



## Field Research 2020

# Thank You!

- ▶ I would like to thank all the growers who check off makes it possible to complete the research we do at MFSA.
- ▶ I would like to thank my cooperators for donating the land to conduct the trials and for all there support during the research season.
  - ▶ Perennial Ryegrass - Herbicide Screening
  - ▶ Alfalfa - Fungicide
  - ▶ Perennial Ryegrass - Plant Growth Regulator Timing
  - ▶ Annual Ryegrass - Plant Growth Regulators
  - ▶ Trefoil - Herbicide Screening

# Thank You!



- ▶ I would also like to thank the following companies for donating products and equipment.
  - ▶ BASF
  - ▶ Bayer Crop Science
  - ▶ Gowan
  - ▶ Corteva
  - ▶ Syngenta
  - ▶ Valent
  - ▶ FMC
  - ▶ Foster Farms
  - ▶ Willis Agro
- ▶ Thank seed trade for producers and fields
  - ▶ Imperial Seeds
  - ▶ Northstar seeds
  - ▶ Pickseed
  - ▶ Brett-Young Seeds

# Thank you!



- ▶ MFSA Board of Directors & Administration - Heather McBey
- ▶ Summer staff
  - ▶ Jordan Pawluk - Returning Technician
  - ▶ Katie Ostertag - First year student

# MFSA Research 2020



- ▶ The 2020 year was a good year, but became very challenging with dry conditions and low moisture. Despite this crop yield were very good and disease pressure was relatively low.
- ▶ Winter kill was an issue in a lot of Perennial crops again and establishment was difficult.
- ▶ This year MFSA had a combination of both Field Scale and Small Plot trials.
  - ▶ Parlay Timing in Perennial Ryegrass (Winnipeg Beach, Beausejour)
  - ▶ Parlay and Manipulator on other grass crop Annual Ryegrass (Riverton area).
  - ▶ Herbicide screening in seedling PRG (Arborg) and established PRG (Wpg Beach, Carmen)
  - ▶ Alfalfa Fungicide (Teulon, Starbuck)
  - ▶ Trefoil Herbicide screening (Fisher Branch, Arborg)
  - ▶ Liberty canola/Perennial rye establishment trial (Arborg, Carmen)

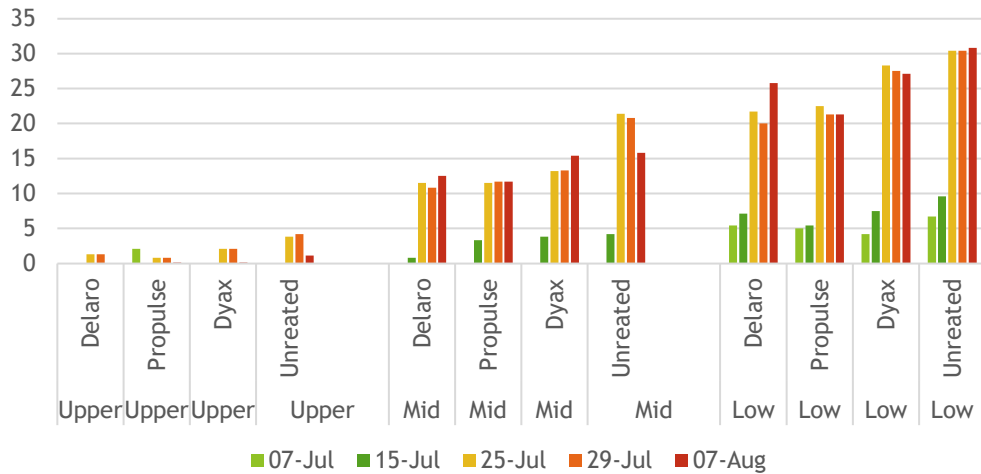
# Alfalfa Fungicide - Teulon, Starbuck

- ▶ In search of Blossom Blight control
- ▶ Dyax - BASF (Pyraclostrobin + Fluxapyroxad Grp 11 + 7) , 480ml/ac, Plot 1,5,9
- ▶ Delaro 325 SC- Bayer Crop Science- (prothioconazole + trifloxystrobin - Grp 3+11), 355ml/ac, Plot 2,6,10
- ▶ Propulse - Bayer Crop Science - (prothioconazole + fluopyran - Grp 3+7), 300ml/ac, Plot 3,7,11
- ▶ Control - untreated check Plot 4, 8, 12
- ▶ Producer applied 3 strips X 120 ft
- ▶ Applications made at approx. 10% bloom
- ▶ MFSA rated every 7 days until harvest, 4 -1 meter square areas within each treatment and rated 1-10 for disease severity
- ▶ Producer harvested with combines and weights taken with grain cart
- ▶ Samples taken to determine, dockages and moistures.



