ASQ STATISTICS DIVISION Newsletter

Celebrating 30 years ASQ Statistics Division

Volume 29, No. 1 FALL 2010

In This Issue

Chair's Message

by Christine Anderson-Cook
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Christine Anderson-Cook

I am honored to be serving as Chair of the Statistics Division for 2010-2011. The Statistics Division of ASQ has a diverse set of members – including industrial statisticians, engineers and practitioners who use statistical thinking and statistical tools, and statisticians from academe. I look forward to an exciting year where the leadership of the Division strives to provide a wide variety of services and tools to help make you, our members, more productive in the workplace.

Like our previous chair, Vijay Nair, I too have quite recently become more involved in ASQ and the Statistics Division, after many years of being a member, but largely watching from the sidelines. Now that I am involved, I see the many exciting and potentially transformative opportunities that are available to volunteers who seek to get involved.

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Editor's Corner

by Paul Prew
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Paul Prew

A co-worker, let's call her Judy, asked for some help analyzing the results of an internal survey regarding the performance of her work group. Judy's group is a technical call center, troubleshooting over the phone for our company's technical specialists in the field. Over time, they get to know these field personnel pretty well, and Judy wondered if it was alright to exclude some outliers from the analysis. She showed me low scores from one field tech. Let's call him Punch. Judy explained that there were a couple other field techs with 'known negative personalities' who were biasing the results with their low blows.

It seemed preposterous. You can't do that, I thought. What about those with "known sunny personalities" who give thumbs up to everything they come across? If you're in the call center, they are known as the ones who "get it". Nothing suspicious or biased at all about their high marks. Lacking the ability to peer deeply into people's souls, I advised that the results be reported verbatim.

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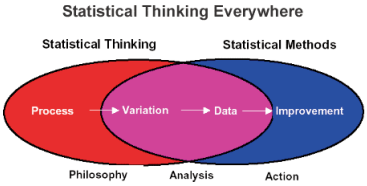
MISSION STATEMENT OF THE STATISTICS DIVISION

- Promote Statistical Thinking for quality and productivity improvement.
- Serve ASQ, business, industry, academia, and government as a resource for effective use of Statistical Thinking for quality and productivity improvement.
  - Our primary customers are Statistics Division members.
  - Other key customers are:
    - Management
    - Users and potential users of Statistical Thinking
    - Educators of the above customers
- Provide a focal point within ASQ for application-driven development and effective use of new statistical methods.
- Support the growth and development of ASQ Statistics Division members.

VISION

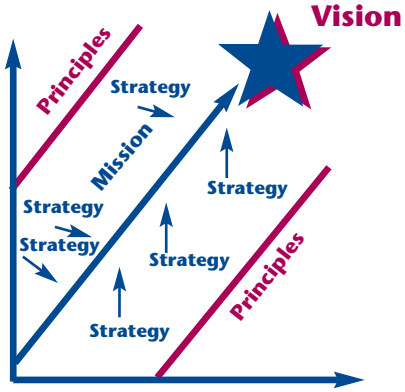
ASQ Statistics Division Vision – Statistical Thinking Everywhere



DESIRED END STATE

- Our members will be proud to be part of the Statistics Division
- Our Division's operations will be a model for other organizations.
- We will be a widely influential authority on scientific approaches to quality and productivity improvement.

ASQ Statistics Division Vision – Principles and Mission



Principles and Strategy of the ASQ Statistics Division

Principles of the Statistics

- Our customers' needs will be continuously anticipated and met (i.e., Customer focused rather than customer driven).
- Our market focus for products and services is weighted as follows:
- Greatest weight on intermediate level
- Nearly as much weight on basic level
- Much less weight on advanced level.
- Focus on a few key things.
- Balance short-term and long-term efforts.
- Value diversity (including geographical and occupational) of our membership.
- Be proactive.
- Recognize we exist for our customers.
- View statistics from the broad perspective of quality management.
- Apply Statistical Thinking ourselves; that is, practice what we preach.
- Uphold professional ethics.
- Continuously improve.

Strategy of the Statistics

- Improve our organizational effectiveness.
- Educate statistical practitioners for business.
- Expand our influence.

Disclaimer

Criteria for Basic Tools and Mini-Paper Columns

Basic Tools

Purpose: To inform/teach the "quality practitioner" about useful techniques that can be easily understood, applied and explained to others.

Criteria:
1. Application oriented/not theory
2. Non-technical in nature
3. Techniques that can be understood and applied by non-statisticians.
4. Approximately five pages or less in length (8 1/2" x 11" typewritten, single spaced.)
5. Should be presented in "how to use it" fashion.
6. Should include applicable examples.

Possible Topics:
New SPC techniques
Graphical techniques
Statistical thinking principles
"Rehash" established methods

Mini-Paper

Purpose: To provide insight into application-oriented techniques of significant value to quality professionals.

Criteria:
1. Application oriented.
2. More technical than Basic Tools, but contains no mathematical derivations.
3. Focus is on insight into why a technique is of value.
4. Approximately six to eight pages or less in length (8 1/2" x 11" typewritten, single spaced.)
   Longer articles may be submitted and published in two parts.
5. Not overly controversial.
6. Should include applicable examples.

General Information

Authors should have a conceptual understanding of the topic and should be willing to answer questions relating to the article through the newsletter. Authors do not have to be members of the Statistics Division.

Submissions may be made at any time to the Statistics Division Newsletter Editor. All articles will be reviewed. The editor reserves discretionary right in determination of which articles are published.

Acceptance of articles does not imply any agreement that a given article will be published.

Chair's Message

(continued from page 1)

First, let me express my sincere thanks to the core of volunteers, who are joining with me this year to lead the division. The team includes Mindy Hotchkiss as Chair-Elect (Mindy served last year as Secretary), Bill Rodebaugh as Treasurer (continuing for a third year), and Herb McGrath as Secretary. We also have three Vice Chairs: William Brenneman as Vice Chair of Products and Services, Brian Sersion as Vice Chair of Communications, and Sam Gardner as Vice Chair of Operations (recently stepping into this newly created position). We also have a large group of volunteers who serve as committee chairs, committee members for various specific initiative within the division. Please take a look at the Statistics Division roster, to see the list of who is involved and contributing to making this an organization that can help serve you. As you can see from the roster, there are a number of open positions. See the Job Openings note for more details on some of the positions. If you are interested in joining the team, please contact me at candcook@lanl.gov.

There is also a strong group of past chairs – Daksha Chokshi, Bob Mitchell, Gordon Clark, Doug Hlavacek, Geoff Vining and Roger Hoerl - who provide guidance and leadership to the Division as a whole as well as to me personally. We all benefit from their insights and willingness to consistently contribute their time, energy and enthusiasm to support the Division.

The vision of the Statistics Division is to be the recognized leader in promoting statistical thinking and data-driven decision-making for system improvement. In order to help our members stay connected and up-to-date, we have a number of communications vehicles where you can interact and receive updates about Division activities. In the past year, the Virtual Resource Center team, led by William Brenneman, has organized, cataloged and created a searchable site to help our members see all of the resources that we have available. See the article which provides an update on recent activities in this area.

As well, the Division helps organize and co-host a number of conferences. The next one of these is the Fall Technical Conference, co-hosted with ASQ Chemical and Process Industries Division (CPID) as well as the ASA Sections on Physical and Engineering Sciences (SPES) and Quality and Productivity (Q&P). The conference will be held October 5-8, 2010 in Birmingham, Alabama, with the Statistics Division hosting a Hospitality Event on Wednesday, October 5th at 6 pm in the conference hotel, the Wynfrey Hotel. This will be followed by a Statistics Division council meeting at 7:30 pm. We hope that you will join us both at the conference, and also our Statistics Division events there.

After our recent Operational Planning meeting in Albuquerque in August, we are about to start a number of initiatives: We plan to revitalize the Speakers' List, which provides names and contact information for ASQ Sections and other organizations to make contact with some of our members who have expressed a willingness to give seminars and talks at local events. We are also planning to start a Mentoring Program to help new or isolated statisticians get connected with some of our many wise and experienced members, to learn from their experiences and have a "buddy" that they can interact with and ask career and work-related questions. We have created a new position, filled by Sam Gardner as the Vice Chair of Operations, who will help us track our progress on our activities, as well as create a scorecard to measure the quality and relevance of our efforts to our membership.

Finally, perhaps one of the new initiatives that has me most excited is the opportunity for us to expand the Statistics Division mandate to include Statistical Engineering (as introduced by Roger Hoerl and Ron Snee). As an organization, we have long championed Statistical Thinking … and Statistical Engineering represents the next step in our evolution. In my mind, statisticians can make contributions in a number of important areas: developing new statistical tools (I will call this Statistical Science, as it involves creating the building blocks for a good solution), understanding and explaining the need for statistical methods to be part of our business solutions (commonly called Statistical Thinking), and implementing the building block statistical tools in a well synchronized and thoughtful solution to a complex problem (now called Statistical Engineering). I think that embracing Statistical Engineering as part of our Division mandate will help practitioners see how others have solved key business problems using suites of statistical tools and also will drive the development of new approaches to combining sets of tools to create beautiful solutions!

I look forward to an interesting and exciting year – please feel free to contact me with thoughts, comments or if you would like to get involved with the Statistics Division.

Editor's Corner

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But.

When I looked at the distribution of the data, there were few low scores. Those scores did come from the same two or three respondents. These people's scores were lying out there. In other contexts, I wouldn't have hesitated to agree that these points were outliers. That doesn't justify throwing out the data, firing Punch, whatever sequence of events envisioned by the call center for the known negative personality. But for this survey, I didn't have any misgivings about my advice to report everything.

Not having had much training in survey analysis, I would have appreciated knowing what the standard approach is for "survey outliers". My impression is that all answers are reported without exception. That doesn't exactly settle the issue of what can you do, what can't you do? Well, the truth is you can do whatever you want, but what can you defend? Is there an authoritative source you can cite? In this newsletter, Mark Johnson has written an article about the statistics standards published by the ISO organization. The Statistics Division provides financial support for Marks' involvement in creating ISO standards in statistics. Read Mark's article to find out more.

Ott Award Winners Announced

Ellis R. Ott Scholarship for Applied Statistics and Quality Management

Scholarship recipient must be a student who is planning to enroll or is currently enrolled in a masters degree or higher level US or Canadian program that has a concentration in applied statistics and/or quality management.

