WEED MANAGEMENT TRIALS IN SPECIALTY CROPS

HIGH –VALUE CROPS PROJECT, NORTH DAKOTA STATE UNIVERSITY

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ONION WEED CONTROL

- Continue field trials to evaluate early-season weed control and crop safety.
- Evaluate IR-4 herbicides for potential use in ND.
- Collaborate with other Universities to evaluate Optogen application to onion in mineral soils.
- Objective: Develop weed management program that consistently does **not** injure onion while providing season-long weed control.

Application Timing

A – 5 DAP (PRE)
B – 14 DAP (DPRE)
C – 28 DAP (EPOST)
D – 45 DAP (2-leaf)
E – 57 DAP (4-leaf)
F – 70 DAP (6-leaf)

#	Name	Rate	Appl
1	Nortron	1.5 pt/a	B
	Nortron	1.5 pt/a	C
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
2	Nortron	1.36 pt/a	A
	Prowl H2O	0.75 pt/a	A
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
3	Nortron	1.36 pt/a	A
	Prowl H2O	0.75 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
4	Prowl H2O	0.75 pt/a	A
	Nortron	1.36 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
5	Prowl H2O	1.5 pt/a	B
	Buctril	1 pt/a	B
	Stinger	4 floz/a	E
6	Prowl H2O	1.5 pt/a	B
	Buctril	1 pt/a	B
	Basagran	0.25 pt/a	E
7	Prowl H2O	1.5 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
8	Nortron	2.72 pt/a	B
	Buctril	1 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F

#	Name	Rate	Appl
9	Nortron	1.36 pt/a	B
	Prowl H2O	0.75 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
10	Prowl H2O	1.5 pt/a	B
	Buctril	1 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
11	Prowl H2O	1.5 pt/a	B
	Roundup	22 floz/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
12	Nortron	2.72 pt/a	B
	Roundup	22 floz/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
13	Buctril	1 pt/a	B
	Prowl H2O	1.5 pt/a	C
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
14	Roundup	22 floz/a	B
	Prowl H2O	1.5 pt/a	C
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
15	Nortron	2.72 pt/a	A
	Prowl H2O	1.5 pt/a	A
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
16	Prowl H2O	1.5 pt/a	B
	Nortron	1.5 pt/a	C
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F

#	Name	Rate	Appl
17	Nortron	2.72 pt/a	B
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
18	Weed Free		
19	Prowl H2O	1.5 pt/a	B
	Buctril	1 pt/a	B
	Zidua	1.7 oz/a	E
20	Sonalan	2 pt/a	B
	Prowl H2O	1.5 pt/a	C
	Goal Tender	4 floz/a	D
	Chateau	1 oz/a	F
21	Prowl H2O	1.5 pt/a	B
	Buctril	1 pt/a	B
	Goal Tender	4 floz/a	D
	Buctril	12 floz/a	D
	Chateau	1 oz/a	F
22	Prowl H2O	1.5 pt/a	B
	Roundup	22 floz/a	B
	Optogen	1.75 floz/a	D
	Buctril	12 floz/a	D
23	Prowl H2O	1.5 pt/a	B
	Roundup	22 floz/a	B
	Optogen	3.5 floz/a	D
24	Prowl H2O	32 floz/a	B
	Roundup	32 floz/a	B
	Optogen	3.5 floz/a	D
	Buctril	12 floz/a	D

