

# THRU THE GREEN

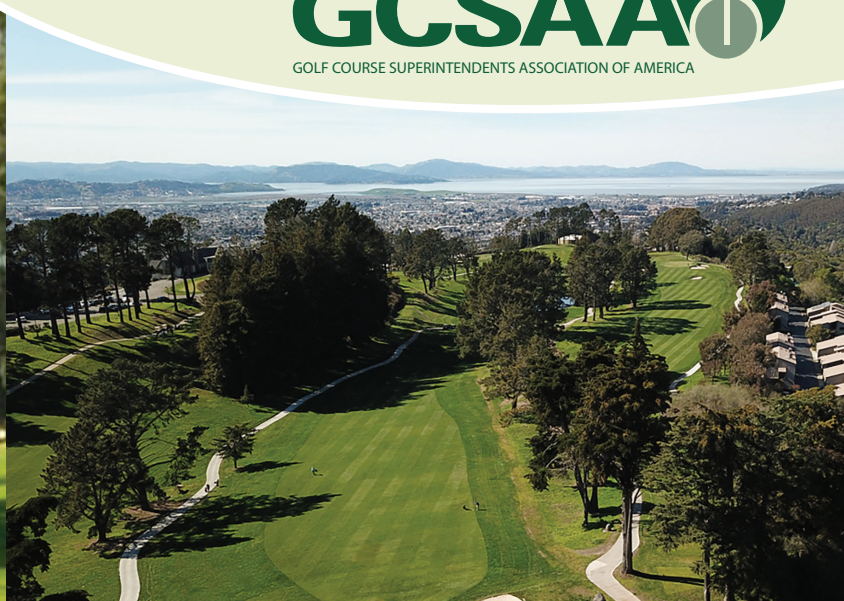
The Golf Course Superintendents Association of Northern California

May / June 2025

Northern California Chapter

**GCSAA**

GOLF COURSE SUPERINTENDENTS ASSOCIATION OF AMERICA



## *Tri-Chapter Meeting*

*August, 11, 2025 - Berkeley Country Club*

Tri-Chapter Meeting  
co-sponsored by



### Inside This Issue

- S & R Recap
- Assistant Superintendent Profile:  
Kenneth Shaw
- From the Field Update





# 2025 TRI-CHAPTER MEETING: GOLF COURSE RENOVATION FROM PLANNING THROUGH CONSTRUCTION

Berkeley Country Club  
7901 Cutting Boulevard  
El Cerrito, CA 94530



# SAVE THE DATE

## MONDAY, AUGUST 11





# THRU THE GREEN

The Golf Course Superintendents Association of Northern California

## INSIDE



Budinich • 5



Jensen • 8



S & R Recap • 10



### ON THE COVER

*Berkeley Country Club*

- 4 Chapter Officers & Directors
- 4 Advertisers Index
- 5 President's Message
- 6 Executive Director's Report
- 8 From the Field
- 10 Scholarship & Research Meeting Recap
- 16 GCSANC Preferred Partners
- 18 Assistant Superintendent Profile: Kenneth Shaw
- 20 Naumann's NorCal News
- 22 The Complexity of Putting Green Firmness
- 30 GCSANC USGA Conference Photo Recap

## NORCALENDAR

### Tri-Chapter Meeting

**Monday, August 11**

*Berkeley Country Club*

### Emerging Technology Expo

**Thursday, October 23**

*McKelvey Park, Mountain View*

### Annual Meeting

**Monday, November 17**

*Peninsula Golf & Country Club*

### Holiday Meeting

**Friday, December 5**

*Monterey Plaza Hotel & Spa*



# THRU THE GREEN

The Golf Course Superintendents Association of Northern California

## OFFICERS & DIRECTORS 2025



PRESIDENT  
**JOE BUDINICH**  
*Peninsula Golf and Country Club*



VICE PRESIDENT  
**TIM POWERS**  
*Poplar Creek Golf Course*



SECRETARY/TREASURER  
**ADAM LEVINSOHN**  
*Berkeley Country Club*



PAST PRESIDENT  
**STEVEN SPATAFORE**  
*Los Altos Golf & Country Club*



DIRECTOR  
**TAYLOR ANDERSEN**  
*San Francisco Golf Club*



DIRECTOR  
**MICHAEL KNOLL**  
*Del Monte Golf Course*



DIRECTOR  
**ANDY LINDLOFF**  
*Fountaingrove Golf Club*



DIRECTOR  
**PATRICK TUTTLE**  
*Baylands Golf Links*



AFFILIATE DIRECTOR  
**RYAN NICHOLS**  
*Sierra Pacific Turf Supply*



AFFILIATE DIRECTOR  
**RYAN O'CONNOR**  
*Belkorp Ag*



ASSISTANT SUPERINTENDANT  
LIAISON  
**DERICK MARA**  
*Mayacama Golf Club*



BOARD ADVISOR (*non-voting*)  
**BRIAN BOYER**  
*Cinnabar Hills Golf Club*

## ADVERTISERS INDEX

A-G Sod Farms	14
Assured Aggregates	7
BASF	7
Belkorp	15
BEST	7
Davey Resource Group	21
Delta Bluegrass Co.	14
DHR Golf Construction	27
Earth Sculptures	21
Envu	7
ESD Waste2Water	27
Flyers Energy	27
Frontier Golf	6
G3 Minerals	7
Ginkel Design	7
Golf Irrigation Consultants	27
GrassRoots Turf Supply	7
GreenSight Inc	14
Harrell's	21
Nutrien Ag Solutions	7
Pacific Material Resources	14
Seedking Enterprises	21
Sierra Pacific Turf Supply	31
Simplot Turf & Horticulture	32
STS Turf	19
Sunbelt Rentals	19
Syngenta	14
Target Specialty Products	14
TMT Enterprises, Inc.	31
Trimax	9
Turf Star Western	28-29
West Coast Turf	31

PUBLICATION MANAGER

**TRACY WILLIAMS**

916-616-6086

*Tracy@connerlyandassociates.com*

Thru The Green is published bimonthly by  
the Golf Course Superintendents  
Association of Northern California.

In response to member requests, we are now pleased  
to offer full-color, printed copies of  
Thru The Green for \$40 per issue.

