

Use of Sapphire® Specialty Herbicide As Transition Aid for Perennial Ryegrass Removal in Arizona

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Abstract

Turf managers in Arizona and the desert Southwest frequently use herbicides to assist in the spring transition of golf fairways from fall overseeded perennial ryegrass (LOLPE) back to a bermudagrass (CYNDA) turf for the summer. During this transition period a high quality playing surface with good color is desired for aesthetics and playability. Penoxsulam was compared to commercial standards for this use in small-plot research in 2012 and on fairways (larger areas) in 2013 under a state experimental use permit (EUP).

In the 2012 research trials, penoxsulam was applied as Sapphire® in May at rates from 2-24 fl oz/A (5.5-66 g ai/ha) to assess impact on both perennial ryegrass and bermudagrass. Sapphire at 24 fl oz/A was the most effective application rate to remove perennial ryegrass with minimal impact on the bermudagrass at both application timings. In 2012, the May application resulted in a transition of the turf stand within 36 days from 100% perennial ryegrass green tissue to a stand of 80% bermudagrass and 20% perennial ryegrass resulting in a 15% increase in turf quality versus the commercial standard within 36 days. Sapphire at 24 fl oz/A was not observed to inhibit regrowth of bermudagrass when applied at 24 fl oz/A. The bermudagrass populations in Sapphire-treated turf increased without a degradation of turf quality during the transition process.

The 2013 EUP trials on 3 golf courses treated with penoxsulam in Arizona and nearby states confirmed the performance of Sapphire in a larger areas with a smooth transition from overseeded ryegrass to bermudagrass without a loss in turf quality.

Background

- While penoxsulam was under development for turf uses, perennial ryegrass showed sensitivity to rates of penoxsulam higher than 0.02 lb ai/A (equivalent to Sapphire herbicide at 8 fl oz/A).
- This led to the Sapphire® herbicide label statement about the potential injury to perennial ryegrass
 - "Do not apply more than 0.5 pint of Sapphire (0.02 lb ai penoxsulam) per acre per application to perennial ryegrass and tall fescue and only if some injury can be tolerated."
- Due to the sensitivity of perennial ryegrass to sprayed applications of Sapphire, research was conducted to see if Sapphire could be used as a transition aid for overseeded bermudagrass in the spring.

