Other types of data

Some of the reporting sub-systems, such as the Ration Calculation Package and DAISY/SIBYL, the herd-level forecasting/monitoring system, maintain special additional databases, which are accessed by these programs in conjunction with the main DAISY individual-cow database.

Interactive data entry, validation and editing

Data items are usually recorded on the farm in a simple duplicate note-book. The format for its collection need only be cow number, code (or data) and the date. The top copy of the notebook page is torn off and taken by the veterinarian or the farmer to the computer. The information is entered by a clerk (who should be experienced in cow matters rather than computers). Any anomalies that cannot be coped with there and then, are noted in a queries book (and the top copy of that goes back with the reports to the farmer).

Summary of DAISY Reporting and Analysis Facilities

When the data-base has been updated (usually weekly) reports can be run. At present about 35 different reports can be called up from floppy discs. (About 10 floppy discs are needed to carry the DAISY programs).

The reports are flexible in nature and wide ranging. The dates involved in the various surveys of the data can be chosen by the user, as can the way in which the reports are listed. Often the choice is between screen and paper output, and between pocket-sized lists or wide-printed detailed analysis. The reports can comprise individual cow lists or herd analyses so the whole-herd information for a year or more may be summarized on a single page.

The reports include:

1. *Action lists*
   Cows due to dry off
   Cows due to calve
   Cows due for service
   Cows due for P.D.
   Cows P.D. negative and not reserved
   Cows P.D. positive and seen in heat service
   Cows for veterinarian to see
   Herdsmans Action List for the Week.
2. *Recent Review Lists*
   Cows calved
   Cows served
   Cows Dried Off
   Cows culled
   Cows pregnancy diagnosed
   Cows with reproductive examinations
3. *DAISY Brinkmanship Reporter*
   Yield Averages by month of calving
   Weekly management report
   Feed list - individual cow concentrate allocations
   Group averages
4. *Recording sheets*
   for health and fertility events
   for milk yield records
5. 1. *Potential Cull Sorter* - (identified cows with combinations of or absolute levels of a range of conditions)
   2. Cow Sorter
6. *DAISY/SIBYL*
   Financial performance and forecasting program for herd or group, which minimizes purchased feed requirement.
7. Ration Calculation and Planning package.
8. Herd Milk Production Analysis
9. Herd Fertility Performance Analysis
10. Conception Rate Analysis Program (including Q-Sum)
11. Oestrus Detection Efficiency Analysis Programs (including Q-Sum and Histograms)
12. Monthly Pyhsical "stock-check" with yield indices.
13. Culling Analysis
14. Treatment Analysis P.D. Negative treatments
    Oestrus not observed treatments
    Endometritis treatments
    Use of Prostaglandins heat detectors etc.

Panel Discussion

Question: Firstly, what was the cost of writing this type of program and on the other side of the coin what is the average computer service cost per head on a monthly basis for an average of 60 cows? So if you have any information on the development in the writing of the program we will start with that.

Answer: Well the cost of writing the program I think can best be expressed in man hours or man years. I agree with Dr. Esselmont that a good programmer is worth twice his weight in gold and it took two years from a very good programmer and two of my years which are a lot less valuable than the programmers. So about four man years of work. The cost of running the system on a per cow basis will really depend upon the individual veterinarian. I envision this going into the veterinarian's office and him supplying it as service to his clients. If he has 1000 cows on the service it is going to cost so much, if he has 10,000 cows on the system it is going to be a lot less. So, I think that the computer is around 6-8,000 dollars or 6-10,000 dollars and maintenance costs are about 1% per year of the purchase price of the computer. I think you can figure it out on a per cow basis. I think you can get it down to 2 or 3 or 4 dollars per cow per year as a service to your clients.

Dr. Esselmont, did you want to add something on economics?

Question: I would like to ask Dr. Davidson the name of his computer service company that only charges 1% because our chaps charge 12%. On microcomputers they charge a flat bottom rate to make sure that they get, in our case, a thousand pounds per year for 24 hour turnout. You have got to have the computer serviced and repaired back within 8-12 hours of any fault occurring. The other question on cost, the practitioners seem to break even if they can earn about 5000 pounds sterling from this service at the moment, with a computer which costs slightly more because of the gap between the point of production of the computers and actually selling them in England.

