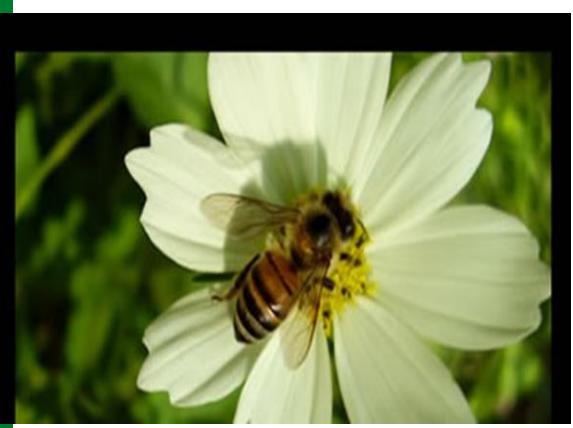






# ASSESSMENT OF BEE DISEASES AND PESTS USING PARTICIPATORY EPIDEMIOLOGICAL TECHNIQUES



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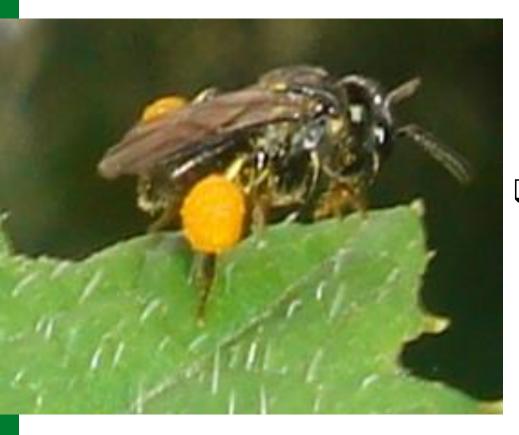


- ☐ Participatory Epidemiological (PE) used since 1980s
- ☐ PE or PA (Participatory Appraisal)
- ☐ PE is the application of participatory methods to epidemiological research and disease surveillance
- ☐ It is a proven technique which overcomes many of the limitations of conventional epidemiological methods









- ☐ It has been used to solve a number of animal health surveillance and research problems.
- □ Participatory disease
   surveillance has made an
   important contribution
   towards controlling both rare
   and common diseases.
- ☐ Use PE to control bee diseases

#### HOW?



### **Assumptions**



- □ PE recognizes that local bee keepers have very rich and detailed knowledge about:
- The bees or animals they keep
- The infectious and zoonotic diseases that can gravely affect their livelihoods
- Endanger human health.



# **Assumptions**



- □ Local bee keepers and livestockowners are often able todescribe:
- Clinical presentations,
- Epidemiological patterns
- Principal pathological lesions
- using a vocabulary of specific disease terms in local languages that correspond to Western clinical case definitions.



# **Assumptions**



- ☐ PE learns from local knowledge,
- Leading to disease control programmes:
- ✓ That are both acceptable to their stakeholders
- ✓ Effective.





- ☐ The PE approach was developed:
- To overcome the constraints in applying conventional epidemiology and formal research in developing countries.
- ☐ Conventional epidemiology can be:
- Expensive and logistically complex,









- ☐ Producing large quantities of information from formal surveys that are often biased:
- ❖ Spatially,
- Behaviorally
- **❖** Logistically.
- ☐ Further, as researchers

  generally do not understand
  the local context,
- Quantitative information is often misinterpreted.







#### **PE Potentials**



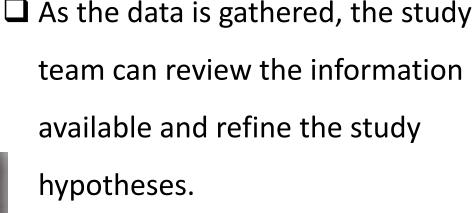
- ☐ Veterinary field epidemiologists realised that:
- There was tremendous potential to develop

participatory approaches

- ✓ To epidemiology as surveillance,
- ✓ Outbreak investigation,
- ✓ Research tools,
- ☐ In a variety of rural and urban settings.