Key Questions

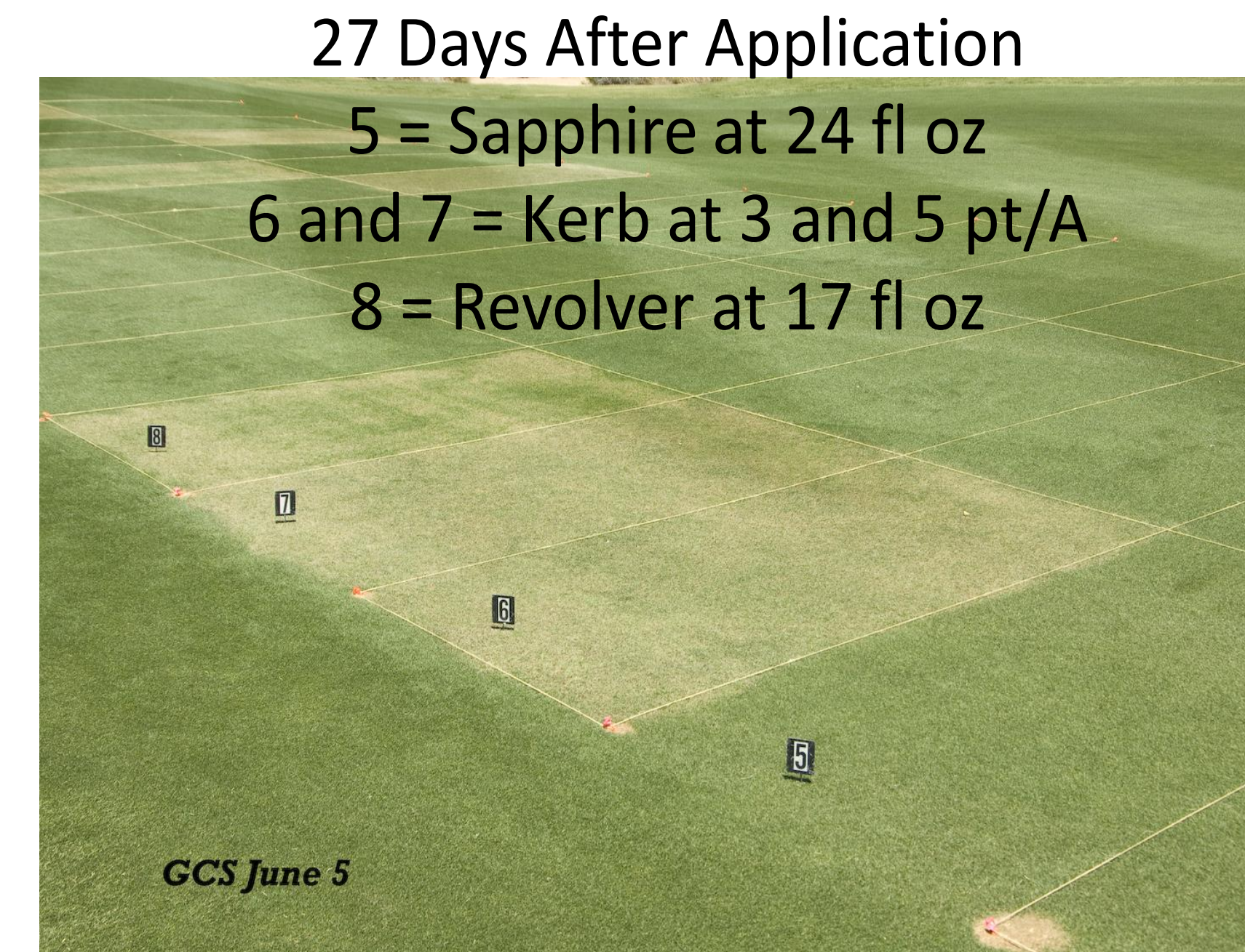
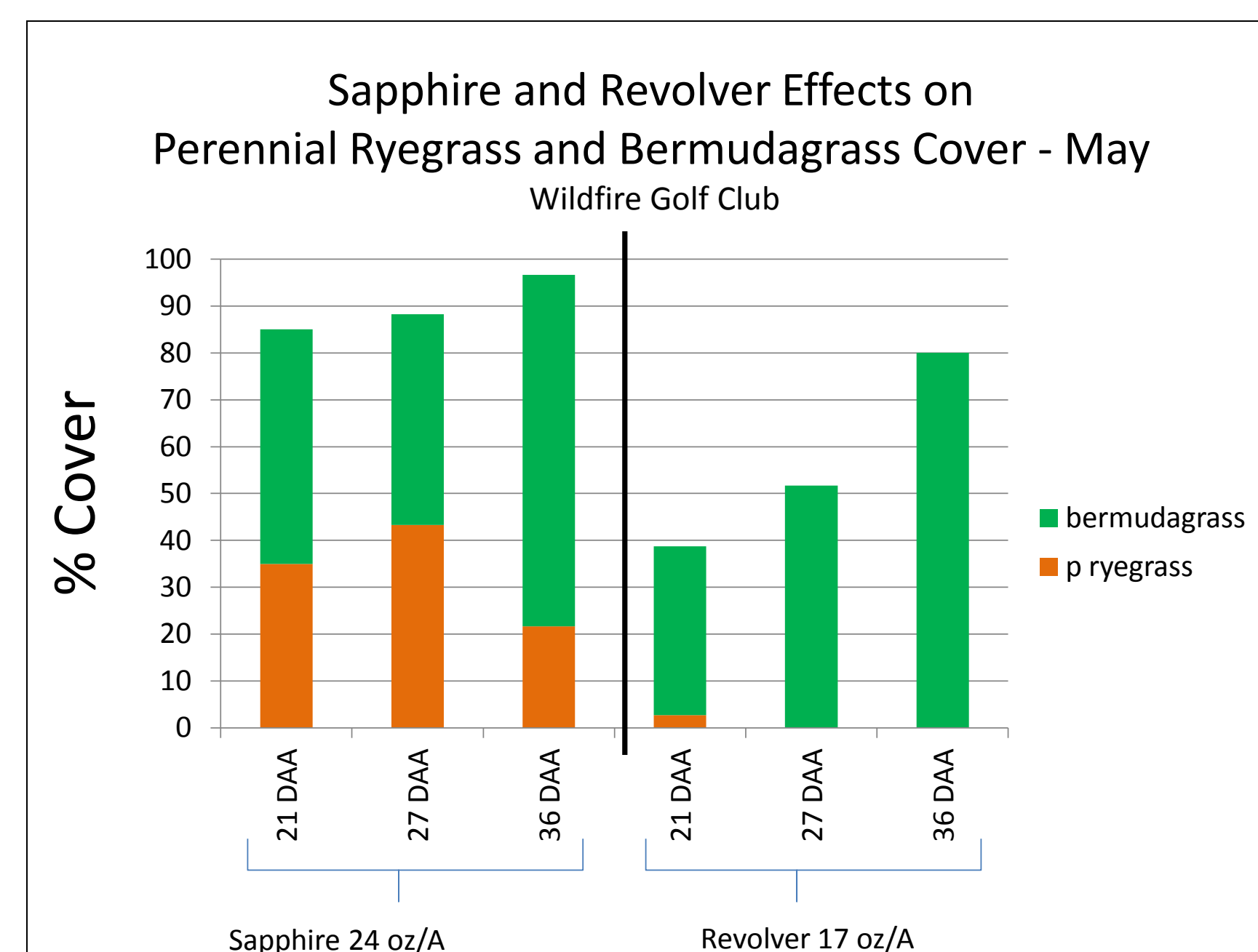
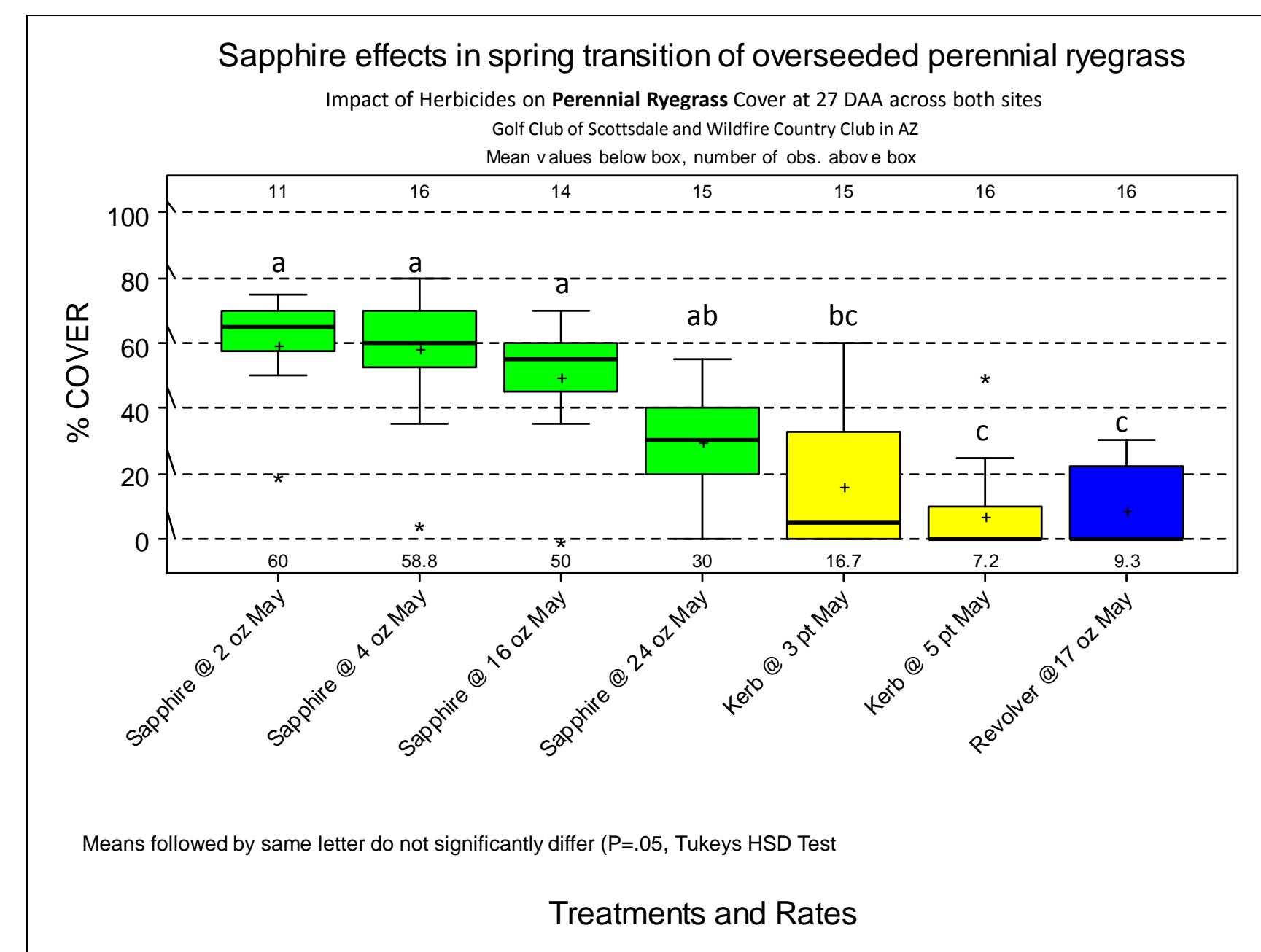
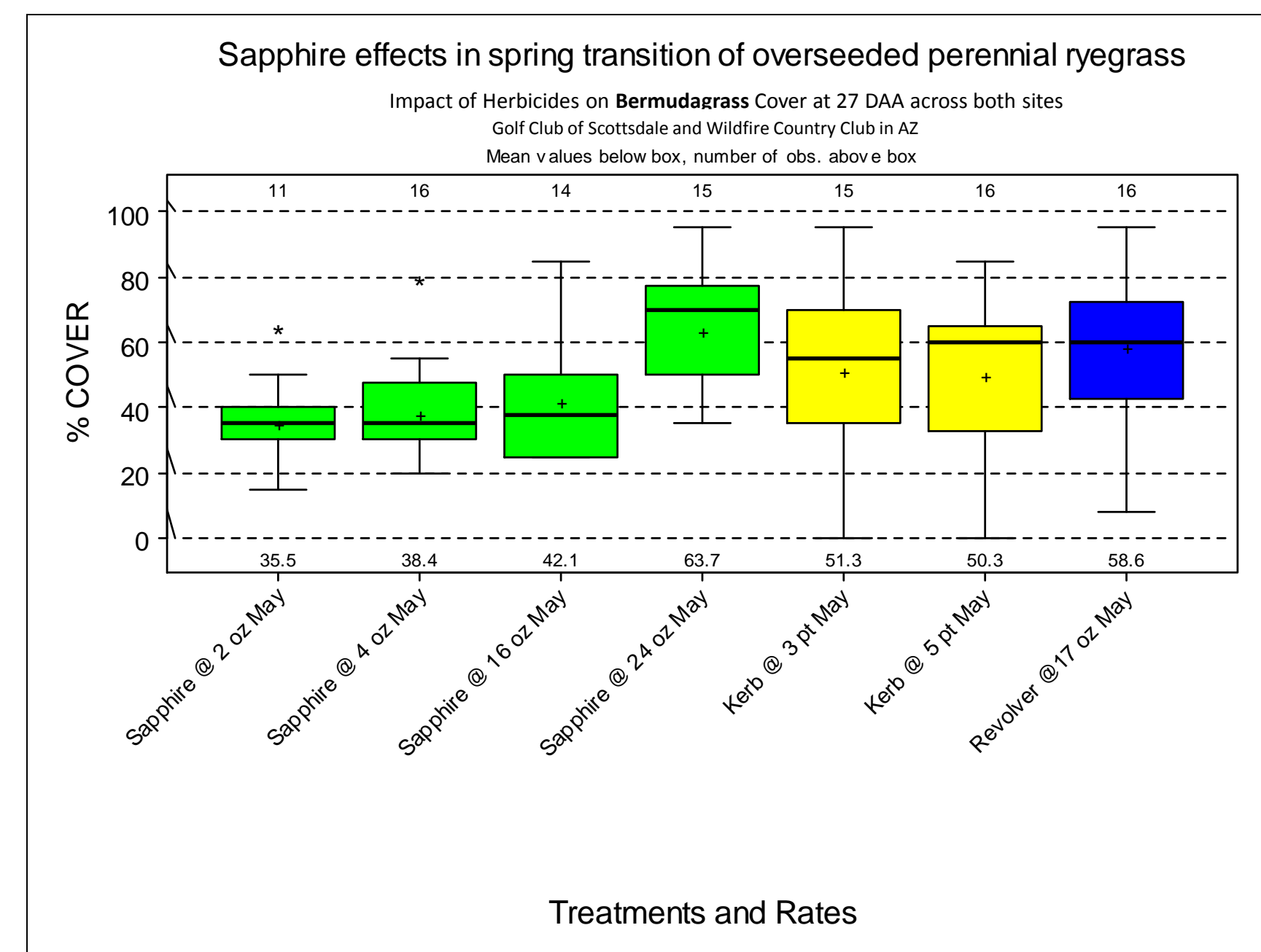