To order a copy, to be shipped to you via mail, submit  
your name, address and payment information to  
[mconnerly@connerlyandassociates.com](mailto:mconnerly@connerlyandassociates.com).

To pay by check, send payment and contact  
information to:

GCSANC

2235 Park Towne Cir., 2nd Floor  
Sacramento, CA 95825





## President's Message

By **JOE BUDINICH**, *Peninsula Golf and Country Club*

---

I hope everyone is doing well as we enter the always-challenging summer months ahead. I know for myself that the next three months is all about trying to save as much turf as possible as it seems to find anyway possible to die off. Let's just pray that the disease pressure is low and the heat waves are minimal for us all.

I'd like to start out by thanking Brian Boyer and the management staff at Cinnabar Hills Golf Club for hosting the USGA meeting this spring. Not only did Brian host this event, he also set up the entire line-up of speakers and, if you attended, you can attest to how good the educational and research material was. Brian's commitment and dedication to our association is greatly appreciated and does not go unnoticed.

I would also like to extend a personal thank you to all of our affiliates and the members that donated to the Scholarship and Research Tournament. This event was hosted at the extremely well-maintained Blackhawk Country Club by Kevin Sullivan. Without Kevin being willing to host and all the donations, we would not have had such a successful event and been able to provide the research and scholarship funding we do on an annual basis. Check out our Executive Director Marc Connerly's article to find out how well the event did financially and also how many scholarships were awarded this year.

Please mark your calendars for the following events remaining this year:

- Tri-Chapter Meeting – August 11th at Berkeley Country Club
- Emerging Technology Expo – October 23rd at McKelvey Park in Mountain View
- Annual Meeting – November 17th at Peninsula Golf and Country Club
- Holiday Meeting – December 5th at Monterey Plaza Hotel & Spa

Lastly, I would like to point out that, when you sign up for an event, you will be asked to vote/nominate fellow members for our annual awards. As a Board, we decided to make this change this year because we haven't had a very high number nominations in years past and we want to hear from all of you regarding who you believe is the most deserving of the awards.

Sincerely,

*Joe Budinich*





## Executive Director's Report

By MARC CONNERLY, GCSANC

The 18th Annual Clifford & Myrtle Wagoner Scholarship & Research Tournament was held at the beautiful Blackhawk Country Club on May 20. Thanks to a tremendous outpouring of support from Northern California suppliers, who donated turf products and services valued at more than \$50,000, the silent and live auction netted more than \$33,000, and the overall event resulted in net proceeds of roughly \$40,000.

We owe a huge debt of gratitude to the many companies who donated multiple items to this year's auction to help us reach such impressive amounts.

The successful fundraising event helped GCSANC provide \$10,000 in turf scholarships, \$6,000 in legacy scholarships and \$15,400 in intern housing rental assistance.

Congratulations go out to the team of Brian Daum, Patrick Tuttle, Mike Stieler, and Andrew

Bonner, winners of the 1st place gross prize, and the team of Ryan Smith, Kyle Harrigan, Jeff Mason, and James Osborne, who won 1st place net. Thor Larson was the winner of the closest to the pin prize, and Andrew Bonner won the longest drive contest.

On the legislative front, the California golf community breathed a collective sigh of relief with the failure of SB 51, which could have led to permanent standard time in the state. In addition to eliminating one hour of daylight in the afternoons, reducing the playable hours for golf, the change would have created additional headaches for maintenance crews subject to early morning noise ordinances.

We look forward to seeing you at an upcoming event and hope that the summer heat is not overly oppressive on you or your course.

*Marc Connerly*

Thank you  
to GCSANC Titanium Preferred Partner:



**FRONTIERGOLF™**

Build. Renovate. Innovate.

[www.frontiergolf.com](http://www.frontiergolf.com)



Thank you  
to GCSANC Silver Preferred Partner:



We create chemistry

[www.basf.com](http://www.basf.com)

Thank you  
to GCSANC Silver Preferred Partner:



[HTTP://WWW.ENVU.COM](http://www.envu.com)

## Top Dressing & Bunker Golf Sand

Improve play conditions and reduce maintenance costs with sand from G3 Minerals

### Top Dressing Blends

- TD 320 • TD 330
- TD 325 • TD 360

### Golf Bunker Blends

- G3 Premier White
- G3 Bunker
- G3 White

Get your sand blend solution, click or call today!



(925) 450-5229



Thank you  
to GCSANC Silver Preferred Partner:



*Possibility begins with empowering you.*

No one knows your course from tee to green quite like you. But that will never keep us from nurturing the relationships you've grown to value with us at Nutrien Solutions. Armed with experienced field agronomists, innovative mapping and moisture monitoring tools, state-of-the-art plant/soil/water diagnostic labs, as well as an extensive selection of trusted inputs and exciting new technologies, your Nutrien Solutions location is well equipped to help you find the best solutions for your course.

[nutrienagsolutions.com](http://nutrienagsolutions.com)

Coastal CA Representatives

Nate Weber  
[nate.weber@nutrien.com](mailto:nate.weber@nutrien.com)  
(C) 775-842-9913

Mike Ravel  
[mike.ravel@nutrien.com](mailto:mike.ravel@nutrien.com)  
(C) 831-595-6504



Thank you  
to GCSANC Silver Preferred Partner:



[www.assuredaggregates.com](http://www.assuredaggregates.com)

Thank you  
to GCSANC Silver Preferred Partner:



[www.grassrootsturfsupply.com](http://www.grassrootsturfsupply.com)



[www.bestfertilizer.com](http://www.bestfertilizer.com)



Everyone wants to be great.  
Only one can be **BEST**®

Don't settle for second best. Get BEST® for superior quality, selection and value, no matter the application.

Don Mulcahy  
[don.mulcahy@simplot.com](mailto:don.mulcahy@simplot.com)  
(209) 481-0070

SIMPLISTIC • SUSTAINABLE • STRATEGIC



mobile: (408)461-0324  
[www.ginkeldesign.com](http://www.ginkeldesign.com)  
[dginkel@ginkeldesign.com](mailto:dginkel@ginkeldesign.com)







## From the Field

By JEFF JENSEN, GCSAA Field Staff, Southwest Region

I hope this finds all of our GCSANC members doing well and getting ready for what is sure to be a busy summer golf season.

