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SL141

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IFAS Extension

# IFAS Standardized Fertilization Recommendations for Environmental Horticulture Crops[1]

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This publication presents in abbreviated form the fertilization recommendations for environmental horticulture crops **grown in soil** , based on soil tests performed by the IFAS Extension Soil Testing Laboratory (ESTL). **This excludes crops grown in soilless container media**. It contains the basic information from which ESTL soil-test reports and fertilization recommendations are generated.

Soil testing is a tool in crop fertilization management. Its successful use requires that: (1) you send to the lab soil samples that represent your field or management unit, (2) the laboratory use legitimate methods for predicting fertility, and (3) the fertilizer recommendations you get are based on measured crop responses.

The ESTL extracts phosphorus (P), potassium (K), magnesium (Mg), and calcium (Ca) with the Mehlich-1 extractant and bases fertilization recommendations for those nutrients on the test results. Nitrogen (N) fertilization is not based on soil tests but rather is based on crop needs as documented in research literature. Liming recommendations are based on the Adams-Evans lime requirement test, a calibration equation developed for Florida soils, and the target pH for the crop for which the recommendation is being made. Currently-used interpretations for environmental horticulture crops are presented in Table 1.

Soil test reports from the ESTL are computer-generated from lab data and crop codes. Reports contain the results of the tests (soil pH, ppm extractable P, K, Mg, and Ca), a rating of the P, K, and Mg (very high to very low), and a fertilization recommendation. The recommendation is composed of two parts: (1) the rates of N, $P_2O_5$ , and $K_2O$ fertilizer to apply and (2) footnotes that give important information about fertilization management such as application timing, special crop requirements, etc.

Table 2 contains crop codes, crop descriptions, target pH, N recommendation, $P_2O_5$ and $K_2O$ recommendations for each of the five soil-test rating levels, the footnotes that will be printed for each of the crop codes, and the references upon which the recommendations are based. Table 3 lists the text of

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the footnotes. Soil-test reports from the ESTL are computer-generated using test results and crop codes.

**Table 1.** Current Mehlich-1 soil-test interpretations used for environmental horticulture crops.

| Element | Very low | Low | Medium | High | Very High |
|---|---|---|---|---|---|
| | ---------- parts per million soil ---------- | | | | |
| P | <10 | 10-15 | 16-30 | 31-60 | >60 |
| K | <10 | 20-35 | 36-60 | 61-125 | >125 |
| Mg | | <15 | 15-30 | >30 | |

**Table 2.** Target pH and recommended N, $P_2O_5$ and $K_2O$ fertilizer rates for ornamentals in commercial production and turfgrass, lawns, and ornamentals in the landscape. P and K rates are based on interpretation of a Mehlich-1 soil test.

| Crop Code | Crop Description[1] | Target pH | N | ----------lb / 1000ft2 / year---------- | | | | | | | | | | Footnotes (see Table 3) | References[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ----------$P_2O_5$---------- | | | | | ----------$K_2O$---------- | | | | | | |
| | | | | VL | LO | MED | HI | VH | VL | LO | MED | HI | VH | | |
| 71 | Athletic Field, Golf Green, Tee or Fairway | 6.5 | | | | | | | | | | | | 504 | SL-21 |
| 72 | Bahiagrass Lawn | 5.5 | 2.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 73 | Bermudagrass Lawn, North | 6.5 | 4.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 73 | Bermudagrass Lawn, South | 6.5 | 5.0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 3.0 | 3.0 | 1.5 | 0 | 0 | 501 | SL-21 |
| 74 | Carpetgrass Lawn | 5.5 | 2.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 501 | SL-21 |
| 75 | Centipedegrass Lawn, North | 5.5 | 2.0 | 1.0 | 1.0 | .5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 75 | Centipedegrass Lawn, South | 6.0 | 2.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 76 | Ryegrass Lawn | 6.5 | 1.4 | 0.5 | 0.5 | 0.2 | 0 | 0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 501 | SL-21 |
| 77 | St. Augustine Lawn, North | 6.5 | 2.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 77 | St. Augustine Lawn, South | 6.5 | 3.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 3.0 | 3.0 | 1.5 | 0 | 0 | 501 | SL-21 |
| 78 | Zoysiagrass Lawn, North | 6.5 | 3.0 | 2.0 | 2.0 | 0.5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 78 | Zoysiagrass Lawn, South | 6.5 | 4.0 | 1.0 | 1.0 | 0.5 | 0 | 0 | 2.0 | 2.0 | 1.0 | 0 | 0 | 501 | SL-21 |
| 600 | Commercial Woody Ornamental Nursery Growing Plants in the Ground | 6.0 | 6.9 | 2.3 | 2.3 | 1.1 | 0 | 0 | 4.6 | 4.6 | 2.0 | 0 | 0 | 650, 651, 652 | |

