

**Quality Advocates Meeting**  
**March 19, 2004**  
**"Using Data to Improve Processes in Academic Units"**

**Department of Food Science**  
**John Floros, Professor and Head**

**OVERVIEW**

1. **Identifying Data Needs**
  - A. Strategic Planning Process – last revision process (2003-2007 edition) emphasized performance indicators relative to goals
  - B. Process Improvement Efforts
  - C. Annual Faculty Review Process
  - D. External Department and Program Reviews
  - E. Food Science Department Heads
  
2. **Collection of Data**
  - A. Ownership of strategic performance indicators rests with programmatic committees and impact groups
  - B. Administration
    - a. master spreadsheet of key performance indicators
    - b. administration's strategic action plan is to dedicate resources to collection of departmental level metrics and to develop more efficient, centralized system for overall data collection (ongoing)
  - C. Faculty input for annual review process
  - D. Staff's access to university and college systems (budget, student programs, data warehouse)
  - E. College of Agricultural Sciences IT department initiatives to support common data needs among departments
  
3. **Acting on Data**
  - A. Strategic Planning – action plans relative to 5-year goals
  - B. Career feedback to faculty
  - C. Efficient and Effective use of funds
  
4. **Observations – Reality**
  - A. Resource constraints hinder improvements toward centralized data system
  - B. Multiple sources for data collection – different numbers depending on data period (annual, academic, fiscal) and operational definitions (i.e., number of Food Science students counted in Dean's office is different than number counted in department)
  - C. Most staff and faculty are not trained in proper data analysis methods and react to changes in single data points versus statistical trends
  - D. It is difficult to tie data (outcomes) back to specific department activities (requires long-term, consistent tracking efforts)
  - E. Lots of effort in revising current department strategic plan with goals and performance indicators, but perhaps too many performance indicators to realistically track.
  - F. Faculty are asked for the same data multiple times – a source of frustration for faculty.

## **EXAMPLES OF DATA COLLECTED AND USED IN FOOD SCIENCE**

### **1. Strategic Planning**

- a) All programmatic and impact groups have defined performance indicators (many quantitative) related to goals for 2003 – 2007, including Administration.
- b) 2002 Strategic Planning Committee recommended that Administration devote resources to developing a process and master database for as many measures as possible (Measures Task Force spent ~one year on this mission as formal CQI team)
- c) Head presents departmental level data from database at strategic planning retreats, department meetings and external advisory board meetings. Other groups have access to database as appropriate.

### **2. Measures Task Force**

As a result of Administration's action item in strategic plan, Measures Task Force was charged with creating a master database of key measures for a variety of purposes including strategic planning. The team defined the data needed, owners and sources of data, developed the excel master file and process for updating data. The team also explored technologies with the CoAS IT department to make the data collection more efficient in the future (budget and time line for future initiatives by CoAS are current constraints). The Team helped to revise a standardized faculty bio-form in order to meet several data needs (i.e., some data in Key Measures Database as well as information for the Head's annual faculty review process).

### **3. Graduate Assistantship and Funding Process Team**

As a result of a CQI effort to improve the overall administration of the department's graduate assistantship funds, the team has developed a summary master budget report (excel) and an Access database for graduate student information tracking to assist the Head in more effectively understanding the status of current year funds and projecting availability of the next fiscal year funds. This helps the Head to be more effective in making timely decisions to assist faculty in recruiting additional graduate students and supporting existing students. It also helps the Head effectively manage the support allotted to the department. (This CQI project is still in process and development of databases is ongoing.)

### **4. Annual Faculty Evaluations**

Department Head's excel database for accessing faculty performance (including the faculty bio-form to collect relevant information for the faculty annual reviews as well as the Key Measures Database).

# **EXAMPLE I**

## **Defining Data Need**

### **Food Science Strategic Plan 2003 - 2007**

#### **Undergraduate Education**

##### **Strategic Goals (FY 2003 – 2007)**

1. Maintain an undergraduate program of the highest quality, which prepares students to be successful contributors to society.
2. Continue program improvement through re-examination, clarification, and refinement of outcomes to achieve the highest quality.
3. Increase the proportion of students with international experience.
4. By spring 2005, increase enrollment to at least 150 undergraduate students.
5. Achieve diversity in the undergraduate student population with respect to gender and underrepresented groups.

##### **Performance Indicators**

1. Number of undergraduate students in Food Science.
2. Percentage of graduating students employed or in graduate school within four months and also within twelve months after graduation.
3. Percentage of undergraduate students participating in internships.
4. Demographics of undergraduate food science majors.
5. Number of courses reviewed by the Undergraduate Program Committee on an annual basis.
6. Number of undergraduate students with international experiences.

##### **Action Plans**

1. Develop the documentation for two new Food Science supporting courses.
2. Develop the documentation for a new course that could be applied to the general education requirement.
3. Reexamine, clarify, and refine educational outcomes (Appendix E) in light of Institute of Food Technologists (IFT) Educational Standards.
4. Implement a system of tracking outcome realization (e.g. surveys, exit interviews.)