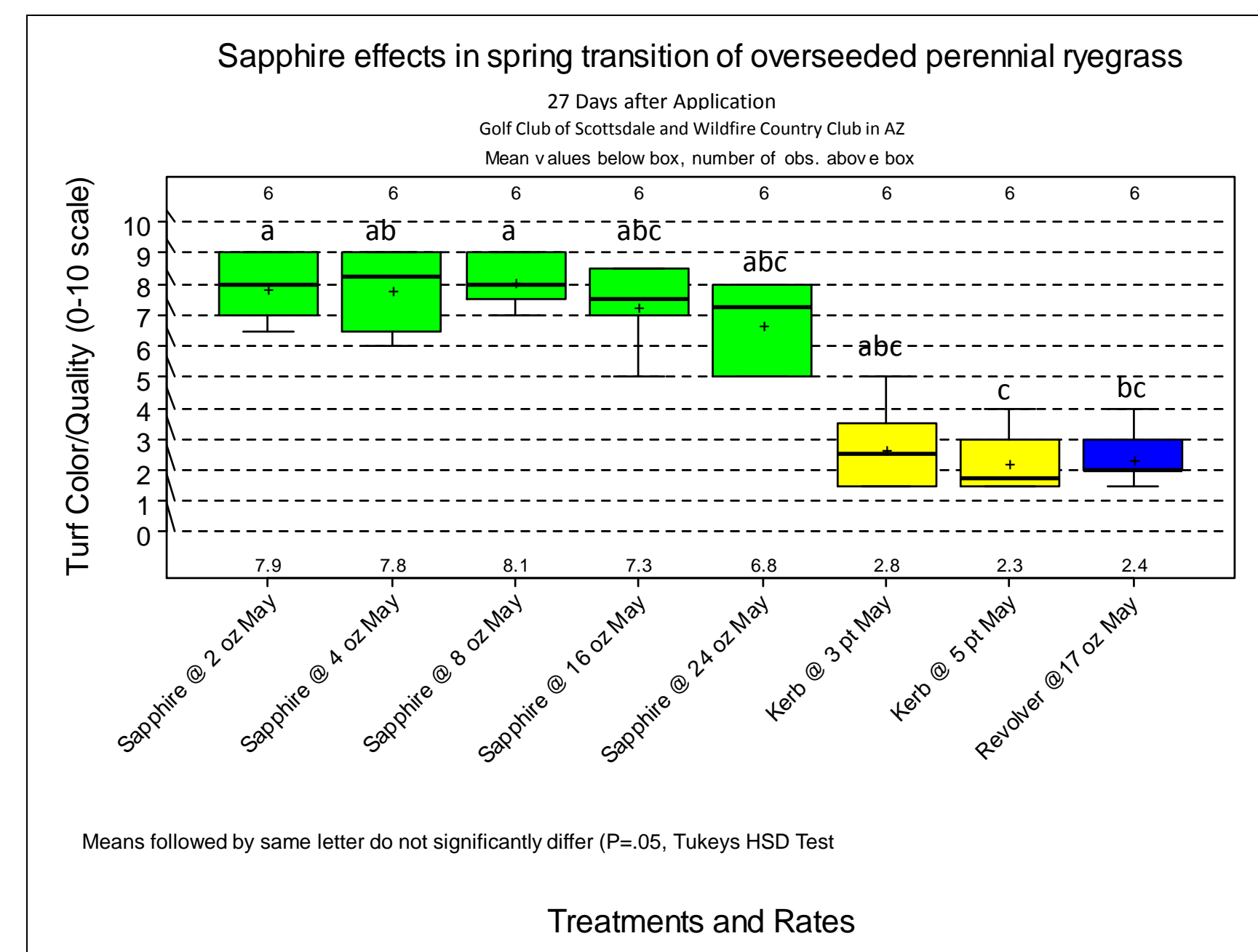
- What rate of Sapphire provides the fastest and smoothest transition from overseeded perennial ryegrass to bermudagrass similar to or better than the competitive standards?
- Does Sapphire remove overseeded perennial ryegrass in a smooth transition back to bermudagrass without a major loss of turf quality on the fairways?