# **Advantage of PE**



- ☐ They have the opportunity to include new questions or data collection exercises as a result of information discovered during the PE process.
- ☐ The participants can add, subtract or clarify information of the best-bet scenario





#### **PE Limitations**



- ☐ The way qualitative data is assessed and validated is fundamentally different from quantitative data.
- ☐ In the quantitative world, statistics are used to calculate the probability that randomised information and associations are valid.
- ☐ Validation in the qualitative

  approach is based on weighing of
  evidence from diverse sources.



#### **PE Limitations**



- ☐ This may include information derived from quantitative or laboratory-based testing.
- ☐ But PE can make use of broader forms of experiential knowledge:
- Information such as oral testimony
- Observations from samples of nonrandom key informants.





- Participatory approaches are based on open communication and transfer of knowledge
- ☐ The methods include:
- Semi-structured interviewing
- Focus-group discussions
- Ranking and scoring disease observations
- A variety of visualisation (mapping) and diagramming techniques (seasonal calendars).





- ☐ In PE, as in PRA, all information should be validated by cross-checking, using multiple techniques and informants:
- Process called 'triangulation'.
- □ In PE, a basic assumption is that investigators cannot fully anticipate the priorities and problems of the communities they study.
- ☐ This assumption helps to avoid many biases associated with conventional epidemiology approaches.





- ☐ Sampling methodologies used in PE:
- ☐ The selection of key informants
- ☐ Identification of sampling sites
- □ Random sampling is sometimes employed when to make quantitative estimates.
- □ Key informants are individuals or groups who are likely to have welldeveloped knowledge
- □ Bee keepers and organisations &Veterinary officers for bee Health





- ☐ The core method in the toolkit for PE is the semi-structured interview.
- ☐ The interviewer introduces a topic using an open-ended question.
- An example of an open ended question would be:
- What are the mains diseases or pests affecting your bee colonies?





- ☐ This allows the respondents to provide direction to the interview and describe problems in their own terms
- Once the participants have
   noted and described problems,
   the team can then ask probing
   questions to fill in any gaps and
   to check for internal consistency





- ☐ A number of ranking and scoring techniques exist:
- Simple ranking
- Pair-wise ranking
- Piling techniques.
- ☐ In this technique, the participants are given a number of counters (30 stones, beans or maize)
- ☐ The community may have identified five mains diseases or pests.
- Respondents could then be asked to divide the pile into five smaller piles, to represent the relative impact of each disease or pest



# Piling techniques





- ☐ Proportional piling techniques can be adapted to study issues such as:
- Disease impact on honey yield and quality
- Disease prevalence and incidence
- Mortality rates
- Clinical presentation
- Epidemiological risk factors
- The efficacy of disease interventions



# **Data Validation & Analysis**



- □ Once a body of information is obtained from a series of interviews and data collection exercises,
- ☐ The information can be assessed through the process of triangulation.
- ☐ The term triangulation simply means comparing information obtained from multiple informants and multiple methods to look for patterns.



# **Data Validation & Samples Collect.**





# **Promising application of PE**



☐ Several appropriate techniques of sample collection such as dried blood on filter paper have been developed for both serological and genetic analysis.

- ☐ Efforts are now underway to combine PE approaches with more conventional forms of analytical epidemiology
- □ the use of PE as a method of collecting expert opinion for use in infectious disease modelling.



# **Promising application of PE**



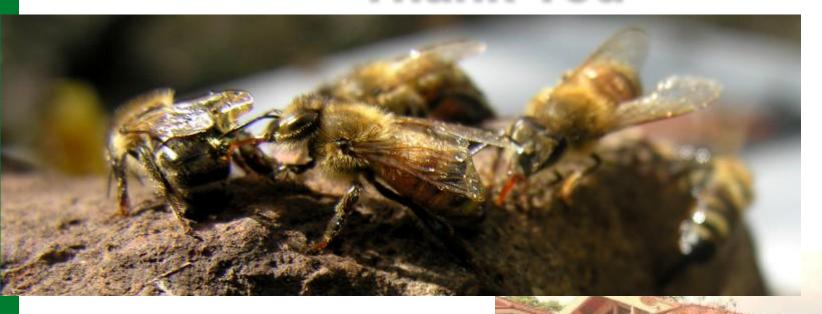
- ☐ Studies have been completed to validate existing veterinary knowledge as a form of epidemiologic data.
- ☐ The results of this work suggest that combinations of both participatory and analytic techniques yield an extremely powerful approach to the study of epidemiology.







# Thank You



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