PROCEEDINGS OF THE INTERNATIONAL CONFERENCE

THE POTENTIAL OF AGREOCOLOGY TO CONTRIBUTE TO ECOLOGICAL TRANSITION IN AGRICUTLURE

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An International Working Conference for interdisciplinary Scientists

24-26 February 2010
Liège University, Dept. of Environmental Science and Management

Arlon Campus (Belgium)
Av. Longwy, 185, B-6700 Arlon, Belgium,
Tel: +32 63 230 816 Fax: +32 63 230 818
Editeur : Pierre M. Stassart , p.stassart@ulg.ac.be

THE POTENTIAL OF AGROECOLOGY TO CONTRI BUTE TO ENVIRONMENTAL TRANSITION OF AGRCICULTURE

PARTICIPANTS

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Brandenburg, Alfio Dep Sciences Sociales , UFPR, Brésil
David Goodman, King Georges College, United Kingdom
De Abreu, Lucimar, Embrapa Environnement Campinas, Brésil

PARTICIPANTS

Nom Prénom	Pays	Titre et insititution	Discipline
Baret Philippe (Prof)	B	Professeur Université Catholique de Louvain	Agronomy
Bell Michael (Prof)	US	Prof. Université Wisconsin	Sociology
Bellon Stéphane	F	INRA SAD Ecodev Dir Recherche Agtribio	Agronomy
Blanc Julien	DK	Chargé de Reccherche CNRS Paris	Ethnology
Brandenburg Alfio	Br	Prof. Université Fédérale Parana	Sociology
Cuéllar Padilla Mamen	ES	Prof. ISEC Université de Cordoba	Sociology
de Abreu Lucimar S.	Br	Embrapa Environnement, Campinas, Brésil	Sociology
Deverre Christian	F	INRA SAD ECODEV Avignon	Sociology
Dore Thierry	F	Prof. Agroparistech	Agronomy
Goodman David	UK	King Georges College, London, UK	Economist
Halberg Niels	DK	Dir ICROF Denmark	Ecological Economist
Jassogne Laurence	B	Post DOC fac bio ingénieur UCLouvain	Agronomy
Lamine Claire	F	INRA innovation, Paris	Sociology
Langeveld Cor	NL	Prof. Wageningen University, NL	Agronomy
Meynard Jean-Marc	FR	Dir INRA SAD	Agronomy
Mormont Marc	B	Prof. Dép . Sc & Gestion ULg	Sociology
Sauerborn Joachim	D	Prof.	Agroecology
Stassart Pierre M.	B	Assoc. Prof. Dép . Sc & Gestion ULg	Sociology
van Keulen Herman	NL	Prof. Wageningen University	Systems Analysis
Vanloqueren Gaetan	B	Senior Research Institute of Life and Earth UCLouvain	Agro-économist
Visser Marjolain	B	Prof. ULBruxelles	Agronomy
Wezel Alexander	G	Prof.. ISARA, Lyon FR	Ecology

THE POTENTIAL OF AGROECOLOGY TO CONTRI BUTE TO ENVIRONMENTAL TRANSITION OF AGRCICULTURE

Schedule

WEDNESDAY, FEBRUARY 24

16:00 – 16:30 OFFICIAL OPENING : Setting the scene

1. Pierre M. STASSART convener of the conference
Agroecology, a shifting regime?

16:30 - 18:30 SESSION 1
Introducing agroecology in the field of concept

Keynote speakers:
2. Niels Halberg, N.(DK)
Agroecology in northern Europe: agroecology, multifunctionality, and organic agriculture
3. Lucimar de Abreu (Brazil) canceled
Agroecology as "social movement", as a science and as a public policy
4. Goodman, David (USA)
A brief history of agroecology in USA

Conclusion of the session by discussant **Visser, M**. (ULB)

THURSDAY , FEBRUARY 25

9:00 - 10:40 SESSION 2
Agroecology as systemic and - or holistic approach?

Keynote speakers:
5. M. Bell (USA)
Agroecology, a holon approach
6. JC Meynard (FR):
Innovation and systemic approach, INRA /SAD's approach

Conclusion of the session by discussant Ph. Baret (UCL)

11:00 - 12:40 SESSION 3
Transitions and Lock-in: Co-existence/contradiction between biotechnological & agroecological regimes?

Keynote speakers:
7. **M. Dupuis** (USA)
Knowledge's sytem's struggle (participation canceled)

8. **Ph. Baret** (B):
How agricultural research systems shape a technological regime

Conclusions of the session by discussant S. Bellon (INRA)

14:00 - 15:40 SESSION 4
Mapping agroecology :What are the varieties of EU agroecology ?

Keynote speakers:
9. **S. Bellon & Guillaume O.**(F)
Bibliometric mapping

10. **A. Wezel** (F)
A quantitative and qualitative history of agroecology

11. **Ch. Deverre** (F)
Agroecology and other concepts : ecofarming, permaculture.

Conclusion of the session by discussant C. Lamine (INRA)

16:00 – 17:00 : GENERAL DISCUSSION
First round on prospective funding & collaborative research

FRIDAY , FEBRUARY 26

9:00 - 10:40 SESSION 5

Agroecology and the problem of publics : information or learning process?

Keynote speakers:

12. Ch.Deverre

GMO/peasant seeds controversy

13. A. Brandenburg

Novos atores da reconstrução do ambiente rural: o movimento ecológico na agricultura

Conclusion of the session by discussant (Stassart, P.M.)

11:00 - 12:30 SESSION 6

Agroecology between discipline and practices, which configuration for witch potential?

Members of the workshop will have to work on a research agenda with the following aims:

- To identify and agree on the different criteria that are to be considered in formulating research proposals.
- To formulate a research agenda (topics, methodology, networks) intended to produce innovative results, in a perspective of transition.

12:30 - 13:00

FINAL CONCLUSION (Mormont M.)

INTRODUCTION CONFERENCE

Pierre M.Stassart

THE POTENTIAL OF AGROECOLOGY TO CONTRI BUTE TO ENVIRONMENTAL TRANSITION OF AGRCICULTURE

Pierre M. STASSART

Abstract: *Aroecology is promising for the ecological transitions towards sustainable agriculture. Considering agroecology as a concept of scientific action and a driving force that mobilise social change, we shall explore the emerging varieties of agroecology in Europe, (although mindful that they are more important in the USA and Brazil). The interdisciplinary workshop will explore the followings topics: (1) EU mapping of agroecology, (2) transition & lock-in dynamic), (3) systemic/holistic approach, (4) "publics", and (5) the research - teaching link.*

Key words ; Paradigm Shift - Science & Public Concern – Interdisciplinary Studies - Sustainable Agrifood Systems - Rural Development

1. Rationale

Due to the food crisis and environmental crisis (climate and energy), food and agriculture issues are back in the limelight: International scientific assessments have demonstrated the increasing global footprint of agriculture (Livestock's long shadow, FAO, 2006), including its contribution to the decrease in biodiversity (Millennium Ecosystem Assessment, 2005) and to climate change (IPCC, 2007). The International Assessment of Agricultural Science and Technology for Development has recently called officially for a reorientation of agricultural science and agriculture development towards more holistic approaches, after a 4-year process that involved over 400 international experts (IAASTD, 2008). As this international panel recommends, "Successfully meeting development and sustainability goals and responding to new priorities and changing circumstances would require a fundamental shift in agricultural knowledge, science and technology". Furthermore, the IAASTD calls for greater support of agroecological approaches, which it considers having great potential for world agriculture. If the IAASTD recommendations, as well as those of the IPCC and Millennium Ecosystem Assessment, are to be taken seriously and implemented, we need to understand the scope of that emerging concept of agroecology within the European context. Historically, agroecology is defined as the application of ecological science to the study, design and management of sustainable agroecosystems (Altieri 1995) This definition will be broadly discussed and enriched in the next decade.

Today, nevertheless, the workshop's participants recognise that agroecology has remained a flexible and controversial notion that cuts across several disciplines (Dalgaard, Hutching et al. 2003; Wezel, Bellon et al. 2009). First, agroecology is a kind of interdiscipline that involves reshaping scientific and social boundaries in ways that imply major challenges for agricultural scientists and institutions (Gliessman 1998). Second, agroecology is associated, even if only implicitly, with criticism of or critical reflection on the conventional/biotechnological regime, *i.e.*, research, technology, production practices and policy priorities (Altieri 1989). Third, the implicit or explicit rooting of agroecology in critical reflection on prevailing practices means that agroecology makes overtures toward social sciences and social movements (Allen 2004). Consequently, agroecology is not a single response. (Buttel 2003) distinguish five different scientific approaches in modern agroecology, namely, *ecosystem agroecology, agronomic agroecology, ecological political economy, agropopulation ecology, and multifunctional agricultural landscapes.*

Agroecology is at the same time a critique of the current biotechnological regime and a response to its shortcomings (Vanloqueren and Baret 2009 (online 5 april 2009)) A knowledge's regime encompasses institutions, beliefs, practices as well as political and economic regulations that define the place and role of the knowledge's production (Pestre 2003; Elzen, Geels et al. 2004) Criticism of and responses from the proponents of the agroecological regime have contributed strongly to the forging of ties between agroecologist scientists and the agroecological "social" movements in USA (Allen 2004) and Latin America. In Europe, we now see some weak signals of the possible emergence

of such a process: see for example the "GMO – peasants' seeds" controversy (Perez-Vitoria and Sevilla Guzman 2008). Some key figures of agroecology are currently moving beyond the agroecology of agroecosystems toward the agroecology of food systems (Francis 2003). While this question has triggered debate, it is gradually making inroads in agroecologists' latest key works (see, among other publications,(Gliessman 2007; Warner 2007)

So, agroecology is not a monolithic development. However, the particularity of agroecology is to approach the problem of the integration of knowledge and systems in a particular way, from the standpoint of the co-existence of food production and nature management in both a European (Natura 2000) and global (IAASTD) context. This special *way* or rather *ways of doing things* has yet to be made explicit and analysed, but at first glance it relies on notions and practices such as research's link with action (participatory research), the importance of local knowledge, and the need to safeguard the producer's autonomy (participatory certification system).

For all of these reasons we propose to take agroecology as (i) a concept of scientific action leading to a specific agenda for research topics and priorities and (ii) a driving force that mobilises both concepts and methods, but also players and practices that extend its scope beyond the pales of the scientific fields concerned. We consider an action concept as an intermediate concept of actions (Jeantet 1998) that makes a variety of actions possible, one that "midwives" the birth of subsequent actions, The meaning of the concept is the whole set of actions that can be built from the concept .(Peirce 1960). Envisioning it in this way leads us to wonder about the relationship that it establishes between research and what is expected of research. If there is no one way of approaching the issue, our hypothesis is that it involves the links that are forged between research practices and the economic, social, and other practices that they concern.

2 Working hypotheses

Today, we believe that agroecology as a scientific action concept has become an emerging priority issue. This belief is founded on three hypotheses, as follows:

H1 Agroecology can be analysed as a **set of scientific practices** linked with social practices (which does not mean that they should be mistaken for each other or determine each other), and public policy initiatives (Latin America) that involve perspectives on and/or prospects for establishing connections amongst the fields of agriculture, ecology, economics, and social science. Our hypothesis is that there is a situated and original way to establish this link that may see the burgeoning of a new regime (Geels and Schot 2007; Kemp and Martens 2007). This emerging regime could be an alternative to the biotechnological regime in response to the sustainable development challenge (Possas, Salles et al. 1996; Geels and Schot 2007; Kemp and Martens 2007). The matter of changes of scale is critical to this development. Working on the European scale, where competencies over agricultural and environmental policies and practices are clearly housed, is thus required.

H2 The **integration of knowledge** is at the heart of the agroecological project. Although it has merely been stated and asserted, this issue is being made increasingly explicit in the wake of recent food crises, especially around the principle of ecological intensification, which is being thought as an alternative to the principle of the green revolution (Griffon 2006). It is taking shape around two polar models, a "segregationist" model that separates what is grown from what must not be grown from the environmental point of view and in which the idea is to mimic or manage "natural" processes (such as in the Amazonian model), and an "integrationist" model inspired by the California school of agroecology. Unlike the former, the latter relies on the combination, on the same territory, of different types of production models that are adapted to the various ecosystems making up this territory so as to maintain the territory's "mosaic" structure. Since it is doubtful that a superscience would ever be able to include all the dimensions that are involved in one model, we think that knowledge integration is a social and scientific process, always a partial one, but nevertheless a driving force for change. As a scientific process, the idea is to know in particular to what extent the partnerships (and their various forms) between researchers and practitioners change their programmes and research practices.

H3 Agroecology as a social process for connecting heterogeneous areas of knowledge entails discussion, and this in turn calls for a **public** area for deliberation where justifications of various types can be put forward (Lyson 2004; Warner 2007; DuPuis and Gillon 2009). To analyse this hypothesis, we are mobilising the notion of **the public** as a concernment process in Dewey's sense of the term. What interests us is the way in which agroecology builds its publics, concretely, in its various operations (Dewey 1927). This is where the matter of food systems may come in. A more specific goal will thus be to study how agroecologists take the food systems dimension on board and the impact that this has on research schemes and the research itself.

Remark: Organic agriculture can be considered a part of agroecology. The **conventionalisation** of organic agriculture has triggered new debate (Guthman 2004; Lamine and Bellon 2008; Stassart and Jamar 2008; Chris Kjeldsen 2009; Darnhofer, Lindenthal et al. 2009 forthcoming). How should one understand and interpret the effect of the new agro-industrial players' entrances on the stage and the implications of control from a distance that are linked to the development of the "historical" model of organic agriculture? The debate concerns the possible mechanisms by means of which the biotechnological regimes regains control over the sector, bearing in mind that this is precisely the regime that is criticised by agroecology, which considers itself an alternative to it (Vanloqueren and Baret 2009 (online 5 april 2009)).

3 Workshop purpose and need for European-scale collaboration

To explore these issues and to specify how they can be further theorised and researched empirically, the workshop will bring together researchers with expertise in a variety of disciplines (see list of participants) and working in various country contexts (11 MO countries + USA and Brazil). The disciplinary profiles of the participants take into account a fifty/fifty balance between the natural sciences (agriculture & ecology) and social studies (sociology, economy, & geography) with a correct gender balance. Within

Europe a variety of dimensions of agroecology are emerging (see Topic 1). Given that agroecology is multifaceted, connecting this heterogeneous knowledge is of the utmost importance, and with the major fields of research being agriculture and the environment, the European scale and scope of the workshop are fundamental conditions for its success. Moreover, the imposed greening of European agriculture (environmental crisis, CAP reform 2013) will confront scientist and practitioners with agroecology head-on. The burgeoning use of the word "agroecology" in the literature (400% increase in the number of publications about agroecology over the last 20 years (Wezel and Soldat 2009)) is a clear sign of that emerging concept. A possible risk of this success might be that agroecology becomes a simple flag that would hide specific narrow research agenda and this risk could be more important in specific national context. In this heterogeneous and multidisciplinary context, and knowing the possible risk of instrumentalisation, a flexible international institutional framework is eminently suited to increase people's understanding of agroecology, give it visibility and recognition. and the recognised multidisciplinary competences of the workshop's conveners are important trumps to lead and run such an emerging network.

The workshop will benefit from the expertise of two US social scientists, Professors M. Bell and Prof M.E. Dupuis, who have lengthy experience of collaborating with life scientists in agroecology (Bell 2004; DuPuis and Goodman 2005; Bland and Bell 2007; DuPuis and Gillon 2009); ditto for Prof. Machado (Machado, Santili et al. 2008) and Prof.Dr de Abreu (De Abreu, Kledal et al. 2009) in Brazil.

Our operational purpose is, based on our field research findings, to identify the scientific opportunities and relevance of building a broad research project on these issues on the European level.

4 Workshop Program:

Discussions will be structured around research topics that we believe are relevant to explore our three hypotheses and identify the potential content of a subsequent research programme.

Topic 1: Mapping EU agroecology. Agroecology's many faces must be mapped and conceptually organized. The aim here will be to trace the ideas, concepts, and scientific practices associated with agroecology's development, but also the forms of relationships between researchers and "practitioners", *i.e.*, the people actually working in the sector. The following approaches will be explicitated : multifunctional agriculture and conservation ecology applied to agrarian systems (Meynard, Bellon INRA SAD), principle of ecological intensification (Hubert). landscape ecology (Tscharntke, Klein et al. 2005) and tropical agroecology (Martin and Sauerborn 2006); institutional support and the development of agroecology in northern Europe, Spanish specific link with Latin America. Knowing the importance of the dynamics around agroecology in the US and Brazil, we shall ask the four experts on/from the US and Brazil to make an overview of the existing diversities of agroecology as science, practice and policy in their countries.

Expert analyses will be introduced by bibliométric work around agroecology dealing with 700 references (Wezel and Bellon)

Topic 2: Co-existence or contradictions, biotechnological **lock-in** and the need for **transition** towards agroecology (Zonin 2007). Sustainability calls for diversity and the co-existence of different regimes. However, the co-existence of the biotechnological (conventional) regime and agroecology is problematic (Levidow and Boschert 2008). Analysis of innovations within agricultural and food systems reveals lock-in situations that hinder the development of agroecological engineering and agroecological food chains (Stassart and Jamar 2008; Van Loqueren and Baret 2009 (avalaible online 5 april 2009)). Lock-in situations and transition courses will be discussed and experience from organic agriculture will be shared.