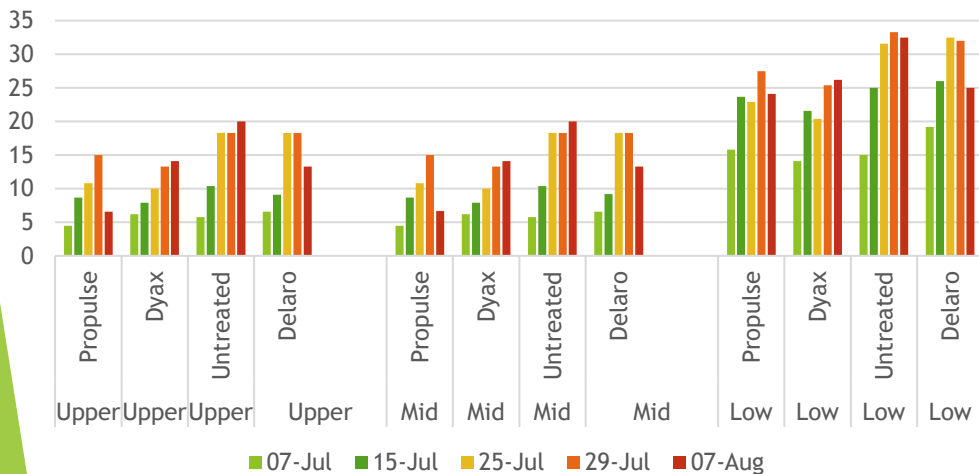
# Alfalfa Fungicide Ratings - Stem Disease

Elie Alfalfa Stem Disease



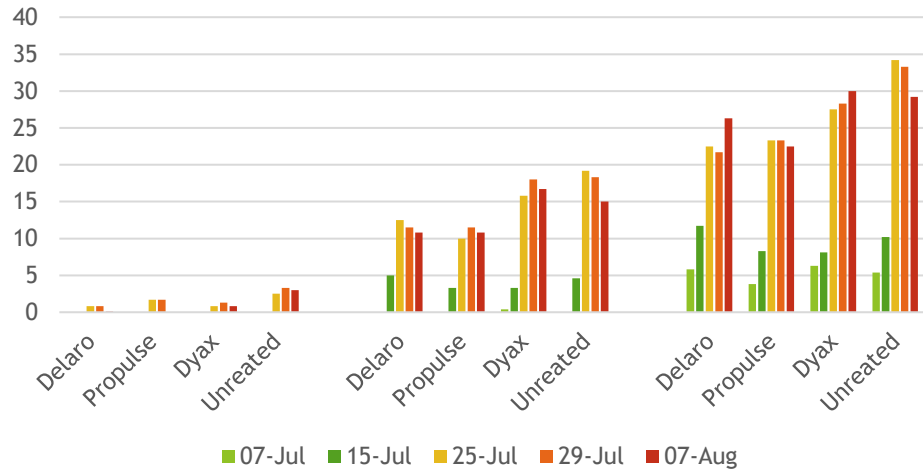
- ▶ Disease levels were seen early in Teulon since that was a 4 year field, and Elie was a new field.
- ▶ Propulse and Delaro had the greatest disease Control In Elie as seen on the mid and lower area of the plant.
- ▶ Teulon had fairly good disease control from the treatments of all Propulse and Dyax

Teulon Stem Disease



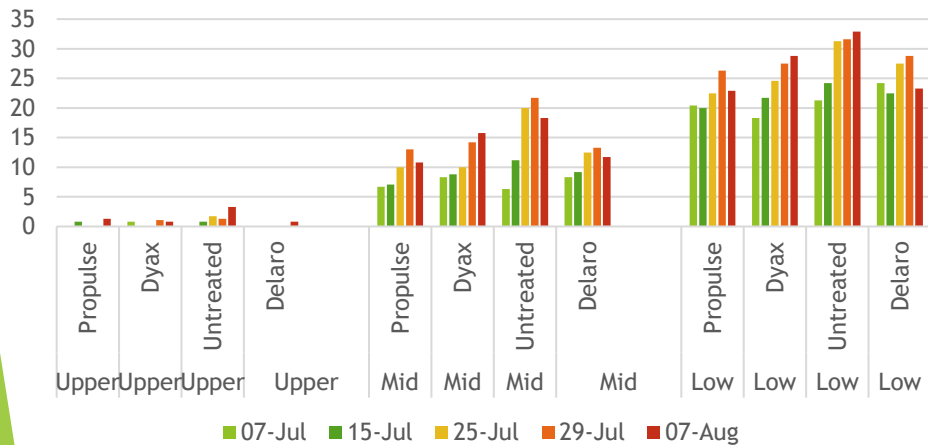
# Alfalfa Fungicide Ratings - Leaf Disease