Dr. Davidson: First of all let me clarify by saying that we do not yet have this on any farms. We are still debugging it and using it within our own small system. Also, I think he makes a good comment in that you have to have a minimum of 24 hour turn around time for service. If you cannot get this with your computer, I think you can be in a lot of trouble. It is our philosophy that we want to make this so important to the management of the dairy and to the veterinarian in a herd health program that they cannot afford to not have it running for more than 24 hours. 1% is fairly common in this country for microcomputers. For that 1% we guarantee 24 hour turn around time. They come to where the computer is and provide the service and that 1% includes everything. There are no charges on top of that, unless you drop it or something like this. A 10,000 dollar computer will cost you 1,000 dollars a year in service charge.

Moderator: I forgot my TI 59 to the program. Anyway the bottom line is that your service charges are about 10% per annum or about 1% per month so that puts it about in the same ball park as the English. So we really do not get things cheaper in North America, we just think it is. Is the program going to be commercially available through a marketing service or from the university or through Cornell or what is the future intention?

Answer: We are not entirely sure how it is going to be marketed. We are hoping, and, I think fairly conservatively, planning on having it available June 1 of this year. Our goals are to provide this system for the practitioners as cheaply as we possibly can and get it out to as many practices or veterinarians that want it. We will be probably charging on a very minimal basis just to support some programmers or programmer to keep the system up to date.

Question: The question deals with two facets, firstly, what was the common basis for use of veterinary service in the study farms in the Bruce County project ie. emergency calls, herd health programming, etc. and then subsequently what type of relations did you develop or maintain with the local practitioner?

Answer: Maybe I can start with the last half of the question first, in that we had good cooperation with the veterinarians and they with us, I hope. We kept them informed at all times what we were doing and we had farm meetings and veterinarians' meetings and so on and we cooperated with the extension people so it is really a process of trying to keep everybody informed. As I said in the talk, it was really a study in which we observed what went on and kept records so we did not intervene in any way with the farmer-practitioner relationship. If a veterinarian came on to the feedlot and did something, we asked them to keep records and so on. It was a matter of keeping people informed on what we were doing, the purpose of what we were doing. We did not interfere with the relationship between the farmer and the veterinarian. We were not providing advice, we were making observations and keeping records as the researchers.

Question: What was the usual type of veterinary relationship before the project in these small feedlots?

Answer: I guess it would vary from one practice to another because we were dealing with a fairly large geographical area with quite a few practices but I guess some of them would have a relationship with a veterinarian, we would come in on a fairly regular basis particularly shortly after the animals arrived to have a look at them and the rest of the service would be on a fee basis when there was a problem.

Question: Yes, for Dr. Meek - In your study as you made your observations, did you report back your findings to the feedlots you were studing, in other words, did they get reports from postmortems and that kind of thing?

Answer: The results of the postmortems were sent back to the farmers as quickly as we could and the veterinarians as well. Usually if the animal arrived in the morning we would have the results telephoned to the farmer that night, followed up with a written report. As far as our observations on the feedlots, our observations and keeping track of things, obviously the farmer was keeping track of some of those, he would have those records available, but we did try to summarize those sorts of observations and get them back to the farmer right away. We did at the end of each year have a meeting with the farmers and present our findings. I think when you are carrying out an observational sort of study like this, you would like I think, deep down in your heart, to tell the farmer what is going on and give him advice, but of course as soon as you start to do that then you end up not knowing where you are. You are trying to get base line information and at the same time you are changing things. So, I guess you try to walk the fine line of keeping the farmer interested and giving him something without giving too much and jeopardizing the study.

Question: On the same basis, other than the information you provided them, did you provide any other incentives for them to participate with you?

Answer: Not really, they got the PM's done cheaply. They had to pay the cost of trucking the animal down to Guelph for postmortem. I do not think they had to pick up the postmortem fee. Other than that we did not pay them anything.

Question: We heard about the veterinary surgeon earlier this week with one foot in the slurry and his hand in the rectum, prostaglandin in his mouth and the other hand holding the syringe. There seems to be a fair amount of academic fun going on with this record keeping, apart from having to grow a third hand to hold the felt pen, I wonder what the practicing veterinary surgeon is going to get out of all this? Could we ask the speakers to give us some idea of what the practicing veterinary surgeon is getting?