I would like to take a moment to thank the 32 facilities who donated foursomes to the recent 2025 Rounds4Research auction. Due to your generous donation, approximately \$11,000 (final accounting is still ongoing at the time of this column) will be given to the GCSA of Northern California to be used for turfgrass research, education and advocacy efforts.

The chapter was a major contributor to a record \$753,000 that was raised nationwide through the auction. If you were not able to donate this year, please consider a donation in 2026, as it assists your chapter in numerous areas. Cash donations are also accepted for private clubs who may not be able to provide a foursome.

In other news, GCSAA just released its biennial Compensation and Benefits Report. The average salary for golf course superintendents has climbed to \$121,238 annually, which marks a 10.6% increase over the 2023 study. Superintendents' salaries have nearly tripled in the three decades since that first report (1993), when the average salary was \$44,500.

Assistant superintendents and golf course equipment managers also saw increases in their incomes. Assistant salaries rose 10.5% to \$62,184, and equipment managers saw a 12.5% increase from the average salary two years ago, climbing to \$68,154.

The rise in salaries in golf course management professions is outpacing the national average, which, according to the U.S. Bureau of Labor Statistics, rose by 8.1% over the last two years (4.3% increase in 2023 and 3.8% increase in 2024).

Additionally, the average age of a superintendent is 47.1 years, and the average number of years they have spent in the profession is 15.9 years. The average number of years a superintendent has spent in his or her current position is 9.5 years.

Survey participants can access the report for free, and others can learn more and purchase the report by visiting [gcsaa.org/career/compensation-report](https://gcsaa.org/career/compensation-report). We appreciate the support of those who took the time to fill out this important survey.

As always, please reach out to me with any questions or assistance you may need at [jjensen@gcsaa.org](mailto:jjensen@gcsaa.org). You can also follow me on X for industry updates at GCSAA\_SW and my regional blog and calendar of events is available at <https://www.gcsaa.org/resources/regional-resources/southwest>.

I hope you all have a great summer season, and look forward to seeing you at some upcoming events.

*Jeff Jensen*





OVER 90% OF  
TRIMAX MOWERS  
NOW MADE IN THE

**USA**

BOOK A  
DEMO!



# TRIMAX **SNAKE//S3**

**THE TURF SPECIALIST'S  
SECRET WEAPON.**

A NEW ERA FOR GOLF AND SPORTS TURF,  
THE **SNAKE S3** DOESN'T JUST CONTINUE THE  
LEGACY OF THE SNAKE SERIES, IT PERFECTS IT!

★★★  
**INDUSTRY LEADING  
WARRANTY**

**3  
YEAR**

INCLUDES SPINDLES  
& GEARBOXES  
EXPERIENCED SERVICE  
& SUPPORT NETWORK

## KEY FEATURES:

- › **Zero Daily Maintenance:** Titan roller bearing system and maintenance-free wheel hubs eliminate daily greasing.
- › **Enhanced Usability:** New height adjustment collars, stand-on covers, and removable blade beams for improved operation and easier servicing.
- › **Proven Cutting System:** Tested by the Sports Turf Institute of New Zealand, delivering a finish comparable to reel mowers.
- › **Industry-Leading Warranty:** Backed by Trimax's comprehensive 3-year warranty including the Titan bearing system.

WHEN DOWNTIME IS NOT AN OPTION,  
SAVE MONEY ON EQUIPMENT THAT LASTS.  
SCAN HERE FIND OUT MORE!



f x i y in v // **TRIMAXMOWERS.COM**

FOR A FREE DEMO CALL  
**ANTONIO RAPPA / 626-656-0397**





# 18th Annual Clifford & Myrtle Wagoner Scholarship & Research Meeting

*Blackhawk Country Club, May 20, 2025*

*GCSANC sends heartfelt gratitude to Cypress Point Club and Cinnabar Hills Golf Club, both of whom made \$1,000 donations to the 2025 Clifford & Myrtle Wagoner Scholarship & Research Tournament.*



## *Thank You to Our Sponsors*

TITLE SPONSOR  
Turf Star Western

TEE TABLE TOP SPONSORS  
Belkorp  
Simplot  
Syngenta  
Turf Star Western  
GrassRoots Turf Supply  
Molasses Kings

CLOSEST TO THE PIN SPONSOR  
Seedking Enterprises

LONGEST DRIVE SPONSOR  
STS Turf

TEE SPONSORS  
GrassRoots Turf Supply  
Molasses Kings







## Thank You to Our Donors

BASF  
 Belkorp  
 Bill Kreuser (GreenKeeper)  
 Cheeseborough Group  
 Cinnabar Hills Golf Club  
 Cypress Point Club  
 Delta Bluegrass Co.  
 DHR Construction  
 Envu  
 GCSAA  
 GrassRoots Turf Supply LLC  
 Harrell's  
 Nufarm

Peter Galea  
 Seedking Enterprises  
 Sierra Pacific Turf Supply  
 Simplot Turf & Horticulture  
 SportsTurf Irrigation  
 STS Turf  
 Syngenta  
 taskTracker  
 Toro & Turf Star  
 UC Berkeley  
 West Coast Sand & Gravel, Inc.  
 West Coast Turf  
 Wilbur Ellis Co.

CYPRESS POINT CLUB  
 POST OFFICE BOX 466  
 PEBBLE BEACH, CALIFORNIA 93953

April 30, 2025

Marc Connerly, Executive Director

GCSANC

2235 Park Towne Circle, 2<sup>nd</sup> Floor  
 Sacramento, CA 95825

Dear Marc,

On behalf of the Board of Directors and membership of Cypress Point Club, please find the enclosed donation to your Scholarship and Research Fund to support students and Superintendents in their career pursuits. We appreciate your efforts to foster and support turfgrass research and educational scholarships that benefit our industry and provide improved conditions for all golf courses in the area.

Hope you have a very successful event...

For the good of the game...

Kindest regards,

Jeff Markow, CGCS

Cypress Point Club



Continued on page 12



*Continued from page 11*

## 18th Annual Clifford & Myrtle Wagoner Scholarship & Research Meeting

*Blackhawk Country Club, May 20, 2025*

### *Congratulations* TO THIS YEAR'S GCSANC SCHOLARSHIP RECIPIENTS

As mentioned in the Executive Director's Report, this year's Scholarship & Research Tournament allowed GCSANC to provide \$10,000 in turf scholarships, \$6,000 in legacy scholarships, and \$15,400 in intern housing rental assistance.

