

Assistant Superintendent Hiring Criteria Used by Golf Course Superintendents

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ABSTRACT

Of the many opportunities available upon graduating, most turfgrass management/turfgrass science students seek assistant golf course superintendent positions. By tradition, faculty are responsible for preparing graduates to serve as capable assistant superintendents. Moreover, faculty are queried for guidance on how to best compete for these assistant positions. Our objectives were to develop relative rankings of educational credentials, skills, and experience most desired by superintendents when hiring assistants; and to determine whether these rankings vary by geographic region, type of golf course facility, superintendent education level, or number of years experience. Approximately 400 golf course superintendents responded to a national survey in early 2000. Respondents indicated work experience, education, communication skills, appearance, and references to be the first-through fifth-most important hiring criteria used to evaluate assistant applicants, respectively. The majority of responding superintendents identified crew supervision as the most important technical work experience and an associate's degree or certificate as the minimum educational requirement. Ranking of hiring criteria did not vary, but superintendents of specific regions had differing opinions on the importance of golfing ability, pesticide license possession, and irrigation experience. Superintendents of private golf courses weighed applicant appearance more heavily than superintendents of golf courses accessible to the public. The minimum education required of applicants corresponded directly to the educational level of the superintendent. Results may enable turfgrass management/science faculty to advise students how to best compete for assistant superintendent positions.

MANY GOLF COURSE SUPERINTENDENTS have the responsibility of hiring their staff, particularly assistant superintendents. Assistants play the role of supervisor in the absence of the superintendent, but are more commonly relied on to maintain material inventories, train employees, and lead special projects when necessary. Golf course operations include mowing, irrigation, fertilization, and other highly specific cultural procedures. Other responsibilities may include large-scale construction projects, machinery maintenance, and/or record keeping. Thus, amassed work experience is a significant indicator of an assistant superintendent's readiness for a superintendent position. For this reason, an assistant superintendent

position is the usual entry level for turfgrass management/science graduates eager to begin superintendent-track careers.

Turfgrass management/science students require both an educational credential and specific work experience to be considered eligible for a supervisory position on a golf course maintenance crew. Achievement of both generally requires the possession of skills that superintendents' value when selecting from candidate pools. Thus, turfgrass management/science program faculty are bombarded with student queries as to what work experience, activities, and even minor studies will most improve their marketability for assistant superintendent positions. Answers to these important questions would help university faculty best advise these matriculating turfgrass management/science students. In cooperation with the Golf Course Superintendents Association of America (GCSAA), we surveyed active superintendents in the USA to identify criteria used when evaluating candidates for assistant superintendent positions. Our objectives were to: (i) develop relative rankings of credentials, skills, and experience, most desired by superintendents; and (ii) determine whether these rankings vary by geographic region, golf course facility type, education level of the superintendent, or his/her number of years of experience as a golf course superintendent.

MATERIALS AND METHODS

A brief, multiple-choice questionnaire was distributed to more than 9000 Golf Course Superintendents Association of America (GCSAA) member superintendents in the September 1999 mailing of *The LeaderBoard* monthly newsletter. Respondents identified hiring criteria, desired educational credentials, and specific technical work experience they considered important when selecting a candidate to fill an assistant superintendent position. The survey also required superintendents to include the first three digits of their facility zip code (to determine their approximate location); the type of facility they operated (private, daily-fee/municipal, resort, military, university, or other); their education level (high school diploma, turfgrass science/management certificate, associate's degree [A.S.], or bachelor's degree [B.S.]); and their years experience as a superintendent at any facility.

Completed surveys were accepted and compiled through the end of February 2000. Surveys returned from foreign countries were excluded from analysis. Some returned surveys contained an improperly completed section. These particular surveys were not discarded outright, but were excluded from analysis of the variables indicated in the fouled section. Accordingly, the number of total respondents (*n*) varies throughout the results section.

Most of the superintendent/facility designations (e.g. geographic region, facility type, etc.) are nominal and independent levels of measurement. Of the independent variables collected, superintendent educational level is the only ordinal measure. Evidence relating educational achievement of a superintendent to his or her facility type, location, or years of ex-

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Table 1. Conventions for describing Yule's Q values (Davis, 1971).

