

Florida Fertilizer Usage Statistics¹

Travis W. Shaddox and J. Bryan Unruh²

The combination of Florida's diverse climate, agricultural production, and proximity to sensitive environmental habitats is unique to the southeastern United States. Nutrient applications are often required to meet the demand for agricultural and horticultural commodities. Because much of Florida is a peninsula, nutrient applications often occur in close proximity to water bodies and watersheds that feed ground water. In order for scientists, policy makers, and citizens to make informed decisions regarding nutrient issues in Florida, it is important to first understand which markets contribute to Florida's fertilizer consumption.

While the quantity of fertilizer consumed in Florida exceeds other states (except California, Illinois, and Texas) (EPA 2017), it is important to acknowledge several features unique to Florida. First, many crops grow year-round and, therefore, many farmers are able to achieve three crop rotations each year. Second, horticultural plants such as turfgrass, palms, woody ornamentals, and annual flowers also grow year-round and only exhibit slight decreases in growth during winter. Lastly, most Florida soils are primarily composed of sand, which has low nutrient retention compared to other high production agricultural soils, such as mollisols. For these reasons, it makes sense that nutrient applications in Florida would be greater than many other states.

The Florida Department of Agriculture and Consumer Services (FDACS) documents nutrient usage. According to the Florida commercial fertilizer law (Florida Statutes 576), all fertilizer companies must report fertilizer tonnage to the FDACS monthly. These data are collected and categorized as "farm" or "non-farm" market sectors. The farm sector comprises citrus growers, cattle ranchers, vegetable growers, etc. The non-farm sector includes nurseries, golf courses, home lawns, and gardens. After 2012, FDACS stopped receiving categorized nutrient data. Therefore, the most current nutrient use data is from 2012. Farm use was responsible for more than 82% of nitrogen (N), phosphate (P), and potash (K) consumption (Table 1 and Figure 1). Turfgrass (lawns + golf and athletic) consumed 11%, 8%, and 14% of N, P, and K, respectively; whereas, garden and nursery/potting soil constituted less than 6% of N, P, and K consumed in 2012.

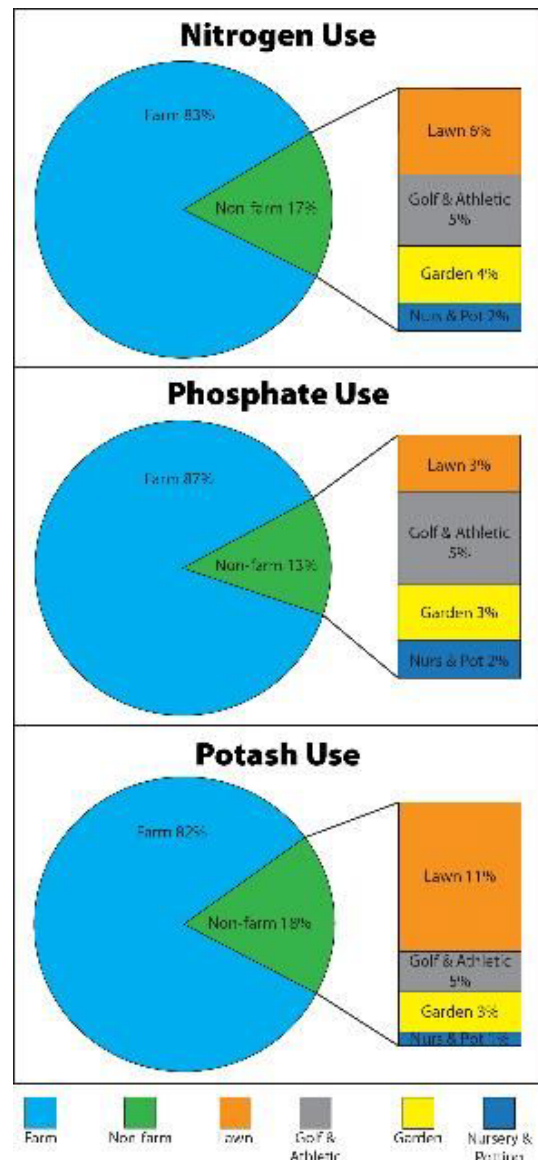


Figure 1. Percentage of total nitrogen, phosphate, and potash use by Florida market sector from July 2011 to June 2012. Credit: FDACS 2017

According to section 502(14) of the Clean Water Act, nonpoint source pollution is defined as any source of pollution that does not meet the legal definition of "point source." Point source pollution is defined as any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.

Therefore, nutrient applications to soils and plants are not point sources of pollution, but may contribute to nonpoint source pollution. It is erroneous to assume that the difference in nutrient consumption between market sectors correlates with a particular market sector's contribution to potential nonpoint source pollution. Clear evidence identifying the N and P contributions to water bodies by market sector does not exist. Additionally, each market sector uses different percentages of soluble and slow-release materials, which differ in their ability to reduce nutrient losses to water bodies (Telenko et al. 2015). Evidence indicates that slow-release fertilizers greatly reduce the risk of nonpoint source pollution (Petrovic 1990), and, therefore, market sectors that utilize larger percentages of slow-release materials are likely to have less impact on nonpoint source pollution than markets utilizing soluble nutrient sources. However, until properly designed studies are completed, conclusions upon the market sector that contributes to N and/or P in Florida's water bodies cannot be made.

Summary

Florida's nutrient consumption reports serve as a foundation from which rational decisions can be discussed. Understanding nutrient consumption within the context of Florida's unique environment will help decision makers create more evidence-based solutions to Florida's current and future issues.

References

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Table 1. Tons of fertilizer used in Florida by market sector from July 2011 to June 2012 (FDACS 2017).

	Lawn	Golf and Athletic	Garden	Nursery	Potting Soil	Non-Farm Total	Farm Total
Multi-Nutrient							
Nitrogen	9118	5624	5733	2055	402	22933	93665
Phosphate	1310	2203	1065	882	171	5633	39743
Potash	4086	4589	4159	1612	269	14717	130676
Single-Nutrient							
Nitrogen	286	1361	439	451	164	2703	33690
Phosphate	15	1	2	3	13	36	358
Potash	14866	539	444	197	122	16170	13267
Organic							
Nitrogen	164	22	102	2	0	694	1521
Phosphate	158	8	99	1	0	267	529
Potash	79	8	95	1	0	184	246
Total							
Nitrogen	9,568	7,007	6,274	2,508	566	26,330	128,876
Phosphate	1,483	2,212	1,166	886	184	5,936	40,630
Potash	19,031	5,136	4,698	1,810	391	31,071	144,189

¹ This document is ENH1277, one of a series of the Department of Environmental Horticulture, UF/IFAS Extension. Original publication date April 2017. Revised November 2025. Visit the EDIS website at <https://edis.ifas.ufl.edu> for the currently supported version of this publication.

² Travis W. Shaddox, former assistant professor of turfgrass, Department of Environmental Horticulture, UF/IFAS Ft. Lauderdale Research and Education Center; J. Bryan Unruh, professor and associate center director, Department of Environmental Horticulture, UF/IFAS West Florida Research and Education Center; UF/IFAS Extension, Gainesville, FL 32611.

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