

Wild About Oats

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Grande Prairie, AB**

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Factors affecting oat yield and quality

- Seeding rate
- Seeding date
- Crop Nutrition
- Disease
- Insects
- Residual Herbicides
- Weed Control



Choosing the Right Land for Oats

- **Free of wild oats**
 - Recent forage breaking
 - RR canola stubble
- **Known nitrogen levels**
 - Risk of lodging if over applying N



Optimum Seeding Rates

- Target 24 plants per square foot.
- High plant populations are your only method of controlling wild oats in-crop.
- Use thousand kernel weights (TKW)
 - Large amounts of variability among seed sources.



Calculate Your Seeding Rate !

$$\text{Seeding Rate (lbs / acre)} = \frac{10 * \text{T.K.W.} * \text{Desired plant Stand}}{\% \text{ of Survival}}$$

ex: TKW = 40 (count 1000 kernels & weigh)
 Stand = 25 plants / sq ft (optimum stand)
 Survival = 90 % survival rate

$$\text{Seeding Rate} = \frac{10 * 40 * 25}{90 \%} = 111 \text{ lbs / acre}$$

Out Seeding Rate Total (8 location summary)

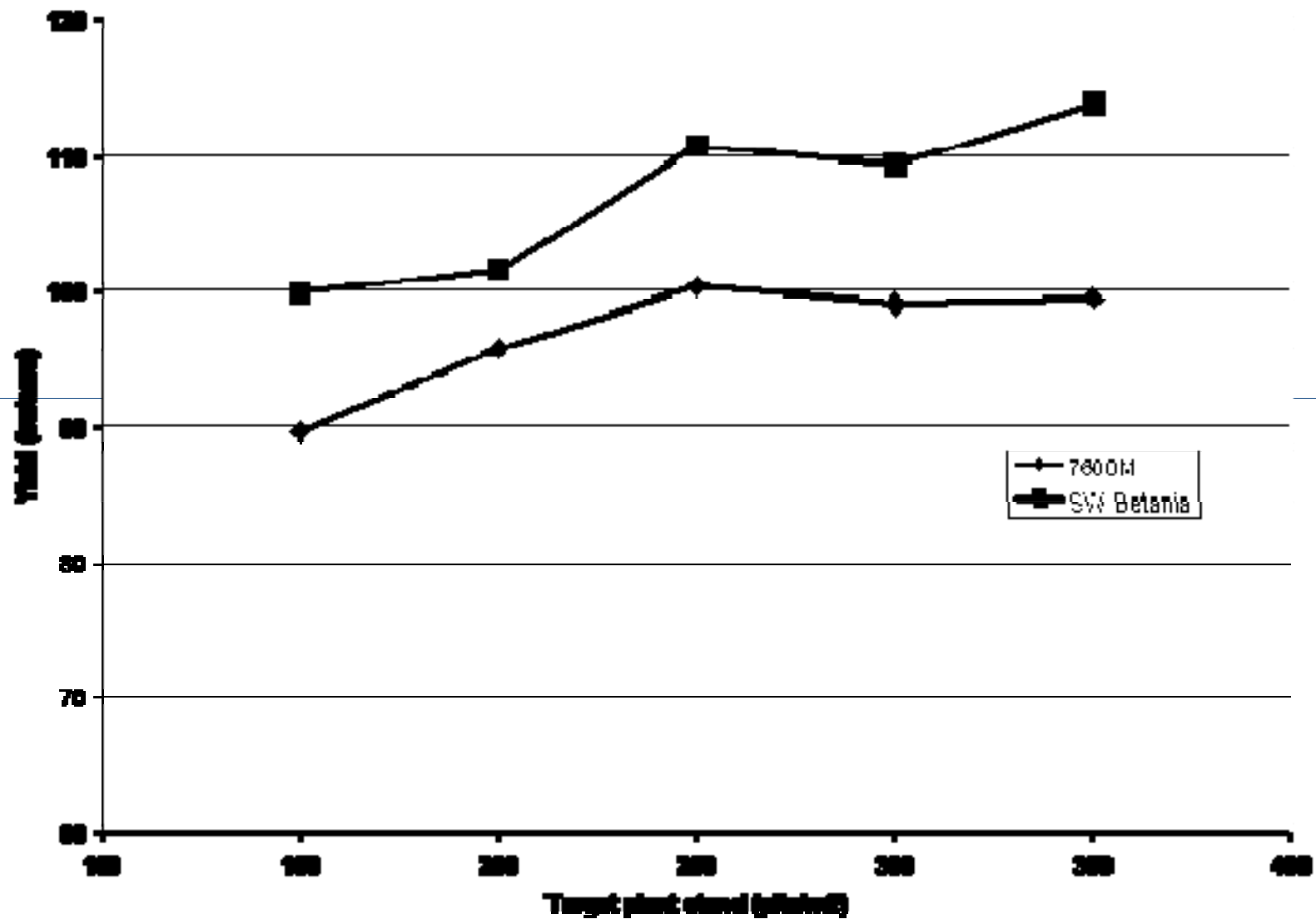
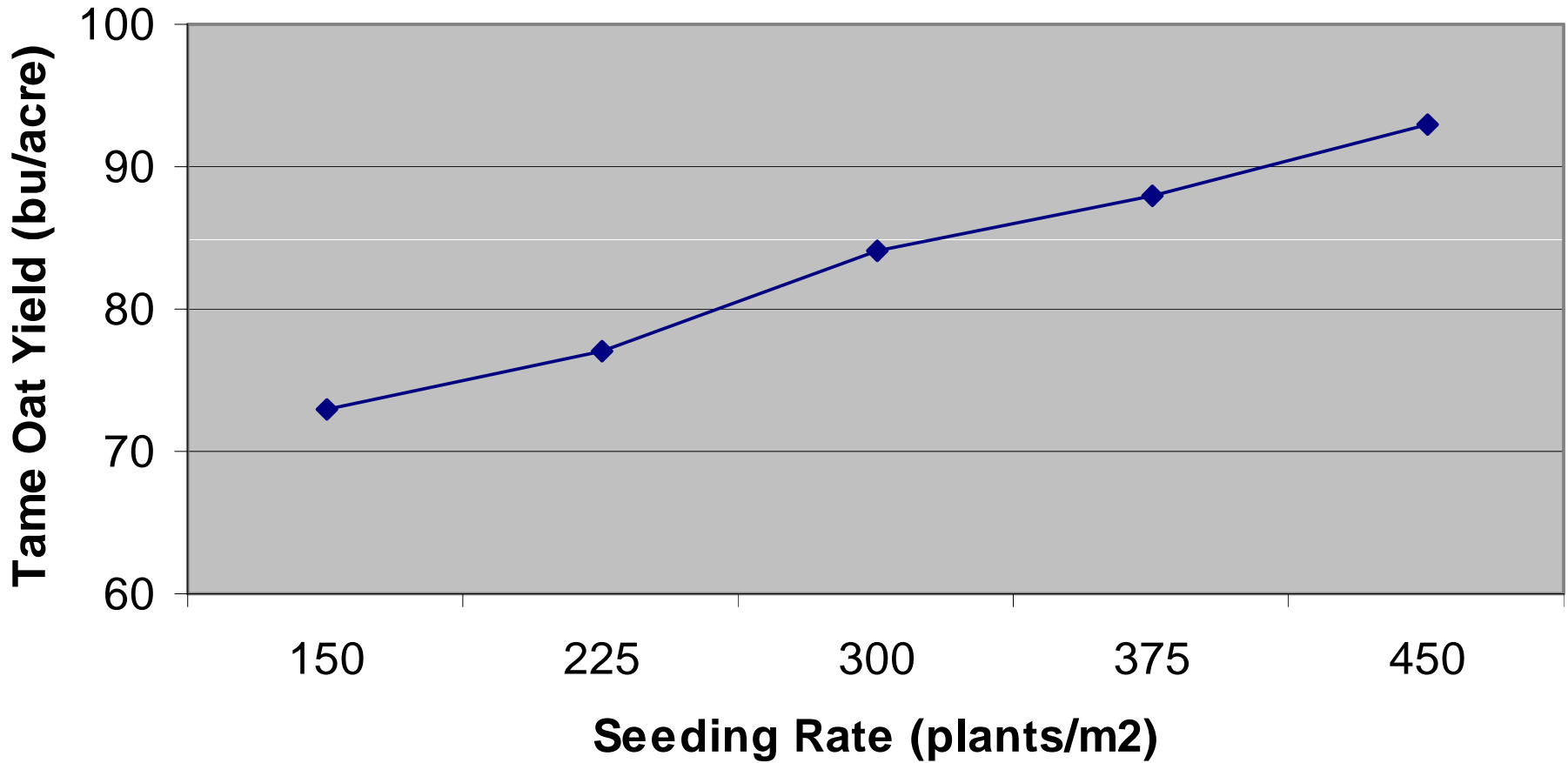


