

**Assessment of farming systems
and natural resources management :**

why do farmers do what they do?



The agricultural development paradox

World's agricultural production doubled in 30 years

BUT, in less favourable areas :

The use of water has been multiplied per 4

The land under cultivation has increased by 1.5

Less than 10 % of innovations at farm level are due to scientific research or extension

Favourable areas best served

Most progresses achieved where access to good land and good water management is easy

The question of risks management

Access to markets

In the coming 30 years, production has to double again

Cumulative efficiency of inputs

With less land and less water

□ Threats!

With less land : land losses, urbanisation

With less water : due to competition with non agricultural uses, cities, industries

With less chemicals : environmental impact

With less labour : HIV Aids, non agricultural sector growth

With less genetic diversity

Under a changing climate

The agricultural development paradox

In any region, there are *dominant* agricultural systems

They result from a long history:
A process of change

They are several:
farmers have choices
between several options

There are also innovators,
who are the first
to develop different systems

Certain of them expand
and become dominant

Others remain marginal
and do not scale out nor scale up

The agricultural development paradox

Why then so little impact of agricultural technology on traditional farming systems or difficulties to transfer promising systems?

Technologies non efficient?

Extension inefficient ?

Farmers reluctant to change?

Recent changes have shown that:

- Technology can be efficient
- Farmers can be ready to change

Needs, objectives , constraints

Is the technology answering the needs of resource poor farmers?

Is the technology adapted to their constraints?

Is the technology satisfying their objectives?

Do we address farmers' real problems?

Do we propose adequate solutions to individual situations?

A basic assumption

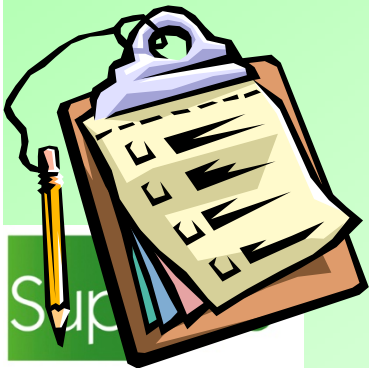


***Farmers have good reasons
to do what they do***

***while the reason they give is
not always the good reason***

***Necessity of a rigorous analysis
of farming systems prior
to any agricultural development
action***

***Technical, economical, social,
institutional changes should be
assessed with regard to the
systems involved***





Because of the diversity of farming situations,
transfer of technical models often reaches
only a limited number of farmers.

- because the proposed technologies are not adapted to **the agro-ecological conditions of farmers.**
- or because the proposed technologies do not fit the **specific socio-economic objectives of farmers.**

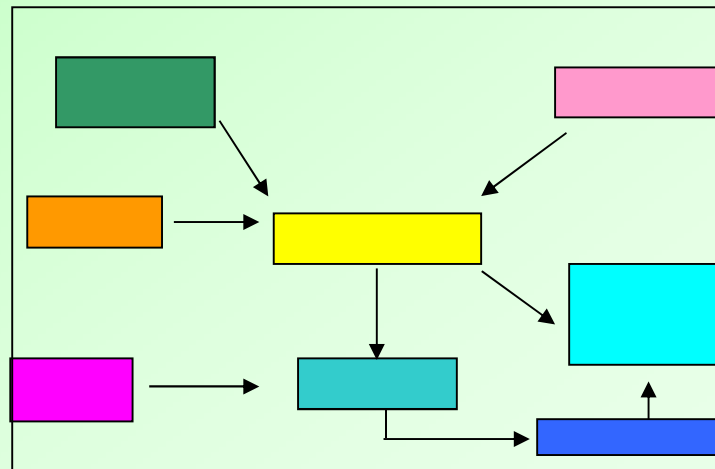
Farmers take their decisions about agricultural production on the basis of how they perceive their own interests.

