Record keeping

- Why do we need to keep records?
- What is record keeping?
  - Identification of animals
  - Financial expenses
  - Input/output analysis (benefit/cost ratio)
  - Recording farming practices ➔ improve..
  - Production per day/month/year/season
  - Demographics of farmers/communities
  - Climate: daily temp; rainfall etc
Question: If productivity = Output/Input. How would you increase productivity in a system? Give an example.
The difference between data and information

“Data refers to raw, unevaluated facts, figures, symbols, objects, events, etc. Data may be a collection of facts lying in storage, like a telephone directory or census records. Information is data that have been put into a meaningful and useful context and communicated to a recipient who uses it to make decisions.”

(FAO, 1998)
TYPES OF DATA

Qualitative data

“How are you feeling today?”

Quantitative data

“How many fingers do you have?”
Qualitative data

- **Nominal scale (codes)**
  - 1221 = Newcastle; 1222 = Coryza

- **Ordinal scale (ranking)**
  - 1 = excellent; 2 = good; 3 = acceptable;
  - 4 = poor; 5 = very poor
# Checklists

**Housing checklist**

- Walls high enough
- Perimeter fence good
- Biosecurity in place
- Water source safe

<table>
<thead>
<tr>
<th></th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3</td>
</tr>
<tr>
<td>0</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
</tbody>
</table>

**Does this housing pass?**
Quantitative data

• Discrete data

• Continuous data
# How information is used

## Decision Stage

<table>
<thead>
<tr>
<th>Intelligence (Collection, classification, processing, and presentation of data)</th>
<th>Information Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status reports</td>
<td>Insufficient data</td>
</tr>
<tr>
<td>Trend reports</td>
<td>Models and analytical tools</td>
</tr>
<tr>
<td>Exception reports</td>
<td>Projections</td>
</tr>
<tr>
<td>Ad-hoc inquiry</td>
<td></td>
</tr>
</tbody>
</table>

## Design Stage

<table>
<thead>
<tr>
<th>Design (Outline alternative strategies; forecast possible outcome of each alternative)</th>
<th>Information Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>No satisfactory solution</td>
<td></td>
</tr>
<tr>
<td>Alternatives (Expected scenario)</td>
<td>Change in assumptions</td>
</tr>
<tr>
<td>What if?</td>
<td></td>
</tr>
<tr>
<td>Evaluation of alternatives</td>
<td></td>
</tr>
</tbody>
</table>

## Choice Stage

<table>
<thead>
<tr>
<th>Choice (Selection of the best alternative)</th>
<th>Information Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in assumptions</td>
<td></td>
</tr>
</tbody>
</table>

## Review Stage

<table>
<thead>
<tr>
<th>Review (Monitoring of implementation)</th>
<th>Information Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in assumptions</td>
<td></td>
</tr>
</tbody>
</table>

| Feedback and followup |
Recording data

<table>
<thead>
<tr>
<th>Date of purchase or Birth date</th>
<th>Sire</th>
<th>Dam</th>
<th>Number or code</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DATES</th>
<th>PRODUCTION DATA</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Served</td>
<td>Farrowed</td>
<td>Piglets born (no.)</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
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<th></th>
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</tbody>
</table>
Participatory Methods

Categories:
- Motivating people to participate through group and team dynamics,
- Situational appraisal, visualization and drawing diagrams,
- Interviewing and dialogue with community members,
- Scoring and ranking methods
- Getting the most accurate data under the circumstances (obtaining data using “appropriate imprecision”)
- One of the characteristics of participatory methods is the use of acronyms
Interdisciplinary
## Acronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>PA</td>
<td>Participatory Appraisal</td>
</tr>
<tr>
<td>PRA</td>
<td>Participatory Rural Appraisal</td>
</tr>
<tr>
<td>RRA</td>
<td>Rapid Rural Appraisal</td>
</tr>
<tr>
<td>RUA</td>
<td>Rapid Urban Appraisal</td>
</tr>
<tr>
<td>RA</td>
<td>Rapid Appraisal</td>
</tr>
<tr>
<td>PAR</td>
<td>Participatory Action Research</td>
</tr>
<tr>
<td>AR</td>
<td>Action Research</td>
</tr>
<tr>
<td>AL</td>
<td>Action Learning</td>
</tr>
<tr>
<td>ALARPM</td>
<td>Action Learning and Rapid Participatory Methods</td>
</tr>
</tbody>
</table>
Systems based research-extension methodology