Topic 3: Agroecology as a **systemic and holistic** approach. Agroecology is often defined as the science of ecology (and holism) applied to agriculture. Different systems theories in agricultural sciences claim to adopt interdisciplinary and to bridge a supposed gap between the natural and social sciences. Ongoing debates and differences between so-called "hard systems" and "soft systems" approaches, or positivist and interpretative approaches, underscore the difficulty of connecting ecology and holistic approaches (Jansen 2009). Whilst systems thinking contributes to envisioning agricultural sustainability and agroecology (Snapp and Pound 2008), it faces two dilemmas that have recently been highlighted by complexity theory, namely, the problems of boundary and change. The experts from the US will highlight this problem in particular (Bland and Bell 2007)

Topic 4: Agroecology and the quest for "**Public**". A less obvious dimension of agroecology, while promising in the science-society debate, is the public dimension of agroecology. Relating agroecology as concept of scientific action means engaging together with actors beyond the scientific community (practitioners, policy makers) in the context of what is called a "social learning process". Engaging the various "publics", in the Deweysian sense of the word, in this process must be done on the basis of the various existing analysis: alternative markets and controversy around organic standards maintained through civic engagement (DuPuis and Gillon 2009), deliberative process between local associations and farmers (Stassart 2009 (submitted)) on the impact of agriculture practices on biodiversity management, impact of Brazilian social movements on the development model (Bellon and de Abreu 2005; Machado, Santili et al. 2008), and genetically modified seeds and the counter-movement of peasants' seeds (Deverre)

.

Topic 5: Agroecology as a **learning process.** How can technical institutes, R&D, education, emergent social structures for knowledge and knowing contribute to agroecology (Francis, Lieblein et al. 2008)? This is a more practical and experimental question. Nevertheless, education is part of the biotechnological lock-in. Experience from dedicated programmes such as the European Master in Agroecology (Lieblein, Wezel) and the *Agroecology Master's* Program at Wisconsin University (Bell) and the prospects for integrating agroecology within the classical agricultural curriculum (Doré) can help to deepen the following questions: What could the added value of agroecology training in different curricula be? What might be the best moment to implement such a programme

(initial education/training, specialisation, complementary studies)? What might the right education or training be? How can one deal with the integration of various and heterogeneous types of knowledge within an educational curriculum?

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EU agroecology Workshop

- ULg Building 140 is open from 7 am to 7:30 pm
- Web access, Computer Room (salle d'informatique) (7 am to 5 pm)
  - login: f001765
  - password: dhUu9519
- Thursday's dinner (Belgian beer meal) 7:10 pm, parking in front of academic (new) building
- Hotel du Parc Payment: by the EU AE Workshop, Friday 3 pm

Setting the scene

Agroecology – shifting regime?

Pierre M. Stassart, ULg

Setting the scene...

1. Action principles
2. Varieties of agroecology
3. An intermediary concept of scientific action
4. Transition and regime
5. How to define an AE regime

1. The action's principles of agroecology?

Altieri

1. Enhance recycling of biomass and optimizing nutrient availability and balancing nutrient flow.
2. Securing favorable soil conditions for plant growth, particularly by managing organic matter and enhancing soil biotic activity.
3. Minimizing losses of resources due to flows of solar radiation, air and water by way of microclimate management, water harvesting and soil management through increased soil cover.
4. Species and genetic diversification of the agroecosystem in time and space.
5. Enhance beneficial biological interactions and synergisms among agrobiodiversity components so as to promote key ecological processes and services. (territorial dimension: complementarity, diversity of spatio-temporal resources, etc.)

Rem: stockfarming?

2. The varieties of agroecology (AE)

(Buttel, 2003)

Agroecology is both a critique of productivism, molecularization, and privatization of a biotechnological model and a set of responses to their shortcomings

1. Ecosystems agroecology, E. Odum (1969). Compare "natural" and agroecosystems, redesign around diversity, mimicry (resilience - stability) of natural ecosystems. Steve Gliessman
2. Agronomic agroecology: Agronomic analysis of sustainable agriculture. Knowledge and practices that help to make agriculture more sustainable. C. Francis, R. Harwood, R. Salvador. M. Liebman
   Role Social science (1-2): can be a useful adjunct by developing understanding of the processes by which agriculture has become unsustainable and of the possible adoption processes of more sustainable ecological systems.
3. Ecological political economy : Political-economoy critique of modern agriculture and research systems , need to reduce unac-ceptable social costs and environmental cost . M. Altieri, Californian schoiol. ...
   Role of social science: Largely politically (and, thus, largely social science-) driven, even though the bulk of its adherents were originally trained as ecologists or agricultural scientists
4. Agro-population ecology: More recent; perspective of population ecology, not only population dynamics and relationships to climate and biogeochemistry, but emphasis placed on the role of genetics. D. Andow , A. Power
   Most modest contribution of social sciences
5. Integrated assessment of multifunctional agricultural landscapes: Most integrated approach (agronomy/ ecology/market/social), SAD as key example. Denies the primacy of the farm and the agricultural enterprise as the basic unit of production and analysis.

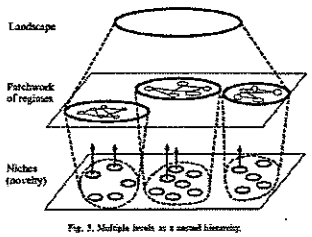
The varieties of agroecology (AE)

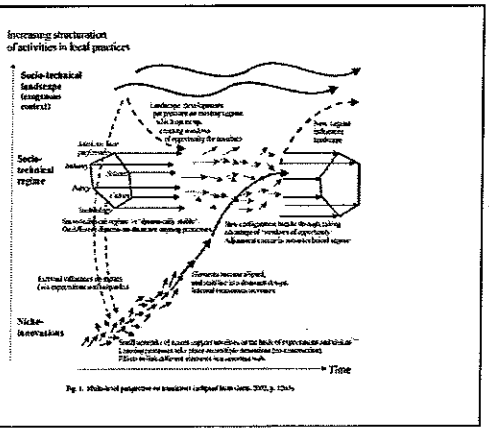
- Session 1: Different entry points:
  - Sustainable Agriculture Movements (D. Goodman),
  - AE and organic production/consumption (N. Halberg)
  - Brasilia AE movement (L. Santiago de Abreu)
- Session 3: Mapping agroecology:
  - Scientometric–textual analysis (S.Bellon)
  - Historical perspective (A. Wezel)
  - Alternative agriculture (C. Deverre)
  - From agronomy to agroecology (T. Dore)

3. Beyond variety: AE as an intermediary concept of scientific action

- Agroecology is a kind of interdisciplinary field (Dalgaard, 2004) of knowledge integration
- A way of doing things (relate research to action, local knowledge, autonomy)
  - A power line that mobilises concept, method, and object in a certain way
    - ✓ Intermediary concept between practices, science, and public policy
    - ✓ With new directions AE: recent opening to the public (science society debate (Warner 2007)) and food systems (Francis 2003)
  - A way to deal with this question AE: New regime?

4. Transition Theory: the multilevel perspective





5 Define knowledge's regime by stabilized tensions?

Regime of knowledge's production: historical process that encompass institutions, beliefs, practices, and political and economical regulations that define the place and role of knowledge (Pestre 2003)

Regime: a specific set of (often implicit)norms, relationships, institutions, and rules around which the various actors' expectations converge (krasner 1983)

Which relations are the pivotal points around which tensions are stabilized so as to allow (or not allow) predictable responses? Tensions between the biotechnological and AE regimes, tension within the (AE) regime

5 Define knowledge's regime by stabilized tensions?

What are the tensions?

- Reductionism versus holism and the problem of "scale up" (biotechnology vs AE, conventional medicine vs complementary alternative medicine (CAM)
- Relations between regimes:
  - Path dependency, lock-in (Davis, Dosi)
  - Parasitism between regime of truth versus regime of hope (Moreira 2005)
- Computational control versus tacit knowledge and the unknowable (the terragenome project)

AE as an alternative regime?

Session 2: systemic versus holistic approach?

- Innovation and systemic approach (JM Meyard)
- Thinking like a holon (M Bell)
- Research system shapes the technological regime (Ph Baret)

Session 4: social movements and new (rural) actors in AE and the problem of publics/the learning process

- Rooting agroecology: peasant seeds movements (C Deverre)
- New actors and the ecological movement in agriculture (A Brandenburg)

SESSION 1 **Introducing agroecology in the field of concept**

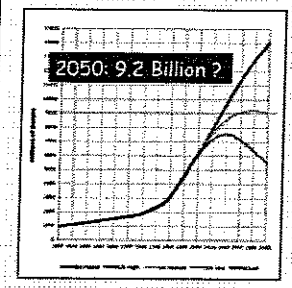
The perspectives of improved use of agro-ecological methods in organic agriculture

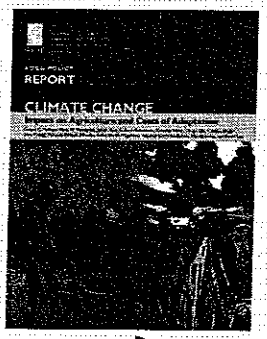
Niels Halberg
International Centre for Research in Organic Food Systems

EU exploratory workshop
The potential of Agroecology
Arlon, 24-26 February 2010

ICROFS

Major challenges for future food security





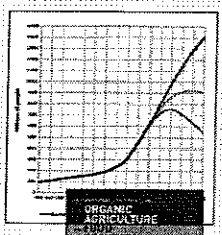
Plus: Degradation of the natural ressource base....

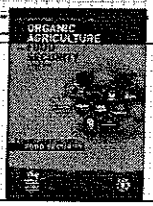
ICROFS

Food for 9 billion people in 2050

The "neo-classical" approach to relieving hunger:

- Intensive agriculture in high-productive regions and abolishment of environmental regulations
- A new Green Revolution for Africa based on chemical fertilizer, pesticides and hybrid seed



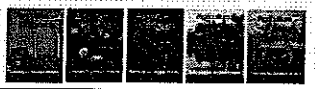


What is the relevance of OA in these two perspectives?

International Assessment of AKST for development (IAASTD)

IAASTD Executive summary (2009):

- Degradation of ecosystems limits or reverses productivity gains
- A fundamental shift in AKST is required to successfully meeting development and sustainability goals
- Recognition and increased importance to the multifunctionality of agriculture is necessary
- Accounting for the complexity of agricultural systems within the diverse social and ecological contexts
- Success requires increased public and private investment in Agricultural Knowledge Science and Technology
- An interdisciplinary and **Agro-ecosystems** approach to knowledge production and sharing will be important



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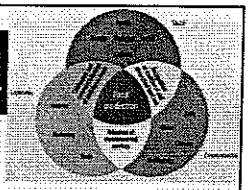
Main challenge (IAASTD): "increased productivity of agri-culture in a sustainable manner"



From focus on increased productivity alone ⇨ To holistic integration of Natural Ressource Management with food and nutritional security

Organic principles may contribute to a valuable framework for a future sustainable agricultural production!

Definition of Organic Agriculture IFOAM, 2008

Organic agriculture is a production system that sustains the health of soils, ecosystems and people.

It relies on ecological processes, biodiversity and cycles adapted to local conditions, rather than the use of inputs with adverse effects.

Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationships and a good quality of life for all involved.

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EC Objectives for organic production

Organic production shall pursue the following general objectives:

(a) establish a sustainable management system for agriculture that:

(i) respects nature's systems and cycles and sustains and enhances the health of soil, water, plants and animals and the balance between them

(ii) contributes to a high level of biological diversity

(iii) makes responsible use of energy and the natural resources, such as water, soil, organic matter and air

Council Regulation (EC) No 834/2007

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The four basic principles of organic agriculture
Endorsed by IFOAM, September 2005

Principle of HEALTH	*Principle of* ECOLOGY	*Principle of* FAIRNESS	*Principle of* CARE

Healthy soil
Healthy crops
Healthy livestock
Healthy people

Agro-ecology
Diversity
Recycling

Ecological and social justice
Fair Trade?

Precaution

ICROFS

EC Overall principles for OA

Organic production shall be based on the following principles:

(a) the appropriate design and management of biological processes based on ecological systems using natural resources which are internal to the system by methods that:

(i) use living organisms and mechanical production methods

(ii) practice land-related crop cultivation and livestock production or practice aquaculture which complies with the principle of sustainable exploitation of fisheries

Council Regulation (EC) No 834/2007

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IFOAM ICROFS

FAO-COAG Report is raising the profile of organic agriculture

At the 2009 COAG meeting, the committee stressed that

- **"an ecosystem approach be adopted in agricultural management in order to achieve sustainable agriculture**, including integrated pest management, organic agriculture and other traditional and indigenous coping strategies that promote agroecosystem diversification and soil carbon sequestration.
- Several Committee members noted the need for capacity building in new approaches and incentives to producers. The Committee endorsed the proposal that public and private investments be made in **agroecological research**, at both national and international levels."
- [COAG/2009/REP para. 4]

ICROFS

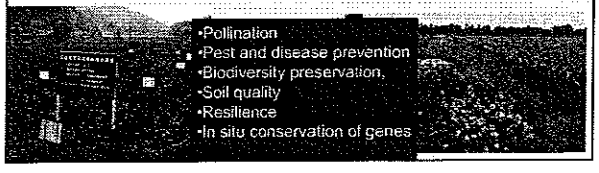
http://www.icrofs.org/Pages/News_and_events/2009_04_fao_event.html

OA is good for biodiversity and biodiversity is good for OA

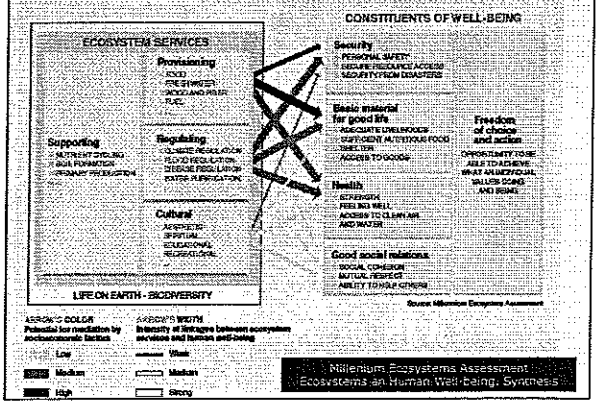
Organic farmers use more *Agro-ecological methods*:

- Mixed crop rotations, intercropping, ...
- Grasslands and green manure,
- Habitats and non-farmed areas
- Non-chemical pest management

Promoting *functional diversity* means enhancing and benefitting from *Ecological service functions*:



Linkages between Ecosystem Services and Human Well-being



Organic Agriculture promotes biodiversity

Scienific evidence.....

Meta analysis of comparative studies (Bengtsson et al., 2005):

- Species richness 30% higher in organic farms (n=32)
  - Birds, Plants
  - Predatory insects, carabidae
- Species abundance 50% higher in organic farms (n=117)
  - Weeds, Soil organisms (earthworms)
  - Predatory insects, carabidae
  - Not potential pest species!

Same picture in review Hole et al., 2005 (n=76)
Causes for higher diversity and abundance under organic farming:
•Non use of pesticides & fertiliser
•Friendly treatment of hedgerows and non-crop habitats on organic farms
•Preservation of mixed farming and diversified land use

Agro-ecological methods could also be used in non-organic
but in reality is not!

Europe: Organic crop yields as a percentage of conventional reference yields

	CH	AT	DE	IT	FR	DK
Wheat	64-75	62-67	59-63	78-98	44-55	63-67
Barley	65-84	58-70	62-68	55-94	70-80	50-73
Oats	70-94	56-75		88		
Grain maize	85-89		70	55-93	66-80	(69) silage
Oilseeds	83	78-88	60-67	48-50	67-80	67-95
Potatoes	62-68	39-54	54-69	62-69	68-79	58
Grassclover						88

Source: Different publications compiled by J. Sanders, FiBL

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The multi-dimensional challenges of OA

- Management of complex systems
- Economics and labour costs
- Agro-ecological methods are knowledge intensive
- Specialisation and lack of robustness & resilience
- Further development of agro-ecological methods
- Adoption of agro-ecological methods
- Value chain development for various markets
- Organic agriculture's role in development strategies
- Evidence for decision makers
- Global collaboration in research and innovation

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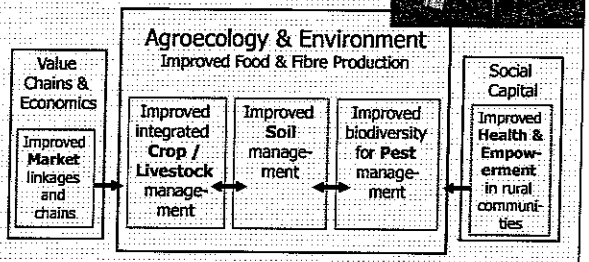
Needs for Research and Innovation in Organic Agriculture

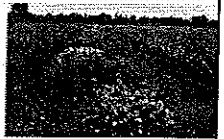


Eco-functional intensification is knowledge intensive

Eco Functional Intensification

More research, innovation, adaptation of multifunctionality and agro-ecological methods needed to obtain the full potential of OA

- Improved ecological support functions
- Modern mixed farming via collaboration
- Appropriate and robust livestock production
- Green improvement of genetic resources
- Development and adaptation of novel technology
- *Organic agriculture and climate change*



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Improved ecological support functions for resilient crop production

- Improved use of ecological support functions for resilient low-external-input and organic crop production.
- Designing resilient cropping systems for pest and disease control in organic horticulture and greenhouse production.
- Promotion of soil suppressiveness in organic horticulture
- Enhanced sustainability by use of innovative nutrient sources
- Soil functional diversity as alternative to the use of off-farm inputs in organic farming
- Management of habitats for biodiversity, ecological functions and resilience in agro-ecosystems at farm and landscape levels.
- *Robots and other novel technologies*

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Improved use of ecological support functions for resilient low-external-input and organic crop production

- ***Description***
- to improve and stabilize yields as well as quality
- improving their robustness, resilience and environmental sustainability through appropriate "eco-functional intensification",
- More efficient use of natural resources and processes, which enhance the self-regulating capacity of the system.
- ***novel cropping systems (intercropping, crop rotations and companion crops) and proper management practices (soil, nutrient supply, nutrient losses,, weed, pest and diseases management).***
- focus on a major annual cropping system (e.g.cereals, and/or vegetables) and a perennial one under different European conditions
- ***Expected impact***
- Results will allow EU organic farmers to improve their yields and their environmental performance
- Research results will also support European and national policies for reducing pesticides use, improving biodiversity and fulfilment of water quality standards.

