

PRL Committee

From: Todd Allen <Todd.Allen@co.maui.hi.us>
Sent: Monday, June 26, 2017 12:14 PM
To: PRL Committee
Subject: Fwd: Emailing: USGA Site visit 10-12-16.pdf
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Please see attached sorry I don't have good cell signal here at kamehamaha schools.

Mahalo,
Todd Allen
Golf Course Superintendent
Waiehu Golf Course
County of Maui
808-986-0281

Begin forwarded message:

From: "Kyle Takushi" <Kyle.Takushi@co.maui.hi.us>
To: "Todd Allen" <Todd.Allen@co.maui.hi.us>
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Course Consulting Service
ON-SITE VISIT REPORT



**Waiehu Golf Course
Wailuku, Hawaii**

Visit Date: October 12, 2016

Present:

Mr. Todd Allen, Administrator/Superintendent

Mr. Art Rego, Head Professional (short visit)

Mr. Larry Gilhuly, USGA

United States Golf Association

Larry Gilhuly, Agronomist | Green Section | West Region

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The USGA Green Section develops and disseminates sustainable management practices that produce better playing conditions for better golf.

It was a pleasure to once again visit the Waiehu Golf Course on October 12, 2016, on behalf of the USGA Green Section. This was the first visit back to Waiehu in two years, with a change in the administrator/superintendent position and the results noted on the golf course. Despite ongoing extensive populations of goosegrass, the overall condition of the golf course was superior when compared to nearly the same time two years ago. Nearly all wet and dry spots have been eliminated through proper irrigation practices. It was good to learn that goosegrass populations were significantly reduced during the warmer summer months. In addition, the ongoing improvement of the tees through the proper use of seashore paspalum was noted, and it was good to learn that finally, the person in charge understands the common-sense approach to expanding this grass throughout the entire golf course. This has been recommended for nearly two decades, with the tees showing the obvious advantage of this grass over bermudagrass. The natural competitive advantage of this grass on your relatively cloudy site provides a natural resistance to goosegrass invasion. In addition, this grass uses far less fertilizer and has the ability to withstand brackish water. In short, of all of the positive changes noted during this visit, this is the one that will have a major and profound lasting positive effect, as the greens and fairways will be addressed in the near future.

As a final comment concerning positive improvements noted during this visit, it was good to see several “cutting edge” units that have been added or will be added by Mr. Allen. From different types of aeration to the addition of a premixing tank (finally!), the ability to address compaction (that results in a byproduct of more goosegrass) and allow for less expensive fertilizer applications will be beneficial in the future. Should you have any questions concerning this visit or report, please do not hesitate to contact our office.

EXECUTIVE SUMMARY

The following brief summary provides a non-explanatory list of topics discussed that can be found within the main framework of this report in the same order. Each topic is discussed in greater detail including observations and recommendations.

- Goosegrass control/conversion**
 - **Visit those with experience in the conversion process.**
 - **Test fraze mowing on a fairway.**
 - **Include the greens and expanded collars during the renovation process.**
 - **Open the greens when ready for traffic, and not before.**
 - **Expectations should be realistic.**
 - **Mow it low for the best results.**

- Ongoing goosegrass elimination**
 - **Experiment with Hoelon[®].**
 - **Expand the experimental use noted around No. 16 green.**
 - **Be fanatical in pre-emergence herbicide usage.**

- Tees**
 - **Complete all of the tees with seashore paspalum.**
 - **Utilize the services of a qualified golf course architect.**
 - **Add a complete set of forward tees.**

- Trees**
 - **Remove trees behind No. 13 green.**
 - **Remove unnecessary trees or transplant to other areas.**
 - **Remove as many palm trees as possible and especially all of the unnecessary recent plantings.**

- Miscellaneous topic**
 - **Remove rough in front of the greens.**

GOOSEGRASS CONTROL AND CONVERSION

Observations. Dating back to visits during the 1980s through this visit, the overriding problem at Waiehu has been a persistent and ongoing goosegrass domination. This problem has never gone away; however, it was encouraging to learn that positive steps were taken this summer. There is no question that resistant types of goosegrass are found at Waiehu that are not removed even though newer chemistries are utilized. This is one of the main reasons why the use of seashore paspalum has been recommended for years. Unfortunately, this has fallen on deaf ears from those responsible for the maintenance of the golf course. Fortunately, Mr. Allen has the foresight and understanding of the strengths of this grass plus a good approach to testing various methods to begin a focused and concerted effort to remove this tenacious weed. It was most gratifying to learn that a combination of sprigs and seed of seashore paspalum will be used to begin introducing this grass to the greens and fairways beginning in 2017.

