

Sweet Agronomy:

Sugar Beet Agronomy for Southern Alberta

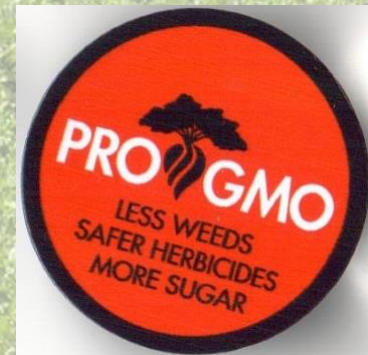
Irrigated Crop Production Update 2018

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Glyphosate Tolerant Sugar Beets

- First glyphosate tolerant crop in 2009
 - Important part of sugar beet agronomy
- Advantages:
 - Environmental benefits
 - Improved weed control and root yield
 - Improved quality of life for producers!



OUTLINE:

Year in the Life of a Sugar Beet



Starts with Crop Rotation

- Four year rotation
- Field needs to be approved!
- When SBCN host in rotation with beets,
 - SBCN host can follow beets but not vice-versa
- Lantic field staff have field records!
 - Annual rapid eye satellite imagery and ground truthing (canola and sugar beet fields)
- Others look to our rotation in Alberta

Fall Field Preparation

- Soil testing – fertility, soil texture, pH, OM
- Possible fertilizer application (N, P, K)
 - 180 – 220lbs total N/ac (soil + applied)
 - 45 – 70lbs total P/ac
- Field work – work-in fertilizer
 - Initial seedbed prep – tillage, ridging
 - Field work until Dec. 15 like 2017??

Nitrogen in Sugar Beet

- Well established that sugar beet root yield and sugar content very sensitive to soil N
- Yield = strong positive correlation
- Sugar is a bit of a different story
 - If soil N deficient, and N added, positive correlation to a point, surplus N can have negative affect on sugar
- Need just the right amount!