Value of Yule's Q	Appropriate phrase†
≥+0.70	a very strong positive association
+0.50 to +0.69	a substantial positive association
+0.30 to +0.49	a moderate positive association
+0.10 to +0.29	a low positive association
+0.01 to +0.09	a negligible positive association
0.00	no association
−0.01 to −0.09	a negligible negative association
−0.10 to −0.29	a low negative association
−0.30 to −0.49	a moderate negative association
−0.50 to −0.69	a substantial negative association
≤−0.70	a very strong negative association

† Correlation and relationship are synonyms for association.

perience, is not currently available in the public record. Furthermore, linkage of superintendent education level to variable(s) and/or attribute(s) other than assistant superintendent hiring criteria is outside the scope of this study.

To predict the specific candidate attributes or educational credentials considered important by superintendents when hiring assistants, data were used to calculate asymmetrical measures of association. Goodman and Kruskal's tau-y (T_y) is a measure of the relative reduction in error when using a known nominal classification to predict a survey response (Somers, 1962). A significant tau-y indicates selection of the dependent variable is more accurately predicted than by chance alone, if the associated independent variable is known. In simpler terms, it means the value of the independent variable significantly affects the frequency in which the dependent variable is selected. Tau-y is synonymous to an F value in ANOVA, in that it only indicates a significant association (effect).

The nature and strength of a significant association is best determined with Yule's Q (Davis, 1971). Yule's Q could be best compared to a mean separation test. The absolute value of Yule's Q is the strength of association, the sign of Yule's Q designates the association as positive or negative (Table 1). Somers' d reports the tendency of an ordinal, independent variable to predict the frequency of an ordinal, dependent variable. Thus, a significant and positive Somers' d value indicates increasing levels of the independent variable favors higher levels of an associated dependent variable (Loether and McTavish, 1974). The chi-square test was used in all significance of association decision rulings (Weisberg et al., 1996).

RESULTS

Of the disseminated questionnaires, approximately 4% were completed and returned. Survey respondents represented every U.S. state and the District of Columbia, with the sole exception being South Dakota. Age of respondents ranged from 23 to 71 years, with a mean of 41 years. Mean golf course superintendent experience was 13.1 years, with a range of 0.25 to 51 years. Fifty percent of all responding superintendents possessed B.S. degrees, while 37.6% of the survey respondents indicated A.S. degrees or certificate programs to be their highest educational credential. The remaining 12.4% of the respondents had only completed high school to date.

General Hiring Criteria

The most highly considered criterion for hiring assistant superintendents by superintendents was work experience (data

not shown). Ninety-nine percent of superintendents selected work experience as one of their top five hiring criteria (unless otherwise noted, percent data refers to percent of responding superintendents). This was followed closely by education at 91%, and communication skills at 87%. These results confirm the importance of an assistant superintendent's agronomic knowledge, experience, and ability to manage a productive crew. Those three hiring criteria were followed by appearance, 73%, and references, 72%. Golf course superintendents continually strive to earn more respect from golfers and club managers. This widespread priority likely influences superintendents to hire applicants already aware of the importance of professional image. Responding superintendents indicate they also closely examine references and prior employment history when considering an assistant superintendent candidate. As the above listed hiring criteria were considered most important by a majority of superintendents, no differences by independent variables were observed (Table 2).

Possession of a pesticide license was only considered important by 34% of superintendents. Golf course superintendents commonly apply plant protectants (pesticides) to maintain plant health on greens, tees, fairways, and ornamental plantings. Pest populations are highly influenced by climatic factors, and vary by geographic region (Shurtleff et al., 1987). Superintendents in the Mid-Atlantic, Midwest, Northeast, and Southeast USA value possession of a pesticide license less than superintendents managing courses outside of these regions (Table 2). Many of these respondents indicated (in the comment section of the survey) that possession of a pesticide license is far less valuable than actual pesticide application experience, with the latter not always being a direct effect of the former. Conversely, superintendents in the Western USA are much more likely to consider possession of a pesticide license a valuable attribute than superintendents in other regions (Table 2).

It should be noted that pesticides are costly and application frequency is sometimes dictated more by budget and opportunity than actual pest infestation levels. Thus, superintendents at golf courses with more play and/or lesser budgets may have dissimilar opinions on the importance of pesticide license possession than superintendents at other types of facilities. The type of golf course facility managed affects a superintendent's perception of the importance of pesticide license possession (Table 3). Superintendents managing daily-fee golf courses were more likely to consider license possession an important hiring criterion than superintendents operating other types of facilities (Table 3).

Personal appearance of assistant applicants was ranked one of the five most important criteria by 73% of superintendents. Geographic region did not affect this prevailing opinion (Table 2). However, superintendents managing private golf courses consider personal appearance to be important more frequently than their counterparts managing nonprivate golf courses (Table 3).