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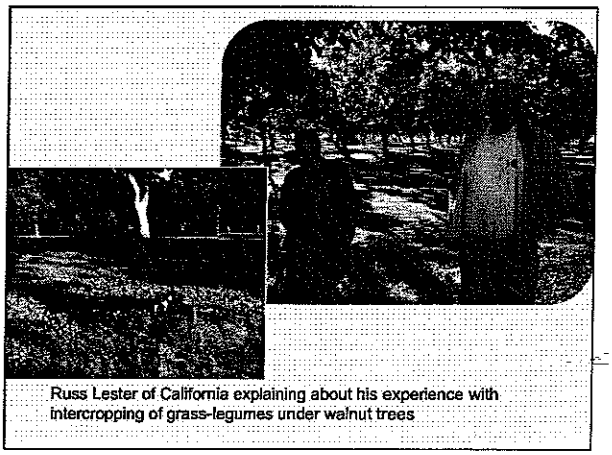
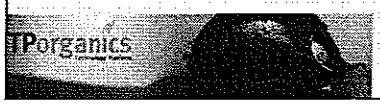
Growing carrots in rows between grass-legume mixtures for enhanced pest control and nutrient recycling in Danish horticulture crop rotation experiment "Vegqure", ww.vegqure.slr.dk/uk
(Source: ICROFS)



Russ Lester of California explaining about his experience with intercropping of grass-legumes under walnut trees

2. Modern mixed farming via collaboration

1. *Innovative forms of mixed farming for optimized use of energy and nutrients*
2. *New mixed organic farming systems, based on new combinations of greenhouse, open field and livestock production, in the vicinity of metropolitan areas with closed energy and nutrient cycles.*
3. *Implementation of organic principles at landscape level: organizational and regulatory constrains.*



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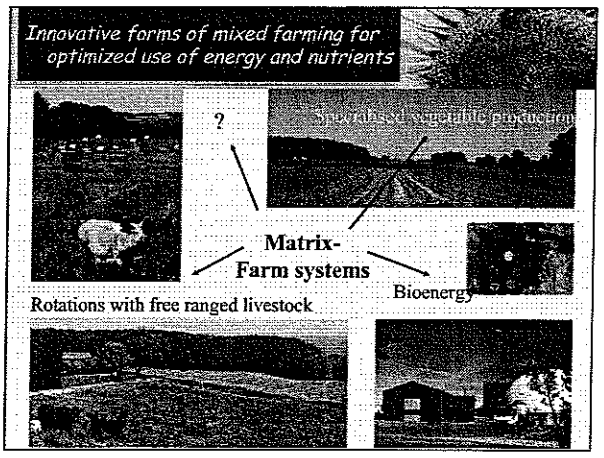

Innovative forms of mixed farming for optimized use of energy and nutrients

- ***Description***
- New innovative ideas and strategies to connect livestock and crop production (at farm, district and landscape level)
  - new cooperation between organic specialised systems
  - to re-localize and optimize energy and nutrient flows
  - profitability and implementation potential in different EU systems.
  - A participatory approach in the identification and evaluation of systems
- ***Expected impact***
- solving environmental problems of crop and livestock production
- minimizing dependence on external inputs
- Innovative systems may also give guidance to EU/National/regional agro-environmental support schemes and plans and strengthen rural vitality and the role of mixed farming in landscape protection

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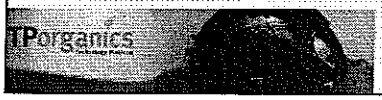
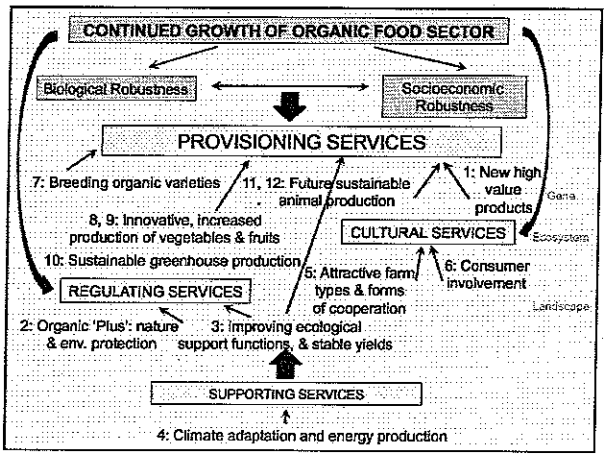
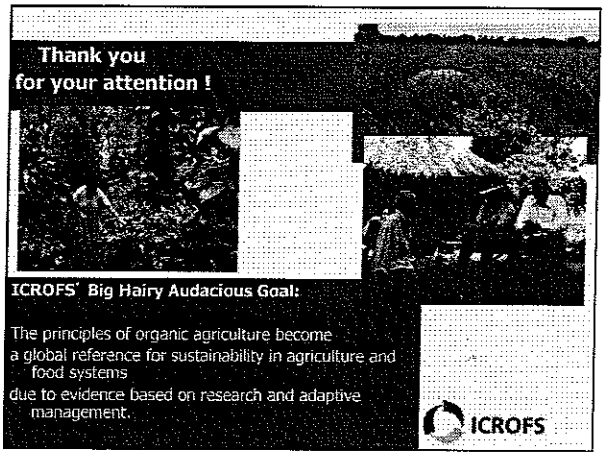
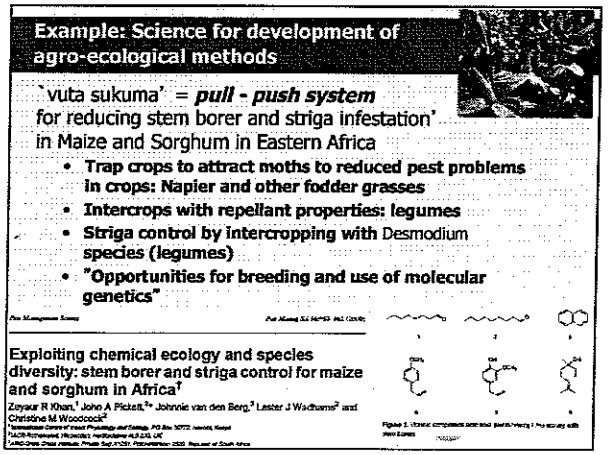
3. Appropriate and robust livestock production

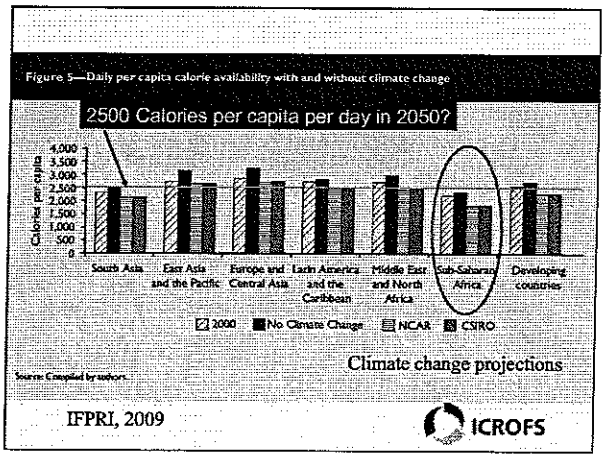
1. Disease handling strategies for phasing out of antibiotics from organic dairy herds
2. Innovative outdoor pig systems – Sustainable strategies to increase pig welfare and longevity
3. Development of organic poultry systems which combine high animal welfare and ethological needs with environmental sustainability
4. Mixed livestock systems for improved farming and food system resilience
5. *Innovation in sensors and automation for organic livestock production*











Challenges for Sustainable Agricultural Production and Farming Systems Dev.

- Abundant food insecurity (*FAO*, 2006)
- Demand for food will increase (*Evans*, 2009, and others)
- Unsustainable use of natural production factors such as soil, biological diversity and water (*Pimentel et al.*, 1995; FAO, 2003)
- 60 % of ecosystem services are degraded (*Millennium Ecosystem Assessment*, 2005)
- Intensive agriculture depends on high energy but could be energy self-reliant and could mitigate GHG emission considerably (*Smith et al.*, 2007)
- Agriculture is insufficiently prepared to cope with unpredictability and adaptation to climate change (*Lobell et al.*, 2008)

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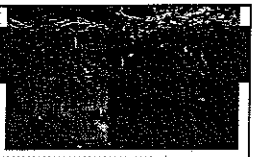
soil degradation and food security



- Soil degradation ⇒ Food security
  - Erosion
  - Compaction
  - Crusting and salinization
  - Nutrient mining
  - Loss of soil organic matter
  - Yield reduction
  - Efficiency of input use reduced
  - Micro nutrient deficiency

Need for paradigm shift in land husbandry and Principles and practices for soil management

R. Lal. Food Security journal. 2009

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Solutions for soil and food quality improvements

- Mulching and recycling organic residues
- improve soil structure and quality
- Water conservation and water use efficiency
- Adoption of diversified cropping systems, indigenous foods, GMO's high in nutrients
- Agro-forestry and mixed farming
- No-till agriculture
- On-farm experimentation and adaptation
- Use of micronutrient rich fertilisers, nano-enhanced, Zeolites
- Inoculating soils for improved Biological Nitrogen Fixation
- Microbial processes to increase P-uptake

R. Lal. 2009; Okalebo et al., 2008

With adoption of proven management options, global soil resources are adequate to meet food and nutritional needs of the present and future population

4. Green improvement of genetic resources

1. *Developing on-farm livestock and plant breeding integrating modern technology and appropriate regulatory frame work*
2. *Breeding for within-crop diversity*
3. *Improvement of production efficiency in organic and low-input farming systems by multidisciplinary breeding approaches*
4. *Genetic improvement of minor crops to improve food security and agricultural biodiversity*
5. *Breeding of varieties with improved rhizosphere for sustainable food production*

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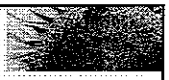
5. Development and adaptation of novel technologies



1. *Innovation in tools and strategies for efficient weed management*
2. *Physcial control of pests*
3. *Combining field crop diversity with novel technologies*
4. *Innovation in sensors and automation for organic livestock production*
5. *Assessment and sustainability of novel technologies for organic agriculture*

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Trajectoire de l´agroecologie au Brésil : entre mouvement sociale, réseau techniques, scientifiques et politiques públiques [1]

[1] Seminário « Potencial de l´agroecologie to contribute to ecological transitions in agricultures. Université de Liège, Campus de Arlon. Belgique. 24-25/02/2010.

Lucimar Santiago de Abreu
EMBRAPA/Br

Partenaires
Stéphane Bellon – INRA/Fr/Projet PACA.
Claire Lamine – INRA/Fr

Plan de Présentation

- Qu´est ce l´agroécologie au Brésil ?
- **1.Emergence et débat de l'agro-écologie (AE) au Brésil**
- **2. Institucionalisation et aspects sociaux et situation actuelle de production au Brésil.**
- **3.Montrer les interprétations de l'agro-écologie dans moviment sociaux, reseau scientifique et instituitions publiques.**
- **4. Conclusions**

- En quoi ces orientations peuvent rejoindre les programmes internationales de recherche et develloppment?

Objectifs

- Identifier les éléments qui ont contribué par le developpement de l´agroécologie au Brésil.

- Comprendre la construction de le concept de l´agriculture alternative et sa substituition par le concept d´agroécologie dans les ONGs, les communautés religieuses de base (CPT, mouvement rural MST), réseaus técnique et scientifique.

Metodologie

- Cette reflexion a été produite à partir d´interpretation materiel collecté a travers des dizaines d´entretiens avec les acteurs qualifiés – les pionniers (des annés 70, 80, 90), et aussi les leaders (de la politique de Lula) tourjour en action, des documents, des anais de Congrés et des rencontres, travaux scientifique, etc.

1.Emergence et débat sur l'agro-écologie (AE) au Brésil

- *Les problèmes environnementaux, sociaux et la emergence des acteurs sociaux. (1970 – 1980)*

- Les dommages environnementaux causés par les pesticides et le modèle de développement
- Le **premier courant** « (agri-environnemental »
- La Fédération des associations d'agronomes du Brésil (FAEAB) a contribué pour imposer une autre vision culturelle sur le développement rural qui mentionne les limites de la productivité agricole et le gain illimité.

- Les dommages sociaux affectant des travailleurs, les petits agriculteurs..
- (exclusion sociale de grande taille) population migrant
- **Le deuxième courant « (religieuse) »**
  La encorage la création de une Commission Pastorale de la Terre (CPT) 70 années. En débattant des problèmes sociaux et le renforcement de l'organisation sociale du territoire rural.

- Abreu, L. S. et 2005.

1.1 Quel était le concept de l´Agriculture Alternative à cette période?

- Le concept était vague et signifiant tout simplement un ensemble de techniques qui devaient être utilisées de manière intégrée et en équilibre avec l'environnement.

1.2.mais quel était le contexte empirique ?

- Celui-ci était pauvre en experiences pratiques et ses bases étaient :
- 1. Une ferme de l'agriculture biodinamique
  2. Une autre explotation agrícole
  basée sur l´ agriculture naturalle de Fukuoka et Mokiti Okada.
- 3.Autres expériences pratiques sans importance realisées par des professionnels et néo ruraux.

1.3. En conclusion

- nous pouvons dire tout simplement que les fondements de l'agriculture alternative sont fruit d´ un héritage de modèles européens, japonais, adaptés au contexte brésilien.

1.4. Ce que donné naissance à divers groups :

- Groupe 1. Un d´entre eux préconisait une nouvelle société (voir un changement d´action politique plus radical), dirigé par J. Graziano da Silva, qui n´identifiait pas avec la question de l'environnement (Marxista/Leniniste);
- Groupe 2 : Un´autre défendait le changement technique/ environnement. Le groupe pionnier du mouvement (associée à differents courants: biodinamique, biologique, naturel)
- Groupe 3 : Ce denier groupe defendait un concept plus large de l ´agriculture Alternative, integrant ainsi les dimension techniques, sociales, et politiques, dirigé par (Horácio Martins et Jean-Marc Von der Weid de la FASE)

1.5. Le scénario est celui d´une évolution et redéfinition de méthode et concepts.

- L'idée d'une agriculture focalisée sur les systemes techniques alternatives as perdu la force et on voit s´établir une rupture culturelle dans le mouvement écologiste
- Leur grand critique était qu´il y avait beaucoup plus de discous contre l´agriculture industrial (ou comme nous disons au Brèsil, le paquet de technologie) mais peu d'expériences pratiques.

1.5. Le scénario est celui d´une évolution et redéfinition de méthode et concepts.

- La stratégie adoptér fut de voyager dans differents région du pays afin d´apprendre leurs experiénces (tradicionnelles et nouvelles)
- Durant ces voyages ils ont du cartografié plusieurs experiénces et crée à Rio un bureau de documentation avec plus de 3000 rapports lá dessus (sur les experiénces des tecnologies alternatives).
- Plus tard ces reseaux d´échange se sont plus étendus, en créeant des centres de téchnologie Alternative – CTA(s) .
- L´objetif était de la formation téchnique des producteurs.

1.5. Le scénario est celui d´une évolution et redéfinition de méthode et concepts.

- Ainsi, le terme agroecologie fut introduit au Brésil, a partir des contacts entre les membres de le PTA/FASE et les ONGs, en colaboration avec les projets alternatifs en Amerique Latine.
- En 1989, CLADES (consortium de Amérique Latine d ´agroecologie et du développement durable) a été crée au Chile.
- Au début des annés 90, à l´occasion d´une grande réunion organisée par CLADES avec plus de 12 ONGs, le terme agroecologie a été présente par Miguel Altieri.

1.5 Le scénario est celui d´une évolution et redéfinition de méthode et concepts.

- Dans les annés 90.
- Ainsi, le terme agroecologie fut introduit au Brésil, a partir des contacts entre les membres de l´AS-PTA et les ONGs, en colaboration avec les projets alternatifs en Amerique Latine.
- En 1989, CLADES (consortium de Amérique Latine d ´agroecologie et du développement durable) a été crée au Chile.
- **Quelle sont des'orientations: ecologique, moral et ideologique?**

1.6. La academique en Agroecologie et la influence en Amerique Latine

- Le positonament de M. Altieri : Met en palce, des contributions des chercheurs de differents pays (Mexique, Espagne en particulier..)
- *Préconise l´étude des systemes traditionnels – Équilibre alimentaire écologique et l´auto-suficience .
- *Défende l´integration de differentes dimensions, c'est à dire des conceptions et méthodes issus de differents domaine de connaissance.
- *Valorise le savoir faire qui doit être dans le coeur de la réfletion paysanne (sauvegarder les valeurs culturelles).
- Alors, l'étude des agroécosystèmes a bénéficié de plusieurs contributions (Suzanne B. Hecht, cité par Altieri, 1995).

1.6. La academique en Agroecolgie et la influence en Amerique Latine

- **La gestion des agroécosytèmes :** Gliessman (1982) ; Altieri (1983) ; Conway (1981) ;
- **Sociologie**: Scott, (1997 e 1986) ; Bartalet, (1984) ;
- **Économie Écologique** : Martinez-Alier, Xavier Simon (apud, doc. Embrapa, 2006);
- **Anthropologie**: Palenzuela, Escobar (Agroécologie, Embrapa, 2006) ;
- **Histoire**: González de Molina (Agroécologie, Embrapa, 2006)
- **Sociopolitique**: Eduardo G. Sevilla (2006).

Voir aussi (Wezel, Bellon..2009)

1.7. Qu'est l'AE au Brésil ?

- AE un approche en construction.. e une forme de reconsidérer le terme DS...

