

## CRICKET PITCH MONITORING – INTERPRETATION OF RESULTS

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Cricket pitch monitoring is one part of the cricket pitch preparation package. It is mainly involved with the “ingredients and the baking of the cake” (below the surface characteristics) rather than “applying the icing “.

Cricket pitch preparation is a combination of both agronomy and soil engineering. The “agronomic” side include things such as turf density, turf grooming, mowing and fertiliser etc to not only grow the grass but also provide the grass in the appropriate condition for the match.

The “soil engineering “side focuses on the soil moisture, soil density (compaction level), pore saturation and rolling. This is where the pitch monitoring process and interpretation is focussed.

When it comes to maximising the effect of rolling during pitch preparation, pore saturation is one of the most critical aspects to monitor. This is because pore saturation provides a good description of the condition of the soil regardless of how compacted it is or how moist it is (Walmsley, 1998).

When pitch monitoring first commenced the benchmark target for the pore saturation during preparation was 80% (80% of the pores are filled with water). This is the zone at which most soils will compact most readily.

It is important to point out that the 80% pore saturation point will vary (often significantly) depending on compaction level and moisture content. Moisture content on its own, during preparation, provides insufficient information on where the effect of rolling is to be maximised.

### **Benefits of interpreting the pitch monitoring results:**

#### 1. Provides both control and confidence of what you are doing

By sampling and understanding the results, not only does it provide you with information on when the best time for rolling is (to gain maximum effect), but it also provides information on whether there is the appropriate moisture ( and pore saturation) at all depths in the profile and whether it is consistent over the pitch. By doing this regularly during the preparation it provides a high degree of confidence in your preparation practices.

As a result pitch monitoring has been a very useful tool for new Turf Managers as the process has provided a “road map” for preparation based often on a database at the venue which has had target levels already in place. This is different to what used to occur with pitch success been learnt over time largely by success or failure, but still not knowing why it occurred.

#### 2. Tracks progress

By regular sampling during the preparation it allows the parameters (compaction, moisture content and pore saturation) to be monitored (and progress tracked) so

they remain in the range required to achieve optimum potential limits. If for some reason they move out of the optimum zone inputs can be modified to bring the levels back to within the desired range.

### 3. Review progress

This is more related to a review of the match performance of the pitch (after a game or the season). Pitch monitoring allows a review of the pitch performance (and it's preparation) when there are both good and not so good outcomes. The monitoring data can be analysed and one is better able to pin point where certain objectives were not achieved. Appropriate changes can take place (based on the information) and through subsequent monitoring these changes can be evaluated.

As such it helps to avoid rolling-related problems (moisture/root breaks, timing of rolling when little improvement in compaction is to be gained etc) and monitoring drying during the preparation.

Over time a large database is developed and target levels monitored with both playing performance and pitch preparation.

### 4. Allows fine-tuning of practices

Following on from the reviewing progress , the large database when measured against the playing performance allows fine tuning to be undertaken where required to alter the pitches playing characteristics based on previous games. It also allows the various parameters (compaction levels, moisture content and pore saturations) to be to be looked at independently and their effect on playing performance checked.

### 5. Allows consistency of pitch to be improved

Often there are variations within pitches and by regular monitoring and interpretation of the information one end may be treated differently to the other to achieve a consistent result (mainly here checking for moisture content/pore saturation) to achieve an even effect from rolling.

### 6. Assess other parameters within the block

While not strictly to do with interpretation of the results, simply by removing a sample one is able to check and identify other potential issues that maybe present within the block (eg. Layers, crumbling at depth, organic layers etc).For instance, a reduction in compaction level (bulk density) over time could be due to an accumulation of organic matter in the surface 20 -25mm . This will have a flow on effect on renovation planning etc.

### 7. Club blocks

Over the last few seasons, there has been an increase in expectation of user groups wanting confidence in the performance of club blocks.

The sampling and subsequent interpretation allows one to access information on the blocks. Sampling prior to pre-season and during the mid season break would be effective use of this technology for club blocks as it will allow maximum effect from any rolling undertaken at that time.

## METHODOLOGY OF CORE SAMPLING

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### Equipment required to carry out “Pitch sampling”.

1. Standard NZSTI pitch sampling corer.
2. Callipers.
3. Scales (capable of measuring grams accurate to two decimal places).
4. 12 Microwave proof bottles or bottle caps.
5. Microwave oven.
6. “Pitch sampling spreadsheet” and a computer.

### Method used for sampling your cricket pitch:

1. Using an NZSTI standard cricket pitch sampler, Carefully remove three core samples from your cricket pitch. Take one sample from each end (usually I take the end samples somewhere in the crease area that has received an equivalent amount of rolling as anywhere on the pitch) and the other from the centre of the pitch (usually around 2 feet from the edge).



2. Label the samples so as you can identify the locality they originated from i.e. North end, South end & Centre etc...



3. Weigh your 12 bottles or caps (empty) and record their weights in your “Pitch sampling spreadsheet” in the bottle weight column.
4. Using callipers accurately measure the diameter of the cores and record this measurement in the “Pitch sampling spreadsheet” in the core diameter column. If you damage or change core samplers in the future this measurement will need to be re-measured and re-entered into the spreadsheet.
5. Carefully cut each individual sample into 25mm increments and measure the exact length of these segments and again record them in your “Pitch sampling spread sheet” in the core length column.



6. Place each individual core segment into pre-weighed and labelled (0-25mm, 25-50mm, 50-75mm etc..) bottles or caps and record their weights in your “Pitch sampling spreadsheet” in the wet weight column.



7. Place the core segments and the bottles or caps into a microwave oven for drying. The exact time to dry the samples will depend on the individual microwave but as a guide I use Med high for 4 minutes, check the samples and then put them on for another 2 minutes.



To check the samples are dry, weigh the heaviest segment and record the weight, place back in the microwave for 30 seconds, re-weigh the same segment, if the weight is the same the sample is dry, if the segment reduces in weight more drying is required. Repeat this process until the segment doesn't drop in weight.

8. Once the core segments are dry re-weigh them and record the weights in your “Pitch sampling spreadsheet” in the dry weight column.
9. Now read and evaluate the results of your pitch sampling.



W.H.Walmsley (1998) Pore Saturation:A useful indicator in cricket pitch preparation.NZ Turf Management Journal ,August 1998, p19