# EXAMPLE II

## Collecting Data

### CQI Team Charter

**Team:** Measures Task Force

**Unit:** Department of Food Science

**Leader:** Donna Merrill

**Facilitator:** Barbara Sherlock

**Sponsor:** John D. Floros (Administration)

**Team Members:** Tom Dimick, Bill Houser, Lou Klindienst

#### **Process/Charge:**

Develop and implement a centralized system for collection and reporting of key performance indicators and departmental reports.

#### **Action Plans:**

1. Evaluate current processes and data sources for gathering data for performance indicators and department reports.
2. With information from #1, work with Dept Head to define "key performance indicators" from Department's Strategic Plan.
3. Working with Department Head, define "departmental reports and other measures".
4. Develop feasible solutions for a collection process for data/information defined in #2 and #3 above.
5. Present solutions to the Sponsor with cost/benefit analyses.
6. Sponsor to disseminate solution and plan to faculty.
7. Assist in implementation of solutions including initial collection of information (test cycle for new process), revising process, flowcharting and writing procedures and training stakeholders.

#### **Constraints:**

1. Staff with limited skills in databases development
2. Database Training for staff (cost time and money)
3. No additional resources for project
4. Time - completion by Feb. 2003

**Resources:** Project to be completed with existing resources.

#### **Methods of Communication Between Sponsor and Team:**

Direct communication and through Team Leader

#### **Expected Outcomes:**

1. An understanding of current processes and data sources of data currently available.
2. An understanding of resource time to maintain, develop and run the system.
3. A centralized data collection system meeting defined needs of department with flexibility for expansion to meet future needs.
4. Clear procedures and responsibilities of stakeholders.

#### **Stakeholders:**

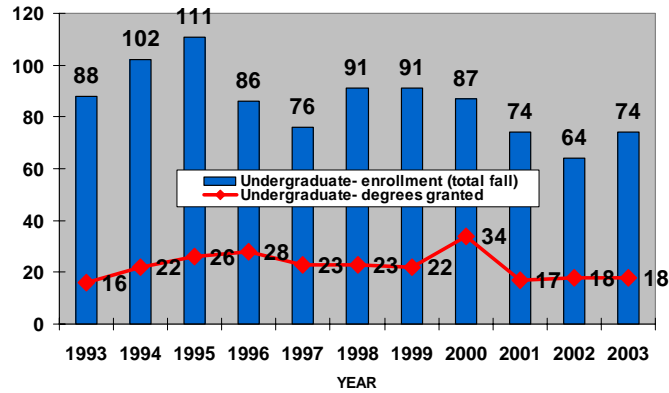
1. Food Science Faculty and Staff
2. Food Science Administration

# EXAMPLE III

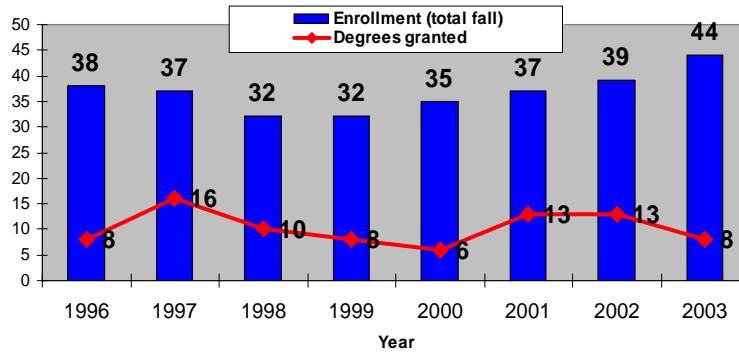
## Using Data

### Examples from Food Science Metrics Master

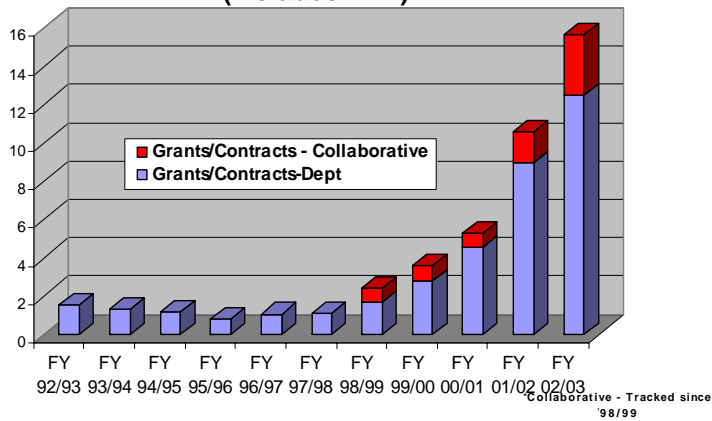
**FOOD SCIENCE UNDERGRADUATE STUDENTS**



**FOOD SCIENCE GRADUATE STUDENTS**



**Grants and Contract - Dollars  
(Includes NEP)**



# EXAMPLE IV

## Central Data Collection

### Food Science Department Metrics

#### **PERSONNEL**

##### **FACULTY**

Faculty-Tenure Track  
 Faculty-Other (Adjunct/Affiliate/FT)  
 TOTAL FACULTY - (Tenure + Other)  
 Faculty-Emeritus/Retired  
 % of Full Professors  
 % Associate Professors  
 % Assistant Professors  
 FTE Research  
 FTE Teaching  
 FTE Extension  
 FTE Other  
 TOTAL FTE  
 % female  
 % minority  
 % international

