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# Low Cost Recording Schemes Using High Tec Systems

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- What are the costs ?
- Can it be done ?
- NMR's own experiences ?
- The power of the new technology ?

Typical recording organisation

Cost	% of total
Data Recorders	35
Office and Laboratory Staff	35
Information proceeding	12
Plant and equipment	6
Other	12
Total	100

### **Recorders**

- Maximise animals recorded per recorder day.
- Validate data at the point of data collection.
- Provide reports at point of data capture.

### **Staff**

- Maximise samples tested per staff day.
- Maximise records updated per staff day.
- Maximise reports produced per staff day.

### **Information processing**

- PC based client server systems.
- Remote data entry, file transfers.
- PC based processing and report generation.
- Multi lingual systems and reports.

### **Plant and equipment**

- >10,000 milk samples /machine/day

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## 1. Introduction

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## 2. Where are the costs ?

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## 3. Can technology reduce costs ?

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**4. What can be achieved ?**

Impact of technology on cost

Cost	% total	% var
Data Recorders	35	100
Office/laboratory	35	75
Information processing	12	75
Plant and equipment	6	75

**5. Can it be done ?**

Cost	%total	%Var
Data Recorders	35	100

- The multi function recorder.
- Farmer and co-operative records.
- PC based data entry and file transfer.

Cost	% total	% var
Office/Laboratory	35	75

- Laboratory.
- Multi shift staffing of expensive facilities.
- Electronic data transfer to database
- Office.
- Exception based processing.
- Desk top report printing.

Cost	% total	% var
Information processing	12	75

- Client server - distributed processing power.
- Relational databases - data held once only.
- Lean system - simple function.

Cost	% total	% var
Plant and equipment	6	75

- Re-usable sample boxes and pots
- Low cost PC's for basic data entry/reports
- Centralised database
- Distributed processing and printing
- Data files and software for data users

Started	Moved to	Now on
Farm register	Mainframe	Micro
11 offices	7 offices	2 offices
11 labs	7 labs	2 labs
750 staff	450 staff	250 staff
60 000 cows	1 m cows	2 m animals
35 days	15 days	1-5 days

## 6. NMR's own experiences ?

### In the field

- Automatic milking machines
- Lap tops and portable phones

### In the laboratory

- 7 seconds per sample analysed
- Fat, protein, lactose, Urea, Somatic cells

### In the data centre

- Pentium II and >20 gigabytes of data on line

### In the processing office

- Multilingual user PC interfaces
- Universal application functions
- Language independent databases
- Multilingual dictionary/report generators
- PC software for analysis and reporting
- Internet and Intranet based services

### The Impact of PC Power

- Significantly reduced development costs
- Significantly reduced operations costs
- Wide area networks offer low cost structure
- Low entry cost for starting new operations
- Standardisation through shared technology
- Flexibility and scalability of core systems
- International and International recording

Technology based rapid change

Technology driven standards creation

Information explosion

Breed improvement and development

Improved quantity/quality of production

Improved dairy income

## 8. The future

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## 9. The challenges

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To avoid re-inventing the wheel:  
- To rent or buy what does not need to be built.  
- To learn from the experiences of others.

To use the technology to meet the needs:  
- Languages and symbolic presentation.  
- Using networks to overcome distances.

To help the farmers to achieve the benefits:  
- R&D, Communications and Extension work.

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## 10. What was the question ?

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The question was:  
How to provide the greatest benefit.  
To the greatest number of people.  
At the least cost to people and Government.  
In the shortest possible timescale.  
- By improving the efficient of production.  
- By increasing the amount of milk produced.  
- By improving the quality of the product.

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## 11. The conclusion

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The tools are available.  
The technology is available.  
The skills are available.  
The standards are available.  
The Guidelines need more development.  
ICAR provides a focus for development.  
*The difficult bit is actually doing it!*