2012 Sites and Information

- Arizona Locations and Application Information
 - Golf Club of Scottsdale: May 9
 - Wildfire Golf Club in Phoenix: May 11
- Application Information:
 - 50 Gallons per Acre were applied
 - No Adjuvants were used
 - Treatments included Sapphire® herbicide, Kerb® herbicide and Revolver
- Assessments made on turf quality, color, and cover by grass species

Spray Application Products and Rates

Trt Num	Appl Code	Treatment Name	Description	Form Conc	Conc Unit	Form Type	Rate	Rate Unit
1	A	SAPPHIRE	penoxsulam	0.313	lb ai/gal	SC	2.0	FL OZ PR/A
2	A	SAPPHIRE	penoxsulam	0.313	lb ai/gal	SC	4.0	FL OZ PR/A
3	A	SAPPHIRE	penoxsulam	0.313	lb ai/gal	SC	8.0	FL OZ PR/A
3	A	SAPPHIRE	penoxsulam	0.313	lb ai/gal	SC	16	FL OZ PR/A
4	A	SAPPHIRE	penoxsulam	0.313	lb ai/gal	SC	24	FL OZ PR/A
5	A	KERB SC	propyzamide	3.33	lb ai/gal	SC	2.5	PT PR/A
6	A	KERB SC	propyzamide	3.33	lb ai/gal	SC	5	PT PR/A
7	A	REVOLVER	foramsulfuron	0.19	lb ai/gal	SC	17	FL OZ PR/A
8	A	UNTREATED	UNTREATED					

