tolerance over the 1x rate, so save your money and stick with the label.

## **DOES PLACEMENT MATTER?**

I don't think so. Standard practice in our trials is to foliar apply then lightly overhead irrigate the next day. In one study, however, we foliar applied and sub-irrigated. Both methods demonstrated similar results in the trials. As far as root absorption is concerned, Huang's research showed positive results when the cytokinin was syringe-injected to the root zone. So go ahead and stick with the standard practice of foliar application, with the only worry of activity loss being if application is followed by a large rainfall or irrigation event.

## **DOES TIMING MATTER?**

Our research indicates that cytokinin levels are optimized under optimal temperature and moisture conditions (such as conditions that can occur in the spring and fall) and cannot be boosted to an extent that makes a plant health difference. However, as temperatures increase in late spring, and the chances for stretches of 7 to 14 days of unseasonable heating or drying increase, our recommendation is to begin applications.

Our research has shown that a 30-day interval between applications can suffice at first, but as heat and plant metabolism rates increase, we recommend shortening the interval to 14 days. The shorter interval in the hottest summer weather is due to the fact that cytokinins and other ingredients in SWEs are organic and break down faster in the environment and in the plant as temperatures increase.

#### DOES MIXING WITH A PGR MATTER?

There are small amounts of other hormones, such as auxin and gibberellic acid (GA), in SWEs. So will a tank mix of SWE with an anti-GA PGR cancel each other out? We have looked at this question over a summer season on a putting green in Virginia with an alkaline SWE, mixed or not with Primo.

There were never any clipping yield differences between Primo by itself or mixed with the SWE. However, in comparison to a fertilizer control or Primo + fertilizer, the Primo + SWE plots consistently displayed the highest summer quality.

Are there other biostimulant products on the market that contain higher levels of GA that could be a cause for concern in terms of negating PGR effects? Yes. Always pay attention to labels and question product reps closely about such issues before tank-mixing.

Summer stress will most likely continue to be relentless in the coming years. SWE-based biostimulants can help, but they must be part of a larger cultural management program that revolves around creating and maintaining a physical environment that promotes air movement and temperature moderation.

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# Ad Index

Companies featured in this issue	
ADVERTISER	PAG
Agrium Adv. Tech.	5
BASFCorp.	13
Bayer	CV4
Control Solutions	3
Grigg Bros.	1
J2 Golf Marketing	25
Jacobsen	CV3
John Deere	17
Nufarm	26
Miltona	4
PBI/Gordon	28, 29, 31
PetroCanada	7
Rain Bird	15
Smithco	CV2
Standard Golf	Insert
Syngenta	22, 23
Turfco	30

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