Figure 4.

	E	F	G	H	I	J	K	L	M	N	O	P
1												
2												
3												
4												
5				SPRING 1991								
6												
7				WIU TRADING ASSOCIATION								
8												
9	L			TRADER: STUDENT 1								
10	O											
11	O C											
12	K O	ID										
13	U D	CODE		FUTURE						NET	YTD	TRADE
14	P E	99=CL	#	CODE	DATE	BUY	DATE	SELL	P/L	P/L	P/L	BALANCE
15												
16											0	25000
17	1	1.1	1	CZ	10-1	245			5	187	0	24687
18	13	13.3	2	LHZ			10-7	5122	7	-40	0	23527
19	14	99	1	PBG	10-10	5280	10-14	5275	-5	-75	-75	23452
20	2	99	5	SX	10-11	620.25	10-15	626.75	6.5	1310	1235	24762

in Fields B and F. Student 1 entered the market by buying one contract on October 1 at $2.45 per bushel. The contract identification code "1.1" is entered in Field F to allow for the daily settlement price to be obtained from Field C, thereby allowing the position to be marked-to-market at $2.50 per bushel. P/L shows a gain of 5 points (i.e., $0.05 per bushel). NET P/L converts the per-contract gain in points, to an equity gain in dollars for the position; thus, P/L of 5 times QUAN of 50 (i.e., $0.05 per bushel gain times 5000 bushels per contract), minus COMM of $63, equals $187 NET P/L. Since this position is open, initial margin is deducted from TRADE BALANCE; thus, the previous $25,000 TRADE BALANCE, plus NET P/L of $187, minus MARG of $500, equals $24,687 TRADE BALANCE.

The second position shown in Figure 4 is an open short position of Chicago Mercantile Exchange (i.e., CME) December live hog futures placed on October 7 at $51.22 per hundredweight. Since the daily settlement price is $51.15, P/L shows a gain of 7 points per contract; 7 points per contract times QUAN of 4 equals $28.00 per contract. Thus, NET P/L equals $28.00 per contract times two contracts, minus $96 brokerage fee (i.e., COMM of $48 times two contracts); NET P/L thus equals -$40.00. And, the previous TRADE BALANCE of $24,687 minus $40, minus $1120 (i.e., MARG of $560 times two contracts) equals $23,527 TRADE BALANCE.

The third trade involves assuming a long position of CME February pork belly futures at $52.80, and offsetting it at a 5-point loss. Since the position has been offset, the resultant $75 loss (i.e., a $20 loss on one contract plus COMM of $55) is taken into consideration by both YTD P/L and TRADE BALANCE.

The final trade (Figure 4) involves a long position of 25,000 bushels of CBOT November soybean futures that has been offset at a gain of $0.065 per bushel. The resultant $1310 NET P/L is added to the previous YTD P/L of -$75, as well as to the previous TRADE BALANCE of $23,452.

References

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Acknowledgements

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CASE STUDY

Meeting General Education Requirements For Computing Skills by Revamping A Science-Based Dairy Management Course

G. W. Kazmer

Introduction

Recognizing that computer literacy is as important today as the traditional "3 R's", the University of Connecticut recently included computing skills as a requirement for graduation. As part of the General Education Requirements, which must be fulfilled by all students in order to graduate regardless of major, students at the University of Connecticut must complete at least one course which is designed to provide a substantial amount of computing experience. As would be expected, many such courses are available in some disciplines such as engineering, mathematics or computer science, but relatively few have traditionally been

Kazmer is in the Department of Animal Science, University of Connecticut, Storrs, CT 06269-4040

found in the course offerings of most agricultural colleges. Fortunately, courses involving hands-on computing activities are on the increase in agricultural colleges (DeRouen et al., 1989; Wood et al., 1989; Rhodus, 1990; Harris and Garrett, 1990). The purpose of this article is to describe the integration of computer use into a science-based course in advanced dairy management, Animal Science 277 (ANSC 277).

