Turf Colorants for California

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Why Use a Turf Colorant?

- Maintain green color during winter dormancy
- Avoid inputs associated with overseeding
  - Labor, green waste, seed, water, chemicals, bermuda sod, etc.
- Divot mix
- Enhancer for television, special events
- Concealer for turf blemishes...death
- Increase surface temperature for germination and establishment
Are all turf colorants the same?

- **Dyes**
  - e.g., spray indicators
  - Soluble and will stay in solution

- **Pigments**
  - Soluble, but will settle without agitation
  - Reapplication usually required every 1-2 wks

- **Pigments with Resin**
  - “Paints”
  - Greater longevity, typically one and done
### What Color is Your Turf Colorant?

<table>
<thead>
<tr>
<th></th>
<th>Turf Colorant</th>
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<tbody>
<tr>
<td>1</td>
<td>Green Lawnger</td>
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<tr>
<td>2</td>
<td>Match Play</td>
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<tr>
<td>3</td>
<td>Color2Grass</td>
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<tr>
<td>4</td>
<td>Green PIG</td>
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<td>5</td>
<td>PAR</td>
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<td>6</td>
<td>PAR Plus</td>
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<td>7</td>
<td>Sarge</td>
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<td>8</td>
<td>Vision Pro HD</td>
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<td>9</td>
<td>Transition HC</td>
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<tr>
<td>10</td>
<td>Foursome</td>
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UCR Turf Colorant Study Locations

- Monarch Bay GC, San Leandro
  - Seashore Paspalum fairway
- Empire Ranch GC, Folsom
  - Poa/bentgrass putting green
- Jim Baird’s Home Lawn, Riverside
  - Common bermudagrass
- Marriott Desert Springs Resort, Palm Springs
  - TifEagle bermudagrass putting green
UCR Turf Colorant Study - General Conditions

- Study Duration: 5 Nov 2012 to 16 Jan 2013
- CO$_2$-powered backpack boom sprayer with TeeJet VS8004 nozzles
- Spray Volume: 2 gal/M
- Plot Size: 4-ft width x 8 to 16-ft length
- 3 replications
- Plots were rated by golfers, golf staff, industry representatives, neighbors, friends, colleagues
Application of colorants at Monarch Bay GC
**UCR Turf Colorant Study – Score Card**

Turf Colorant Study  
Golf Course: ___________________  
Date: __________

Gender: ______  Occupation: ___________________  
Index (or average 18-hole score): __

Rate each plot *individually* from 1 (strongly dislike/disagree) to 5 (strongly like/agree):

| Color matches same turf outside of study area (How realistic is this color to natural turf?) |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A   | B   | C   | D   | E   | F   | G   | H   | I   | J   | K   | L   | M   | N   | O   | P   |

**Personal Color Preference**

| A   | B   | C   | D   | E   | F   | G   | H   | I   | J   | K   | L   | M   | N   | O   | P   |

Collectively, identify your top three favorite plots by designating 1, 2, and 3:

| A   | B   | C   | D   | E   | F   | G   | H   | I   | J   | K   | L   | M   | N   | O   | P   |

**Legend**

- A: Very Green
- B: Green
- C: Light Green
- D: Yellowish Green
- E: Yellowish
- F: Brownish
- G: Blackish
- H: White
- I: Gray
- J: Gold
- K: Brown
- L: Black
- M: White
- N: Gray
- O: Gold
- P: Brown
- Q: Black
- R: White
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<td>Grigg Brothers Simplot</td>
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<td>16 oz/A</td>
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<td>32 oz/A</td>
<td>AB</td>
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<td>32 oz/A</td>
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<tr>
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<td>Makhteshim Agan</td>
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<td>20 oz/A</td>
<td>AB</td>
</tr>
</tbody>
</table>

A = 5 November 2012
B = 20 November 2012 (rates quadrupled; pigments only)
Turf Quality Ratings made by Researchers (before application)

Monarch Bay Turf Quality 11-20-12

- Control: F
- Green Blade: C
- Foursome: C
- Vision Pro HD: C
- PAR Plus: C
- Color2Grass: C
- Match Play: C
- Sarge: BC
- PAR: BC
- Green PIG: BC
- Transition HC: B
- Green Lawnger: A
Monarch Bay GC
(after application on 20 Nov 2012)
Top Performers

Monarch Bay Golf Club, San Leandro, CA

- 1st Place Votes
- 2nd Place Votes
- 3rd Place Votes
- Top 3 Total Votes

Graph showing performance of different teams with different colored bars for each category.
Monarch Bay GC (20 Nov 2012)

Green PIG
(after 4x application)
Monarch Bay GC Results

- Seashore Paspalum turf did not go dormant during evaluation period.
- 1x rates of pigments showed only marginal color effects after initial application; thus, 4x rates were applied two weeks later.
- Effects of one-time application of pigments with resin (recommended by manufacturers) wore off due to extended warm temperatures and mowing into late fall.
## Empire Ranch GC

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A = 6 November 2012 (1x rate)  
B = 19 November 2012 (2x rate)  
C = 3 December 2012 (1x rate)
Turf Quality Ratings made by Researchers

Empire Ranch Turf Quality 11-19-12

- Control
- PAR
- Foursome
- Green Blade
- PAR Plus
- Vision Pro HD
- Green PIG
- Color2Grass
- Sarge
- Transition HC
- Match Play
- Green Lawnger

Turf Quality 1-9
Empire Ranch GC
(after application on 3 Dec 2012)
Top Performers

Empire Ranch Golf Club, Folsom, CA

1st Place Votes
2nd Place Votes
3rd Place Votes
Top 3 Total Votes
Empire Ranch GC
(after application on 3 Dec 2012)

