



Agriculture and
Agri-Food Canada

Agriculture et
Agroalimentaire Canada

Nitrogen and Test Weight in Oats

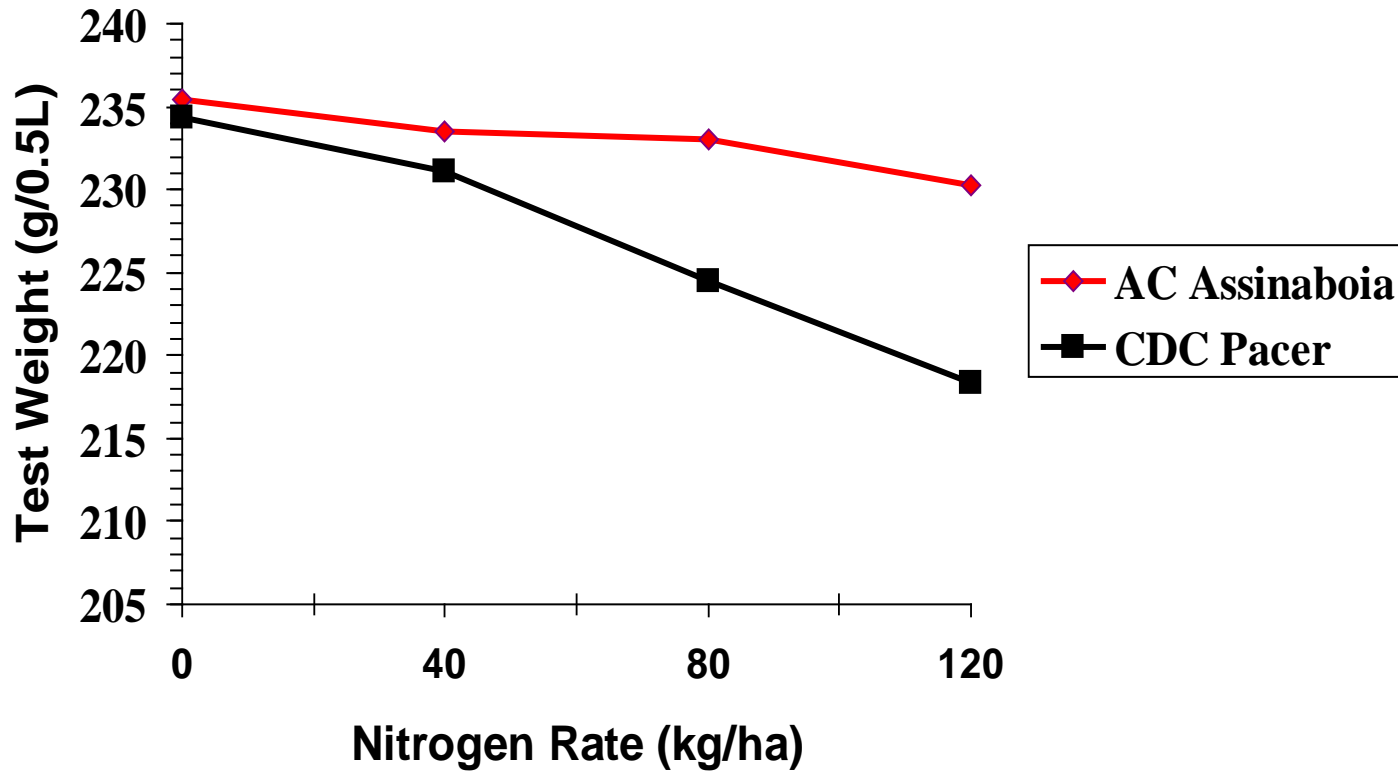


May, W.E.

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Indian Head, Saskatchewan, Canada

Canada 

Nitrogen Rate and Cultivar



Test Weight Stability

Treatment Factors:

1) Cultivars

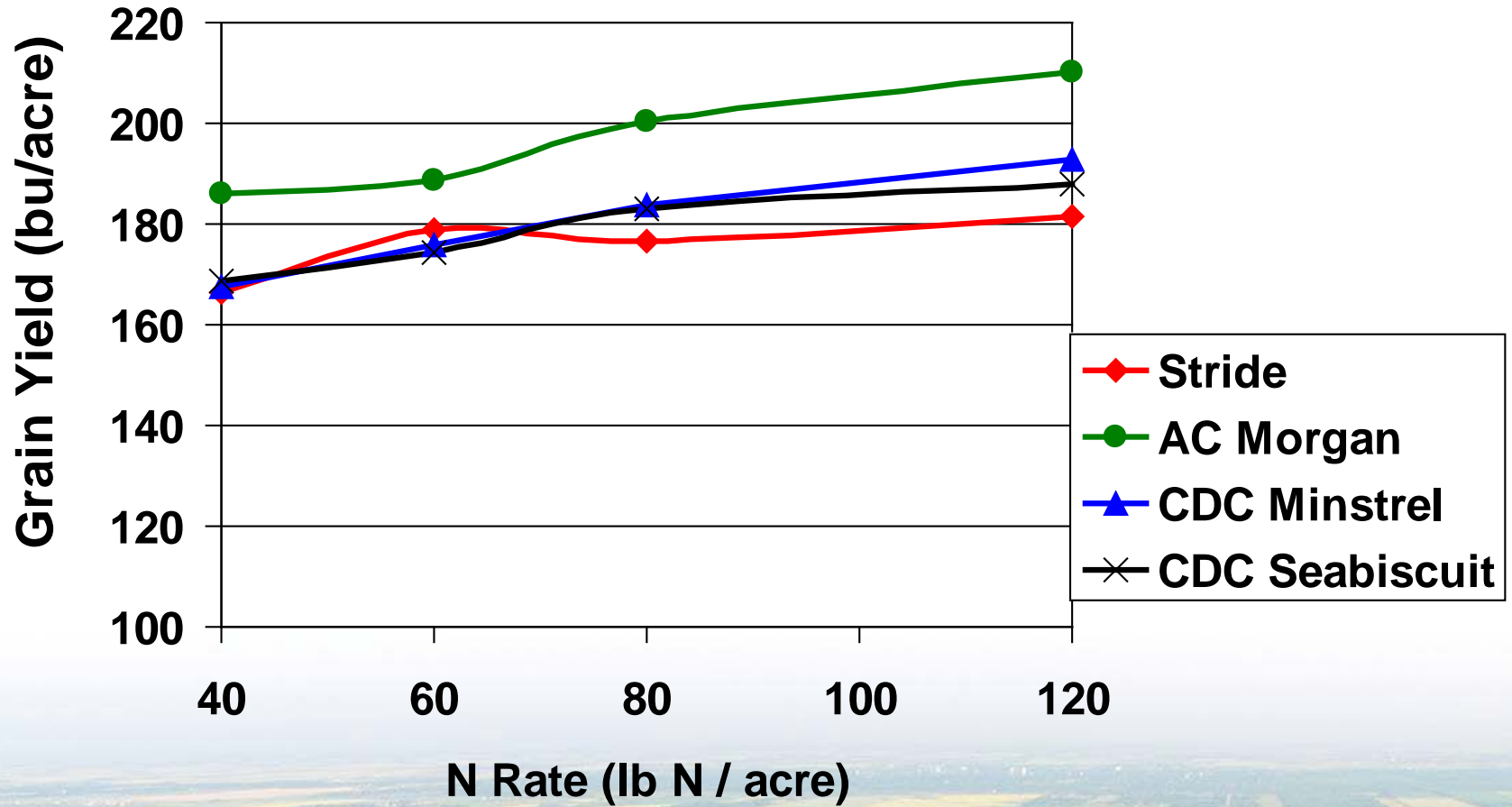
Four cultivars (cultivars picked for each location based on two popular and two new cultivars with potential)

Location	16-621 Indian Head:	16-623 Melfort:	16-628 Redvers:	16-629 Yorkton:
Varieties	Stride CDC Ruffian CS Camden CDC Big Brown	Stride CDC Minstrel AC Morgan CDC Seabiscuit	Stride Justice Souris CDC Morrison	Stride CDC Dancer Summit Triactor

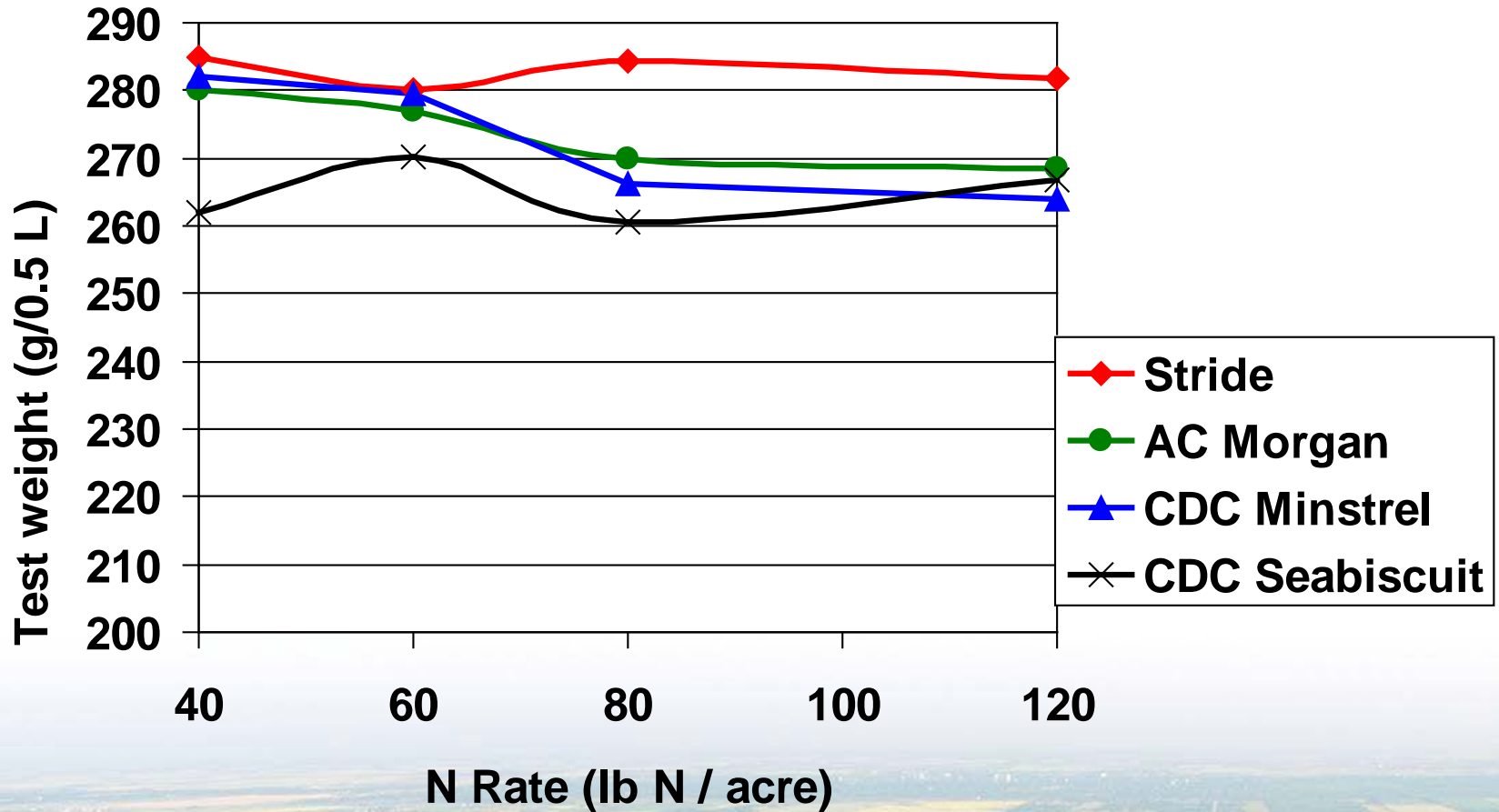
2) Nitrogen Rate (kg N ha⁻¹)