* All phases are participatory - farmers and animal owners are involved
Types of questions

Questions are divided into the following answer types

- Demographic (strings): name, address, phone number, farm number etc.
- Date (DD/MM/YY)
- Numerical (e.g. number of cows)
- Binomial (Yes/No; Male/Female etc)
- Categorical (numbers or letters denoting a category e.g. A or 1 for excellent)
- Text (strings): used for alternative answers, either data can be entered as yes/no for each alternative or as text e.g. BT means vaccinated against bluetongue.
What types of questions are these?

- How many sows do you own?
- When did you buy the farm?
- What is your phone number?
- Please give me your address
- What is the size of your farm in hectares?
- Please describe the symptoms of diamond skin disease in pigs
- What is your opinion of the service you get from extension officers (Excellent/Good/Acetable/Poor/ Very poor/ Do not know)
Exercise:

Using Excel, please copy the questionnaire given in your notes - make sure that the answers are in the right format.

How do you think you could use Excel to analyse the data you receive from the questionnaire?
Participatory epidemiology
INTRODUCTION

• At the start I showed you a picture
• My first question is:
• Who is this and what is she doing?

This is your client!

She is greeting you because you are doing surveillance. She is a good farmer – all her cattle are there waiting for you!
Is she going to be this friendly in future?

ONLY IF YOU KNOW WHAT YOU ARE DOING!
PLEASE NAME THE FOLLOWING THREE CHARTS:
Question 1

![Bar chart showing quarterly data for East]

- 1st Qtr
- 2nd Qtr
- 3rd Qtr
- 4th Qtr
Question 2

Percentage of farms positive for F&M

- 25%
- 45%
- 15%
- 10%
- 5%

Legend:
- 1
- 2
- 3
- 4
- 5
Question 3

Number of new cases

Days

Frequency

0 1 2 3 4 5 6 7 8
Question 4

- Calculate the **mean**, **median** and **mode**

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105</strong></td>
</tr>
</tbody>
</table>
Question 5

<table>
<thead>
<tr>
<th>Value</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>45</td>
</tr>
<tr>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>105</strong></td>
</tr>
</tbody>
</table>
Question 8

Calculate the Sensitivity, Specificity and Prevalence

<table>
<thead>
<tr>
<th></th>
<th>D+</th>
<th>D-</th>
</tr>
</thead>
<tbody>
<tr>
<td>T+</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>T-</td>
<td>c</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td>a+c</td>
<td>b+d</td>
</tr>
</tbody>
</table>
Question 9

What *proportion* of animals that *had* the disease, tested positive?

<table>
<thead>
<tr>
<th></th>
<th>D+</th>
<th>D-</th>
</tr>
</thead>
<tbody>
<tr>
<td>T+</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>T-</td>
<td>c</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td>a+c</td>
<td>b+d</td>
</tr>
</tbody>
</table>
Question 10

What is the **ratio** between test positive and test negative animals?

<table>
<thead>
<tr>
<th></th>
<th>D+</th>
<th>D-</th>
</tr>
</thead>
<tbody>
<tr>
<td>T+</td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>T-</td>
<td>c</td>
<td>d</td>
</tr>
<tr>
<td></td>
<td>a+c</td>
<td>b+d</td>
</tr>
</tbody>
</table>
The problem

A major constraint to surveillance and disease control in developing countries has been the lack of information on disease morbidity:

- Inadequate laboratory support
- Insufficient veterinary manpower
- Difficult terrain

[Broadbent, 1979]
The solution

“The development of alternative methods of data collection as part of the wider goal of improving the delivery of veterinary services in the context of closer participation in disease control by rural communities”