##### **STAFF**

Creamery Staff (ALL)  
 Dept Operations / Administrative Staff  
 Research/Extension Technical Staff  
 NEP Program (Technical & Admin)  
 TOTAL STAFF (includes Creamery)

Faculty/Staff- # Awards

#### **ACTIVITIES**

##### **RESEARCH**

# Publications - Research  
 # Publications per FTE Research Appt  
 # Non-refereed Journals  
 # of patents applications  
 # of patents granted  
 # of invited presentations at scientific meetings  
 # of faculty serving on scientific proposal review panels  
 # of editorships and associate editorships  
 # of memberships in National Academy of Sciences  
 # of Sabbaticals

##### **OUTREACH / EXTENSION ACTIVITIES**

# Extension Publications  
 # Publications per FTE Extension Appt  
 # Extension Programs  
 # Short Courses/Workshops # events  
 # of participants (short courses/workshops)  
 # of Inservice Trainings - #events  
 # of Inservice Trainings - # participants  
 Total # of Short Courses, WS, Inservice)  
 Total # of participants (Short Course, WS, Inservice)

#### **STUDENTS**

##### **STUDENTS - UNDERGRADUATES**

Undergraduate- enrollment (total fall)  
 Undergraduate- degrees granted  
 Undergraduate- Scholarships/Awards  
 Undergraduate- Scholarships/Awards (\$)  
 Average Scholarship \$ (per UG student)  
 % of UG students awarded scholarships  
 # of revised courses reviewed by UGC

#### **STUDENTS - GRADUATES**

MS- enrollment (total fall)  
 MS- degrees granted  
 Number of Applications received  
 # of offers  
 # enrolled  
 Selectivity (#offers/#applied)  
 Yield (# enrolled/# offered)  
 Ph.D. -enrollment (total fall)  
 Ph.D. -degrees granted  
 Number of Applications received  
 # of offers  
 # enrolled  
 Selectivity (#offers/#applied)  
 Yield (# enrolled/# offered)

#### **TOTAL GRADUATES**

Enrollment (total fall)  
 Degrees granted  
 Graduate- Scholarships/Awards (MS & Ph.D.)  
 Graduate- Scholarships/Awards (MS & Ph.D.)\$  
 Graduate - Assistantships (# supported)  
 Graduate - Assistantships \$  
 Number of Applications received  
 Number of Offers  
 Number enrolled  
 Selectivity (#offers/#applied)  
 Yield (# enrolled/# offered)  
 Avg GRE Scores - Grads  
 Avg GRE Verbal Scores - Grads  
 Avg GRE Quantitative Scores - Grads  
 Avg GRE Analytical Scores - Grads  
 JR/SR GPA - Graduates  
 % from underrepresented groups from total applications  
 % total female - Total Grads  
 % total minority - Total Grads  
 % total international - Total Grads  
 Avg time to degree (years)  
 University Graduate Fellowships  
 % grads support - Scholarships/Assistantships  
 # of graduate courses offered at least biannually

#### **FUNDING**

##### **Grants/Contracts \$ Awarded**

Grant \$ faculty/staff collaborative efforts  
 Gifts In Support of Research/Extension  
 Sensory Lab Income  
 Endowments (income)  
 TOTAL FUNDING  
 Total Funding Per Tenure Faculty  
 Total per capita (FTE) R&D funding (total)  
 Federally sponsored R&D funding (total)  
 Privately sponsored R&D funding (total)  
 State sponsored R&D funding (total)  
**GRANTS/CONTRACTS (NUMBER)**  
 Number of Grant/Contract Proposals  
 Number Grant/Contracts Awarded  
 Grant/Contracts per Faculty member

# Example V

## Using Data

### Annual Faculty Evaluation

#### **TEACHING**

% Teaching  
# of Courses  
FD SC Course No.  
Total Credits  
Enrollment  
Degree of Participation

#### **SRTEs**

A3  
A4

#### **Teaching Quality**

#### **RESEARCH**

% Research

#### **Graduate Students**

Completed  
In-Progress  
New  
Committee Member

#### **Publications**

# of Refereed Publications  
# of Pubs Sub/Accepted  
# of Books/ Chapters  
# of Other Publications  
# of Abstracts/Papers  
Presented  
Publications Quality

#### **Grants**

# Completed  
\$ Amount  
# In Progress  
\$ Amount  
# Proposals Pending  
\$ Amount

#### **Exp Station Project Status**

#### **EXTENSION**

% Extension  
# Outreach Programs Conducted  
# Times Conducted  
# New Programs Developed  
Evaluation  
New Methods  
# Guest Lecturers  
# Extension Publications  
Bulletins/Circulations  
Video/Software/Media  
Evaluation of Service