- I) 40
- II) 60
- III) 80
- IV) 120

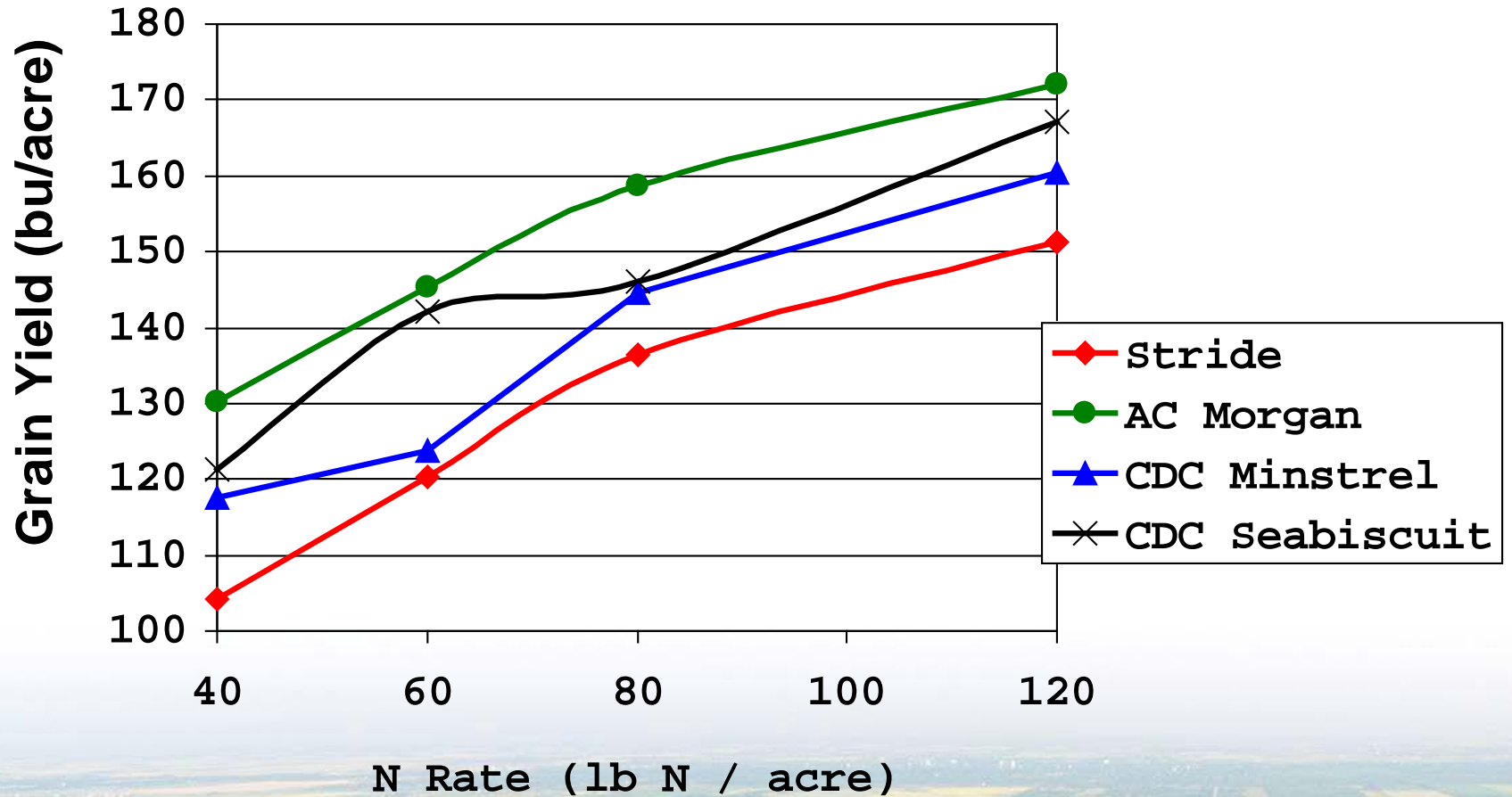
Nitrogen x Cultivar at Melfort in 2014



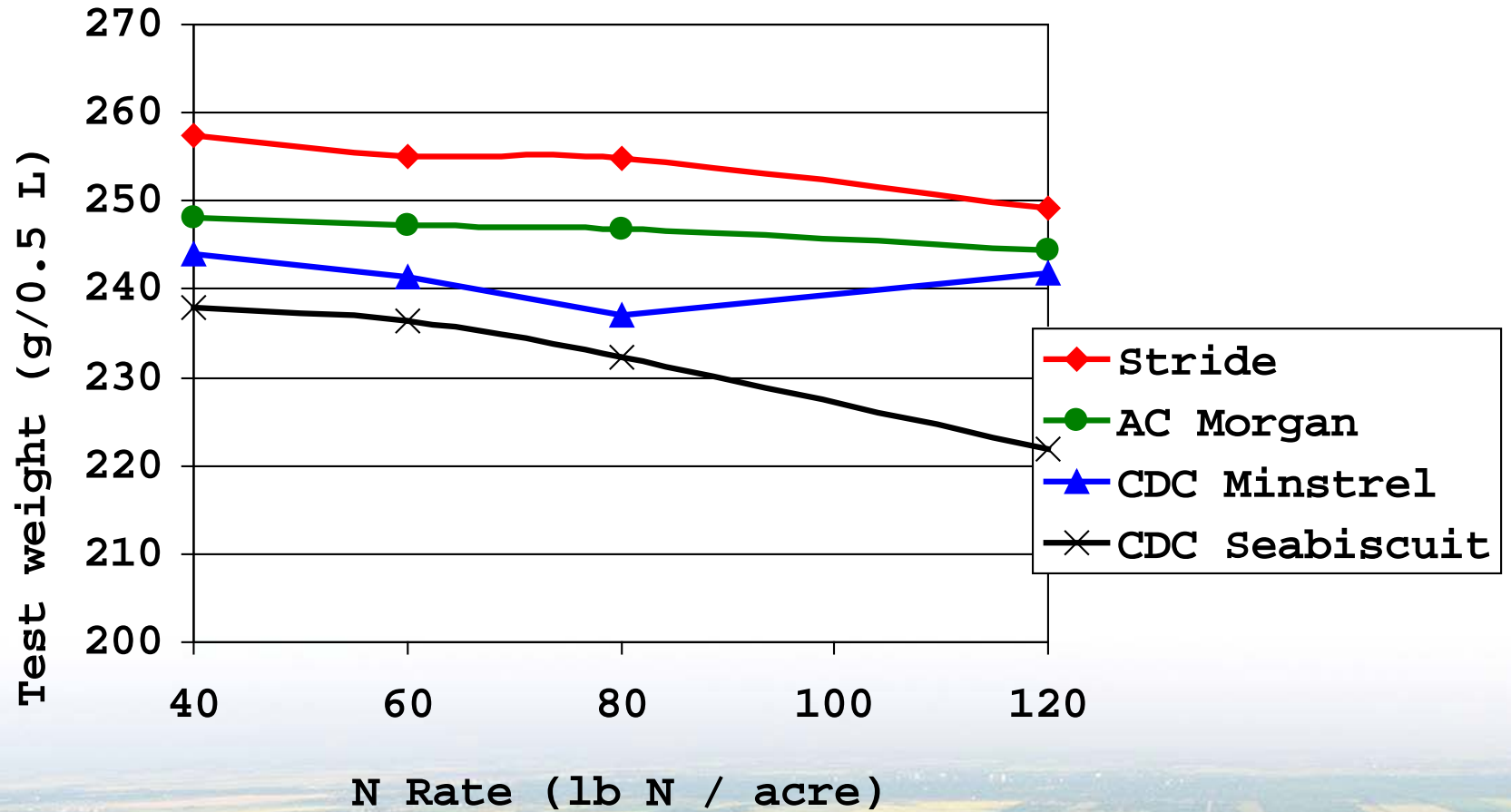
Nitrogen x Cultivar at Melfort in 2014



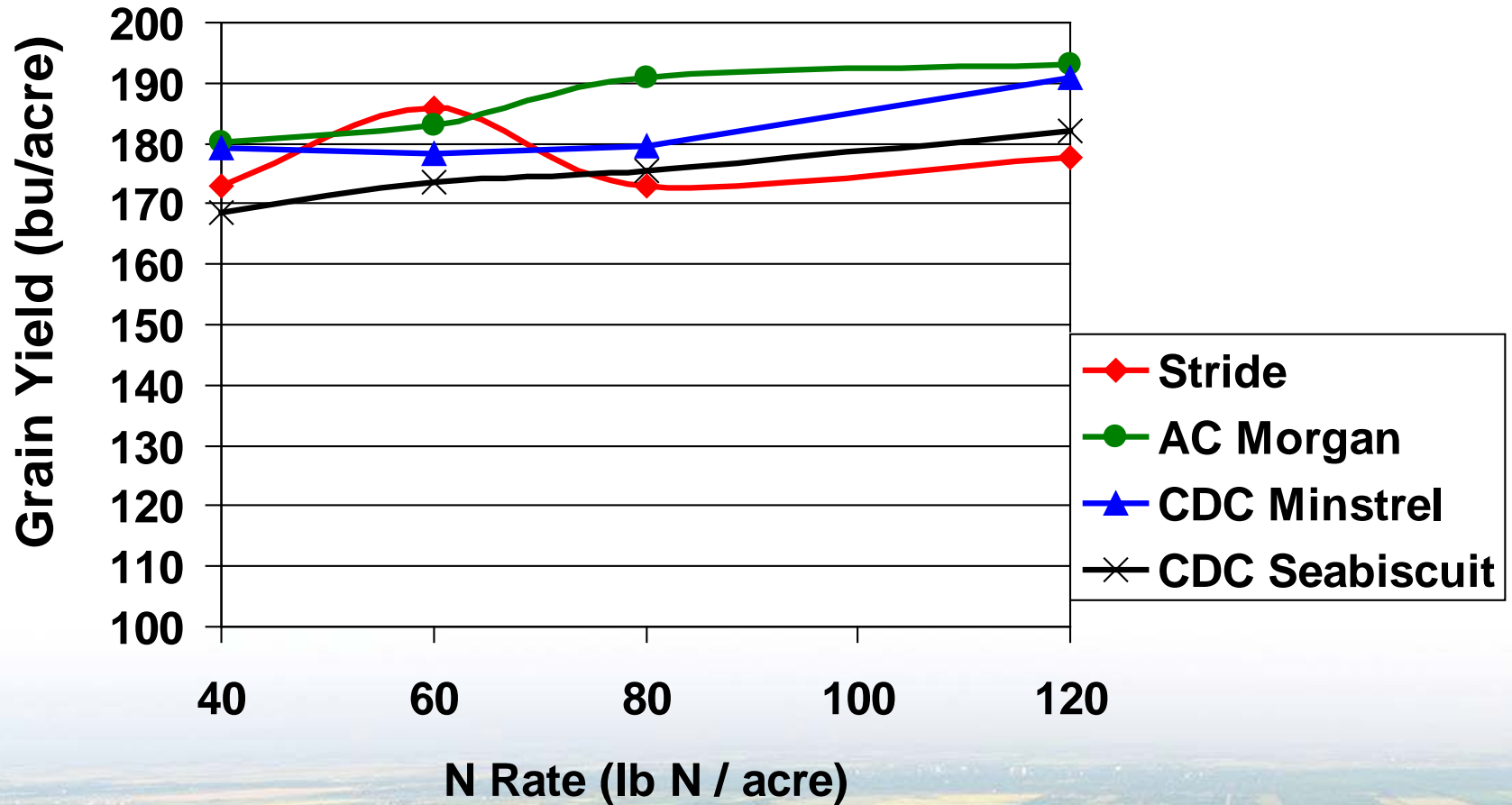