Recommendations. As you move forward in converting the golf course to a more desirable stand of seashore paspalum, there are several programs and educational steps recommended to achieve the best possible results. While a significant amount of education has been consumed by Mr. Allen in his 18 months at Waiehu, those that have experience with this grass are often the best source of common-sense approaches to improving stand populations. This is especially true for those golf courses that have battled the same type of problems faced at Waiehu. With this and other factors in mind, the following was recommended in regard to the removal of the goosegrass and conversion to seashore paspalum:

- **Visit those with experience in the conversion process.** There have been several golf course superintendents across Hawaii who have had success converting existing properties to seashore paspalum while removing extensive weed populations. The three best that were highly recommended include Mr. Mike Honma at Turtle Bay Resort, where all of the greens have been converted via sprigging, or sprigging into the existing greens with an extended conversion. The second is Mr. Tim Snelling at Mauna Lani Resort on the Big Island. Mr. Snelling has also had outstanding results using a combination of sea water, salt and a spreader/sticker to eliminate undesirable grasses in their early stages without herbicide usage. Finally, the best comparison for Waiehu is the municipal golf course on Kauai. Wailua has gone through the exact type of difficulties you face and is now easily the most weed-free and healthy public seashore paspalum golf course visited in Hawaii. It is suggested to contact Mr. Craig Carney to visit their course and share information on similar issues.

A good example of success gleaned from USGA Course Consulting Service visits has been the impact phosphorus can have when establishing either sprigs or seed. The final step in the conversion process that Mr. Honma found was the use of phosphorus. This is a key ingredient in the establishment of roots for any seed or sprig, thus diammonium phosphate (11-52-0) was added at the time of conversion and monthly during the conversion process. The rate is approximately 1/4 to 1/3 pound P/1,000 square feet every four weeks in a fluid form.

- **Test fraze mowing on a fairway.** It was very interesting to learn that the county owns a Koro™ fraze mower that is used for its sports fields. This relatively new technology has gained rapid utilization in warm-season areas in the desert southwest. The advantage of this unit is the ability to remove not only all of the existing weeds from a fairway, but also to penetrate up to 1 inch in depth to also remove all of the potential seeds created by your plants. The smoothing effect of this operation is outstanding, thus it was highly recommended to complete a test of this process on No. 6 fairway as soon as possible while warmer temperatures exist. This fairway can then be overseeded with the seashore paspalum seed to determine how well establishment occurs, how much goosegrass germinates, and if this process should be completed during the four-month closure of the greens when they are converted to seashore paspalum. Since the greens are

usually the last part of any renovation to be ready for intense traffic, it is expected that fraze mowing of the fairways can be completed as part of the renovation process.

Based on the success of this test area, the addition of a fraze unit would be recommended for the golf course, as the unit could also be utilized for the second nine or future dethatching efforts in the roughs and other portions of the golf course. In reality, since virtually every chemical approach has been utilized with limited or no results, this is the best answer for completely eliminating or greatly reducing goosegrass populations on the fairways.



Physical removal will be needed to remove plants/seeds.

- **Include the greens and expanded collars during the renovation process.** It was very good to learn that an improved type of seashore paspalum has been purchased for sprig usage next spring to convert at least nine of the putting surfaces. As this is completed, it was highly recommended to include the collars and expand the collars as much as possible with use of this grass. While this seashore paspalum is not a good rough grass and should not be used for roughs around the greens, the expansion of the collars maintained at a very low height provides a wider protection from goosegrass invasion and a much cleaner look in the area surrounding the greens.



- **Open the greens when they are ready for traffic, and not before.** One of the most common problems viewed over the years with seeded or sprigged putting surfaces is a rush to open the greens too soon. This can often lead to weakened conditions and would be especially problematic at Waiehu leading into your winter months. Fortunately, one of the advantages of seashore paspalum is the ability to grow during cloudy conditions and cooler temperatures while naturally resisting invading weeds. As mentioned during the visit, it was recommended to utilize the services of USGA Green Section in 2017 at or near the time of the proposed opening to provide an unbiased opinion when reopening this critical part of your golf course operation.