2. Institutionnalisation inicie dans les années 90

- **Un débat nacionale s´est lancé sur l'institutionalisation de l ´agriculture alternative avec deux points de vue divergents:**

  1. Le premier est celui des institutions d´un part, qui ont suivis le modéle proposé par la federation internationale de l´agriculture Biológique (IFOAM). Ce groupe préconise de suivre de modéle international de certification.
- **(d'entreprises de la certification qui serait la responsable pour l'inspection de qualité).**
- **2. Partisans et des organisations de petits agriculteurs Préconise la création d'un système de soutien pour accroître la crédibilité par une réseau de certification participative, que, grâce à un comité d'éthique de producteurs et leurs organisations à assurer qualité des produits.**
- **04 annés...**
- **Ce processus a renforcé par les Ong qui se sont mobilisées pour défendre les intérêts des agriculteurs familiaux.**

2. Situation actuelle de la Prodution au Brésil

- Loi 10.831 decembre 2003
- Plusieurs formes de production et de commercialisation et mettrent en relief les aspects et dimensions suivantes :
- Une agriculture capable de gérer un revenu familial et une autonomie alimentaire ;
- 2) Une agriculture capable de réspecter les limites des ressources naturelles ou écologiques;
- 3) Une agriculture qui valorise et préserve le patrimoine culturel des communautés;
- 4) Une reconnaissance des produits orientés vers des marchés multiple

2. Situation actuelle de la Prodution au Brésil

- *John Erik Hermansen* – l´Université Arthurs, Danemark, Projet Internacionale (Danemark, Egito, Chine et Brèsil)

Qui developpe avec nous depuis 2007 un projet internacionale (Danemark, Egit, Chine e Brèsil) sur « l´analyse global de la durabilité de la production de aliments organiques » Un effort de qualifier et quantifier la production et les diferentes formes comercialization, entre autres.

Niels Halberg – ICROFS/Dk.

2. Situation actuelle de la Prodution au Brésil

- Total of Farms Organic Agriculture utilization : 90.000 (100%
- Certified by credentiade entity; 5.106 (5%)
- Not certified by credentiade entity : 85.300 (95,3%) with Ecological pratical

2. Situation actuelle de la Prodution au Brésil

- Quelles sont les stratégies sociales de production ?
- Groupe 1 : Nous retrouvons un groupe d´agriculteurs adoptand une lógique orientée vers le marché. Similier le modele des producteurs conventionnels.
- Groupe 2: un deuxiéme groupe, lui, il combine de logique familiale et la logique du marché ;
- Groupe 3 : Et un troisiéme groupe ou la lógique est plutôt familiale et écologique. Dans ce groupe les ressources naturelles et le travail de la famille sont potencialisé et la production est orienté vers les marchés locaux;

3.L'agro-écologie dans moviment sociaux, scientifique reseau et instituitions publiques

- i) *Education formel avec 96 curs* (du niveau moyen jusqu´au superieu, et 3 éme cycle), concurs publiques
- Défis – qualification universalle
- Groupes de recherche dans des universités et la comission interministerielle – 2005
- Augmentation des appels d´offre pour les projects de recherche.
- ii) Embrapa (Centre National de recherche Agronomique) de son côté produise le « Document marco referencial en agroecologie (2005) »
- En 2008 : Projet de recherche denominé "Transition agroecológique : Construtión participatif des connaissaince pour la durabilité »
- Projet en réseau nous avons 193 cheurchers et 25 centres de recherche de la Embrapa, plus les institutes partenaires.

3.L'agro-écologie dans moviment sociaux, scientifique reseau et instituitions publiques

- En 2004, autre réseau appelé « Systémes organiques de production »
  Dans ce réseau la vison qui predominé on peux être associée à courant classique (1925 à 1930) – Agriculture Organique – Albert Howard.
- iii)Dans le champ de l´ extension rurale, á partir de 2003, avec l´ouverture du débat publique pour la construtión de la politique nacional de la nouvelle ATER (Assistence tecnique nationale), la perspective adoptée était l´agroecologie.

3. L'agro-écologie dans moviment sociaux, scientifique reseau et instituitions publiques

- L´université de Cordoue a une forte influence entre certain groupe de chercheurs
- Ils développent trois missions : 1) formation et recherche ;
- 2) actions avec les mouvements sociaux du Brésil (MST) ; et
- 3) élaboration de modèles d´agriculture alternative pour chercheurs et techniciens d´extension rurale brésiliens (Caporal et Costabeber, Canuto, Costa Gomes, etc.
- Avec l'élection de Lula à la présidence de la République brésilienne, certain de groupe de chercheurs en liaison avec le parti des travailleurs (PT), va occuper des postes politiques importants au sein du Ministère de Développement Agricole, fait qui permet d´influencer directement les politiques publiques dirigées à l´agriculture familiale.

3. L'agro-écologie dans moviment sociaux, scientifique reseau et instituitions publiques

- Le debat agroecologique entre plus fortement dans le mouvement sans terre MST
- Plus par lebiais d'une organisation internacionale nommé via paysan - surtout lors de la discussion sur la sécurité alimentar; biodiversité et la production de semances créoles (via paysan, coordené le projet « les semances sont le patrimoine de l' humanité »Lancé dans le Forum Mundial Social, Porto Alegre, 2003), et le concept de agroecologie est adopté comme référence.

4. Conclusion

- Le débat continue depuis ces 20 deniers années.
- Les critiques du modéle téchnologique étaient limitées dans un primier moment à natureza des téchnologies.
- Le transfert de technologie était une pratique courrant dans l 'agriculture
- Alors que dans les années 90, la notion d'agroecologie est venu occuper la place de l'agriculture alternative, et les partisans de celle-ci critiquaient la vision entreprenant avec fortes débouchés marchandes, present en particulier au milieu des adepts de l 'agriculture organique.
- Ce deniers ne se souciaient pas du changement du modèle de développement rural, mais plutôt de produir (à chaque fois plus) des aliments salubre pour répondre à la demande croissant des consommateurs diposés à payer pour ces aliments.
- Cette discussion continue jusqu'au nos jours en pendant de force

4.Conclusion

- Aujourd'hui on assiste à une convergence entre les membres des ONGs et réseau scientifique defendant l'idée qu'il y a de l'espace pour tous et que la grande lutte (bataille) est celle contre le modéle represénté par l'agrobisness.
- Toute fois un nouveau scénario
- Le processus est ancrée (implanté) à travers de programmes de formation, des échanges, des éxperiences et des recherches réalisés au sein des réseaux d'agriculteurs, des associations des coopératives, des syndicats, des ONGs, des cheurchers universitaires et centres de recherche.
- Ainsi il faut bien signaller que l'integration de la proposition de l 'agroecologie dans les instituitions publiques et dans le mouvements ruraux de divers régions du Brésil, est fruit des actions des ongs avec le soutien de l'église catholique (CPT), syndicats ruraux, des groupes religieuses protestant, segments de l'extension rurale et de la recherche.

4. Conclusion

- Tous ces acteurs se transforment à partir de la construction des alliances en principaux protagonistes et reponsable pour l'avance du débat de l'agroecologie au Brésil.
- Aujourd'hui ce mouvement constitue un instrument essenciel dans la construtión d'un nouvel agenda politique publique et de développement durable, avec la creation de l'Association Bresilienne d'Agroecologie (ABA - sciences) et l'Association nationale d'Agroecologie (ANA – mouvement sociale).
- Resultat d'une récent réarticulation nationale de l'agroecologie.Le débat se renforce et la force politique de l'agroecologie augmente, la continuité et l'étroitement de ce dialogue constituent un grand défis pour la consolidation de la perspective agroecologique en particulier dans le scéne politique institucionnelle et dans l'ambitus de la construtión des connaissances scientifiques et technologiques.
- Donc, le clima d'incertitude de la consolidation de cette vision est bien claire, nous sommes devant certains ambiguités, de un côte on vivre dans un context de changement climatique et augment de la population et de la faim dans le monde (la biotecnologie est

Final

- Merci à tous et à toute!

A Very Brief History of Sustainable Agriculture Movements in the US: A Tale of Two Tensions

David Goodman
King's College London

Formative Influences

- J.I.Rodale and the Rodale Press
- European influences: Balfour, Howard, Steiner
- *Organic farming and gardening*(1942)
- Indore Process; biodynamic cultivation
- *Prevention*(1950)-healthy soil, healthy bodies

The Back-to-the-Land Movement

- A cacophony of voices
- "A fugitive subculture of urban refugees"
- Pluralistic coalition: Collectively Back-to-the-Land
- Militant socio-ecological critique and transformative ambition

Markets and governance

- Knowledge transmission; livelihoods
- Urban consumers: Co-ops, buying groups, natural food stores(WF 1980)
- Grassroots farmers orgs., standards and certification: CCOF (1973); Regional/Oregon Tilth (1974)
- State legislation, enforcement issues

Transitions

- Pluralistic SM- Sector- $bn Industry
- Transformative oppositional agenda-production politics/"retreat" to localism
- Product Standards vs. Process
- Socio-tech regimes: Niche innovation-mainstream appropriation/fragmentation-niche renewal and organic imaginary

Hightowerism and Research Activism (I)

- LGU scientists, legitimacy, OA funding
- "Hightowerism": Capture by productivist coalition: Modernisation treadmill
- *Hard Tomatoes, Hard Times* (1973)
- Root-and-branch critique of LGU/agricultural research & extension "complex"
- Small farmers, farm workers, rural poverty

Research Activism (II)

- SA/OA: knowledge claim vs. socio-ecol. project and political agenda
  - SA framed in a natural science discourse
- Low Input/Sust.Ag (LISA) 1985 Farm Bill
- Technological "graft on" to knowledge base of otherwise conventional agronomy (Buttel, 1993)
- Experiential local knowledge vs. alternative managerialism/alt. scientific rationalism

Localism

- Retreat from national agendas
  - Reagan, neo-liberalism
- SAMs = LFNs, direct marketing/ FMs, CSAs, farm-to-school, regional labelling
- "Transformative potential" metric? A narrative of decline
  - From oppositional to alternative politics
- Realistic "yardstick"

USDA Regulation

- Organic Foods Production Act, 1990
- USDA Proposed Rule (1998): "Big Three" inputs and public uproar
- "Allowable inputs": Standard not process
- Support: boom/fraud/confusion/naming
- Progressive legacy: Brand, mode of competition, green consumerism
- 2006 loss of public review process and citizen advisory National Organic Standards Board

Academic views

- Conventionalisation/Bifurcation theses
- Regulatory capture of organics
- Earthbound Farms meets Whole Food.
- Direct selling as "default choice"
- "Post-organic": The "local" is the new "alternative" & site of activist ambition

SESSION 2: **Agroecology as systemic and - or holistic approach?**

Troubles with [illegible] Thinking

consequently

we lose our humility

the trouble of normal accidents: the Challenger, nuclear power, manure lagoon spills

we universalize

the trouble of homogenization: every place becomes like another, replicating any errors and denying us the creativity and resilience of variety

we try to control everything and everyone

the trouble of power: militarism, empires, corporate monopolies, hegemony, conformity

Troubles with [illegible] Thinking

some of the best things we have ever done

and some of the worst things we have every done

we have done with systems thinking

What to [illegible]?

is there another way

to bring a soil scientist and a social scientist

together

Our [illegible]

from

the logic of connection of systems thinking

to

the logic of context of holonic thinking

What's that Funny [illegible] Again?

Koestler (1967): "Parts and wholes in an absolute sense do not exist in the domain of life. The concept of the holon is intended to reconcile atomistic and holistic approaches."

a both/neither

which we see through flickering

a kind of holding-together-ness

in an ecology of contexts

Holons and [illegible]

intentionality bounds holons

a persisting narrative of persistence

whether genetically or culturally articulated

in response to context

which requires change

and is never fully unified

because the world is not unified

which also makes change possible

Thinking Like a Holon
A Systems Approach to AgroEcology

Michael Bell
Agroecology Program
and
Department of Community and Environmental Sociology

University of Wisconsin-Madison

The Coming of Systems Thinking

crucial for showing connections

crucial for correcting reductionism

crucial for inviting interdisciplinarity

systems thinking now an intellectual reflex of ecology, agroecology, and related endeavors

Two Famous Quotes

1. "When we try to pick out anything by itself, we find it hitched to everything else in the Universe." — John Muir (1911)

2. "You can't do just one thing." — attributed to many, including John W. Campbell, Barry Commoner, Garret Hardin

The first two rules of thumb of systems thinking—Draper Kauffman (1980)

Two Souls, Two Cultures, Two Doubts

Bill Bland from UW Soil Science

+

Mike Bell from UW Rural Sociology

=

Bill's concern that systems thinking was too simple

because the world is a complex place

+

Mike's concern that systems thinking was too happy

because the world is full of conflict

Troubles with Systems Thinking

our main worry: that systems thinking presents an over-connected understanding of the world

which does not help us appreciate disconnection

an issue of philosophy—if everything is connected, then there is nothing to think about and nothing to worry about

which does not help us see politics

an issue of humanism—if everything is connected, there is no place for concerns about justice and no appreciation for the creativity of disagreement

Troubles with Systems Thinking

which does not help us see difference

an issue of boundaries—if everything is connected, there are no boundaries

which does not help us appreciate unfinalizability

an issue of change—if everything is connected, there can be no change (no rich change)

CONNECTIONS AND DISCONNECTIONS

which does not mean being anti-connections

rather, it means not taking them for granted

recognizing that they often take work—an active accomplishment by active intentionalities responding to context

which in a way means appreciating connections more

for it inspires us to get that work going

creating connections that we wish we had—community, market opportunities, ecological agriculture

but also appreciating that many things we do not want connected often are—efforts at controlling everyone and everything, nutrients in the water supply

and thus inspiring us to create disconnections too

HOLONS AND NARRATIVE

we are story-tellers all

narratives hold holons, and their intentionalities, together

narratives can also hold them apart

but are they real?

THE REALITY OF NARRATIVE

true, there is an infinity of narratives

infinite but not random

narratives that do not fit with

the ecology of contexts

are unlikely to persist

so while farm narratives could say anything about anything

they usually don't

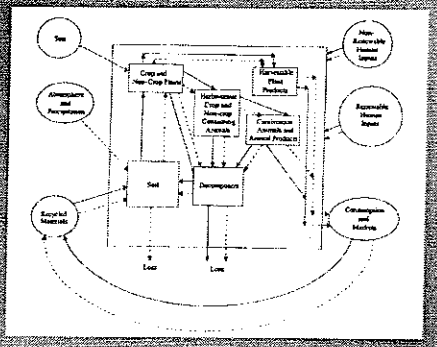
which is worth paying attention to

because it is foolish to ignore what others act on

meaning that narratives are real in their consequences

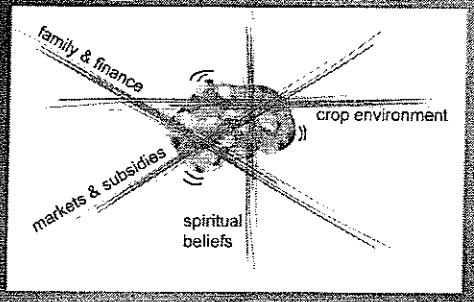
creating context and responding to context

FROM BOXES AND ARROWS...



Gliessman (2004)

...TO HOLONS

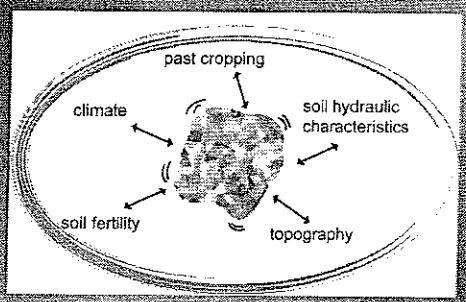


a farm holon that is

both/neither part and whole

in an ecology of contexts

THE EPISTEMOLOGY OF FLICKERING



example of the crop environment

among many other contexts which are incommensurable

and thus unfinalizable

Review of Holon

every whole a part; every part a whole
every whole and part neither
a holding-together-ness
which we understand by flickering

in an ecology of contexts
that are incommensurable
and always changing

and bounded by intentionalities
which depend upon narrative
and the constant play of politics

and which are never fully unified
and thus unfinalizable

The Difference that Holon Analysis Makes

shifting the question
instead focusing on connections
focus on context
and all connections and disconnections involved in holding something together
and the intentionalities attempting that holding together

which is not always the question we need to ask
holon analysis as not anti-systems thinking
sometimes a systems view is exactly what we need

but be aware of what systems thinking helps us see
and what it does not help us see

But What Can You Do With It?

allows agroecologists to study any kind of farm
to learn how it holds together
perhaps because we would like it not to hold together

opens agroecology to more of a landscape perspective
through a focus on context and more complex and unfinished account of boundaries
opening us to move beyond farm by farm work

moves agroecology away from a new attempt to limit variability
opening us to creativity and the productivity of variability

encourages us to see politics not as a mere barrier to agroecology
but rather part of what agroecology is
and what agroecologists do

The Upshot

a useful starting point of analysis
is to try to understand how others imagine the world

and to have a reverence for planning
for intentionalities trying to hold things together in a complex world of connection and disconnection, conflict and cooperation

and to have a humility about agroecological analysis
while still offering grounded interventions in the world

holon analysis as a conceptual language for interdisciplinarity
which isn't so simple and happy

but which we think interdisciplinarity is ready for now

The Moral

"When we try to pick out anything by itself, we find it hitched to everything else in the Universe."

the connected-up world of systems
where we
de-emphasize difference, change, and politics
which can be helpful but runs the danger of encouraging agricultural puppet masters

"You can't do just one thing."

the contextual world of holons
where we
consider both connections and disconnections,
which opens us to the unfinished, ever-changing, creative successes of
agroecological ubuntu

Innovative design of agricultural systems : Multidisciplinary approach of the « Sciences for Action and Development » Division of INRA

Jean-Marc Meynard
Agronomist, head of the S.A.D. division

INRA

The missions of the « Sciences for Action and Development » (SAD) Division:

-To produce knowledge on the activities and strategies of people involved in agriculture, supply chains, the environment and territories;

-To propose tools and approaches for help in individual, collective or public action in a perspective of sustainable development.

INRA

Innovative design of agricultural systems :
Multidisciplinary approach of the « Sciences for Action and Development » Division of INRA

1. The need for innovative design
   - 1.1. What is innovative design?
   - 1.2. Innovative design, at the heart of many tensions
2. The ways to innovative design

INRA

✓Every design is not necessarily innovative. Researchers in management operate a distinction between two design systems: regulated design and innovative design.