Nitrogen x Cultivar at Melfort in 2015



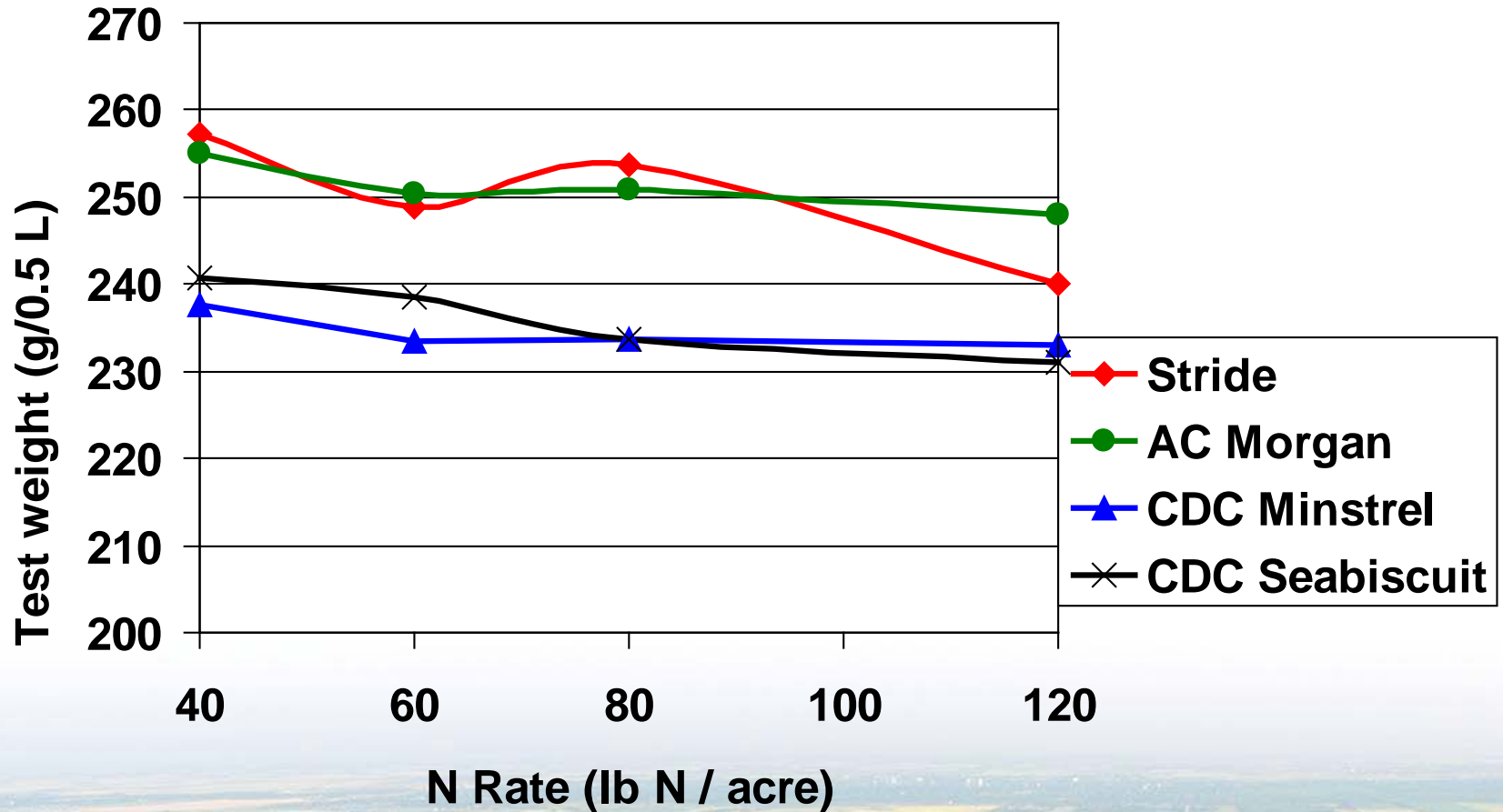
Nitrogen x Cultivar at Melfort in 2015



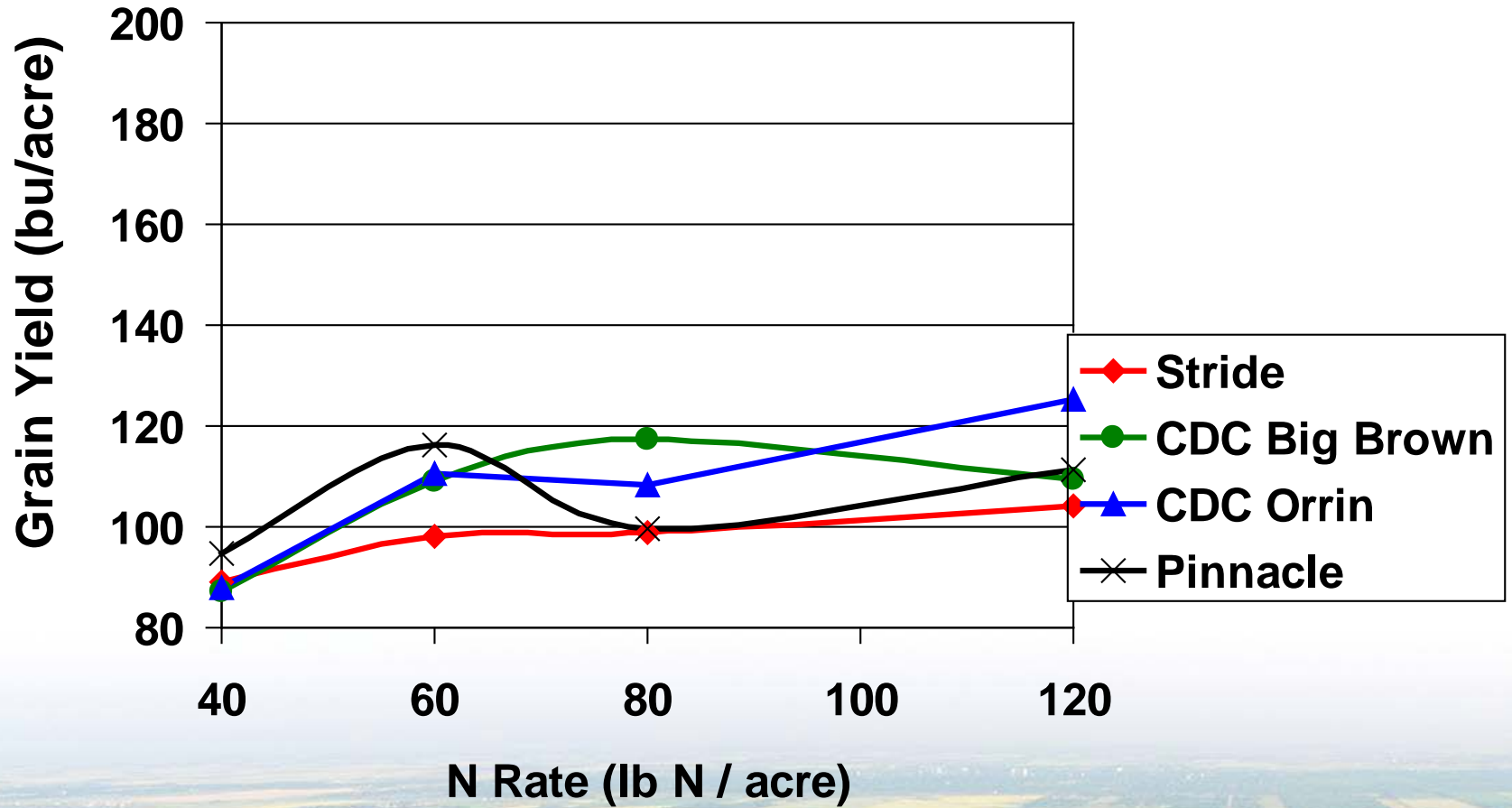
Nitrogen x Cultivar at Melfort in 2016



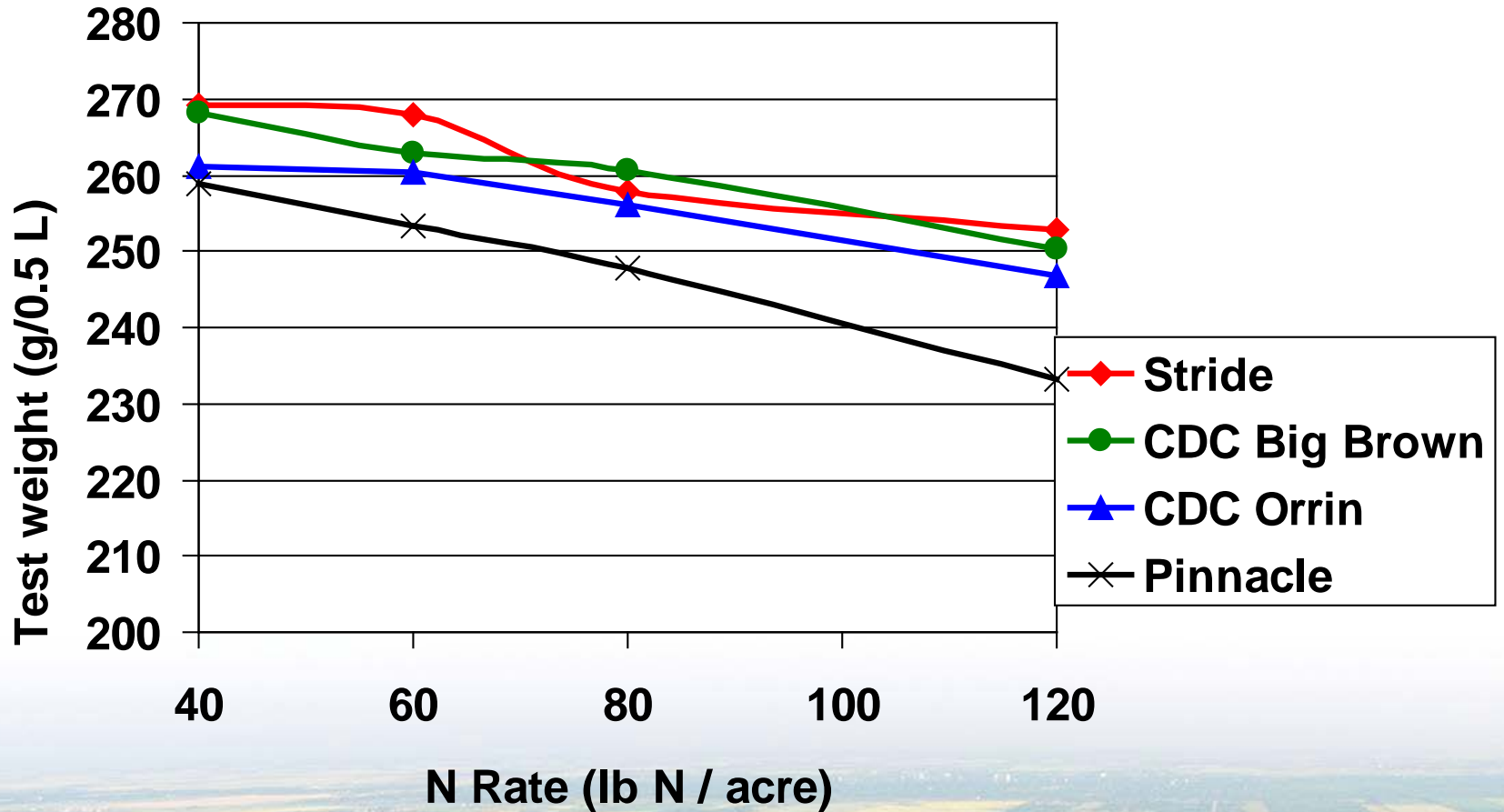
Nitrogen x Cultivar at Melfort in 2016