This year's Ellis R. Ott Scholarship winners are:
MS Category: Marshall Gaddis, North Carolina State University
PhD Category: Anne Ryan, Virginia Tech

Please join the Governing Board in congratulating them.

Job Openings

The Statistics Division is led by volunteers. In order to provide services and products to our members, we need an active and vital group of leaders. If you would like to join us, please consider expressing an interest in one of these positions.

Vice Chair – Outreach

This position leads initiatives to attract new members to the Statistics Division. In addition, the Vice Chair helps coordinate and acts as liaison with other ASQ Divisions and sections, in addition other statistical and quality organizations, such as the American Statistical Association, INFORMS and ISBIS. Timeline: starting immediately.

Mentoring Program Chair and Committee Members

This position would spearhead initiatives to develop and coordinate the mentoring program to connect experienced Statistics Division members with new or isolated members to share career and work related questions and answers. Timeline: starting immediately.

Narrated Slideshow Chair

This position would coordinate the development of new and dissemination of existing Statistics Division narrated slideshows. These slideshows present core statistical topics and are available for purchase from the Division website (http://www.asqstatdiv.org/narrated.htm). Timeline: starting immediately.

Nelson Award Committee Member

A position on this committee involves identifying the recipient of The Lloyd S. Nelson Award which recognizes the JQT article appearing each year having the "greatest immediate impact to practitioners." The committee member should be a regular reader of JQT. Timeline: starting immediately.

Treasurer

This position as a Statistics Division officer is a 2 to 3-year post, to maintain the finances of the division. Timeline: starting July 2011.

Quality Engineering Your Christmas Tree

by Ken Roeder, Ph.D., Forest Geneticist, North Carolina Division of Forest Resources

Introduction

Genetics is one of the latest tools being applied to improve the quality of Christmas trees. Tree improvement through selective breeding is heavily reliant on design of experiments (DOE) and statistical data analysis. Experimental design considerations must take the underlying genetics into account, as well as balance complex logistical and feasibility issues. Statistical data analysis is critical in quantifying differences and interpreting results so that the direction of future studies may be planned.

Improvement of agricultural crops has been an ongoing undertaking of man for centuries. In the United States, commercially produced Christmas trees are a recognized agricultural commodity (USDA 1989). As with any crop, growers want to produce the highest quality product in the largest quantities. Christmas tree quality is assessed using the four standard United States Department of Agriculture (USDA) grades: 1) U.S. Premium, 2) U.S. No. 1, 3) U.S. No. 2, and 4) Culls. The U.S. Premium grade brings the greatest return to the grower, but wholesalers and retailers usually require a variety of grades to satisfy the wide range of customer needs. Culls, the lowest grade trees, have serious aesthetic and other problems. Instead of being sold as Christmas trees, many are used by growers and other processors to make value-added products like wreaths and other seasonal products for which greenery is required.

The USDA standard grades are composites of several compound traits considered critical to tree quality. These are: 1) natural characteristics typical of the species being graded, 2) stem taper, 3) freshness, 4) cleanliness, 5) healthiness, 6) shape, 7) crown density, 8) handle length, and 9) extent of defects on up to four of a tree's faces. Each of these traits is also an aggregate measure of other key characteristics. Shape for instance is dependent on height, branch length and strength, shearing quality, etc. Crown density is dependent on branching habit, branch frequency, needle length and distribution, etc.

Genetics Design Considerations

The four steps of the genetic tree improvement process are Selection, Testing, Breeding and Deployment, as shown in Figure 1. These steps typically occur both sequentially and concurrently. While this is inherently a linear process, outcomes from each step can influence all other steps. In a genetic field test, new selections can be made for the next cycle of improvement. While these selections are being further bred with other proven selections, seed is collected and seedlings are being produced for commercial deployment. We are always striving to get the best quality genetics out to commercial growers as soon as possible.

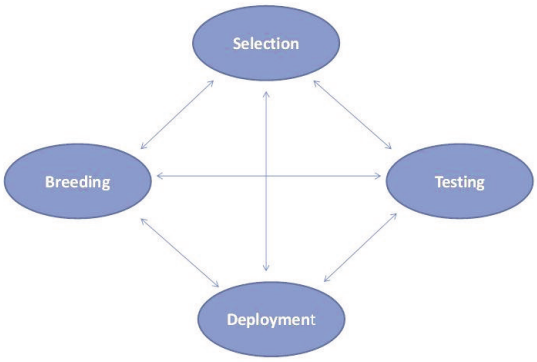

Figure 1: Tree Improvement Process.

Quality Engineering Your Christmas Tree

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The genetics of Christmas trees are becoming better understood. Basic plant breeding techniques applied for centuries to other crops have resulted in large improvements in Christmas tree quality in recent years, particularly for Fraser fir (*Abies fraseri*) in North Carolina. Significant gains have been made in the overall quality of individual trees as well as in the average quality in a Christmas tree grower's field. The length of time it takes a Christmas tree to reach commercial size has also been shortened by an average of 1 to 1½ years. This allows a grower to harvest a production field sooner for replanting. It also allows them to replant a planting position in an existing field that was selectively cut sooner.

Progeny Tests

Typical Fraser fir Progeny test in foreground.

Field performance testing based on DOE principles and statistical data analysis are regularly used to make decisions regarding the best germplasm (genetic material) to use to produce Christmas trees of desired characteristics. Goals of this field testing include identifying the best families and the best individuals within these best families for breeding and commercial production of the selected families. Selection of superior individuals from other families may also be made if the performance of an individual is significantly better. Since identification of a genetically superior individual tree cannot be done directly through observation or some other means of measurement; an indirect method must be employed. Genetic field tests known as *Progeny Tests* are used to evaluate the performance of a mother trees' children to assess the value of the mother tree in passing down desirable characteristics.

Geneticists refer to tree characteristics that can be seen, touched, and measured, like height and diameter, as its *phenotype*. The phenotype is an expression of a tree's genetics (*genotype*) in combination with the environmental influences (**E**) on that tree. This relationship is represented by the following equation:

$$P = G + E$$

For example, given two trees with the same genotype, planting one tree on a high quality planting site (high positive **E** [environmental influences]) would result in a tree having faster height growth (large **P** for height). On a poor quality site (low or negative **E**) the tree would not grow as well resulting in slower height growth (lower **P**). The second tree would be shorter than the first.

Randomized Complete Block Design

In field testing trees our goal therefore becomes to define areas (blocks) on a planting site that are as uniform as possible, so that the effect of Environmental factors (**E**) is minimized. Since all families are being planted in all blocks on a test site, the effect of the different environments is essentially being averaged out: some blocks will be a little better, some worse. With **E** equal to or near zero, direct measurement of any phenotypic trait (**P**) would therefore be an indirect estimate of the trees' genotype (**G**), as shown:

$$P = G + 0$$

This equation can be applied to any trait of interest and is the basis for field testing trees. For instance, to compare the performance of 20 different mother trees, open-pollinated seed is collected from each mother tree. Seedlings are raised at the same time, in the same place, in the same type of containers, and under the same cultural practices from

Quality Engineering Your Christmas Tree

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this seed and remain identified as to their mother tree. If male parent information was also available, these data would be tracked as well.

A common field study layout is a Randomized Complete Block Design (RCBD). In an RCBD, there is an experimental unit for every level of every treatment within each block. For a progeny test, the mother trees are the treatments, while the block is set up to represent as uniform an area of the landscape as possible to minimize environmental influences, such as soil conditions and drainage. These variables, some known, some unknown, are often highly influential and may confound and invalidate the analysis if not recognized as a source of variability. Blocking is a simple yet effective way of separating these effects from the treatment effect being studied.

Laying out the design on the landscape requires some knowledge of the proposed field test site. Ignoring the natural features of the landscape is a critical mistake in setting up the experiment that will lead to poor results. Using many blocks (or statistical replications) over a field test site is one method to minimize errors. If the field study site is not sufficiently blocked, the goals of the field test will not be met by the analysis. Issues with an experiment due to poor planning causes unexpected delays and wasted resources.

The ideal test sites tend to be level or nearly flat with uniform soils. To grow Fraser fir however, typically requires the higher elevations which occur in the mountain slopes of NC. In these areas, large flat sites are usually in other land-uses. When a proposed test site occurs on a slope, topography can be used to help identify areas of similar slope characteristics. An area of equal elevation and slope, generally has similar soil and drainage characteristics. This slope uniformity can therefore be used in laying out homogenous field blocks. Block size and shape is determined based on how to best subset the landscape into homogeneous areas. Properly designed field tests should show some block effects when analyzed – this has nothing to do with the overall study objectives but suggests that the block is serving its intended purpose by isolating environmental sources of variation and providing a cleaner assessment of the treatment factor of interest, which may or may not be significant. Use of blocking, randomization, and replicates together can be thought of as an insurance policy against the experiment being compromised by the effects of unforeseen site effects.

Multiple field blocks are used to provide replications for analysis. The planting pattern for seedlots within each block is completely randomized. Current practice is to plant single tree plots within each block, but do more blocks (replicates). Historically, row plots with 10 trees each (1 x 10 trees) or multiple tree block plots (i.e., 5 x 5 trees) were used in forest tree genetic studies. This larger layout required much larger uniform areas, which were difficult to find. In the example layout shown in Figure 2, the 20 different mother trees are represented in complete blocks (all mother

5	10	17	2	6	18	12	19	14	16
13	15	1	7	11	4	8	3	20	9

Figure 2: Example of a 2 x 10 RCBD Layout for a Single Block along a Topographic Slope with 20 Randomized Mother Tree Assignments

Within each block the test seedlings are labeled and mapped as to their mother tree to maintain traceability. Maintaining good records of these field experiments is vital. Knowledge of the variation in the species being field tested helps to determine the best number of replications to include in the field study. Depending on species being tested and available space on the site, 20 to 40+ replications are typically planted in one of these field tests. Also note that all seedlings planted in a field progeny test were sown at the same time in the same size containers and planting media are raised at the same place and cultural practice to maintain as much homogeneity as possible (keeping E = 0).

Quality Engineering Your Christmas Tree

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When mother tree performance is being field tested, it is best to duplicate field tests by planting them on more than one site, as well as across multiple years. This allows progeny to be assessed over differing soils, weather, rainfall and other uncontrolled environmental effects, and gives some form of security in case a disaster or disease wipes out one of the study sites. It also allows *Environment X Genotype* interactions (G X E) to be considered. Progeny performance may differ over different environmental conditions so it is possible that one particular genotype performs exceptionally well or bad on a specific soil or at a specific slope position (drainage), for example.

