Policy Options session Introduction

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Our day agenda

- Introduction to the topic
- Bert Visser (OXFAM/NOVIB)
- Gareth Borman (WUR)
- **10.20 break**
- Riccardo Bocci (RSR)
- David Spielman (IFPRI) and Margaret Mc Ewan (CIP)
- **12.30 break**

Introduction

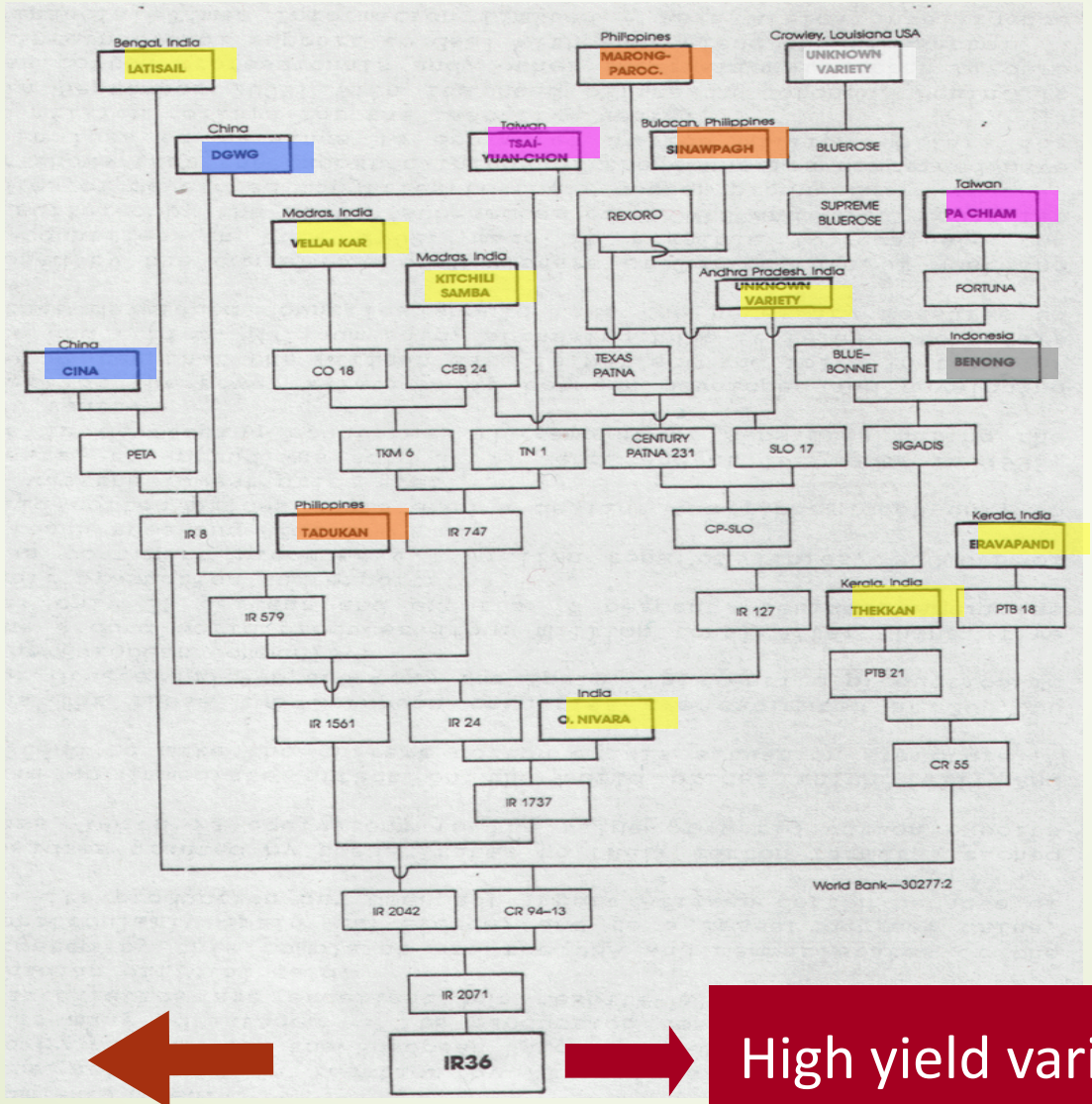
How policy affects PPB and Seed Systems

Why?