### The five Turf Scholarships were awarded to the following individuals:



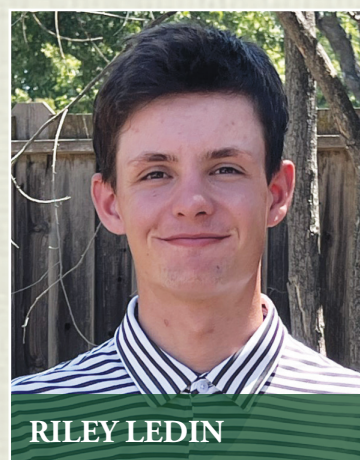
**COLIN BASTIS**

COLIN BASTIS is pursuing a degree in Agricultural Business at Cal Poly San Luis Obispo, with a planned graduation date of June, 2027. Colin has worked at Menlo Country Club and Stanford Golf Course, and volunteers at the Leaning Pine Arboretum at Cal Poly.



**SAMUEL BOYDEN**

SAMUEL BOYDEN is pursuing a degree in Turfgrass Management at UC Riverside and plans to graduate in December of this year. Samuel has worked on two courses at the Olympic Club, where he looks forward to assisting with upcoming major tournaments.



**RILEY LEDIN**

RILEY LEDIN is pursuing a Turfgrass Management degree at Pennsylvania State University. Riley has worked at Silverado Resort & Spa, currently works at Contra Costa Country Club, and has enjoyed hosting and volunteering at multiple PGA tournaments.



**JAIME SALAZAR**

JAIME SALAZAR is pursuing a Plant and Soil Science degree at CSU Monterey Bay and plans to graduate in May of 2026. Jaime has worked at Carmel Valley Ranch for several years and has volunteered at YOSAL (Youth Orchestra of Salinas) to help students learn basic music theory.



**SAMUEL SANDOVAL**

SAMUEL SANDOVAL is pursuing a Turfgrass Management degree at UC Riverside and plans to graduate in March of 2026. He works at the Olympic Club.

*Continued on page 13*



# ntulations

## The following are the four Legacy Scholarship recipients:



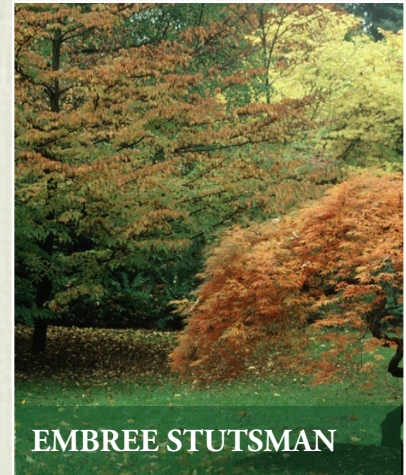
STEPHEN CULLEY

STEPHEN CULLEY is working toward his MS in Education Policy at the University of Pennsylvania Graduate School of Education (GSE). He has worked at the Hotel Ithaca and Simeon's American Bistro, and hopes to become a researcher on topics pertaining to education then transition into policy formulation and advising.



ISABELLA MARTY

ISABELLA MARTY attends Texas Christian University and is pursuing a degree in Political Science, with an anticipated graduation date of May of 2027. She has worked at Gilroy Gardens, and plans to become an attorney, with a potential side job related to music.



EMBREE STUTSMAN

EMBREE STUTSMAN is pursuing a degree in Financial Business at Doane University, planning to graduate in May of 2026. Embree was all-team golf freshman through junior year of high school and has worked at Redhawk Golf and Resort for the past few years.



MAKENNA TARSITANO

MAKENNA TARSITANO is pursuing degrees in communication, sociology and public relations at the University of San Diego, and plans to graduate in June of 2026. In addition to multiple honors received in high school and college, she was active and accomplished in varsity girls golf throughout high school. She works at Carmel Valley Ranch as a yoga instructor and plans to explore multiple career paths during her undergraduate program.

*Congratulations to all of the GCSANC 2025 scholarship recipients! We applaud your achievements and look forward to your progress in the industries you are pursuing.*



Thank you  
to GCSANC Silver Preferred Partner:



info@target-specialty.com  
target-specialty.com/bom  
turffuel.com  
TargetSpecialty

## Pacific Material Resources Inc.

INDUSTRIAL ABRASIVE MATERIAL GOLF COURSE SAND



**Suzanne Johnson**  
President/Owner

11100 Commercial Parkway  
Castroville, CA 95012

**831-750-2054**

suzanne@pacificmaterialresources.com  
order@pacificmaterialresources.com

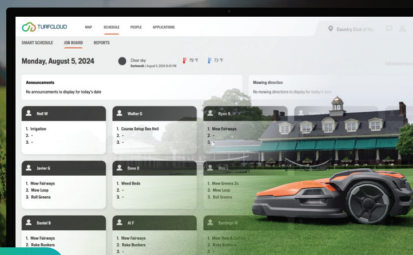
## TurfCloud

all-in-one green industry software



greensight.turfcloud.com/signup

Sign up for FREE!



Thank you  
to GCSANC Silver Preferred Partner:



**www.agsod.com**

Thank you  
to GCSANC Gold Preferred Partner:



**www.syngenta.com**

Joe Ballmer: (916) 804-1610

## Expert Services from the Ground Up

TO THE GOLF AND SPORTS INDUSTRY



FRAZE MOWING • KORO TURF REMOVAL • LASER GRADING • GROUND PREPARATION  
BIG ROLL INSTALLATION • HYBRID BERMUDA SPRIG PLANTING • DEEP TINE AERATION • TOP DRESSING

Contact our Sports Turf Manager: Steve Abella (209) 471-4933

**www.deltabluegrass.com**

C27-152734





**SAVE TIME & MONEY!**

# JOHN DEERE GPS SPRAYER



John Deere's PrecisionSprayer technology will save you money by only applying chemicals where you need them.

Learn more about your ROI below!