Within each progeny test, check seedlots are also included. Early in establishing this tree improvement program (before 1981), a quantity of wild tree seed was collected from natural stands and stored for this purpose. This seed is used to grow seedlings for inclusion in every progeny test installed. These check seedlots act as a control – they allow us to compare the performance of whatever mother tree seedlots are included in a current test with tests that were done previously, and will come afterwards.

Measurement of Response Variables

Fraser fir Progeny Test being measured and assessed for USDA grades at 4 years old

As mentioned in the Introduction, assessment traits include both quantitative and qualitative characteristics. Height and diameter can be measured, but traits like form and density are less straightforward to evaluate and are somewhat subjective. In these instances, generic 1, 2, 3, 4, 5 or High to Low scoring can be used. We commonly assess Christmas trees in our field tests for USDA Grade, height, quality, form, and crown density. These traits are then combined into a single aggregate numeric measure for analysis that reflects a wholesale tree value.

No field planting of trees has 100% survival. Trees die from a multitude of causes. Seedling transplantability and survival are also important quality traits to consider when evaluating genotypes in a test. A family genotype that has high transplant mortality is of little value no matter how good the other traits of interest are, so family survival is also part of the assessment. In these cases, unidentified filler trees are planted to complete the planting pattern. This reduces the possibility of a dead or missing tree providing an unintended advantage to an adjacent tree by reducing competition among the test trees. Two rows of border trees are also planted around the entire study. This is done to put all of the genotypes being tested in a position of equal competition no-matter where they are located in a block. Both border and filler trees are considered a nonentity for purposes of analysis. Dead trees in a field test are typically treated as missing values in the statistical data analysis.

Tree age at field assessment is also important. The key to an effective and efficient tree improvement program is to turn the generations over as soon as possible. Sheared Fraser fir Christmas trees traditionally reach commercial size in 6 to 7 years for a 6-foot tree. Research has shown via sequential measurements (at ages 4, 5, 6, 7 and 8 years) that there's little difference in accuracy in picking the real winners at age 4 versus age 8. Identifying 80+% of the winners at age 4 years saves 4 years in getting these better genotypes into the breeding program and into commercial production.

Quality Engineering Your Christmas Tree

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Analysis of Variance (ANOVA) for Progeny Test Studies

For Christmas Tree Progeny Tests, quality data are collected after 4 years. Analysis of results is done using a standard Analysis of Variance (ANOVA) approach to separate the effects of environmental conditions (block) and mother tree genetic differences (treatment). Some significant differences are expected between blocks, but are not of any real interest from a research perspective. More favorable environmental conditions are expected to produce better trees – this is not news. Of primary interest would be the identification of any mother trees whose seed material produced an overall better quality tree, despite the environmental conditions. A significant overall treatment effect here would indicate that the genetics played a role – at least one of the mother trees produced a family that was more (or less) robust than the rest. Note that it is not expected that all mother trees be clearly differentiated from each other – usually there is much overlap between test tree performances. For practical purposes, researchers are interested in the mother trees that are in the top 1% or less. This is commonly referred to as *selection intensity*. The higher the selection intensity, the higher the potential gains in the target traits. These top-performing mother trees will then be used in subsequent studies.

A typical ANOVA table for an RCBD (as designed) on a single planting site is shown below:

Sources of Variation		Degrees of Freedom
Block	Environment (E)	(r-1)
Treatment	Genetics (G) (Mother Trees)	(m-1)
Error = Block·Treatment Interaction		(r-1)·(m-1)
Total		(r·m-1)

Figure 3: RCBD ANOVA Structure

For a balanced design, the total number of seedlings planted is n = rm, where m = the number of mother tree seedlots (Treatments) and r = the number of assessment blocks (replications). If missing data are present, the degrees of freedom will of course be adjusted.

Progeny Test Case Study

In a recently completed Fraser fir Christmas tree progeny test, blocks were installed on a relatively level slope in the mountains of Ashe County, NC. Multiple blocks were laid out using 6 single tree plot positions (Columns) along approximately the same topographic elevation in 6 rows, shown in Figure 4. This 6 x 6 block size can accommodate testing 36 different parent seedlots. The test seedlots represented 33 different mother trees and included 3 check seedlots (NC18, NC31, and Mt.Rogers) to occupy the 36 planting positions in our field layout. No filler trees were used in this case, but in some field tests, extra available planting positions are filled with surplus or duplicate seedlings from check seedlots to buffer against natural mortality. This also provides duplication within a block to allow estimation of sub-sampling variability. Two rows of unidentified trees were also planted in a border area surrounding the study to protect the test trees from edge effects.

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Column Row	1	2	3	4	5	6
1	A172	A302	C120	C111	X190	5137
2	T126	X202	W279	Y58	W171	NC18
3	5106	X258	H194	K209	K253	5269
4	A185	5245	5230	5186	X231	B291
5	W132	5311	K125	5232	NC31	A211
6	X80	MtRog	K37	W53	A152	Y44

Figure 4. Actual RCBD field layout of 6 rows by 6 columns (6 x 6). Shown are randomized Tree ID numbers in their assigned planting position, including 3 Check seedlots (NC18, NC31 and Mt.Rogers)

The installation included 38 blocks. Therefore, this test only needed 38 seedlings from each mother tree seedlot (1 per block). As expected, some seedlings did not survive the experiment, resulting in a slightly unbalanced incomplete block design, rather than the planned RCBD. As a result, total and error degrees of freedom will not exactly match the planned totals as shown above, but are adjusted to account for the missing observations. Duplicate checklot trees were used to provide an estimate of subsampling variability, which is used to test for the presence of an interaction between Genetics and Environmental Factors. The ANOVA table is shown below in Figure 5.

Sources of Variation		Degrees of Freedom	Type III Sums of Squares	Mean Squares	F	Pr > F
Block	Environment (E)	37	3627.77	98.05	4.29	<0.001
Treatment	Genetics (G) (Mother Trees)	35	6395.73	182.74	8	<0.001
Error = Block·Treatment Interaction		1019	20857.66	20.47	0.9	0.7298
Residual Error = Subsampling Variability		52	1187.25	22.83		
Total		1143	32049.47			

Figure 5: RCBD ANOVA Results for Example Progeny Test

The R^2 for this analysis was 96% which means that most of the variation in the data can be accounted for using this model. Both Block and Treatment are shown to be significant effects, while the Interaction term is not. Block significance indicates that study layout is effectively capturing environmental site variation. Treatment significance indicates that there is strong evidence of differences between mother trees' progeny. The nonsignificant Block Treatment Interaction (tested against Residual Subsampling Error) shows that there is no evidence of any major differences in mother tree performance across different blocks. However, the ANOVA does not provide us with a final answer on our key question of interest – *which mother trees and which children are the best?* Further more detailed analysis of these tests showed that the best mother tree progeny scored more than 90% better than the average wild check seedlots, which are 3 of the worst 4 performers. The progeny from the best performing mother tree was also 38% better than the mean performance of all the progeny from all the mother trees represented in this field test. Results are summarized in Figure 6.

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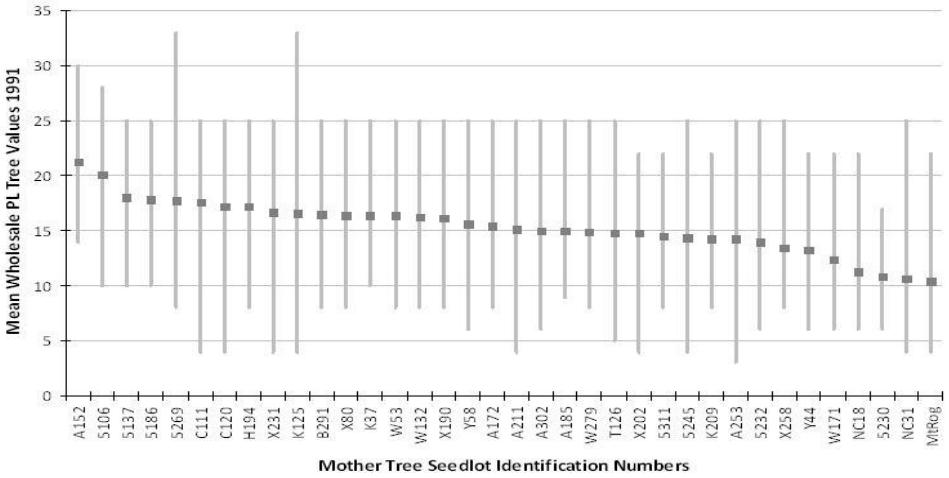

Figure 6: Minimum, Maximum, and Mean Mother Tree Seedlot Performance Levels Ordered by Mean Value

These analyses provide statistical information as to the best mother tree families (A152 and 5106) assessed in these field tests. However, due to natural variation, the best mother tree families may not produce all of the best individuals, which are also of interest. The best individuals within the best families were also identified (5269 in replication 5, and K125 in Replication 12). These families and individuals will be re-assessed in additional field tests to confirm the statistical analyses. Selections may then be made and scions and seed collected for the next cycle of testing. If desired, studies conducted on multiple sites can be analyzed together in a more complete meta-analysis, also using ANOVA to take into account the additional sources of variability.

Summary

Statistical tools are essential for making quality selection decisions in Christmas tree improvement programs. Well-designed field tests are vital for evaluation and assessment of genotypes being considered for commercial production or breeding programs and have helped improve the efficiency, effectiveness, and turnaround time required for tree improvement programs in general. Genetic gains may seem small, but the effects of incremental improvements made over time are compounded, such that even a relatively small average annual increase results in material benefit to growers. Genetic gains are also leveraged through deployment, as commercial tree production is a high-volume enterprise. Thus, small increases in value per tree can significantly improve the bottom line for commercial growers.

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AWARDS SHOWCASE

ASQ Fellows

Four members of the Statistics Division were recently honored as 2009 ASQ Fellows. To be selected, a candidate must be a senior member of ASQ, have held one or more quality-related positions, and attained distinction in their work through the planning, teaching, developing, expounding, or directing of quality related activities, principles, or techniques. Citations for the honorees follow.

Theodore Allen, Ohio State University, Columbus, Ohio – For outstanding technical and research accomplishments, including publication in ASQ's most prestigious journals; for the training of more than one thousand students in the quality discipline; for the development of software used by thousands worldwide; and for his many years of involvement with ASQ through technical presentations and service.