Bringing back diversity to food systems

Breeding for marginal environments

The history of breeding – the green revolution

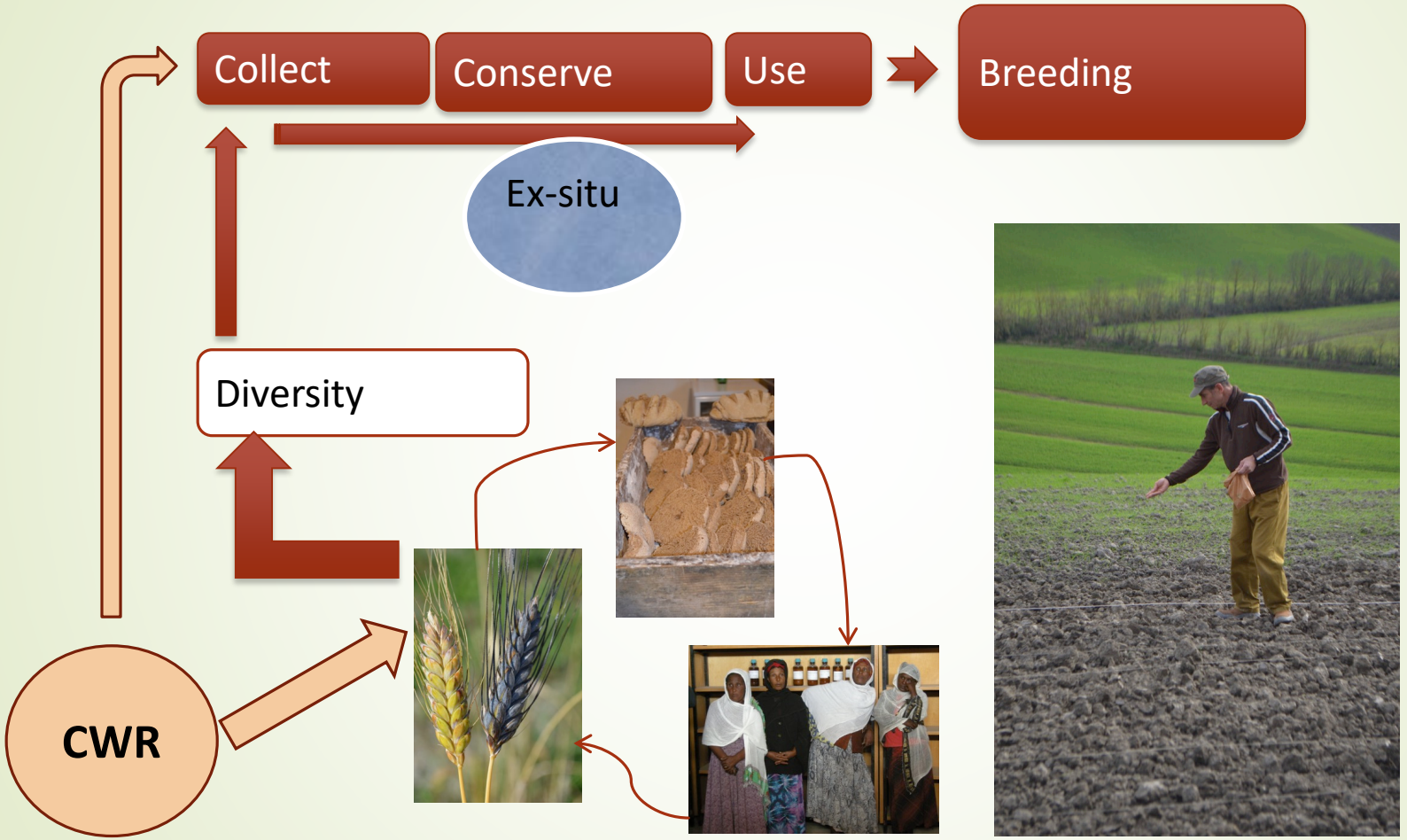


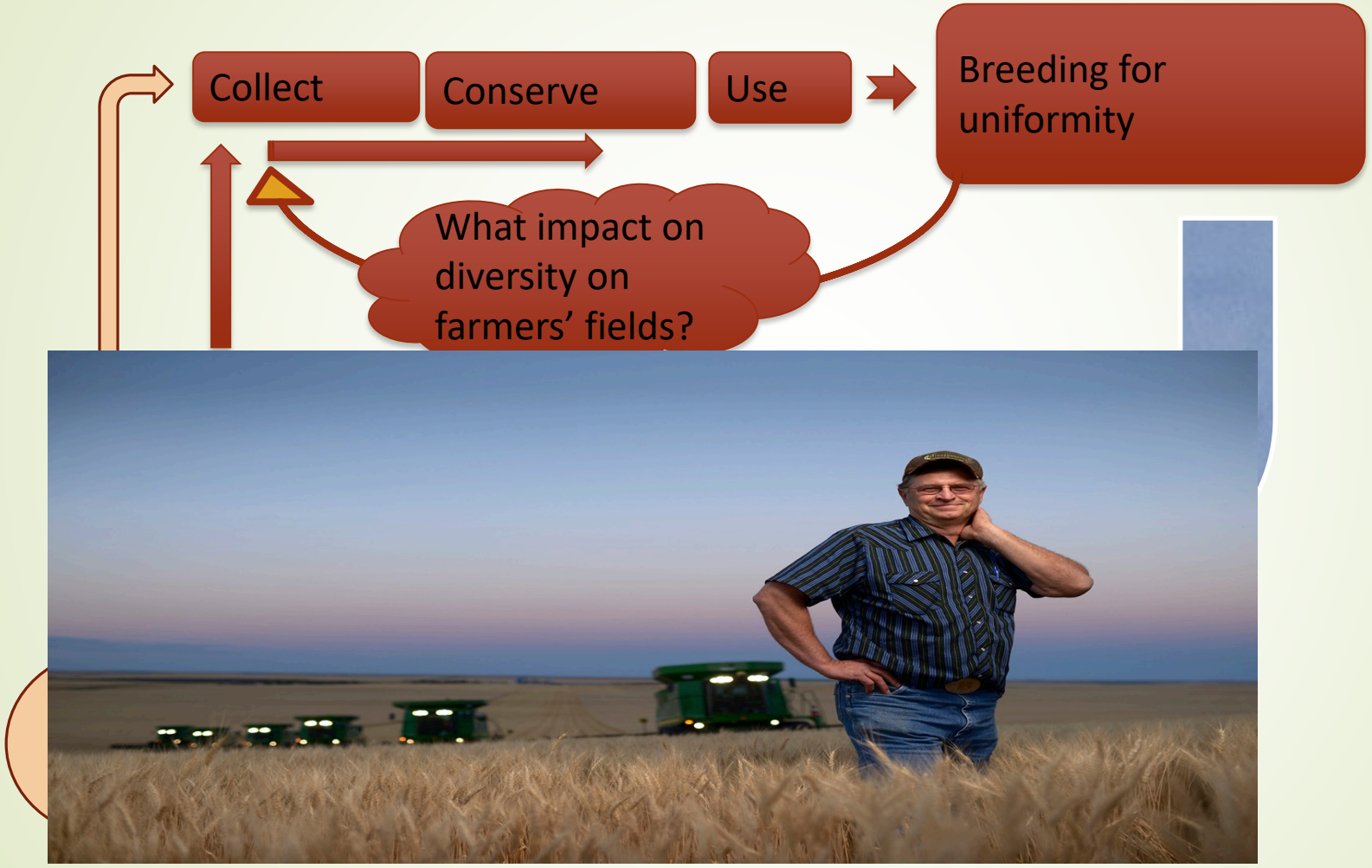
Cina
India
Taiwan
Filippine
USA
Indonesia

farmers' varieties

farmers' varieties

High yield varieties


Collect
Conserve
Use
Breeding
Ex-situ
Diversity
CWR


Collect
Conserve
Use
Breeding for uniformity
What impact on diversity on farmers' fields?