Spring Field Work

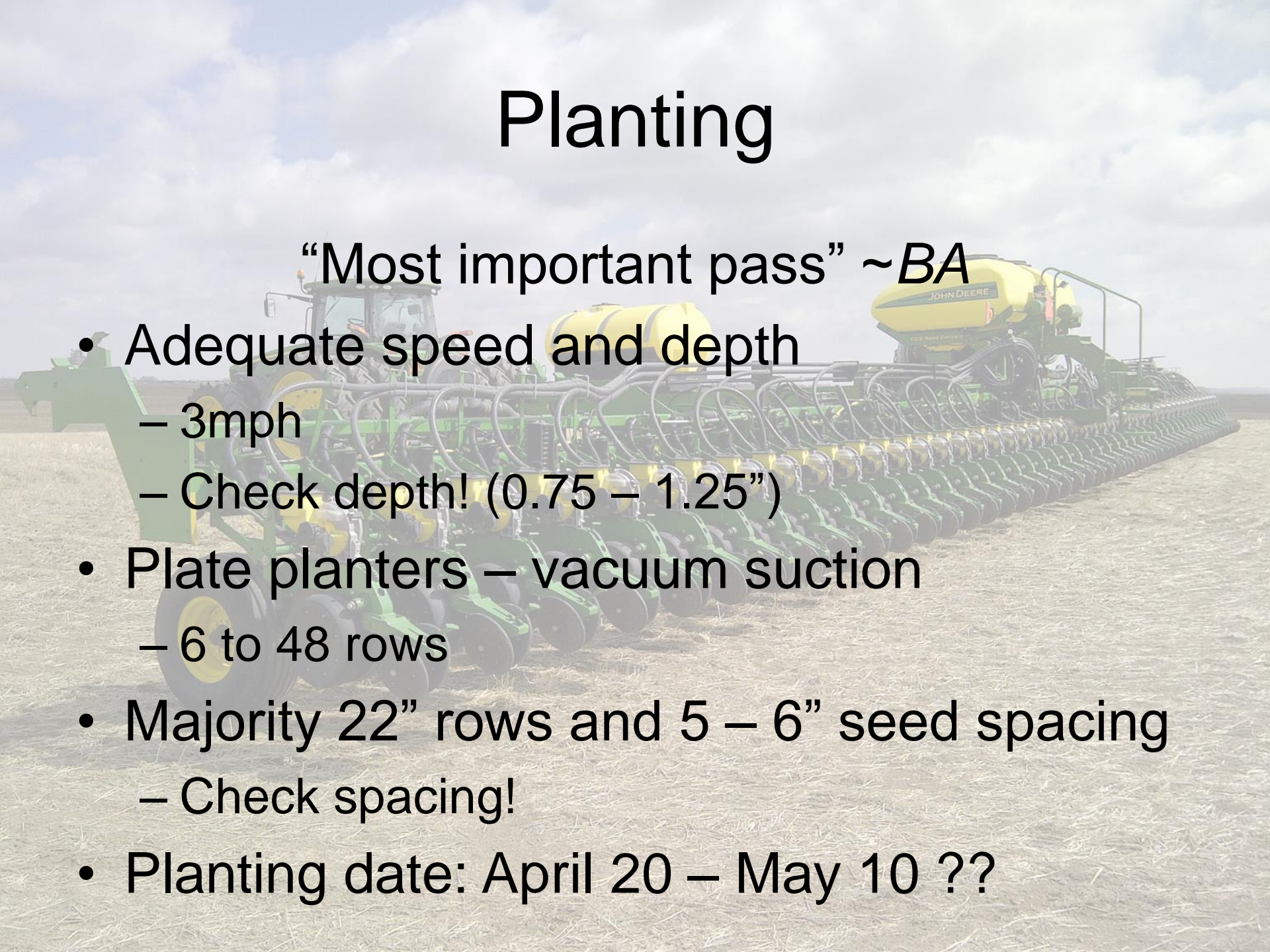


- Possible fertilizer application
 - ESN? Urea? – proximity to planting?
- Field work – work-in fertilizer
 - Final seedbed prep before planting

Planting

“Most important pass” ~BA

- Adequate speed and depth
 - 3mph
 - Check depth! (0.75 – 1.25”)
- Plate planters – vacuum suction
 - 6 to 48 rows
- Majority 22” rows and 5 – 6” seed spacing
 - Check spacing!
- Planting date: April 20 – May 10 ??



Too Deep!!



Stand Establishment

- In Alberta, 150-175 plants/100ft row
- Consider beet size for storage
- Crowding and defoliation
- Poor stand = challenges for weed control
- Rule of thumb, row-closure ~ July 1
 - In 2017, June 25 was the new July 1...

In-season Fertilizer

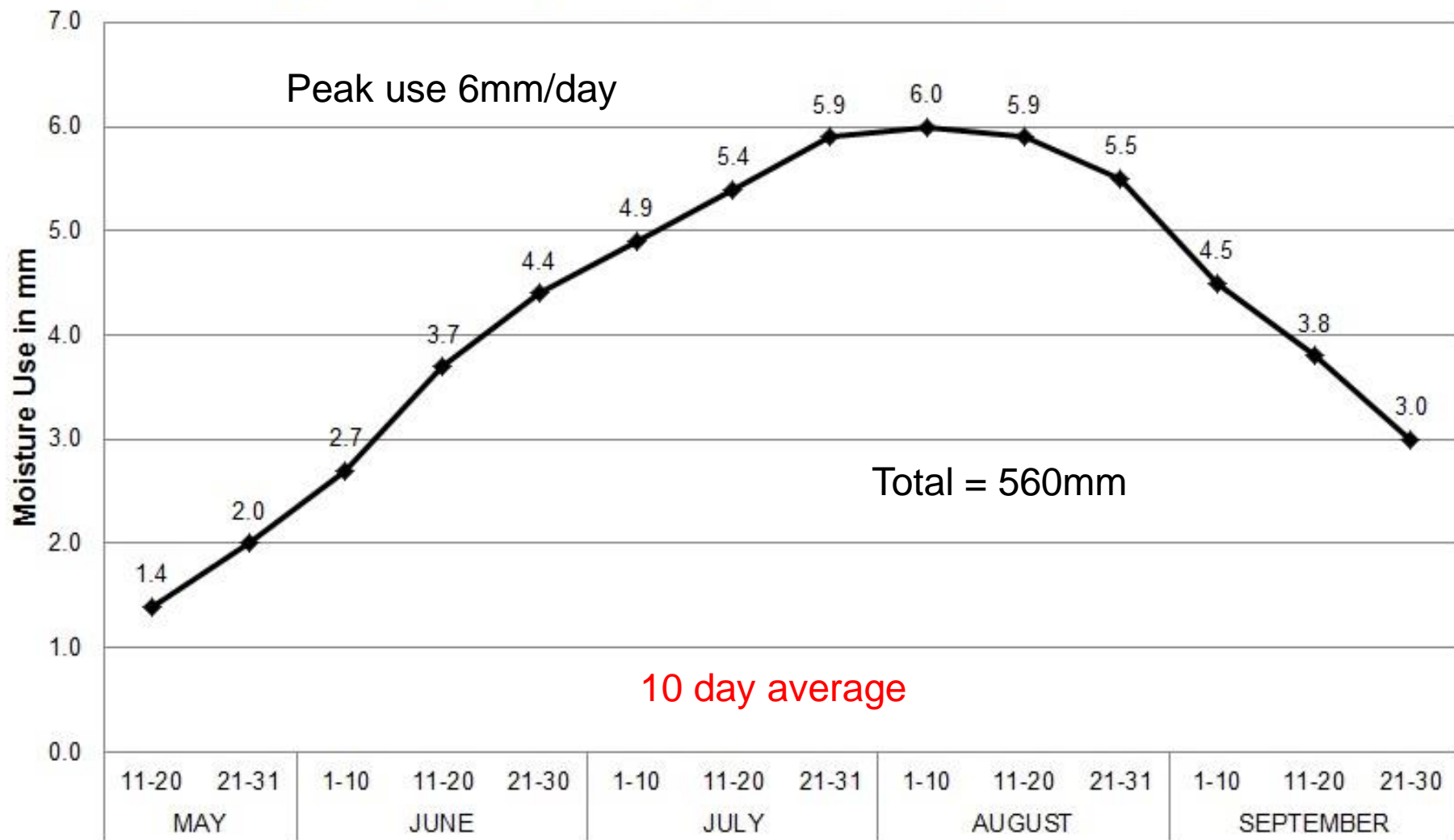
- Fertigate to help crop reach harvest
- “Top-up” (but **NOT** after ~July 15!)
- Ideally, no nitrogen left in soil (“run-out”) – Wind-down and accumulate most sugar possible in root
- Be aware of “deep” nitrogen