The way with which each farmer decides to grow crops and rear animals depends of two factors:

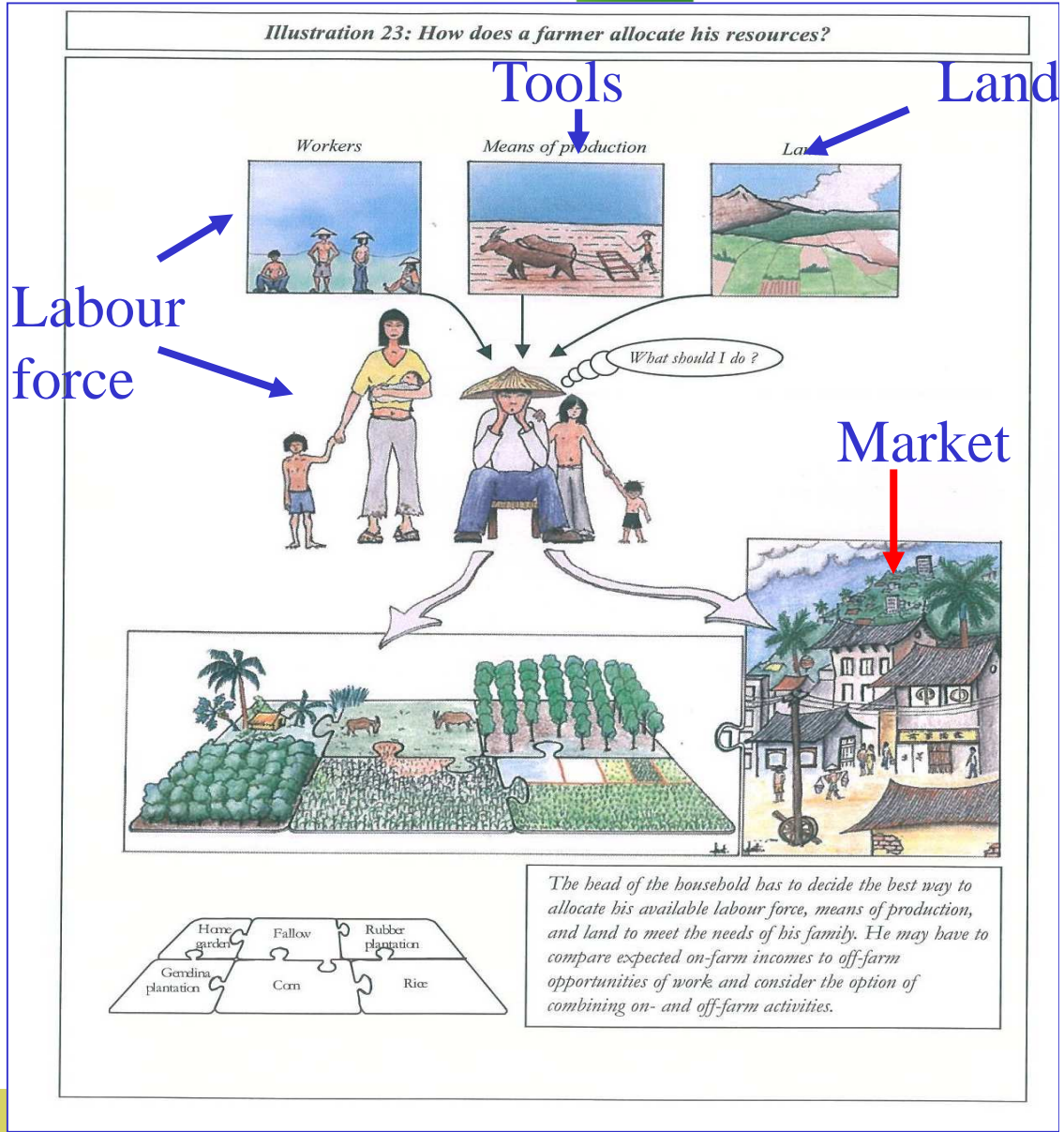
- the natural environment in which they produce
- the socio-economic conditions in which they operate