Elie Alfalfa Leaf Disease Chart



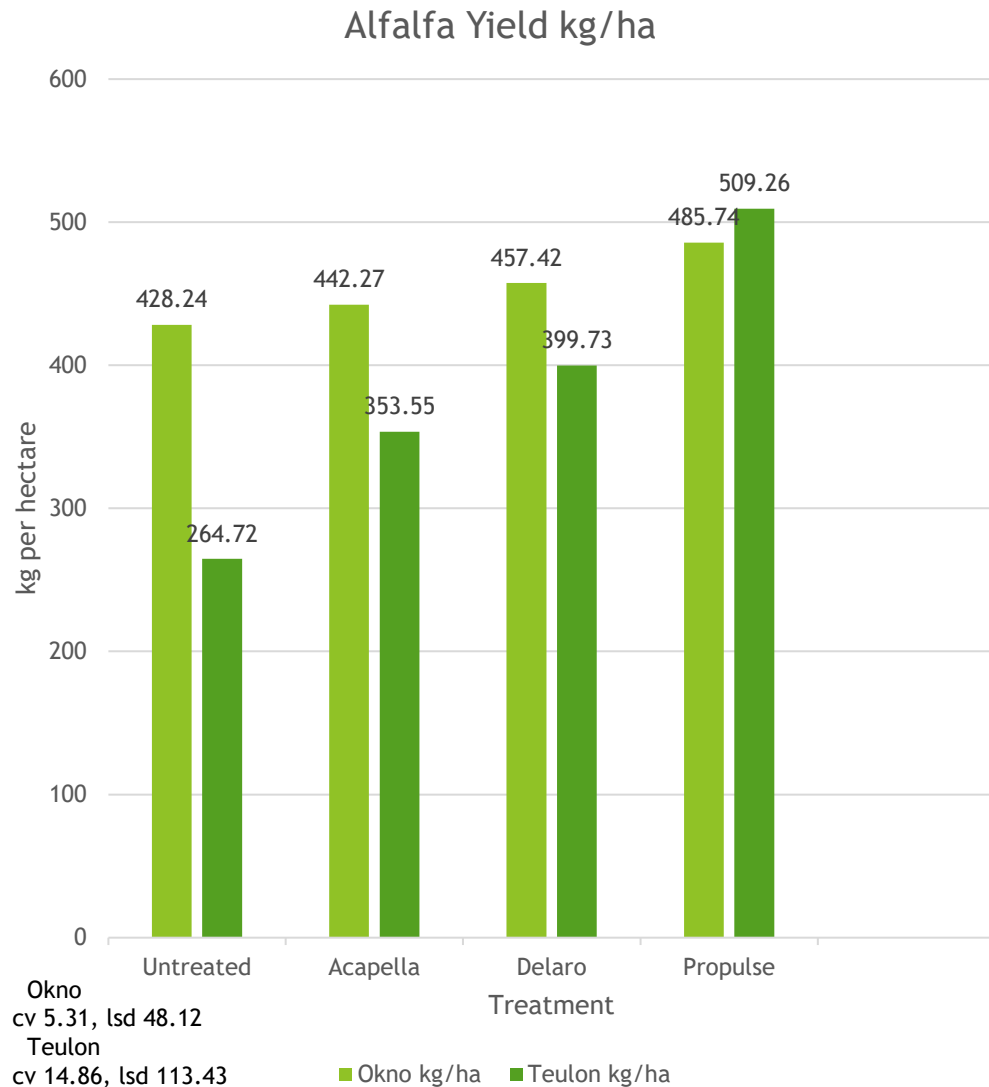
- ▶ Leaf Disease was seen early on at both locations in the mid and lower area of the plants.
- ▶ As seen with stem disease, we noticed reduced infections with the Propulse and the Delaro treatments.
- ▶ It should be noted that Dyax did have a reduction in disease also.