July 22, 2024

Treatment 1

Treatment 2

Treatment 3

Treatment 4

Treatment 5

Treatment 6

Treatment 7

Treatment 8

Treatment 17

Treatment 18

Treatment 19

Treatment 20

Treatment 21

Treatment 22

Treatment 23

Treatment 24

Treatment 9

Treatment 10

Treatment 11

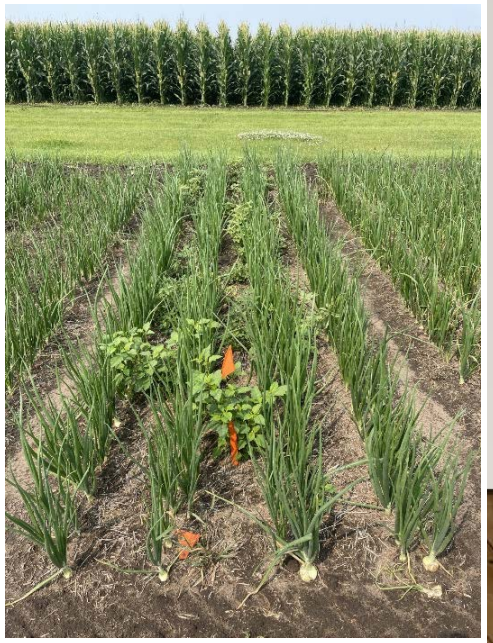
Treatment 12

Treatment 13

Treatment 14

Treatment 15

Treatment 16



YIELD RESULTS (LONG WAY TO GO!)

- Hand-weeded had the highest yields & only > 4”
- Optogen severely reduced yields
- Only three trts had consistent next highest yields

2	**Nortron**	**1.36 pt/a**	**A**	**% Trt 18**
	Prowl H2O	0.75 pt/a	A	
	Goal Tender	4 floz/a	D	30%
	Chateau	1 oz/a	F	
10	**Prowl H2O**	**1.5 pt/a**	**B**	
	Buctril	1 pt/a	B	
	Goal Tender	4 floz/a	D	26%
	Chateau	1 oz/a	F	
11	**Prowl H2O**	**1.5 pt/a**	**B**	
	Roundup	22 floz/a	B	
	Goal Tender	4 floz/a	D	32%
	Chateau	1 oz/a	F	

	‘Delgado’			‘Legend’	
TRT	Total	>2.25"	--CWT/A--	Total	>2.25"
1	445.73 bc	377.68 bc		436.98 bcd	367.25 bcd
2	531.85 b	469.13 b		521.03 b	448.58 b
3	517.85 b	444.78 b		489.80 bc	427.68 bc
4	428.53 bc	348.98 bc		408.75 bcd	330.70 bcd
5	340.95 c	218.18 cd		361.18 cd	237.30 cd
6	464.40 bc	385.30 bc		491.63 bc	424.18 bc
7	465.00 bc	359.03 bc		452.13 bcd	378.18 bcd
8	454.78 bc	360.10 bc		407.88 bcd	318.43 bcd
9	522.13 b	456.70 b		487.65 bc	411.83 bc
10	533.00 b	485.28 b		525.15 b	471.10 b
11	521.08 b	448.78 b		499.73 bc	438.13 b
12	423.45 bc	336.45 bc		423.55 bcd	344.60 bcd
13	379.80 bc	278.80 bc		406.23 bcd	292.20 bcd
14	426.43 bc	331.78 bc		332.00 de	207.43 d
15	417.45 bc	334.80 bc		378.23 bcd	302.50 bcd
16	496.48 bc	432.03 b		452.80 bcd	358.83 bcd
17	404.83 bc	301.10 bc		434.03 bcd	340.63 bcd
18	715.55 a	676.90 a		692.15 a	632.08 a
19	512.50 b	458.20 b		496.18 bc	431.08 bc
20	512.63 b	448.40 b		497.45 bc	434.10 bc
21	483.63 bc	406.00 bc		471.23 bcd	382.78 bcd
22	247.65 d	125.35 de		254.83 ef	101.80 e
23	185.63 d	54.83 e		182.38 f	63.83 e
24	161.63 d	33.75 e		158.88 f	33.68 e
LSD P=.10	85.87	108.94		78.61	100.48

REDUCING CHATEAU INJURY TO POTATO

- Flumioxazin has caused potato injury.
  - Several important potato growing states can't use flumioxazin in potatoes.
  - Label has strict application timings.
- "Be sure a minimum of 2 inches of soil covers the vegetative portion of potato plants."
- Growers primarily rely on metribuzin for broadleaf weed control.
  - Does not control nightshade species.
  - Increasing numbers of triazine resistant weeds.

