Validation of the Glyphosate Testing Kit and Glyphosate Field Trials.

High –Value Crops Project
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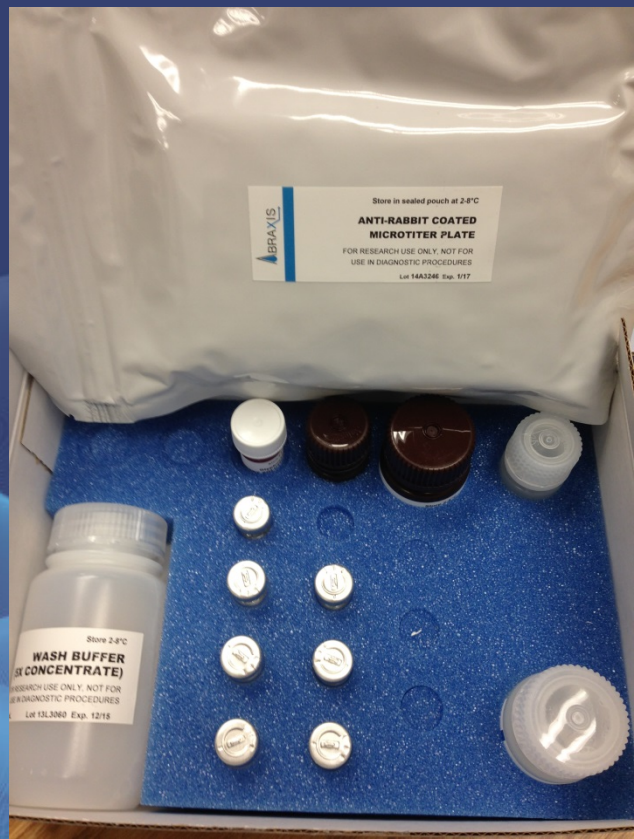
Glyphosate Testing Kit

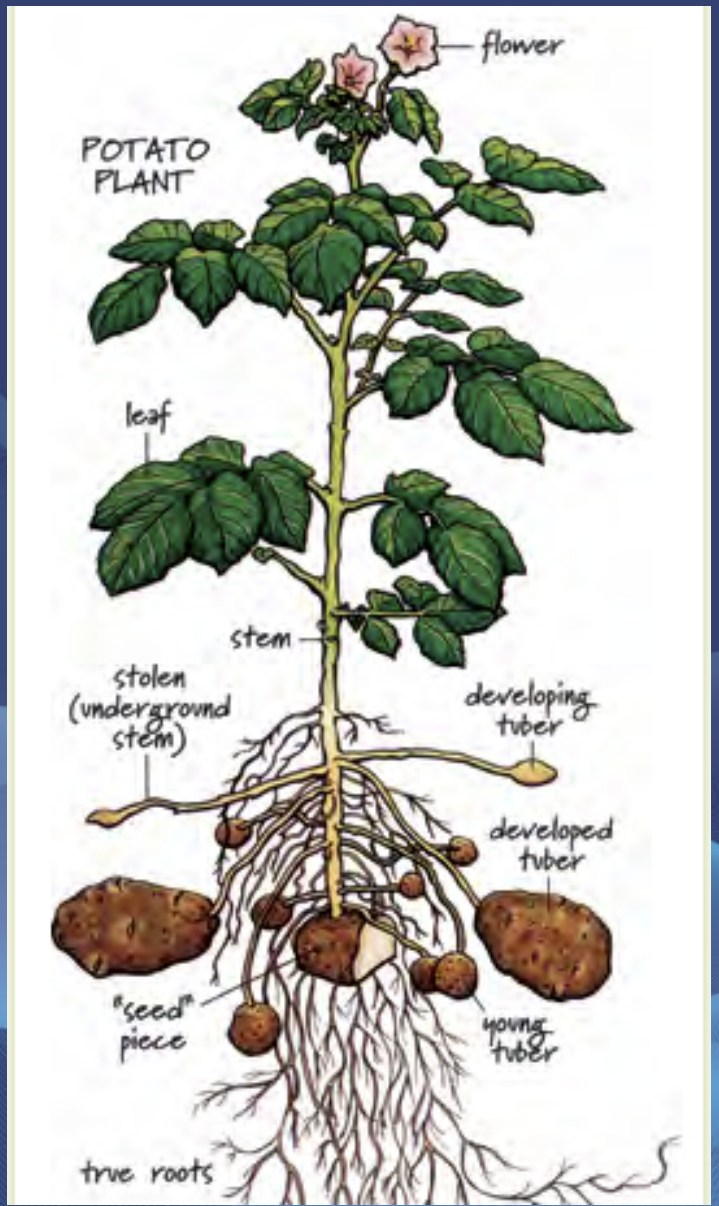
- Working with Abraxis LLC. on a glyphosate assay test for potato tubers.
  - Want to develop a testing method for certified seed.
  - Want to see if the assay test could be modified to test foliage.