Connie M. Borror, Arizona State University, Glendale Ariz. — For outstanding contribution in the field of quality and applied statistics as an educator and researcher; and for exemplary leadership in ASQ and continuing activity as a section representative.

Scott A. Laman, Teleflex Medical, Reading, Pa. — For outstanding contributions and active participation with the ASQ Certification Board in highly visible positions and numerous exam development workshops; for active involvement and influence with the affairs of the Society of Plastic Engineers; and for contributing to industry in the areas of risk management, quality/reliability, and statistical techniques.

Mark Christopher Paulk, Carnegie Mellon University, Pittsburgh, Pa. — For leading the team that developed the Capability Maturity Model (CMM) for software; for being active in standards creation; for being a friend to the ASQ Software Division by presenting tutorials and conference presentations; and for being a software quality advocate by increasing the body of knowledge with books, models, and standards.

Shewhart Medal 2009 – David Bacon

The Shewhart Medal is awarded for outstanding technical leadership in the field of modern quality control, especially through the development to its theory, principles, and techniques. David's citation reads as follows. "For outstanding contributions to quality in the chemical and process industries through research, teaching, and consulting; and for leadership in education of engineers and scientists in the field of quality and industrial statistics through teaching and administration."

Shainin Medalist 2009 - Stephen Luko

Dorian Shainin is best known for the "Shainin Techniques" - practical tools he developed to help manufacturers solve problems, including problems that had been considered unsolvable. The Shainin Medal is awarded for the Development and Application of Creative or Unique Statistical Approaches in the Solving of Problems Relative to the Quality of Product or Service.

Distinguished Service Medalists 2009 - Soren Bisgaard, Ronald Kingen

The Distinguished Service Medal represents the highest distinction that can be accorded by the American Society for Quality for service. The medal honors the lifetime contribution of any person who has been recognized as a long-term enabler, catalyst or prime mover in the quality movement. It is granted only to those people who have clearly driven progress by promulgation of quality principles, methods, or science for the good of the society-at-large or who have exemplary, sustained service on behalf of ASQ that has benefited the whole Society.

Membership Chair

by Steven Schuelka

The Statistics Division currently has 4,435 paid-up members as of July. Our largest type of membership in the division continues to be Senior Members who make up over 60% of the total number of members. We are the 6th largest division within ASQ, just behind the Food, Drug and Cosmetics Division (FD&C). The largest two divisions continue to be the Quality Management Division (QMD) with over 20,000 members. Many of our members belong to more than one division including the 2nd largest division – Six Sigma. As you can see below, our members belong to every division there is – a testament that statistics is an integral part of quality improvement activities in any industry or sector.

List of Division and the number of members that also belong to the Statistics Division

Division	No. of Members
26. Six Sigma	1392
1.Quality Management	1369
8. Reliability	645
23. Lean Enterprise	616
19. Audit	604
17. Measurement Quality	581
10 .Biomedical	397
7. FD&C	344
9. Inspection	340
16. Service Quality	302
3. Automotive	301
13. Human Development and Leadership	284
4. Chemical and Process Industries	279
18. Healthcare	273
27.Team & Workplace Excellence	254
14. Software	238
15. Customer-Supplier	222
2. Aviation, Space and Defense	218
5. Electronics and Communication	188
21. Education	167
11. Energy and Environmental	156
22. Government	124
25. Product Safety and Reliability	122
20. Design and Construction	101

Voice of the Customer Chair

by Steven Schuelka

The Voice of the Customer (VoC) endeavor is an initiative undertaken by ASQ to help ensure that member units focus efforts on key customer needs and wants in the design and delivery of its products and services. The Statistics Division Operational Survey conducted in August is just one avenue that the division uses to found out what our members want from their membership. I and my fellow board members would like to thank the more than 500 members who took the time to complete the survey. This information will be instrumental as the Statistics Division moves forward. Subsequent articles will detail many of the results and the actions taken from the feedback we received. However, let me share a few of the observations now.

The two biggest reasons people have joined our division were: 1) Resources and Support to my specific industry/interests, and, 2) Newsletter & Other Publications. Given that feedback, in this newsletter you will find an article announcing the first milestone of the Virtual Resource Committee – the posting of abstracts, descriptions and keywords for 32 articles from all eligible newsletter content dating back to Spring of 1999 to our internal website. Now that leads to another result of the survey – that 28% of the respondents did not know that we have an internal website through ASQ (http://www.asq.org/statistics) and 42% did not know that we also have an external website (http://www.asqstatdiv.org/). If you have not visited these sites, it is there that you will find a wealth of information about the division, resources available to you, past newsletters, etc. If you want more "dialogue", there are discussion boards and blogs to share your thoughts on.

I will share in the Winter Newsletter more results from the survey and subsequent action. But for those that like "nerdy" statistics, nearly 60% of those that took the survey did so the day they received the survey invitation and/or reminder.

The Statistics Division currently has 4,435 active members with approximately 500 additional members who have yet to pay their dues. Our largest type of membership in the division continues to be Senior Members who make up over 60% of the total number of members. We are the 6th largest division within ASQ, just behind the Food, Drug and Cosmetics Division. Many of our members belong to more than one division. The Six Sigma Division has the most "Stat Division" members closely followed by Quality Management.

Institute for Continual Quality Improvement

by Gordon Clark
clark.17@osu.edu

The Statistics and Quality Management Divisions organized a new conference called The Institute of Continual Quality Improvement (ICQI). This new conference is a World Conference on Quality Improvement (WCQI) joint conference since the ICQI occurs simultaneously with the WCQI and at the same location. Registrants for the ICQI can attend WCQI sessions and the same is true for WCQI registrants.

The ICQI highlights new and proven approaches to continual quality improvement. Continual implies prolonged repeated instances of quality improvement illustrated by an ongoing sequence of improvement projects. Quality pioneer Joseph Juran stated that "quality improvement happens, project by project and in no other way".

The first ICQI offering occurred at the 2010 WCQI on May 24-26 in St. Louis, MO. The ICQI co-chairs were Gordon Clark (Statistics) and David Little (Quality Management). The Statistics Division management committee consisted of Gordon Clark, Douglas Hlavacek, and Ronald Snee. The 2010 ICQI had twelve presentations and nine two-hour workshops. Thus, the ICQI had three presentations or workshops occurring simultaneously throughout the conference. The average attendance for a presentation was 70 persons and the corresponding average for a workshop was 64 persons. These attendance figures are significantly larger than those for the other two joint conferences: The Institute for Software Excellence and the Quality in Sustainability Conference.

The next ICQI will occur jointly with the 2011 WCQI in Pittsburgh, PA during May 24 – 26.A Call for Papers was published and posted on our web sites. Proposals were due on September 24. Visit http://asq.org/statistics/interaction/conferences-statistics.html for more information concerning the 2011 ICQI. Our target is sixteen presentations and twelve workshops. Our keynote speakers will be Roger Hoerl and Ron Snee featuring Statistical Engineering.

IN CASE YOU MISSED IT

New Q&A website for statistics questions

A new website called Statistical Analysis is currently in beta testing. The site can be visited at this link: http://stats.stackexchange.com/

A number of the questions so far are quite technical. There are, however, several examples of topics at an applied level:

"Practical thoughts on explanatory vs. predictive modeling"
"What do the residuals in a logistic regression mean?'

From the website:

Statistical Analysis is a collaboratively edited question and answer site for people who love stats. It's 100% free, no registration required.

End of August status
530 questions
1,120 users
1,639 answers
1,252 views/day
94% answered

ASQ Statistics Division Major Activities During 2009-10

Celebration of Division's 30th anniversary:

- Special Publications devoted to Division's history and accomplishments, edited by Bob Mitchell, was distributed to all members.
- Division held a reception for all participants at 2009 FTC. This was sponsored by the Division and co-sponsored Taylor Francis, publishers of the journal *Quality Engineering.*
- Organized an invited session at FTC 2009 on "Statistics Division: Past, Present, and Future" with three presentations by former chairs.
- Distributed free USB sticks that included document on Statistical Thinking and Special Publication on history at WCQI Division booth and 2009 FTC.

Communications:

- Established a Division Linked-In group. It currently has about 270 participants including quality engineers, quality managers, statisticians, professors, etc. Within the group, there is a discussion board, a job section, an Answer tab where polls can be created, and a board where announcements and articles can be published.
- Invested a considerable amount of time to update internal and external web sites. We have also migrated discussion boards as required by HQ.
- Our newsletter series continues to be very successful. We appointed a new editor and added several new features. Members have noted that this is a very attractive communication and dissemination tool.
- Used e-zines (regular, almost monthly, electronic communication) to provide timely information to members.
- Discussed and developed plans for regular membership survey. First one was conducted in July 2010

Resources:

- Undertook an extensive effort to develop a Virtual Resource Center for Division members. The overall objective is to make a comprehensive set of resources available and accessible to members via the web. We have put together a Statistics Division Body of Knowledge document (also called Content Area List). We have completed posting all newsletter and mini-papers from 2000-present and have full search capability in place. In addition, we have added searchable abstracts and keywords for 30 newsletter articles (mini-papers and Youden Addresses) to our internal web site.
- Together with nine other North American and International Statistical Societies and Springer Publishing, the Division launched an online electronic encyclopedia in Statistics and Probability

Conferences:

- Initiated and conducted the 2009 *Institute for Continual Quality Improvement,* a conference-within-a conference at the WCQI, jointly with QMD.
- Continued to co-sponsor the 2009 FTC with our three co-sponsors; Technical program committee was chaired by Statistics Division representative.
- Division hosted a booth at 2010 WCQI and also participated with other divisions in joint booth activities.
- Participated in and co-sponsored several section conferences/meetings.

Planning and Regular Meetings:

- Conducted operational planning meeting in October 2009 at FTC.
- Conducted tactical planning meeting in May 2010 at WCQI.
- Conducted monthly meetings of the council through conference calls.
- Conducted monthly meetings of the Officers through monthly conference calls.
- Various committees and working groups met as needed through conference calls.