- Three years results using ‘Russet Burbank’

- The overall greatest marketable yields occurred when:
  - Chateau 1X no hill + Boundary 1⁄2X reg hilling
  - Chateau 1⁄2 X early hilling + Chateau 1⁄2 X reg hilling
  - Boundary 1X reg hilling

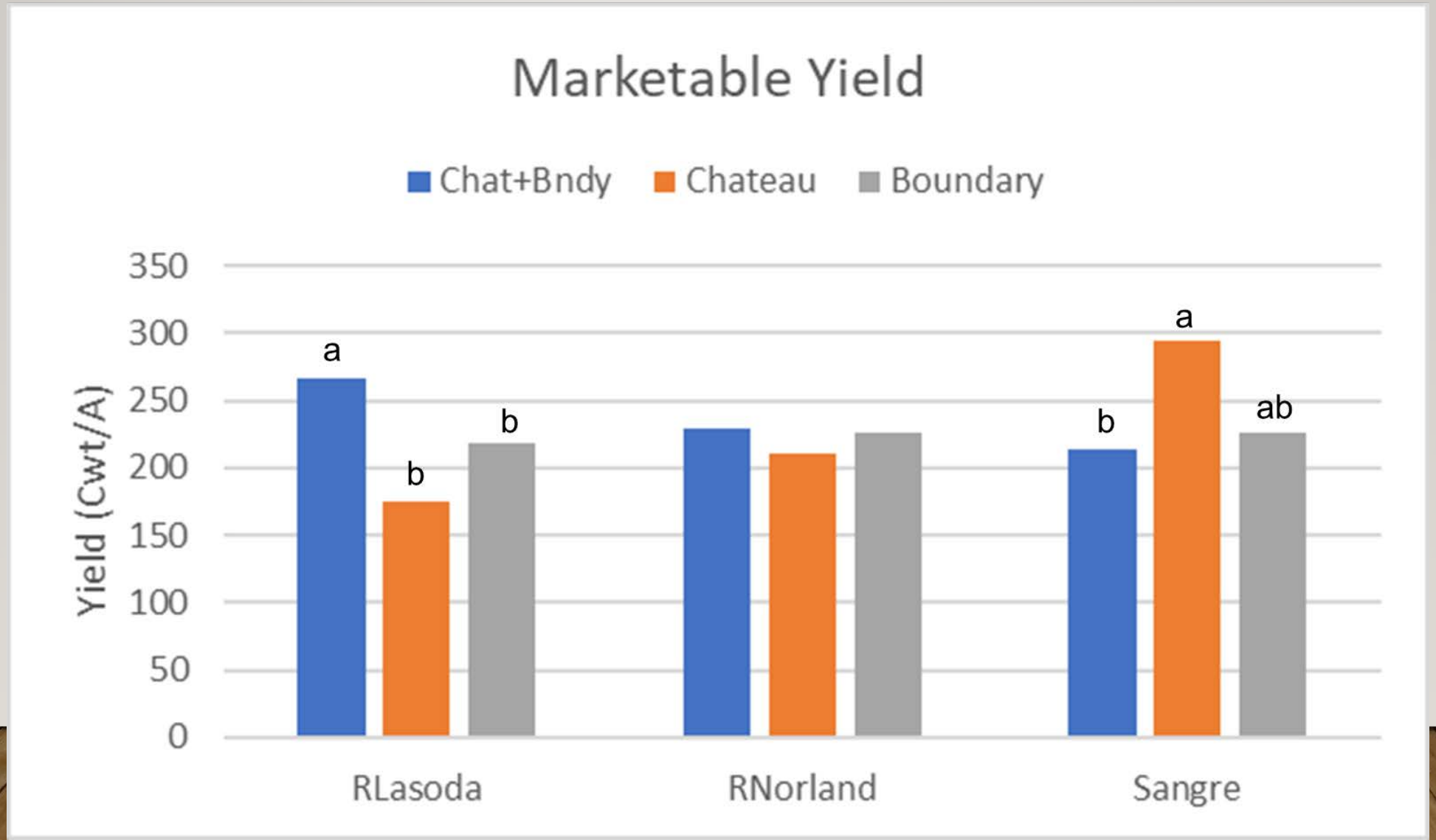
MATERIALS AND METHODS

- Conducted at Oakes (irrigated) and Prosper (dryland)
- Three chip cvs ('Dakota Pearl', 'Snowden', 'Waneta')
- Three red cvs ('Red Norland', 'Red LaSoda', 'Sangre')
- Treatments

