

# Kikuyugrass Management Survey

Mission Viejo Country Club

February 1, 2010

# Mowing Practices:

- Seasonal height of cut averages:
  - Spring – 0.507" (range: .375" to .750")
  - Summer – 0.507" (range: .375" to .750")
  - Fall – 0.606" (range: .450" to .750")
  - Winter – 0.593" (range: .450" to .750")
- Mowing frequency – range 3 to 6X/week.
- Heavy mowing units preferred over light-weight reel.

# Vertical mowing:

- Survey summary:
  - 80% vertical mow in spring.
  - 52% vertical mow in summer.
  - 36% vertical mow in fall.
  - 0% vertical mow in winter
- Depth = 1/8 to 1/4 into soil; some just barely into the soil. Santa Ana CC : can't be too aggressive, results in slow or no recovery. Los Coyotes CC: must be careful with vertical mowing in late summer.
- Three courses using groomers w/ ea mowing. Newport Beach CC grooms weekly up to GLS season (July). Some courses unable to vertical mow due to limited labor and compensate with frequent mowing.
- Torrey Pines – Vertical mows monthly throughout year.
- Vertical mowing equipment – Graden, flail with straight knives, Weideman, Toro 6700, First Products 640, Sisis Veemo, Toro 450D w/ verticut reels, Toro 6700D w/ verticut reels, JD 2653 w/ verticut reels.
- Torrey Pines and Rolling Hills CC occasionally use spring tine harrow; also tried in rough.
- El Niguel – Combines vertical mowing with deep aeration (8"-10") and topdressing 4x/ year.

# Soil aeration

## Survey summary:

- 100% aerify in spring.
  - 52% aerify in summer.
  - 64% aerify in fall.
  - 20% aerify in winter.
- Most courses use coring tines in spring.
  - Torrey Pines performs constant deep tine in traffic areas.
  - 25% of courses use deep tine aeration – all agreed it was a slow process, but effective.
  - Some courses doing slice aeration (PlanetAir). Mission Viejo CC – will be testing monthly slicing. Black Gold GC – alternates core tines and slice tines on the same machine. Can get scars and slow recovery with PlanetAir coring tines.
  - Aeration equip: Vertidrain, Soil reliever, Aerway, Vertidrain walker for small areas, Toro with core processor (SHCC – best when cores allowed to dry 45 – 60 min.).
  - Palos Verdes CC – softened up hard frwys with Aerway for several yrs and transitioned to Vertidrain (takes advantage of soft soil following rainy season).
  - El Niguel CC aerates rough also 2X/yr.

# Plant growth regulators

- Survey summary:
  - 88% apply in spring.
  - 88% apply in summer.
  - 80% apply in fall.
  - 4% apply in winter
  - Avg. rate: 0.29 oz./1000 sq. ft. (range: 0.15 oz. to 0.50 oz.)
  - Avg. spray interval: 19 days (range: 14 to 28 days)
- Nearly all clubs using *Primo*. Wide differences in rates/ frequency.
- Many reported good results with a 14-day schedule @ .2 to .3 oz/1000.
- Newport Beach CC applies @ .45oz/1000 due to nitrogen in effluent water.
- Torrey Pines – continues applications all year @ 14-day interval and a rate of 0.3z/1000.
- South Hills CC and SeaCliff – using generic w/ good results. Most using *Primo*.
- Research needed on application rate and timing as well as kikuyugrass uptake.
- Consensus of the group agreed that *Primo* prevents scalping. Most keep rate constant throughout year.
- South Hills CC – *Primo* helping to some degree in marginally shaded areas.

# Pre-emergence weed control

- Survey summary of preemergence weed control practices:
  - 28% spring application
  - 20% summer application
  - 32% fall application
  - 12% winter application
- Preemergence herbicides:
  - El Niguel CC = uses *Dimension* for crab, swinecress, poa.
  - Mission Viejo CC = uses *Dimension* late summer and late fall w/ for poa. Experienced phytotoxicity with new liquid formulation of *Ronstar*.
  - Other courses using *Barricade*, pendimethalin. Some root clubbing at El Niguel CC with both *Barricade* and *Dimension*.
  - Torrey Pines – no preemergence applications due to budget; focusing on growing healthy kikuyu and using post emergence herbicides.

# Post emergence weed control

- Post emergence herbicides:
  - *Speedzone* discolors for two weeks; effective on swinecress.
  - SeaCliff : applied Revolver @ 0.6 oz (high label rate) in May. Discoloration. Recovery in 5 weeks. This year, using Kerb at low rate for poa.
  - Torrey Pines: prefers Revolver; runoff with Kerb. (April application) Signs of recovery in 2 weeks with full recovery in 6 weeks.
  - Must be at high label rate to get clump ryegrass.
  - Timing: best if apply in June and coordinate with availability of kikuyu sod in July.