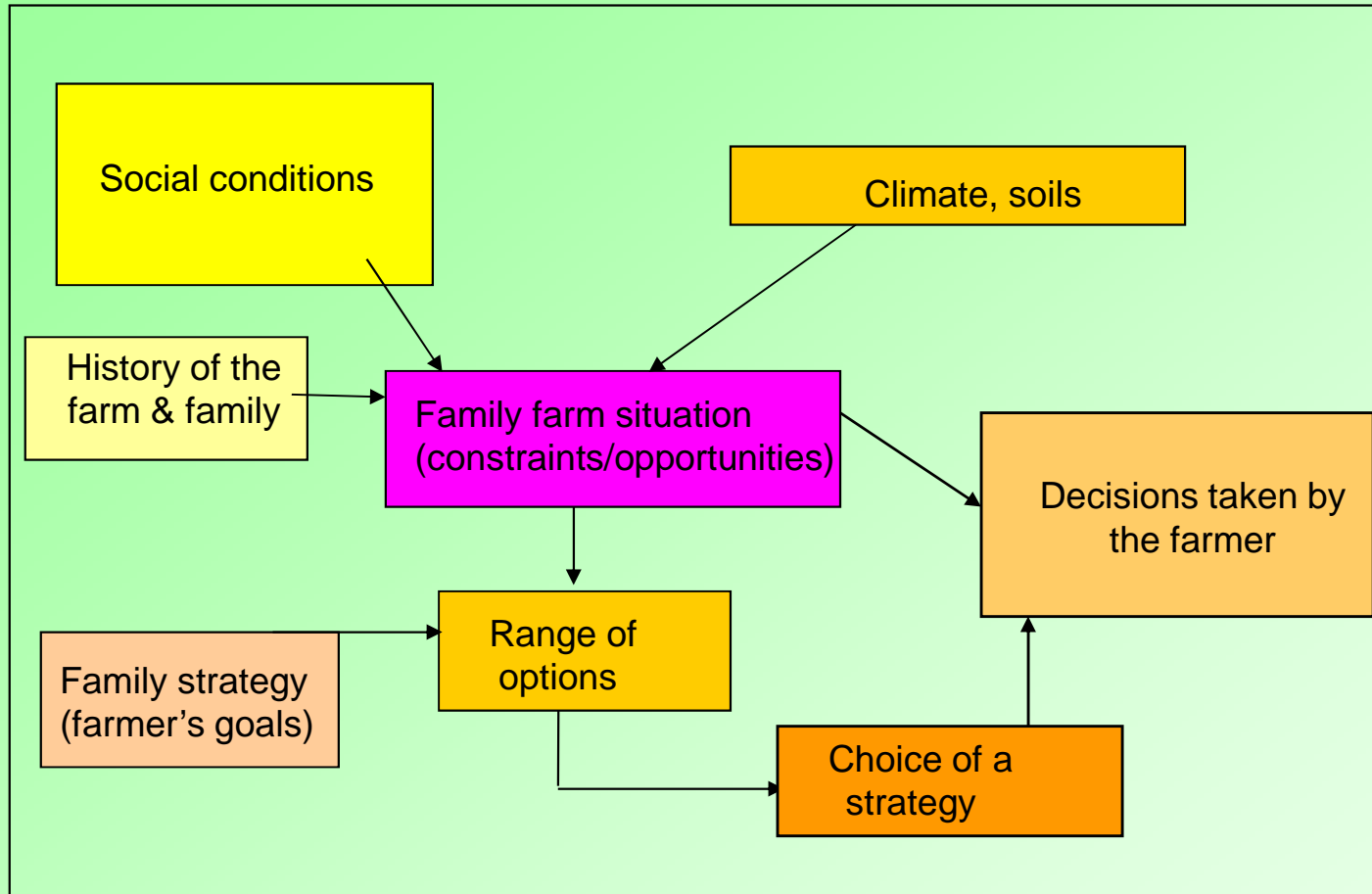
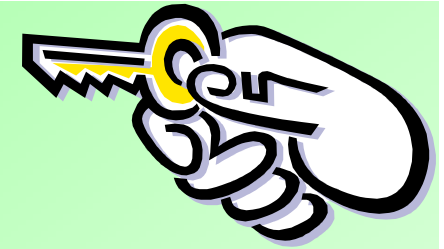


