

Crop Production Show 2018



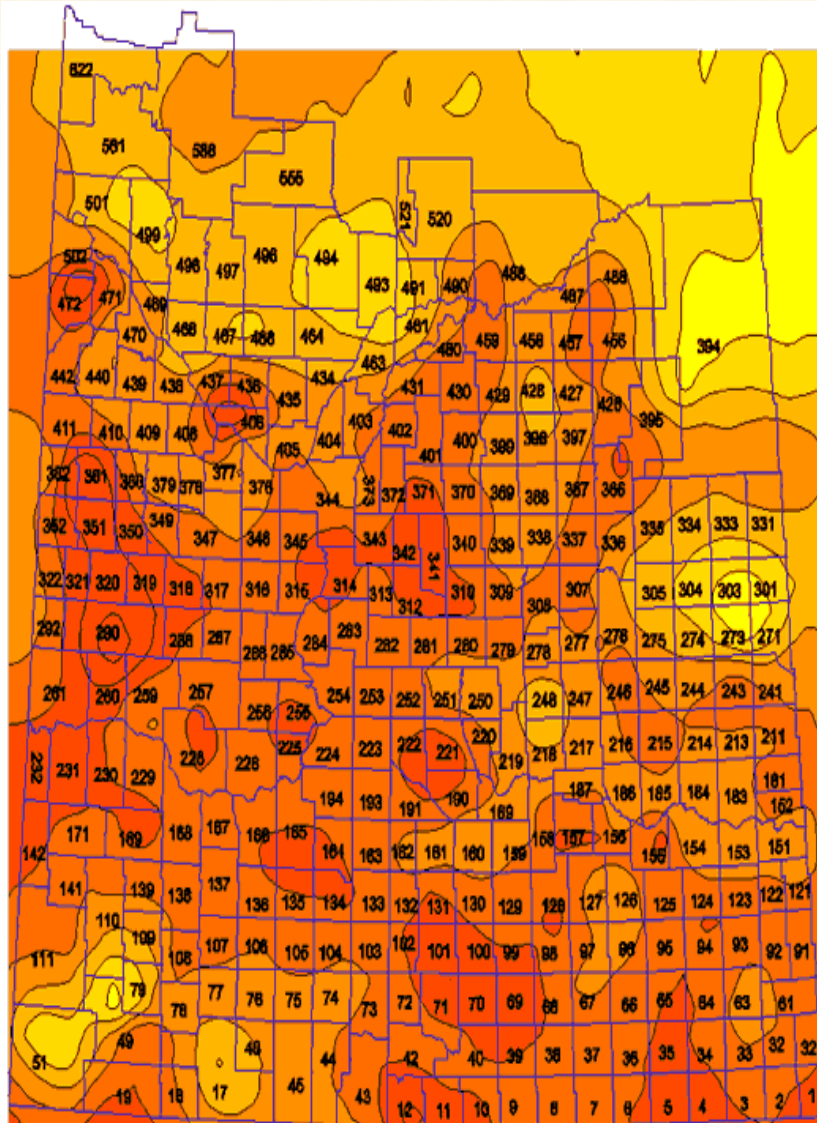
Agri-ARM Research Update
January 11, 2018

