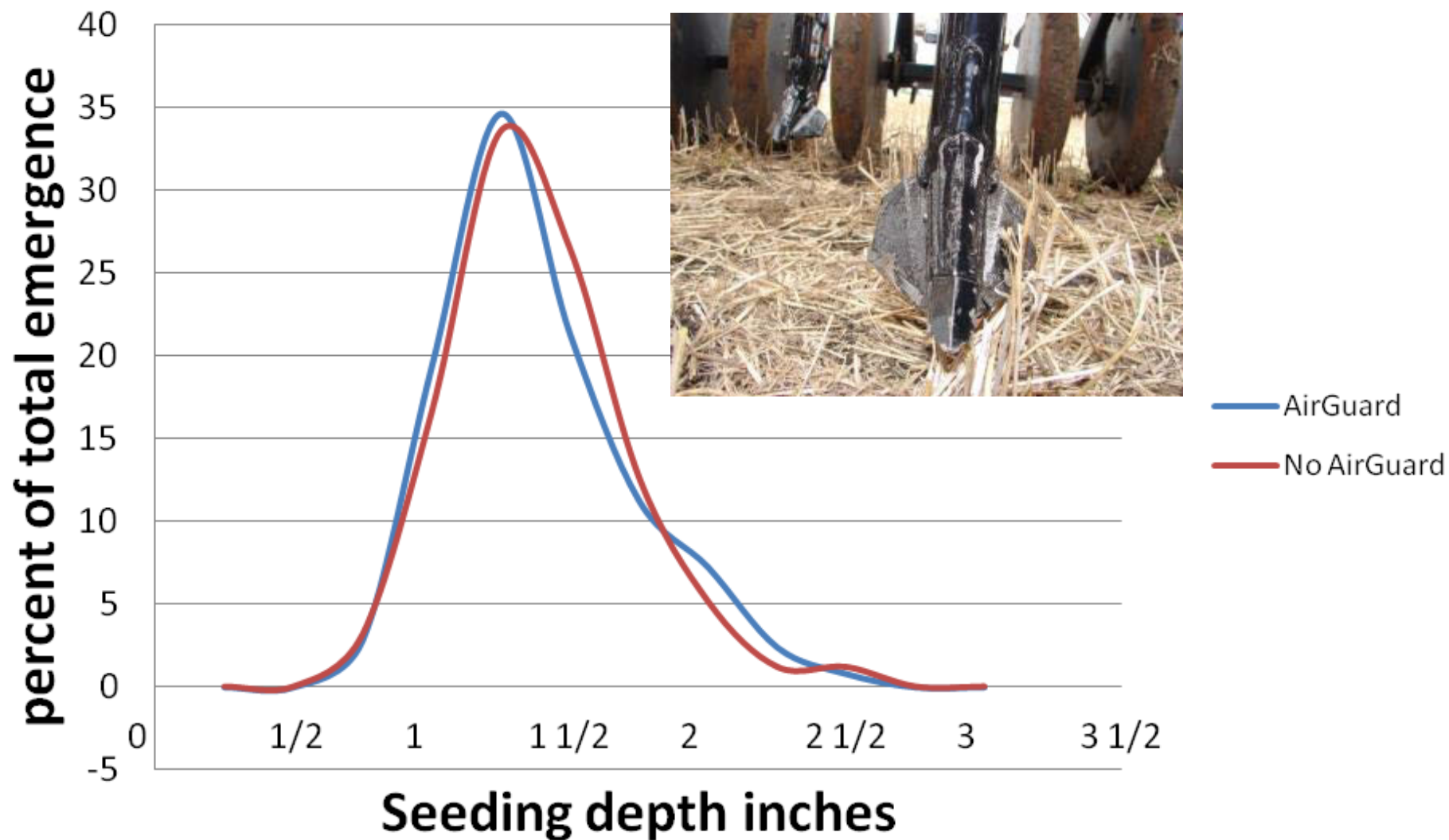
THE END





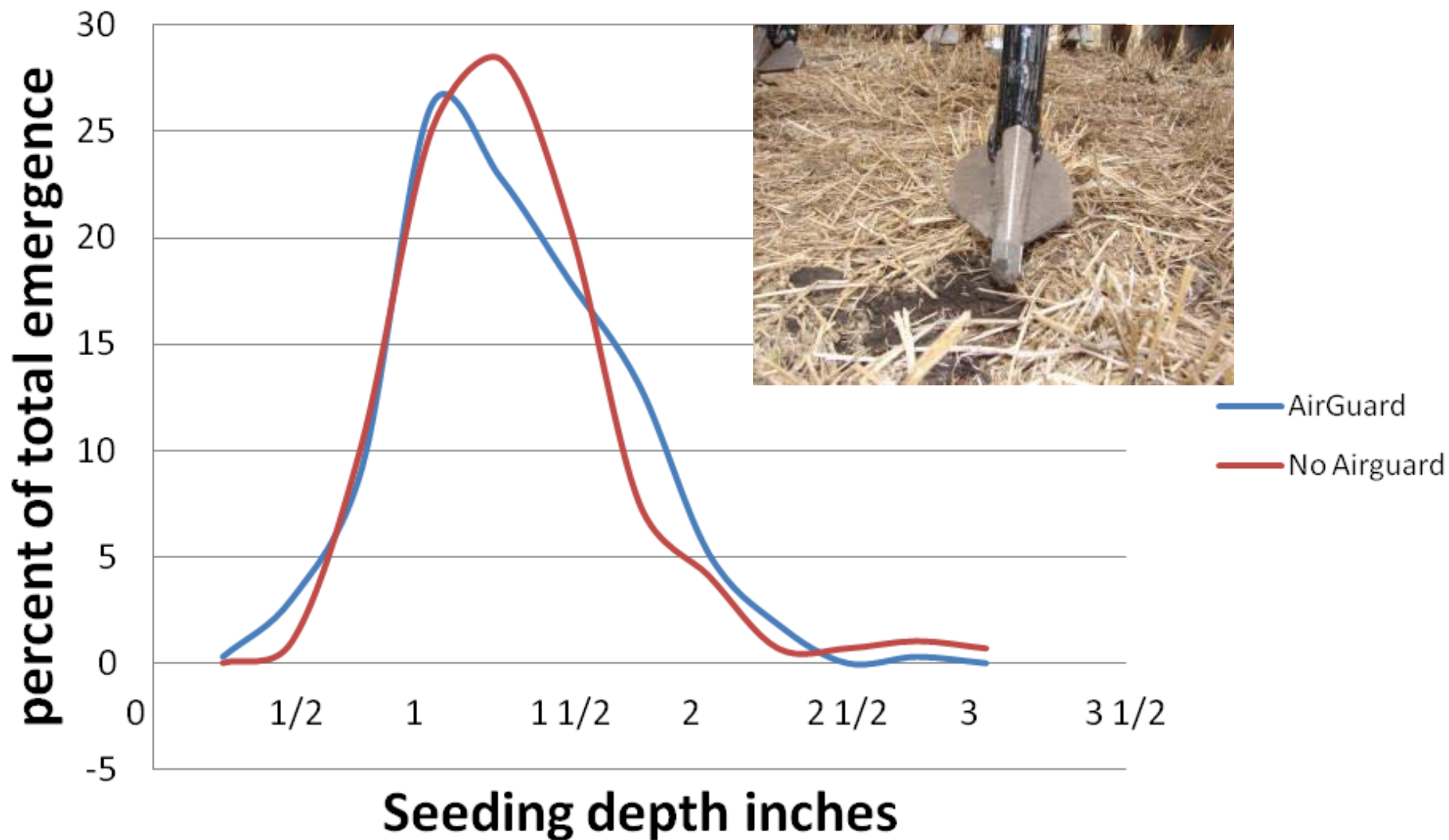


The influence of AirGuard technology on seeding depth distribution of 3 1/2" - 3/4" nose paired row. No Airguard (5.06/ft²); Airguard (4.9/ft²)