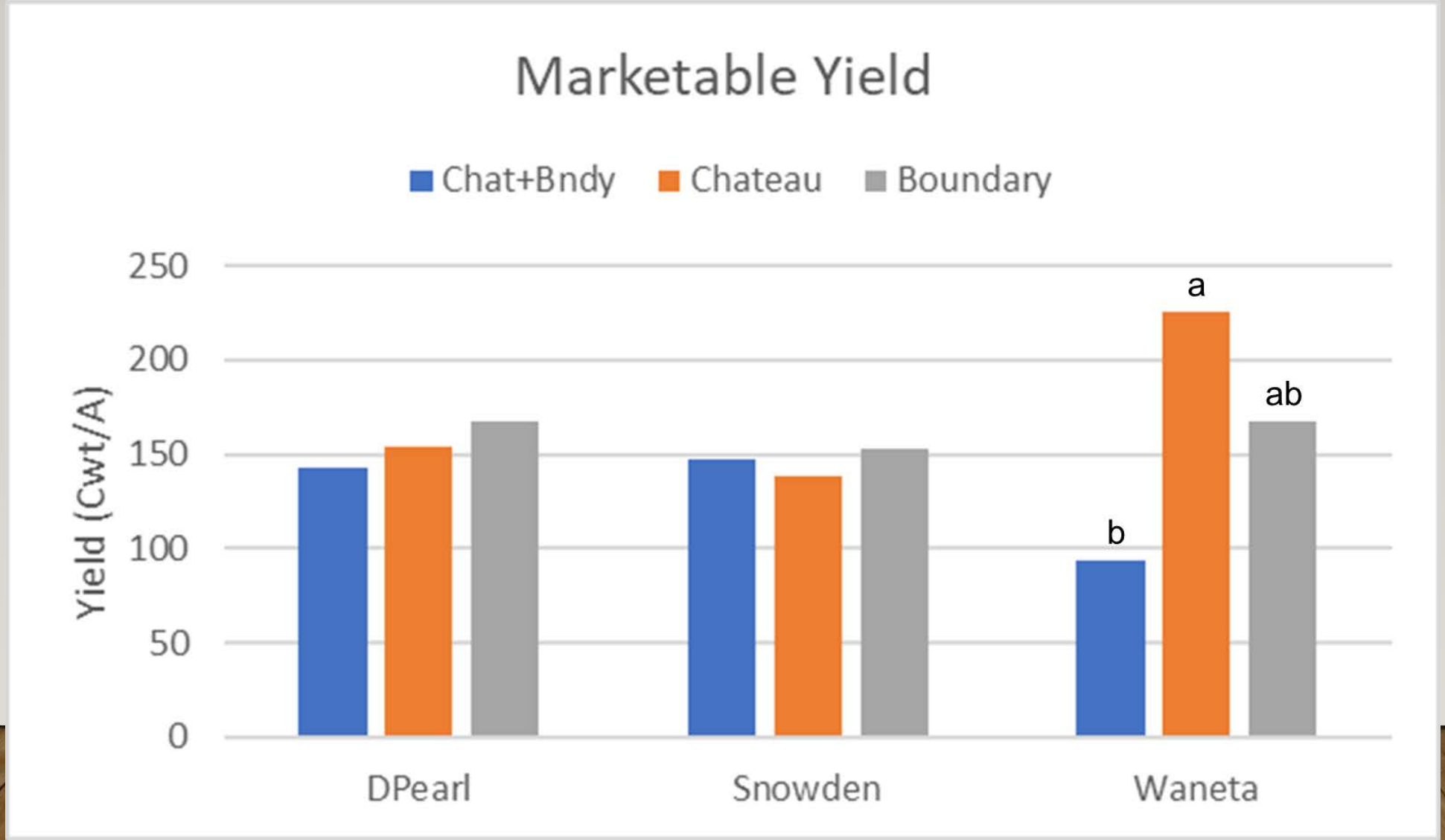
1	**Chateau**	**1.5 oz/A +**	**No hilling**	**0 DAP***
	Boundary	**1 pt/A**	**At emergence**	**14 DAP**
2	**Chateau**	**1.5 oz/A**	**At emergence**	**14 DAP**
3	**Boundary**	**2 pt/A**	**At emergence**	**14 DAP**