Dr. Williamson: Yes, we do see the veterinarian treating individual animals and treating problems in individual animals as they arise. But, as I have said, it is really the problems of management, things like estrus detection and maybe bull fertility amongst some of the sires and so on that are more limiting to fertility, to production efficiency to the general profitability of the farm. A 10 day increase in calving interval which is really imperceptible unless you do detailed record analysis can cost the farmer more than maybe one or two cases of pyometra. And so what the veterinarian gets out of it is an ability to be able to serve his clients better. He can get involved in the real problems, the real limiting factors on the farm and deal with them, address them rather than sticking band aids on them.

Panelist: I think the real use of any of these sorts of systems is just an aid to decision making. I think that is what it is about more than a farmer trying to make decisions.

Dr. Esselmont: I am surprised that in a veterinary audience not to be asked the usual question, "how or what is in it for me?" and I think perhaps this question was concerned with financial income and interest for the private veterinary surgeon. And it is something I think we have got to monitor in the early days of these microcomputers in veterinary practice quite closely, even from a case study point of view rather than from a scientific, statistically valid point of view. But I am quite happy in my own mind seeing the system operate admittedly with very advanced private practitioners who have had an interest in hand run recording schemes up to the time they got their computers. They have certainly developed as advisers to the farmer, they certainly broadened their own knowledge of indices and so on and they bring a great confidence to their advice on those areas that Norman Williamson spoke about and on other areas which to deal with profitable dairy, so it certainly gives a much enhanced level of advice. But I think perhaps I would be happy to say that the income that the practitioner generates by the scheme itself highlighting cows that need some help in fact more than pays, and that young partners in these practices you notice get interested in the scheme too, if it is not particularly a young partner that has launched the scheme. You notice that the preventive medicine aspect of that practice's work increases as farmers come and knock on the door albeit one or two years later and say "Can I join your scheme?" and it becomes self financing quite quickly because of the increased interest by the farmers. You do not have to sell it anymore, they come and buy it and that actually happens which is very encouraging. So, I think the veterinarian gets more income and the prime aim is for the farmer getting more income and he certainly gets safer income because you have farmers who have pledged their interest in you as a practitioner, for at least 12 more months, for

regular visits and for a lot of work per cow. And, I think perhaps holding the level of work is probably as important as expanding it in hard times such as we are having over the water, no doubt you have heard all about that.

Question: I want to ask Dr. Davidson if his program from Cornell is based on any particular microcomputer system which is interchangeable with other products on the market?

Dr. Davidson: The program is not interchangeable with any other microcomputers than the ones that are produced and that I showed you pictures.

Question: Could Dr. Esselmont elaborate a little on how his system provides for nutritional control? Is it only crude nutritional balance and economic control or does it include health parameters?

Dr. Esselmont: In nutritional control, an aspect of the program is the farm records milk yields that you, the adviser, can enter with the farmer's help, the suggested level of production from background feeds, from forage feeds, and in our sense we feed background feeds like grass and silage and so on, then concentrates are often added in the milking parlor on top where the animal is inadequately fed by the forage and this way the simple mathematics of how much cake (concentrates) the cow should have next week is calculated and this can be compared with the actual in the week in question in terms of tons per herd. And certainly we have seen the economy in concentrate has for the farmer reduced his costs enormously where before it has been out of control and so feed planning from that point of view is simply how many kilograms or pounds to feed next week to this particular cow including turning those kilograms or pounds into how many pools inside the milking parlor where the feeding goes on because you can enter how many pounds per pool that the machine actually gives. In the other area, there is a completely separate set of programs where you can actually do the arithmetic of metabolizable energy and protein feeding within a dry matter limit. While it is not least cost, the farmer actually sits there and says what he has available and can decide whether the ration that comes up is sensible and economic and you can build in various constraints from a biological point of view. So the two areas help the farmer plan the ration and allocation of feed during the longer term and help weekly to feed the concentrates. This reflects a particularly useful way you are prepared to record the individual cow's yield weekly and respond to any drops or gains in yield different to what you would hope for.