Superintendents are responsible for ensuring the highest level of playability on the golf courses they manage. Due to this inherent relationship between golf course quality and the game of golf, a comprehensive understanding of golf can enhance superintendents' job performance. The ability to play golf is the seventh most important criterion superintendents consider when hiring assistants, with 27% indicating it one of

Table 2. Percentage superintendents indicating general hiring criteria and technical work experience important, by geographic region.

		Geographic region					
Dependent variables	T _y [†]	Mid-Atlantic	Midwest	Northeast	Southeast	West	USA
		%					
<u>Hiring criteria</u>							
Current pesticide license	0.020‡	24 (−0.265)§	29 (−0.145)	33 (−0.011)	32 (−0.056)	44 (0.295)	34
Appearance	0.011	67	69	79	79	70	73
Ability to play golf	0.143‡	19 (−0.240)	24 (−0.080)	19 (−0.253)	26 (−0.014)	37 (0.329)	27
Other¶	0.003	77	75	73	73	70	73
Total, %		10.8	23.2	16.2	23.5	26.3	100
Total respondents, <i>n</i>							388
<u>Technical work experience</u>							
Irrigation installation and repair	0.016‡	5 (−0.476)	10 (−0.084)	8 (−0.220)	11 (−0.017)	17 (0.355)	11
Pesticide application	0.015	21	20	25	24	13	20
Crew supervision	0.002	58	57	60	62	62	60
Other#	0.015	13	16	6	3	9	9
Total, %		11.0	23.0	16.1	23.3	26.6	100
Total respondents, <i>n</i>							391
State abbreviations for geographic regions:		DC, DE, MD, NC, VA, WV	IL, IN, IA, KY, MI, MN, MO, OH, WI	CT, ME, MA, NH, NJ, NY, PA, RI, VT	AL, AR, FL, GA, LA, MS, SC, TN	All others	

† Goodman and Kruskal's Tau-y strength of association.

‡ Significant at the 0.1 probability level (χ^2_d).

§ Yule's Q, dichotomous strength of association (in parentheses).

¶ Other general hiring criteria: education, work experience, honors, communication skills, grade point average, extracurricular activities, and references.

Other technical work experience: machinery operation, construction, course grow-in, and other specified.

the top five hiring criteria (Table 2). Region of the country was shown to significantly influence the frequency in which superintendents designate golfing ability as important. Superintendents managing facilities in the Western USA are more likely to consider golfing ability than superintendents working in any other region (Table 2). Conversely, type of facility managed had no influence on a superintendent's opinion of golfing ability as it pertains to selecting assistants from candidate pools (Table 3).

Technical Work Experience

Superintendents were queried as to which single type of technical experience was most important when evaluating assistant superintendent applicants. Crew supervision was selected by 60% of superintendents, and the frequency of this answer was affected by neither location nor type of the golf course facility (Tables 2 and 3). Experience applying pesticides was considered the second-most valuable work experience, and although superintendents in the Western USA appear to weigh this attribute less heavily than their eastern counterparts, there were no significant regional preferences (Table 2). Similarly, type of facility did not affect superintendent's ranking of this skill (Table 3).

Irrigation is an important component of golf course management. Nearly every golf course in the USA possesses a functional irrigation system that is relied upon to support turf-grass vigor. Obviously, this reliance is indirectly related to both frequency and volume of natural precipitation events. Accordingly, regional location of the superintendent affected the frequency that irrigation installation and repair skills were deemed important criteria when selecting from assistant superintendent applicant pools. Superintendents of the Western USA named irrigation expertise most important more frequently than superintendents elsewhere (Table 2). Additionally, superintendents in the Mid-Atlantic and Northeast regions consider irrigation installation and repair to be the most im-

portant technical work experience less frequently than superintendents in other regions (Table 2). Despite Western USA superintendents' preference for irrigation skills (compared with other regions), the majority still preferred applicants with crew supervision experience. The type of facility managed was not associated with any preference for specific work experience (Table 3).

Required Educational Level

Superintendents were asked to indicate the minimum level of education required for appointment to the assistant super-

Table 3. Percentage superintendents indicating general hiring criteria and technical work experience important, by golf course type.

		Golf course type			
Dependent variables	$T_{y\ddagger}$	Daily fee	Private	Other†	All
%					
<u>Hiring criteria</u>					
Current pesticide license	0.021*	42 (0.298)§	28 (−0.267)	30 (−0.092)	34
Appearance	0.017*	67 (−0.239)	79 (0.285)	67 (−0.160)	73
Ability to play golf	0.006	30	23	27	27
Other§	0.001	72	74	75	73
Total, %		40.9	50.8	8.4	100.1
Total respondents, <i>n</i>					394
<u>Technical work experience</u>					
Irrigation installation and repair	0.004	11	10	18	11
Pesticide application	0.002	22	20	12	20
Crew supervision	0.002	57	62	67	60
Other¶	0.005	10	8	3	8
Total, %		40.9	50.6	8.4	99.9
Total respondents, <i>n</i>					391

* Significant at the 0.05 probability level (χ^2_2).