- **Expectations should be realistic.** While the conversion from bermudagrass to seashore paspalum will provide superior putting surfaces and far fewer problems with persistent goosegrass, the expectation of perfection during the first winter and spring is not realistic. There will be times when portions of the greens will struggle. It is, however, expected that these putting surfaces will come through the first winter and improve systematically during 2018, with the problem of goosegrass on the putting surfaces and nearby green surrounds becoming a thing of the past.

Regarding the fairways, it would not be realistic to expect all of the goosegrass and bermudagrass to be completely gone following the fraze mowing and reseeding effort. It will take longer, and you can expect bermudagrass recontamination. However, results should be positive by 2018. In reality, the conversion to 100 percent seashore paspalum is not realistic. It is very realistic to assume that the current problem of goosegrass on the fairways will be dramatically reduced by converting to this more competitive grass.

- **Mow it low for the best results.** One of the more interesting aspects of seashore paspalum is its competitive nature as the mowing heights go down. While it will not be realistic to mow this grass at putting green height, experience at other seashore paspalum courses has shown that when mowing heights drop below 1/2 inch, ball lie improves and weed invasion reduces. As you bring this grass into playing condition, it will be important to not exceed 1/2 inch and preferably be slightly under for best results.

ONGOING GOOSEGRASS ELIMINATION

Observations and recommendations. While there have been some positive results on the putting surfaces and around the greens through the use of different products, as a whole, the traditional chemical approaches for removal have been less than adequate. However, this does not mean that this approach to controlling goosegrass around the greens and in the roughs should be completely eliminated. With this in mind, the following was recommended:

- **Experiment with Hoelon.** This product was introduced in Hawaii several decades ago. However, as with other materials, many of the goosegrass plants bred resistance to its use. You may wish to experiment with its use based on past positive results, as it is possible that some of your goosegrass will be susceptible to this chemical.
- **Expand the experimental use noted around No. 16 green.** There is no question that the product combination used around No. 16 has had very positive results. Based on these results, it was highly recommended to immediately begin applications of the same materials around No. 18 green, the practice green and other high-visibility areas. It was also mentioned that as more staff members can apply product, a simple technique of using lines to delineate spray patterns can prove very positive when spot spraying these weeds. This old idea was noted with good success, especially when



using spot spraying techniques. Eventually, the use of these products in a metered manner followed by spot spraying should provide the best results. Based on the results of this spot spraying effort, the use of these products on fairways that are not converted was highly recommended in 2017.

- **Be fanatical in pre-emergence herbicide usage.** One of the recommendations given several times in the past is to start a consistent program of pre-emergence herbicide usage. For this reason, it was good to learn that Mr. Allen intends to make four applications of a combination of Ronstar® and Specticle® to minimize new plant emergence on all of the fairways. The same program should be employed in nearby roughs, as they are a major source of seed on the fairways.

Finally, it is extremely important to extend the pre-emergence program into the green surrounds, as these areas are highly prone to goosegrass establishment due to excess traffic. Areas prone to high compaction and traffic such as noted around the end of the ropes on No. 18 and near the green (lower left photo and right photo arrow) need both pre-and post-emergence control efforts. In reality, the simple control of carts in this area will produce a much better result, as can be noted in the lower right photo.



TEES

Observations and recommendations. The teeing surfaces at Waiehu are the most positive improvement noted since the visit in 2014. This is due to the ongoing and positive results through the use of seashore paspalum. The emphasis on converting to seashore paspalum was noted once again when comparing No. 15 tee prior to and on the day of this visit. The photo to the right shows No. 15 tee prior to paspalum conversion in 2014, with a significant amount of goosegrass on the surface. By converting to this grass, there was no goosegrass noted during this visit and none unexpected due to the competitive nature of this grass. Looking to the future, several very important and positive changes were recommended for the tees:



- **Complete all of the tees with seashore paspalum.** The conversion of all of the tees thus far has been a 100-percent success, with total conversion highly recommended on all of the teeing surfaces. While virtually little or no fertilizer has been put on these tees since the time of Mr. Allen's arrival, it is important to provide nitrogen fertilization to minimize dollar spot and provide some growth from normal heavy traffic. In addition, this grass thrives and responds well to applications of iron sulfate and magnesium sulfate without growth. A combination of small amounts of nitrogen and these micronutrients throughout the year should be enough to provide minimal organic development and desirable color.