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**Table 2.** Target pH and recommended N, $P_2O_5$ and $K_2O$ fertilizer rates for ornamentals in commercial production and turfgrass, lawns, and ornamentals in the landscape. P and K rates are based on interpretation of a Mehlich-1 soil test.

| Crop Code | Crop Description[1] | Target pH | N | ----------lb / 1000ft2 / year---------- | | | | | | | | | | Footnotes (see Table 3) | References[2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ----------$P_2O_5$---------- | | | | | ----------$K_2O$---------- | | | | | | |
| | | | | VL | LO | MED | HI | VH | VL | LO | MED | HI | VH | | |
| 601 | Commercial Nursery Growing Azaleas, Camellias, Gardenias, Hibiscus, or Ixora in the Ground | 5.5 | 3.4 | 1.1 | 1.1 | 0.7 | 0 | 0 | 2.3 | 2.3 | 1.1 | 0 | 0 | 650, 651, 652 | CIR-461 |
| 602 | Woody Ornamentals or Trees in the Landscape | 6.0 | 2.3 | 0.7 | 0.7 | 0.4 | 0 | 0 | 1.4 | 1.4 | 0.7 | 0 | 0 | 650, 653, 654 | ENH-860 |
| 603 | Azaleas, Camellias, Gardenias, Hibiscus or Ixora in the Landscape | 5.5 | 1.1 | 0.3 | 0.3 | 0.2 | 0 | 0 | 0.7 | 0.7 | 0.3 | 0 | 0 | 650, 653, 654 | ENH-44, ENH-860 |

[1] Samples sent from counties north of Orlando, including the panhandle, are assigned recommendations for the northern section of the state. This North/South distinction is automatically made by the computer program based upon the specified county.

[2] SL-21, General Recommendations for Fertilization of Turfgrasses on Florida Soils; CIR-461, Camellias in Florida; ENH-860 Fertilization and Irrigation Needs for Florida Lawns and Landscapes; and ENH-44, Hibiscus in Florida.

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**Table 3.** Footnotes used with ornamentals in commercial production and ornamentals and turfgrass in the landscape.

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| **501** For details on fertilization obtain Soil Science fact sheet SL-21, "General Recommendations for Fertilization of Turf-Grasses on Florida Soils," from your county Extension agent. These rates are for normal, healthy lawns. Double the rates for high maintenance turf. Divide annual rates into 2 to 8 applications depending on location and management levels. Apply no more than 1.0 lb N/1000 sq. ft. per application. |
| **504** Standard fertilizer recommendations for growing high quality turf are not given here. Management level and local conditions greatly influence fertilizer input. Contact your county Extension agent if a recommendation is required. |
| **650** Indicated fertilizer amounts, coupled with nutrients already in the soil, will satisfy the crop-nutrient requirement for this growing season. Fertilizer and water management are linked. Maximum fertilizer efficiency is achieved only with close attention to water management. Supply only enough irrigation water to satisfy plant requirements and minimize leaching conditions. |
| **651** Broadcast $P_2O_5$ either in one application or at half the recommended amount in each of two applications during the growing season. To minimize leaching losses, broadcast N and $K_2O$ in small increments throughout the growing season. Schedule one application every 4 to 6 weeks (six to eight times per growing season), adding 10 to 15% of the recommended amount of N and $K_2O$ at each application. To insure equal coverage when fertilizer rates are small, blend all compatible fertilizers. |
| **652** Additional supplemental broadcast applications of 10% of the recommended amounts of N and $K_2O$ should be applied only after rainfall amounts exceed 3 inches within a 3-day period or exceed 4 inches within a 7-day period. Avoid mechanical damage to plants when applying fertilizers. |
| **653** Established trees (more than three to five years since transplanting) do not need routine fertilization.For recently-planted trees, broadcast fertilizer within a diameter of 1.5 times the dripline diameter. |
| **654** Broadcast $P_2O_5$ either in one application or as half the recommended amount in each of two applications during the growing season. To minimize leaching losses, broadcast N and $K_2O$ in small increments throughout the growing season. Schedule one application every 12 weeks (three times per growing season), adding 33% of the recommended amount of N and $K_2O$ at each application. To ensure equal coverage when fertilizer rates are small, blend all compatible fertilizers. |