SupAgro



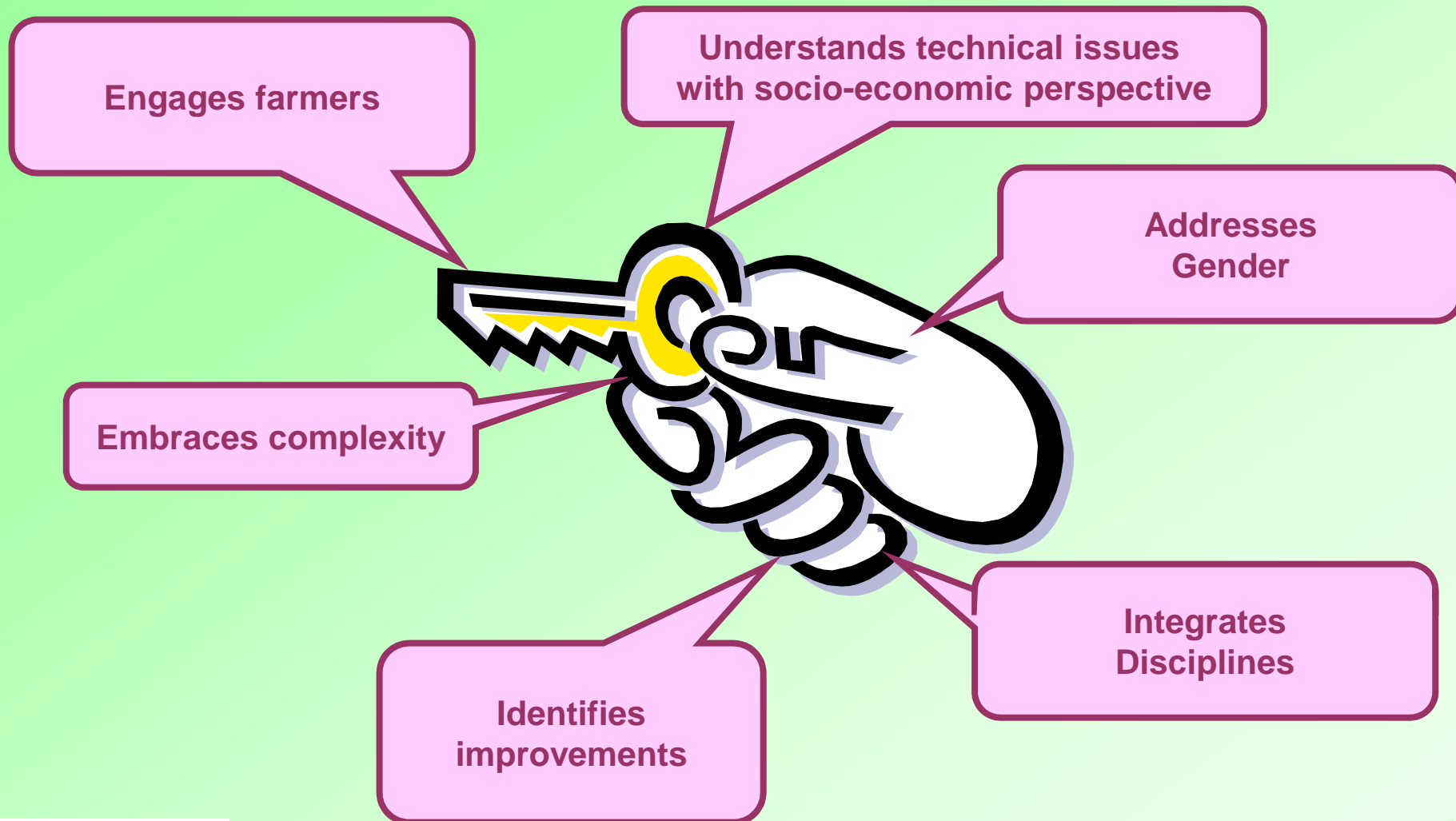
- the **agro-ecological conditions of farmers** are the **first reason** why farming systems undertaken by individual farmers are so diverse.
- the **specific socio-economic objectives** of the farmers is the second reason.