Glyphosate Testing Kit

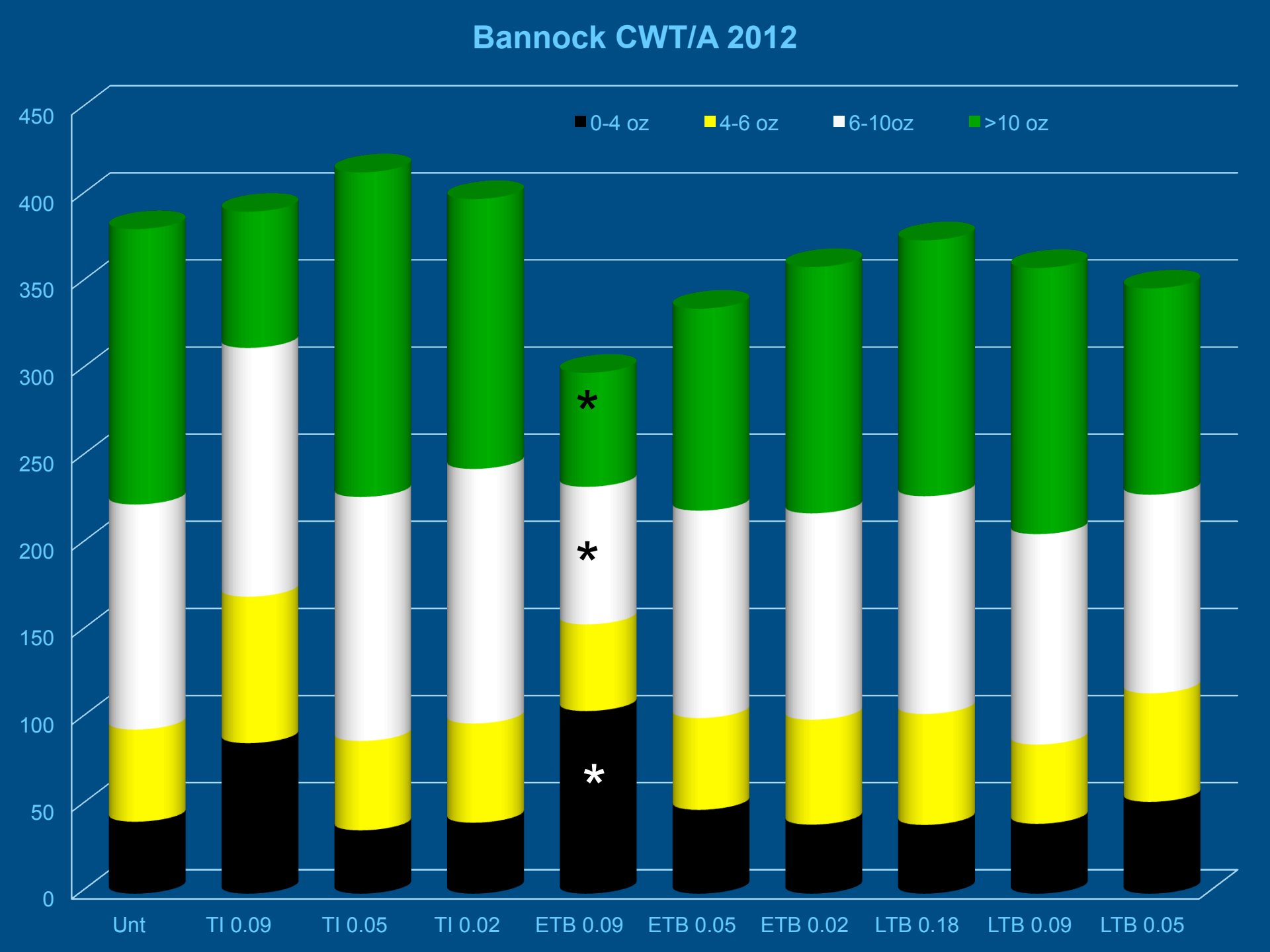
- Can detect between 13.5 and 750 ppb glyphosate.
  - If sample exceeds 750 ppb, dilution is required.
  - Color development is inversely proportional to [glyphosate] in sample.
  - Use photometer and read absorbance at 450 nm for controls and samples to determine ppb of glyphosate.