Inoculant Options for Faba Bean **The King of Nitrogen Fixation**

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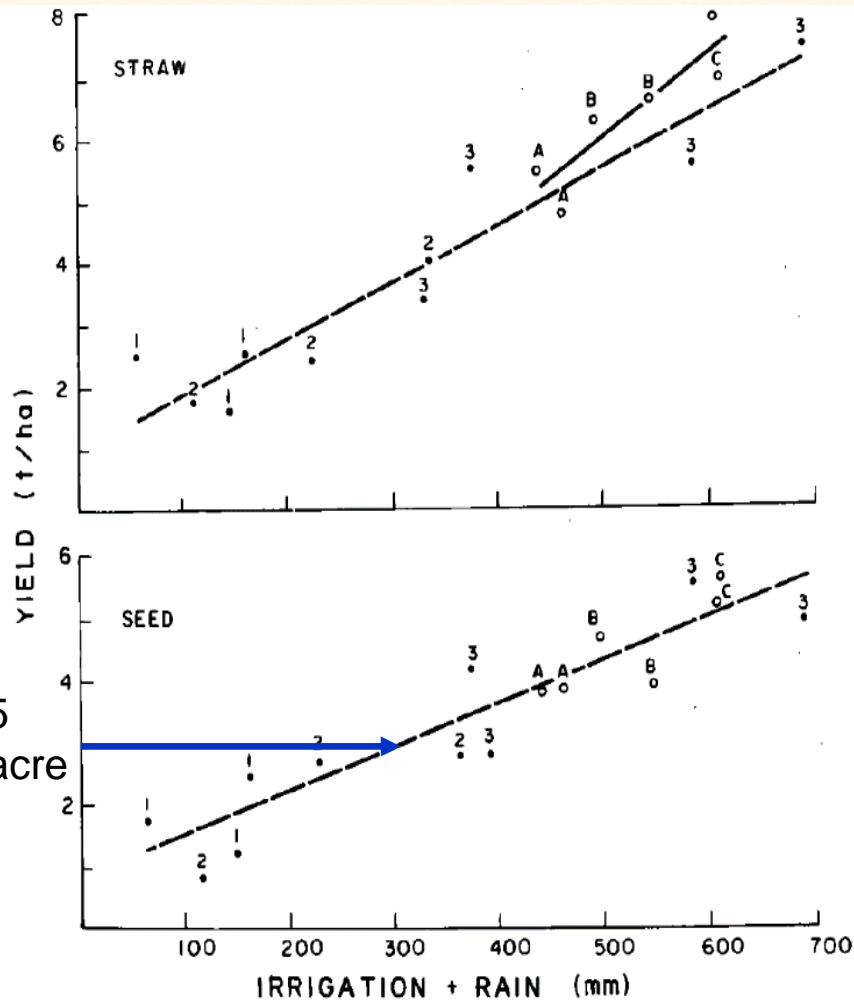
ICDC Research Director

Faba Bean Interest & Benefits



- Tolerate spring frosts
- Growing points below soil surface
- Ability to seed early (before field pea)

Faba Bean Interest & Benefits



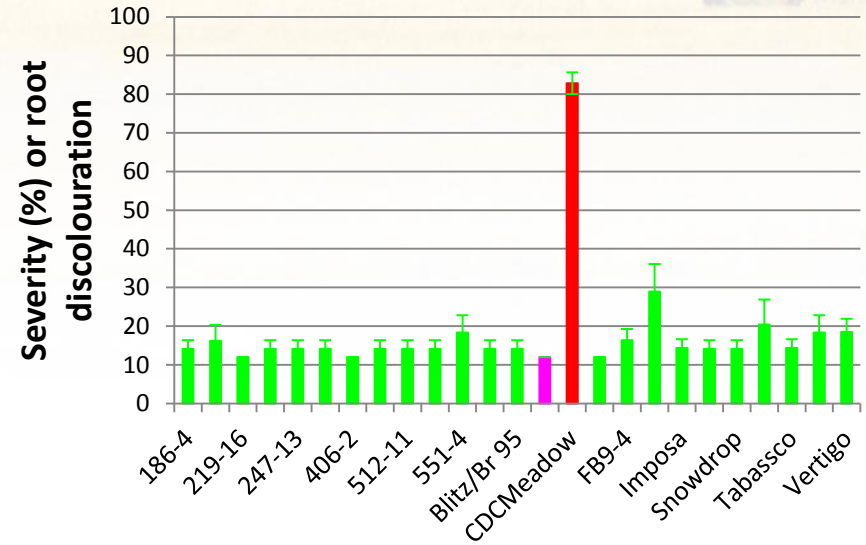
300 mm moisture

Source: Alberta Agriculture

- Ability to handle wet soils is > pea or lentil
- For full yield potential need lots of moisture!!
 - 8-10 inches suggested
 - Spring soil moisture + rainfall or **irrigation**