Teulon Leaf Disease



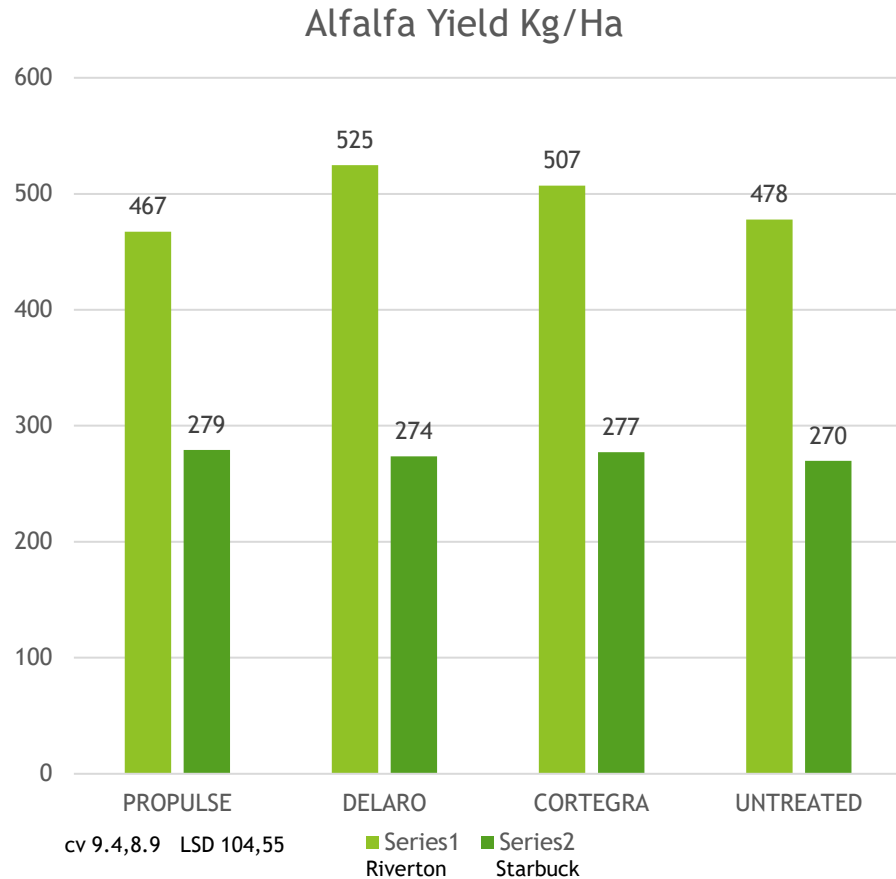


# Alfalfa Fungicide Yields - 2018(last year)



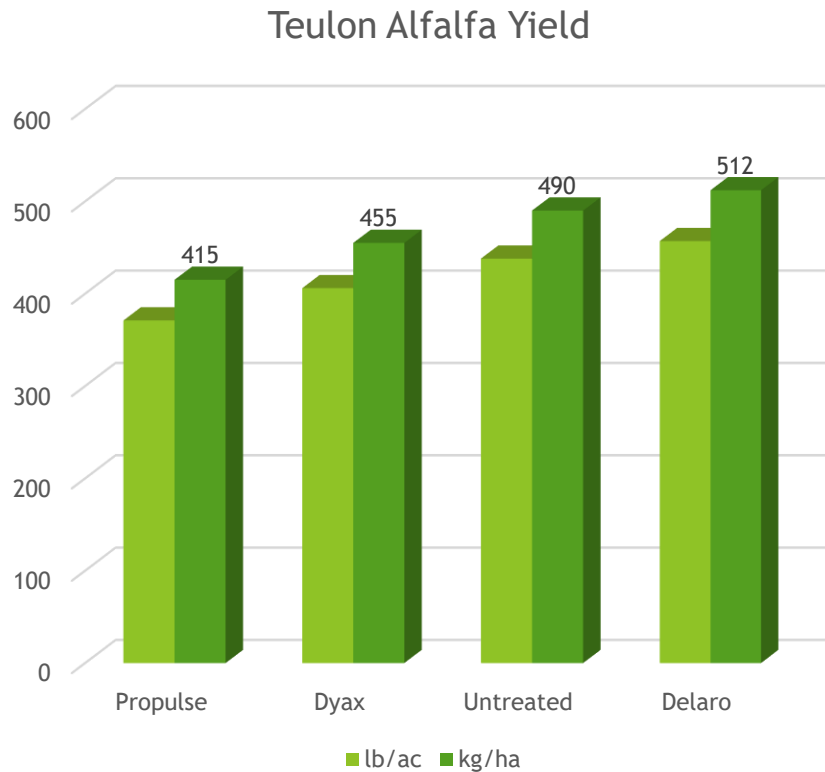
- ▶ Definite increase in yield with Propulse over untreated check in Teulon and Okno
- ▶ Propulse had a 12% difference over the untreated check in Okno
- ▶ Teulon resulted in 48% increase with Propulse, and 34% increase with Delaro.
- ▶ Acapella was not significantly different but there was an interaction from the fungicide application.

# Alfalfa Fungicide Yields - 2019



- ▶ Only 9 kg/ha increase in seed yield in Starbuck over the untreated check
- ▶ 3.3% yield increase with Propulse
- ▶ 2.6% increase with Cortegra
- ▶ 47 kg/ha increase over the untreated check in Riverton.
- ▶ Delaro increased yield by 9%
- ▶ Cortegra increased yield by 5.8%
- ▶ Not statistically significant as indicated by the LSD level
- ▶ But is it Significant as a producer??

# Alfalfa Fungicide Yield - 2020



- ▶ Yield was only taken at the Teulon site. The Elie location yield was not recorded as a large amount of volunteer flax was present.
- ▶ The best yield result was seen with The Delaro treatment over the untreated check
- ▶ The other fungicide applications resulted in slight yield reductions over the check.
- ▶ Since this is only one location we can only assume that a filed variance is a result of the reduction of yield.