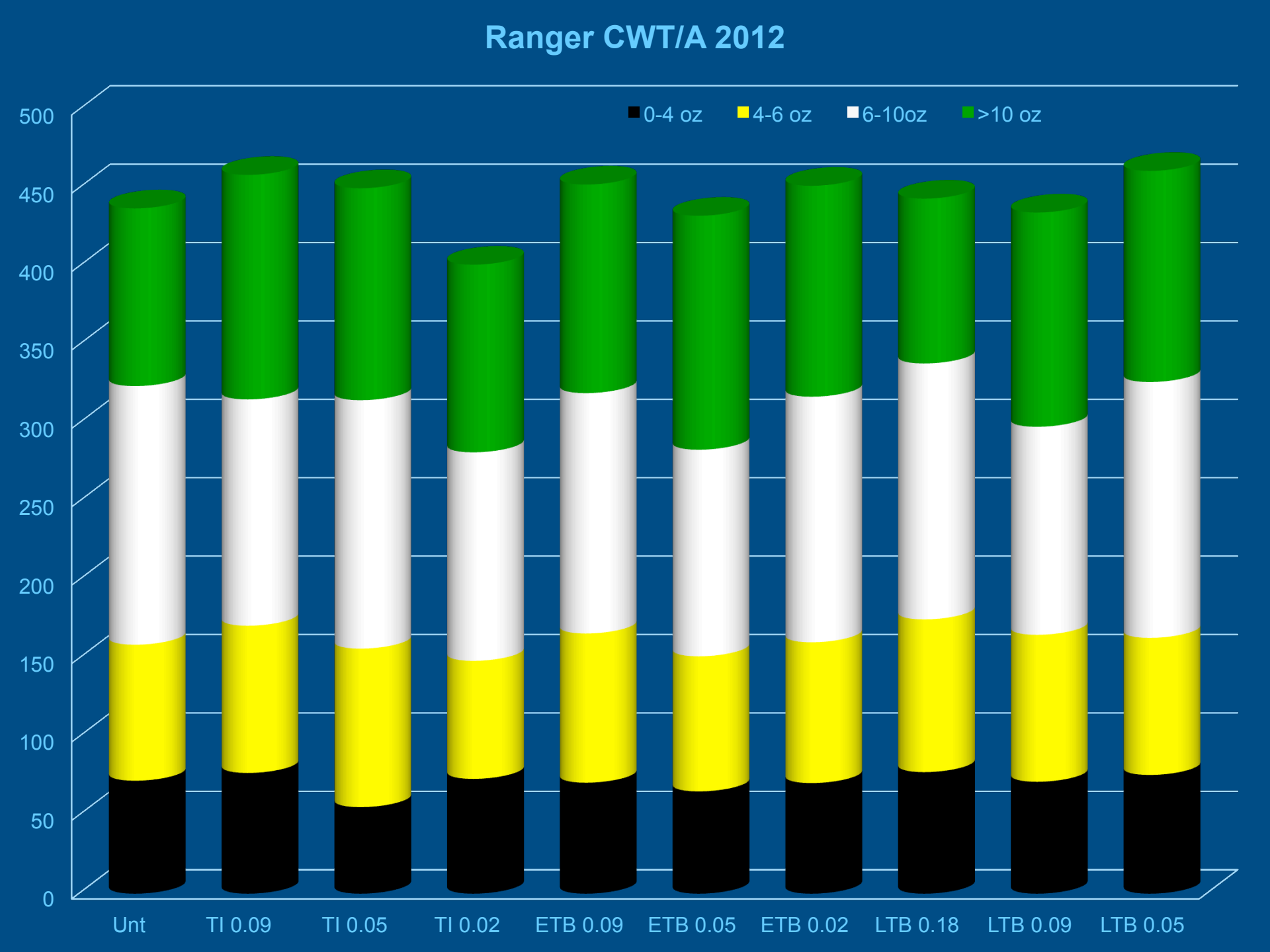
Greenhouse trial to address questions



Glyphosate drift trial

- Simulated drift at 3 growth stages to 4 processing cultivars
  - Bannock
  - Russet Burbank
  - Ranger Russet
  - Umatilla
- Herbicide applied 7/24, 8/9, 9/4 2012.
- Planted stored tubers as seed June 12, 2013.


Bannock CWT/A 2012
0-4 oz
4-6 oz
6-10oz
>10 oz
450
400
350
300
250
200
150
100
50
0
*
*
*
Unt
TI 0.09
TI 0.05
TI 0.02
ETB 0.09
ETB 0.05
ETB 0.02
LTB 0.18
LTB 0.09
LTB 0.05

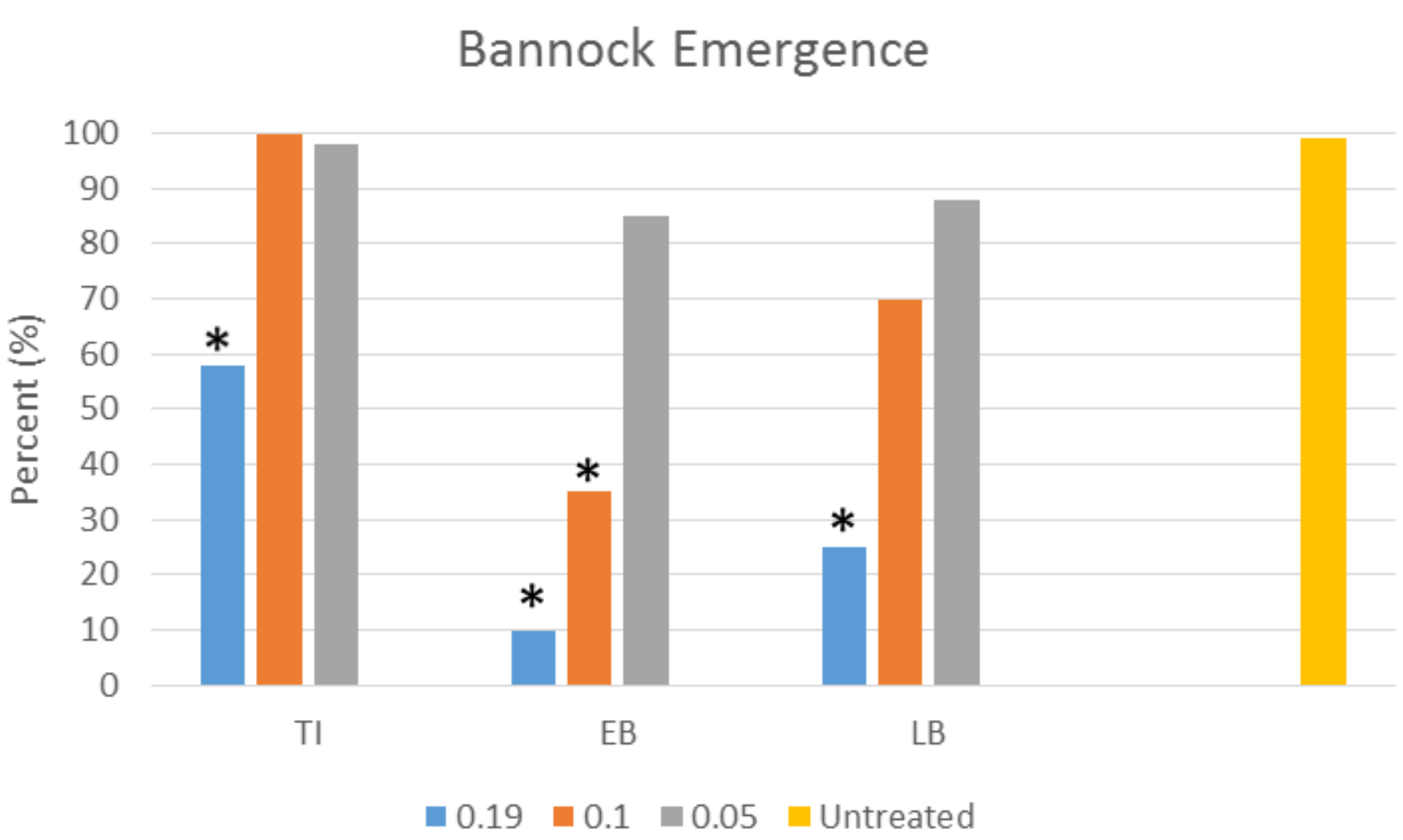

Ranger CWT/A 2012
0-4 oz
4-6 oz
6-10oz
>10 oz
500
450
400
350
300
250
200
150
100
50
0
Unt
TI 0.09
TI 0.05
TI 0.02
ETB 0.09
ETB 0.05
ETB 0.02
LTB 0.18
LTB 0.09
LTB 0.05