- **Utilize the services of a qualified golf course architect.** It was interesting to learn of the potential infusion of capital for use on the golf course. While it would be understandable to immediately consider several large-scale architectural features, the best use for these funds at this time is the addition of a complete set of forward tees. As forward tees are contemplated, the use of a qualified golf course architect is highly recommended. While there are certainly many different individuals that can be considered, it is important to also consider those with experience in golf course architecture in Hawaii. Perhaps the most experienced is Mr. Mark Miller from Denver, Colorado. Mr. Miller was the lead designer for Mr. Robin Nelson, who designed many golf courses in Hawaii. At this time, Mr. Miller is working with Mid-Pacific Country Club on this most important addition that should be considered at Waiehu.

- **Add a complete set of forward tees.** Since the time of writing the article [Move Forward, Not Back](#), major changes have occurred in the game in regard to the addition of forward tees. Using the 75-percent principle discussed in this article, any forward tee distance can be converted by dividing it by 0.75 to provide a comparable distance between women and men players. For example, a course measuring 5,000 yards for a woman player would be equivalent to a male player playing the same golf course at 6,666 yards. At Waiehu, your 5,478-yard forward tees play an equivalent distance for men of 7,304 yards! It is no wonder that many find your golf course too long and difficult for their ability.



Current forward tees are still too long for many players!

At the same time, many of your older male players also find the current distance to be too long for their continued enjoyment of the game. For this reason, many golf courses have opted to include an additional set of forward tees from 4,500 to 4,800 yards. The 4,500-yard distance is equivalent to the average male player playing a golf course at 6,000 yards. The chart below shows the current distance and proposed distances for Waiehu that could have a major positive impact on attracting and retaining more players while increasing both pace of play and the “fun factor.”

Waiehu Golf Course – Forward Tee Recommendations					
Hole No.	Current Forward Distance	Comparative Distance	Proposed Forward Distance	Proposed Comparative Distance	Current White Distance
1	441	588	384	512	512
2	113	151	104	139	139
3	325	433	263	351	351
4	486	648	383	511	511
5	205	273	160	213	234
6	280	373	270	360	360
7	415	553	368	491	490
8	134	179	113	151	150
9	363	484	286	381	381
10	327	436	300	400	401
11	303	404	284	379	339
12	299	398	247	329	329
13	313	417	281	375	374
14	349	465	302	403	403
15	280	373	259	345	345
16	112	149	112	149	116
17	413	551	393	524	524
18	320	427	278	371	371
Overall	5478	7304	4787	6383	6330

The purpose of the above chart is simply to provide a starting point for the addition of forward tees to provide another option for your players. As the general manager of Whitefish Lake Golf Club (a municipal golf course in Montana) commented, “The best financial decision we have made in the past decade was the addition of forward tees. They not only improved pace of play, but also added substantially to our bottom line in regard to more players.” The same results can be expected at Waiehu.

While a golf course architect should be involved in the precise placement of the tees, how they are built is also an important part of the successful implementation of this portion of the golf course. Specifically, the tees should be at least 750 to 1,000 square feet for the expected number of players (both male and female) that will use these tees. Second, the color red should be avoided at all costs, as many still perceive these as the “ladies” tees. Third, build the tees, no more than 6 to 8 inches in height with the same material found at your site. This will allow for regular fertilization and irrigation with the existing irrigation system. Fourth, utilize seashore paspalum on the teeing surfaces to minimize weed populations and to let players know that these are real teeing surfaces. Finally, many of these forward tees can be placed on the fairways to greatly minimize mowing requirements. As we toured the facility, Nos. 3, 4, 7, 9, 10, 11 and 15 can either be added on the fairways, or the fairways can be moved back to the proposed tee locations. The remaining tees can be added in the roughs, with one tee (No. 14) already constructed to the right of the existing forward tees. Also, try to keep the tees close to the cart paths as much as possible.

The photos below show many of the views from the proposed forward tees, with some showing arrows for the proposed tee location.



No. 1 proposed forward tee.



No. 2 proposed tee already is a natural location.



No. 3 tee can be placed on the fairway.



No. 4 tee can also be placed on the fairway.



No. 5 tee can be placed in the rough left of the cart path.



No. 7 tee can be added close to the ocean.



No. 8 can be moved forward from the right tee.



No. 9 tee can be added onto the fairway.



No. 10 tee can be placed in the rough.



No. 11 tee can also be placed in the right rough.



No. 12 tee can be found in the rough near the path.



Expand the existing flat area left of No. 14.



No. 15 tee can be placed in the rough near the path.