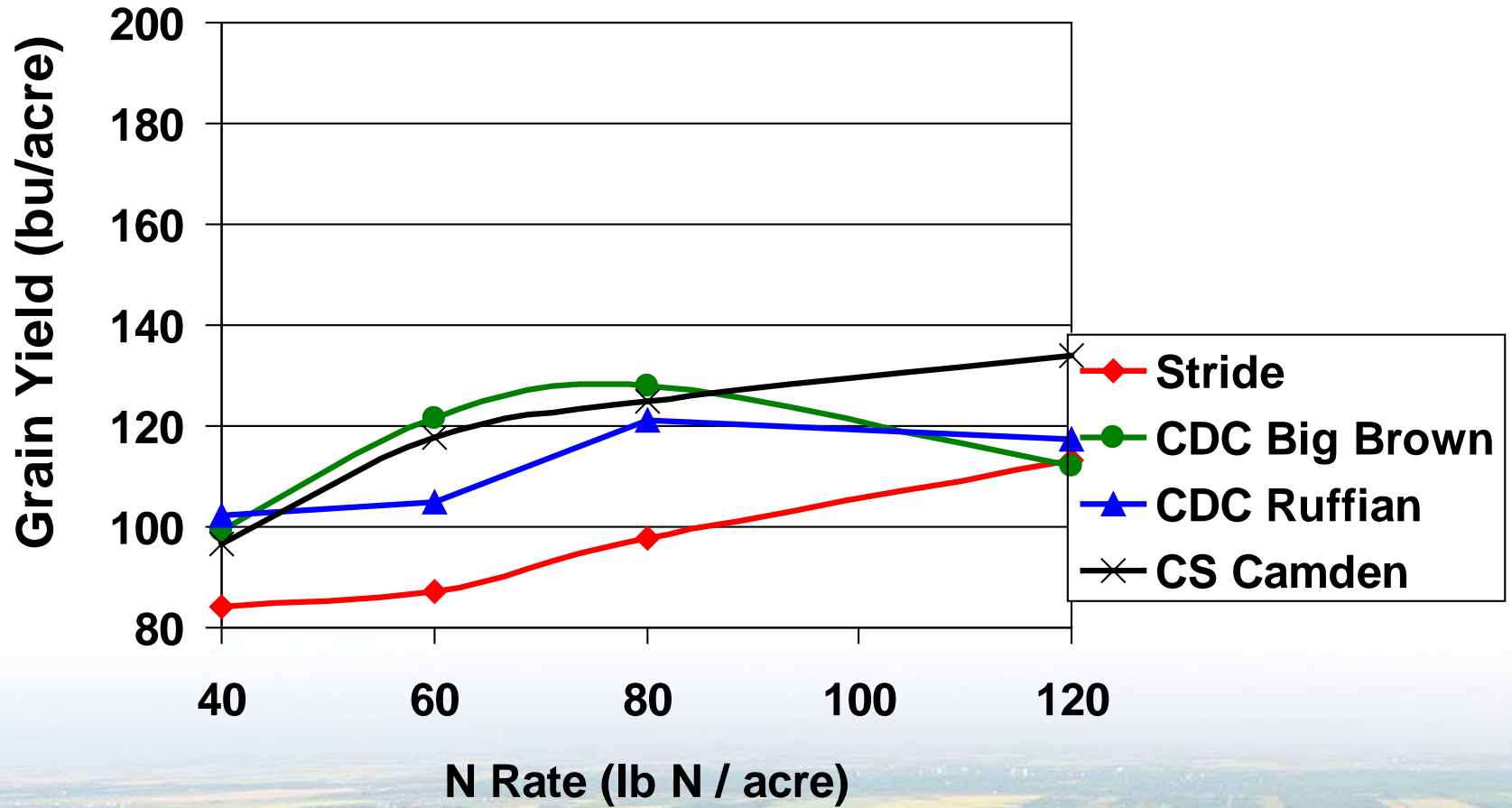
Nitrogen x Cultivar at Indian Head in 2014



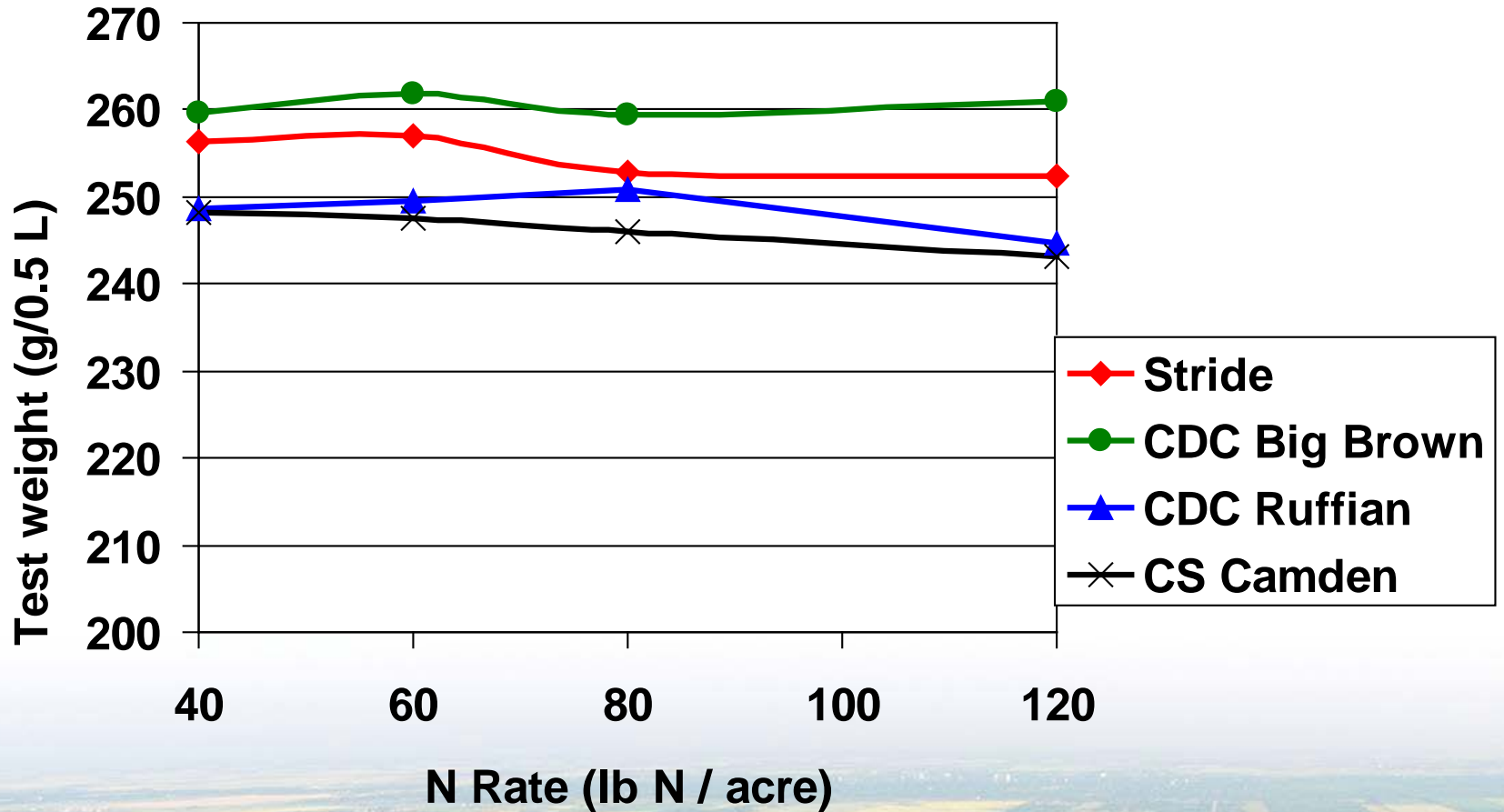
Nitrogen x Cultivar at Indian Head in 2014



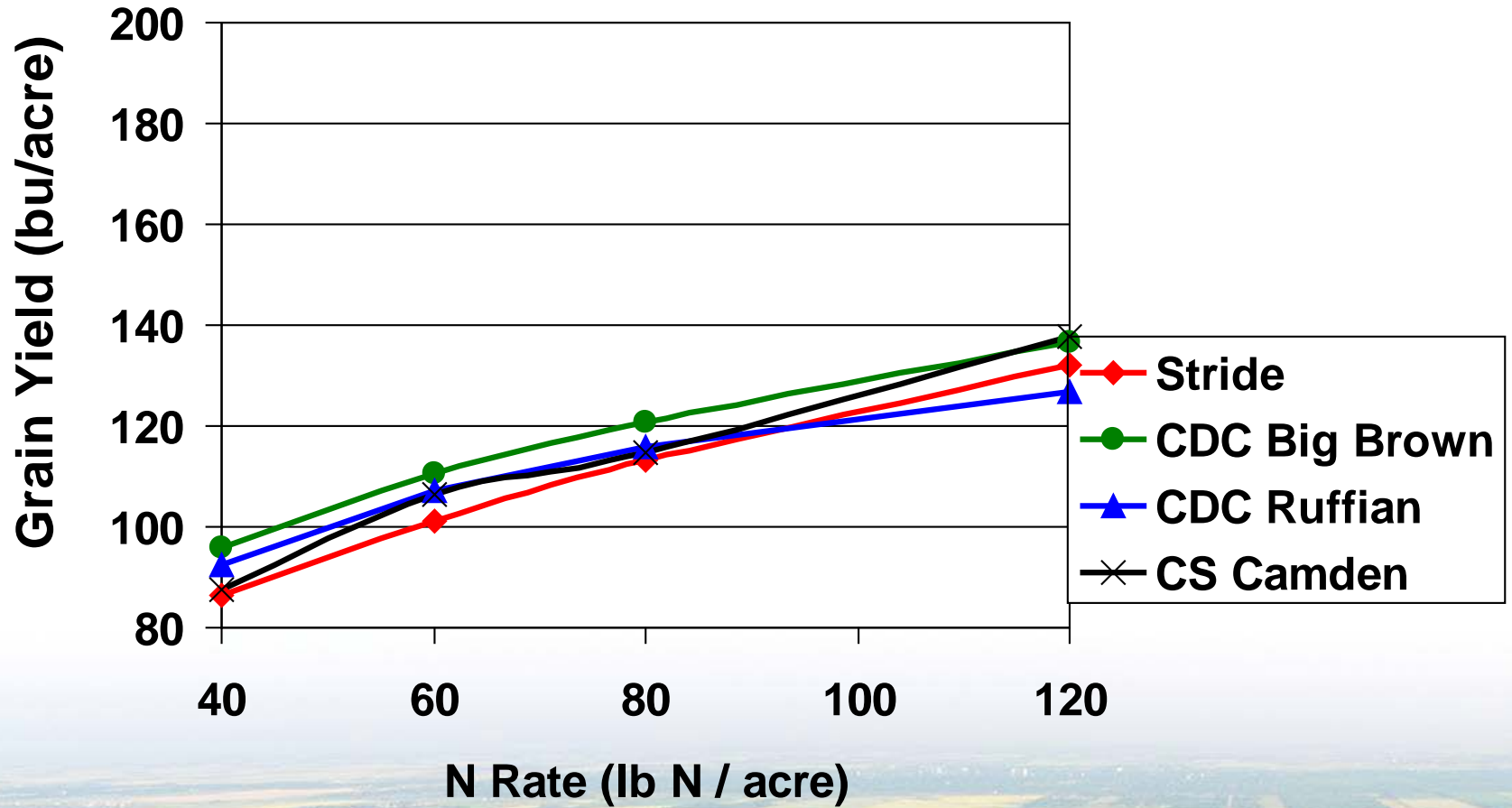
Nitrogen x Cultivar at Indian Head in 2015



