Naturally managed lawns develop deep roots, enabling them to tap soil water reserves and resist drought damage. Chemically managed lawns develop shallow roots and can be susceptible to drought stress.

**AGGRAND NATURAL FERTILIZER**

The foundation of the AGGRAND natural lawn-care program, AGGRAND Natural Fertilizer is formulated to improve your whole operation, from the quality of the lawns you produce to your profitability.

Prevailing lawn care practices depend on high rates of nitrogen input via dissolved inorganic salts, which promotes excessive leaf-development to root-reserve ratio. Such over-abundant top growth is easy prey for disease-causing organisms and insects, while the shallow root system can’t store the reserves to cope with drought stress. Heavy, excessive top growth also leads to an excessive amount of clippings, which outstrip the ability of soil organisms to break down dead materials, leading to thatch build-up, increased disease risk and unsightly appearance. Finally, all that top growth needs frequent mowing.

**CHEMICAL FERTILIZER VS. AGGRAND NATURAL FERTILIZER**

<table>
<thead>
<tr>
<th>EXCESSIVE nitrogen</th>
<th>AGGRAND</th>
<th>EXCESSIVE salt</th>
<th>AGGRAND</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rapid leaf growth</td>
<td>Balanced leaf and root development</td>
<td>Reduced nutrient cycling</td>
<td>Efficient nutrient cycling</td>
</tr>
<tr>
<td>Poor root development</td>
<td>Reduced mowing frequency</td>
<td>Decreases organic matter</td>
<td>Increases organic matter</td>
</tr>
<tr>
<td>Frequent mowing</td>
<td>Good stress resistance</td>
<td>Promotes soil compaction</td>
<td>Increases soil aeration</td>
</tr>
<tr>
<td>Poor stress tolerance</td>
<td>No thatch build-up</td>
<td>Damages soil structure</td>
<td>Improves soil structure</td>
</tr>
<tr>
<td>Rapid thatch build-up</td>
<td>Cycles nutrients efficiently</td>
<td>AGGRAND</td>
<td></td>
</tr>
<tr>
<td>Poor nutrient cycling</td>
<td>Increases plant reserves</td>
<td>Allows soils to return to more natural pH, salinity and overall chemical and physical balance, encouraging the return of earthworms and microbes</td>
<td></td>
</tr>
<tr>
<td>Depletes plant reserves</td>
<td>Favors grass growth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favors weed growth</td>
<td>Stable in soil</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leaches out of soil</td>
<td>No leaching, no pollution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pollutes nearby waters</td>
<td>No salt increase</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Increases soil salt content</td>
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</tbody>
</table>

**EXCESSIVE nitrogen and salt**

- Harms earthworms
- Harms soil microbes
- Burns foliage

**AGGRAND**

- Allows soils to return to more natural pH, salinity and overall chemical and physical balance, encouraging the return of earthworms and microbes

Naturally managed lawns develop deep roots, enabling them to tap soil water reserves and resist drought damage. Chemically managed lawns develop shallow roots and can be susceptible to drought stress.
AGGRAND Rates and Timings

Application rates and timing vary according to grass species, soil type and lawn condition. Normally, four to six applications of AGGRAND Natural Fertilizer per year are sufficient. The first application is made as soon as the grass shows signs of growth (green color) in early spring. The second application follows in three to four weeks (shorter interval for sandy soil). On lawns in good condition (mostly turf grass, with few weeds and a small amount of thatch) a third application can be made before the grass goes into summer dormancy. Resume fertilization in late summer when the grass starts to grow again. Fertilize two or three more times before the end of the season at the same interval as the spring fertilizations. To obtain the most comprehensive understanding of the nutrient levels and requirements of a particular soil, AGGRAND recommends a soil analysis be performed before determining a fertilization program. Soil Analysis Kits (G1374) are available from AGGRAND at a nominal cost.

The addition of 1 pint/5,000 sq. ft. of AGGRAND Natural Kelp and Sulfate of Potash to the spray mix once in early spring, before summer heat or drought, and in early fall provides increased beneficial effects to plant health. Addition of 1 quart/2,000 sq. ft. of AGGRAND Liquid Bonemeal once in early spring or later fall provides further enhancement of root development.