Students interested in enrolling in ANSC 277 must first complete an introductory class in dairy science. The objective of the introductory class is to acquaint students with various aspects of dairying: genetics, nutrition, physiology, milking facilities, machines and procedures, animal housing, etc. The objective of ANSC 277, however, is to develop an appreciation of dairy business management, in addition to provide more depth to topics discussed during the introductory course.

Students are expected to make use of several DOS programs during the course, including spreadsheets, BASIC, database programs and word processing, and are also expected to develop a working knowledge of DOS itself. The typical investment in computer utilization during the 16-week semester for novice students is over 75 hours; those with some prior experience would probably spend 50-60 hours during the semester. Although students learn to use microcomputers and programs to satisfy the requirements of the course, the experience with both DOS and applications can be used in other classes or to meet job-related requirements.

Course

Course Structure

An important aspect of this advanced course in dairy management lies in the use of a dairy cattle breeding simulation program. This program produces "farms" which the students must manage by making breeding, culling, feeding and financial decisions. As genetic change is rather slow in dairy cattle, the simulation accelerates nature's own laborious pace by reducing the annual cycle associated with dairy cattle reproduction to a weekly cycle. Thus, each week students make breeding and culling decisions, which are then used by the program to produce the next "year's" herd. During the course, students have the opportunity to alter their herd's gene pool through 14 years of selection choices. Therefore, students are able to see, in four month's time, the net effect of selecting particular bulls upon genetic merit in their herds.

The breeding simulation program allows herd owners to alter four traits, i.e. milk production, fat %, protein % and type score. Each of these traits carries realistic economic weight, allowing the student to assess the financial effects of their breeding choices over time. The goal is, of course, to breed a profitable herd and manage it accordingly, or at the very least, to understand why profitability remained elusive.

Student Computing Activities

Students receive basic instruction in DOS functions early in the course to acquaint them with the operating environment they will be utilizing during the semester. A description of DOS's file naming conventions, filing system, i.e., the root directory, other directories and subdirectories, and rudimentary commands such as DIR, COPY, MD, CD, RD, RENAME and ERASE is presented during one laboratory period. Students are then required to complete a series of exercises designed to familiarize them with DOS conventions and commands.

During the first few weeks of the course, students become acquainted with the mechanics of cow and bull selection by completing forms on which breeding choices are indicated. However, after three weeks of working with hard copy, an ASCII text editor is used to create files, containing breeding choices in a format expected by the FORTRAN program, which can then be merged by the instructor to serve as input for the next "year's" herds. Students thus gain experience in working with ASCII files, possibly the only common format among many different DOS applications.

Targeted computer activities now begin in earnest. Financial management concepts are introduced through the discussion of cash flow and annual income statements. Each herd's owner is required to prepare an annual income statement for each year of operation as the semester progresses. After two weeks of completing statements by hand to insure an understanding of the mechanics involved, students then use a spreadsheet template designed to accomplish that task. During the familiarization period, the oft-heard GIGO principle (garbage in - garbage out) is stressed. Thus, after entering the appropriate production, income and expense variables, students are instructed to critically examine the "bottom line", instead of blindly accepting the results. Additionally, students are given the opportunity to increase their herd size during the course of the semester; the annual income statement serves as a ready-made "what if" tool which can be employed to quickly examine the effect of that change on operation profitability.

As feed is the single most expensive aspect of milk production, a ration balancing program capable of calculating a least cost formulation from several commodities is utilized. Commodity prices change each "year", encouraging herd owners to run the least-cost program weekly in order to feed their cows as economically as possible. Additionally, the program is sufficiently sophisticated so that nutritionally unsound solutions are not provided; students instead are reminded to include enough roughage, trace minerals, or

Table 1. Summary of Software Utilized by Students Enrolled in ANSC 277.

Name	Type	Specific Purpose Use (hrs)	Average
DOS	Operating System	DOS Commands	6
KEDIT	ASCII Text Editor	Create Sire Choice File	12
Lotus 123	Spreadsheet	Calculate Annual Reports	12
RATION	Ration Balancer	Calculate Least Cost Feed	12
DBase III	Relational Database	Calculate Sire Averages Calculate Cow Values	12
Dairy Expert	Rules-Based Expert System	Analyze Herd Reproductive Status	4

whatever component has been omitted from the diet. Thus, the program also reinforces dairy cattle feeding principles presented during class periods.

