

Limestone Park

Agronomy

Scott Woods

Hazell's Farm and Fertilizer

Season Year Summary

- Started with an exceptionally dry February/March 2016
- Then a patchy start to Autumn/Winter
- Winter into Spring became extremely wet
- Summer has been reasonable with fair rain
- Autumn 2017 is progressing well with many commenting about it being one of the best they have seen in many years

Challenges

- ▶ Access to irrigation helps smooth some of the bumps associated with seasonal variability
- ▶ However if timing of irrigation is not correct then the outcomes can be very frustrating

▶ **For Example:**

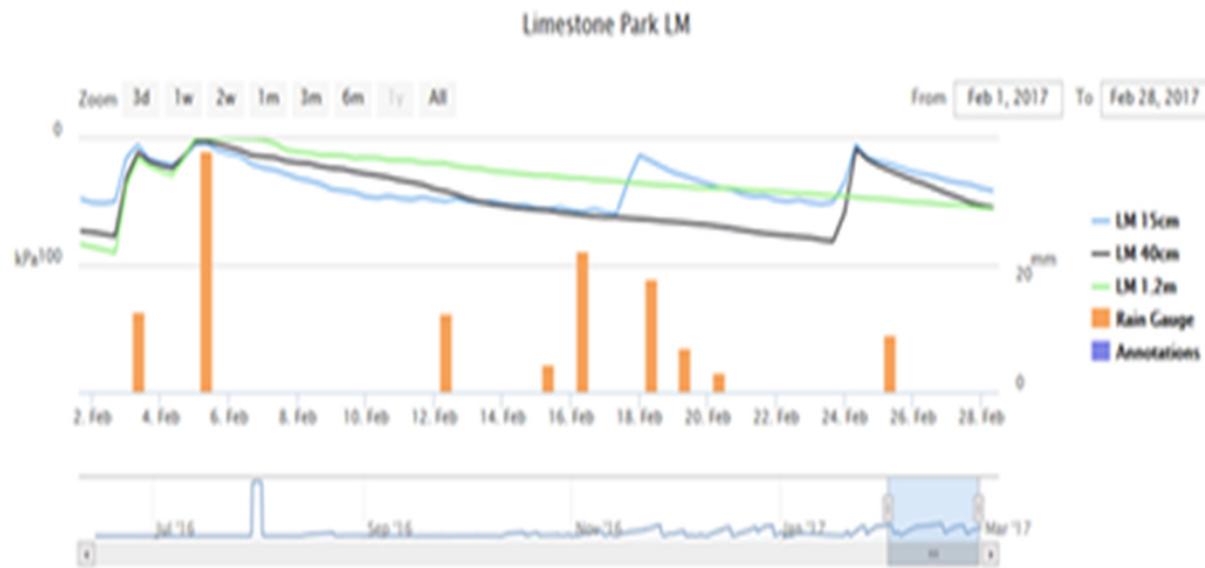
- ▶ In the Autumn of 2016 leading out of a very dry and hot February/March and before being fully set up for soil moisture monitoring probes some of the ryegrass sown was lost
- ▶ The Economic value of this including seed, fertilizer, sprays, contractors and unsuccessful irrigation is in the vicinity of \$300.00/ha lost
- ▶ Re sowing adds another \$200.00/ha
- ▶ From this, time to first grazing is then set back creating extra work, stress and cost in having to use stored feed
- ▶ 100 big square bales of hay at a cost of \$8000.00 were also needed to bridge the gap

Irrigation Scheduling

- ▶ As a major part of the project the scheduling of water application is critical
- ▶ It was hard to find irrigation schedules for the pastures involved as they don't have determinate growth points to target like cotton, corn and cereals
- ▶ It was decided to use a 25% reduction in soil moisture as the irrigation trigger for the rye and 50% for the lucerne. Due to lack of data this was decided by trial and error.
- ▶ This will vary season by season on rainfall
- ▶ If this is incorrect it can lead to losses
- ▶ It is important to understand the rooting design of the plant you are watering

Irrigation Scheduling

- For example Lucerne can work soil moisture to depth however ryegrass does not develop a deep root system



Common Sense

- ▶ While the technology is great and helpful you still need to walk into the paddock and apply visual assessment
- ▶ Rex had achieved good soil moisture profile through his monitoring and applying water to keep the profile wet
- ▶ This was assisted by the good rainfall of last winter spring filling soil profile to depth
- ▶ Despite this upon sowing this years winter grasses (ryegrass) it became apparent for the need to put aside what the soil probes were saying and physically monitor the moisture to the top of the ground so as to ensure the successful establishment of this pasture
- ▶ Little and often watering soil as to keep topsoil moist

Dry Matter Production

- ▶ One of the measures for the project is Dry Matter Production (DM)
- ▶ Measuring this has proved to be quite difficult:
 - ▶ We did have use of a C Dax pasture meter which Rex used and recorded data.
 - ▶ Calibrating and converting this data to meaningful numbers was very time consuming which became a limitation of this process
- ▶ Over this season through the use of the Soil moisture monitoring Data, Rex has been able to achieve fodder conservation with the excess fodder to grazing requirements, especially for the lucerne
- ▶ The economic benefit is not having to out source fodder
- ▶ The improved season has also clouded achieving accurate production increases from irrigation.
- ▶ Some forage sorghum was included in the summer fodder plan and the C Dax was unsuitable for use due to the nature of the plant

Fertigation

- ▶ Fertigation was also included as part of the project
- ▶ The aim being that Rex could apply small and often amounts of nutrient while irrigating. Reducing the pressure to pre apply nutrient prior to watering
- ▶ One limitation was encountered in the late winter/spring with the farm receiving sufficient rain so as not to require irrigation
- ▶ At this point there was evidence of some denitrification due to the waterlogging occurring from good rainfall
- ▶ Again due to time constraints recording exact yield increases from products applied by this process and the wet conditions, no conclusive result was obtained
- ▶ From one application of some Seasol product it did appear to have a place and some benefits
- ▶ Fertigation doesn't replace the need for some solid fertilizer

Closing Messages

- ▶ Understand the crop you are growing
- ▶ Don't just rely on technology to tell you when to water
- ▶ The expensive irrigation is the one not applied
- ▶ Constantly review infrastructure for inefficiencies