# Trefoil Herbicide - Post Emerge Herbicide Screening

- ▶ Locations in Arborg and Fisher Branch, MB
- ▶ Existing producer fields
- ▶ Replicated small plot trial
- ▶ Post emergent applications of 2 products
  - ▶ Nortron SC (Ethofumesate) 1.5L/ac
  - ▶ Classic (Chlorimuron Ethyl)
- ▶ Both product applied at 4 timings
  - ▶ At crop emergence
  - ▶ At rosette stage
  - ▶ At 6 inch crop height
  - ▶ At bloom
- ▶ Untreated check



# Trefoil Classic Herbicide



- ▶ Classic (Chlorimuron Ethyl)
- ▶ Season long (very good) control of Dandelion
- ▶ 3 week suppression of Hawksbeard
- ▶ Trefoil crop tolerance was good in early stages, with some yellowing similar to odyssey and some stunting seen
- ▶ Hawksbeard and sow thistle came back to produce seed late in the season, from stunted plants.
- ▶ Carry over residue is a danger to canola
- ▶ Not registered in western Canada

# Trefoil Nortron Herbicide



- ▶ **Nortron SC (Ethofumesate 480 g/L) group 16**
- ▶ Control of Alsike clover
- ▶ Best control seems to be at rosette or later application on alsike clover
- ▶ Late treatment at pre bloom will abort bloom



# Trefoil Herbicide-Summary

- ▶ Continue research in 2021
- ▶ Field scale, replicated trial, with yield results
- ▶ Data for future label expansion request

# Established Perennial Ryegrass - Herbicide Screening



- ▶ Small plot trial in Winnipeg Beach, and Carmen
- ▶ Established Perennial Ryegrass in producers fields were plotted
- ▶ Sprayed treatments at 4 leaf stage
- ▶ Rated 7,14,21,28 days
- ▶ Weed pressure was uneven and not consistent so we rated for crop tolerance only, with notes made on weed damage.





# Established Perennial Ryegrass Treatments

## Treatments:

Fierce	127g/ac
Focus	132ml/ac
Zidua	97ml/ac
Avadex	1L/ac
Liberty	1L/ac
Nortron SC	1.5L/ac
Untreated check	

# Established Perennial Rye - Herbicide Conclusions



- ▶ Liberty, and Fierce had the most crop damage in the form of stunting. Liberty pic on left
- ▶ Nortron, Zidua, and Avadex treatments did not show any crop damage throughout the season.
- ▶ Avadex not incorporated
- ▶ Focus showed crop stunting and some crop damage.
- ▶ These were conducted on established producer fields.
- ▶ Yield data was not taken and we will now take this to a larger scale trial to determine yield reductions from the treatments.

# MFSA - PGR Mix Study

- ▶ During the summer of 2020 MFSA explored the use of 2 PGRs in Annual Ryegrass
- ▶ Trial was located in the Riverton area.
- ▶ PGRs explored were:
  - ▶ Parlay (Trinexapac-ethyl)
  - ▶ Manipultor (Chloromequat Chloride)



# Plant Growth Regulators in Grass Seed Crops

- ▶ 1 acre plots were done in producer field
- ▶ Replicated 3 times
- ▶ Trial size of 12 acres
- ▶ Done this way as to produce field scale data.
- ▶ Treatments this year
  - ▶ Parlay (@ .7L/ac)
  - ▶ Manipulator (@ .7L/ac)
  - ▶ ½ rate Parlay (.35L/ac)+ ½ rate Manipulator (.35L/ac)
  - ▶ Untreated check



# Plant Growth Regulators



- ▶ **There are several contributing factors that can alter the performance of a PGR**
  - ▶ Weather conditions
  - ▶ Timing / plant growth stage (2<sup>nd</sup> node before heading)
  - ▶ Fertility / soil conditions
  - ▶ Water Volume / Chemical Concentration
  - ▶ Cultivar?