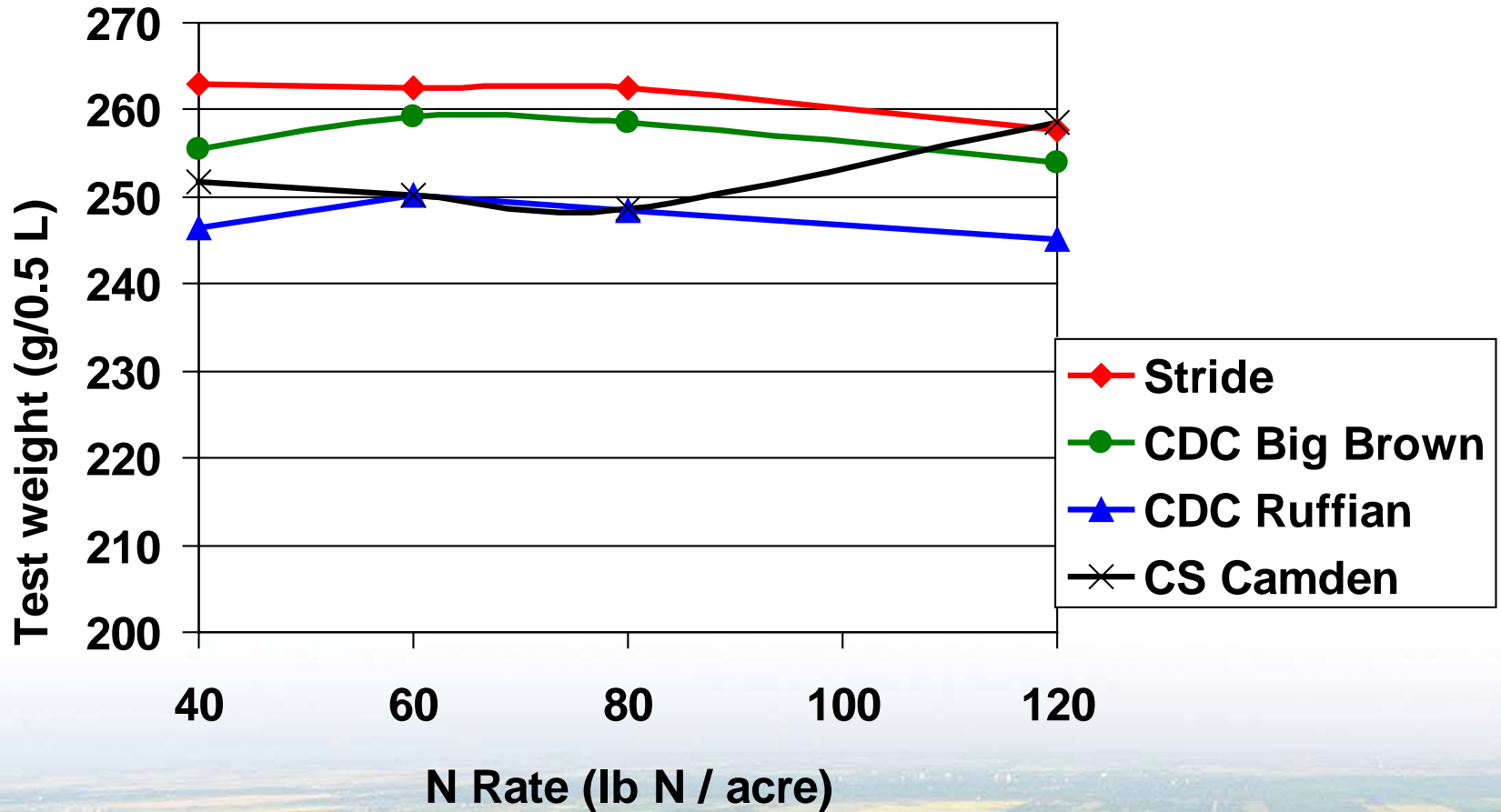
Nitrogen x Cultivar at Indian Head in 2015



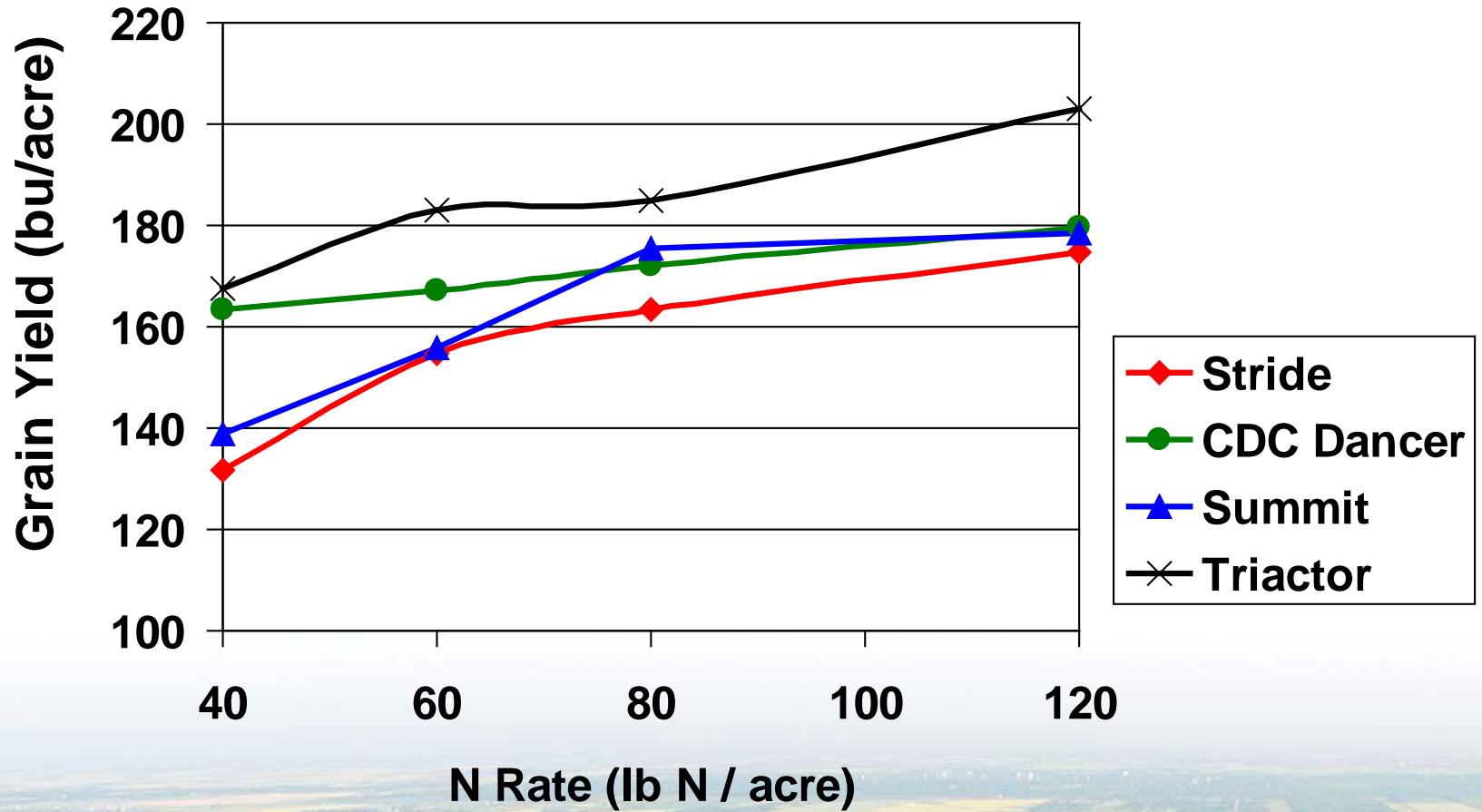
Nitrogen x Cultivar at Indian Head in 2016



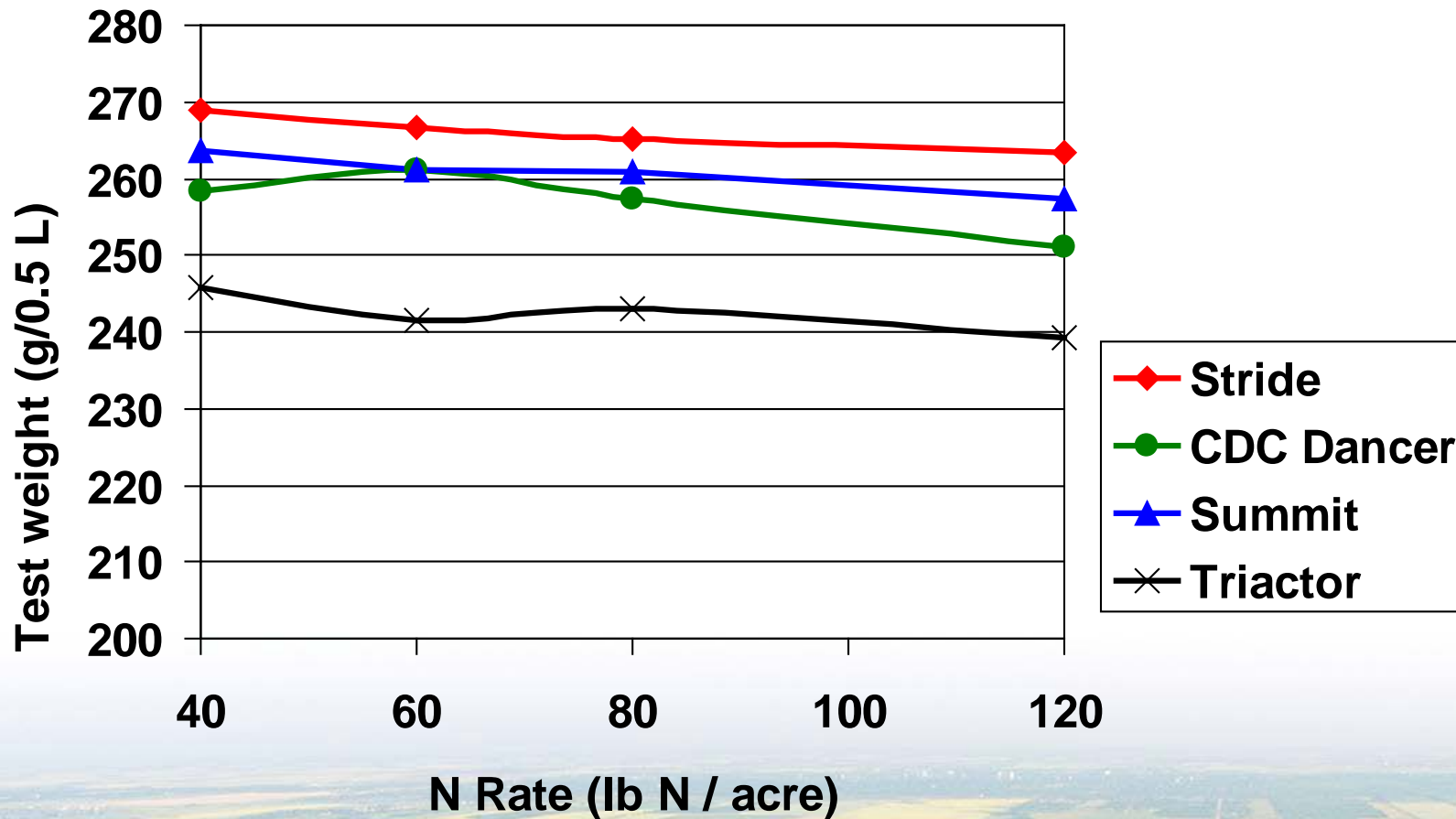
Nitrogen x Cultivar at Indian Head in 2016