Faba Bean Interest & Benefits

- Resistance to aphanomyces
- Standability is good for straightcutting

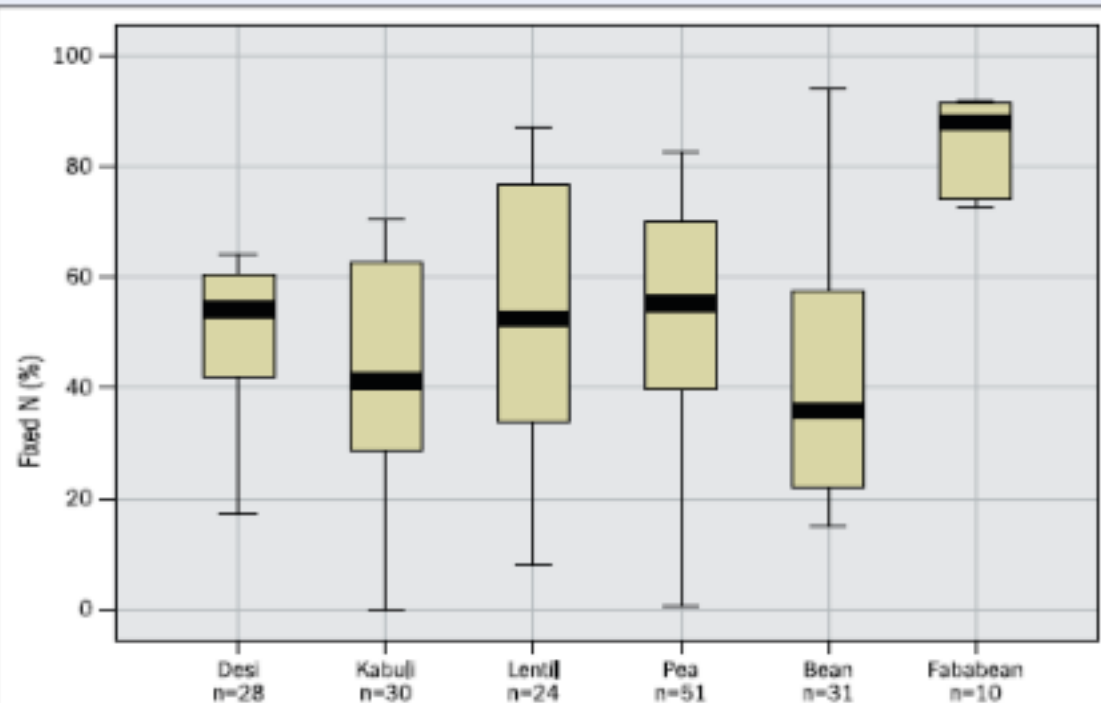


Faba Bean Interest & Benefits

- Highest nitrogen fixing grain crop
- Fixes > 80% of N needs



Figure 1: Percentage of N derived from fixation for pulse crops grown in Western Canada



The data was compiled from published research reports and papers.
The thick dark line indicates the median value, the box represents 50% of all data, and the whiskers contain the remaining 50% of the data.

Huge Biomass

July 5, 2013

Source: Olson, M.A. 2014



July 20, 2013



Nutrient Removal for Faba Bean in Comparison to Pea, Lentil, Canola & Wheat



Nutrient Removal Rates (actual lbs nutrient/bu of grain)

	Nitrogen	Phosphorus	Potassium	Sulfur
Pea	2.3	0.7	0.7	0.3
Lentil	2	0.6	1.1	0.2
Faba bean	3	1.2	0.9	0.1
Canola	1.6	0.8	0.4	0.25
Wheat	1.5	0.57	0.33	0.1

So the Research Question Asked?

Since successful nodulation of faba bean is extremely important to ensure the crop reaches maximum yield potential then...what are the best inoculation strategies or options available for faba bean?

- **Objectives:** Study the effects of two inoculants, at different rates and in combination, have on Faba bean growth in different soil/climatic conditions.
 - Do different seed sizes/varieties need the same amount of inoculant?
 - Does one product work better than another? Are they better in combination or alone?
- Funding provided by the Saskatchewan Pulse Growers

Evaluating Inoculant Options for faba beans

- Two variety types – Tannin (FB9-3 & SSNS-1) and a Zero Tannin (Snowdrop)
- Two inoculants – Nodulator peat and TagTeam granular
- **Treatments** – with each variety
 1. Uninoculated control
 2. **Nodulator** peat (seed application)
 3. 0.5X rate TagTeam granular (in-furrow)
 4. 1X rate TagTeam granular (in-furrow)
 5. 2X rate TagTeam granular (in-furrow)
 6. **Nodulator** peat + 0.5X rate TagTeam granular
 7. **Nodulator** peat + 1X rate TagTeam granular
 8. **Nodulator** peat + 2X rate TagTeam granular