Figure 1. Effect of Seeding Rate on Tame Oat Yield Under High Wild Oat Pressure (AAFC Research, 1999)

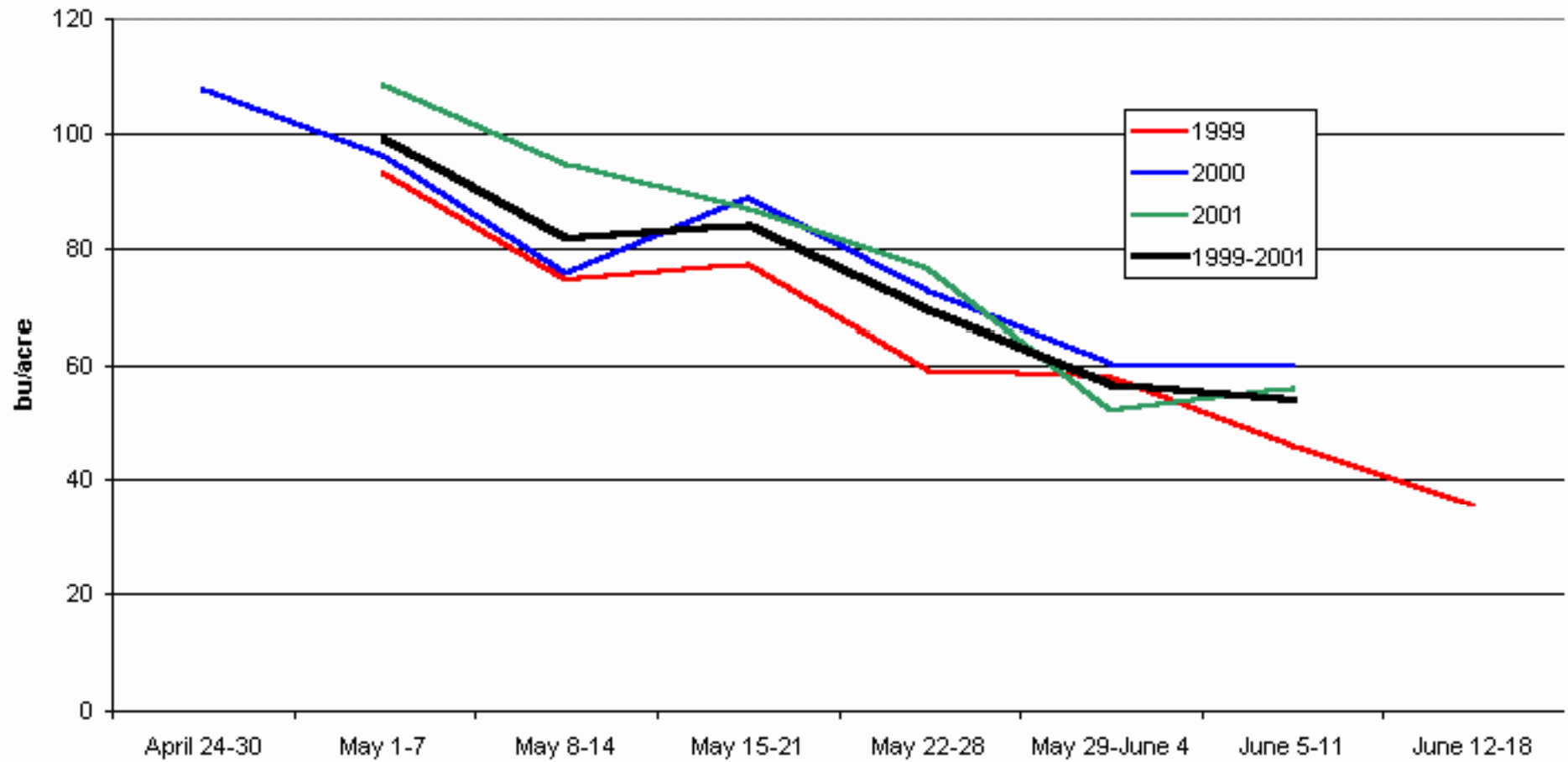


Seeding Date - Grain Yield Bushels/acre

Bill May, Agriculture Canada

Seeding Date	Indian Head	Saskatoon	Melfort	Brandon
May 1	127		145	60
May 15	126	103	142	58
June 1	91	94	114	48
June 15	65	67	105	

Effect of Seeding Date on Oat Yield in the Peace River Region



Source: AFSC



Nutrient Demand of Oats

Pounds per Acre

Grains		N	P ₂ O ₅	K ₂ O	S
Spring Wheat 40 bu/A (2690 kg/ha)	uptake ¹	76 - 93	29 - 35	65 - 80	8 - 10
	removal ²	54 - 66	21 - 26	16 - 19	4 - 5
Winter Wheat 50 bu/A (3360 kg/ha)	uptake	61 - 74	27 - 34	64 - 78	9 - 11
	removal	47 - 57	23 - 28	15 - 19	6 - 8
Barley 80 bu/A (4300 kg/ha)	uptake	100 - 122	40 - 49	96 - 117	12 - 14
	removal	70 - 85	30 - 37	23 - 28	6 - 8
Oats 100 bu/A (3584 kg/ha)	uptake	96 - 117	36 - 45	131 - 160	12 - 14
	removal	55 - 68	23 - 28	17 - 20	4 - 5
Rye 55 bu/A (3450 kg/ha)	uptake	83 - 101	41 - 51	117 - 144	14 - 17
	removal	53 - 64	22 - 27	18 - 22	4 - 5
Corn 100 bu/A (6272 kg/ha)	uptake	138 - 168	57 - 69	116 - 141	13 - 16
	removal	87 - 107	39 - 48	25 - 30	6 - 7