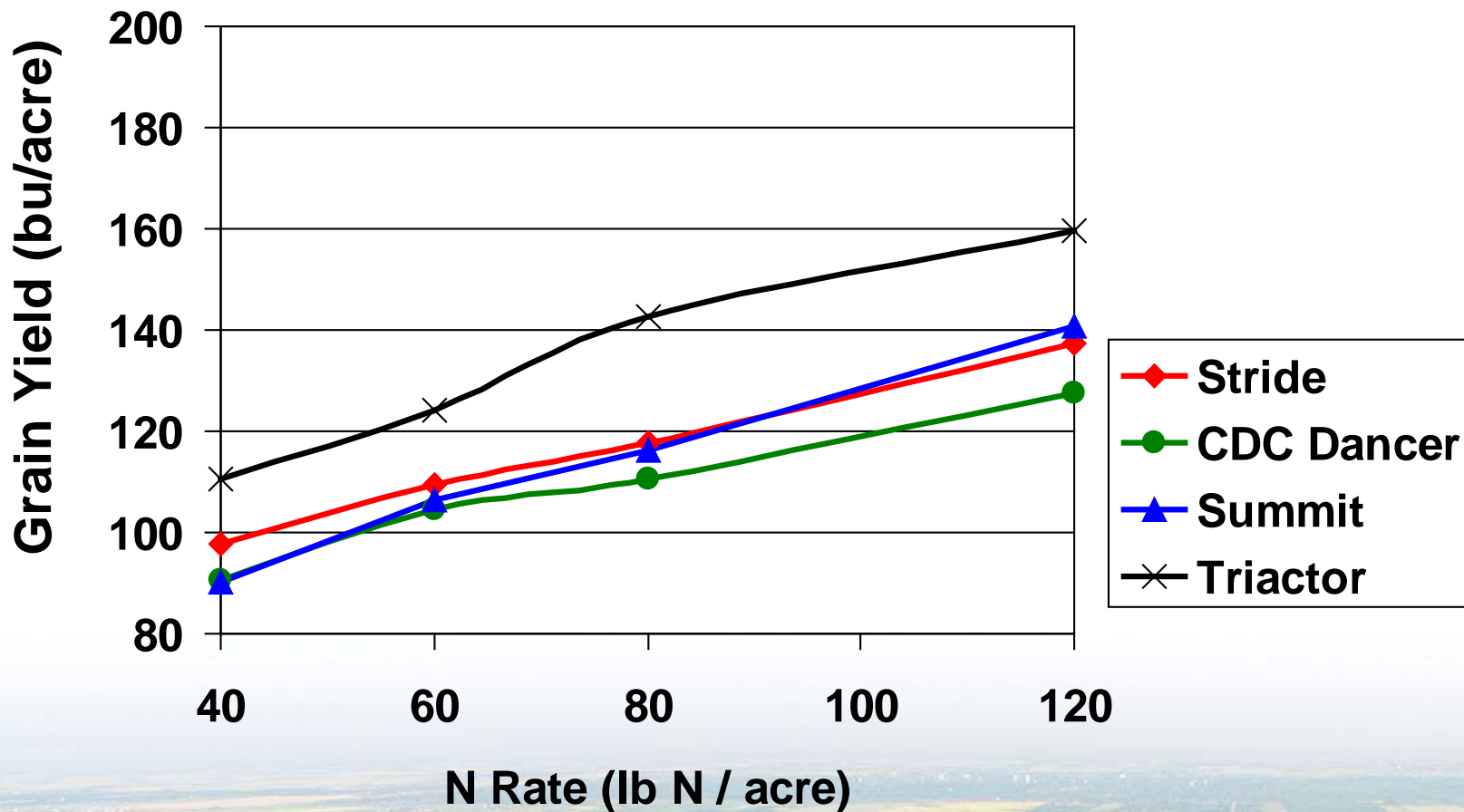
Nitrogen x Cultivar at Yorkton in 2014



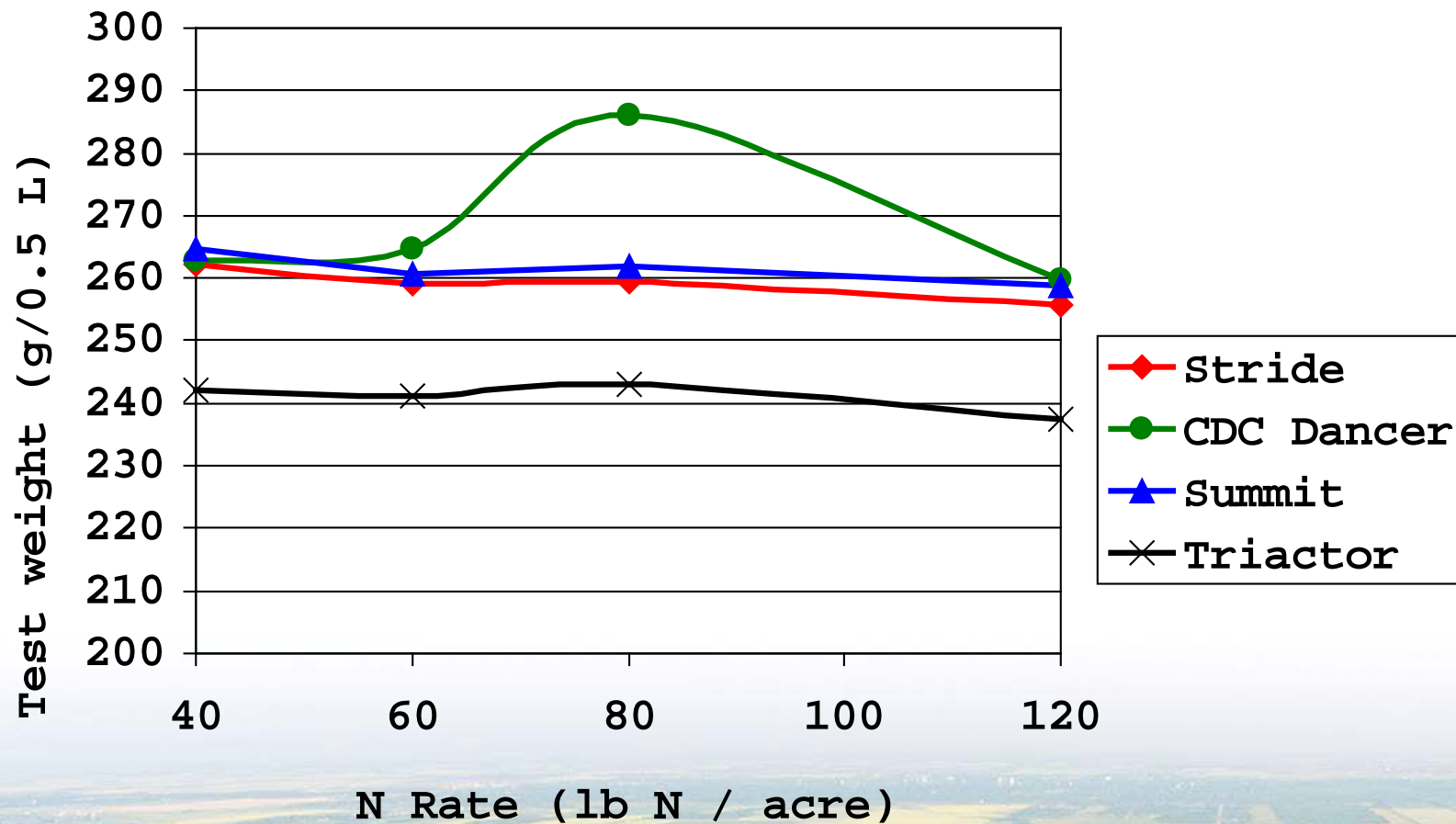
Nitrogen x Cultivar at Yorkton in 2014



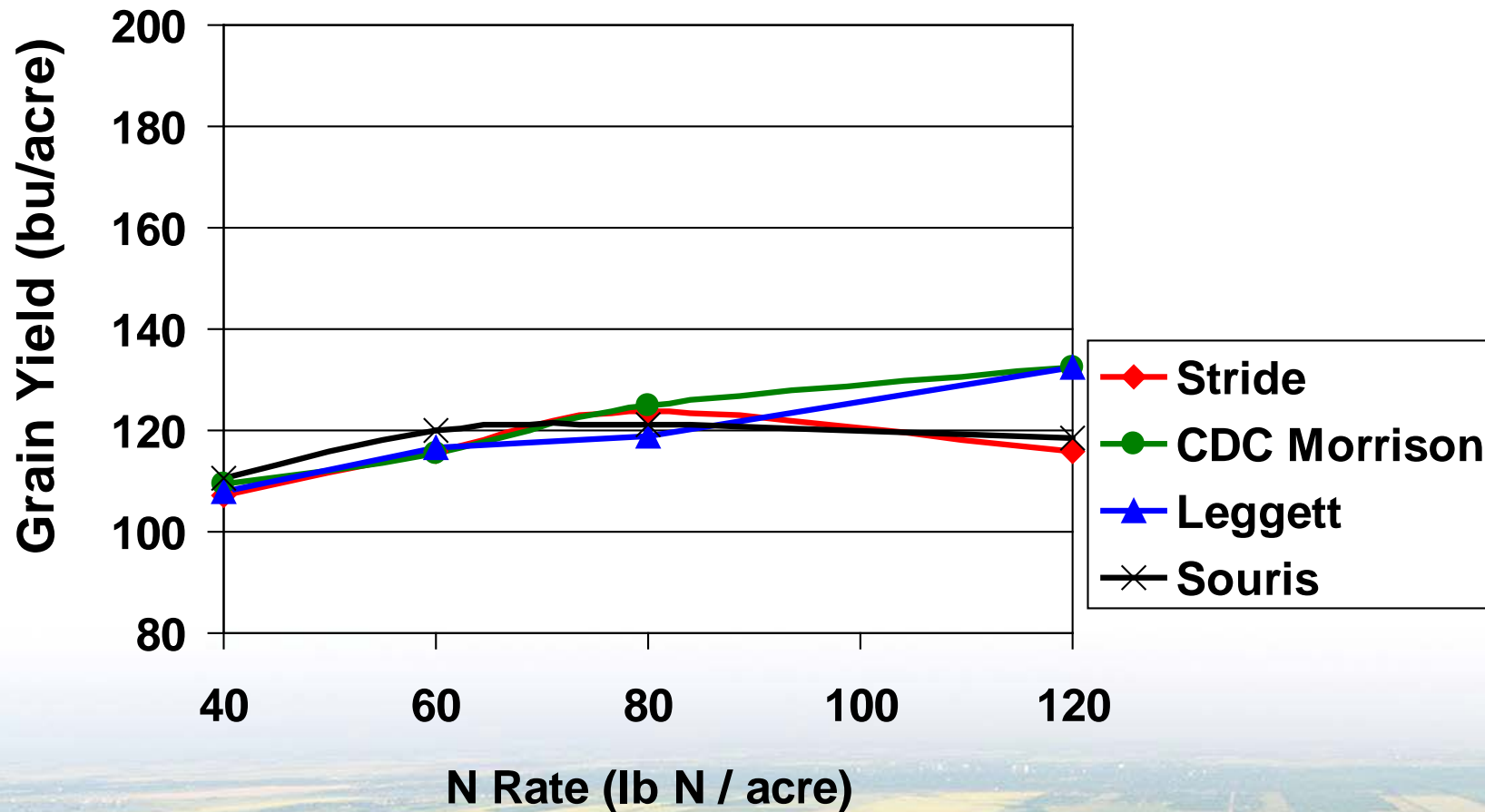
Nitrogen x Cultivar at Yorkton in 2015



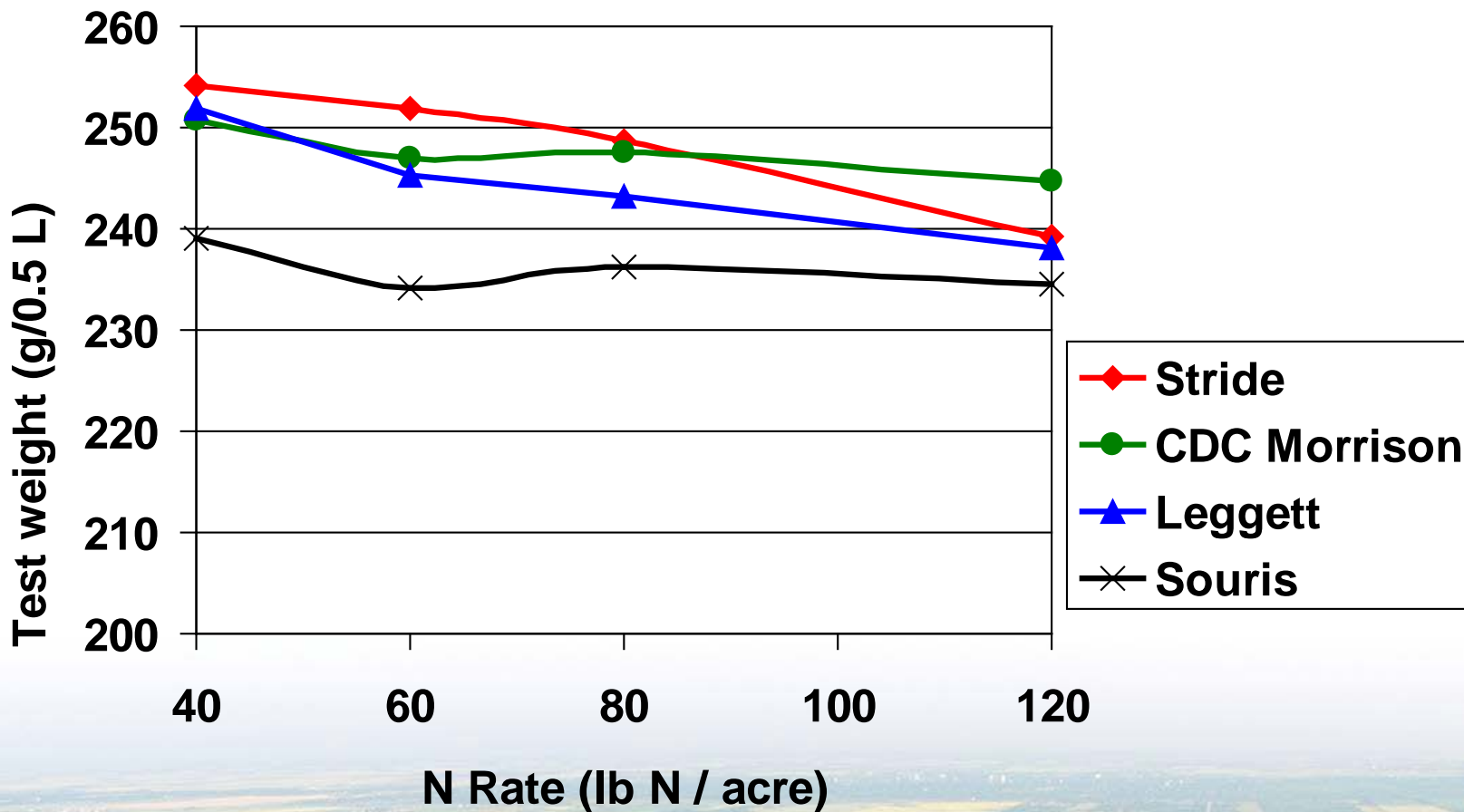
Nitrogen x Cultivar at Yorkton in 2015



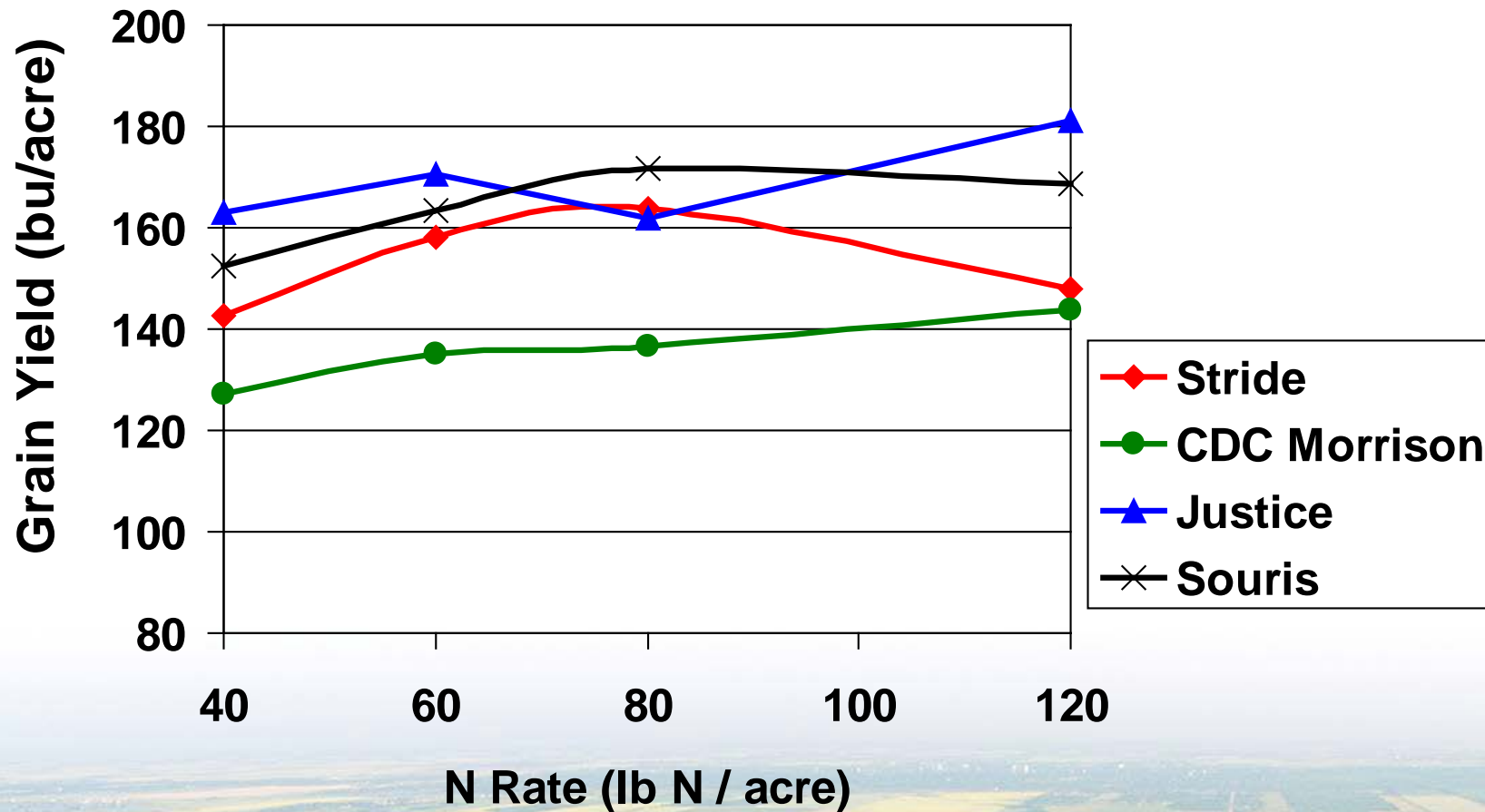
Nitrogen x Cultivar at Redvers in 2015



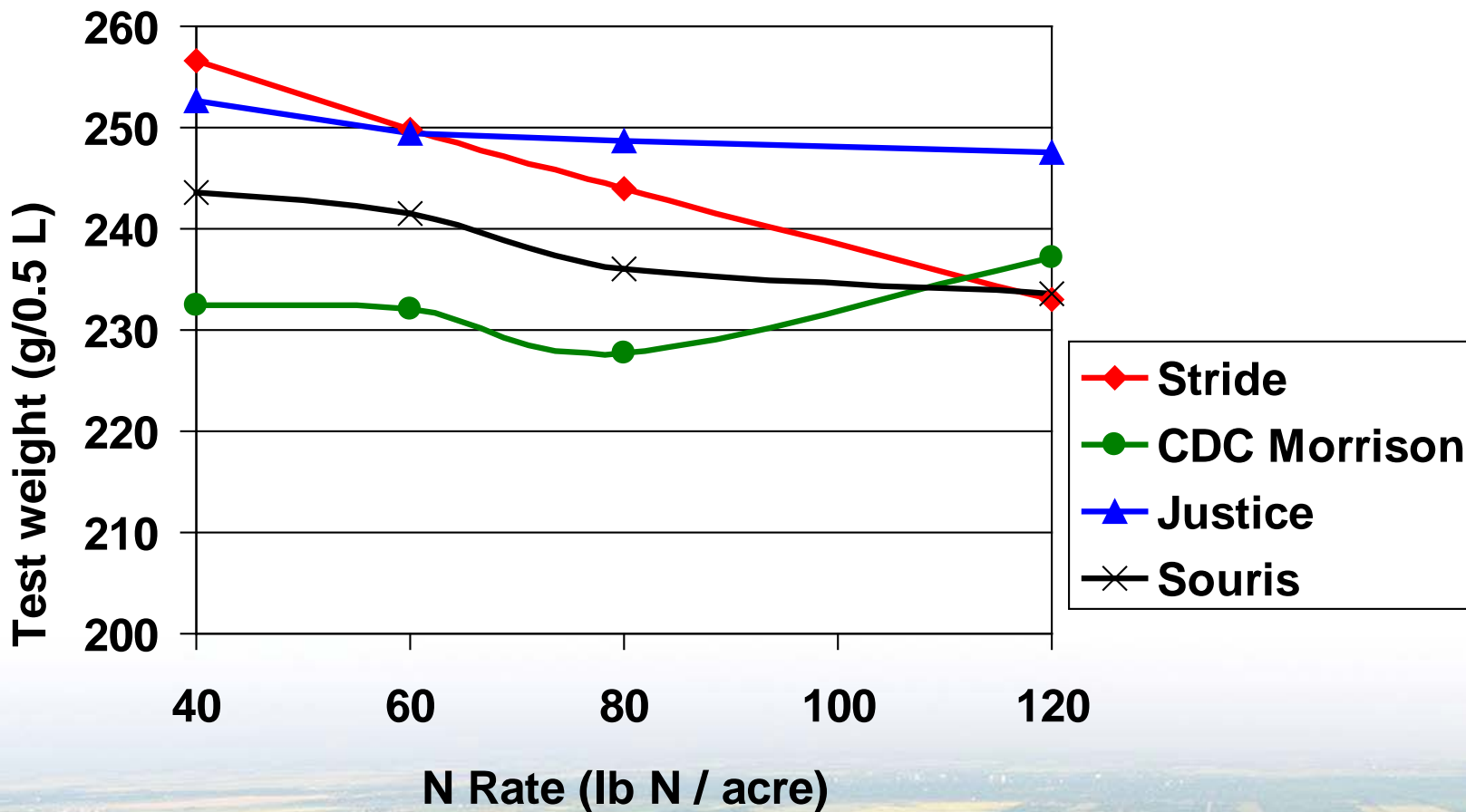
Nitrogen x Cultivar at Redvers in 2015



Nitrogen x Cultivar at Redvers in 2016



Nitrogen x Cultivar at Redvers in 2016



Crop Sequencing of Large acreage crops and special crops

Experimental Design: Strip plot

Replication: 4

Locations: Indian Head, Melfort, Saskatoon, Swift Current

The use of these locations should help us to determine if beneficial crop sequences change as we move from a typical warmer and drier environment to wetter cooler environments.