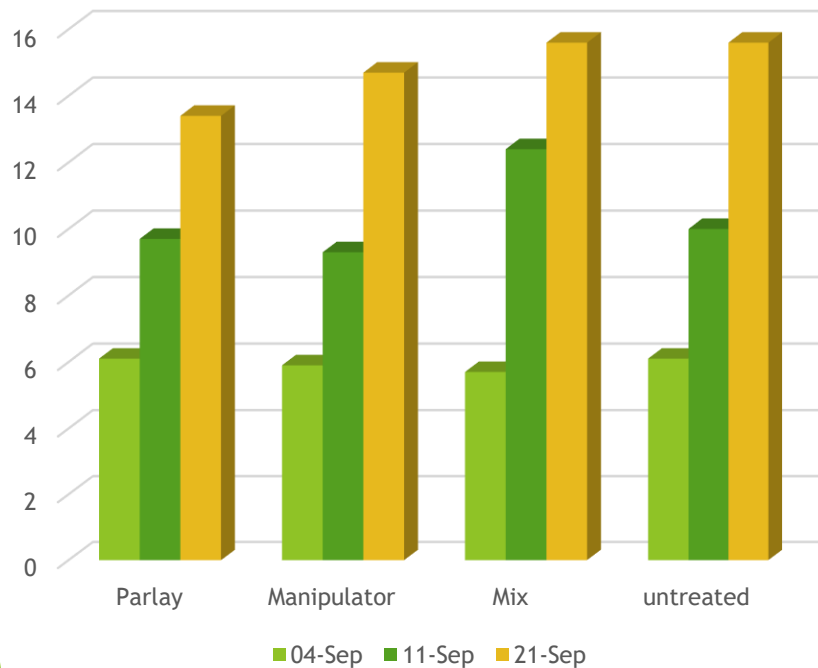
# PGR Heights - Annual Ryegrass

# PGR Yields



# Annual Rye Heights - Post Harvest / Regrowth

Post Harvest Heights



- ▶ After seed harvest livestock producers cut the regrowth later in the fall
- ▶ Concerns were raised that plant growth regulators might effect regrowth and lower any forage regrowth
- ▶ MFSA recorded heights after harvest
- ▶ No noticeable height of regrowth after seed harvest
- ▶ Chart is difference in heights (cm) for each week and not actual plant heights.



# Summary - Other Grasses

## ▶ Future Work

- ▶ Continue to explore the PGRs showing positive effects at more locations in 2020 in grasses.
- ▶ Fine tune rates for the different grasses.
- ▶ Exploring the use of different PGRs in combination with each other.

# Parlay Timing in Perennial Ryegrass

- ▶ In 2020 MFSA explored the use of Parlay and Timing on Yield
- ▶ 4 timings of Parlay were tested
  - ▶ Early, approx. 3-4 days
  - ▶ On time, 2 node stage
  - ▶ 3 days late
  - ▶ 7 days late
  - ▶ Untreated check
- ▶ This was a randomized 3 rep, medium size plots of 1 ac each . Total plot area of 15 acres.