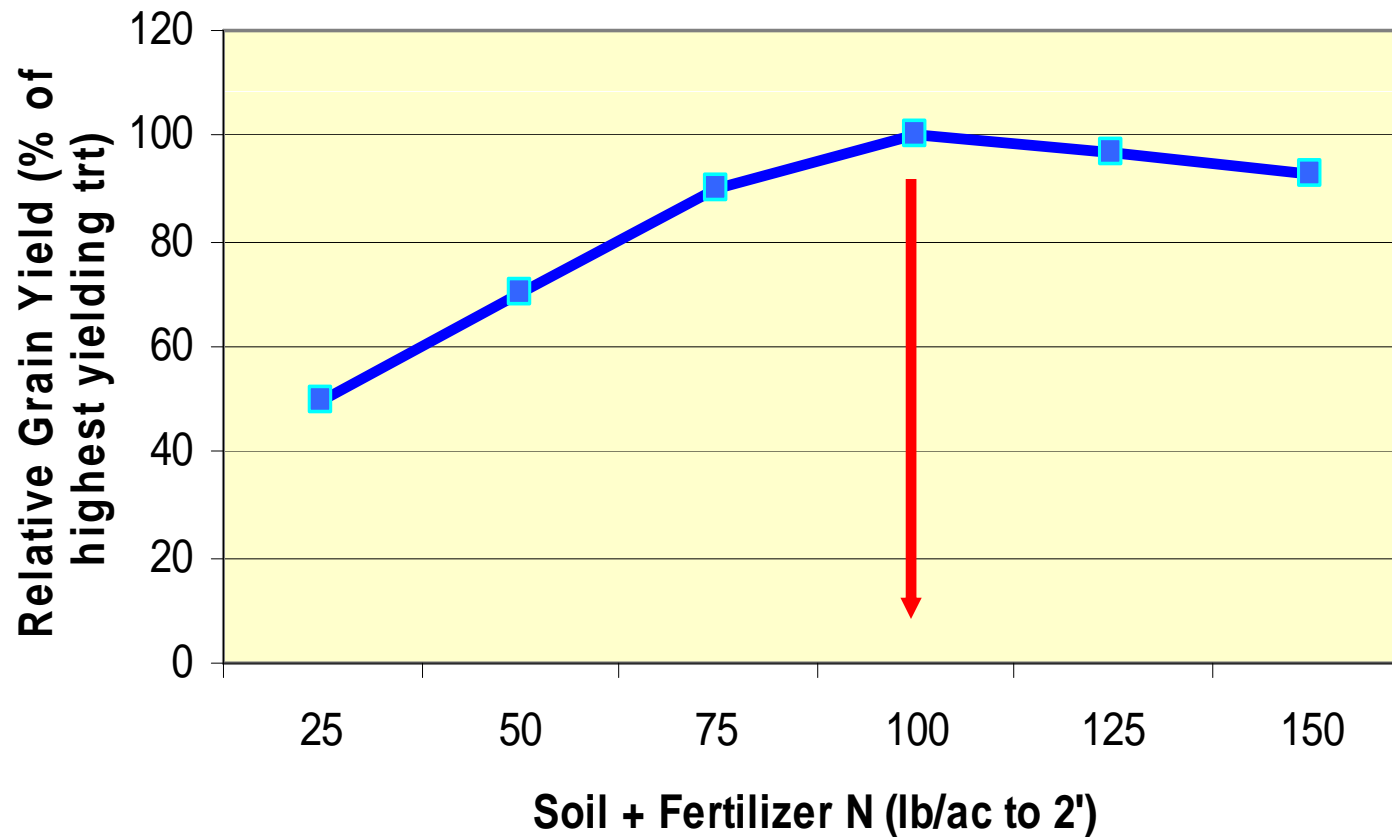


Nitrogen Strategy for Oats

- **Soil test a must!**
 - Nothing good can come of over-fertilizing oats
- **Optimum yields at 100 lb/acre of soil + fertilizer nitrogen**
 - Good agreement with existing recommendations
- **When in doubt, apply a little less as opposed to a little more**
 - oats appear to be more efficient than other cereals at finding residual nitrogen