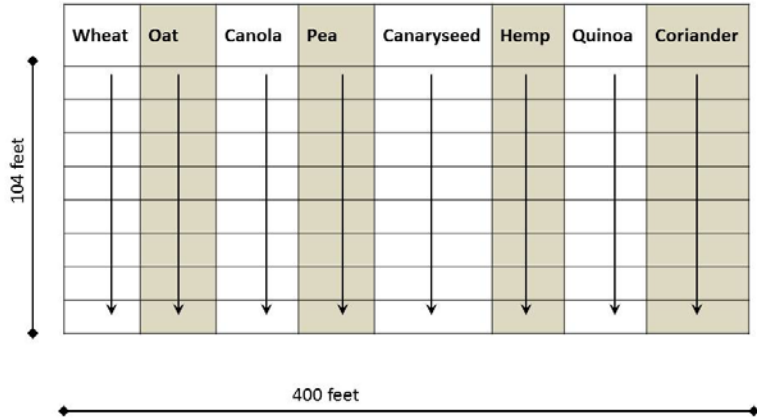
Year A

All eight crops are seeded in strips resulting in 32 strips (8 x 4reps)

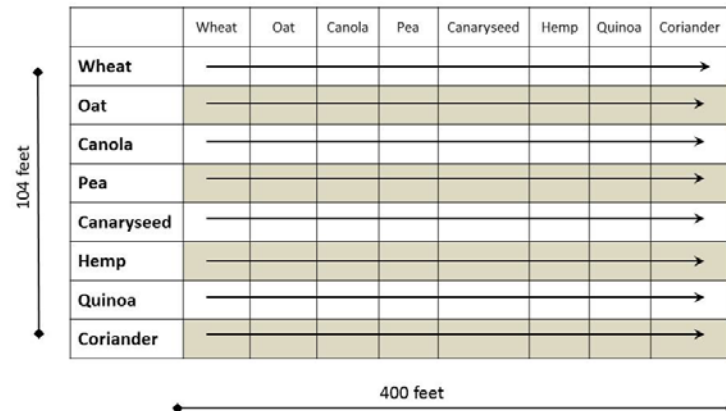
Year B

In year B the same crops are seeded perpendicular to the strips in year A. This results in 256 plots (8 preceding crops x 8 crops x 4 reps)

Year A Replicate 1



Year B Replicate 1



2	Wheat	23.3769726	bc			3	Wheat	9.01884	d
	Oat						Canola		
10	Oat	21.5624852	c			11	Oat	9.132026	d
	Oat						Canola		
18	Canola	23.2576146	bc			19	Canola	8.116499	de
	Oat						Canola		
26	Pea	23.9962286	ab			27	Pea	9.676296	d
	Oat						Canola		
	Canarysee						Canarysee		
34	d	24.8400442	ab			35	d	9.112467	d
	Oat						Canola		
42	Hemp	25.5502258	a			43	Hemp	9.038373	d
	Oat						Canola		
50	Quinoa	25.188196	ab			51	Quinoa	9.738669	d
	Oat						Canola		

Main Plot

Rotation (all crops)