## VALUE OF A GPS SPRAYER

- REDUCES CHEMICAL USAGE, RESULTING IN 25 - 35% SAVINGS.
- REDUCES OPERATOR INPUT, RESULTING IN 50% LESS WORK HAVING TO BE MANUALLY COMPLETED.
- CONSISTENT APPLICATION.
- INCREASED ACCURACY.
- ENHANCED DOCUMENTATION.
- MANUFACTURED & SUPPORTED BY JOHN DEERE, OFFERING OVER 20 YEARS OF PRECISION TECHNOLOGY & GPS EXPERIENCE.
- REDUCES TIME IN THE FIELD, RESULTING IN 3 - 6% LESS APPLICATION TIME.
- LABOR SAVINGS.

## FINANCING

MONTHLY  
LEASE PAYMENT  
**\$2,700**

SINGLE  
UNIT SAVINGS  
**25%**  
(4 YEAR PAYBACK)

MULTI-UNIT  
SAVINGS  
**35%**  
(3 YEAR PAYBACK)

**FOR MORE INFORMATION:**

**CONTACT THE BELKORP AG GOLF & TURF SALES TEAM**

**BELKORPAG.COM | CONNOR PATE (PRECISION GOLF SPECIALIST) 209-801-2549**





GCSANC appreciates the participation and support of our Preferred Partners.

## ELITE



## DIAMOND



## TITANIUM





## GOLD



## SILVER



To become a Preferred Partner, please visit <https://gcsanc.com/vendor-directory/> or email Marc Connerly at [mconnerly@connerlyandassociates.com](mailto:mconnerly@connerlyandassociates.com).



## Assistant Superintendent Profile:

# Kenneth Shaw

*Assistant Superintendent, Peninsula Golf & Country Club*

### What made you decide to get into golf maintenance?

I needed a job after high school and I wanted to stay within the sports industry, as I grew up playing sports.

### What is your proudest accomplishment in the industry?

Assisting in the grow-in of what is now The Hay short par 3 course at Pebble Beach.

### Who would you consider your most influential mentor in the industry?

I have two; one is the now-retired Superintendent of Spyglass Hill, Bob Yeo, and the other is my current boss, Joe Budinich.

### Where did you grow up?

Hayward, California, and all over the east Bay Area. I moved around for a bit to cities nearby, e.g., San Leandro, San Lorenzo.

### Your best nickname?

KENDAWG

### If you could drive any vehicle, what would it be?

Porsche 911 GT3 RS, hands down.

### Curly fries or regular, and why?

Regular fries; way tastier with ketchup.

### What is the funniest thing you have ever seen on a golf course?

Two deer clashing heads, red tail hawks soaring right above head, or even our great horned owl.

### What was your lowest score playing golf, and where?

Still in the hundreds most likely, and everywhere.



### What is your favorite manual labor job on the golf course and why?

Checking greens in the morning and applying water. It just allows me to space out and appreciate everything around me; helps keep me grounded.

### Greatest piece of advice anyone has given you?

Keep my head down and keep grinding. I think that has stuck with me ever since it was told to me and I still do it to this day.

### If you had to survive on a deserted island for 1 year, aside from food and water, what five (5) items would you bring with you to occupy your time?

Fishing rod, blanket/sleeping bag, rope, bucket hat, and a volleyball (with a face).

### Favorite Beer?

Modelo/Pacifico.

### If you had your choice, what would you do in retirement?

Drink beer on a lake and watch time go by.

### Favorite sports teams?

San Francisco 49ers, BANG BANG.

### What's your favorite type of grass to manage as a putting surface and why?

Perennial Ryegrass. I don't think I've managed anything more than I have with ryegrass. Easy to tell when it's lean or dehydrated, and when it pops, it really stands out.

### If you could have lunch with anyone, past or present, who would it be and why?

My dad; I haven't seen him for over 15 years, and I just would like to know how he's doing and have him see who I've become.



# TAKE YOUR GAME TO THE NEXT LEVEL!

Discover the difference  
The *Next Generation* of **Turf Nutrition**  
can make in your program.

## ststurf




STS Turf offers unique technology that pre-digests carbon and reacts nutrients into ionic form. Stabilized, complexed and chelated using only organic components that provide a plant health response.

STS supplements with colloidal minerals, vitamins, enzymes, fermentation extracts that will optimize plant health and vigor.

Call **831-224-3179** for the representative nearest you!

 [x.com/ststurf](https://x.com/ststurf)

 [instagram.com/ststurf](https://www.instagram.com/ststurf)

 [www.ststurf.com](https://www.ststurf.com)

## MAINTAIN THE GREEN WITH GREEN

Equipment costs can eat up a large percentage of your budget. Sunbelt Rentals is here to help with custom rental needs for your golf course. We have everything you need to keep your course pristine, from large chippers and tractors to ground protection mats.

➤ Scan the QR code to contact  
a rental expert or explore our  
equipment offerings





# Naumann's NorCal News

*Don Naumann is President of Sierra Pacific Turf Supply, Superintendent of Blackberry Farm Golf Course, and Owner of Canyon Lakes Golf Course and Brewery. We appreciate Don's updates on golf course staffing throughout northern California and beyond.*

**Adolfo Soto Suarez** is the new Superintendent at Metropolitan Golf Links in Oakland. He was the assistant superintendent at The Golf Club at Moffett Field in Mountain View prior to his move. He is replacing **Stacy Baker**, who has accepted a Superintendent position out of state.

**Cody Price** is the new Superintendent at The Club at Ruby Hill in Pleasanton. Cody was the Superintendent and General Manager at The Course at Wente Vineyards in Livermore before making the move. He is replacing **Steve Agin**, who has moved on and is still in the area.

**Michael Simpson** is retiring after more than 35 years as the Superintendent of Los Altos Golf and Country Club in Los Altos. We wish him good luck in retirement!

**Steven Spatafore** has accepted the new position as Superintendent at Los Altos Golf and Country Club. Steven was the Superintendent at Contra Costa Country Club before accepting this position.

**Mat Dunmyer** has accepted an expanded position at Stanford; his new position is now Director of Golf and Varsity Turf at Stanford University.