AGGRAND Natural Fertilizer rates for specific grass species:

1 quart per 5,000 to 8,000 sq. ft.
- Buffalo grass
- Fine fescue
- Tall fescue

1 quart per 3,000 to 5,000 sq. ft.
- Bermuda grass
- Carpet grass
- Kentucky bluegrass
- Perennial ryegrass
- Zoysia grass

1 quart per 2,000 to 4,000 sq. ft.
- Bahia grass
- Bent grass
- Centipede grass
- St. Augustine grass

AGGRAND Natural Fertilizer 4-3-3

AGGRAND Natural Fertilizer 4-3-3 contains kelp and fish, potent macro and micronutrient sources. Many of the nutrients are in chelated form, which holds them in reserve until needed. Plants get the nutrients they need when they need them.

- Conventional fertilizers supply nitrogen as a salt. Salts dissolve quickly in soil, releasing nitrogen and encouraging weed growth. In fact, a late-season nitrogen spike specifically favors crabgrass.
- Lawn grasses respond to a nitrogen spike by producing excessive top growth in lieu of storing carbohydrates. Lawns with poor carbohydrate reserves go dormant during drought or other stressful times.
- Rapid fertilizer release also allows nitrogen to leach through the soil, which pollutes ground and surface waters.

AGGRAND Natural Fertilizer 4-3-3 removes some of its nutrients as organic compounds, such as carbohydrates and proteins. These water-insoluble compounds are held in the soil until microbes and other organisms digest them, “time-releasing” plant nutrients, with no leaching, no pollution.

- Salt-based fertilizers toxify the soil, which reduces soil microbe and earthworm populations and consequently reduces nutrient cycling, decreases soil organic matter content, increases soil compaction and damages soil structure.

AGGRAND Natural Fertilizer 4-3-3 helps restore soils to their natural nutrient balance, encouraging soil microbes and earthworms to repopulate the soil which increases nutrient cycling and loosens soil structure.

Sprayable liquid, available in quarters, 5-gallon twin packs, 55-gallon drums or 275-gallon totes. Guaranteed analysis: 4-3-3. One quart treats 3,000 to 8,000 square feet.

AGGRAND Natural Liquid Bonemeal 0-12-0

AGGRAND Natural Liquid Bonemeal 0-12-0 supplies much of its nutrients as organic compounds, such as carbohydrates and proteins. These water-insoluble compounds are held in the soil until microbes and other organisms digest them, “time-releasing” plant nutrients, with no leaching, no pollution.

- Salt-based fertilizers toxify the soil, which reduces soil microbe and earthworm populations and consequently reduces nutrient cycling, decreases soil organic matter content, increases soil compaction and damages soil structure.

Sprayable liquid, available in quarters, 5-gallon twin packs, 55-gallon drums or 275-gallon totes. Guaranteed analysis: 0-12-0. One quart treats 1,000 to 2,500 square feet.

AGGRAND Natural Liquid Lime

AGGRAND Natural Liquid Lime contains high-quality (99.6% pure) dolomitic limestone in suspension specifically formulated for faster penetration around the roots. AGGRAND Natural Liquid Lime features lime particles typically much finer than those of conventional, bagged lime. As a result, it penetrates the soil profile more rapidly, providing immediate availability.

Sprayable liquid, available in quarters, 5-gallon twin packs, 55-gallon drums or 275-gallon totes. One quart treats 1,000 to 5,000 square feet.

AGGRAND Natural Kelp and Sulfate of Potash 0-0-8

AGGRAND Natural Kelp and Sulfate of Potash 0-0-8 enhances plant health by providing potassium, micronutrients, sulfur, hormones and amino acids. AGGRAND Natural Kelp with 2% Sulfur increases heat, cold and drought tolerance while decreasing the susceptibility to insect attack and infection by disease-causing organisms.

Sprayable liquid, available in quarters, 5-gallon twin packs, 55-gallon drums or 275-gallon totes. Guaranteed analysis: 0-0-8. One quart treats 5,000 to 10,000 square feet.
How Does the Lawn Look?

Someday, after a soaking rain, cut a sod sample three to four inches deep.

You should see:

• Moisture throughout the sample. Dry area may indicate thatch build-up or soil compaction.

• Roots throughout the sample. Roots shorter than four inches may indicate soil compaction, mowing too short or nutrient deficiencies.

• Less than one-quarter foot of thatch. Deeper thatch encourages diseases.

An ongoing AGGRAND natural lawn-care program helps keep pH in the optimal zone, for greatest nutrient availability and superior lawn health and beauty.

Do not apply AGGRAND fertilizers in direct sunlight or immediately after rainfall or irrigation.

