Biostimulant/Growth Enhancer Technology
In Plant Care Programs

Introduction

Biostimulants have assumed considerable importance in turf care and crop production practices in the United States. Field success and the increasing validation information confirm beyond reasonable question the viability of these products in this country, just as they have been viewed as critical in maximizing crop yields in other countries for many years. Along with genetically engineered improvements to plant species, biostimulants/enhancers now represent the only credible new technology for improving health, increasing yields and decreasing stress induced problems. As Dr. Ward of Auburn has stated, "There is a need for these products."

Certainly, as with all new technology, there has been a learning period—with some remarkable successes and some seeming "Mures" over the past twenty years—in the application of biostimulants to improve plant performance. Fortunately, the past (and present) "failures" are identifiable as resulting from one or a combination of the following:

1. Ignorance or disregard of the needed balance and the inter-relatedness among the various hormone groups.
2. Inappropriate attention to other critical constituent (e.g., nutrient) requirements of plants.
3. Poor formulation chemistry, particularly in regard to stabilization of compounds.

A number of companies have made progress in dealing with some of these basic problems, at least in regard to the second and third items, and in fact have product currently on the market which may be fairly said to give good results in many circumstances on some species. Nevertheless, as far as hormonal chemistry itself is concerned, most manufacturers have yet to achieve a balancing of inputs of all growth hormone groups, especially as it relates to different species and consistency of desired result. Perhaps Dr. Karnok of the University of Georgia identified this problem best when he doubted that any single hormonal material could have the same effect on "...all species growing under all conditions."

A Primer on Biostimulation & Growth Enhancement

There is now a substantial body of evidence that the addition of biostimulants to nutrient programs can significantly improve:

- Survivability & Vigor
- Moisture Utilization
- Root Depth & Mass
- Apical Quality
- Stress Resistance
- Disease Resistance
- Nutrient Uptake
- Insect Resistance

What is a Biostimulant?

It is a compound containing one or more plant hormones from the Auxin, Cytokinin and Gibberellic Acid groups which control the health, efficiency, and growth of plants.

(Continued on Page 15)
What does a Biostimulant do?
Under ideal conditions, a plant has adequate hormones to function efficiently. In the real world of plant management, conditions are never ideal, thus plants are always asked to perform at less than peak conditions. Biostimulant applications can replenish hormonal deficiencies and improve plant performance.

What results will Biostimulants give?
Generally a healthier, more efficient plant. The greater the stress, the greater the benefits—whether we are speaking of increased yields, more prolific roots or resistance to external agents.

What is a “Growth Enhancer”?
A compound containing both growth hormones and appropriate beneficial nutrients.

Are there differences in Biostimulant/Enhancer compounds?
Yes. Most compounds contain one or two hormone groups. While these sometimes do yield good results, often they lack consistency because they do not address all areas of hormonal deficiencies in the plant. They assume that one compound is appropriate for all types and all functioning of plants, and they often lack beneficial carrier constituents.

Plant Hormones
There are five types, or groups, of plant hormones. Two of these (Ethylene and Abscisic Acid) regulate or initiate decline activities including dormancy and death. The other three groups, primarily associated with growth enhancing activities, are:

Gibberellins (GA)
Produced and dominant in the new growth areas (particularly in seeds and apical portions), Gibberellins are key to cell division and elongation and are the “signal callers” or messengers of the plant. As apical growth occurs, GA travels downward (provided sufficient Auxins are present) and instructs the plant to:
  a) Produce more Cytokins for root proliferation.
  b) Translocate more Cytokins to the other areas of the plant to enhance the topical elements.

Auxins
Produced in the middle regions of the plant, Auxins contribute to root growth and formation and largely govern GA and Cytokinin movement to and from the extremities. They also play a major role in internode formation, which in turn significantly influences leaf quality.

Cytokinins
Manufactured in the roots, Cytokins profoundly affect root development and, with assists from GA, Auxins and sufficient nutrition, light, air and moisture, are integral to cell division and leaf and stem formation.
From a practical standpoint, the upshot of these facts is that a thorough understanding of hormones and their inter-relationships to each other and the other sustaining elements of plant health is essential to producing dependable responses. The absolute corollary is that different responses require different prescriptions. Thus, for example, hormonal compounds with advantageous attributes for seed germination and early establishment may be ineffective or even damaging if applied to the same plant during a more mature state of the life cycle.

MEMBERSHIP REPORT
MAY 13, 1992
BRAEMAR GOLF CLUB

NEW MEMBERS—MAY 11, 1992
Gary Korun Phalen Golf Course Class BII
Ladd Oser Lakeview Golf BII
Nathan Gould MTI Distributing F
Steve Zece Onz Company Inc.

RECLASSIFICATIONS—MAY 11, 1992
Mark Severson Rum River Hills Golf Club Bill to A
Paul Tinklenberg Ortonville Golf Course Bill to A

Personnel Management Guidelines Offered In GCSAA Handbook

A sample handbook for setting policy, writing job descriptions, developing pay scales and handling other golf course personnel management issues is now available from Golf Course Superintendent Association of America (GCSAA).

The handbook, available to both members and non-members, was developed to assist golf course superintendents in developing their own personnel manuals, tailored to their clubs' existing personnel policies.

Topics covered include employment status, work schedules and pay, attendance, employee conduct, performance reviews, standards of conduct, employee benefits, guidelines, employment laws and job descriptions.

Sample general duties and job requirements are listed for the assistant superintendent, equipment mechanic and his assistant, foreman, equipment operator, irrigation specialist, chemical technician, gardner-triplex operator, landscape gardener and groundskeeper in the "job descriptions" section of the manual.

The model handbook is priced at $10 for GCSAA members and $15 for non-members, and is available through the GCSAA membership department, 913/832-4480.

TURF SUPPLY COMPANY

2797 Eagandale Blvd. Eagan, MN 55121

NO SPRAYING EQUIPMENT ...
- PROBLEM SOLVED -

Turf Supply Company has a complete line of Granular Products.

BENOMYL 1.6G
DACONIL 5G
BAYLETON 1G
CHLORONEB 7.5G
KOBIAN 1.36G
SUBDUE 2G
CALO GRAN 2.7G
TURFCIDE 10G

DURSBAN 2.32G
OFTANOL 5G
MOCAP 10G
TURCAM 2.5G
DYLOX 6.2G

CASORON 4G
BALAN 2.5G
TEAM 2G
TUPERSAN 4.7G
RONSTAR 2G

Plus Fertilizers with Control Chemicals.

CALL!
(612) 454-3106 --- 1-800-551-4857