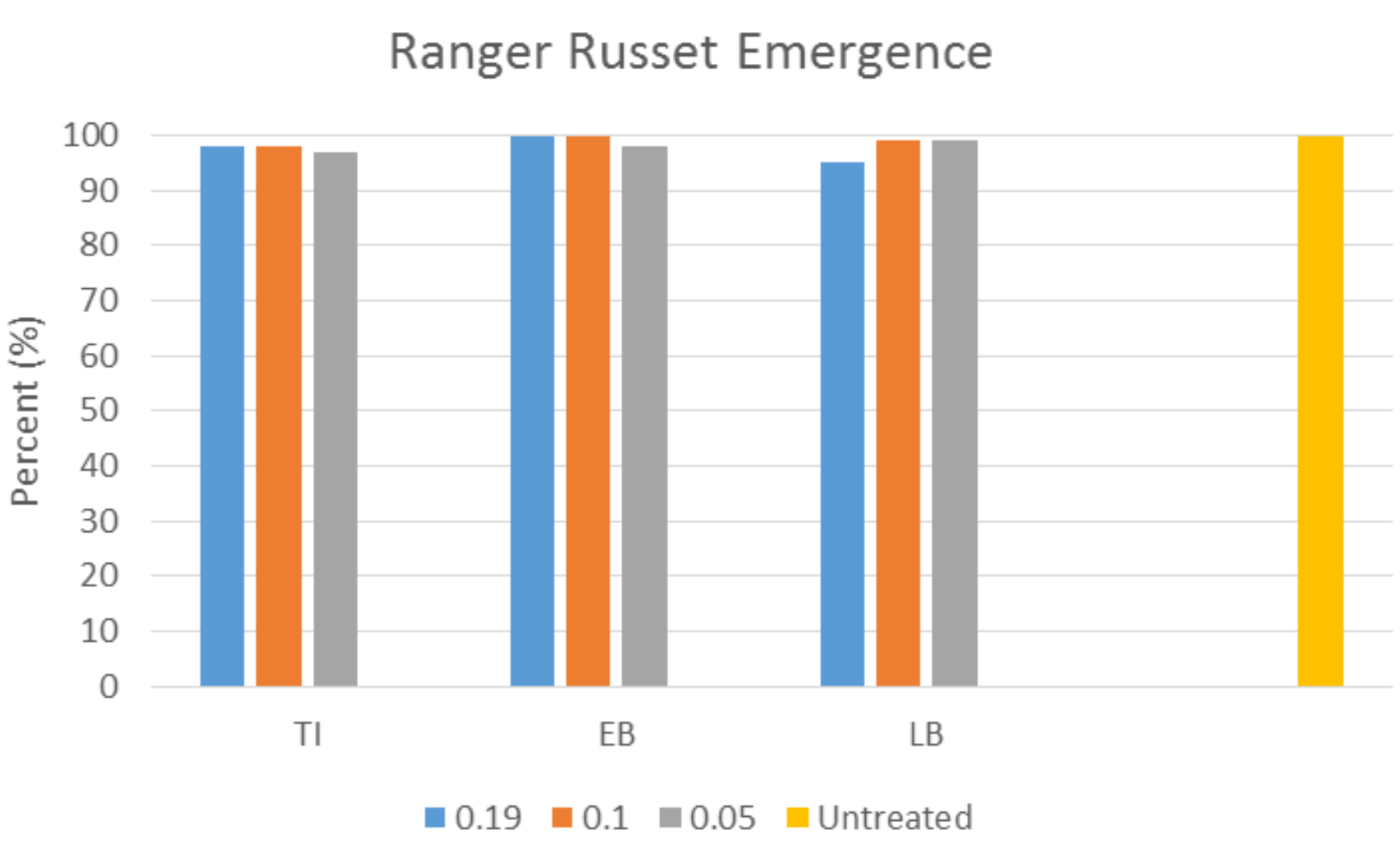

S
209

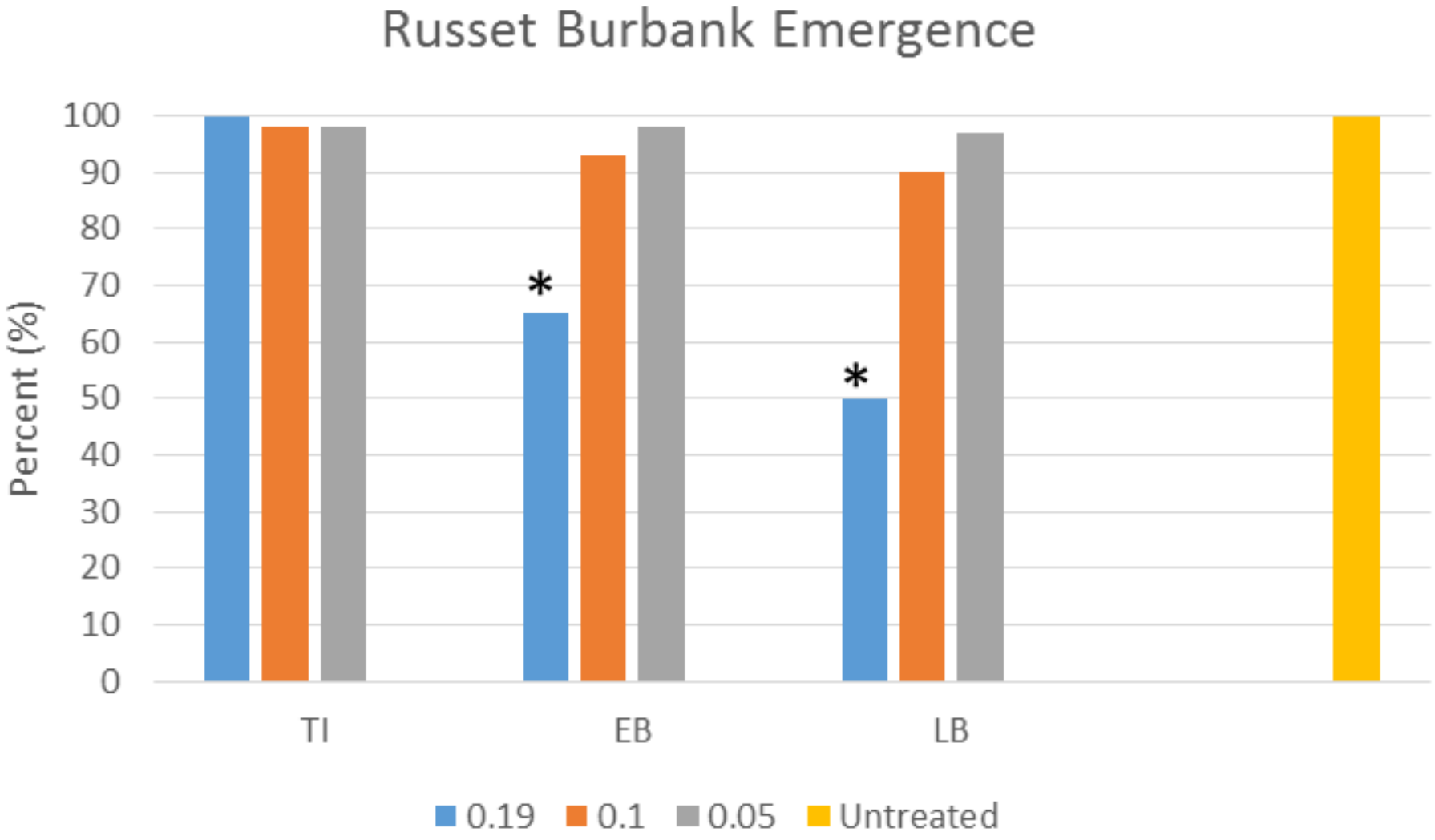
T
301

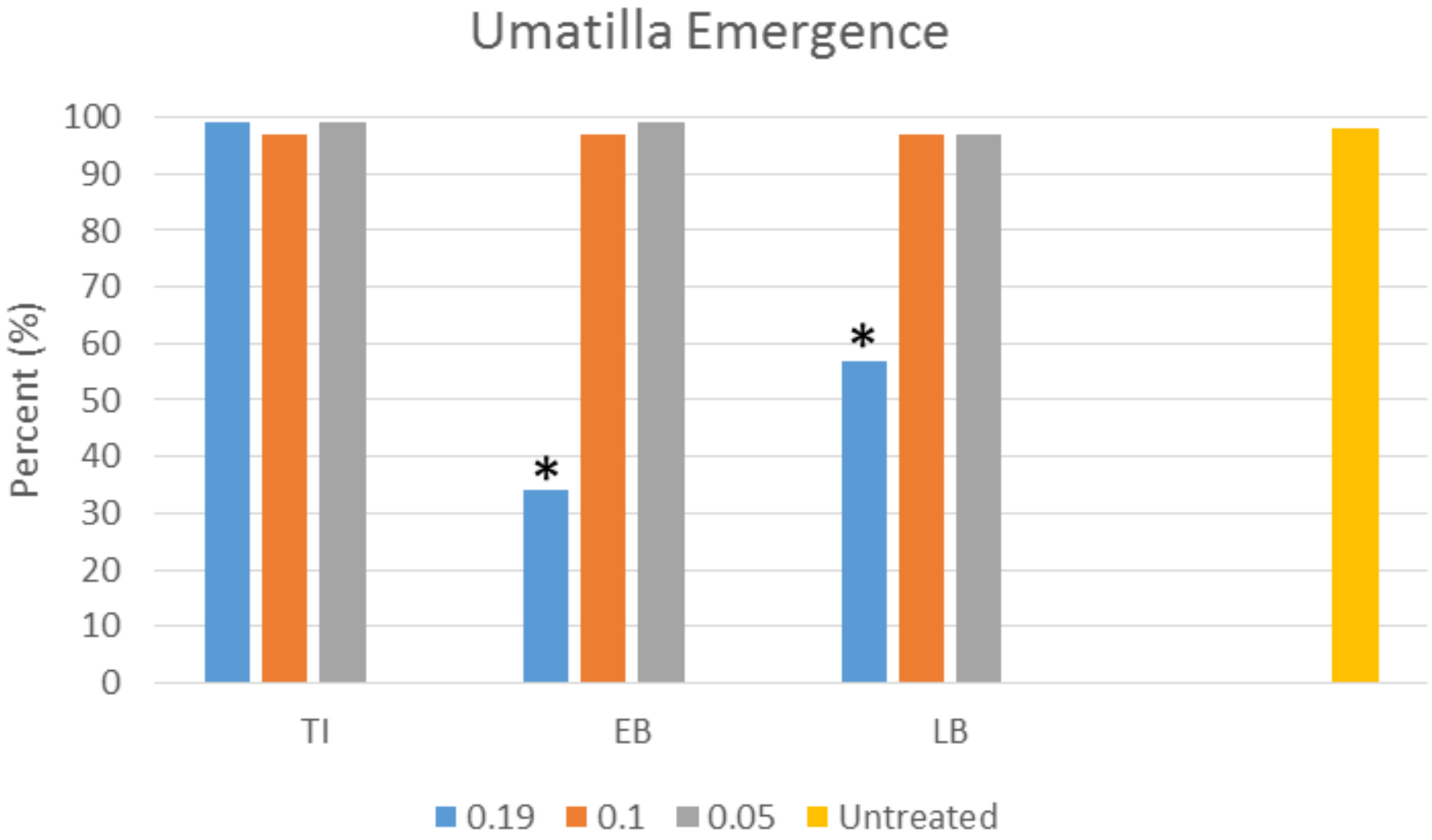