**Don Naumann**



*The Club at Ruby Hill - Pleasanton, CA*

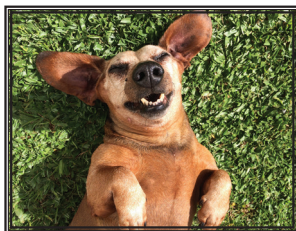


*Los Altos Golf and Country Club - Los Altos, CA*



## We Want Your Photos!

Wildlife, pets, events,  
you name it. We're  
always looking for fun  
and interesting content.



Thank you  
to GCSANC Silver Preferred Partner:



Seedling Enterprises LLC  
Jim Culley Owner  
805-231-4420  
jimculley@seedkingenterprises.com  
www.seedkingenterprises.com

Distributor of turfgrass, native and  
wildflower seed, sod, plants and plugs

Thank you  
to GCSANC Silver Preferred Partner:



[www.davey.com/davey-resource-group](http://www.davey.com/davey-resource-group)

Thank you  
to GCSANC Gold Preferred Partner:



[www.earthsculpturesinc.com](http://www.earthsculpturesinc.com)



**POLYON®**  
Controlled-Release Fertilizer

**POLYON® Controlled-Release Fertilizer.  
Success. Guaranteed.**

For more than 30 years, POLYON® Fertilizer's  
durable, unique bonded coating process has been  
ensuring predictable results you can depend on -  
*we guarantee it!*

For more information about POLYON® Fertilizer and  
the POLYON® Guarantee, visit [www.polyon.com](http://www.polyon.com) or  
contact sales representative today:



DAVID AVILA  
(805) 680-7307  
davila@harrells.com



Warehouse  
165 Technology Drive Suite 102  
Watsonville, CA 95076



[www.harrells.com](http://www.harrells.com) | 800.282.8007  
Employee-Owned



# The Complexity of Putting Green Firmness

*June 6, 2025 - Darin Bevard, Senior Director, Championship Agronomy*

*This article is reprinted from the June 2025, Volume 63/Issue 10, of the USGA Green Section Record. Copyright United States Golf Association. All rights reserved.*



*There are many factors involved in maintaining firmer greens. Taking objective measurements of firmness removes some of the subjectivity and makes it easy to track progress over time.*

## Key Takeaways

- Achieving firm putting greens is more complicated than just withholding water. Firmness is affected by organic matter accumulation, topdressing characteristics and grass species, among other factors.
- Firmness measurements are not valid for comparison from course to course. The focus of collecting this data should be on improving firmness and evaluating playability on a given golf course.
- Providing consistently firm conditions requires long-term programs that promote healthy putting greens and dilute organic matter at the surface.
- Measuring firmness and monitoring organic matter percentage illustrates the impact that maintenance programs have on these parameters and allows you to correlate them with playing conditions.
- There is no “one-size-fits-all” approach to firmness. Different combinations of maintenance programs can provide firm greens, but if you do not measure, you do not know.

Firm and fast! We want the greens firm and fast! Superintendents hear this mantra throughout the year and golfers have good reasons

for wanting these conditions. An appropriate level of putting green speed and firmness is both fun and demanding, but identifying the right range of speed and firmness for the ability of the players is an important part of that equation. To be clear, the speed and firmness that is used to challenge the best players in the world during the U.S. Open, the U.S. Women's Open and other elite golf events is far different than what is reasonable for daily play and would not be possible for most golf courses to maintain on a consistent basis.

The challenge for the golf course superintendent is to deliver firm and fast conditions while maintaining the health of the grass. How is that achieved? The combination of factors used to promote green speed – e.g., cutting height, cutting frequency and rolling – are well understood. However, the elements of firmness and their interactions are more complex. We know that drier conditions promote firmer conditions and that good water management on putting greens is a key part of firmness, but other factors affect the ultimate result. A green can be very dry and still not play firm. In addition to water management, the rootzone material, characteristics of topdressing sand, surface organic matter content, and grass species are major players in the firmness game.



*Moisture management is an important part of providing firm greens, but it is only one piece of the puzzle.*



Two important concepts related to firmness should be understood: “terminal firmness” and “terminal softness.” Terminal firmness is the point at which a putting green will not get noticeably firmer with any short-term maintenance practices because of inherent physical characteristics including organic matter percentage and characteristics of the construction mix and topdressing sand.

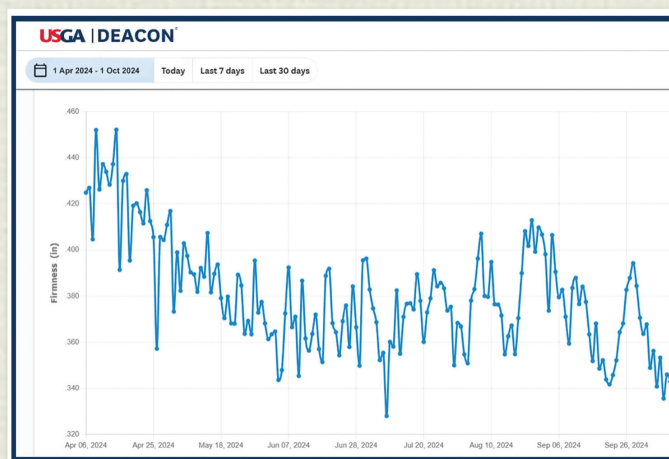
Withholding water may lead to more stress on the grass and a green that looks firmer, but the change in ball reaction will be minimal. Terminal softness lies at the other end of the spectrum where adding additional water minimally affects firmness. Basically, the green is as soft as it can get. You see this condition after a day of rain, for example.

Terminal firmness and softness are not static values. They can be affected in the long term with changes in aeration strategies, topdressing frequency and the topdressing sand that is used. In the short term, changes to these maximum and minimum values through daily maintenance are small.

The importance of terminal firmness and softness cannot be overstated. When the terminal softness of a green is reached and the greens are still relatively firm, it takes less time to regain firm conditions compared to a green that gets very receptive after rain or irrigation. Greens with a higher firmness value at terminal softness will generally also have a higher terminal firmness and vice versa. When the terminal firmness of a green does not provide desired playability, golfers and superintendents can get frustrated because there really are not any short-term solutions.

When firmness is discussed, ball reaction or “bounciness” is really the subjective criteria being evaluated. Quantitative firmness values do not “travel” from golf course to golf course due to agronomic differences. The “average firmness” number from soil-based *Poa annua* greens is not likely to provide the same ball reaction as that same value on sand-based creeping bentgrass or bermudagrass greens. When managing firmness, the focus needs to be on measured values at an individual golf course and the ball reaction that is produced at that value.