Faba Bean Types

- Tannin Containing (8-9%)
- (brown seed coat &
- black dot)



- Low Tannin (Zero) (1%)
- (white flower & cream seed coat)

Inoculant

- TagTeam and Nodulator both registered
- Recommended:
 - 1X TagTeam @ rate depending on site row spacing
 - 1.2 kg Nodulator/ 982 kg seed

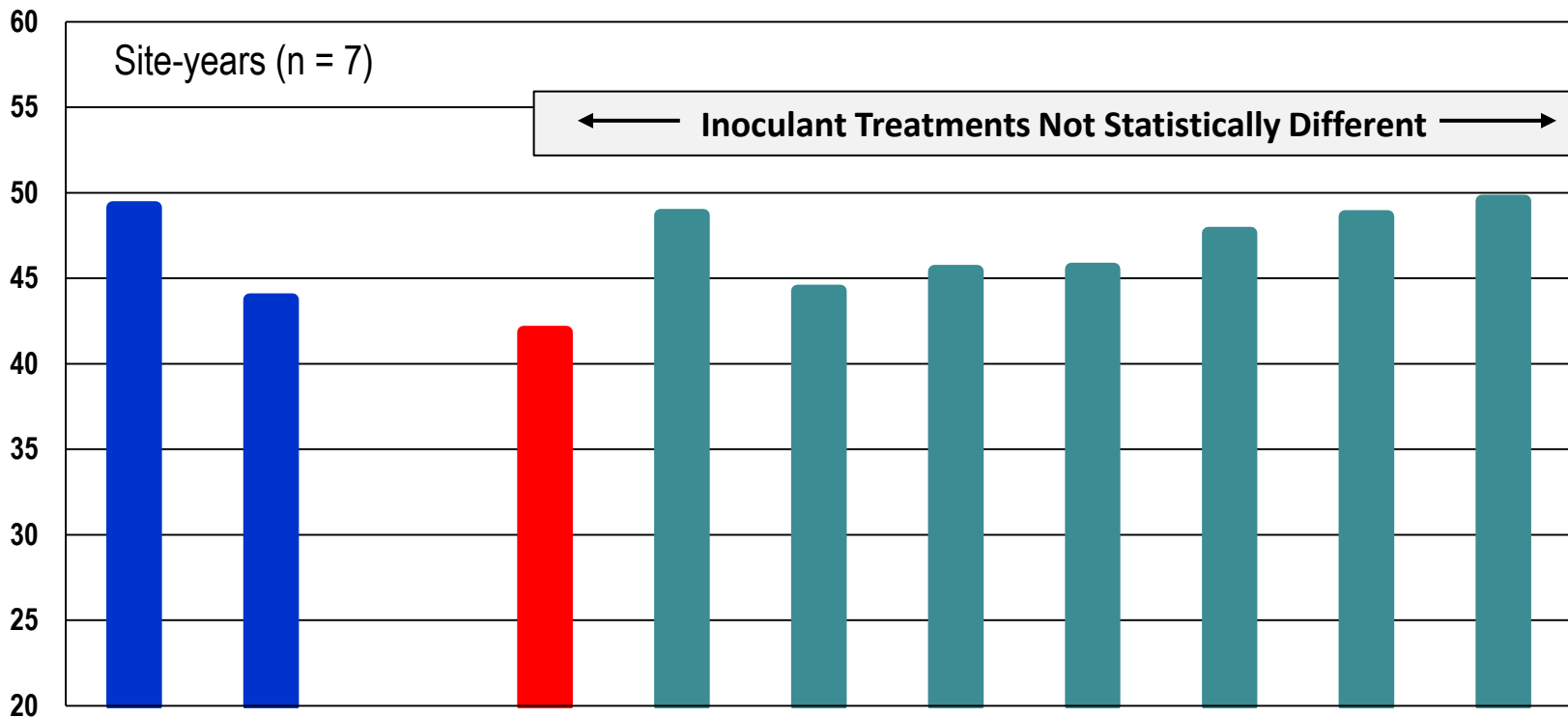


Evaluating Inoculant Options for faba beans