U
306

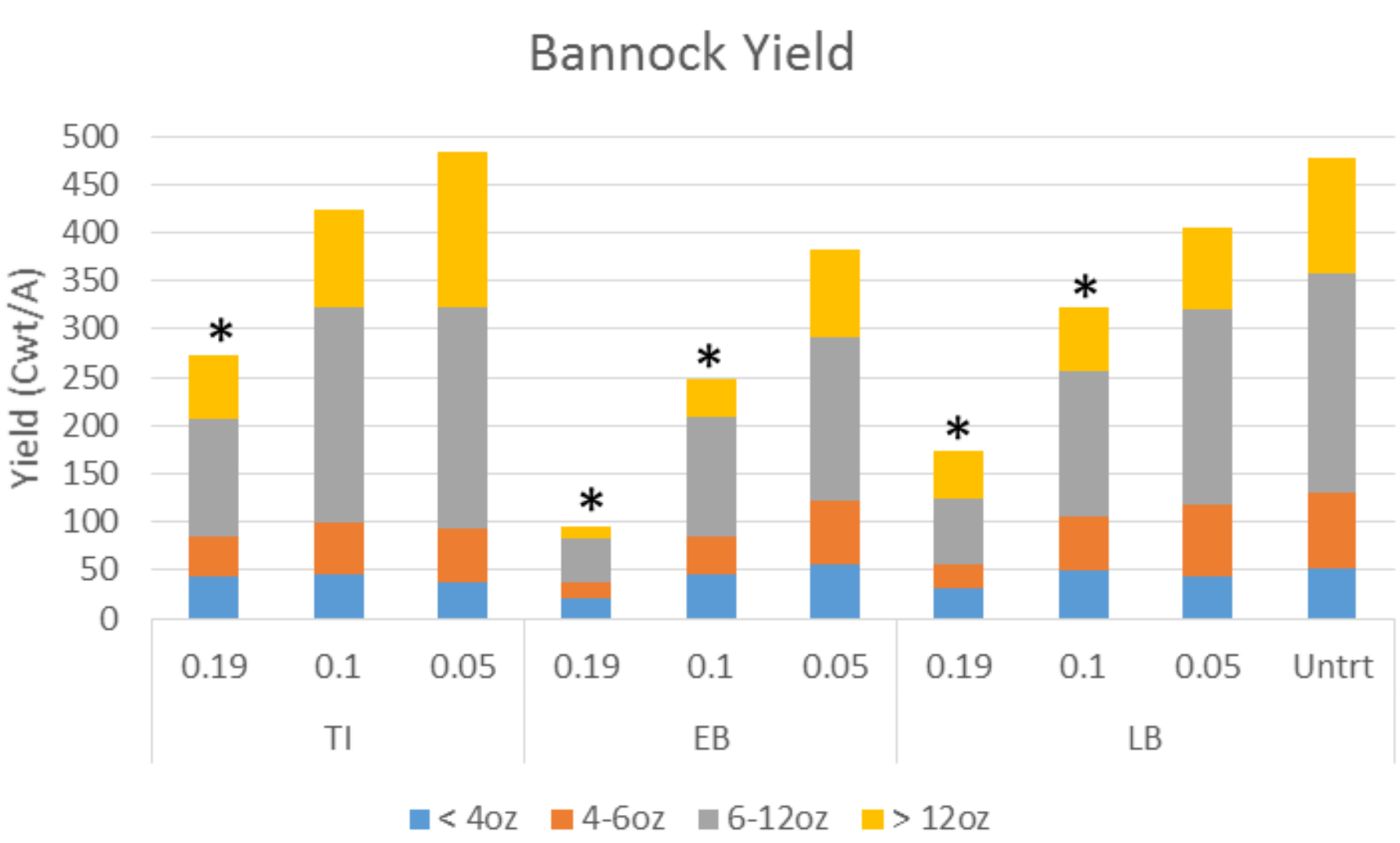

1
306

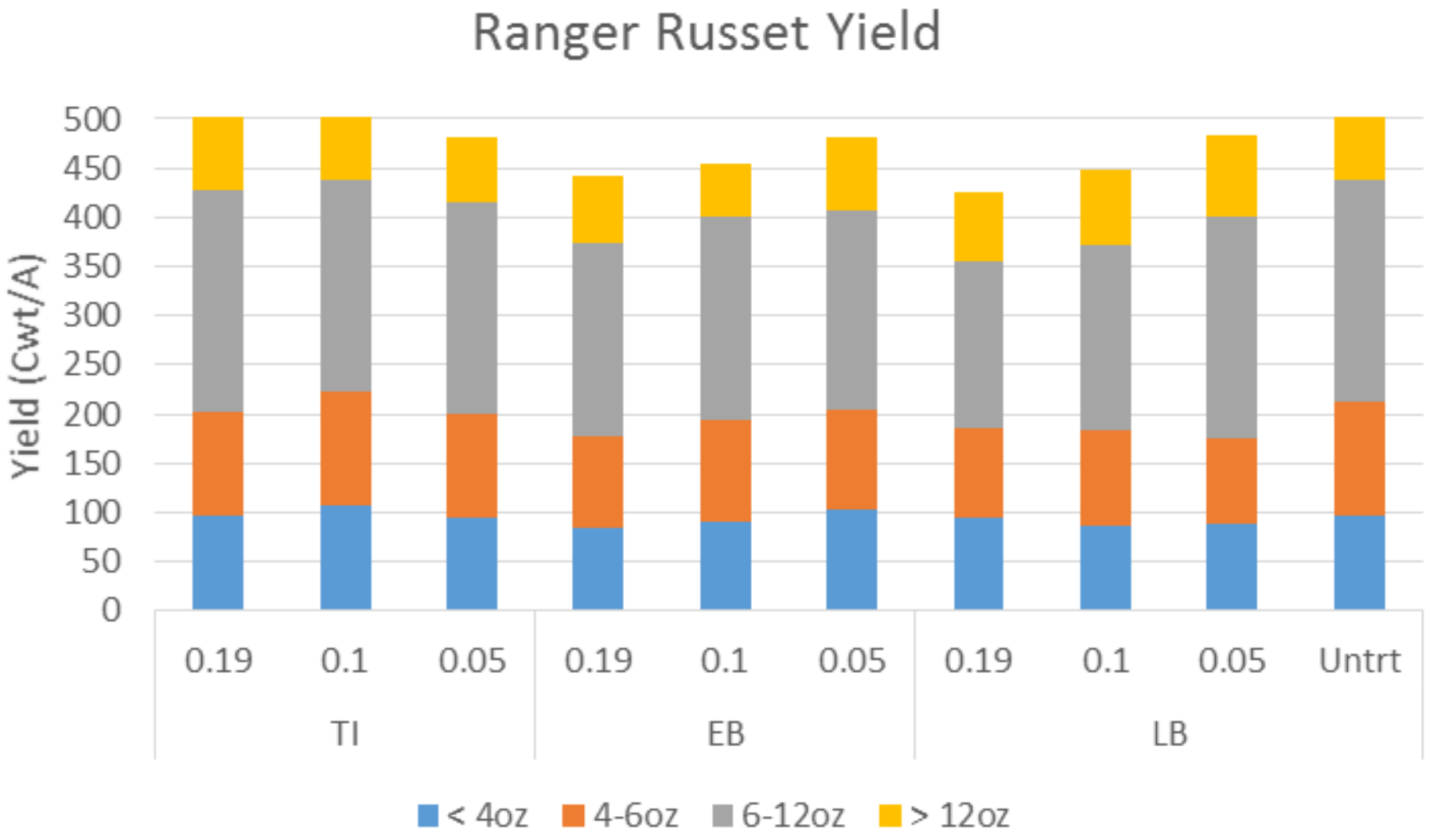