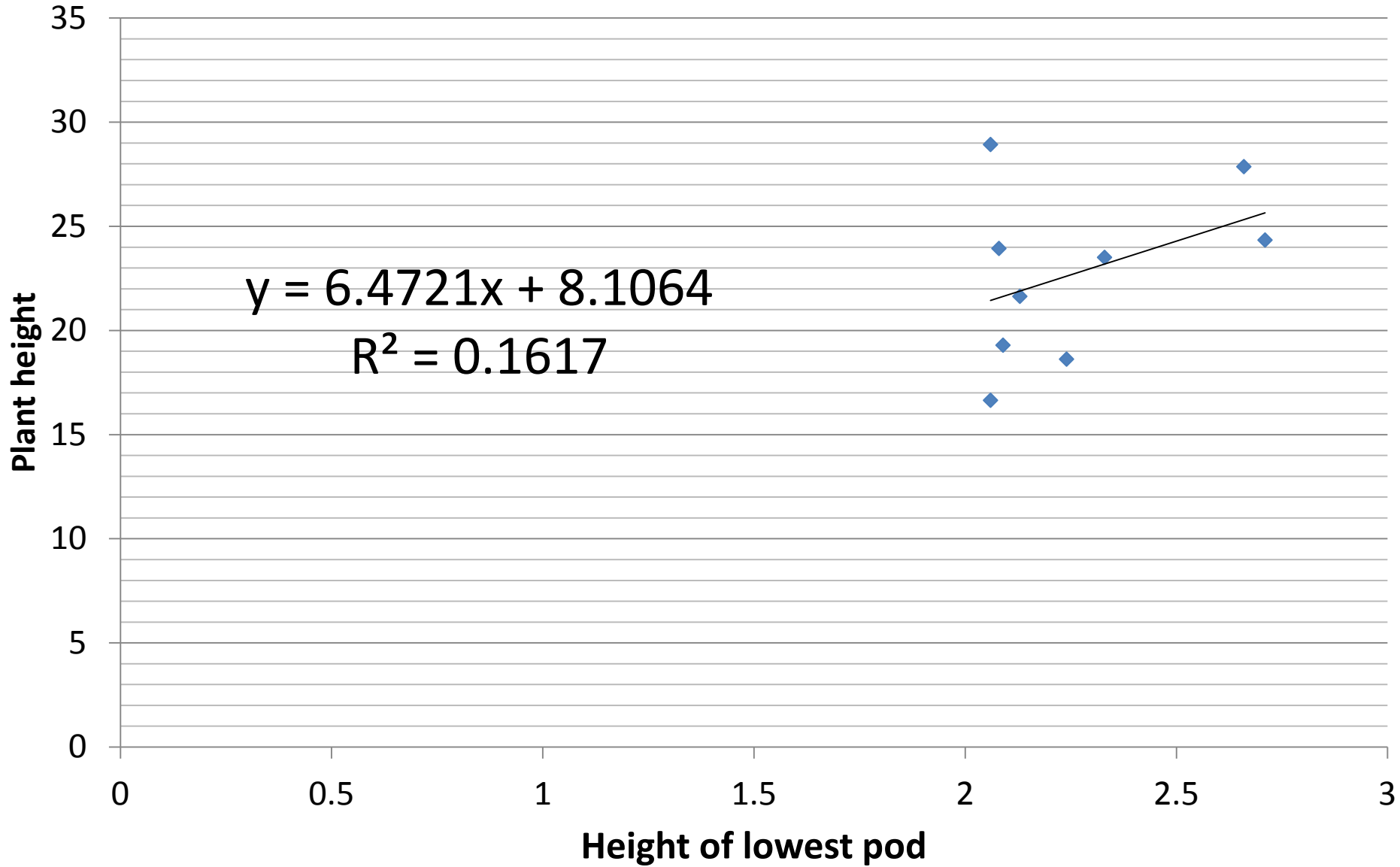


The influence of AirGuard technology on seeding depth distribution of 3" - 3/8" nose paired row .

