

Comparison of Rainfall Amounts Recorded by Rain Gauges Versus Those Supplied by MYRAINREPORT.COM

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There are many situations where the measurement of rainfall is important, from farmers or golf course superintendents determining when irrigation may be necessary to the management of water resources. However, the practice of employing actual rain gauges on location presents several problems. First, the individual must have a rain gauge at each location. This can become costly when numerous sites require monitoring. Second, gauges must be physically checked after each event, potentially resulting in time and fuel being expended. MYRAINREPORT.COM is a service that will provide rainfall amounts for each event directly to the subscriber. This study was conducted to compare values provided by MYRAINREPORT.COM to actual values collected by rain gauges at predetermined locations.

Rain gauges were in place at three locations and GPS coordinates were recorded for each. These coordinates were then sent to MYRAINREPORT.COM so that rainfall could be monitored at the precise location each gauge was located. Rainfall was recorded for the months of February and March of 2010. Totals were collected over a time period from 7:00 a.m. one day to 7:00 a.m. the next, and then discarded. MYRAINREPORT.COM also recorded rainfall during these same hours and then sent the recorded amounts in an email to the subscriber. In addition, a monthly rainfall report was provided detailing rainfall recorded each day.

When comparing rainfall, the actual **total** amount recorded by rain gauges for the evaluation period was 26.88 inches. In contrast, the amount provided by MYRAINREPORT.COM was higher, at 27.17 inches. This was a difference of only 0.29 inches, or 1.08%. When comparing individual events, the difference increased to only 5.6%. Data was broken down into separate events for further comparison. Events were broken down into categories based on amount of rainfall recorded by gauges. These categories were: 0.0 – 0.25", 0.26 – 0.50", 0.51 – 1.0", and >1.0". In general, the amount provided by MYRAINREPORT.COM was closer to those recorded on the ground as rainfall totals increased. For the 0.0 – 0.25" category, the difference in the two methods was 0.03", or 17.1%, with the gauges providing a higher reading on average. In the 0.26 – 0.50" range, differences were similar to the previous category, with only a 0.05 inch difference in amount, or 10.6%, with rain gauges again providing higher rainfall amounts. When rainfall increased to 0.5 - 1.0" in a 24 hour period, the difference in amount was 0.07", or 12.7%, with amounts from rain gauges being lower in this category. For rainfall over 1.0", the differences in rainfall averaged 0.06", or 4.1%, with rain gauges again being lower than those from MYRAINREPORT.COM.

A comparison was also done to test differences in rainfall amounts recorded by individual rain gauges. Four gauges, all of which could be purchased at a local retail store, were compared over a two month period. At the end of the test period, the difference in rain gauges averaged 11%. However, it must be noted that gauge with more lines of measurement were easier to read and thus more precise. One gauge in the study only had lines for every 0.25", making more precise readings difficult. It must be stressed that more precise readings can be obtained when gauges are graduated at smaller increments. This makes recording rainfall more accurate as one does not have to guess at amounts when it falls between graduations. For example, amounts recorded from gauges with graduations every 0.1" will be much more precise than those recorded from those with graduations every 0.25".

In conclusion, rainfall amounts provided by MYRAINREPORT.COM were very close to those recorded by rain gauges, with differences being minimized as rainfall amounts increased. The use of MYRAINREPORT.COM would be an excellent tool to replace the time and cost of using rain gauges at different locations.