✓ Regulated design:
- ✓The design objectives are clearly defined in advance : gradual modifications to products or existing technologies.
- ✓Skills and validation processes are unchanged from one innovation to another.

✓Innovative design:
- ✓The design frame is called into question
- ✓The objectives take shape during the design
- ✓It is not possible in advance to specify the required skills and the validation methods

INRA

➢ Agro-ecological systems are a matter for innovative design

➢ The design of new agricultural systems must consider different scales of space and time; the design activity integrates the choice of the spatial scale, of the partners, of the evaluation criteria…

➢The design activity must at least partially direct the acquisition of knowledge

INRA

- Innovative design, at the heart of many tensions
  - The classic tension between economic and environmental requirements
  - The tension between individual farmer's decisions and territorial dynamics
  - The tension between sectors of a same territory, associated with competition between different productions for territorial resources
- It seems essential to think and act in a systemic way

INRA

- There is no question of looking for an illusory consensus on the types of desirable innovations or ideal farming systems.
- We propose to consider that the priorities are:
  - To prepare a diversity of solutions, to leave the choice to farmers and other stakeholders, and to prepare different futures;
  - To help the farmers and other stakeholders to built their own systems, adapted to their own situation and to built their own compromises.

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Innovative design of agricultural systems :
Multidisciplinary approach of the « Sciences for Action and Development » Division of INRA

1. The need for innovative design

2. The ways to innovative design
   - 2.1. helping farmers to design systems adapted to their situation
   - 2.2. helping territorial players to interact around ressource management
   - 2.3. identifying the levers of action of public authorities

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- **2.1. Helping farmers to design systems adapted to their situation**
- A renewal of methods; two main approaches:
  - the first one aims at opening the field of possibilities, mainly using functional models of crops, herds or farms. Selection, within the multitude of possible combinations, of the farming systems that respect predefined requirements on criteria of production, costs, margins, work, and environmental impacts
  - the second one attempts to improve the existing systems step by step. The design work begins with a diagnosis; evolutions of the farming systems are imagined, and implemented. Then a new diagnosis is made, ... Spiral of continuous improvement.

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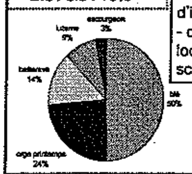
Exemple d'une exploitation picarde
(réseau de 8 fermes Programme Protection Intégrée, P. [illegible] et al.)

2002 : Diagnostic agronomique et environnemental

- IFT : 8.08
- 5 espèces cultivées
- Blé / blé : 16%



Evolution des pratiques

-Diagnostic et amélioration continue

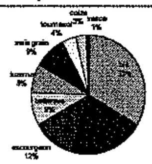
- Diversification et nouvelles pratiques
- mobilisation d'une bibliothèque d'innovations
- combinaison savoirs locaux et savoirs scientifiques

AGROTRANSFERT RESSOURCES ET TERRITOIRES

2008 Diagnostic agronomique et environnemental

- IFT : 3.65
- 9 espèces cultivées
- Blé / blé : 0%

Pas de perte de revenu



2.2. Helping territorial players to interact around ressource management

- How can innovations relating to the coordination of farming systems at territory level be helped?
- The interests of the various stakeholders can be contradictory, their representations of the situation irreconcilable, or their information asymmetrical. Some cannot draw any benefit from a coordination of productive systems, or not perceive the benefits they could receive.
- Such questions are a special area of participatory research. particularly favourable to learning processes, individual and collective,

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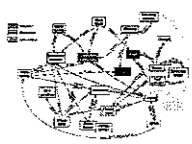
Example of companion modelling, focused on the relations between livestock farming, tourism and biodiversity on Ouessant island of Brittany (Coord. M. Etienne).

Companion modelling is based on a 3 step approach

- Eliciting a common representation of the territorial processes to be steered jointly;
- Acting in situation, with a role-playing game, to experience this complexity from inside.
- Visioning adaptive management options



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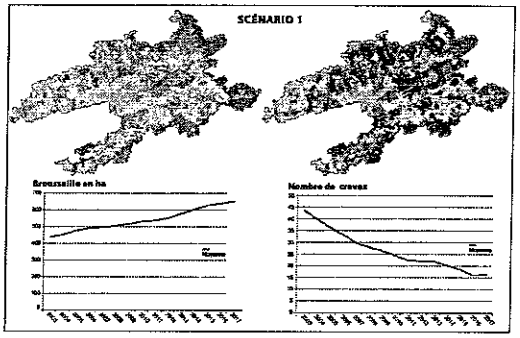

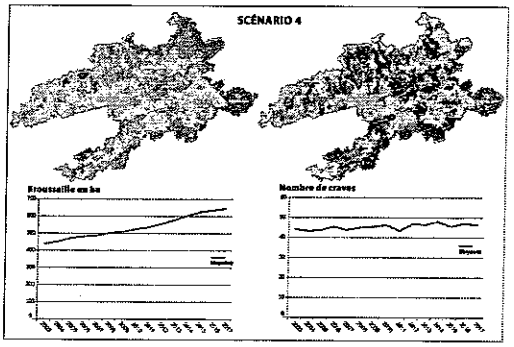

3.3. Identifying the levers for public action

✓ *Interdisciplinary analysis of socio-ecological systems:* Example of the reduction of pesticide use in France

✓*Design of a regulation.*
For an agronomist, the standardisation of "good agricultural practices" is a nonsense:

- ✓they sometimes strongly limit the capacity of farmers to adapt to the diversity of soils, climates and situations,
- ✓they are codified at the elementary agricultural technique level whereas environmental impacts often depend on interactions between several techniques;
- ✓they are often felt to be constraints: protection of the environment thus loses value in the farmers' opinions

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The Agri-Environmental measure « flowering meadows».

(C de Sainte Marie et al, 2008)

The Agri-Environmental measure « flowering meadows».

A simple indicator is used to assess both ecological and productive quality of meadows : more than 4 flower species among a list of 24.

Enquête sur le concours de Prairies fleuries :
ce qui a changé du côté des éleveurs **(C. de Sainte Marie)**

Avant (obligation de moyens: des pratiques imposées):

- ***« Les écolos du Parc vont encore nous faire chier avec leurs jolies petites fleurs »***
- ***« Nos prairies ne sont pas un musée ! »***
- ***« Retour à la nature, non merci !»***

Après (obligation de résultats et concours des prairies fleuries):

- *« Le bon agriculteur est récompensé, le mauvais ne l'est pas... **[alors qu'avant] du moment que tu tiens bien tes cahiers, c'est fait, tu peux tenir ta prairie comme un pâtier ».***
- ***« Pour une fois, on reconnaît quand même ce que l'on fait [...] C'est vraiment** important de pouvoir dire aux gens qu'on n'est pas des gros pollueurs »*

Conclusion (1)

The viewpoint of innovative design enriches the debate about agro-ecology in several ways:

- **By showing that evolutions created by ecological transitions in skills, scales of approach and procedures are indissolubly linked;**
- **By showing that recent methodological developments make it possible to respond to the need for innovative design at different scales, with different partners;**
- **By making it possible to put forward, as a product of research, not only knowledge and methods, but an organised contribution to innovation.**

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Conclusion (2)

- **Innovative design must mobilize a collective and distributed intelligence, more effective, faster and less hazardous than individual approaches, that are dependent on dominant discipline or local representations**
- **This supposes the organisation of complementarities and an increase in communication between the various players in the innovation: researchers and R&D engineers; farmers and breeders and the public authorities...**

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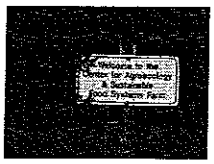
SESSION 3: **Transitions and Lock-in: Co-existence/contradiction between biotechnological & agroecological regimes?**

Keynote speakers:
7. **M. Dupuis** (USA)
Knowledge's sytem's struggle (participation canceled)

8. **Ph. Baret** (B):
How agricultural research systems shape a technological regime
Oral Presentation Without Power point

SESSION 4: **Mapping agroecology :What are the varieties of EU agroecology ?**

INRA



Scientometric mapping of Agroecology: looking for a legend?

Ollivier Guillaume*, Bellon Stéphane
INRA, Ecodéveloppement, Amandes.txt*, France

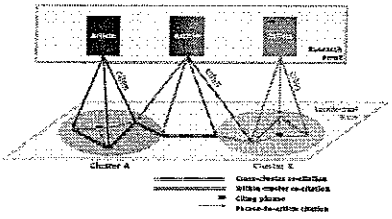
Arlon, Février 2010

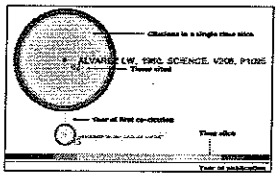
Outline of presentation

- 1- A scientometric mapping of Agro-Ecology (and agroecology)
- 2- The diversity of interpretations of Agroecology
- 3- Agroecology in the field of Alternative Agricultures

1- Scientometric mapping of Agro-Ecology

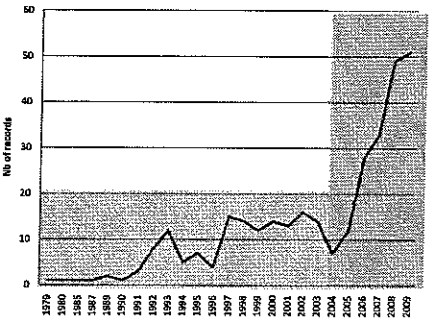
- Methodology
  - Query on Web of Science:
    - the most strict generalist article and conference proceedings database
    - allowing co-citation analysis
    - => **A specific insight on Agro-Ecology**
  - Topic = "agro-ecology" OR "agroecology" => **exploratory analysis**
  - WoS: 312 records from 1975 to 2009 (CAB: 357 records)
  - Scientometric analysis with CiteSpace (Chen, 2006)





Extending agroecology?

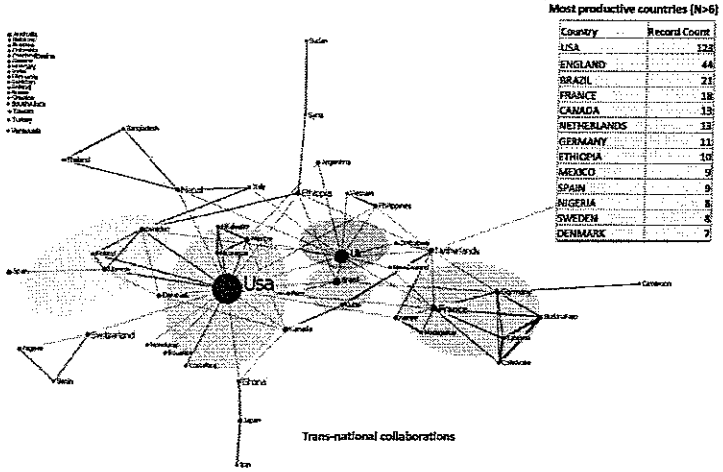
Rapid growth during recent years after a stable period



What is behind this "buzz" ?

- a revival ?
- a shift ?
- a fashion effect ?
- a capture ?
- ...

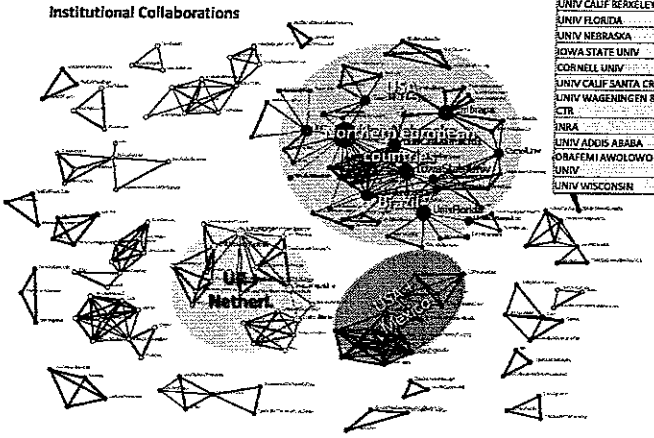
Major production sites at country level



Most productive countries (N>6)

Country	Record Count
USA	128
ENGLAND	44
BRAZIL	21
FRANCE	18
CANADA	15
NETHERLANDS	13
GERMANY	11
ETHIOPIA	10
MEXICO	9
SPAIN	9
NIGERIA	8
SWEDEN	8
DENMARK	7

Places of production: Institutions



Most productive institutions (N>4)

Institution	Nb record
UNIV CALIF BERKELEY	12
UNIV FLORIDA	11
UNIV NEBRASKA	11
IOWA STATE UNIV	10
CORNELL UNIV	8
UNIV CALIF SANTA CRUZ	7
UNIV WAGENINGEN & RES	7
CTR	7
INRA	6
UNIV ADDIS ABABA	6
OBAFEMI AWOLOWO	5
UNIV	5
UNIV WISCONSIN	5

Places of production: Journal & Disciplines

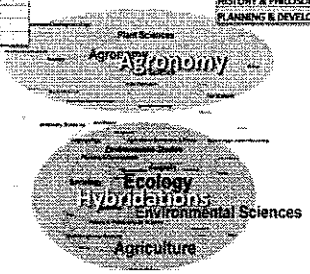
Main journals where agro-ecology articles are published (n>3)

Source Title	N
AGRICULTURE ECOSYSTEMS & ENVIRONMENT	20
JOURNAL OF APPLIED ECOLOGY	11
JOURNAL OF SUSTAINABLE AGRICULTURE	10
ECOLOGICAL APPLICATIONS	8
ROSTLINNA VYROBA	6
AGRICULTURAL SYSTEMS	5
INTERNATIONAL JOURNAL OF AGRICULTURAL SUSTAINABILITY	5
ACTA HORTICULTURAE	4
AGRICULTURE AND HUMAN VALUES	4
AGROFORESTRY SYSTEMS	4
ANNALS OF APPLIED BIOLOGY	4
CONSERVATION BIOLOGY	4
ECOLOGICAL ENGINEERING	4
HUMAN ECOLOGY	4
INTERCIENCIA	4
REVISTA BRASILEIRA DE CIENCIA DO SOLO	4
WEED RESEARCH	4

WoS Subject areas for « AgroEcology » Publications (Nb>7)

Subject Area	N
ECOLOGY	99
AGRICULTURE, MULTIDISCIPLINARY	76
ENVIRONMENTAL SCIENCES	67
AGRONOMY	48
PLANT SCIENCES	23
ENVIRONMENTAL STUDIES	17
SOIL SCIENCE	17
SOCIOLOGY	14
BIODIVERSITY CONSERVATION	11
ENTOMOLOGY	11
HORTICULTURE	9
VETERINARY SCIENCES	9
ECONOMICS	8
HISTORY & PHILOSOPHY OF SCIENCE	8
PLANNING & DEVELOPMENT	8

Subject categories of Journals where agro-ecology articles are published (n>3)

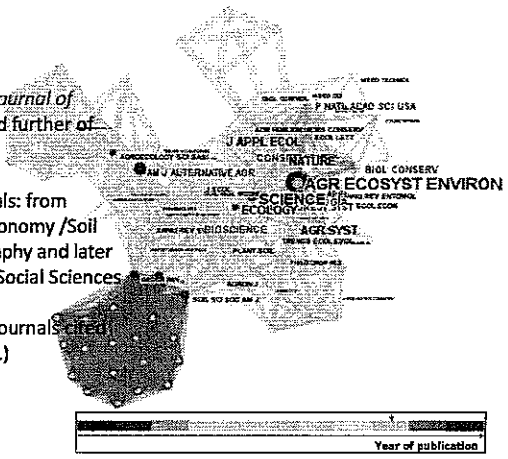


Journal co-cited by agroecology authors

Central role of *American Journal of Alternative Agriculture* and further of AEE (*Agric. Ecosyst. Env*)

Broadening of cited journals: from journals in the field of Agronomy /Soil Science to Ecology, Geography and later Ecological Economics and Social Sciences

Increasingly, higher level journals cited (Nature, Science, Ecology...)