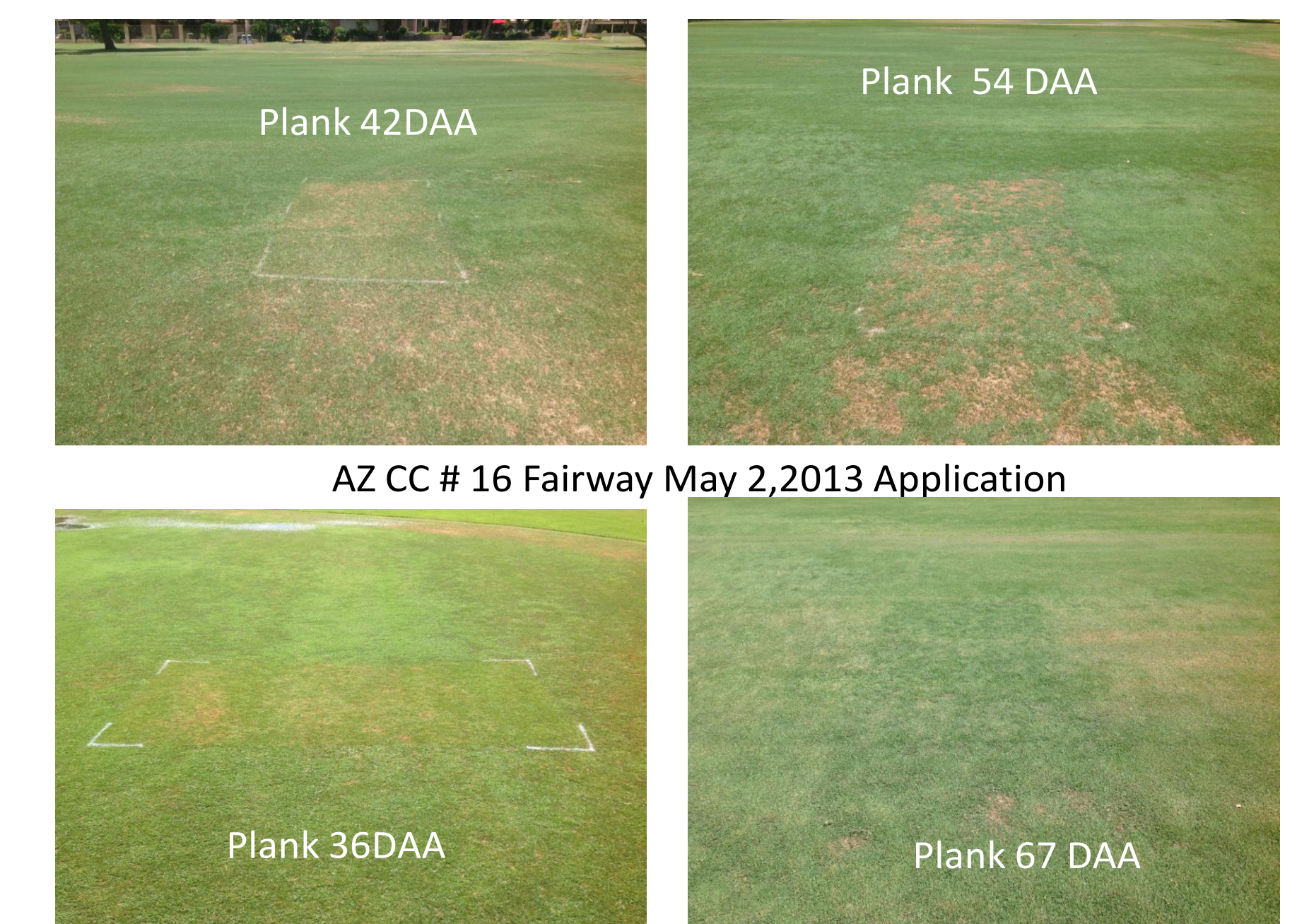
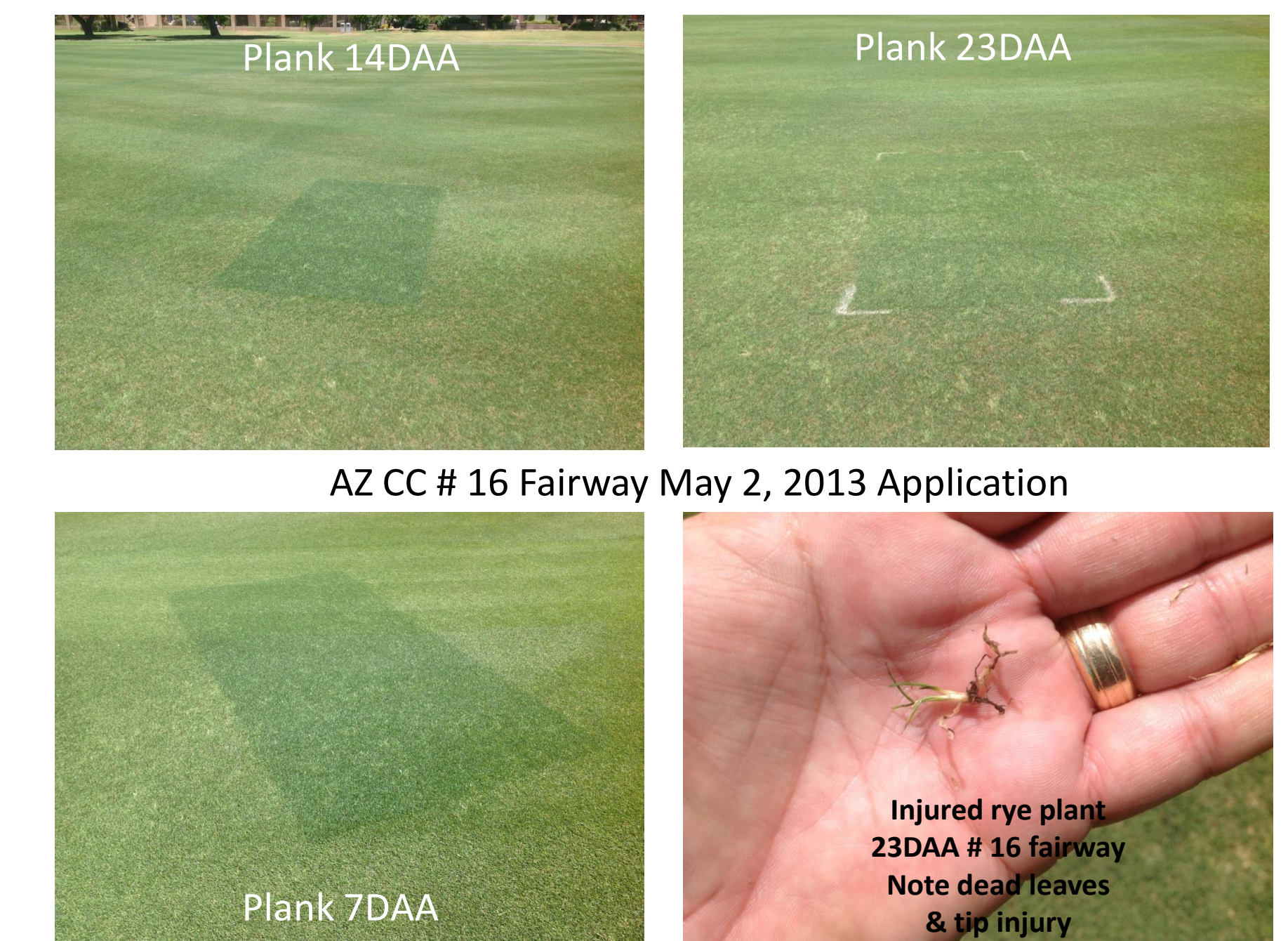
