



FLORIKAN®

SUSTAINABILITY

Sustainability, it's a word you hear a lot these days

It's not a new word for Florikan. As a matter of fact, we have built our company around the principles of sustaining our natural resources

25 YEARS OF SUSTAINABILITY

- + For 25 years, Florikan E.S.A. Corp. has developed production systems for the professional horticulture industry. E.S.A. the initials in our name stand for = Environmentally Sustainable Agriculture. We have developed products to that standard since 1981
- + We are a Manufacturer of controlled release fertilizers, which have reduced impact and reduced potential leaching, on the environment
- + We are a Manufacturer of plastic nursery pots using 100% post consumer recycled plastic resin for the professional horticulture industry

DOING OUR PART

- + As a fertilizer manufacturer, our company takes environmental stewardship seriously
- + Florikan advocates that if the ecological systems of our estuaries are endangered, due to the quantity and timing of flows of nutrients into the estuaries, it is our responsibility to improve the stewardship of nutrient usage
- + We have been fortunate to have received recognition for this effort
- + Our Staged Nutrient Release fertilizer received a 2005 Gulf Guardian Award, from a program administered by the Environmental Protection Agency
- + The EPA regional administrator in Atlanta, commended Florikan for its "commitment to the environment by developing fertilizer products that reduce nutrient inputs and run-off"

NUTRIENT LOADING & HARMFUL ALGAL BLOOMS

- + World-wide, relationships have been observed between increases in nutrient loading and proliferations of specific types of Harmful Algal Blooms (HABs)
- + If Excess nutrients leaching into estuaries, are known to be a contributing factor to algal blooms, then the amount of nutrients applied to meet plant growth needs should be the minimum amount required
- + In some locales, HABs have increased in response to alterations in the type of nutrient, not only major nutrient forms such as nitrogen and phosphorus, but changes in the chemical form of these nutrients

IMPROVE NUTRIENT USAGE

- + Nutrient run-off comes from many different sources: sewage discharge, septic tanks, atmospheric deposition, and improper use of nutrients
- + There is no single cause to blame for nutrient pollution. It's the TOTAL LOAD of nutrient run-off which is the problem and it's the TOTAL LOAD which must be reduced
- + Nutrients are essential elements for plant growth and are commonly used in plant production and in landscape applications
- + Using different nutrients can result in more efficient plant response
- + Using more Controlled Release Magnesium and less Nitrogen or Phosphate can help plants produce chlorophyll. Magnesium is the center atom of the chlorophyll molecule and the plant requires magnesium to produce green foliage (see page 1.48 for details)
- + Make the effort to reduce TOTAL NUTRIENT LOADING

HAB RESEARCH

In her peer reviewed and published research entitled "Escalating worldwide use of urea – a global change contributing to coastal eutrophication,"*

Dr PATRICIA M. GLIBERT* states:

- + "Although urea fertilizer is commonly assumed to be retained in soils, there is growing evidence of urea transport to sensitive coastal waters"
- + "There is mounting evidence that urea differentially stimulates the growth of some types of phytoplankton in coastal waters and that it may, under some conditions, promote a shift in phytoplankton species to organisms that are more noxious to the ecosystem and to human health." There is no question that nutrients are required by HABs, as they are by all algal species

Two nutrients in human-derived sources, phosphorus (P) and nitrogen (N), are of most concern in trophication

The Cambridge Consensus** of leading scientists on Land Based Pollution and Toxic Dinoflagellates indicated that:

- + "Whatever the trends in nutrient pollution may be, it is clear that, larger amounts of materials that stimulate biological production were delivered from the land to the estuarine rivers during 1996 and extending into 1997"
- + "Both experimental and field studies around the world show that nutrient enrichment often results in the development of high densities of small flagellated algae"
- + "The role of phosphorous or nitrogen depends on the relative concentrations of their available forms and the nutritional status of the organisms, all of which are site specific and variable over time"
- + "In the long term, decreases in nutrient loading will likely reduce eutrophication, thereby improving water quality..."

