

# Clark Talks Turf

■ TIMELY TURF ADVICE



## → Seaplant Extract and Humates for Summer Stress

Erik Ervin is a professor of turfgrass science at Virginia Tech. Ervin and his colleagues have been studying compounds that can be used to reduce the harmful effects of summer stress on creeping bentgrass greens. Below are some of the highlights of their research.

**Q What compounds have you been focusing on in your research?** We have spent most of our time investigating the effects of seaplant extract and humates, alone and in combination, during drought and heat stress. In our experiments we include controls that contain the same amount of fertilizer as the seaplant extract and humates. We also include synthetic cytokinin and synthetic auxin as controls to help us determine the means by which seaplant extract and humates improve creeping bentgrass performance.

**Q What is in seaplant extract that is beneficial to creeping bentgrass experiencing summer stress?** Cytokinin. Cytokinin is produced in root tips and stimulates the production of antioxidants. Antioxidants protect plants from reactive oxygen species (ROS). ROS cause the breakdown of cell membranes and the disruption of certain physiological processes. When soil temperatures reach 80° F or higher, root tip production declines, along with the plant protective benefits that cytokinins offer.

We are also beginning to learn about other beneficial compounds in seaplant extract such as auxin, proline and betaine. Proline and betaine help turfgrass plants avoid dehydration.

“Seaplant extract and humates are both effective in improving creeping bentgrass health when applied alone.”

**Q What is in humates that is beneficial to creeping bentgrass experiencing summer stress?** The primary compound we have studied is auxin. Auxin is a hormone that promotes root growth among other benefits. Auxin is produced in leaf tips and as temperatures increase, leaf development slows and so does auxin production. Our research comparing auxin from humates and synthetic auxin has shown similar turfgrass responses. Humates are also an excellent chelating agent. Research with other plants has shown improved micronutrient availability following an application of humates.

**Q How are seaplant extract and humates best used in a management program to minimize the impact of**

**summer stress on creeping bentgrass greens?** Seaplant extract and humates are both effective in improving creeping bentgrass health when applied alone compared to a fertilizer-only control. However, when applied together, there is an additive effect from the combination of seaplant extract and humates.

We recommend that a superintendent make one or two applications of seaplant extract plus humates two weeks apart prior to soil temperatures reaching 80° F. These applications during good growing conditions help prepare the plant for summer stress. Applications of seaplant extract plus humates should be made every two weeks throughout the period of high temperatures and/or drought.

Seaplant extracts and humates are not silver bullets. They will help improve creeping bentgrass performance during summer stress only in conjunction with sound cultural practices designed to promote plant health.

**Q What has been the feedback from superintendents using seaplant extract and humates to help manage summer stress of creeping bentgrass?** At first, superintendents are a little uncertain of the idea, but after explaining the science behind the response seen in our research, superintendents are open to trying the seaplant extract and humate combination. Those superintendents who try it are mostly positive about the results and feel it helped the creeping bentgrass cope with summer stress. ■

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