AAFC / U of M Research

**Relationship Between Relative Grain Yield and
Soil + Fertilizer N (all N Responsive Sites -
1998/99)**

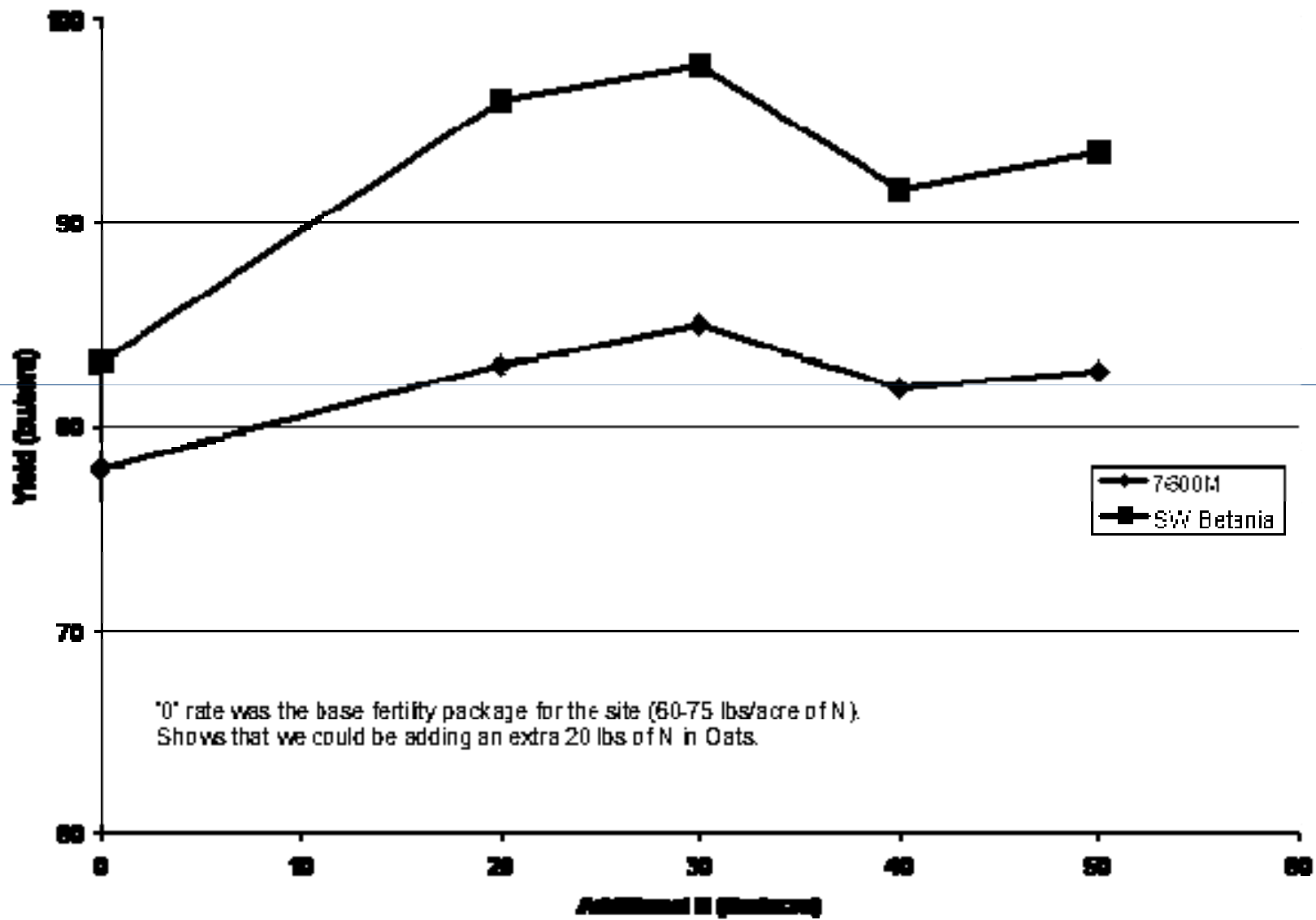




Additional Research Observations

- **Increased lodging with excessive nitrogen**
- **Decreased test weight and reduction in plump kernels with excessive nitrogen**
 - Lodging?
 - Increased tillering?
 - Delayed maturity

Oat response to Additional Nitrogen (3 site summary)





Potash

- Little to no research available on the response of oats to potash on high K soils
 - A must where K is deficient – soil test!
- Claims for potash include helping minimize lodging in tame oats
 - Many producers convinced it helps!
- Starter rate of 15 lb/acre costs about \$5.00 per acre
 - Used to be cheap insurance?



Sulphur

- Highest demanding of the cereals
- Steve Shirtliffe - U of S
 - visual and height differences
 - no impact on yield
 - quality?
 - Consider applying 5-10 lbs/ac

Micronutrients? Not likely!

Maybe manganese... 'Grey spot'....foliar applications the cure

A VERY rare concern



Disease?

- Leaf and Stem Rust
- variety selection best defence, but many preferred varieties have weak resistance (e.g. Morgan, Orrin, Weaver)
- arrives on southern wind...a bigger concern to SE Prairies
- Minor Concern for Northern Alberta!





Septoria....