What more do we need to hear to take action to reduce nutrient loading into our bays, rivers, lakes and estuaries!

- + As users of nutrient, it is our responsibility to improve the stewardship of nutrients

SUSTAINABILITY INFORMATION

BMP NUTRIENT PLEDGE

As users of nutrient, it is our responsibility to improve the stewardship of nutrients

- + We pledge to try our best to reduce nutrient run-off as a "precautionary" principle
- + We will apply only what the plant needs by taking analytical soil and/or leaf tests before applying any nutrient
- + We will reduce urea nitrogen
- + We will reduce phosphate use
- + We will reduce leaching by using controlled release fertilizers at the minimum rates appropriate to plant growing conditions
- + We will reduce unnecessary applications of nutrients in the summer rainy season
- + We will keep a border as a mitigation zone from any water body where no fertilizer shall be applied
- + And we will all become better stewards of how nutrients are used

REDUCING THE TOTAL LOAD OF NUTRIENT POLLUTION

- + Our lakes, rivers, streams, and estuaries are currently under attack
- + The enemy is a 3 billion year old microorganism called a Cynobacteria
- + Cynobacteria produce a neurotoxin called cyanotoxins which, according to EPA scientist Dr Kenneth Hudnell*** can after exposure "result in multiple organ failure of a human being"
- + The stimulation of Cynobacteria production is directly related to the proliferation of Harmful Algal Blooms which in turn are related to nutrients, (primarily nitrogen and phosphate)
- + Scientists fear that water quality may be so seriously impacted that fisheries, drinking water, and even sustainability of life, may be in jeopardy in a very short period time
- + There is no one factor which one can point to as the primary source of nutrient run-off which is contributing to the decline in our water systems
- + All the sources of nutrients potentially stimulating algal blooms, include sewage, atmospheric deposition, groundwater flow, agricultural and aquaculture run-off, and discharge and residential uses of nutrients are contributing factors
- + It's the total nutrient load we need to reduce, and adopting Best Management Practice is one way our industry can be part of the solution

INFORMATION CITED FROM THESE SOURCES:

¹University of Maryland Center for Environmental Science, Horn Point Laboratory, Cambridge, MD;

²Institute of Marine and Coastal Sciences, Rutgers, The State University of New Jersey,

³Florida Fish and Wildlife Conservation Commission, Fish & Wildlife Research Institute, St. Petersburg, FL.

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* Escalating worldwide use of urea – a global change contributing to coastal eutrophication"

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**The Cambridge Consensus of leading scientists from around the country, was held at the University of Maryland Center for Environmental Science Forum on Land Based Pollution and Toxic Dinoflagellates in Chesapeake Bay Oct.16,1997

*** Dr H Kenneth Hudnell, PhD is Neurotoxicologist at the US Environmental Protection Agency MD: B105-05Research Triangle Park, NC 27711

REDUCING USAGE OF CHEMICALS

- + How to reduce cost by using less Herbicides, Pesticides and Fungicides, and still get the result desired
- + Water is the delivery vehicle when chemicals are applied to plant material
- + Adjusting the spray tank water to be a more efficient carrier is an important step in reducing the amount of the chemical needed to do the job. This also reduces cost
- + Most chemicals have a reaction called "pesticide hydrolysis" when mixed with alkaline water (pH of 7 or higher)
- + Pesticide hydrolysis can significantly reduce the efficacy of the chemical by as much as 50%
- + Acidifying the pH of the spray tank water to a pH of 5 will make the spray water more efficient, resulting in reduction of rate and amount needed to achieve objective. This will also obviously save money!
- + The first step is to make sure you really need to spray before spraying
- + If after SCOUTING the crops, the chemical is determined to be needed, adjust the pH of the spray tank water to 5 by adding Indicate 5 until the spray tank water turns pink
- + When the water in the tank is pink the pH is fixed at 5 and the chemical is then added at the lowest rate possible
- + Reduction of chemical sprays by amount and frequency is a Best Management Practice which can protect our environment and reduce cost