In this article, we will take a look at the key contributors to firmness, how they interact with each other, and how to improve firmness in the short and long term. Having measured firmness on greens for the last 18 years preparing golf courses for USGA championships, let me tell you that if the long-term fundamentals of firm conditions are not in place, there is only so much that can be done a week or two before a big event to make the greens firmer.



*You can use the GS3 ball and DEACON management system to measure and track putting green firmness over time to better understand the impact of maintenance programs, weather and many other variables.*

## Organic Matter

The intuitive thought regarding organic matter and firmness is that less is better. However, putting greens with very low organic matter levels in the top 2 centimeters of the soil profile do not always produce the best ball reaction in my experience. There is an elasticity to organic matter that adds bounciness to the surface so long as the organic matter is not excessive and is diluted with sand.

*Continued on page 24*



## The Complexity of Putting Green Firmness

June 6, 2025 - Darin Bevard, Senior Director, Championship Agronomy

A balance between sand topdressing and organic matter at the surface is a critical component of firmness. A high percentage of undiluted organic matter in the top 2 centimeters will be a “soft” green even under dry conditions. When the USGA Green Section was working with researchers and superintendents to develop a standardized method of putting green organic matter sampling and testing, we collected data from hundreds of greens with the goal of correlating organic matter percentage with turfgrass health and putting green performance. Not surprisingly, the top 2 centimeters of the soil profile is the most dynamic with respect to organic matter percentage, and common sense tells us that conditions closest to the green’s surface affect firmness most. This underscores the importance of organic matter testing to evaluate maintenance programs and the relationship between organic matter levels, measured firmness and observed ball reaction.



*The lower portion of this soil profile shows good sand incorporation, but it is the top inch of the profile that is most dynamic and has the biggest impact on firmness. Monitoring and managing organic matter in this part of the rootzone is critical.*

### Sand Selection

Sand used for putting green construction and topdressing can play a big role in firmness. Particle size distribution and particle shape are both important. At the time of putting green construction, mixes can be engineered to promote firmer conditions by incorporating specific amounts of soil, organic matter and other amendments while still maintaining good drainage and other physical properties.

Topdressing sand must be compatible with the existing rootzone material. Strictly based on soil physics, the rule was never to use sand with a finer texture than the existing soil for fear of creating a layer at the top of the profile that would hold water and keep surfaces wet. Superintendents often limit or forgo light topdressing because they have difficulty incorporating the sand into the turf canopy and the coarse particles negatively affect ball roll and mowers. However, research has shown that it is possible to topdress with sands that are less coarse than the rootzone mixture for routine topdressing to facilitate incorporation and promote firmness. The Green Section Record article “Light and Frequent Topdressing Programs” summarizes some of the information that should be considered when selecting topdressing sand based on ongoing USGA-funded research at Rutgers University.

One final and important, but often overlooked, sand characteristic is shape. While characterizing sand shape is not an exact science, angular sands will produce firmer conditions than round sands. Think about the stability of a pile of bricks compared to a pile of marbles. This represents the extreme at each end of the sand shape spectrum but illustrates the important role that sand shape can play in achieving firm conditions.



*Light and frequent topdressing is just one strategy that is critical for diluting organic matter at the surface to promote and maintain firm conditions.*

### Grass Type

The grass species on the greens affects perceived firmness. Putting greens established with creeping bentgrass, *Poa annua* or a combination of these grasses tend to be more



receptive at similar firmness values when compared to ultradwarf bermudagrass or seashore paspalum. Interestingly, warm-season grasses typically have higher organic matter concentration in the upper rootzone than cool-season grasses, but they can still play firmer.

The exact “correction factor” for lack of a better term is hard to nail down. However, for championship preparation, even though warm-season greens may measure softer by value, golfer perception is that they play much firmer than this measurement suggests compared to cool-season grasses. The direct cause of this difference is not precisely known, but the stiffer leaf blades of warm-season grasses in conjunction with the dense mat of stolons and rhizomes just below the surface likely plays a role. The variations in firmness readings and ball reaction among different grasses, or even the same grass in different environments, is just another illustration of why comparing firmness measurements from one course to another is not useful.

### Short-Term Programs to Promote Firmness

The ability to consistently maintain firm putting greens is not the product of short-term maintenance programs. By short-term, I mean practices designed to promote firm conditions a month or two before an event all the way through the event itself. Carefully reducing water inputs will have the most immediate impact on firmness, but if necessary management programs to promote firmness have not been implemented consistently over time, the greens will only get so firm (terminal firmness) and that level of firmness may not dramatically impact ball reaction, especially for accomplished players.

Daily programs such as rolling may increase firmness if they are not already part of regular maintenance. If greens are rolled three or more times weekly, the benefits rolling provides to firmness have already been realized. Additional rolling will help with speed and putting quality, but not firmness. Introducing frequent sand topdressing to match turf growth rate can begin firming greens in two or three months, but generally 12 to 18 months is needed to see a noticeable change in measured firmness and ball reaction.

Short-term firmness is negatively impacted by core aeration. Aeration relieves soil compaction, which promotes softer conditions at the surface. If one feels that aeration must be performed prior to an event, consider solid-tine aeration and filling the holes with topdressing sand. While still not ideal, the impact on short-term firmness will be less with solid-tine aeration. Every course is different, but experience suggests that

any aeration beyond venting will require six to eight weeks before the greens return to peak firmness.



*Rolling will only increase firmness in the short term if it is not already being performed on a routine basis.*

### Long-Term Programs to Promote Firmness

Rebuilding putting greens using a mix that is engineered to promote firm conditions is a great way to firm-up greens. However, this approach is not practical unless a putting green renovation is already planned. Most situations will call for a review of cultural programs that help to manage the surface mat layer to promote consistently firm conditions and increase the level of terminal firmness that we've talked about.

Consistently following a program of light and frequent topdressing is an important part of diluting organic matter at the surface. The ideal rate of topdressing will depend on turf growth rate. For cool-season putting greens, topdressing frequency should be higher in the spring and fall compared to the heat of the summer. Warm-season greens will need more topdressing during the hot summer months. In some regions, topdressing will stop in the winter while others may require year-round topdressing applications. Every situation is different, and the key is to focus on programs that work within the variables of a given golf course.