Awards and Recognitions:

- Division nominated two members for ASQ Fellowship in 2010.
- Greg Piepel was selected to present the 2009 Youden Memorial Lecture at the FTC.
- The Division's 2009 William G. Hunter award was presented to Necip Doganoksoy of General Electric. The Hunter Award was established by the Division in 1987 in memory of the founding chair, Bill Hunter. The award is given annually to an individual who best espouses the traits of Bill Hunter.
- The Division's 2009 Lloyd Nelson award was presented to SØREN BISGAARD and XUAN HUANG for their paper, "Visualizing Principal Components Analysis for Multivariate Process Data. This award was established to recognize Nelson, a long-time editor of JQT and recognizes an article in the previous year in the *Journal of Quality Technology* that has had the greatest immediate impact on practitioners.
- The Ellis R. Ott Scholarships, made possible by the Ellis Ott foundation, is managed by the Statistics Division. Two awards were presented in 2009-10 to: a) Ms. Wendy Kisch, Iowa State University in the Ph.D. category and b) Ms. Jessica Jaynes, University of California, Los Angeles, in the M.S. category. During the last 12 years, scholarships totaling $175,000 have been awarded to 34 deserving students.
- Division provided student travel grants for FTC 2009 to five students. This is a continuing activity.
- Continued to support international standards activity. An expository article on this topic was published in the Spring 2010 newsletter.
- Started the process to update all job descriptions for council members and committees.

International Statistical Standards: A Guide for the Uninitiated

by Mark E. Johnson, Dept. of Statistics, Univ. of Central Florida
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Background on International Statistical Standards

The International Standards Organization has its headquarters in Geneva, Switzerland and consists of many diverse Technical Committees, one of which is ISO TC69 "Application of Statistical Methods." The scope of TC69 is "standardization in the application of statistical methods, including generation, collection (planning and design), analysis, presentation and interpretation of data." France, under the auspices of the Association française de normalization (AFNOR) is the Secretariat and is responsible for overseeing the business of the technical committee. Twenty-four countries pay in order to be participating members (i.e., have voting privileges on documents). Besides France, the participating countries and their national standards bodies are, as follows:

Argentina (IRAM)	India (BIS)	Russian Federation (GOST R)
Bulgaria (BDS)	Iran (ISIRI)	Slovakia (SUTN)
Canada (SCC)	Italy (UNI)	South Africa (SABS)
China (SAC)	Japan (JISC)	Sri Lanka (SLSI)
Czech Republic (UNMZ)	Korea, Republic of (KATS)	Sweden (SIS)
Denmark (DS)	Malaysia (DSM)	USA (ANSI)
Finland (SFS)	Mexico (DGN)	United Kingdom (BSI)
Germany (DIN)	Poland (PKN)	

An additional twenty-nine countries are observer nations who may provide comments on documents but cannot vote. Ultimately, a document is published by ISO with the consent and contributions of AFNOR, as all standards are published in both French and English. In view of the large number of reviewers from many countries, final published documents will have survived an extensive review process, leading to documents that are very clearly written and likely to be free of any errors.

Each document emanates from a project at the working group level within the subcommittees of TC69 or TC69 itself. These subcommittees provide a natural organization to the published documents. Presently, there are six active subcommittees within ISO TC 69, as follows:

TC 69/SC 1	Terminology and symbols
TC 69/SC 4	Applications of statistical methods in process management
TC 69/SC 5	Acceptance sampling
TC 69/SC 6	Measurement methods and results
TC 69/SC 7	Applications of statistical and related techniques for the implementation of Six Sigma
TC 69/SC 8	Application of statistical and related methodology for new technology and product development

Documents have been produced through the former subcommittees SC2 (Applications of statistical methods) and SC3 (Bulk sampling) and are now under the aegis of TC69. Subcommittee SC 7 has been in existence for only three years and was created at the request of the Six Sigma community to address some of their specific needs regarding statistical methods. SC 7 has produced two published documents to date. Likewise, SC 8 has recently been created to address perceived needs in the product development area such as robust design methods and quality function deployment but have not yet generated a published document.

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How Standards are Used

Before describing the collection of international statistical standards, some examples of their use in business and governmental applications are noted. These examples are intended to demonstrate the utility of these standards and thus, to make a case for their inclusion in the toolbox of practicing statisticians. International standards having gone through world-wide expert review achieve ready acceptance in the marketplace and with government agencies.

An area of current topical interest involves contaminants (biological as in the 2010 chicken egg recall for salmonella or oil from the Deep Horizon spill). In these situations, some samples may contain a small level of a dangerous or toxic substance that is barely discernible by available measurement devices. Capability of detection is a topic covered by the ISO 11843 series produced by SC6 and is not covered in statistical textbooks or monographs. Wilrich (2002) cites ISO 11843 in the context of safety regulations for food and pharmaceuticals.

Interlaboratory testing is another important area for which the ISO statistical standards play a paramount role. In particular, the ISO 5725 series documents the methodologies used for this purpose. Statisticians at the US National Institute of Standards and Technology have contributed extensively to producing these documents. The importance of interlaboratory testing has been recognized by the American Statistical Association with the establishment in 1985 of the WJ Youden Award in Interlaboratory Testing to "to recognize the authors of publications that make outstanding contributions to the design and/or analysis of interlaboratory tests or describe ingenious approaches to the planning and evaluation of data from such tests." ISO 5725 is the international source document for interlaboratory testing which focuses on the comparison of results across laboratories and the attainment of consensus rather than on statistical research aspects associated with the WJ Youden Award (Feinberg, 1995). Additional recent usages of ISO 5725 can be found in Deuwer et al. (2009) and Voulgaropoulos (2007). Thousands more instances can be located using the key words "interlaboratory testing ISO 5725" with standard internet search engines.

Acceptance sampling problems have motivated many of the published ISO statistical standards (ISO 2859 series) and continue to be relevant in applications (Neubauer, 2010). Edward Schilling, author of the classic text on Acceptance Sampling (1982), actively participated in SC5 standards developments over the years, adapting material from various military standards into the international arena. David Baillie of the United Kingdom likewise has been instrumental in the British effort involving acceptance sampling standards with particular emphasis on military applications. For this work he was awarded the Order of the British Empire (OBE). The sampling inspection methods embodied in the ISO SC5 standards are recognized nationally and internationally. As a specific example, the National Marine Fisheries Services' Voluntary Seafood Inspection Program relies upon ISO 2859-1.

Contents of the International Standards Toolbox

With respect to the existing published 68 documents (as available on the ISO web site noted earlier as of 17 August 2010, it should be useful to the neophyte to have a list of documents organized by their genesis subcommittee. The following tables provide just such a structure for the published documents. By way of some further explanation, the documents whose number starts with ISO/TR are "technical reports" which have useful information in the form of best practice but do not prescribe statistical methodology. The ending number is, of course, the year of publication. In the event that when a document comes up for periodic review no revision is advocated, then the original publication date is retained.

The documents currently available from ISO reflect the participation over the years of key technical experts who participated actively in ISO TC69 technical activities. Richard Freund, Rudy Kittlitz, Carroll Croarkin, John Mandel, August Mundel, Edward Schilling and Harrison Wadsworth were long term contributors to many of these documents. Other US participants such as Donald Marquardt and Blanton Godfrey were involved in the earlier days of TC69 and then gravitated to TC 176 which produced the well-known ISO 9000 series of documents.

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TABLE 1 TC69 Documents (Originated from former SC2 and SC3)

	Statistical Methodology:
ISO/TR 13425:2006	Guidelines for the selection of statistical methods in standardization and specification
ISO/TR 18532:2009	Guidance on the application of statistical methods to quality and to industrial standardization
ISO 11453:1996	Statistical interpretation of data — Tests and confidence intervals relating to proportions
ISO 5479:1997	Statistical interpretation of data — Tests for departure from the normal distribution
ISO 3494:1976	Statistical interpretation of data — Power of tests relating to means and variances
ISO 3301:1975	Statistical interpretation of data — Comparison of two means in the case of paired observations
ISO 2854:1976	Statistical interpretation of data — Techniques of estimation and tests relating to means and variances
ISO 16269-6:2005	Statistical interpretation of data — Part 6: Determination of statistical tolerance intervals
ISO 16269-7:2001	Statistical interpretation of data — Part 7: Median — Estimation and confidence intervals
ISO 16269-8:2004	Statistical interpretation of data — Part 8: Determination of prediction intervals
ISO 2602:1980	Statistical interpretation of test results — Estimation of the mean — Confidence Interval
ISO 28640:2010	Random variate generation methods
	Bulk Sampling:
ISO 10725:2000	Acceptance sampling plans and procedures for the inspection of bulk materials
ISO 11648-1:2003	Statistical aspects of sampling from bulk materials — Part 1: General principles
ISO 11648-2:2001	Statistical aspects of sampling from bulk materials — Part 2: Sampling of particulate materials

TABLE 2 TC69/SC1 Documents

	Nomenclature and Definitions:
ISO 3534-1:2006	Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability
ISO 3534-2:2006	Statistics — Vocabulary and symbols — Part 2: Applied statistics
ISO 3534-3:1999	Statistics — Vocabulary and symbols — Part 3: Design of experiments

TABLE 3 TC69/SC4 Documents

	Statistical Process Control
ISO 22514-1:2009	Statistical methods in process management — Capability and performance – 1: General principles and concepts
ISO 22514-3:2008	Statistical methods in process management — Capability and performance – Part 3: Machine performance studies for measured data on discrete parts
ISO/TR 22514-4:2007	Statistical methods in process management — Capability and performance – Part 4: Process capability estimates and performance
ISO 21747:2006	Statistical methods — Process performance and capability statistics for measured quality characteristics
ISO 11462-1:2001	Guidelines for implementation of statistical process control (SPC) — Part 1: Elements of SPC
ISO 8258:1991	Shewhart control charts
ISO 7966:1993	Acceptance control charts
ISO 7873:1993	Control charts for arithmetic average with warning limits
ISO/TR 7871:1997	Cumulative sum charts — Guidance on quality control and data analysis using CUSUM techniques
ISO 7870-1:2007	Control charts — Part 1: General guidelines

TABLE 4 TC69/SC5 Documents

	Acceptance Sampling
ISO 24153:2009	Random sampling and randomization procedures
ISO 21247:2005	Combined accept-zero sampling systems and process control procedures for product acceptance
ISO 18414:2006	Acceptance sampling procedures by attributes — Accept-zero sampling system based on credit principle for controlling outgoing quality
ISO 14560:2004	Acceptance sampling procedures by attributes — Specified quality levels in nonconforming items per million
ISO 13448-1:2005	Acceptance sampling procedures based on the allocation of priorities principle (APP) — Part 1: Guidelines for the APP approach
ISO 13448-2:2004	Acceptance sampling procedures based on the allocation of priorities principle (APP) — Part 2: Coordinated single sampling plans for acceptance sampling by attributes
ISO/TR 8550-1:2007	Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots — Part 1: Acceptance sampling
ISO/TR 8550-2:2007	Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots — Part 2: Sampling by attributes
ISO/TR 8550-3:2007	Guidance on the selection and usage of acceptance sampling systems for inspection of discrete items in lots — Part 3: Sampling by variables
ISO 8422:2006	Sequential sampling plans for inspection by attributes
ISO 8423:2008	Sequential sampling plans for inspection by variables for percent nonconforming (known standard deviation)

