Maine School IPM Fact Sheet
Turf Fertilizer

Fertilizer Analysis

The fertilizer analysis is listed on the bag as a series of three numbers. For example consider a 50 lb. bag of fertilizer with an analysis of 10-6-4. The first number lists the percentage of nitrogen. In this example 10% of the bag is Nitrogen. The second number is the percentage of Phosphorus (P_2O_5). In this example 6% of the bag is Phosphate. The third number is the percentage of Potassium (K_2O). In this example, 4% of the bag is Potash. Thus our 50 lb. bag of fertilizer actually contains:

5.0 lb. of Nitrogen   (50 lb.. x 10%)
3.0 lb. of Phosphate   (50 lb.. x 6%)
2.0 lb. of Potash   (50 lb.. x 4%)

Determining Application Amounts

A common measure of area used by turf managers is 1000 square feet (abbreviated as M). Rates of application are usually stated as pounds of nitrogen per 1000 square feet. For example:

*   Fertilizer with a 10-6-4 analysis
*   Application rate of 0.5 lb. of nitrogen per 1000 square feet (0.5 lb. N / M).

*   **Application rate / % Nitrogen = Pounds of fertilizer product to use**

Example #1:   Amount of product needed to apply 0.5 lb. of nitrogen / M is
              0.5 lb. / 10% = 5.0 lb. of fertilizer product

Example #2   Amount of product needed to apply 1.5 lb. of nitrogen / M is
              1.5 lb. / 10% = 15.0 lb. of product

Spreader Calibration

Determining what setting to use on your spreader to apply the target rate is termed calibrating.
I'll describe just one of the most common ways to calibrate a spreader.
   * Determine the width of spread for the fertilizer product in your spreader.
   * Divide 1000 square feet by the width of spread to calculate length of travel to end
         point. (Example: Width of spread is 10', thus 1000/10 = 100' length of travel)
   * Designate the starting point of application and the end point.
   * Place 20 lb. of fertilizer product in the spreader.
   * Apply the product from start point to end point at a predetermined setting.
   * Subtract weight of the remaining material from 20 lb. to determine the amount used.
   * **Pounds of product used x % nitrogen = rate of application**
   * Example: 20 lb. of product placed in spreader. 5 lb. remaining after covering 1000
         square feet. Thus we used 15 lb. of product on 1000 square feet.
         Rate of Application = 15 lb. x 10% = 1.5 lb. N/M at this setting
   * Record this rate and setting for future reference.
   * Adjust the setting and repeat calibration process until the desired application rate is
         achieved.

Sources of Nitrogen

Nitrogen sources are commonly classified as either water insoluble (WIN) or water
soluble (WSN). Other terms for WIN include slow release and for WSN include quick release.
Water insoluble nitrogen is not available for plant use but is converted over time into com-
pounds for plant uptake. Water soluble nitrogen is already in plant uptake form. Advantages to
utilizing WIN include; low salt index (burn potential), low potential for leaching into ground-
water, and a gradual metering of nutrients for plant uptake over an extended time frame from
just one application. WSN has the opposite qualities; (1) high salt index (burn potential), (2)
high potential to leach (not utilized by the plant and potential contamination of groundwater),
(3) can cause an undesirable flush of growth as the plant uses the excess nutrient.

Application rates and frequency are different for WIN and WSN. Water insoluble
sources of nitrogen can be applied at rates up to 1.0 - 1.5 lb. N / M and will allow for controlled
growth over a period of 8 - 12 weeks. Water soluble nitrogen sources should never be applied
at rates exceeding 0.5 lb. N / M and ideally would be used at lower rates with more frequent
applications. A comparison of programs:

WIN Source   1.0 lb. N / M applied May 21
                    1.0 lb. N / M applied August 21

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                    0.33 lb. N / M applied May 21
                    0.33 lb. N / M applied June 14
WSN Source   0.33 lb. N / M applied July 14
                    0.33 lb. N / M applied August 14
                    0.33 lb. N / M applied September 7
                    0.33 lb. N / M applied October 1