Evaluating Inoculant Options for faba beans

2015
Yield (bu/ac)



FB9-4
Snowdrop

check

Nod peat

0.5X TT gran

1X TT gran

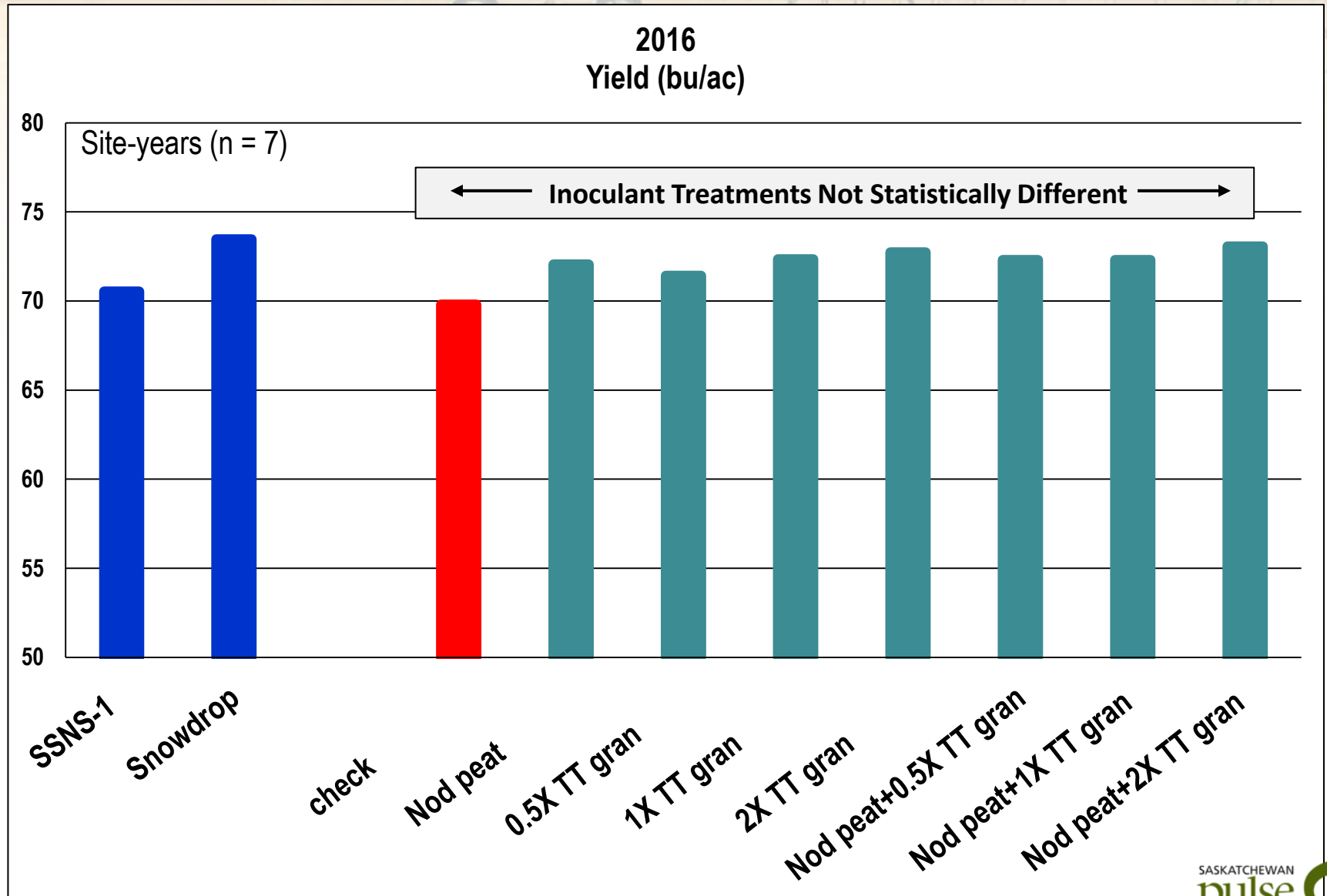
2X TT gran

Nod peat+0.5X TT gran

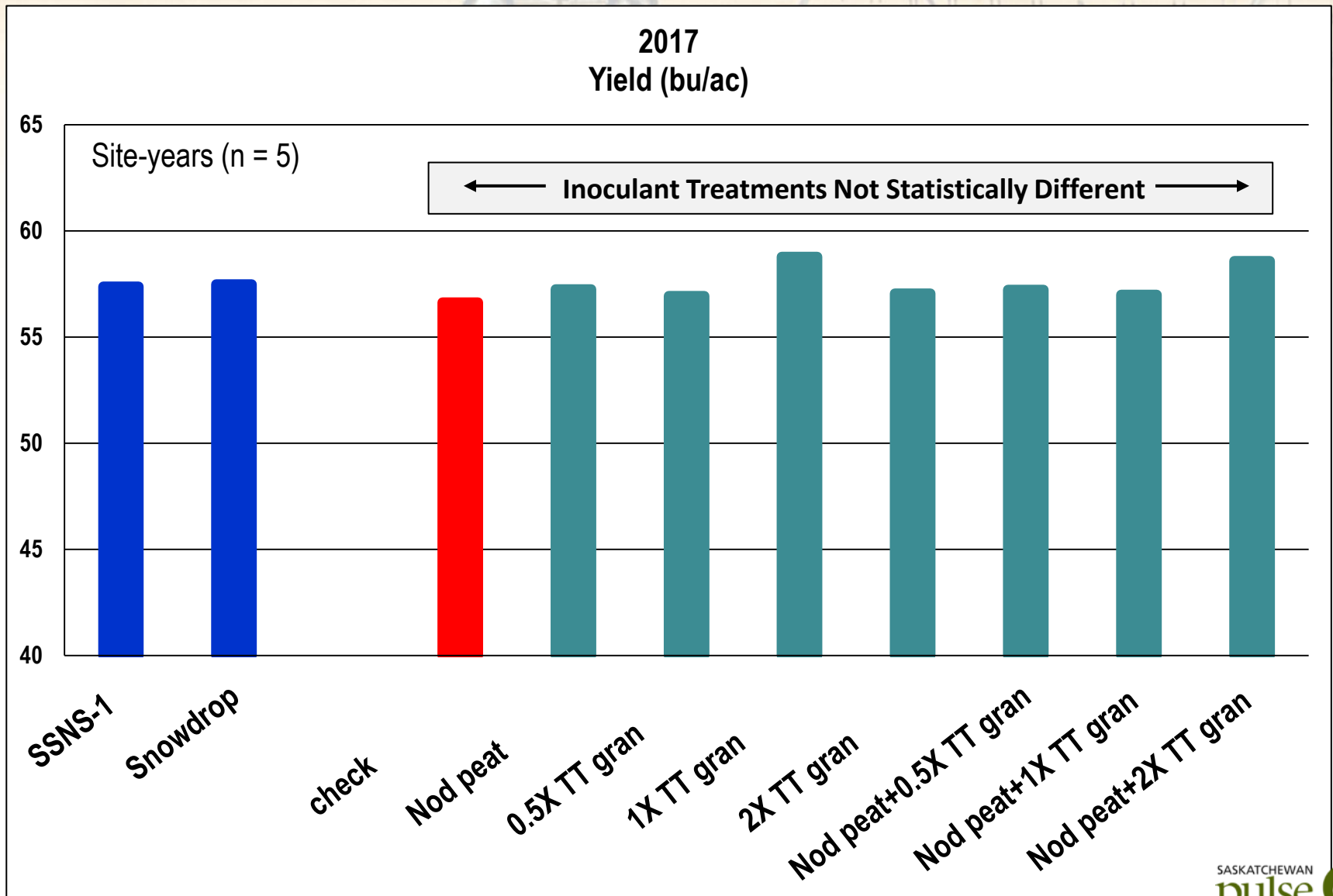
Nod peat+1X TT gran

Nod peat+2X TT gran

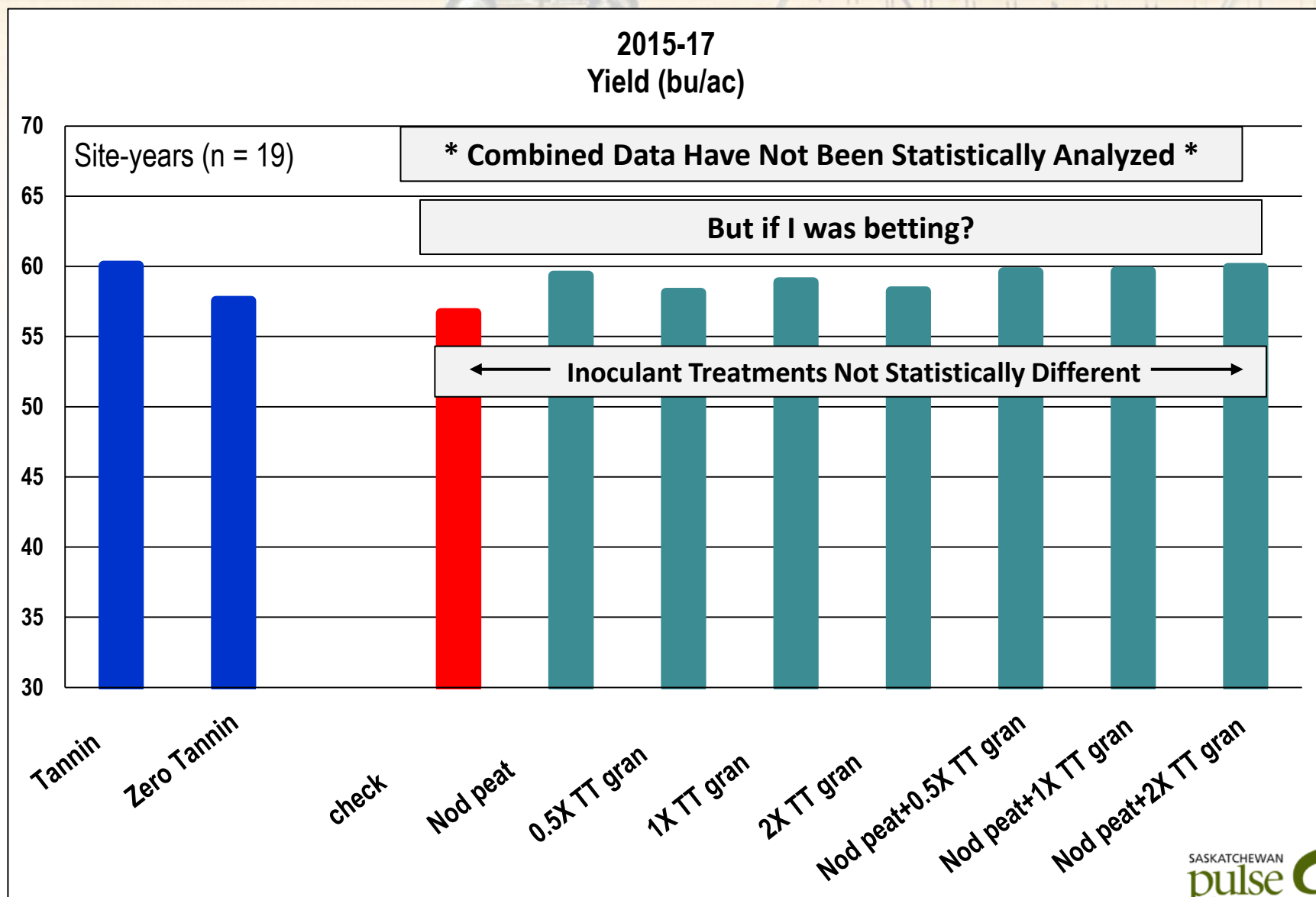
Evaluating Inoculant Options for faba beans



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Evaluating Inoculant Options for faba beans

Preliminary Conclusions

- Inoculation had little impact on seed yield possibly due to;
 - Deeper rooted nature of faba bean may better utilize soil N?
 - native rhizobia, likely built-up from many prior pulse crop inclusions in rotations, is capable of achieving optimal N fixation to ensure potential yields
 - Recent Alberta study failed to achieve a faba bean inoculant response in all 6 sites tested (Lopetinsky et. al., 2014)
 - However as no test or screen is available to determine it is still recommended that producers use an inoculant but a lower priced formulation will likely suffice.

Funding Provided by SPG



Thank You

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