† Other golf course access levels include: resort, military, university, or other specified.

‡ Goodman and Kruskal's Tau-y strength of association

§ Yule's Q, dichotomous strength of association (in parentheses).

¶ Other general hiring criteria: education, work experience, honors, communication skills, grade point average, extracurricular activities, and references.

Other technical work experience: machinery operation, construction, course grow-in, and other specified.

Table 4. Percentage superintendents indicating minimum educational level required, by geographic region or golf course type.

		Geographic region				
Dependent variables	T _y [†]	Mid-Atlantic and Northeast	Midwest	Southeast	West	USA
		%				
Minimum education level required						
Bachelor's degree	0.005	9	7	11	13	10
Certificate or associate's degree	0.022*	76 (0.177)‡	74 (0.103)	75 (0.112)	60 (−0.336)	71
High school diploma	0.019§	14 (−0.218)	19 (0.322)	14 (−0.202)	27 (0.335)	19
Total, %		27.2	23.1	23.3	26.4	100
Total respondents, <i>n</i>						390
		Golf course type				
		Daily fee	Private	Other¶	All types	
		%				
Minimum education level required						
Bachelor's degree	0.020*	9 (−0.136)	9 (−0.130)	24 (0.537)	10	
Certificate or associate's degree	0.030**	64 (−0.294)	79 (0.368)	61 (−0.251)	71	
High school diploma	0.036**	28 (0.449)	12 (−0.419)	15 (−0.143)	19	
Total, %		40.8	50.9	8.3	100	
Total respondents, <i>n</i>					397	

*,** Significant at the 0.05 and 0.01 probability levels [χ^2_3 (geographic region) or χ^2_2 (facility type)].

† Goodman and Kruskal's Tau-y strength of association.

‡ Yule's Q, dichotomous strength of association (in parentheses).

§ Significant at the 0.1 probability level [χ^2_3 (geographic region)].

¶ Other golf course types include: resort, military, university, or other specified.

intendent position. Answers provided varied significantly by geographic region, facility type, and education level of the responding superintendent (Tables 4 and 5). Ten percent of superintendents require their assistant possess a B.S. degree, regardless of geographic region (Table 4). However, whether respondents required assistants to have an A.S. degree/certificate, or a different education level, varied by geographic region. Superintendents of the Western USA require a minimum

of an A.S. degree or certificate less often than superintendents elsewhere. Superintendents in the West or Midwest USA required applicants have only a high school diploma more often than superintendents outside those regions (Table 4).

The majority of superintendents (71%) require an A.S. degree or certificate for assistant superintendent eligibility (Table 4). Superintendents managing daily-fee facilities require only a high school education of their assistants more often than managers of other courses. Superintendents managing private golf courses selected possession of a certificate/A.S. degree as a minimum requirement for their assistant position much more frequently than managers of nonprivate courses (Table 4). The managers of remaining facility types—namely resort, university, or military golf courses—had a greater propensity to require their assistants possess a B.S. degree.

Of all the independent variables assessed as predictors of minimal education requirements for assistant superintendent applicants, none was more reliable than the superintendent's own education level. Of the 49 respondents with a high school diploma, 30 (61%) required only this same education level of their assistants (Table 5). This is a highly significant departure from the opinion of the total respondent population. Superintendents possessing an A.S. degree or certificate required the same minimum educational credential with greater frequency than superintendents with other credentials (Table 5). Superintendents possessing a B.S. degree required their applicants to possess a B.S. degree more frequently than all superintendents without B.S. degrees. Somers' *d*, a powerful measure of association, indicates assistant superintendent educational requirements increase with the superintendent's own educational level (Table 5). It can be inferred from this data that superintendents generally do not require their assistants to have a higher educational credential than they themselves possess. Number of years experience as golf course superintendent shares no relation with reported assistant superintendent education requirement (Table 5).

Table 5. Percent superintendents indicating minimum education level required, by reported education level or years experience as superintendent.