* DAP = Days after Planting

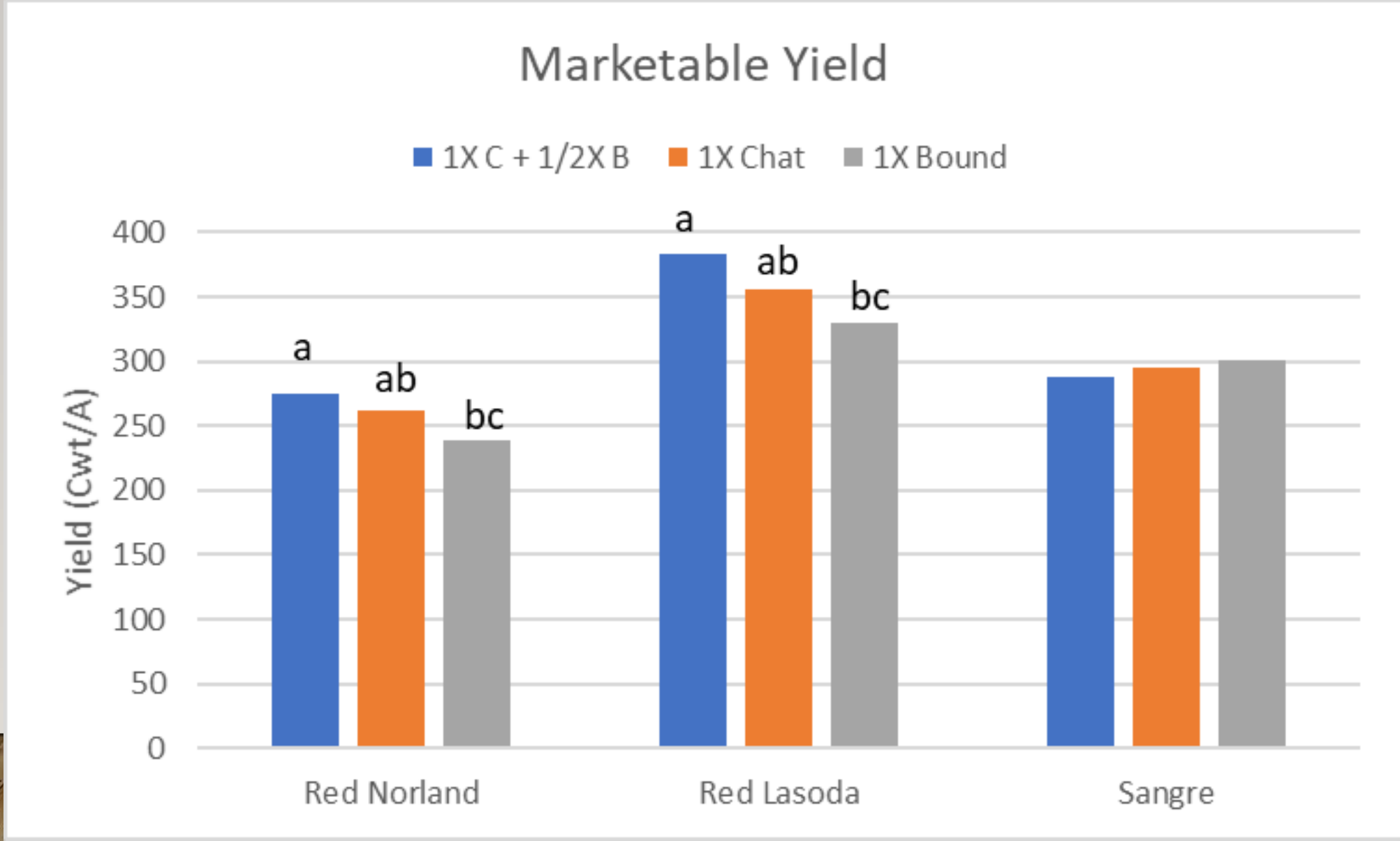
OakesTrt by Cv Interaction



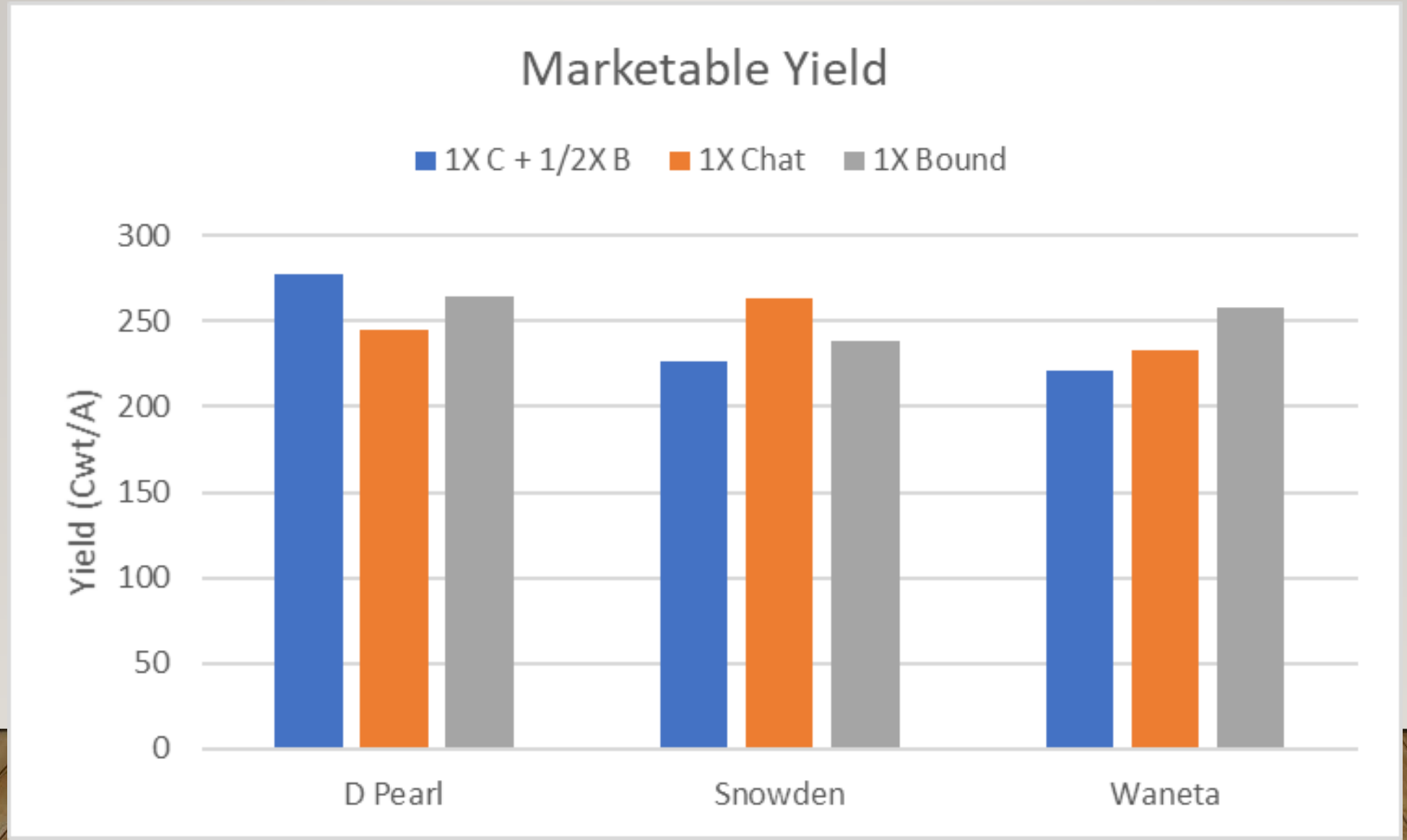
Oakes Trt by Cv Interaction



Prosper Trt by Cv Interaction



Prosper Trt by Cv Interaction




Questions?