Bannock Emergence
Percent (%)
100
90
80
70
60
50
40
30
20
10
0
*
*
*
TI
EB
LB
0.19
0.1
0.05
Untreated

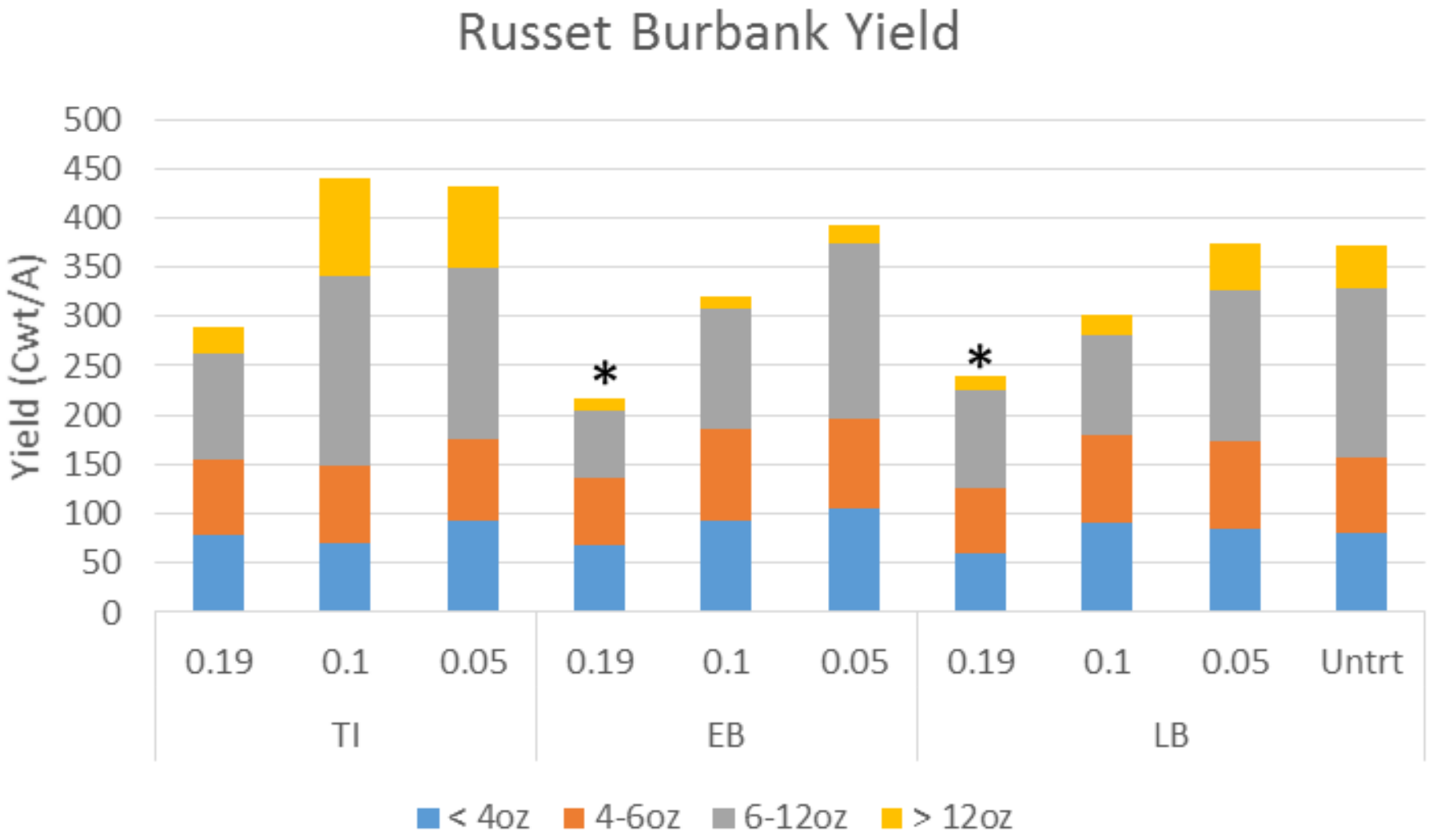

Ranger Russet Emergence
Percent (%)
100
90
80
70
60
50
40
30
20
10
0
TI
EB
LB
0.19
0.1
0.05
Untreated