Main authors in Agro-Ecology

Most productive authors in WoS (n>2)

Author	N	Primary Discipline	Institution	Country
ALTIERI, MA	9	Entomology	Univ Calif Berkeley	USA
FRANCIS, CA	8	Agronomy	Univ. Nebraska	USA
LIEBLEIN, G	5		Norwegian Univ. Life Sciences	Norway
HOLLAND, JM	5	Entomology	Game & Wildlife Conservat Trust	England
MCKEY, D	4	Evolutionary Ecology	CEFE, Dept Popolat Biol, Montpellier, France	France
GLIESSMAN, SR	4	Agroecology and Environmental Studies	Univ Calif Santa Cruz, Dept Environm Studies, Ctr Agroecol	USA
SOUTHWAY, S	3	Entomology	Game & Wildlife Conservat Trust	England
SCOTT, RJ	3		Centre for Ecology and Hydrology, Lancaster	England
SARANDON, SJ	3	Agronomy	NATL LIAN/ LA PLATA	Argentina
SALOMONSSON, L	3	Crop Science	Swedish Univ Agr Sci, Uppsala	Sweden
ROTHERY, P	3		Centre for Ecology and Hydrology, Lancaster	England
PUIGDEFABREGAS, J	3	Evolutionary Biology	Univ Oxford, Dept Plant Sci	England
PHILPOTT, SM	3	Evolutionary Biology	Univ Toledo	USA
PERRY, JN	3	Ecology	Rothamsted Research, Hertfordshire, UK	England
MENDEZ, VE	3	Environmental Studies	Univ Vermont	USA
MEMMOTT, J	3	Ecology	Univ Bristol, Sch Biol Sci	England
MCSORLEY, R	3	Entomology	UNIV FLORIDA, DEPT ENTOMOL & NEMATOL	USA
MACDONALD, DW	3	Wildlife Conservation	UNIV Oxford, Wildlife coop. Res Unit	England
LANGER, V	3		Royal Vet & Agr Univ, Dept Agr Sci	Denmark
HEARD, MS	3	Ecology	Centre for Ecology and Hydrology, Cambridgeshire	England
HAWES, C	3	Functional Ecology	Scottish Crop Research Institute	England
HAUGHTON, AJ	3	Wildlife Conservation	Rothamsted Research	England
GREENBERG, R	3	Ornithology	Smithsonian Migratory Bird Center	USA
FIRBANK, LG	3	Landscape Ecology	Centre for Ecology and Hydrology, Lancaster	England
DEWAR, AM	3		Broom's Barn Research Station	England
DALGAARD, T	3	Landscape Ecology	Dpt of Agroecology, Danish Institute of Agric. Sciences	Denmark
CHAMPION, GT	3		Broom's Barn Research Station	England
BROOKS, DR	3	Soil Sciences	Rothamsted Research, Hertfordshire, UK	England
BRELAND, TA	3	Soil Sciences	Norwegian Univ. Life Sciences	Norway
BONAN, DA	3	Landscape Ecology	Rothamsted Research	England
BIRKETT, TC	3	Entomology	Game & Wildlife Conservat Trust	England
BABBITT, KJ	3	Wildlife Conservation	Univ New Hampshire, College of Life Sci and Agric	USA

Main cited authors

Freq	Central.	Author	Year	Discipline	Institution	Country
87	0.55	ALTIERI MA	1988	Entomology	Univ Calif Berkeley	USA
40	0.20	GLIESSMAN SR	1981	Agroecology and Environmental Studies	Univ Calif Santa Cruz, Dept Environm Studies, Ctr Agroecol	USA
34	0.20	CONWAY GR	1985	Agricultural Ecology -> International Development	Rockefeller Foundation - Imperial College	UK
33	0.02	PRETTY JN	1995	Environment & Society	Univ Essex, Ctr Environment & Society	UK
27	0.02	FRANCIS CA	1985	Agronomy	Univ. Nebraska	USA
25	0.05	TILMAN D	1997	Ecology	Univ Minnesota	USA
24	0.08	PIMENTEL D	1974	Ecology	Cornell Univ.	USA
23	0.05	VANDERMEER J	1997	Ecology	Univ of Michigan, Dpt Ecology & Evol Biol	USA
20	0.09	*FAO	1989	-	-	-
19	0.06	CHAMBERS R	1983	Ecology, history and public administration	Inst Development St.	UK
18	0.03	DALGAARD T	1998	Landscape Ecology	Dpt of Agroecology, Danish Inst. Agric. Sci	Denmark
14	0.04	EDWARDS CA	1984	Entomology	Ohio State Univ	USA
13	0.10	*SAST	1988	-	-	-
12	0.08	COSTANZA R	1991	Economics, Ecological Economics	Univ. Vermont	USA
12	0.03	*NAT RES COUNC	1989	-	-	-
12	0.01	PERFECTO I	1994	Ecology	Univ Michigan	USA
12	0.01	ODUM EP	1969	Ecosystem Ecology	Univ Illinois	USA
12	0.01	RICHARDS P	1985	Anthropology, Technology and Agrarian Development	Wageningen Univ	Netherlands
12	0.01	GOODMAN D	1991	Political Economy	University of California, Santa Cruz	USA
11	0.00	SCOONES I	1995	agricultural ecologist	Univ Sussex	UK
11	0.00	UPHOFF N	1996	Government and International Agriculture	Cornell Univ	USA
11	0.00	LETOURNEAU DK	1990	Entomology	Univ of California, Santa Cruz	USA
11	0.00	TSCHARNTKE T	2004	Sociology & Biology	Univ Göttingen	Germany

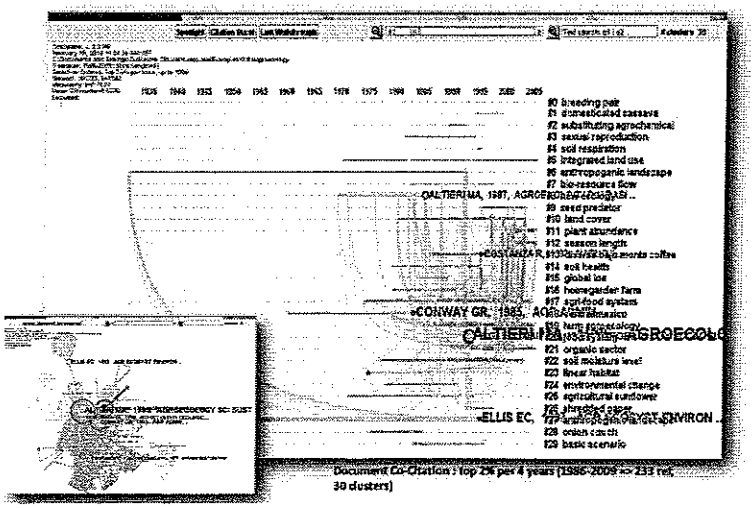
WoS, Freq>10

The core of Agro-Ecology : main cited references

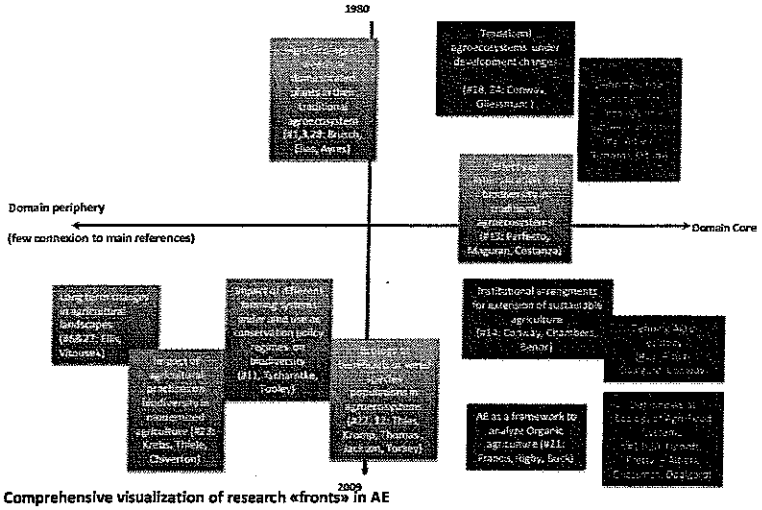
Freq	Central.	Sigma (scientific novelty)	Author (1st)	Year	Title	Source
19	0.08	1.00	ALTIERI MA	1995	*Agroecology: the science of sustainable agriculture*	(book)
15	0.19	1.00	ALTIERI MA	1987	*Agroecology: The scientific basis of alternative agriculture*	(book)
13	0.03	1.16	ALTIERI MA	1999	*The ecological role of biodiversity in agroecosystems*	AGR ECOSYST ENVIRON
13	0.03	1.00	CONWAY GR	1985	*Agroecosystem analysis.*	Agricultural Administration
13	0.01	1.00	GLIESSMAN SR	1998	*Agroecology: Ecological processes in sustainable agriculture*	(book)
12	0.04	1.17	ALTIERI MA	2002	*Agroecology: The science of natural resource management for poor farmers in marginal environments*	AGR ECOSYST ENVIRON
11	0.02	1.08	DALGAARD T	2003	Agroecology, scaling and interdisciplinarity	AGR ECOSYST ENVIRON
11	0.02	1.00	FRANCIS C	2003	*Agroecology: The ecology of food systems*	J SUSTAIN AGR
9	0.00	1.00	RICHARDS P	1985	*Indigenous agricultural revolution*	(book)
9	0.00	1.00	UPHOFF N	2002	Agroecological innovations: increasing food production with participatory development	(book)
9	0.01	1.00	ALTIERI MA	1989	*Agroecology: A new research and development paradigm for world agriculture*	AGR ECOSYST ENVIRON
8	0.01	1.00	TSCHARNTKE T	2005	*Landscape perspectives on agricultural intensification and biodiversity-ecosystem service management*	ECOL LETT
8	0.00	1.00	KLEIJN D	2003	*How effective are european agri-environment schemes in conserving and promoting biodiversity?*	J APPL ECOL

WoS, Freq>7

Clusters of co-citation and their themes



Clusters of co-citation and their themes



Comprehensive visualization of research «fronts» in AE

Preliminary conclusions

- Knowledge production in AE: major places and authors can be identified
  WoS « english speaking bias », and on-going « internationalisation »
  Conversely, national initiatives and congresses are not very visible
- Sources: some key reference books appear in WoS as cited documents, but are hardly visible as citing documents
  Is it typical of knowledge building and learning processes?
- Corpus is limited in terms of academic production (300 refs), in spite of a recent extension, but with a strong influence of AE (cf 3)
  Wide disciplinary spectrum and variety of topics are addressed in AE
- Other possible categories of AE...

2- Diversity of interpretations of Agroecology

- No unique or stabilized definition of AE
- The diversity of interpretations of AE can't be reduced or summarized into geographical or disciplinary boundaries
- Various attempts to categorize AE ....

M. Altieri/ T.Sicard In « Vertientes del pensamiento agroecologico: Fundamentos y applicaciones », 2009

- Agroecology as a science (environmental science?)
- Agroecology as a political position and social action
- Analytical fields related with AE:
  * Descriptive and comparative AE (applied ecology, to complete with cultural features... [..]; agroecosystem analysis and landscape ecology; cultural anthropology; ecological economics; political ecology)
  * Applied agroecology: design of agroecosystems, agroecological technologies, ecological pest management, ecological soil & water conservation

F.H. Buttel, 2003. Envisioning the Future Development of Farming in the USA: Agroecology Between Extinction and Multifunctionality?

Varieties of Agroecology (5)

- *ecosystem agroecology,* .....E. Odum (1969), S. Gliessman (1998)
- *agronomic agroecology,* .....C. Francis, R. Harwood, M. Liebman
- *ecological political economy,* M. Altieri, J. Vandermeer, R. Lewontin and R. Levins
- *agropopulation ecology,* ...D. Andow, A. Power (2000), A. Machado
- *multifunctional agricultural landscapes* (European approach)

« Agroecology is by any definition a kind of interdiscipline that involves reshaping scientific and social boundaries in ways that represent major intellectual challenges to agricultural scientists and agricultural research institutions ».

Viewpoints from Europe...

(Robin et Bellon, 2007; Wezel et al., 2009)

- **Preliminary approach** (Robin & Bellon, following K. Warner's visit in France)

1 New integrative paradigm (socio-ecological modernisation vs multifunctional agriculture and landscape)
2. Conceptuel pluridisciplinary framework (systemic approach, participatory science)
3. Autonomous disciplinary field (applying ecological concepts and principles to the design and management of sustainable agroecosytems)
4. Disciplinary connections (agronomy vs ecological engineering)
5. Agroecology as alternative agricultural regime (transition and conversion towards.....)
6. Agroecology as a social movement (development, networks, NGOs)

- **Agroecology as a science, a movement and a practice. A review** (Wezel et al., 2009)

	Agroecological populism	Green agro-managerialism	Eco-rational technology
Growers: type and need justification	Small and medium growers need agroecology to protect human and environmental health, and to remain economically viable	Growers need technical help managing their crop for enhanced profits and improved sustainability	New mating synthetic pheromone disruption technologies require specialized technical support for decision making
Farming system	Manage all components with knowledge of biological actors and ecological relationships whenever possible	Optimize design and monitoring to reduce the need for inputs, and to maximize profit	Using technology to solve key pest problem will ripple multiple benefits throughout farming system
Extension education	In the discourse, grower initiated, but in reality, directed by NGO and extension agents with growers assisting	Influential growers use social standing to encourage others to learn, and benefit overall industry	Engage the growers for their assent, but target skilled consultants to help them understand and manage pest populations
Role of Economics	Growers can reduce their reliance on agrochemical inputs	IPM means saving money on pesticides, and you can market stewardship too	Managing codling moth pests without pesticdes merits funding from processors
Nature's agency	Biodiversification provides multiple benefits; observation is key to working with nature	In winegrapes: the fewer inputs to wine ("the more natural"), the better	Pesticide resistance crisis prompts need for new technology: trying to outsmart the codling moth

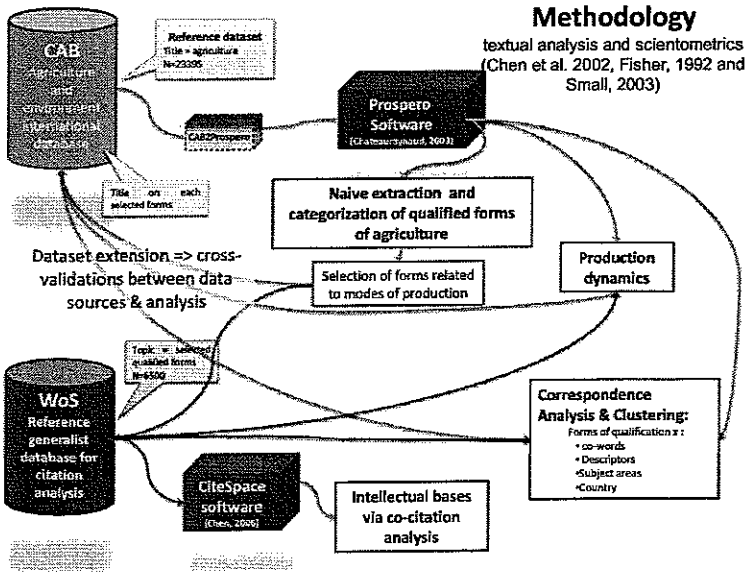
Intermediate conclusion

- No unique definition, polysemy and plurality of interpretations of AE.
- Diversity as an asset, revealing the dynamism of AE
- Whatever the interpretation, scientific ground of AE is put forward.

  ..... Social uses of science are at stake
- What proposals or positions of AE for alternative agricultures?

3- Agro-Ecology in the field of Alternative Agricultures

- Methodology
  - Query on CAB database with "agriculture" in titles => 23000 references (articles, books, conferences...)
  - Inventory of qualified agricultures (eg, organic, multifonctional, ... agriculture)
  - Queries on WoS for each forms
  - Comparative analysis with Correspondence and co-citation Analysis



Methodology

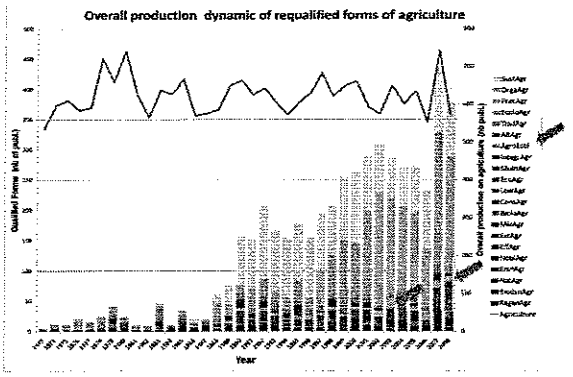
textual analysis and scientometrics (Chen et al. 2002, Fisher, 1992 and Small, 2003)

Key results

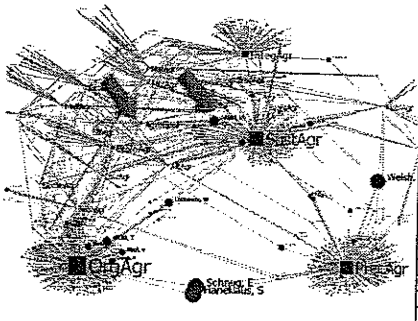
- Agroecology is distinct from other forms of alternative agricultures, due to its joint theoretical perspective

- In spite of its low academic production...

... AE is very influential to the others forms of agriculture ...



Agroecology and its authors are in the core of the « alternative agricultures domain »



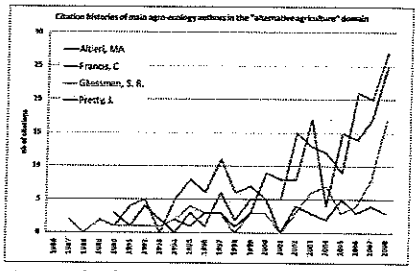
Bi-partite network : authors x forms of alternative agricultures

Authors/Editors	Nb public. (>15)	Nb forms used (>3)	Betweeness central.	Dominant form
Lockeretz, W	[illegible]	8	9259.57	Organic
Alfoldi, T	145	8	9259.57	Organic
Lal, R	31	7	5889.29	No-till
Kopke, U	145	6	6860.39	Organic
Niggli, U	121	6	7454.15	Organic
Altieri, M	34	6	[illegible]	[illegible]
Francis, C	34	6	5237.12	Sustainable
Edwards, C	22	6	2751.52	Sustainable
Madden, P	18	6	7085.44	Sustainable
Willer, H	122	5	2200.08	Organic
Caporali, F	74	5	4698.99	Organic
Cornish, P	36	5	6135.42	Organic
Neuhoff, D	104	4	1262.35	Organic
Halberg, N	81	4	1262.35	Organic
Rasmussen, I	73	4	1262.35	Organic
Hermansen, J	73	4	1262.35	Organic
Jensen, H	68	4	1262.35	Organic
Migliorini, P	68	4	1262.35	Organic
Lueck, L	68	4	1262.35	Organic
Martinez-Vilela, A	61	4	6211.67	Conservation
Garcia-Torres, L	60	4	6211.67	Conservation
Benites, J	60	4	6211.67	Conservation
Freyer, B	22	4	1286.52	Organic

Agro-Ecology and some of its authors are well cited in this domain

Most cited authors of the « alternative agricultures» domain and agro-ecology authors

Rank in AA domain	Freq	Centrality	Author	Year	Rank in Agro-Ecology
1	278	0.05	*FAO	1980	
2	205	0.04	*USDA	1987	
3	185	0.12	ALTIERI MA	1986	1
4	172	0.05	*SAS I	1996	
5	162	0.03	*SAS I INC	1985	
6	152	0.08	LAL R	1974	
7	151	0.08	PIMENTEL D	1973	?
8	132	0.04	LAMPKIN N	1990	
9	111	0.04	LOCKERETZ W	1975	?
10	111	0.08	DORAN JW	1989	
11	108	0.05	REGANOLD JP	1987	
12	105	0.03	*NAT RES COUNC	1989	
13	102	0.01	MADER P	1993	
14	99	0.02	TILMAN D	1998	
15	97	0.01	*SOIL SURV STAFF	1992	
16	96	0.02	*OECD	1988	
17	91	0.07	JENKINSON DS	1976	
18	85	0.01	SUDDUTH KA	1991	
19	155	0.01	PRETTY JN	1990	61
26	74	0.08	GLIESSMAN SR	1982	6
38	65	0.05	BUTTEL FH	1978	?
42	62	0.01	ALLEN P	1991	472
50	57	0.05	FRANCIS CA	1988	2