Lawns that exhibit slow growth, yellow color and a large number of weeds may have other problems. If weeds are problematic, they need to be removed either by hand weeding or the application of an herbicide. Herbicide applications should be made when the weeds are just beginning to grow. As a general rule, grassy weeds begin to grow in early spring when the soil temperature reaches 50 degrees F, whereas broad leaves take off later in spring when the soil temperature reaches 60 degrees F. It makes matters worse to “weed-n-feed” the lawn because resistant weeds will grow that much faster. A workable plan involves these steps:

• Note weed types and areas in the lawn where they are growing the first year.

• Speak with an authorized weed-control specialist, and implement a weed control plan the second year.

• In early fall, after weeds are controlled, over-seed the lawn with turf species mixed with compost or well-composted manure (if the lawn is very uneven, one-third sand can be used in the mixture to help level the lawn).

• Fertilize the lawn with AGGRAND Natural Fertilizer as you would normally once the new grass has been mowed two or three times.

Compacted soil can cause the growth of dandelions or quackgrass. Check to see if the soil is compacted by trying to push a blunt object into it in a number of different spots. If the soil is difficult to penetrate, then the lawn needs to be renovated (killed, desodded, tilled, reseeded) or dethatched, aerated and overseeded. Although it may be the only workable solution on very weedy or compacted lawns, check with some lawn-care professionals before taking the renovation route. If renovation is necessary be sure to add compost/manure, adjust soil pH, and apply one quart each of AGGRAND Natural Fertilizer and AGGRAND Liquid Bonemeal and one pint of AGGRAND Natural Kelp and Sulfate of Potash per 1,000 sq. ft. before the final trip over the ground with the rototiller.

Slow growth and yellowish grass may be the result of compacted soil because oxygen is unable to penetrate into the root zone where the roots use it for respiration (the release of energy from stored carbohydrates). The other cause of yellowish grass is low pH. Another sign of low pH is the growth of moss in the lawn. Soil pH below 6.0 can be increased by applying bagged lime. In addition, apply one quart per 1,000 sq. ft. every three to four weeks during spring and fall (along with fertilizer applications).
<table>
<thead>
<tr>
<th>Product</th>
<th>Description</th>
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</table>
| AGGRAND Natural Fertilizer 4-3-3 | - Multi-purpose – excellent for flowers, fruits, vegetables, lawns, trees and crops  
|                                  | - Contains fish emulsion, North Atlantic Kelp, sulfate of potash and blood meal  
|                                  | - Effective as a foliar feed or soil application  
|                                  | - Stimulates soil microbial activity  
|                                  | - Promotes plant vigor which increases resistance to disease and stress  
|                                  | - USDA Bio-Preferred Product – 100 percent bio-based                                                                                                                                                       |
| AGGRAND Natural Liquid Kelp and Sulfate of Potash 0-0-8 | - Provides increased tolerance for heat, cold and drought  
|                                  | - Decreases susceptibility to insect attack and infection by disease-causing organisms  
|                                  | - Aids in early plant growth and development  
|                                  | - Promotes early ripening, improves quality and extends shelf-life of fruits and vegetables  
|                                  | - Effective as a foliar feed or soil application  
|                                  | - Listed for use in organic crop production                                                                                                                                                           |
| AGGRAND Natural Liquid Lime     | - Very fine calcitic limestone in suspension  
|                                  | - Effective as a foliar or soil application – improves plants’ cellular structure  
|                                  | - For lawns, pastures and hay fields to supply calcium (additional soil liming may be required on highly acidic soils)  
|                                  | - Improves soil structure and the environment for soil organisms                                                                                                                                          |
| AGGRAND Natural Liquid Bone Meal 0-12-0 | - Provides a readily available source of phosphorus and calcium  
|                                  | - Releases slowly over the growing season  
|                                  | - Perfect for all flowering bulbs and transplants  
|                                  | - Ideal for root and fruit crops                                                                                                                                                                        |
| AGGRAND Organic Series Fertilizer 4-3-3 | - Multi-purpose – produces excellent results on flowers, fruits, vegetables, lawns, trees and crops  
|                                  | - Contains menhaden fish emulsion, North Atlantic Kelp, sulfate of potash and rock phosphate  
|                                  | - Rock phosphate provides a natural source of phosphorus and calcium  
|                                  | - Effective as a foliar feed or soil application  
|                                  | - OMRI Listed product meets the USDA National Organic Plan (NOP) grower requirements  
|                                  | - Registered with the California Department of Agriculture Organic Input Materials program                                                                                                                 |