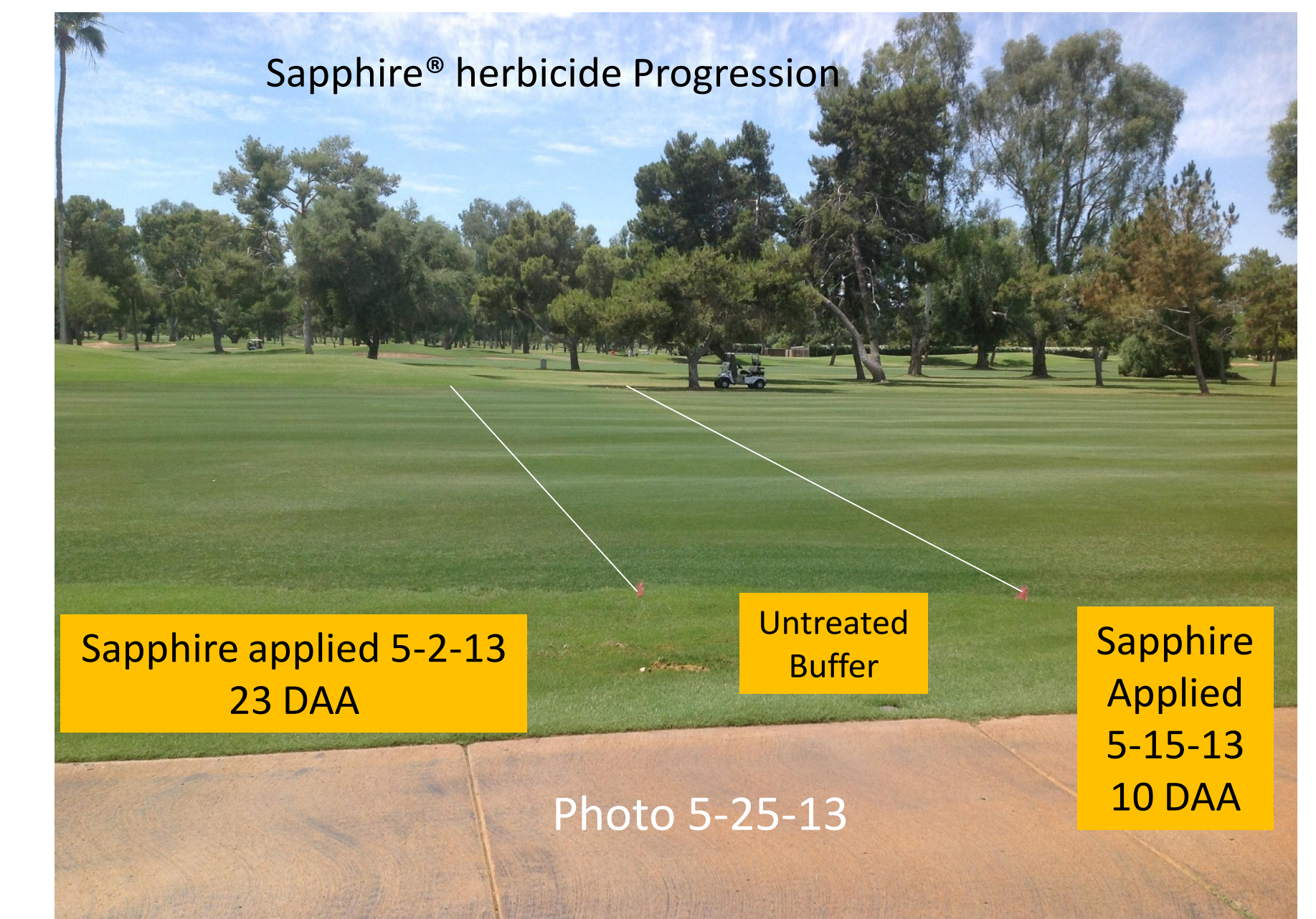
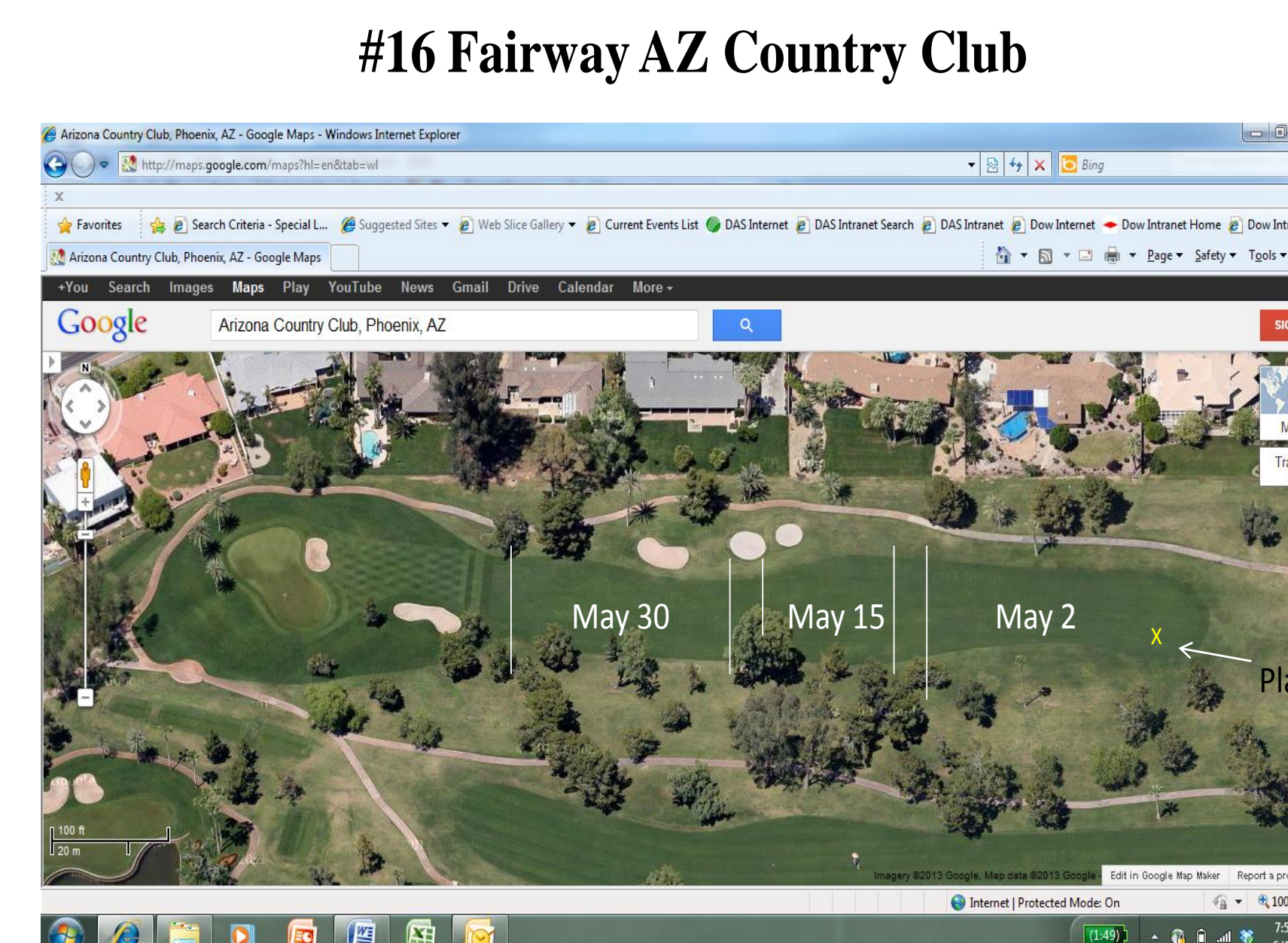