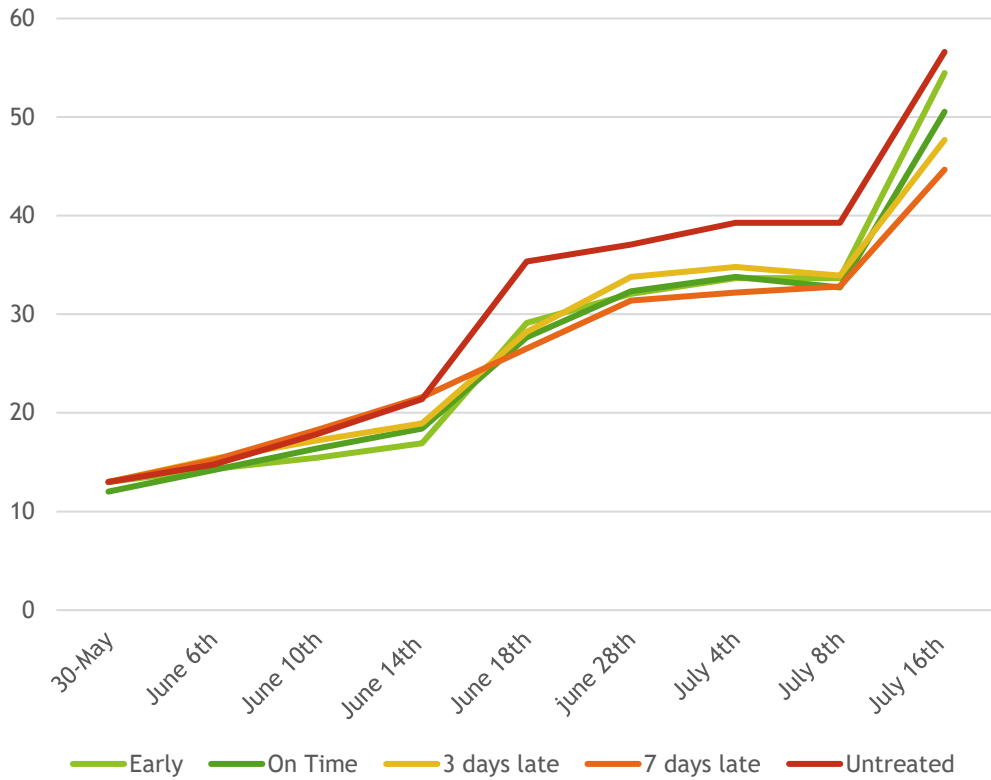
2 node stage



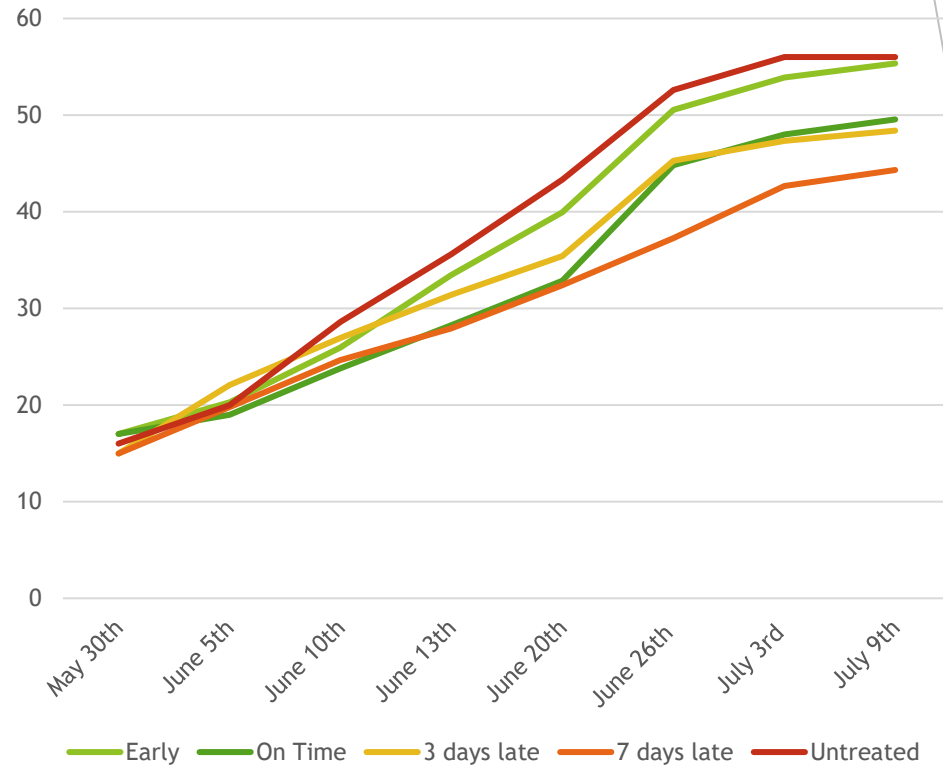
7 Days late



Teulon Heights cm



Wpg Beach Heights cm



## Heights

Height reductions seen by all the treatments over the untreated check treatments

Untreated check height approx. 56cm

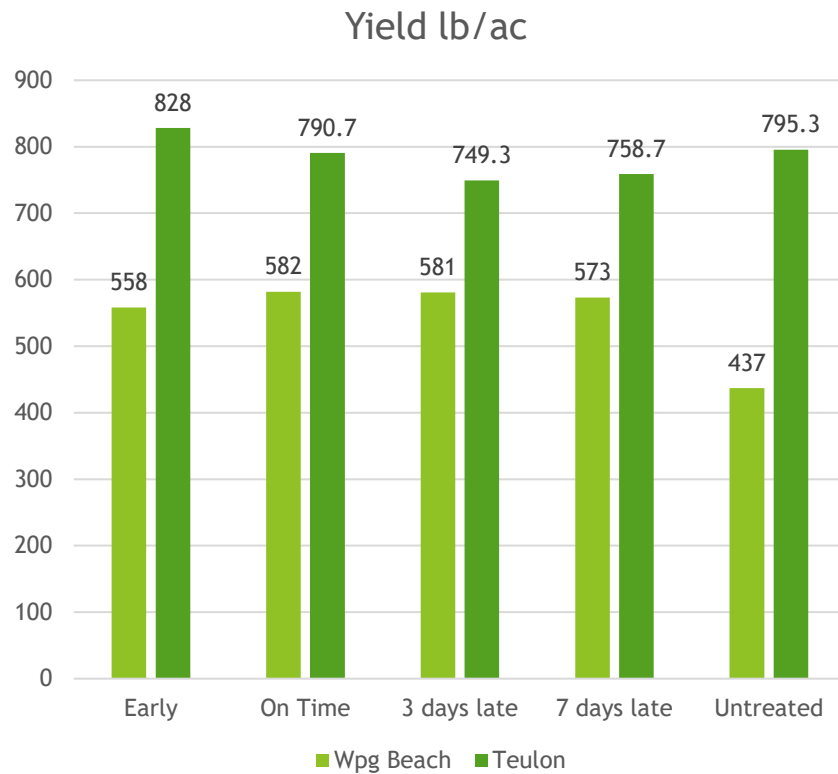
On time height 50cm

3 day late height 48cm

7 day late end of year height was approx. 44cm

Teulon and Wpg beach showed greatest reduction in the 7 day late

# Seed Yield Kg /Ha



## ► Yield

- Teulon had the Early treatment show a 4% (33lb/ac) increase over the untreated check
- Wpg Beach showed the On Time or 3 days late treatment produced a 25% (145 lb/ac) increase
- The dryer Teulon plots had a yield decrease from later 3 and 7 day treatments.
- The wetter Wpg Beach site had a slight yield decrease from the early treatment.
- On Time shows to be the best overall, with later treatments showing slight decreases in yield from the on time.