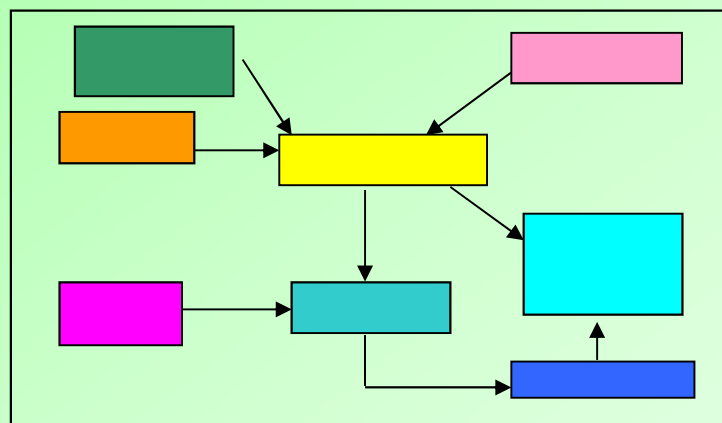


Farmers try to reach as best as possible their farming objectives. The diversity of their farming situations determines the choice of strategies.

Understand farming systems



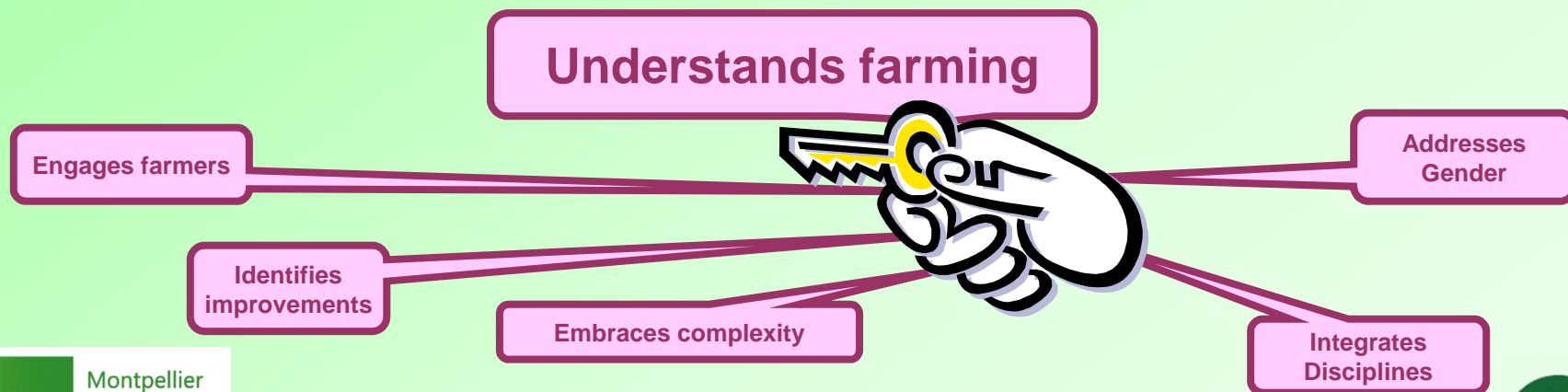
**1 – Property of a system :
the solution to a problem
identified at one place of the system
may exist in another place of the system.**