Continuous oat

oat-canola-oat-PEA-oat

oat-canola-barely-PEA-oat

Factors:

2) Oat Seeding rate (seeds/m²) (oat only)

200,

400

Oat Cultivar (oat only)

Summit (semi-dwarf)

CDC Seabiscuit (Tall)

Row Spacing (all crops):

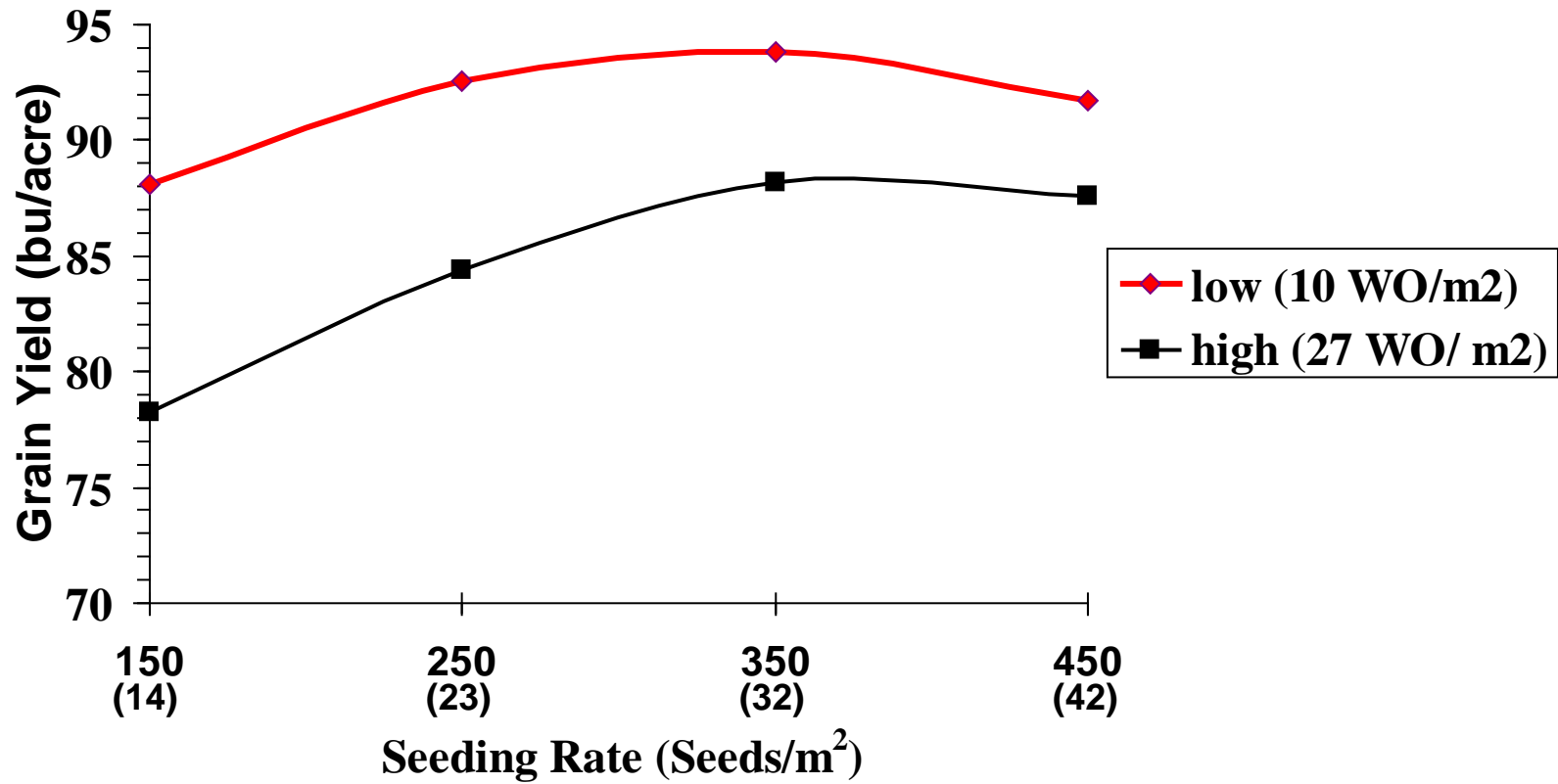
Narrow 25 cm (14 x 35)

Wide 40 cm (11 x 35)

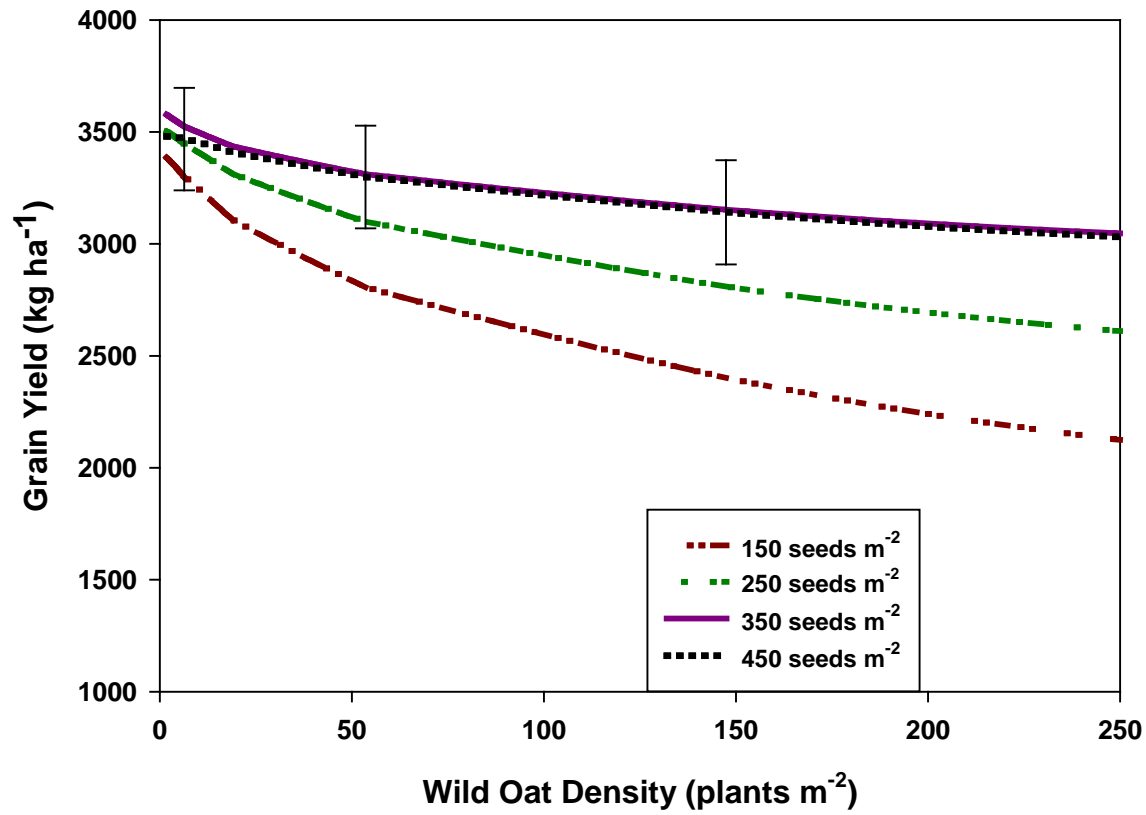
Starting point	Rotations All phases of the rotation are grown in each year 24 treatments 4 reps					
Phase in Rotation	1	2	3	4	5	6
A (pea stubble)	Wheat	Wheat	Wheat	Wheat	Wheat	Wheat
B (wheat stubble)	Canola	Pea	Pea	Pea	Lentil	Canola
C (Broadleaf stubble)	oat	oat	Canola	Lentil	oat	Pea
D (oat, canola, lentil or pea stubble)	Pea	Pea	Pea	Pea	Pea	Canola
Justification	Cereal-oilseed-pulse in a rotation, expected to be the most sustainable rotation system	Intensified pea-based rotation with cereal as a break crop	Intensified broadleaf crop with 1 cereal as a break crop	Intensified pulse-based rotation, 2 species with 1 cereal as a break crop	Intensified pulse-based rotation, 2 species with cereal as a break crop	Intensified canola-based rotation with cereal and pulse between

Seeding Rate of Oats

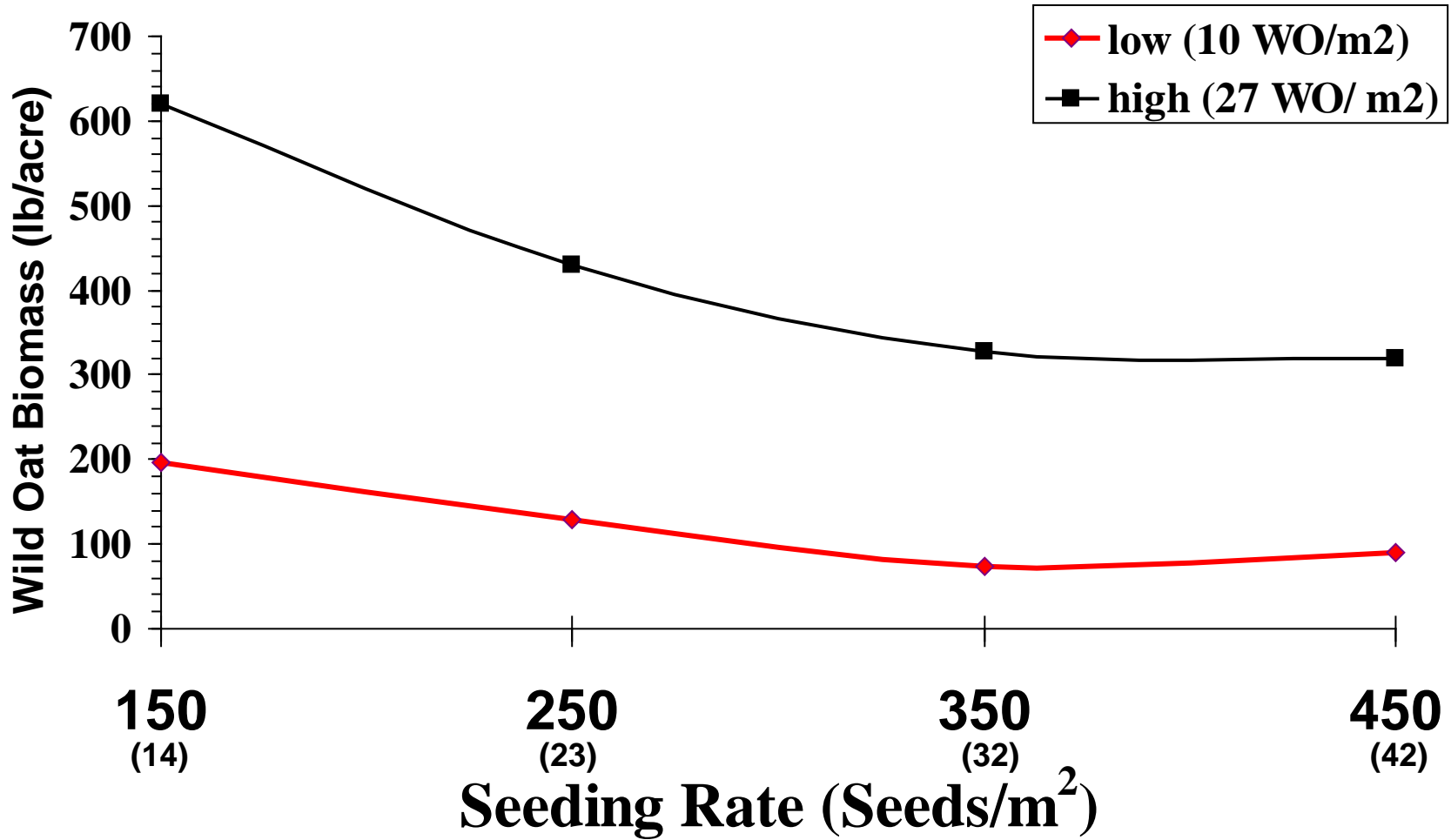
Seeding Rate and Wild Oats



Grain Yield, Seeding Rate and Wild Oats



Seeding Rate and Wild Oats



Wild Oat Biomass and Tame Oat Seeding Rate