# Summary

- ▶ PGRs can have beneficial effects on grass seed yield.
- ▶ There will need to be more work to investigate any yield restrictions from improper timing vs environmental conditions
- ▶ Be cautious of your **stand, vigor, fertility and weather conditions.**



# Liberty Canola / Grass Seedling Establishment

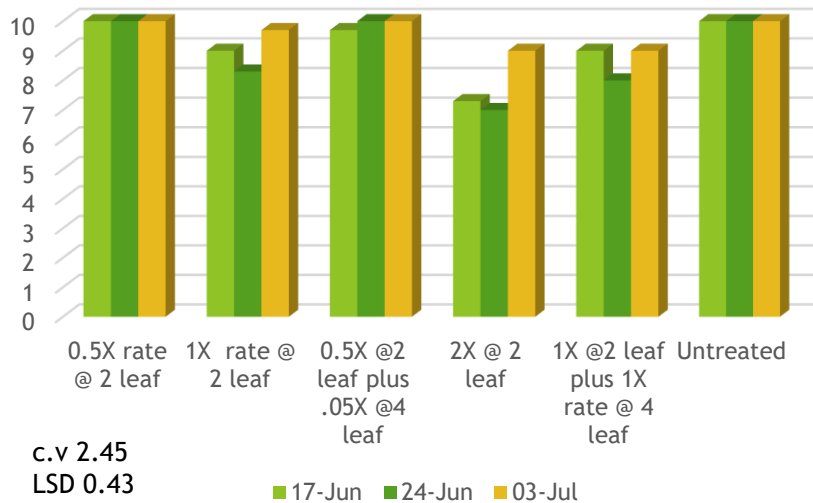
# Liberty Rates and Timings

- ▶ The applications were made at 3 different rates and 2 different timings.
- ▶ 0.5L/ac @ 2leaf stage                      one application only
- ▶ 1.0L/ac @ 2 leaf stage                      one application only
- ▶ 2.0L/ac @ 2 leaf stage                      one application only
- ▶ Untreated check
- ▶ 0.5L/ac @ 2 leaf      plus      0.5L/ac @ 4 leaf stage
- ▶ 1.0L/ac @2 leaf      plus      1.0L/ac @ 4 leaf stage

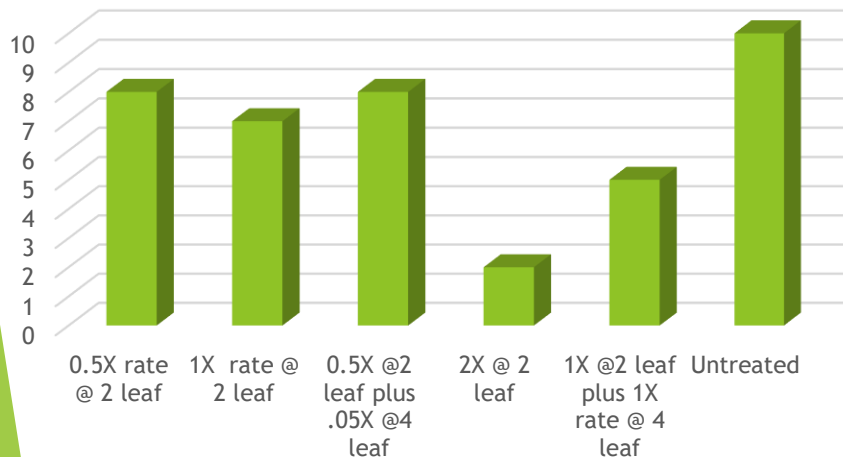


# Meadow Fescue / Perennial Rye Tolerance

Perennial Rye Tolerance Rating



Meadow Fescue Tolerance Rating



- ▶ Ratings taken on a scale of 1-10, with 10 being no damage.
- ▶ In both crop types the application of Liberty did produce damage, with Meadow fescue seeing lower tolerances
- ▶ 0.5L/ac rates were acceptable and tolerated by both crops in single or double treatments.
- ▶ 1.0L/ac were less tolerated with crop generally returning
- ▶ 2.0L/ac was very damaging to both crops and not recommended.
- ▶ No Yields were taken at this time



# Questions, Research Ideas

- ▶ What research would producers like to see conducted?
- ▶ Send me an email
- ▶ Contact
  - ▶ Roger Burak
  - ▶ [rburak@forageseed.net](mailto:rburak@forageseed.net)
  - ▶ 204-641-4115