Irrigation

- Germination? Can be risky...
- Meet in-season daily water demands
 - Evapotranspiration
 - Daily water use – peak use



Average Daily Evapotranspiration for Sugar Beets in AB



Source: AAF

Crop Pests

- Weeds – control prior to row closure
- Insects – flea beetle, cutworm, wireworm, sugar beet root maggot
- Diseases –
 - Root rots (*Rhizoctonia*, *Aphanomyces*)
 - Leaf spots (fungal or bacterial)
 - Mostly cosmetic

Wild Oat



Insect Pests

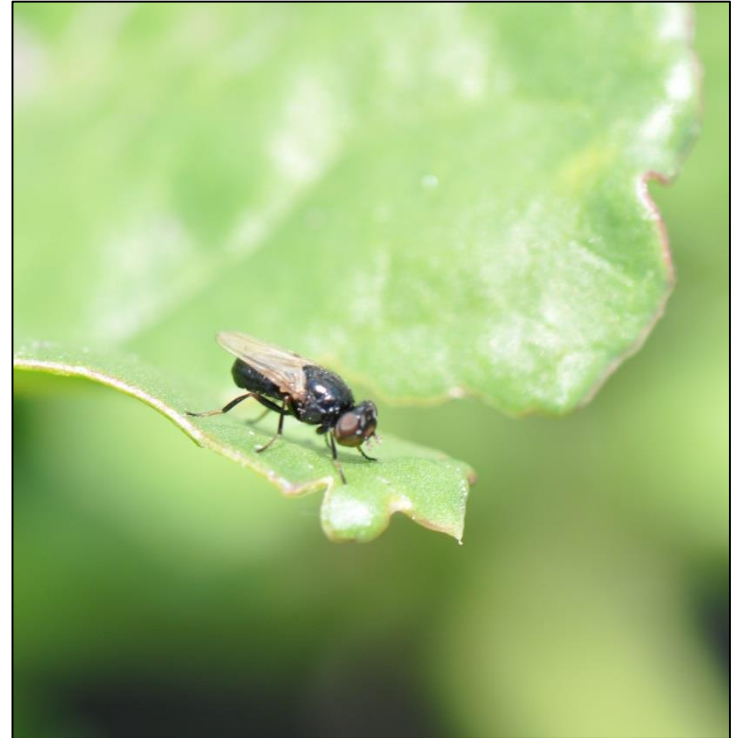


Photo: Mark Boetel, NDSU

Rhizoctonia solani



Yellow Leaf Spot (*Stemphyllium*)



Harvest



- Defoliating – Lantic has “zero green” policy
 - Frost – defoliated beets high risk
- Lifters – pull-type and self-propelled
- Hauled to local receiving station
- Storage – associated with processing length
 - 5 year average = 129 days

Yield and Quality

- Record ~32 metric tonne/ac in 2017
- Sugar % in root vs. extractable from root
 - Impurities: sodium, potassium, Amino-N
- Growers compensated based on a combination of tonnage and extractable sugar



Piling Grounds

- Seven stations
- Twelve pilers

Wet Flume at Taber Facility



Sugar Industry Outlook

- ASBG/Lantic positive relationship
 - Currently have 4 year agreement
- Rebranding as national sweetener company
 - LB Maple Treat acquired July 10, 2017
 - Decacer acquired November 20, 2017



Questions?