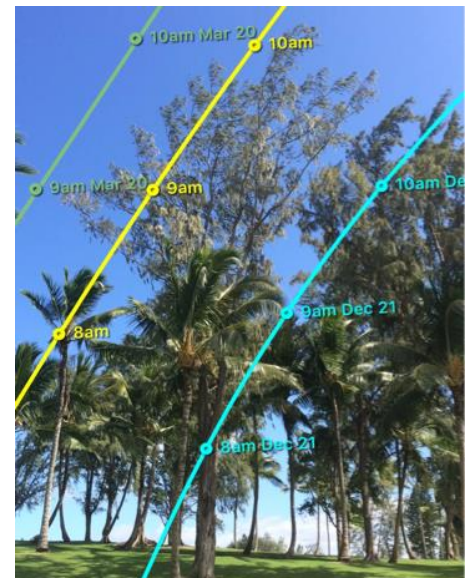
No. 18 tee can be placed just before the cart path.

TREES

Observations and recommendations. One of the most striking features of Waiehu is the unobstructed views of the nearby ocean and mountains. However, many portions of the back nine have so many trees that the vistas are being blocked or shade is causing a problem for turf growth. In addition to cleaning out trees behind No. 8 green as highly recommended for a view of the ocean and nearby mountain range during the visit in 2014 (right photo), other tree recommendations included the following:



- Remove trees behind No. 13 green to improve sunlight during the morning hours.** The photo to the right was taken from the Sun Seeker app that tracks sunlight during different times of the year. The blue line to the right shows the sun track during the winter solstice (December 19). The yellow line shows the current sun track on the day of this visit, and the green line, the spring and fall equinox. As can be noted in the photo, two large ironwoods can be removed to provide at least one to two hours of additional sunlight during the winter months. This green has had habitual problems with turf growth on the back half, with the removal of these not causing any problems for safety or playing conditions on any golf hole. In addition, you may wish to transplant the coconut palms behind this green to add further sunlight onto this putting surface.
- Remove unnecessary trees or transplant to other areas.** Another area where a significant number of trees can be removed was noted between Nos. 14, 15 and 17 tee. As mentioned during the visit, the three primary criteria when



considering tree removal are safety, how trees affect playing conditions and visual importance. As can be noted in the photo to the right, several ironwood trees (between the arrows) between these holes can be removed to produce outstanding vistas of the ocean and nearby Mount Haleakala. There is no question that No. 15 is one of the most visually stunning golf holes on the back nine due to the unobstructed views and the lack of trees. A continuation of this policy where safety is not compromised and playing condition is not impacted is suggested on the entire back nine.



- **Remove as many palm trees as possible.** It was surprising to view small palm trees planted between No. 11 green and 12 tee that are simply not necessary. It was highly recommended to remove these costly trees that perform no function in this area. This same recommendation was made throughout the entire golf course, as every one of these trees represents a future expense of \$60 annually for cleaning the coconut palms and all the time wasted with hand labor around the bases of the trees. In reality, the philosophy at Waiehu should be to remove as many trees as possible that are not important for safety and those that are crowding growth of nearby trees. This includes ironwoods, Norfolk pines and palm trees, as the goal should be to reduce the number of trees and maintenance costs associated with these unnecessary plants. You have one of the most stunningly beautiful golf courses in Hawaii with the vistas fully in view in all directions. Take advantage of the views and don't block them with too many trees!



MISCELLANEOUS TOPIC

Remove rough in front of the greens. As a final comment concerning the golf course, it was highly recommended to completely remove all of the rough in front of the greens. This type of mowing pattern may be easier for the maintenance staff; however, it greatly changes how the golf course plays. The concept of “bump-and-run” is completely removed on your windswept site where this type of shot is required on many holes. The fairways should tie into the greens as is noted in the photo taken on No. 11 on the next page. The type of mowing patterns shown for No. 17 should be avoided.



The current mowing patterns should be like No 12 and not like No. 17!

Thank you for your ongoing support of the USGA Green Section through the use of our Course Consulting Service. While high goosegrass populations are certainly discouraging, Mr. Allen is headed in the right direction with the maintenance program, and his plans for the future are very encouraging. We look forward to being of service in the future and hope to see the course on an annual basis in the future. Again, should you have any questions concerning this visit or report, please do not hesitate to contact our office.

As a final comment, would you like to receive the Green Section's electronic version of the Green Section Record? It's free, informative, and short. All you have to do is click the link:



You may also visit [USGA Regional Updates](#) for current findings from the West and all the Green Section Regions.

Respectfully submitted;

Larry Gilhuly, Agronomist
USGA Green Section

Distribution:

Mr. Todd Allen, Superintendent