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ISO 3951-1:2005	Sampling procedures for inspection by variables — Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL
ISO 3951-2:2006	Sampling procedures for inspection by variables — Part 2: General specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection of independent quality characteristics
ISO 3951-3:2007	Sampling procedures for inspection by variables — Part 3: Double sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
ISO 3951-5:2006	Sampling procedures for inspection by variables — Part 5: Sequential sampling plans indexed by acceptance quality limit (AQL) for inspection by variables (known standard deviation)
ISO 2859-1:1999	Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection
ISO 2859-2:1985	Sampling procedures for inspection by attributes — Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection
ISO 2859-3:2005	Sampling procedures for inspection by attributes — Part 3: Skip-lot sampling procedures
ISO 2859-4:2002	Sampling procedures for inspection by attributes — Part 4: Procedures for assessment of declared quality levels
ISO 2859-5:2005	Sampling procedures for inspection by attributes — Part 5: System of sequential sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection
ISO 2859-10:2006	Sampling procedures for inspection by attributes — Part 10: Introduction to the ISO 2859 series of standards for sampling for inspection by attributes

TABLE 5 TC69/SC6 Documents

	Metrology and Measurement Systems
ISO/TR 22971:2005	Accuracy (trueness and precision) of measurement methods and results – Practical guidance for the use of ISO 5725-2:1994 in designing, implementing and statistically analysing interlaboratory repeatability and reproducibility results
ISO/TS 21749:2005	Measurement uncertainty for metrological applications — Repeated measurements and nested experiments
ISO/TS 21748:2004	Guidance for the use of repeatability, reproducibility and trueness estimates in measurement uncertainty estimation
ISO 13528:2005	Statistical methods for use in proficiency testing by interlaboratory comparisons
ISO 11843-1:1997	Capability of detection — Part 1: Terms and definitions
ISO 11843-2:2000	Capability of detection — Part 2: Methodology in the linear calibration case
ISO 11843-3:2003	Capability of detection — Part 3: Methodology for determination of the critical value for the response variable when no calibration data are used
ISO 11843-4:2003	Capability of detection — Part 4: Methodology for comparing the minimum detectable value with a given value
ISO 11843-5:2008	Capability of detection — Part 5: Methodology in the linear and non-linear calibration cases
ISO 11095:1996	Linear calibration using reference materials
ISO 10576-1:2003	Statistical methods — Guidelines for the evaluation of conformity with specified requirements — Part 1: General principles
ISO 5725-1:1994	Accuracy (trueness and precision) of measurement methods and results – Part 1: General principles and definitions
ISO 5725-2:1994	Accuracy (trueness and precision) of measurement methods and results – Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method
ISO 5725-3:1994	Accuracy (trueness and precision) of measurement methods and results – Part 3: Intermediate measures of the precision of a standard measurement method
ISO 5725-4:1994	Accuracy (trueness and precision) of measurement methods and results – Part 4: Basic methods for the determination of the trueness of a standard measurement method
ISO 5725-5:1998	Accuracy (trueness and precision) of measurement methods and results – Part 5: Alternative methods for the determination of the precision of a standard measurement method
ISO 5725-6:1994	Accuracy (trueness and precision) of measurement methods and results – Part 6: Use in practice of accuracy values

TABLE 6 TC69/SC7 Documents

	Six Sigma Documents
ISO/TR 29901:2007	Selected illustrations of full factorial experiments with four factors
ISO/TR 12845:2010	Selected illustrations of fractional factorial screening experiments

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Work in Progress—Selected Forthcoming Documents

The documents in Tables 1-6 have withstood the onerous review process and the production of the documents according to the ISO template for documents—the format after all across standards should be standardized! Recognizing the evolution of statistical practice, TC 69 created two new subcommittees (SC 7 and SC 8). The aim of SC7 is to create documents that provide guidance on the application of statistical procedures for the Six Sigma and related communities, both manufacturing and business types, who strive to improve products and processes. Because these communities are characterized by a focus on speed to obtain results, a basic knowledge of statistics, and a propensity to use software applications to guide them through the mathematical challenges of statistical methods, the documents to be developed will have the objective of satisfying these characteristics. To date two documents have been sponsored by TC69/SC7 as given in Table 6 but the following four projects are underway and documents are forthcoming:

ISO/DTR 12888	Selected illustrations of gauge repeatability and reproducibility studies
ISO/DIS 13053-1	Quantitative methods in process improvement — Six Sigma – Part 1: DMAIC methodology
ISO/DIS 13053-2	Quantitative methods in process improvement — Six Sigma – Part 2: Tools and techniques
ISO/PRF TR 14468	Selected illustrations of attribute agreement analysis

Also under early development is a technical guide to response surface methodology. A gap analysis between the Six Sigma body of knowledge (BOK) developed by ASQ and TC69 portfolio of documents was recently conducted jointly by ASQ and TC69 experts and led to the development of a roadmap of SC7 future products.

The other subcommittees have work programs involving revisions to existing documents and in some cases development of new standards. For example, SC1 is developing ISO 3534-4 on statistical sampling. TC 69 also establishes ad hoc committees on occasion to investigate emerging topics or issues for consideration. For example, TC69/WG11 has been pondering issues related to statistical software and standards. Statistical practice requires software but ISO is prohibited from advocating any particular statistical package. This causes a real dilemma for standards developers who want to have standards that contain realistic applications. The two documents published by SC7 on factorial and fractional factorial designs have circumvented the problem by including examples with various statistical commercial software packages (such as JMP and Minitab).

Closing Remarks

International statistical standards have a relatively long and distinguished history and body of work consisting of some excellent documents that have benefited from massive amounts of review and use. Some of the main industries commonly using TC69 documents are: government, manufacturing, laboratories and testing agencies, chemicals and plastics, semi-conductor, certification and auditing, seafood, and pharmaceuticals. Participants in developing such documents end up working closely with experts from other countries and developing long-term friendships and in some cases, external collaborations (Boulanger, et al., 1999). The need for additional experts to contribute to the existing work programs or to define new avenues of development is acute, as the US TAG continues to age. Interested experts should contact ASQ to express interest in working on international statistical standards (Standards@asq.org).

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MEET THE OFFICERS

Christine Anderson-Cook, Chair

Christine has been a Research Scientist and Project Leader at Los Alamos National Laboratory in Los Alamos, New Mexico since 2004. Previously, she was faculty member in the Department of Statistics at Virginia Tech for eight years. Christine has a Ph.D. in Statistics from the University of Waterloo. Her research interests include design and analysis of industrial experiments, response surface methodology, system reliability, variable selection, Bayesian and graphical methods. She has collaborated with engineers and scientists on a diverse set of research problems in industry, government and academia. Christine is a Fellow of the American Statistical Association and a Senior Member of the American Society for Quality. She serves on the editorial boards of the JQT and QREI. She is a regular columnist for the Quality Progress Statistics Roundtable.

Mindy Hotchkiss, Chair-Elect

Mindy is the Technical Lead for the Statistics Group at Pratt & Whitney Rocketdyne in West Palm Beach, FL, a division of United Technologies (UTC). Her primary areas of interest are assessment of risks for extreme events and analysis of sparse datasets in support of business and engineering decisions. Her diverse workload includes statistical process control and process improvement activities, as well as reliability, modeling, and uncertainty analyses. Mindy received her M.S. in Statistics from North Carolina State University and has a B.S. with a double major in Mathematics and Statistics from the University of Florida. She also has an MBA from the University of Florida. She is a member of the American Statistical Association as well as ASQ and is a Certified Reliability Engineer.

Vijay Nair, Past Chair

Vijay is the Donald A. Darling Professor of Statistics and Professor of Industrial and Operations Engineering at the University of Michigan, Ann Arbor since 1993. Previously, he was a Research Scientist at Bell Laboratories for fifteen years. Vijay's research interests include engineering statistics (quality improvement, reliability, design and analysis of industrial experiments, and process control), information technology (modeling and analysis of computer and communication networks and sensor networks), and design of behavioral intervention studies. He is a Fellow of the American Association for the Advancement of Science, the American Society for Quality, the American Statistical Association, and the Institute for Mathematical Statistics. He is a former editor of Technometrics and the International Statistical Review.

Bill Rodebaugh, Treasurer

Bill has almost twenty years of corporate experience with refining, chemical, and pharmaceutical industries, and he is currently the Site Manager of the Sunoco Chemicals Plant in Philadelphia. Over a decade ago, Bill began his work in the field of Six Sigma as a part of the AlliedSignal launch. He earned his MBB certification at AlliedSignal, and then became the Production Superintendent there. Wanting to combine his experiences, Bill became a Six Sigma consultant, training, mentoring, and building programs both in the US and abroad. He then directed a Six Sigma program at a US chemical company before venturing into an IT Six Sigma role in the Pharmaceutical industry. Bill's training experience consists of bringing Six Sigma and Lean concepts from the shop floor to the executive level. Bill holds an MBA and a BS in Chemical Engineering from Drexel University. He is also a Certified Quality Engineer.

MEET THE OFFICERS

Richard N. "Herb" McGrath, Secretary

Herb is an Associate Professor at Bowling Green State University. His current research interests are in industrial statistics, specifically, unreplicated fractional factorial designs, computer experiments, and statistical process control. Prior to receiving his Ph.D. in Statistics from Penn State in 2000, he worked for AT&T and Bell Laboratories for 12 years as a quality engineer, corporate educator, and quality manager. He also has an M.S. in Statistics from Rutgers University (with option in Quality Management) and a B.S. in Industrial and Management Systems from Penn State. Herb is a member of the American Statistical Association and a senior member of ASQ.