[Thrusfield, 2005]
Participatory Epidemiology

Methods to ensure the willing participation of community members in planning, interviews, random sampling and data collection to facilitate surveillance, epidemiological studies and animal disease control
Participatory data collection

• Characteristics
  – Qualitative data is collected
  – Triangulation to corroborate data
  – Flexibility

• Methods
  – Semi-structured interviews, checklists
  – Scoring and ranking
  – Observation/ visualisation
EXAMPLE: Horsesickness occurs here in January

LITERATURE SURVEY

FOCUS GROUP

PM on dead horse
Talking to people

• **Key informants**
  At the beginning of a study look for specific people likely to know a lot about what you need to know.

• **Informal interviews**
  Chatting to farmers while you are examining their animals, gives clues to what is happening. Ask their opinion. Remember to record what you hear!
Formal interviews

- **Semi-structured interviews**
  These are based on checklists – key words that remind you to ask certain questions

- **Structured interviews**
  A full questionnaire is developed and verbal interviewing is done. It is more time consuming but more scientific. Questions must be in the local language and open ended questions are often used
Scoring and ranking

- Matrix scoring
- Proportional piling
- Ranking of data obtained from open ended questions
- Ranking of data by community opinion after collection
Matrix scoring

<table>
<thead>
<tr>
<th>SIGNS</th>
<th>DISEASES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Rapid death</td>
<td>7</td>
</tr>
<tr>
<td>Many deaths</td>
<td>0</td>
</tr>
<tr>
<td>Blood from anus</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>13</td>
</tr>
</tbody>
</table>

**ANTHRAX**
Visualisation

- Participatory mapping
- Time-lines
- Flow charts
- Seasonal calendars
- Transects
Observation

• Photographs are ideal – but remember to add a date, comment and GPS reading as soon as you get home.
• Count animals – owners cannot always remember the numbers correctly unless they use written numbers
• Look at the environment for clues about disease causation
• Jot down notes in a “little black book”
Bias that must be overcome

- **Spatial bias**: Sometimes areas that are difficult to reach are left out when sampling.
- **Project bias**: Researchers choose projects in areas they like to visit (Academic tourism!)
- **Person bias**: Choice of wrong key informants
- **Seasonal bias**: Studies done in dry and wet season may be completely different
- **Politeness bias**: Rural people may tell you what they think you want to hear

[Chambers 1983]
Weaknesses

- Qualitative methods regarded as “soft science”, some journals do not want to publish them
- Good training needed so that correct methods are used – do not use quantitative methods on qualitative data
- Good communication skills and respect for indigenous knowledge essential for researcher
Strengths

• **Flexibility** – make a plan and overcome limitations, but use statistical/scientific methods to do so (not just "ad hoc")

• **Genuine participation** by community members brings out unknown facts that can change perceptions of the problem and lead to solutions

• **Use of qualitative methods** where quantitative methods will only yield GIGO
Extension and communication
Successful extension based on:

- Target group is fully defined.
- Objective and key factors to be changed defined
- Actual needs of animals and owners (target group)
- Affordable and benefits outweigh costs (Input-output analysis)
- Observable/measurable benefits in a short space of time
- Relevant to the environmental and socioeconomic situation
- Linked to available resources (asset mapping and social capital)
- Appropriate level of technology
- Participatory and includes traditional methods and knowledge
- Has a simple but scientific approach
- Minimal vocabulary - no jargon - local language/dialect
- Includes practical, useful details
- Self reliance through skills training rather than knowledge transfer
- Ongoing with constant evaluation (measurable objectives)
Communication = Extension

- SENDER
  - You personally?
- MESSAGE
  - KISS principle.
- CHANNEL
  - Radio? TV? Contact? Newspaper, Brochure?
- RECEIVER
  - Target audience characteristics
- EFFECTS
  - Did you achieve your objective?
DO NOT ARGUE WITH ME, I KNOW ALL THE ANSWERS

ATTITUDE
BODY LANGUAGE
CLOTHES
There is a technique called "confirmation" where you smile and briefly summarise what the person has just said. Although many farmers are able to do this and appear to be listening it can often be nothing more than a polite reflex and is no guarantee they have understood a word of what you have said.