Core aeration removes organic matter and allows it to be replaced with sand topdressing and is an important component of long-term maintenance programs. The importance of completely backfilling the holes with sand cannot be overstated. The rule of thumb has been that around 20% annual surface disruption is a good goal to maintain organic matter levels. Although limited research has been conducted investigating

*Continued on page 26*



## The Complexity of Putting Green Firmness

June 6, 2025 - Darin Bevard, Senior Director, Championship Agronomy

specific percentages of surface area disruption and the correlation with organic matter, the work that has been done generally supports this goal and superintendents have traditionally found hitting this target provides good results (Atkinson et al., 2012). However, there are courses that maintain firm conditions and manage surface organic matter without reaching this threshold. Additional options such as solid-tine aeration and high-pressure sand injection have benefits in reducing organic matter percentage in the surface layer and promoting firmness.

There are different programs and combinations of programs that can help or harm efforts to maintain firm conditions. If putting green firmness is important, data collection is critical to evaluate firmness and the impacts of programs that are being implemented to encourage firm conditions. Using the GS3™ ball in conjunction with the DEACON® management system allows firmness to be measured accurately and efficiently over time. Other tools for measuring firmness are also available. Regular measurements show the impact of daily maintenance practices, weather and water management, and the gradual impact of long-term programs. Visual evaluations of firmness based on ball reaction and ball marks will also provide some insight, but this subjectivity introduces extra variables and opinions into the evaluation.

In addition to firmness data, tracking clipping yields can provide insight into turf growth rate and



*Gathering soil samples to perform organic matter testing is a simple process that can provide great insight into the changes that occur in the upper portion of the soil profile from year to year.*

the topdressing required to match that growth. Monitoring organic matter percentage, especially in the upper portion of the rootzone, can provide a better understanding of the amount of organic matter that optimizes firmness for a set of greens.

### Conclusion

Firmness is a simple concept, but maintaining firm conditions and healthy putting greens is quite complex. Withholding water is only one component of firmness. Consistently firm greens require directed programs over the long term. There are different ways to achieve firmness and there are also exceptions to any guidelines. The bottom line is that if you are not measuring firmness and the factors that influence it, there is no way to know how management programs are affecting your pursuit of firm greens. Putting green performance becomes guesswork and can be subject to recency bias and golfer emotions on any given day. Data allows for factual rather than emotional conversations to shape the firmness journey.

### Reference

Atkinson, J.L., McCarty, L.B., & Bridges, Jr., W.C. (2012). Effect of core aeration frequency, area impacted, and topdressing rate on turf quality and soil physical properties. *Agronomy Journal*, 104, 1710-1715. doi.org/10.2134/agronj2012.0224



Thank you  
to GCSANC Gold Preferred Partner:



[www.waste2water.com](http://www.waste2water.com)

GOLF  
IRRIGATION  
CONSULTANTS



[www.GolfIrrigationConsultants.com](http://www.GolfIrrigationConsultants.com)



Northern California Chapter

**Advertise in**  
*Thru The Green*

1/8 Page: \$25 / Issue | 1/2 Page: \$100 / Issue

1/4 Page: \$50 / Issue | Full Page: \$200 / Issue

Thank you  
to GCSANC Silver Preferred Partner:



[www.dhrconstruction.com](http://www.dhrconstruction.com)

Thank you  
to GCSANC Silver Preferred Partner:



[www.flyersenergy.com](http://www.flyersenergy.com)





SCAN ME

# VEHICLES DESIGNED TO WORK AS HARD AS YOU DO.

VISTA SERIES

**TORO®**

**Count on it.**

WORKMAN  
SERIES

## WORKMAN SERIES

Utility Vehicle  
GTX, MDX, UTX, HDX  
Lithium

## VISTA SERIES

People Mover  
4, 6, & 8 Seats  
Lithium



[www.turfstar.com](http://www.turfstar.com)





# MAXIMIZE YOUR TIME WITH AUTONOMOUS.



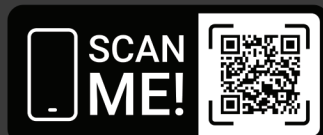
## MOWER

Mow up to 6 Acres  
Mowing Width: 40.7"  
Cut Height: 0.8"–3.9"

## RANGE PICKER

Picks 1200+ Balls/Day  
Cover up to 6 Acres  
Collection Width: 40.7"

[www.turfstar.com](http://www.turfstar.com)





# GCSANC USGA Conference

*Tuesday, April 22, 2025*

*Cinnabar Hills Golf Club*



*Thank you to our participants, presenters, and host of this year's event, Cinnabar Hills Golf Club.*





## Sierra PacificTurf Supply

INDEPENDENTLY OWNED & OPERATED  
SINCE 1982



[www.sierrapacificturf.com](http://www.sierrapacificturf.com)

Thank you  
to GCSANC Gold Preferred Partner:



Life is Short. Sod it!

[www.westcoastturf.com](http://www.westcoastturf.com)

Greg Dunn: (209) 394-4904  
Will Barragan: (209) 276-3324

## TMT ENTERPRISES, INC.

GCSANC Members Since 1976

Phone: 408-432-9040

IN BUSINESS SINCE 1961



TMT serves all of Northern & Central California, as well as the Reno-Tahoe area with high quality materials.  
USGA Root Zone Sand - USGA Root Zone Mix - Top Dressing Sand - Kiln Dried Sand  
Fairway Top Dressing - Bunker Sand - Drainage Aggregates - Cart Path Aggregates  
Divot Mix - Organic Amendments - Inorganic Amendments

Web: [www.tmtenterprises.net](http://www.tmtenterprises.net)

Email: [info@tmtenterprises.net](mailto:info@tmtenterprises.net)





# Way beyond **fertilizer.**

Proven **Performance.** Elite **Results.**

Painstakingly formulated to deliver impactful, eye-popping results, PerformancePack® specialty turf and horticulture products are simply in a class by themselves.



**Mark Stutsman**  
mark.stutsman@simplot.com  
cell: (775) 453-8083

**Akoni Ganir**  
akoni.ganir@simplot.com  
cell: (831) 915-4524