William Brenneman, Vice Chair - Products & Services

William is a Principal Statistician at the Procter & Gamble Company in Cincinnati, Ohio. His current work at P&G is focused on providing statistical support within the Beauty Care business unit. William works on a wide range of projects that deal with statistics applications in the areas of design of experiments, robust parameter design, reliability engineering, statistical process control, computer experiments, and general statistical thinking. He has also been instrumental in the development of an in-house statistics curriculum that provides statistics training to P&G scientists and engineers from around the globe. William received a Ph.D. degree in Statistics at the University of Michigan (2000). His research interests include experimental design and analysis, reliability engineering, statistical process control and robust parameter design. William is a member of the American Statistical Association, the American Society for Quality and the Institute of Mathematical Statistics. He has served as Senior Editor of the newsletter for the American Statistical Association Section on Physical and Engineering Sciences and as referee for several statistics journals.

Brian Sersion, CQE, Vice Chair - Communication

Brian Sersion is a program evaluator and research analyst for the Cincinnati Public Schools, Research and Evaluation Department. His expertise is in educational measurement and testing, and quantitative analysis. Prior to working in education, Brian worked for 14 years in the field of environmental management as a Site Engineer and Technical Manager in the waste management industry. He received an MS in Quantitative Analysis from the University of Cincinnati (1999) and BS in Geological Sciences from Ohio University (1987). He is a senior member of the American Society for Quality and has held the Certified Quality Engineer credential since 2004. His contributions as a member volunteer have earned him numerous awards from the society.

Sam Gardner, Vice Chair – Operations

Sam Gardner has been a Systems Engineer in the JMP Division at the SAS Institute since 2008. Previously, he worked for seven years with Eli Lilly and Company, first as a statistician in bulk pharmaceutical manufacturing and manufacturing development, and later as a process chemist in antibiotic manufacturing. Before that, he served for 12 years as an active-duty US Air Force officer, with various roles in weapons systems modeling and simulation, operational flight testing, academics (Instructor of Statistics at the Air Force Institute of Technology) and in visual display systems research. He has been a JMP user and advocate for the last 12 years. Sam holds bachelor's degrees in mathematics and chemistry from Purdue University, a master's degrees in mathematics from Creighton University, and a master's degree in statistics from the University of Kentucky. He is a Senior Member of the ASQ, and has been a member of the ASQ Statistics Division for 10 years.

Update on the Development of a Virtual Resource Center

by Gordon Clark
clark.17@osu.edu

The purpose of the Virtual Resource Center (VRC) is to provide a comprehensive set of resources supporting the mission of the division that are easily accessible and searchable online by division members. The VRC development team members are William Brenneman (Chair), Daksha Chokshi, Gordon Clark, Christine Anderson-Cook, Mindy Hotchkiss, Harry Koval, Steve Schuelka, Brian Sersion, and Michael Joner. Our Winter 2010 newsletter, Volume 28, No. 1, outlines the development approach on page 10. In March, the team completed the initial version of our Content Area List. They started with a list initially prepared by Mindy Hotchkiss. That list categorizes our division resources into a hierarchical structure consisting of eleven major topics and each major topic has minor topics. For example, Process Monitoring and Control is a major topic and it has the following minor topics.

Objectives, Basic Concepts, and Terminology
Qualitative Tools for System Definition
Statistical Process Control (SPC) Charts
Capability Analysis
Acceptance Sampling
Off-Line Quality Control

Mapping Resources to the Content Area List

The VRC will relate all of our existing resources with the Content Area List. The first step involves determining the content of our existing products. That involves constructing abstracts, descriptions and keywords for each product item. The next step, called the mapping step, relates each product item to the Content Area List. Harry Koval has constructed an Excel spreadsheet for recording and analyzing these relationships. The spreadsheet is called a Gap Analysis for Improving New Products. The spreadsheet will contain a rating for each product item and each Content Area List minor topic. The potential relevancy ratings are Primary Relation Or Main Focus, Some Relation But Not Main Focus, or None. By analyzing these ratings we can determine which topics need more focus. Also, division members will be able to use these ratings for online searches to identify useful product items.

Current Progress

The team has started preparing abstracts, descriptions and keywords for newsletter articles. These articles consist of Mini-Papers, Youden Addresses and Tutorials. The team has hired a graduate student, Juan Castillo, to prepare initial drafts. Gordon Clark and Michael Joner have edited abstracts, descriptions and keywords for 32 articles which completes all eligible newsletter content dating back to Spring of 1999.

In addition, the team has posted the abstracts on our internal web site as Library items that are separate from the newsletters. You can view them by visiting http://asq.org/statistics/quality-information/library/, and you can download individual articles as pdf files. You can search them to locate articles pertaining to your interests. For example, a search using the term "Capability Analysis" returns 14 articles. The Library items have not yet been related to the Content Area List topics.

Mapping Activity at the Fall Technical Conference

The VRC Development Team will conduct a major mapping activity at the Fall Technical Conference. **You are invited to participate**. Join the team on Thursday, October 8, from 5:30 to 7:30 pm. You will be reviewing newsletter articles (abstracts, descriptions and keywords) to identify which Content Area List topics relate to the articles content. Our objective is to have three individuals evaluate each newsletter article. We intend to have abstracts, descriptions and keywords for fifty newsletter articles available for evaluation.

By participating in this mapping activity, you will provide a valuable service for the Statistics Division, become familiar with newsletter article content and the Content Area List, and network with other Statistics Division members. Please contact William Brenneman, brenneman.wa@pg.com, if you want to help the division in this activity.

ASQ Statistics Division
Tactical Planning Meeting Minutes: Highlights
Sunday, May 23, 2010, 1 - 5pm
St. Louis, MO

Mindy Hotchkiss

Attendance:
Ted Allen, Christine Anderson-Cook, Daksha Chokshi, Gordon Clark, Doug Hlavacek, Mindy Hotchkiss, Mark Kiel, Herb McGrath, Bob Mitchell, Vijay Nair, Paul Prew, Bill Rodebaugh, Steve Schuelka, Brian Sersion, Kim Thompson

Agenda:
1. Welcome, Introductions, & Announcements
2. Vision, Mission, Roles, & Strategic Goals
3. Tactical Planning by Strategy
4. 2010-2011 Budget

The task of the Tactical Planning Meeting held in May at the WCQI is to turn the division strategies into realities. The objectives of the meeting were to evaluate progress to date and identify new opportunities and areas for improvement, taking into account the voice of the customer.

Announcements

ASQ is pleased with registration for ICQI sessions. QMD is interested in continuing next year – need to debrief, review feedback. Proposal due late summer.

The Joint Booth Activity at the WCQI Expo is a Treasure Hunt. A 1-page bullet list for each Division was developed. Participants will complete entry form after visiting each booth. Drawing to be held Tuesday afternoon. Hospitality suite co-sponsored with CPID.

The Statistics Division received the McDermond Total Quality & Gold Excellence Award for the 2008-2009 year. Daksha distributed Total Quality pins to Bill, Mindy, and Doug and Gold Excellence pins to Brian, Bob, and Gordon for their contributions and support in achieving this award. Ribbons were distributed to everyone. Plaques will be on display at the booth at the WCQI Expo.

The upcoming change to the ASQ fiscal year has been approved by the ASQ Board and will take place in 2011. July 2011 to December 2012 will be the transition period. Audited financial statements will need to be completed for the transitional 6-month time period. Governance year (terms of office) for divisions is anticipated to stay in alignment with the fiscal year, but details of transition period are not yet defined.

Division Planning Process, Vision, and Mission

The Statistics Division vision, mission, and strategies were reviewed. Christine distributed copies of the Hoerl and Snee article "Closing the Gap" published in the last issue of Quality Progress.

Current Status and Future Activities by Strategy: Focus on Strategies 1-3

1. Body of Knowledge (BoK) Survey / Virtual Resource Center (VRC) Development

Previous action items to assess currently available resources, establish scope, and define a list of content areas that we want to encompass are complete. Work is in progress to organize currently available resources consistent with content areas. Once complete, have plan to identify gaps between content areas and currently available resources for internal use. Currently developing a plan to make existing resources more easily searchable and accessible to members on our internal website.

Making progress on plan to review and organize inventory of papers and other material. Abstracts and keywords have been drafted for many of the papers in the archive by a student hired to work on this task. William Brenneman has recruited Michael Joner to help with abstract review. Note: Abstracts and keywords for new content published in the newsletter will be requested from authors as part of the submission.

Content Area List was finalized (draft reduced from 10 pages to 2.5). This is a hierarchical document that is intended to provide a high level summary of Division technical content that could be used for gap analysis. The Content Area list may also be useful for Springer Encyclopedia.

Tactical Planning Meeting Minutes: Highlights

(continued from previous page)

Outcome product accessibility from internal website is a concern. The decision at FTC Operation Planning Meeting in 10/09 was to focus on the internal website, which has good search capability, but is limited in structure and format. The team brainstormed "ideal" website look, which is hierarchical with "drill down" capability. VRC will submit recommendations for going forward actions.

QBOK (Quality Body of Knowledge) is a new ASQ initiative led by Deb Hopen of ASQ, who discussed the activity with the VRC team at meeting on 4/21/10. This is a nontraditional, virtual team intended to provide rapid feedback about QBOK content, but is not yet active. The Statistics Division now has several participants on the QBOK Stakeholder Committee. Division participation is not limited to a single traditional representative – the Division would benefit from more participants.

New content ideas are being discussed for the How-To Series and Narrated Slideshows. A long-term plan needs to be developed for the How To series - need to identify target audience, user needs, etc. Also need to update financial arrangement with ASQ to provide better motivation for authors. Discussion tabled until Operational planning meeting. ASQ also now has improved capability to support webinars, which is an option for the future.

2. Communication Vehicles / Member Engagement

Division to members communication vehicles currently include websites (internal & external). Newsletters, E-Zines, Blog, LinkedIn news pages, ASQ emails. Members to Division communication vehicles include VoC surveys and LinkedIn posts. Opportunities for Member to Member and Member to Division Interaction include Discussion Boards, Booths at WCQI and FTC, Open Business Meetings, Conferences, Hospitality Suites, and LinkedIn.

The Statistics Division maintains two websites: www.asqstatdiv.org (external) and www.asq.org (internal). Bob Mitchell is webmaster for the external site, with support from Jackie Webster of Small Web Solutions. Brian Sersion is webmaster for the internal website with support from Kim Thompson, ASQ HQ Community Development. Web subcommittee meets every other month.

The official ASQ website does not yet have sales capability needed to sell Narrated Slideshows, but the system may eventually have this capability, at which point we need to revisit whether we need 2 sites. ASQ Re-Branding activity will result in new internal website appearance.