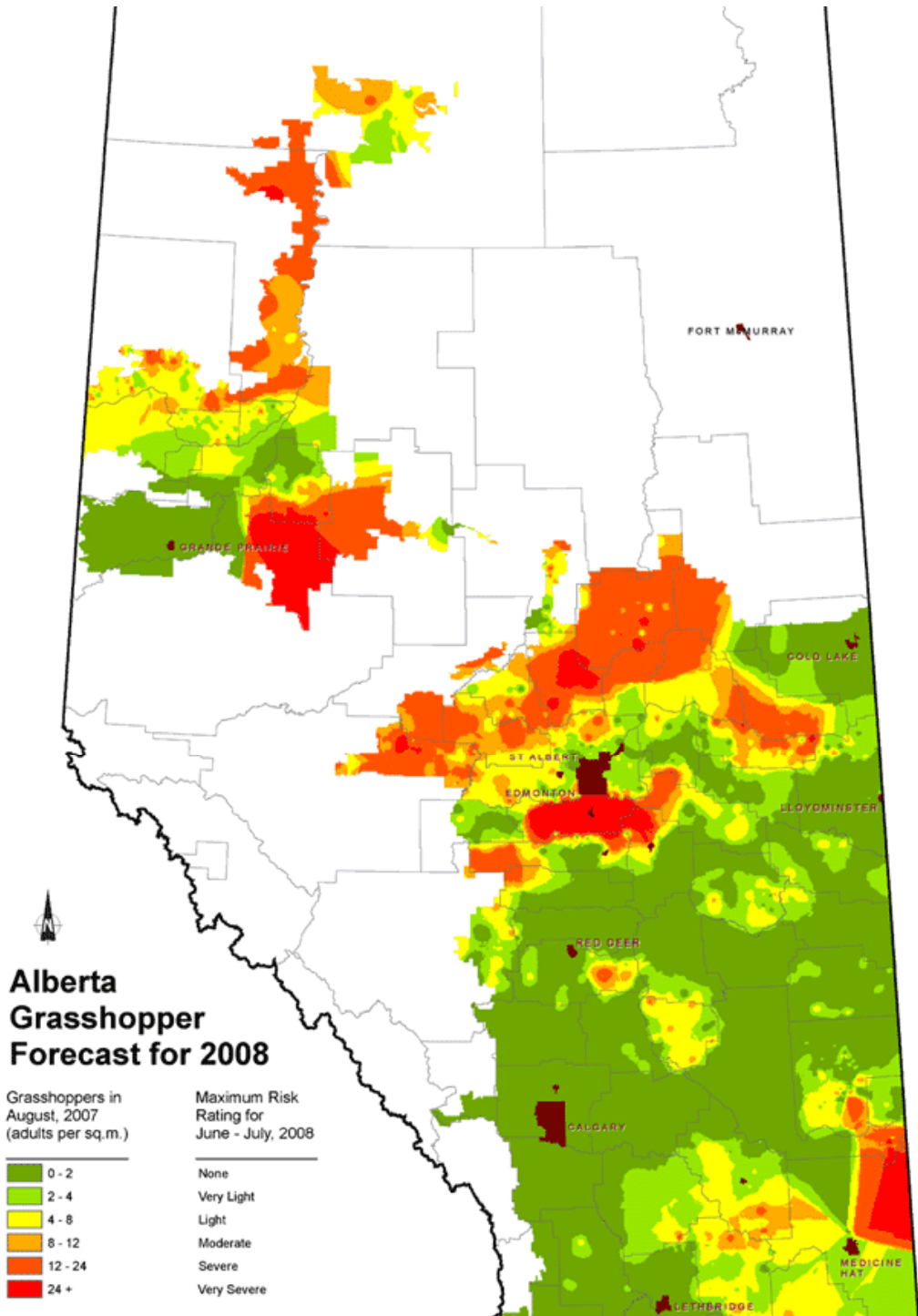
The main leaf and panicle disease of oats
in Northern Alberta....

....this is NOT 'rust'

Tilt or Pivot is an option...flag leaf



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Weed Control

- **Products NOT registered on Oats**
 - Ally
 - 2,4-D
 - Triton C
 - Trophy
 - Prestige
- **Do NOT grow oats after:**
 - Everest
 - Pursuit
 - Assert
 - 2,4-D (Burnoff)



Wild Oat Management

- Know your field
 - Scouting records of fields to be planted to oats?
- Wild oats normally 1st weed to emerge
 - Control early flushes with pre-seed Roundup
 - Air seeder sweeps less effective
 - Often not deep enough, resulting in transplants



If Wild Oat Emergence Delayed

- Check known patches for signs of emergence
- Tame oat yields don't decrease significantly until after May 15 seeding
- Post-seed Roundup an option
 - Risky!





Summary

- Nitrogen – target 100 lb/acre soil + fertilizer N
- Potash – may help with lodging, cheap insurance
- Seeding rates – keep them up, target 25 plants/ft, cheap wild oat control
- Seeding dates – seed early, definitely by May 15
- Wild oats – pre-seed glyphosate, careful with post-seed glyphosate applications