

The Sustainable Golf Course Fertilizer Solution



From tees to greens and fairways to roughs, as well as the landscaping around the golf course, **Protene® granular fertilizers and soil amendments are the solution for cost-effective and environmentally responsible plant nutrition.**

Protene® Organic and Sustained Release golf course fertilizer products save you time and money while protecting ground and surface water from nutrient loss through our patented granulation processes.

Maintain A Sustainable Sports Field

Sports fields are subject to a lot of demands, from heavy wear and tear to the appearance of the turfgrass. Sports turfgrass nutrition requires strong root mass which provides for regulated growth while maintaining superior color response.

As a sports field fertilizer, **Protene®** granular products are ideally suited to a well-balanced turfgrass nutrition program. For over a decade, **Protene®** Sustained Release Technology has saved field managers time and money. The **Protene®** fertilization program allows for fewer inputs and provides for the most environmentally-responsible solution to your fertility program.

Whether it's a field for soccer, baseball, football, rugby or lacrosse, **Protene®** granular fertilizers are the sustainable choice for turfgrass nutrition.

Help Make Your World Greener

Most people view landscaping purely as beautification, but it's so much more. Landscaping provides green spaces in municipalities, prevents soil erosion, converts carbon dioxide into oxygen... and yes, adds color and texture to parks, golf courses, commercial property and residences.

Protene® granular fertilizers and soil amendments provide essential nutrients for turfgrass and plants - while providing the highest degree of cost effectiveness and environmental responsibility.

Protene® Organic and Sustained Release products are environmentally friendly and economically smart.

Why You Should Use Protene® Sustainable Technology

Protene® fertilizer provides plants and root zone microbes with a steady sustained source of nutrients.

Protene® Sustained Release fertilizer utilizes a proprietary unique homogenous granular technology. Sustained Release technology provides a constant nutrient input to the turf after application ensuring all essential nutrients are made available over a 90-day period. In contrast, many competitors' products are quick nutrient release products. Granulated quick nutrient release products results in turf requiring more frequent applications ever three to four weeks as compared to Protene® products 90 day sustainability.

Protene® GUIDE TO GRANULAR PRODUCTS

THE BALANCE BETWEEN NUTRIENT RELEASE AND PRODUCT LONGEVITY

NUTRIENTS KEY

- NITROGEN
- PHOSPHOROUS
- POTASSIUM
- SECONDARY NUTRIENTS
- MICRO-NUTRIENTS



Protene® SUSTAINABLE RELEASE

- STEADY RELEASE OF ALL NUTRIENTS OVER A 120+ DAY PERIOD
- HOMOGENOUS GRANULE WITH HIGH NUTRIENT UNIFORMITY CREATED USING MATRIXED TECHNOLOGY.

BURN POTENTIAL: LOW



CONTROLLED RELEASE (NITROGEN ONLY)

- QUICK AND INCONSISTENT RELEASE OF NUTRIENTS OVER A 30 DAY PERIOD, EXCEPT NITROGEN.
- INCONSISTENT NUTRIENT UNIFORMITY

BURN POTENTIAL: LOW-MODERATE



QUICK RELEASE GRANULE

- QUICK AND INCONSISTENT RELEASE OF NUTRIENTS OVER A 30 DAY PERIOD. FREQUENT APPLICATIONS NEEDED.
- INCONSISTENT NUTRIENT UNIFORMITY

BURN POTENTIAL: HIGH

0 DAYS

SECONDARY NUTRIENTS

Protene® is the only product on the market that offers a controlled release of the vital micronutrients necessary for complete turf nutrition including:

Iron Sulfur Zinc

30 DAYS

NUTRIENT RELEASE

Protene® provides an even and steady release of the entire nutrient profile present in the product granule. There is no risk of nutrients releasing all at once, which can lead to burn or damage to the turf, or the nutrients washing out and becoming unavailable to the root-zone

60 DAYS

90 DAYS

FEWER APPLICATIONS

Protene® SUSTAINABLE RELEASE ensures the nutrients vital to overall turf-grass health are available throughout the entire 120+ day period after application. This extended release of nutrients allows fewer applications per season without compromising the nutrition needs of the turf-grass.

120 DAYS

150 DAYS

REAPPLICATION REQUIRED

REAPPLICATION REQUIRED

Protene® SUSTAINABLE RELEASE VS POLYMER COATED GRANULE

Field tests have demonstrated that PROTENE® Sustained Release matrixed fertilizer performs better than polymer coated fertilizers.