# Fertilizer programs

- Survey summary:
  - 88% fertilize in spring.
  - 58 % fertilize in summer.
  - 67% fertilize in fall.
  - 8% fertilize in winter
- Iron (Fe) and manganese (Mn) are widely used at all courses. Products include: Granusol/ Simplot Extreme Green. Mostly combined w/ Primo. Los Coyotes applies 4 oz of both iron and manganese every 3 weeks.
- Light rates of nitrogen generally applied w/ Primo. Los Verdes suspended applications of nitrogen w/ Primo and just applies iron.
- Torrey Pines – change in philosophy over years. Avoided N for many yrs and started using Polyon granular slow release fertilizer with good results @ 1.5 lbs. nitrogen/ 1000 sq. ft. in October. Fertilizer slowly releases over a period of 6 months (Oct – April).
- Fertigation – Only Riviera reports injecting fertilizer, mostly nitrogen .



# Disease control

- Disease control
- Survey summary:
  - 64% spring fungicide application
  - 40% summer fungicide application
  - 52% fall fungicide application
  - 60% winter fungicide application
- 40% of courses spraying for disease.
- Target diseases: winter brown patch, kikuyu decline, gray leaf spot.

# Brown patch

- [?] Brown patch – group split: some treat when visible, others treat preventive. Triggered by moisture, not necessarily N levels. Observed when big swings in temp. Fungicides: La Jolla and La Cumbre: Cleary's 3336, PCNB. El Niguel: Prostar in Nov/Dec, Curalan as needed (inexpensive). Santa Ana: treats Oct with Heritage, Nov with PCNB, Jan with Prostar, and sometime in the spring with PCNB. South Hills CC: Heritage +Daconil Weatherstik. Mission Viejo CC: Banner Maxx + Daconil. Ammonium sulfate helps with disease recovery and thought to suppress disease.

# Gray leaf spot / Kikuyugrass decline

- [?] Gray leaf spot – Frank Wong temperature/ humidity model used by many to predict disease outbreak. Damage most prominent in drought stressed areas. El Niguel CC uses the disease model and usually treats in July (Daconil 3 oz+ Banner 1 oz/ 1000 sq. ft., or Daconil + Cleary's at recommended label rates. Newport Beach CC treats July.
- [?] Kikuyu decline – Torrey Pines: topdressing program contributed kikuyu decline/ triggered by drought stress.

# Topdressing

- Survey summary:
  - 28% spring topdressing
  - 24% summer topdressing
  - 16% fall topdressing
  - 0% winter topdressing
- Timing and topdressing rates varied among the group.
- Benefits: firmer, smoother, traffic tolerance (especially in winter), reduced scalping, and fewer problems with earthworms. Benefits visible after 4 yrs. Reduction in scalping possibly due to improved water penetration.

# Topdressing

- El Niguel CC – Combines vertical mowing with deep aeration (8” – 10”) and sand topdress (12 tons/AC) on frequency of 4X/ yr. Uses washed plaster sand.
- Torrey Pines reported that they experienced kikuyu decline after one year of an aggressive topdressing program and have since stopped applications.
- Newport Beach CC, Mission Viejo CC, South Hills CC, and La Jolla apply sand topdressing on a frequency of 2 to 4X/ yr. at 10 to 15 tons/ AC per application.
- Cost range for sand program = \$50K to \$70K/ yr. RHCC spot topdressing (\$20K/ yr). Once start – don’t stop. Some courses not topdressing due to budget. Mission Viejo CC – recommended expanding the program to include rough along cart paths.

# Irrigation management

- Only a few courses using effluent. Nitrogen levels can be a problem by over-stimulating turf growth.
- Kikuyugrass likes moist soil, but does not tolerate wet feet.
- Torrey Pines: better turf quality by watering daily @ 65% ET.
- Santa Ana CC – Deep waters for 5 hrs on Sunday night through closed Mondays. Seems to help in avoiding gray leaf spot.

# Shade

- Shade major obstacle to sustaining kikuyu. **PACE** – some data but difficult to quantify.
- Comments from group - kikuyu seems to be more shade tolerant than bermuda. SeaCliff and San Gabriel sodding kikuyu into shaded areas. Torrey Pines sodded shade areas for US Open; coverage reduced by 50% after two yrs.
- South Hills CC – Whittet seems to be more shade tolerant than AZ-1. Dedicated tree programs resulted in a corresponding increase in kikuyu populations.

# Planting and establishment

- Seeding techniques- successes and failures
  - Seeding into bare soil = successful.
  - Interseeding into mixed turf= unsuccessful.
- Overseeding: Torrey Pines, Yorba Linda CC – only light interseeding for special tournaments.
- Some collecting cores and spreading to weak areas/ and for nursery establishment. SeaCliff – rototills stolons into weak spots with good results. Mission Viejo CC – solid tine aeration + spread clippings + hand-push stolons into aeration hole (moderately successful).
- Torrey Pines and several other clubs just cut healthy area of kikuyu and transfer the sod; natural regrowth of harvested area in 2 - 5 weeks (summer). Recovery is better if no topper/ compost is applied to the harvested area and sod is cut thin.