Students are also introduced to relational databases, such as dBase or FoxBase. Two fairly simple programs were written in database language to provide herd owners with useful information. One calculates the weighted averages of the genetic values and price of bulls chosen to sire the next generation using the ASCII version of breeding choices as input. The other calculates the dollar value of each cow in the herd based on her own production records, thus aiding in culling decisions. Also, as both these programs are compiled, the differences between interactive mode, quasi-compiled (run-time) and compiled versions of the same database program are discussed.

One of the more recent topics related to agricultural computer programs, that of expert systems, is also discussed in ANSC 277. The contrasting types of expert systems are compared, examining the strengths and weaknesses of each. Additionally, students use an expert system designed to diagnose dairy herd reproductive problems to assist them in managing reproductive programs in their herds.

Finally, although no actual programming exercises are presented, interested students are encouraged to experiment with programming where possible, particularly using spreadsheet or database programs. Each semester, some students will create their own templates or programs which help them in assimilating the large volume of information they are presented with each week and thus aid making profitable decisions. Perhaps this aspect of computer technology, that of empowering students to rapidly and accurately amass volumes of data, is most effective in motivating them to experiment, to create and eventually to experience the joy of "Eureka!" when the moment of understanding occurs.

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NACTA Minutes

1991 Fall Meeting
NACTA Executive Committee
October 5, 1991
Platte City, Missouri

Meeting Agenda

1. Call to order - 1:00 p.m.
   a. Approval of Minutes of the Executive Committee Meeting of the 1991 Annual Conference, University of Alberta, Edmonton
2. Reports of Officers and Directors:
   a. President — Gerry Posler
   b. Immediate Past President — John Mertz
   c. Vice-President — Thomas Lindahl
   d. Secretary-Treasurer — Murray Brown
   e. Editor — Jack Everly
   f. Historian — Chuck Stufflebeam
   g. Regional Directors/Directors-elect
      1) Canadian — Mick Price
      2) Central — Larry Erpelding
      3) Eastern — Roger Pennock, Jr.
      4) Western — William Schurg, Rick Parker
      5) Southern — Harley Foutch, Bryce Lane
3. Reports of Committees and Boards:
   a. Publication — Jack Everly
   b. E.B. Knight Journal Award — Stephen Lowry
   c. Teacher Recognition — Ralph Harris
   d. Improvement of Teaching — T.A. Alhashimi
   e. Book Review Board — Wayne Banwart
   f. Instructional Media Review Board — Victor Bekkum
   g. International Programs in Agriculture — Danny Terry
   h. Government Affairs — Harry Pry
   i. Instructional Materials Exchange — Lynn Turner
   j. Judging Contest Liaison — Byron Harrison
   k. Delta Tau Alpha — R. Bruce Johnson
   l. Distinguished Educator — John Mertz
   m. Other
      1) Nominations — John Mertz
      2) NACTA Foundation — Dale Weber
4. Planning for Annual Conferences
   a. 1992 (Univ. of Wisconsin at River Falls — Stan Schraufnagel
   b. 1993 (College of Southern Idaho, Twin Falls)
5. Old Business
   a. Vision 2000 Planning Conference - Follow-up
   b. NACTA Teaching Award of Merit Certificate
6. New Business
   a. NACTA Teaching Tips for the New College Professor Brochure — Larry Erpelding
   b. Other items
7. Adjourn

Meeting Minutes

The Fall 1991 meeting of the NACTA Executive Committee was called to order by President Posler on October 5, 1991, at 1:00 p.m. in the Comfort Inn, Platte City, Missouri.

Executive Committee members present were Posler, Mertz, Lindahl, Brown, Everly, Stufflebeam, Price, Erpelding, Pennock, Foutch and Schurg. Chairs of NACTA standing committees present were Lowry, Harris, Banwart, Pry, Terry, Harrison, Weber and Schraufnagel.

An agenda provided by the President was adopted and is attached.

The President's report was accepted as presented. A copy of his report is attached.

A report from the Past President was given and accepted. A copy is attached.