If you ask people "do you understand?" they always smile and say "yes". It is polite!!
MESSAGE

Personal communication: letter/brochure

Skills training

Information day/presentation
No matter what you do, people will forget things they do not practice

Try telling someone how to put mastitis ointment into an udder....

Now demonstrate it and let them practice.....

Which is most effective?
Cysticercosis in skin of person

MESSAGE:
Risk communication
Aspects of the target audience:

- Culture and religion (e.g. a group of Muslim farmers would not really be interested in a TV programme on how to treat pig diseases)
- Educational level (e.g. an illiterate audience would not be able to read an article in a newspaper)
- Economic level (e.g. TV coverage would not be much use if the target audience has no electricity)
- Age and gender (e.g. a group of pensioners would probably not be reached through posters put up at high schools)
- Interests - a lot of surveys are done by advertising agencies to determine the interests, hobbies and activities of a particular target audience.
Target audience
THE EFFECT MUST BE MEASURABLE
Feedback to stakeholders

THE FACILITATORS
Methods that can be used in the field:

- Teaching the owner to actually do the job
- Holding group discussions where farmers can come up with the solutions (e.g. Tsetse fly control)
- Adult education course using speakers who are experts in the latest innovations (e.g. new vaccines)
- Pamphlets, posters or cartoons with amusing captions that prove a point (e.g. practice newsletters)
- Use of buildings with good lighting, ventilation
- Practical demonstrations
- Use of technology or theory applied to a specific problem by a farmer - feedback to the group at a later stage
- Group learning WORKS - establish and facilitate interest groups (e.g. Farmers' Associations).
Workshopping

• **Workshops** are a good way to assess priorities or get inputs from a group.

• Several small "**groups**" can be formed (approx 5 people) who break away **with a facilitator** to answer an open ended question (e.g. "On which topics should we find expert speakers this year?").

• The group elects a chairperson and a reporter. After about 40 minutes each group reports back to the main group and a general discussion follows.

• The objectives are then crystallised and prioritised (ranked on the number of votes) into a "**way forward**".
A more structured method

- Everyone has a label with their name/ nickname on it
- Ask people to form their own groups - maximum of five
- Give 5 copies of questions to facilitator to distribute to group
- Facilitator helps choose a reporter and chair within 60 secs
- Facilitator asks each person (in order) in the group to give one idea on the subject (to be written down by recorder). - this is the "brainstorming" session and makes sure everyone participates
- Chairperson then throws the topic open
- Facilitator then just makes sure that the group stays on the topic, may not make any inputs
- Facilitator watches the time and warns about 5 mins before that reporter must now finish up the report-back.
- Reporter presents the report-back.
- Facilitator keeps a copy for proceedings and hands it to the organiser.
Sterile swab

Specimen bottles for culture

Specimens in 10% formalin for histopathology

Strong scissors

What you need to start a necropsy on a domestic fowl

GROUP LEARNING
Group dynamics

Interpersonal interactions within a group will influence the behaviour of that group as a whole.

**Problems:**
- Conflicts
- Apathy
- Non-participation
- Lack of decision making

To overcome these please remember, achievement is the best motivation for adults.
Present scenarios ("What If?") and facilitate discussion.

“What if you have an outbreak of Lumpy Skin Disease in your dairy herd…?”
Help people help themselves

Community development should empower people to help themselves, increase their level of representation & lead to the ability to make and implement decisions

• Self-help produces independence rather than dependence (handout syndrome)
• The "deficit model " or " handout syndrome" is paternalistic and prescriptive and suppresses motivation and self-respect of the target audience who become passive recipients rather than active participants.
EMPOWERMENT

“Give a man a fish
and you feed him for a day,
teach him to fish
and he will have food for a lifetime”
Have a nice Day! 😊