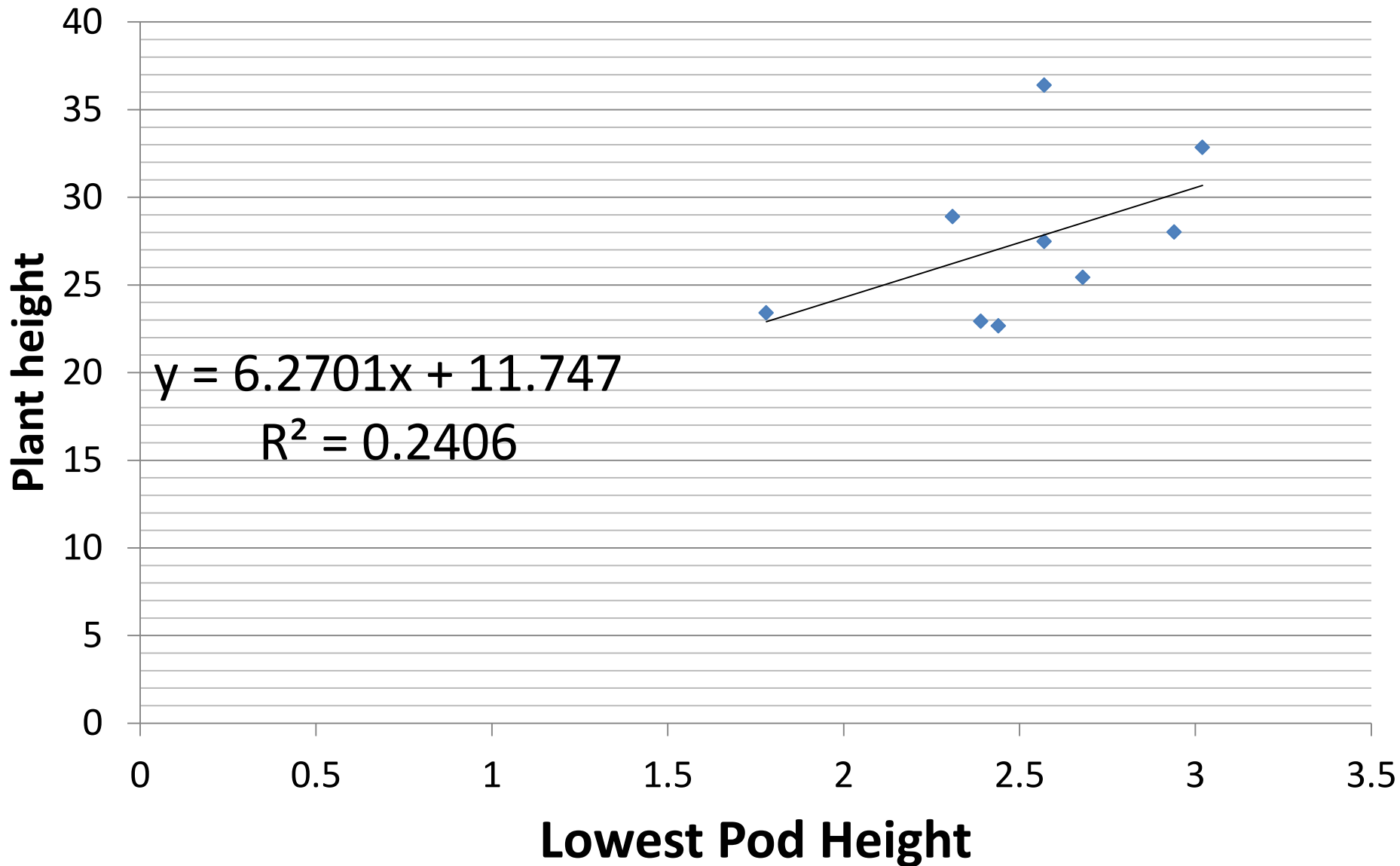
No Airguard (5.8/ft²); Airguard (6.5/ ft²)



Plant height versus height of lowest pod for rotoated soybeans



Plant height versus lowest pod height for direct seeded soybeans



Days to 95% pod color change

date	Days after seeding	Direct seeded	Rotovated
September 12, 2013	111	NSC Tilston RR2Y NSC Moosomin RR2Y	NSC Tilston RR2Y NSC Reston RR2Y NSC Vito R2 TH 33003 NSC Moosomin RR2Y
September 16, 2013	115	TH 33003 NSC Reston RR2Y	NSC Gladstone RR2Y
September 23, 2013	121	NSC Elie RR2Y NSC Gladstone RR2Y NSC Vito R2 NSC Anola RR2Y	NSC Elie RR2Y NSC Anola RR2Y
September 29, 2013	127	NSC Libau RR2Y	NSC Libau RR2Y