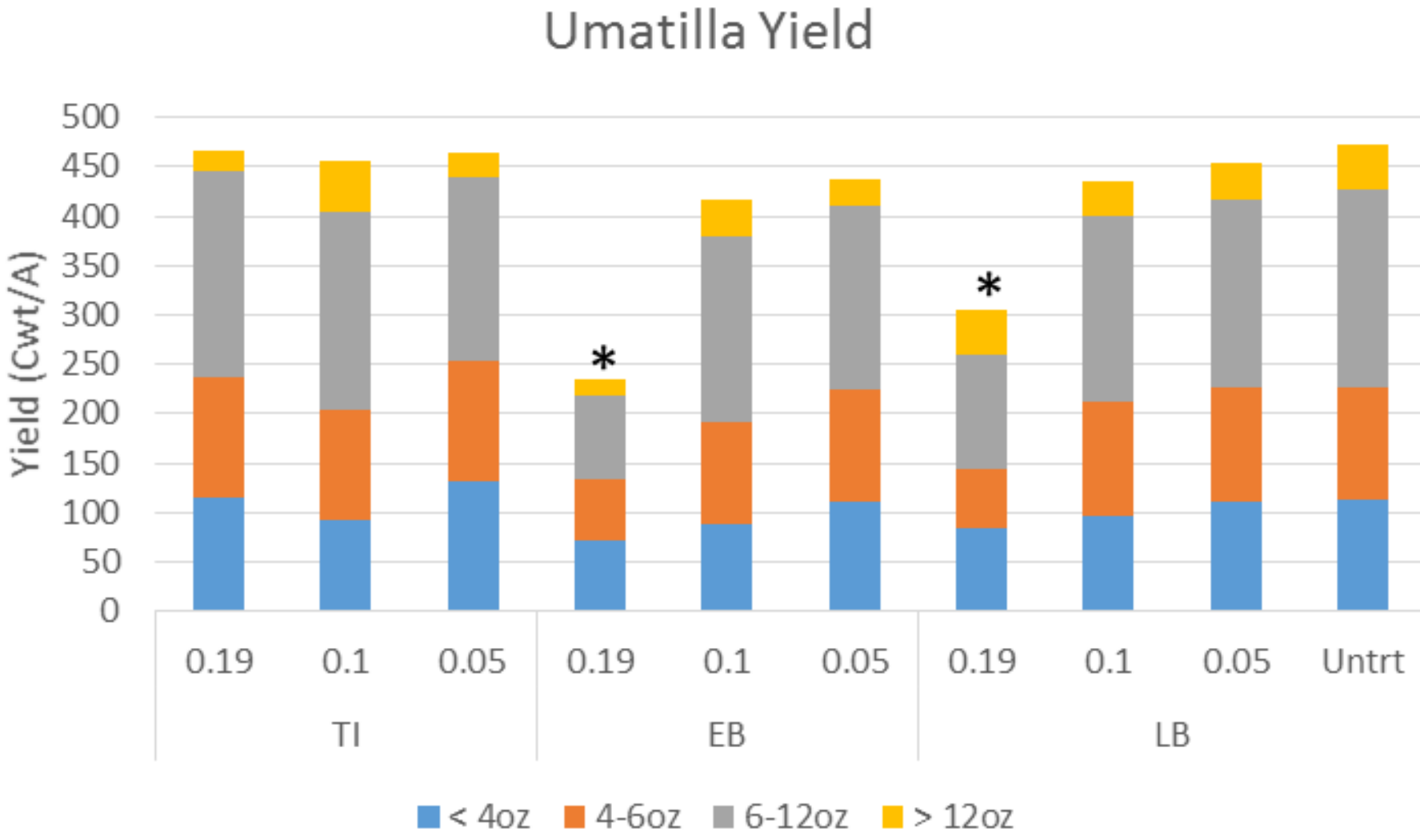

Russet Burbank Emergence
Percent (%)
100
90
80
70
60
50
40
30
20
10
0
*
*
TI
EB
LB
0.19
0.1
0.05
Untreated


Umatilla Emergence
Percent (%)
100
90
80
70
60
50
40
30
20
10
0
*
*
TI
EB
LB
0.19
0.1
0.05
Untreated


Bannock Yield
Yield (Cwt/A)
500
450
400
350
300
250
200
150
100
50
0
*
*
*
*
*
0.19
0.1
0.05
0.19
0.1
0.05
0.19
0.1
0.05
Untrt
TI
EB
LB
< 4oz
4-6oz
6-12oz
> 12oz


Ranger Russet Yield
Yield (Cwt/A)
500
450
400
350
300
250
200
150
100
50
0
0.19
0.1
0.05
0.19
0.1
0.05
0.19
0.1
0.05
Untrt
TI
EB
LB
< 4oz
4-6oz
6-12oz
> 12oz


Russet Burbank Yield
Yield (Cwt/A)
500
450
400
350
300
250
200
150
100
50
0
*
*
0.19
0.1
0.05
0.19
0.1
0.05
0.19
0.1
0.05
Untrt
TI
EB
LB
< 4oz
4-6oz
6-12oz
> 12oz


Umatilla Yield
Yield (Cwt/A)
500
450
400
350
300
250
200
150
100
50
0
*
*
0.19
0.1
0.05
0.19
0.1
0.05
0.19
0.1
0.05
Untrt
TI
EB
LB
< 4oz
4-6oz
6-12oz
> 12oz

Conclusions

- Ranger Russet mother plants were not affected by sub-lethal glyphosate applications.
- Bannock mother plants were most affected by sub-lethal glyphosate applications.
- Russet Burbank and Umatilla mother plants were intermediate in their response to sub-lethal glyphosate applications.

Questions?


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Photo by Matt Strasen