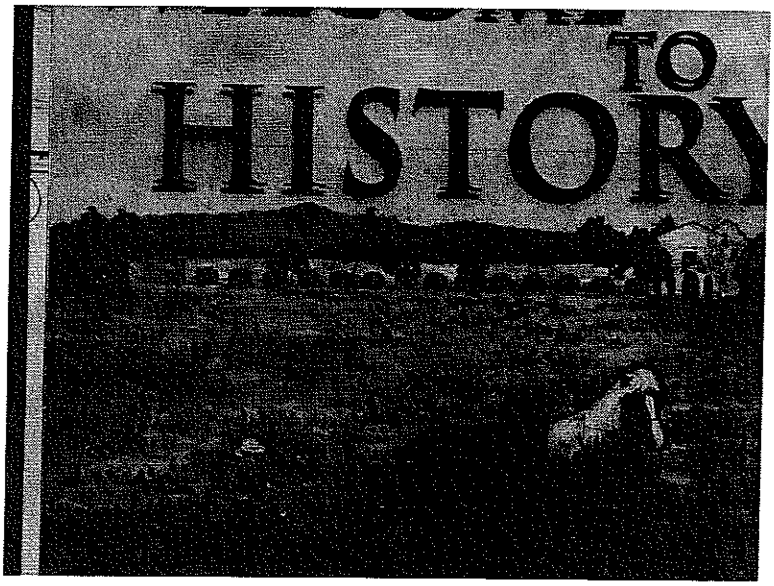


Strong role of Altieri's contributions in the domain of « alternative agriculture », especially :

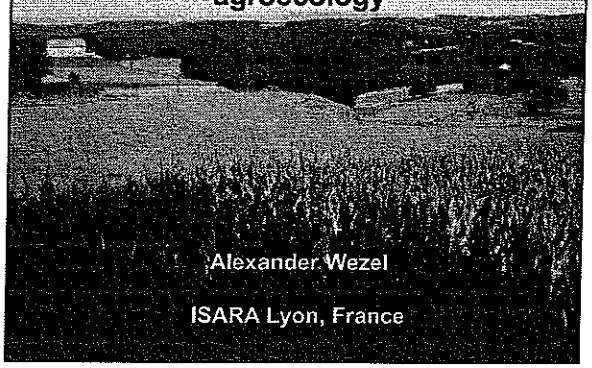
Rank	Year	Title	source
25	1999	The ecological role of biodiversity in agroecosystems	AEE
55	1995	Agroecology: the science of sustainable agriculture	(book)
60	1987	Agroecology: the scientific basis of alternative agriculture	(book)
345	1994	Biodiversity and Pest Management in Agroecosystems	(book)
402	2002	Agroecology: The science of natural resource management for poor farmers in marginal environments	AEE

General conclusions

- AE as a dynamic domain: scientifically rooted and also influent in alternative agriculture (and what about agroforestry et al.?..)
- On-going recognition of AE, many years after initial proposals (towards a genealogy of agroecology?)
- Contribution to the design of new agricultural (& rural?) models, and of alternative patterns for circulation of knowledge ?
- Diversity of interpretations of AE is acknowledged and can be constructive (a new starting point for interdisciplinary work?)
- Generation of new encounters between science/ agriculture/ nature/ society (in the sense of a holon approach?)
- Need to clarify « hot research topics » (fronts) in AE and to interpret proposed mapping (comments/ discussion).



Quantitative and qualitative history of agroecology

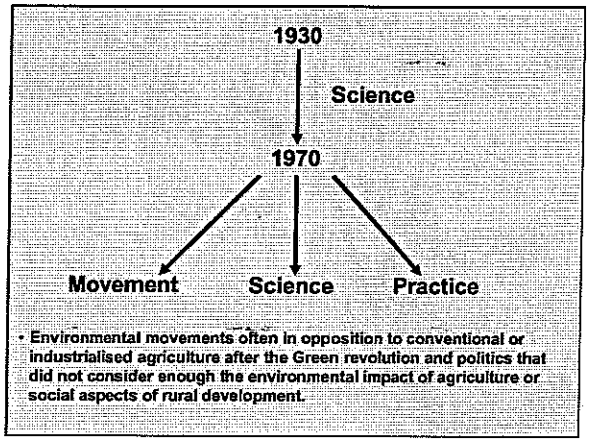


Alexander Wezel

ISARA Lyon, France

Methodology

- English, French, Spanish, Portuguese, Italian, German terms of agroecology/agroecological in the title or author keywords
- Scopus database (publications can be traced back to the 1950s)
- Virtual Catalogue of the University of Karlsruhe, Germany (library portals in Austria, France, Germany, Great Britain, Italy, Norway, Spain, Switzerland and the United States)
- Internet (Google Scholar)
- → 711 publications (540 articles, 7 proceedings papers, the rest books and a few other publications such as technical papers)
- qualitative historical analysis: other important works on agroecology were considered



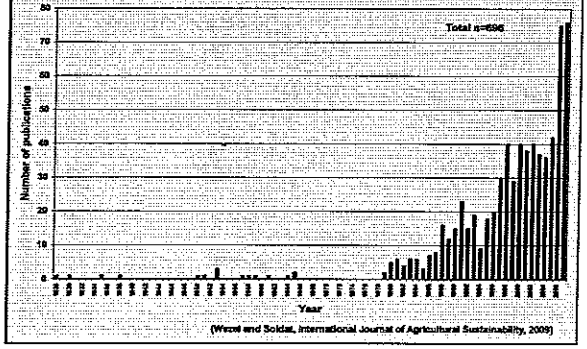
- Environmental movements often in opposition to conventional or industrialised agriculture after the Green revolution and politics that did not consider enough the environmental impact of agriculture or social aspects of rural development.

Some important works in the history of Agroecology

Year	Author	Title
1928	Czekhoslovak Botanical Society	First mentioning of the term agroecology
1929	Bensin	Agroecological characteristics description and classification o the local corn varieties chorothypes[1]
1939	Bensin	Possibilities for international cooperation in agroecological investigations[1]
1939	Friederichs	Die Grundfragen und Gesetzmäßigkeiten der land- und forstwirtschaftlichen Zoologie[1]
1942	Klages	Ecological crop geography[1]
1950	Tischler	Ergebnisse und Probleme der Agrarökologie[1]
1965	Tischler	Agrarökologie[1]
1973	Janzen	Tropical agroecosystems[2]
1983	Altieri	Agroecology[2]
1987	Arrignon	Agro-écologie des zones arides et sub-humides[1]
1990	Gliessman (ed.)	Agroecology: researching the ecological basis for sustainable agriculture[1]
1995	Altieri	Agroecology: the science of sustainable agriculture (2nd edition)[1]
1998	Gliessman	Agroecology: ecological processes in sustainable agriculture[1]
2003	Dalgaard et al.	Agroecology, scaling and interdisciplinarity[2]
2003	Francis et al.	Agroecology: the ecology of food systems[2]
2004	Clements, Shrestha (eds.)	New dimensions in agroecology[1]
2007	Gliessman	Agroecology: the ecology of sustainable food systems[1]
2007	Wezel	Agroecology in action[1]

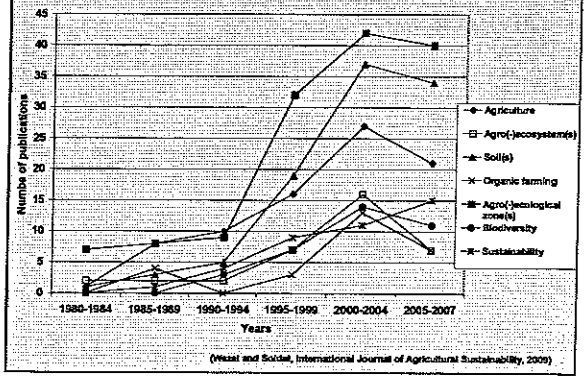
[1]book, [2]journal paper (adapted from Gliessman 2007)

Number of publications using the word agroecology or agroecological in the title or in the author keywords from 1928 to 2007



(Wezel and Soldat, International Journal of Agricultural Sustainability, 2009)

Evolution of selected title words and author keywords



(Wezel and Soldat, International Journal of Agricultural Sustainability, 2009)

And today?

What definitions for agroecology as a scientific discipline?

Agroecology at plot scale

(Agroecosystem and its natural resources)

Plant production | Animal production

(Environment)

(Wezel and Soldat, International Journal of Agricultural Sustainability, 2009)

Agroecology at agroecosystem scale

Agroecosystem and its natural resources

Plant production | Animal production

Environment

Agroecological analyses focus on plant and animal communities, food web interactions, and conservation biology in temperate as well as tropical agricultural landscape and agroecosystems.

Section of agroecology, Uni. Göttingen (2008) (http://wwwuser.gwdg.de/~uaoe/Agroecology.html)

Agroecology of the food system

Society | Politics

Agroecosystem and its natural resources

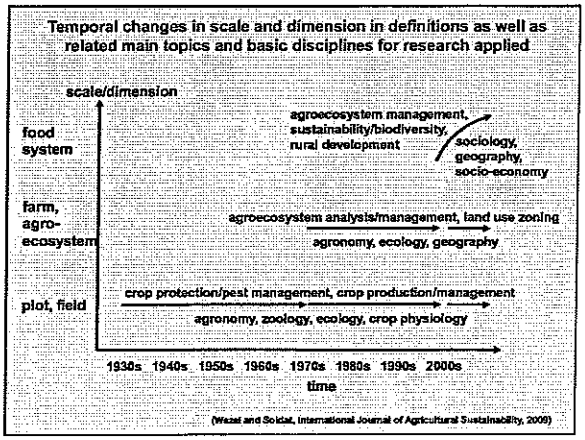
Plant production | Animal production

Environment | Economy

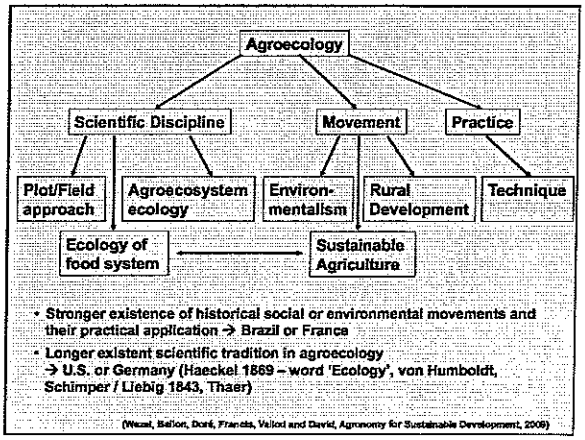
Agroecology: The integrative study of the ecology of the entire food systems, encompassing ecological, economic and social dimensions (The ecology of food systems)

(Francis et al. 2003)

Temporal changes in scale and dimension in definitions as well as related main topics and basic disciplines for research applied

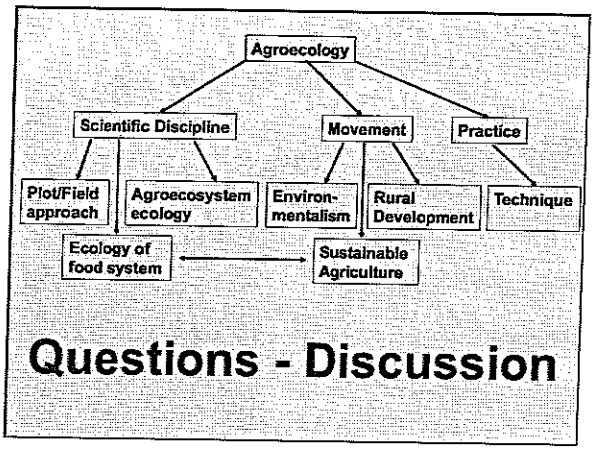


(Wezel and Soldat, International Journal of Agricultural Sustainability, 2009)



- Stronger existence of historical social or environmental movements and their practical application → Brazil or France
- Longer existent scientific tradition in agroecology → U.S. or Germany (Haeckel 1869 – word 'Ecology', von Humboldt, Schimper / Liebig 1843, Thaer)

(Wezel, Bellon, Doré, Francis, Vallod and David, Agronomy for Sustainable Development, 2009)


Agroecology
Scientific Discipline
Movement
Practice
Plot/Field approach
Agroecosystem ecology
Environ-mentalism
Rural Development
Technique
Ecology of food system
Sustainable Agriculture
Questions - Discussion

INRA

From Local to Global: Mapping Alternative Agricultures' Networks

Christian Deverre
INRA UMR 1048 SAD-APT Paris
France

Objectives of the Research

- How alternative agricultures' propositions enter into networks which transform them into practical action at the field level?
- Work in progress

EU Exploratory Workshop. The potential of Agroecology. February 24-26 2010. Liege University

Hypothesis and Theoretical Framework

- The differences between the networks may be not significantly based on opposite scientific approaches of sustainable agriculture
- But rather on the way they establish links between natural and social environments, selected actors and specific social and political goals: each one plans out a particular agri-food system's ecology
- We apply to these networks the concept of "dispositif" according to Michel Foucault: an heterogeneous set of elements including discourses, institutions, scientific statements, philosophical and moral propositions, law, money... The "dispositif" is the network established between these elements and its goal is to fulfil an urgent political concern

EU Exploratory Workshop. The potential of Agroecology. February 24-26 2010. Liege University

Methodology

- Select contrasted alternative agriculture's propositions which claim both producing sustainable agricultural science knowledge and implementing it on the field, at the farm level and beyond
- Start from a key actor playing an important part in the extension of the proposition on the field and follow on the Web and other documentation the links and flows which it establishes between places, farmers' organisations, communities, scientific institutions, financing bodies, public administrations...
- Map the networks established by these links and flows, and analyse the scope and scale of the activity of the network, its sources of knowledge, its funding, its main nodes; identify the centralities of the network
- Infer the main goals pursued by its promoters (Foucault's "urgent concern")
- Next step (still in progress): assess the structural changes in agricultural production and agri-food systems induces by these networks, from seed and breed selection down to consumption patterns

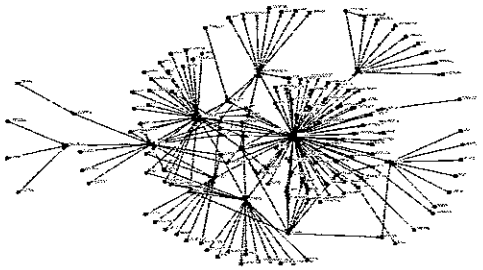
EU Exploratory Workshop. The potential of Agroecology. February 24-26 2010. Liege University

Ecoagriculture Partners

- Starting point: Ecoagriculture Partners, an international NGO gathering experts (agronomists, economists, extension specialists ...) located in Washington DC, USA
- Main domains of action: gathering scientific knowledge on "ecoagriculture", support to research and extension programs in developing countries, finding funding for these programs
- Publication: Scherr Sara J. & McNeely Jeffrey A. (eds), *Farming with Nature. The Science and Practice of Ecoagriculture*, Washington, Island Press, 2007
- Sphere of action: worldwide, but especially countries of influence of CGIAR research centres: Kenya/Uganda, Philippines, Costa Rica, India/Sri Lanka...

EU Exploratory Workshop. The potential of Agroecology. February 24-26 2010. Liege University

Ecoagriculture partners' network



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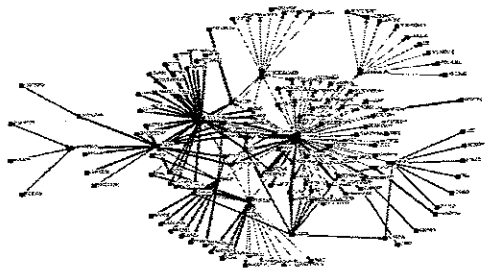
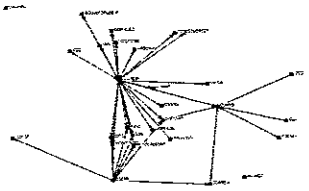
Who is funding Ecoagriculture Partners' network?



Research in Ecoagriculture Partners' Network



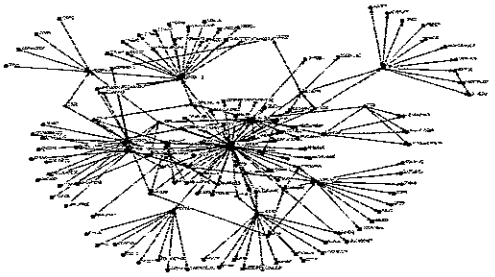
"Urgent Concerns" of Ecoagriculture Partners' Network

- "Landscapes for People, Food and Nature"
- "Eco-efficient agriculture for the poor", "Fostering forest contribution to poverty reduction, sustainable economic development and the protection of global environment", "Conserving wildlife, protecting land, empowering people", "Improving life through biodiversity research", "Protecting nature, preserving life", "Helping people help the land", "... puts global conservation in local hands"...
- "Market driven solutions for saving forests", "Unlocking the potential of resource poor communities in innovative business partnerships"...
- Fighting poverty for nature conservation

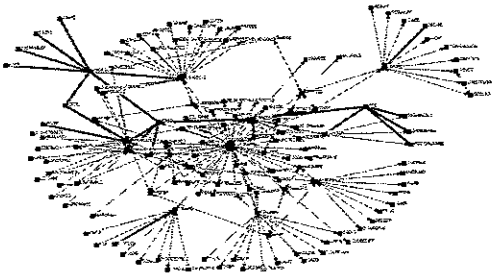
FRCIVAM-Brittany

- Starting point: Fédération Régionale des Centres d'Initiatives pour Valoriser l'Agriculture et le Milieu Rural Bretagne (Regional Federation of Centres of Initiatives for the Valorisation of Agriculture and Rural Areas of Brittany) located in Rennes, France
- A regional French NGO supporting local groups' initiatives aiming at developing sustainable agriculture and rural development
- Sphere of action: Brittany, others regions of Europe's periphery

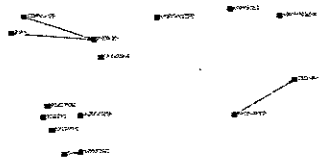
CIVAM-Brittany' s network



Who is funding FRCIVAM-Brittany's network?