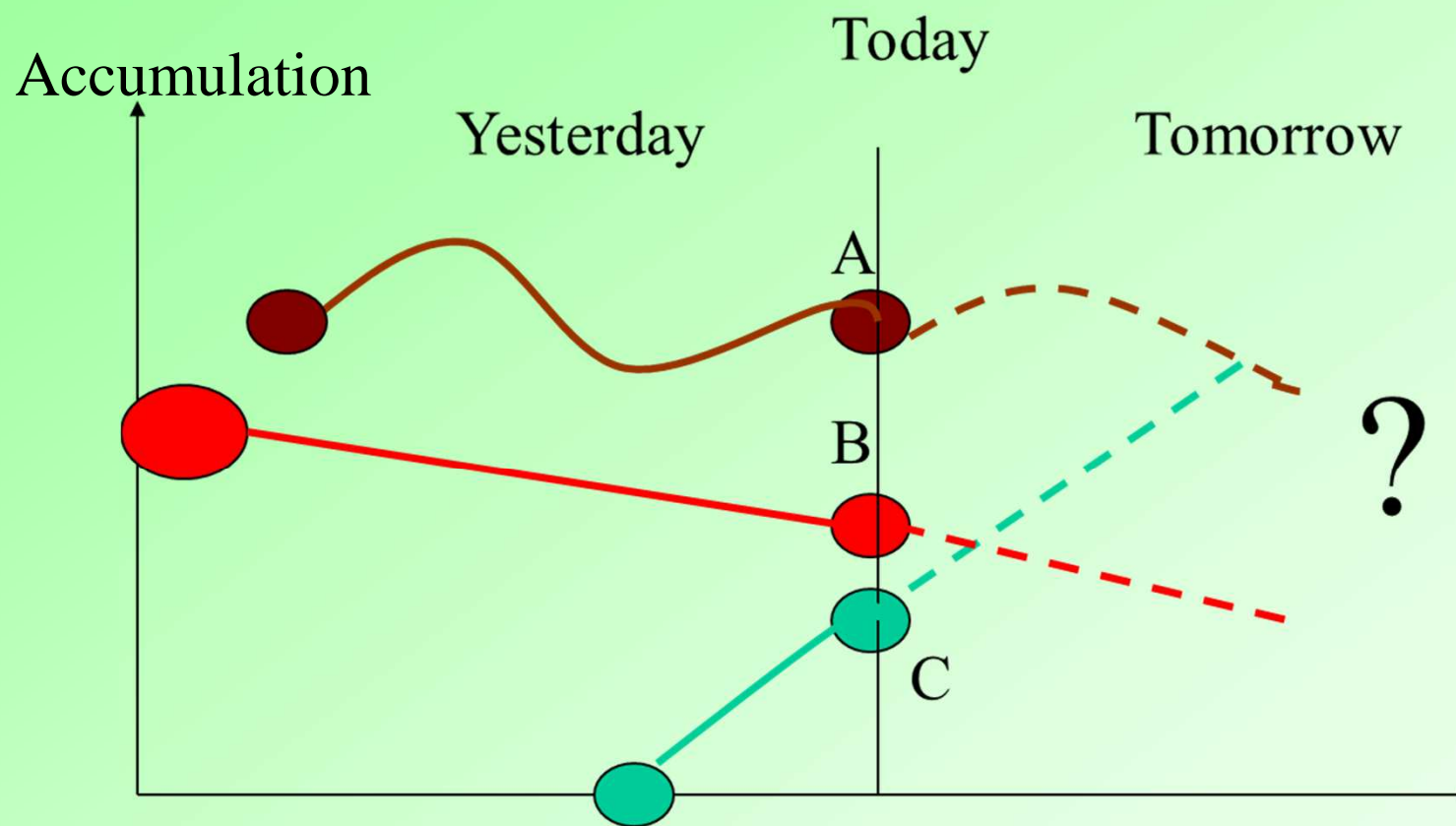
Consequences on :

- research
- extension
- training.

2 - Farming systems perspective broadens our view from seeing farms as a collection of crop or animals to seeing farms as a wide array of activities occurring in different locations.



3 – Two systems similar today may be the result of opposite trends of change.





Conclusion

“All direct or indirect assistance to farmers should be based on :

- a profound and intimate knowledge of the local situation,*
- and on a willingness to respect local customs and farmers experience;*

- although, these should not be seen as completely inviolable,*
- yet they have to be correctly understood,*
- before considering changing them,*

one should deeply consider whether their legitimacy has not been overlooked.”

Pierre Gourou, *Lands of good hope*