		Superintendent education level			
Dependent variables	T _y [†]	High school diploma	Certificate or associate's degree	Bachelor's degree	All levels
%					
Minimum education level required					
Bachelor's degree	0.082***	2 (−0.719) [‡]	1 (−0.860)	19 (0.875)	10
Certificate or associate's degree	0.122***	37 (−0.685)	87 (0.858)	67 (−0.183)	71
High school diploma	0.165***	61 (0.826)	11 (−0.408)	14 (−0.308)	19
Total, %		12.4	37.6	50.0	100
Total respondents, <i>n</i>					394
Somers' d _{yx} [§]	0.267***				
		Superintendent years of experience			
		<10 years	10–19 years	>19 years	All
%					
Minimum education level required					
Bachelor's degree	0.004	11	11	7	10
Certificate or associate's degree	0.000	71	72	70	71
High school diploma	0.003	18	17	23	19
Total, %		37.8	36.8	25.4	100
Total respondents, <i>n</i>					397

*** Significant at the 0.001 probability level (χ^2_2).

† Goodman and Kruskal's Tau-y strength of association.

‡ Yule's Q, dichotomous strength of association (in parentheses).

§ Reports tendency of higher independent variable levels to favor higher required minimum education levels.

DISCUSSION

Industry surveys are costly and difficult to administer, and are conducted infrequently. For this reason, survey data tends to persist. This makes identification and concession of weaknesses in the methods an important part of results reporting. The described survey was only distributed to active, member-superintendents of the GCSAA, not the entire population of golf course superintendents in the USA. The authors believe surveying active GCSAA-member superintendents, rather than any superintendent, did not adversely affect the results. Most members rely on the GCSAA as their primary source of industry-related news and technical support (Golf Course Superintendents Assoc. of Am., 2000). Because the GCSAA is supported mostly by annual membership dues, frequently updated membership records likely ensured the survey reached superintendents, rather than golf professionals, club managers, or owners. A potentially less serendipitous feature of the employed sampling frame was the dependence of respondent number (sample size) on the willingness of volunteer subjects to complete and submit surveys in a 5-month time frame. The authors assume tendency to submit a completed questionnaire to be independent of criteria used to select assistant superintendents, when compared with survey of time-management skills or attitude toward monthly newsletters, for example. Using historical data of golf course distribution by geographic region or type (G. Ruple, personal communication, 2003), survey sampling error ranged from 2.6 to 4.6%, respectively. These margins of error are well within industry standards (Weisberg et al., 1996). On these bases, we believe the results are accurate enough to be used to advise turfgrass science students on how to prepare and compete for assistant superintendent positions of either target geographic regions or specific types of golf course facilities.

Statistical validations of the survey results were asymmetric. Thus, only independent variables (table columns) should be used to predict the value of assistant superintendent hiring criteria. For example, facility region or type never significantly influenced the overall rank order of general hiring criteria (work experience, education, communication skills, appearance, and references). However, if all candidates possess equal levels of the above criteria, a Western USA superintendent would likely favor golfing ability or pesticide license possession compared with a superintendent in another region (Table 2). Similarly, given two candidates with no crew supervision experience, superintendents in the Mid-Atlantic region are less likely to give preference to the candidate with irrigation skills than superintendents elsewhere (Table 2). Compared with a superintendent of a private or resort golf course, a superintendent of a daily-fee course is less likely to consider an applicant's appearance during hiring deliberations (Table 3).

An interesting feature of the superintendent education level by educational requirement association is that the only level of similarly educated superintendents whose majority did not

require assistants to possess their level of education are superintendents with B.S. degrees (Table 5). A 1998 survey of golf course superintendents working in Minnesota and North Dakota ($n = 148$) showed 34% of respondents deemed a 4-year degree "moderately important," while 61% declared it "very important" for advancement within the industry (Univ. of Minnesota, 1998). Identifying differences in certificate, A.S. degree, or B.S. degree turfgrass science/management programs is outside the scope of this report. However, it is apparent that superintendents' opinions on the value of these programs vary, and most are biased toward the degree they themselves possess.

The authors do not believe the results presented herein should be used by students to target a particular region or superintendent education level, which may favor their current qualifications. Instead, these results should be shared with turfgrass students in early stages of their program so they may develop the characteristics that superintendents of their desired employment region or facility type favor when hiring assistant superintendents. During summer internships, students are exposed to the responsibilities of the assistant superintendent, and may either be delegated some of the assistant's responsibilities, or gain experience working with the assistant superintendent. On this basis, it appears appropriate to advise students to conduct internships in regions where they desire a future assistant superintendent position, so they may develop skills valued in that region. In the event that this is not possible, students should select an internship where they will gain experience that enhances their marketability in the region(s) where they want to work.

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