Sarge
Empire Ranch GC Results

- Poa/bent turf did not go dormant or off-color during evaluation period.
- 1x rates of pigments showed only marginal color effects after initial application; thus, 2x rates were applied two weeks later.
- All treatments were applied at 1x on 3 Dec 2012 due to extended warm temperatures and mowing into late fall.
# Jim’s Home Lawn

<table>
<thead>
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<td>128 oz/A</td>
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A = 18 November 2012
Plots sprayed at 4x rate
Jim’s Home Lawn (18 Nov 2012)
Top Performers

Jim's Home Lawn

- Untreated Control
- Green Lawnger
- Color2Grass
- Sarge
- Transition HC

Legend:
- 1st Place Votes
- 2nd Place Votes
- 3rd Place Votes
- Top 3 Total Votes
Jim’s Home Lawn
2 Dec 2012

Color2Grass  Control  Green Lawnger
Jim’s Home Lawn (6 Jan 2013)

- Transition HC
- Sarge
- Vision Pro HD
- PAR
- Color2Grass
- Green Lawnger
- Green PIG
- Match Play
- PAR Plus
- Untreated Control

Color Retention (1-9, 9 = darkest)
Jim’s Home Lawn (6 Jan 2013)

Bar chart showing sidewalk color retention for various treatments:
- Green Lawnger
- Color2Grass
- Sarge
- Match Play
- Transition HC
- PAR
- Green PIG
- Vision Pro HD
- PAR Plus
- Untreated Control

Sidewalk Color Retention (1-9, 9 = darkest)
Jim’s Sidewalk (18 Nov 2012)
Jim’s Sidewalk (2 Dec 2012)
Jim’s Home Lawn Results

- Turf was scalped to achieve uniform dormancy (brown color) before application.
- 4x rates of colorants were required to achieve acceptable color on dormant (brown) turf.
- Longevity of Sarge on turf (and concrete) may be related to added ingredients and top performance at all study locations.
- Turf colorants, especially paints, should be washed off immediately from sidewalks and other non-turf surfaces.
# Marriott Desert Springs

<table>
<thead>
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<td>128 oz/A</td>
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A = 16 November 2012
B = 30 November 2012 (pigments only)
C = 14 December 2012
D = 11 January 2013
Researcher Ratings Before Full Dormancy
Researcher Ratings During Dormancy

Marriott Desert Springs Turf Quality 12-31-12

- Control
- PAR Plus
- PAR Plus 2X
- PAR
- Green PIG
- Vision Pro HD
- PAR 2X
- Transition HC
- Match Play
- Green PIG 2X
- Vision Pro HD 2X
- Green Lawnger
- Sarge
- Color2Grass
- Transition HC 2X
- Sarge 2X

Turf Quality 1-9
Top Performers
(rated between 31 Dec 2012 and 10 Jan 2013)

Marriott Palm Desert Springs (2 - 4 WAT)
Marriott Desert Springs (31 Dec 2012)
Top Performers (rated 16 Jan 2013)

Marriott Palm Desert Springs (5 DAT)

- Untreated Control
- Green Lawnger 10 gal/A
- Color2Grass 1:15
- PAR PLUS 32 oz/A
- Vision Pro HD 64 oz/A
- Transition HC 64 oz/A
- Sarge 64 oz/A

1st place votes
2nd place votes
3rd place votes
Top 3 Total Votes
Marriott Desert Springs Results

- This was only study site where we were able to achieve application of colorants in transitioning from non-dormant to dormant turf.
- Colorants appear differently depending on whether or not the turf is dormant at the time of application.
- Generally, higher (2x) rates of pigments preferred over 1x rates.
Summary

- Nearly 100 different respondents over 4 locations.
- Overall, most top 3 vote-getters:
  - 1. Sarge
  - 2. Green Lawnger
  - 3. Green Pig
  - 3. Color2Grass
  - 4. Transition HC
- Ratings following applications of both paints and pigments favored paints.
Summary

- Label rate is likely not enough to achieve desired color.
- Start applications before dormancy or as much as 4x rate needed on brown or dormant turf.
- If mowing, more frequent applications are likely necessary, including paints.
- Up to 5°F surface temperature increase following application, but short-lived and no significant differences among colorants tested.
Summary

- Avoid sidewalks or wash immediately.
- Spray equipment and everything else associated with application are going to turn green.
- Colorants work best on monostands of a turfgrass species rather than mixed stands of warm- and cool-season grasses.
- Drying time 1-2 hours under optimal conditions. No significant differences found among treatments, although paints tend to take longer to dry.
Colorfastness (filter paper rubbed 5x 1-2 h after application)

Control

Green Lawnger
Summary

- Colorants tested can be categorized into 3 hues:
  - Blue-Green
    - PAR, Sarge, Green PIG, Foursome, Green Blade
    - Look best and most realistic when applied on green turf before turning dormant or brown
  - Yellow-Green
    - Color2Grass, Match Play, PAR Plus
  - Dark Green
    - Green Lawnger, Vision Pro HD, Transition HC (darkest)
Acknowledgments

- Jon Christenson, Superintendent
  - Monarch Bay GC
- Rodney Muller, Superintendent
  - Empire Ranch GC
- Aaron Engelhard, Superintendent
  - JW Marriott Desert Springs Resort & Spa
- Alison and Yun Baird
  - Jim’s daughter and wife
  - “Don’t worry, dear. Eventually the colorants will wear off of the concrete.”
This research was made possible by:

CA Turfgrass Landscape & Foundation

“Keeping California Green and Growing”

• Becker Underwood
• Enviroseal Corporation
• Grigg Brothers
• Numerator Technologies
• Pioneer Athletics
• Simplot Partners
Please contact Jim Baird with questions or if you would like a PowerPoint version of this file for your own presentation.

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