Calendar option is an underutilized resource. Members can click on Calendar of events on website, but unless we add Division events, it will take them to ASQ calendar and could be confusing.

ASQ relaunched its discussion board application in April, now located here: http://community.asq.org/forums/ . You must be logged in as a member to have access to the boards. Two years of postings were migrated from the old Statistics board. The other 4 discussion boards are connected to the Statistics boards as sub-forums. None of the content from these has been migrated.

Next posting for Statistical Thinking Blog will go out soon now that Gordon will have more time after WCQI. Christine will be meeting with Roger Hoerl and Ron Snee at JSM in August to discuss starting a Statistical Engineering Blog.

The Speaker List currently posted on the website is being updated. Every person listed on the list was contacted via e-mail or phone. New Speaker List will be ready this summer. Speakers on the list should be existing Subject Matter Experts willing to travel upon request. Need to define policy on funding and expense reimbursements.

3. Membership / Voice of the Customer (VOC)

Membership survey draft available for review. Do we want to change what new members receive when they join the division? How do we want to proceed with member-only benefits: Discount at conference? Discounts for products?

First VOC survey should be sent to all members. Plan is to follow-up with sub-sampling – could be random or self-selected (volunteers). This helps avoid oversaturation. Need to follow-up with response to actions. Targeted average time to fill out survey is 3 minutes.

Another idea to foster member engagement is mentoring circles. Can we pair senior members with new members in local areas? Topic to be discussed at Operational Planning Meeting.

Some of our highest potential for impact seems to be through interactions with sections and other groups. The face-to-face or personalized interactions seem to be the one the yield the most return and satisfaction for members.

Treasurer's Report & 2009-2010 Budget Review

Draft of next year's budget reviewed. Budget will be reviewed and finalized during June.

ASQ Statistics Division Operational Planning Meeting Highlights

Albuquerque, NM
August 28-29, 2010

Participants: Christine Anderson-Cook, William Brenneman, Daksha Chokshi, Gordon Clark, Mindy Hotchkiss, Herb McGrath, Bob Mitchell, Paul Prew, Bill Rodebaugh, Steve Schuelka

The meeting began with a review of the mission, vision, and strategies for the division with the possibility of incorporating statistical engineering. Many different topics were on the agenda and brief summaries of the discussions and decisions are given below.

Award Committees: The Nelson award committee needs two or three new people and the Hunter award committee needs a new chair. Information (eligibility of committee members, criteria for award, etc.) to be posted on web site(s) for Nelson and Hunter awards.

Finances: Special Publications cost about $8,000 per year and we should consider changes to delivery method or frequency. Moving some money to longer term instruments increased interest income.

Succession Planning: ASQ switches to calendar fiscal year in Jan 2012. We need names for chair-elect, treasurer, and vice chair positions. Operating manual (dated 1999-2000) defines the tenure of many division positions but the succession planning process may need to be revisited.

Organization Structure: Mindy displayed what will forever be known as the "train diagram" that defines the "buckets" of division activities, etc. with positions overlaid. It is clear that some positions have too much responsibility and some buckets do not have much coverage. Bob showed the make-up of different section committees from 2007-2008. Mindy, Bill, Brian Sersion and possibly Bob will look at the organization chart and Mindy's diagram to come up with an organization plan. Goal to have something for publishing in Jan newsletter.

Surveys: Steve discussed results from the member survey that 516 members completed. See article elsewhere in newsletter for summary of results. We should track one year from now what the change in responses are. Eighty three members from the survey asked to be contacted.

Virtual Resource Center (VRC): BOK (content area list) is complete and has same structure as ASQ QBOK. Mapping is in progress, to be followed by gap analysis. Mapping session to be held at FTC, Thursday evening, 5:30-7:30. Hope to get 12-18 people to help. For new products, the editors will collect abstracts, keywords, etc. from authors.

Statistical Engineering (SE): Christine showed some slides from Ron Snee and Roger Hoerl's presentation at JSM. Much discussion ensued. There was general agreement that there is a gap between tools and a system to implement them. Christine will contact Snee and Hoerl to provide a narrated slide show from their JSM talk. Need to continue discussion on SE on Linked-In. There is still not clarity on what SE encompasses.

Fall Technical Conference (FTC): Currently FTC web site is controlled at the local level and generally disappears after the conference. Possible solution: Have local site maintained until conference is held, then archive program and possibly presentations to a central site. Stat Division will host hospitality suite 6:00-7:30 Wed.

ICQI 2011: Call for papers out, deadline 9/17. Many groups, including ASQ divisions and ASA sections have been contacted to advertise on their web pages.

Collaborations: Need to update the division's brochure. Multiple possibilities exist for section conference sponsorship. Need to define process for deciding which to sponsor.

Breakout Sessions: Two separate breakout sessions were held with the larger group splitting into three smaller groups for each. Brief summaries of recommendations follow.

Newsletter: 1) Need to encourage mini-paper submissions, several ideas presented. 2) Include member profiles, mentor/mentee profiles, day in the life, intern experience. 3) need for process to solicit mini-papers, perhaps need associate editor.

Narrated Slide Shows: 1) Need editor. 2) Tie into ASQ certification. 3) Consider change to pricing and royalty structure. 4) Consider making WCQI/ICQI presentations available.

Communication: 1) Encourage LinkedIn membership (currently about 280), perhaps through e-zines. 2) Start SE discussion on blog. 3) Need to stimulate activity on Discussion Boards. 4) External web site last redone around 2004, could be freshened up.

Mentoring: 1) Consider using a third-party service such as MentorNet. 2) Face-to-face initial meeting preferable. 3) Consider creating an FAQ on web site.

Speakers Program: 1) Require feedback from sections that used a speaker on list. 2) Ask section for write-up, possibly picture. 3) Speaker list being updated, some contact information needs to be verified. 4) Need a system to ensure quality of speakers.

Metrics: 1) Three categories of metrics to consider: a) Matching Strategic goals to tactics and offerings, b) Assessing quality and relevance of current offerings, c) Assessing progress on new offerings /activities. 2) Consider creating a VC of operations position.

TREASURER'S REPORT

2010-2011 Budget

Revenue	Approved 2009-2010 Budget	Actual 7/09-6/10	Approved 2010-2011 Budget
Dues	$50,000	$31,635	$46,000
Retail Sales		$121	$500
Workshops/Courses	$500	$645	$500
Interest	$1,100	$264	$500
Royalties	$0	$509	$500
Miscellaneous	$0	$0	$0
Total	$51,600	$33,175	$48,000

Assets - 2009/2010				
Chase Checking Acct				
	Balance Date	July '09	May '10	July '10
		$ 66,783	$ 17,123	$ 22,156

Money Market Acct				0.15%
	Balance Date	July '09	May '10	July '10
		$ 121,217	$ 51,616	$ 51,635

ASQ Reserve Fund Investment				
	Balance Date	July '09	May '10	July '10
		$ 66,064	$ 179,934	$ 182,797

ASQ Statistics Division - Total Assets				
	Balance Date	July '09	May '10	July '10
		$ 254,064	$ 248,673	$ 256,588

Ott Scholarship				
	Assets	July '09	May '10	July '10
	Scholarship Fund	208,859	230,796	234,468

Ott Scholarship				
	Expenses	Approved 2009-2010 Budget	Actual Budget 7/09-6/10	Approved 2010-2011 Budget
	Scholarship (2)	10,000	10,000	10,000

Expenses		Approved 2009-2010 Budget	Actual 7/09-6/10	Approved 2010-2011 Budget
WCQI Events & Meetings		$12,500	$16,919	$12,000
	Meetings/Hospitality	$3,500	$3,131	$3,000
	Travel	$7,000	$9,875	$7,000
	Exhibitor Fees	$2,000	$973	$1,000
	Promotional Items (C-in-C)	$0	$2,041	$1,000
	Miscellaneous	$0	$900	$0
FTC Events & Meetings		$17,100	$19,523	$11,500
	Meetings/Hospitality	$5,000	$8,292	$2,500
	Travel	$7,000	$5,900	$3,500
	Student Grants	$2,000	$2,017	$2,000
	Early Career Grants	$0	$0	$1,000
	Hunter & Nelson Awards	$500	$341	$500
	Hunter Award Travel	$1,000	$286	$500
	Youden Speaker Travel	$500	$0	$1,500
	Promotional Items	$1,100	$2,688	$0
Planning & Events		$0	$0	$12,000
	OPS Planning Meeting	$0	$0	$3,000
	OPS Planning Travel	$0	$0	$9,000
Other Conferences		$5,700	$4,718	$5,700
	Outreach (Sponsorships)	$2,200	$1,330	$2,200
	Standards	$3,500	$3,388	$3,500
	Travel	$0	$0	$0
Publications (Body of Knowledge)		$12,300	$13,657	$5,000
	Newsletter Printing	$2,000	$2,386	$2,000
	Newsletter Postage	$500	$0	$500
	Special Publication Printing	$6,000	$4,960	$0
	Special Publication Postage	$2,000	$3,436	$0
	Special Publication Reprints	$1,000	$0	$0
	Special Publication Honorarium	$500	$500	$0
	Narrated Slideshows	$300	$375	$300
	Body of Knowledge Activity	$0	$2,000	$2,200
Administration		$7,500	$2,578	$5,000
	New Member Mailings	$500	$0	$0
	Technology Related (Web, Apps)	$4,500	$1,587	$1,500
	Teleconferences	$500	$691	$800
	ASQ Testimonials ($60 each)	$300	$300	$300
	Service Awards (WCQI, FTC Reps)	$700	$0	$700
	Outgoing Chair's Gift	$500	$0	$500
	Miscellaneous	$500	$0	$1,200
Total		$55,100	$57,394	$51,200

STATISTICS DIVISION COMMITTEE ROSTER

Members of STAT Council

2010-2011

Committee	Name	Division Position	E-mail address	Telephone
OFFICERS				
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	Richard Herb McGrath	Secretary	mmcgra@bqsu.edu	419-372-8451
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Chair	TBD	Vice Chair - Outreach		
CONSTITUTED				
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Voting Member	Steve Schuelka	Voice of Customer	sjschuelk@yahoo.com	219-689-3804
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Non-Voting Member	Vijay Nair	Stat-Prob Encyclopedia Ed. Board	vnn@umich.edu	734-763-8018

ASQ
AMERICAN SOCIETY FOR QUALITY™

The *ASQ Statistics Division Newsletter* is published three times a year by the Statistics Division of the American Society for Quality.

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