Research in FRCIVAM-Brittany's Network



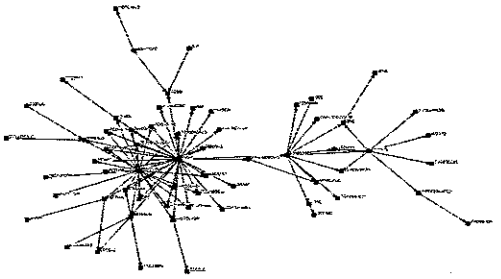
« Urgent Concerns » of FRCIVAM-Brittany' Network

- "Bringing together all the actors for sustainable and just agriculture"
- "Thrifty and autonomous", "World needs all its peasants", "Yesterday's knowledge produces today's jobs", "Local food chains", "Food authenticity", "Know-how"...
- Peasantry, locality, autonomy, solidarity, good food

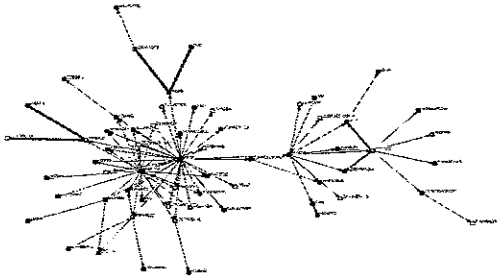
Permaculture Australia

- Starting point: The Permaculture Research Institute of Australia, located in The Channon, New South Wales, Australia.
- A private research and teaching centre which promotes the development worldwide of « permaculture » designs in accordance to Bill Mollison theories
- Sphere of action: worldwide, with focus points in specific countries (Australia, New Zeeland, USA, UK, Chile, Honduras...)
- Another center of dissemination of permaculture is Japan

Permaculture Australia's network



Who is funding Permaculture Australia's network?



Research in Permaculture Australia' s Network

"Urgent concerns of Permaculture Australia's Network"

- "Sustainable (R)evolution"
- "Leading the way towards a sustainable future", "Social change starts here", "greening a rural community", "Farmers say no to war and terror", "Innovative urban and rural land solutions", "Earth care, People care, Fair share", "Redesigning our lifes, as if caring for the planet mattered", "Where the problem is the solution", "Design, development and education"
- Community, personal and social change, designing nature and life

Competing or Specific Alternatives ?

- Differences in scale: globalization, regionalization, local dissemination
- Differences in goals: nature protection/fighting poverty, peasant revival/rural-urban solidarity, self and community development
- Differences in resources funding: multinational and private funds, public local and international funds, participants' own resources
- Differences in scientific knowledge use: recycling "green revolution" research centers, selecting marginal partners in established public research institutions, creating its own research centers

- No evidence of competition on the field
- Still to assess: expansion of these kinds of networks
- But: is it advisable to promote A New Model of Agriculture for sustainable development?

SESSION 5: **Agroecology and the problem of publics : information or learning process?**

INRA

Rooting Agroecology: Peasant Seeds Movements

Christian Deverre
INRA UMR 1048 SAD-APT Paris
France

Introduction

- Beginning of the 2000': establishment in Southern Europe (and other places) of « Farm Seed Exchange Networks »: *Réseau Semences Paysannes* in France, *Red de Semillas* in Spain, *Rete Semi Rurali* in Italy, *Peliti* network in Greece...
- Goals of these networks: unofficial or illegal exchange of farm seeds between farmers or gardeners, protection and promotion of farm seeds, institutional pressure and lobbying for regulation change, development of new breeding practices...
- Composition: national, regional or local farmers' organisations, organic farmers org., small plant breeders firms for farmers or gardeners, environmental org., plant conservation associations, amateur gardeners assoc., local authorities...

Interest to consider these networks regarding agroecology issues:

- The focus of their action is upstream of the transformation of production techniques aiming at reducing negative impacts of industrial agriculture (fertilisation, pest control, energy or water use), even if they consider it as a major objective, among others
- It is about changes in production of the basic biological material for farming: seeds. These networks claim for abolishing the century old specialisation between farmers and seed breeding and distribution firms

Outline of the presentation

I shall deal in this presentation with two main characteristics of these networks:

- They bring together heterogeneous actors with often quite different goals. This gives them social and political vigour, but is also at the origin of ambiguities, confusions, conflicts and may be strategic weakness
- They develop activities of institutional pressure and lobbying to change national and European regulation on seeds

I shall not deal here with an other important activity of the networks: practices of « participative plant breeding projects »

And I cannot enter into the exchange "illegal" activities they promote and/or organise

Heterogeneous seeds

- In the literature produced by these networks, many ways to name the object of their concern: *farm seeds, peasant seeds, old varieties, local varieties, rustic varieties, conservation varieties...*
- Even if the same actor may use several of these names, each denomination may be linked to different objectives and practices

Heterogeneous goals and practices

We can roughly associate the various denominations with distinctive goals, practices (and values), even if some overlapping exists between them:

- Farm seeds: farmer's autonomy, self reliance
- Peasant seeds: farmers' autonomy, know how, solidarity
- Old varieties: biodiversity conservation, taste, heritage, curiosity
- Local varieties: local identity, adaptation to local environmental conditions, capacity to enter a niche market
- Rustic varieties: adaptation to organic agriculture and to various environmental conditions (climatic change)
- Conservation varieties: biodiversity conservation (bioversity?)

Heterogeneous configurations of actors

- The different goals, objectives and values are linked to different actors or groups of actors of the networks, at the same time gathering and dividing them
- Two examples:
  - Farm seeds, peasant seeds, rustic varieties are strongly linked to farmers' organisations, but some organic agriculture groups may not be strongly attached to autonomy and peers' exchanges, and may prefer to rely on the specialised seed breeders members of the network who themselves provide old varieties to amateur gardeners
  - If adaptation to specific environmental conditions may be of interest for many groups of farmers and gardeners, the market valorisation of local varieties (through protection of local origin) strongly limits the extension of the seed exchanges and may prohibit the use of the varieties to other farmers

Institutional issues

- All the actors of the Peasant Seeds Networks agree in the necessity to change the national and European systems of seed approval and marketing regulations: they consider that the criteria for seed homologation are too narrow (distinctiveness, homogeneity, stability) and that the seed market is dominated by a few major companies closely associated to pesticide industry
- But they have different views on the degree of institutional change: « softening » the criteria and especially the homogeneity which is contradictory with biodiversity and adaptation, creation of new « catalogues » of approved seeds as it has been done for amateur gardeners seeds and conservation varieties, dismantlement of any public regulation on seed production and circulation

How to be identified as a "peasant"?

- These institutional discrepancies (and the same could have been done for "participative selection") raises the question of the rights of access to "peasants seeds". What will be the conditions for access to them for farmers who are outside the networks? How can these conditions be more fair that those of the corporate current system?
- They raise too the question of the mechanisms implemented to insure the quality of the seeds: interpersonal trust (which surely restricts the access to outsiders), third party certification (as it is the case in the current regulation system), "participative certification"?
- The responses to these questions are important to be addressed to assess the degree of openness of these new seed production and exchange networks.

Special thanks for voluntary and involuntary contributions to:
- ***Nathalie Perrot***
- ***Christophe Bonneuil***
- ***Guy Kastler***
- ***Christidou Evvagelia***

THE NEW ACTORS AND THE ECOLOGISATION OF AGRICULTURE IN BRAZIL

ALFIO BRANDENBURG UFPR

RURAL/RECONSTRUCTION OF THE RURAL ENVIRONMENT

- After-Eco-92
- Après la modernization intensive/ After intensive modernisation
- le rural est devenue hétérogène /rural became heterogeneous:
  - la modernisation est incomplete/modernisation is incomplete;
  - l'environnement est dégradé/ environment is degraded;
  - la question environnement est exclu du processus de production/the environment issue is excluded from de production process

Nous ne pouvons pas parler d'un rural, mais des ruralités/we cannot talk about rurality ? But about ruralities

LES TROIS TEMPS DU RURAL BRÉSILIEN/THE 3 PHASES OF BRAZILIAN RURAL

- Le rural traditionel/traditional rural
  - L'heritage colonial/colonial heritage: grand propriété foncière/big landownership
  - esclave/slaves, paysan/peasant, agricultures subsistence/subsistence agriculture, la comunaute rural/rural communtiy
- Le rural moderne/modern rural
  - Agriculture modernisé/modern agriculture, entrepeneur rural/rural entrepreneur, agriculture familial moderne/modern family agriculture, agroindustrie/agro-industry...
- Le rural environnemental ou soutenable/the environmental or sustainable rural
  - Le rural des espaces hétérogènes, plusieurs façon de produire. /rural of heterogeneous spaces/multiple ways to produce

LE RURAL DANS LE CONTEXT DE LA GLOBALISATION/RURAL IN THE CONTEXT OF GLOBALISATION

- Au Brésil il est necessaire d' analyser le rural en prenant compte/in Brazil it is necessary to analyse rural by taking into account:
  - L'hétérogénéité/the heterogeneity;
  - L' occupation des espaces et la distribuition de la propriété foncière/occupation of spaces and distribution of land ownership;
  - L' appropriation et exploitation des ressources naturelles/ the appropriation and exploitation of natural resources;
  - Les acteurs et les propositions de la reconstruction rural./ actors and proposition of rural reconstruction

LESMOUVEMENTSÉCOLOGIQUESLESPLUSEXPRESSIFS/ MOSTEXPRESSIFECOLOGICALMOVEMENTS

- Les mouvements de 'seringueiros' à l' amazonie/movements of "sereingeros in amazonia ;
- Les mouvements des 'sem terra'/movement of "without ground-sem terra"
- Les mouvements écologiques dans' agriculture/ the ecological movements in agriculture;
- Les autresmouvements/the other movements: 'faxinalenses', 'quilombolas' (descendents des esclaves /descendants from slaves); personnes traditionelles /traditional people "caiçaras" ;

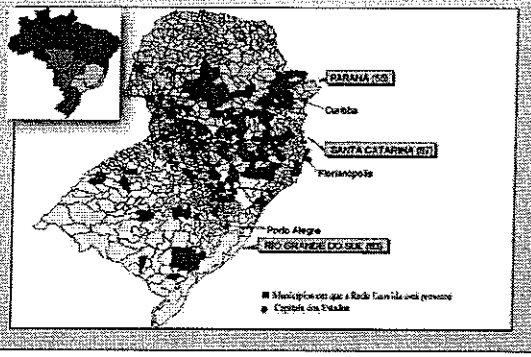
LESMOUVEMENTS ÉCOLOGISTES COMME NOUVEAUX ACTEURS ... ECOLOGICAL MOVEMENTS AS NEW ACTORS

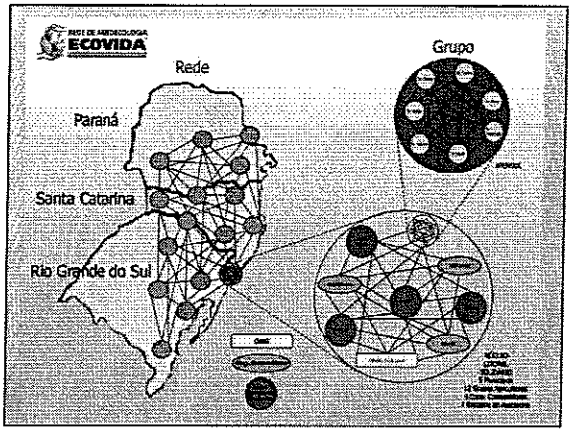
- Ils se posent dans un contexte d' unouveau paradigme selon un style de vie que s' oppose a la massification culturel./They put themselves in the context of a new paradigm in which the way of life opposes itself to cultural massification.
- Ils s' opposent au paradigme industriel de la modernization et de la production agricole en transformant les environnements (naturel et social)./they oppose themselves to the industrial paradigm of modernisation and agricultural production by transforming the environments (natural and social)
- Ils mettent ent place des pratiques sociales selon un savoir faire acumulé et des informations du monde globalisé../They put in place social habits following an accumulated know-how and information from the global world.
- Ils sont sujets de la construction d' une rationalité écologique/ they are subject to the construction of an ecological ratio.

LES RÉSEAUX DES NOUVEAUX ACTEURS/ NEWORKS OF THE NEW ACTORS

- Articulação Nacional de Agroecologia – ANA
- ANA – Amazônia
- ASA – Articulação no Semi-Árido Brasileiro
- GTA- Grupo de Trabalho Amazônico
- ACA- Articulação Capixaba de Agroecologia
- AMA- Articulação Mineira de Agroecologia
- ECOVIDA – Rede Ecovida de Agroecologia

RÉSEAU 'ECOVIDA' DE L'AGROÉCOLOGIE





EXPANSION DU RÉSEAU ECOVIDA

	1999	2000	2005	2007	2009
Communautésrégionales			21	24	25
Famillesagricoles	343	1300	2438	2700	3000
Groupesorganisés	35	130	272	290	300
ONGs	4	15	28	35	35
Villes			180	205	220
Coopératifsdes consommateurs			6	8	8

LESOBJETIFSDURÉSEAUECOVIDA/ AIMSOFTHEECOVIDA NETWORK

- Aider a construir unprojet de développement soutenable – ecologique/help to build a project of ecological sustainable development;
- Promouvoir un projet de vie écologique/promote a project of ecological life;
- Au delà d' augmenté la rentabilité économique, mettre en place formes alternatives de commercialization et organization – économie solidaire/ beyond increasing economical growth, put in place alternative forms of commercialisation and organisation-;
- Développer un processus de certification participative et d' échange de savoir/develop a process of participatory certification and exchange of knowledge.

QUELQUESRÉSULTATS D' ÉTUDEMULTIETINTERDISCIPLINAIRE/SOME RESULTSOFMULTI-ANDINTERDISCIPLINARYSTUDIES

- Les motivations pour la transition écologique/motivations for ecological transition
- La représentation de la nature/representation of nature
- Les pratiques d'alimentation – "Les habitus"/The "habitus"
- L' organization et certification écologique/ecological organisation and certification
- L'environnement/the environment
- Laconstruction d'une rationalité environnementale/construction of environmental rationality

LES MOTIVATIONS POUR LA TRANSITION/MOTIVATION FOR TRANSITION

- Santé personnel et de la famille/personal andfamily health
- Raisons économiques/economical reasons
- Conservation des ressources naturelles/conservation of natural resources
- Raison technique et productive/technical and production reasons
- Raison ideologique/ideological reasons
- Demande du consommateur pour les qualités des produits alimentaire/demand of de consumer for qualities of food products

LA REPRÉSENTATION DE LA NATURE/ REPRESENTATION OF NATURE

- Il y a une resignification dusens de la nature./there is a symbolic meaning towards nature
- Dans la parole d'un agriculteur:

"l'agroécologie relie l'homme à la nature et a tout ce qui est sacré".

- Le sacré qu'on ne peut pas détruire et que reproduit le cycle de la vie - l'homme fait partie aussi de la nature./the sacred that can not be destroyed and that reproduces the cycle of life, the human being is also part of nature

LES PRATIQUES DE L'ALIMENTATION/FOODHABITS

- Les produits traditionels reviennent intégrer le menu./traditionalv products become integrated again in the menu
- La production pour la consommation propre /production for self-consuming ,
- Les fruits, legume et toute la diversite de produit alimentaire sont désormais cultivés/fruits, vegetables and the diverse food products are now cultivated
- Le bilan nutritionnel est plus equilibre./? a more balanced diet

LA CERTIFICATIONPARTICIPATIVE/ A PARTICIPATORYCERTIFICATION

étude comparatives entre groupes participatifs et conventionels/ comparative studies between participatory and conventional groups :

- Dans le groupe participatif le contrôle est fait par un conseil d'agriculteur/in the participatory groups, the controle is done by a commitee of farmers
- Il n'y a pas des différences entre les pratiques écologique/there is no difference between ecological habits ;
- Dans les groupes participatif les agriculteurs font des échanges de savoirs , mais il y a des conflits/ in the participatory groups, there is an exchange of knowledge, but there are conflicts;
- Les agriculteurs sont valorisés dans ses pratiques/farmers are valued in their practices?

L'ENVIRONNEMENT

L' agriculture est specialisé et même la traditionnelle sont remplacés par une exploitation agricole diversifiée et par le retour de la foret cultivé/specialised and traditional agriculture are replaced by an agricultural exploitation that is diversified and by there turn of cultivated forest.

- Gestion de l'eau: les analyses d'Indicateurs de qualité de l'eau (IQA) montrent que les données des agriculteurs écologiques sont meilleures que celui des agriculteurs conventionels/water management: analysis of indicators shows that water from ecological farms is of better quality
- Fertilité de laterre: la connaissance du savoir-faire paysan liée à la connaissance techniques sont mis enplace/soil fertility: knowledge of farmers' know-howlinked to technical knowledge are put in place

LA RATIONALITÉ ENVIRONNEMENTALE

La trajectoire de construction d´une racionalité environnementale est contradictoire et conflituel./ the trajectory for theconstruction of an environmental rationale is contradictory and conflictual

Le conflit principal, à l´origine de l´organisation des agriculteurs, a été sur la façon de commercialiser les produits écologiques. Il y avait des propositions pour une commercialisation au niveau du grand marché et d´autres s´un niveau des petits marchés locaux/ the principal conflict at the origin of farmers has been on the way ecological products were commercialised. There were suggestions to commercialise at the level of large markets and others at the level of small local markets.

OBRIGADO !

- *Alfio Brandenburg*
- *Université Federal du Paraná/Brésil*
- *E-mail: alfio@onda.com.br*

SESSION 6: **Agroecology between discipline and practices, which configuration for witch potential?**

CONCLUSION CONFERENCE

Marc Mormont