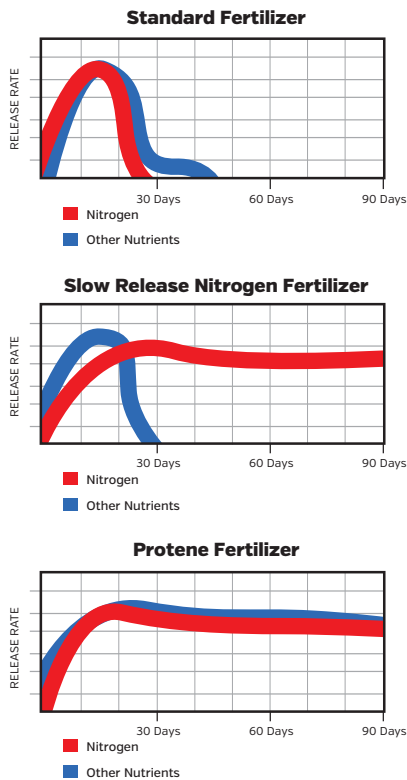
- Protene® will not immediately release all nutrients if it is split or damaged. Coated fertilizers only need minor damage to expose coated nutrients which will release quickly when watered in resulting in burn or damage turf.
- Protene® will not leave behind shells like the coating material from coated fertilizers.
- Every Protene® matrixed granule contains the entire nutrient profile. Coated products contain separate granules of Nitrogen, Potash, etc. – they do not provide the even distribution of nutrients that PROTENE® provides.
- Protene® fertilizer provides better “green-up” – improved nutrient release after application over the first 32 days.



A PRODUCT IS ONLY AS GOOD AS IT'S GRANULE.

Economics of a Sustainable Fertilizer Vs Quick Release Fertilizers

Traditional granular fertilizers release all of their nutrients in a relatively short time, leaving the turf in a feast-then-famine situation. Competitor high-end fertilizers promote slow release nitrogen which is a moderate improvement but still does not address the sustain release needs of other plant nutrients. **Protene®** is one of the only products on the market that provides a sustained release of all nutrients.



Protene's® proprietary granulation method ensures granular integrity throughout the duration of the fertilizer performance period normally 90 days or longer depending on climatic conditions, and varying soil types.

Protene® commitment to quality starts when we synthesize our own liquid methylene urea in process to ensure consistent uniformity, quality and purity. This vertical integration separates **Protene®** products from the majority of competitors who buy solid methylene urea as a raw material. Other manufacturers pan granulate or granulate components together in a rotary drum using a water soluble binder to form granules.

The two big problems with this technique are the inconsistency in the blending and granulating of the components, and the water soluble binder releasing the nutrients quickly and inconsistently. The diagram below demonstrates a possible remaining structure of a pan granulated fertilizer after irrigation.



Diagram 1. Pan Granulated MU fertilizer with phosphorous and potassium and a minors package



after irrigation, all that remains is the controlled release Nitrogen (Methylene Urea)

Diagram 2. What's left after a heavy downpour or over-irrigation?

How Protene® Differs From Competitors Products

Formulation

Protene® uses a propriety process that bonds the liquid methylene urea with other essential nutrient ingredients during the granulation process. The end result is a totally homogeneous granule that is bonded together by the methylene urea! Our process ensures nutrient uniformity and cohesion of the granule unlike fertilizer granules which are formed in the presence of water soluble binders.

All **Protene®** fertilizers will release a proportional amount of all nutrients as the nitrogen component is metabolized by microbial activity in the presence of moisture. The mixture of short and long chain methylene urea molecules provides for controlled release of nutrients to obtain initial green up response and while also guarantying sustained availability of all nutrients. The bigger proportion (up to 73% of the nutrients) will release over a period of 90 days or longer, depending on variable climatic and soil conditions. **Protene®** Sustained Release Technology puts any professional in environmental and economic control of their fertilizer program.



Diagram 3. This is a 20-0-5 + 4% Fe + minors Protene® granule that will release nutrients evenly and predictably



Diagram 4. As water begins the process of nutrient release microbes initiate the sequential release of the macronutrients (Nitrogen, Phosphorous, Potassium); secondary nutrients (Carbon, Calcium, and Sulfur) and Micronutrients. Granular integrity is maintained throughout the life of the fertilizer due to the methylene urea bonding.

Whether you are a golf course superintendent, a sports turf manager or a landscape professional, **Protene®** Sustained Release fertilizers are the right choice if you are looking for a responsive, environmentally safe, and economic solution to your fertility program.

Contact your **Protene®** distributor to discover how making the change to **Protene®** can benefit your turf and landscape plants – and your budget.

**Consult your distribution representative
or agronomist for application
recommendations.**