EUP Participants

- 13 Golf courses – 9 in AZ, 2 NV, 1 CA, 1 TX
 - Arizona Country Club
 - Boulder Creek
 - Butterfield Trail
 - Desert Mountain
 - Desert Highlands
 - Dove Mountain
 - Encanterra
 - The Golf Club of Scottsdale
 - The Gallery
 - Grayhawk
 - Mirabel
 - PGA West Nicklaus Private
 - Shadow Creek
 - Wildfire

Application at Arizona Country Club

- Hole number 16 fairway comprised of bermudagrass fall overseeded with ryegrass
- Treated with Sapphire at 24 fl oz/A on May 2 with an untreated check plot created by placing a wooden plywood plank on the grass just prior to application.



Conclusion and Outcome

- Sapphire® herbicide was found to be highly effective for suppression of perennial ryegrass in overseeded bermudagrass turf in Arizona and other southwestern locations when applied in small plot testing and in larger areas under an EUP in 2013.
- In small plot testing, the bermudagrass populations in Sapphire-treated turf increased with significantly less reduction of turf quality during the transition process when compared with the overseeded turf treated with Kerb® herbicide and Revolver.
- Based on this research, Dow AgroSciences received a FIFRA 2 (ee) recommendation for suppression of perennial ryegrass in overseeded bermudagrass turf in early 2014 for Arizona, California, Nevada and New Mexico followed by a supplemental label approved by US EPA in July, 2014 for Sapphire use in 8 US states.