Plant breeding paradox

"Thus, paradoxically, plant breeding has been undermining the very genetic basis on which it rests, leading to an overall phenomenon of de-diversification or genetic erosion. Plant breeders have become aware of this situation and have attempted to rectify it by broadening the genetic basis of their cultivar gene pool. However, it remains that the genetic diversity represented in the elite gene pools is only a small fraction of that present in the entire gene pool of crop plants. Hence, there is an enduring concern about the disappearance of genetic diversity over the long term." (Gepts, 2006)

Biodiverse agricultural landscapes in which cultivated land is interspersed with uncultivated areas such as woodlands, pastures and wetlands have been, or are being, replaced by large areas of monoculture, farmed using large quantities of external inputs such as pesticides, mineral fertilizers and fossil fuels. (FAO, 2019)

Quality Modernization Progress

Seed laws

Marketing

seeds

Access to

IPRs

Innovation/breeding Modernization

Catalogue

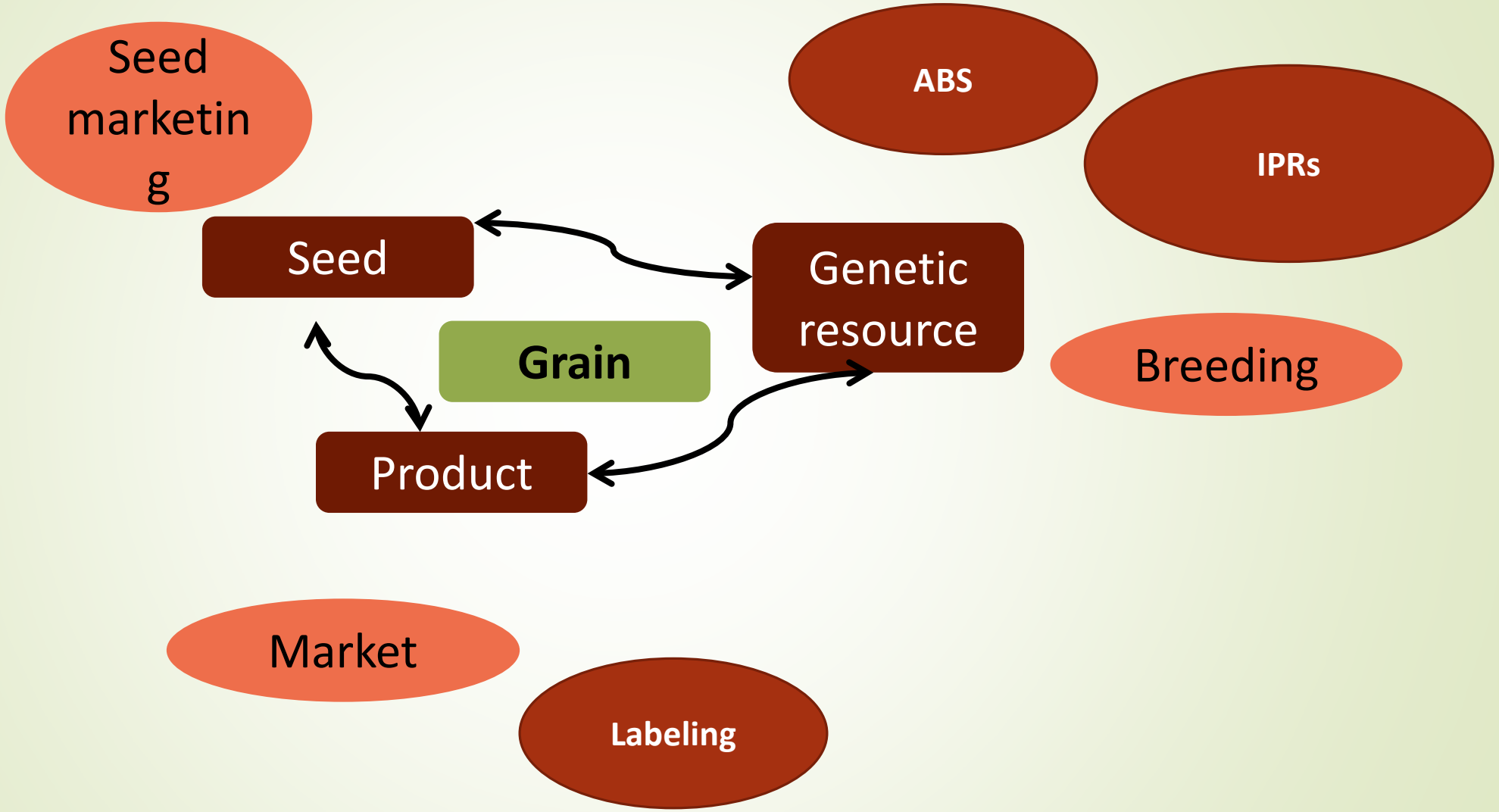
Industrialization

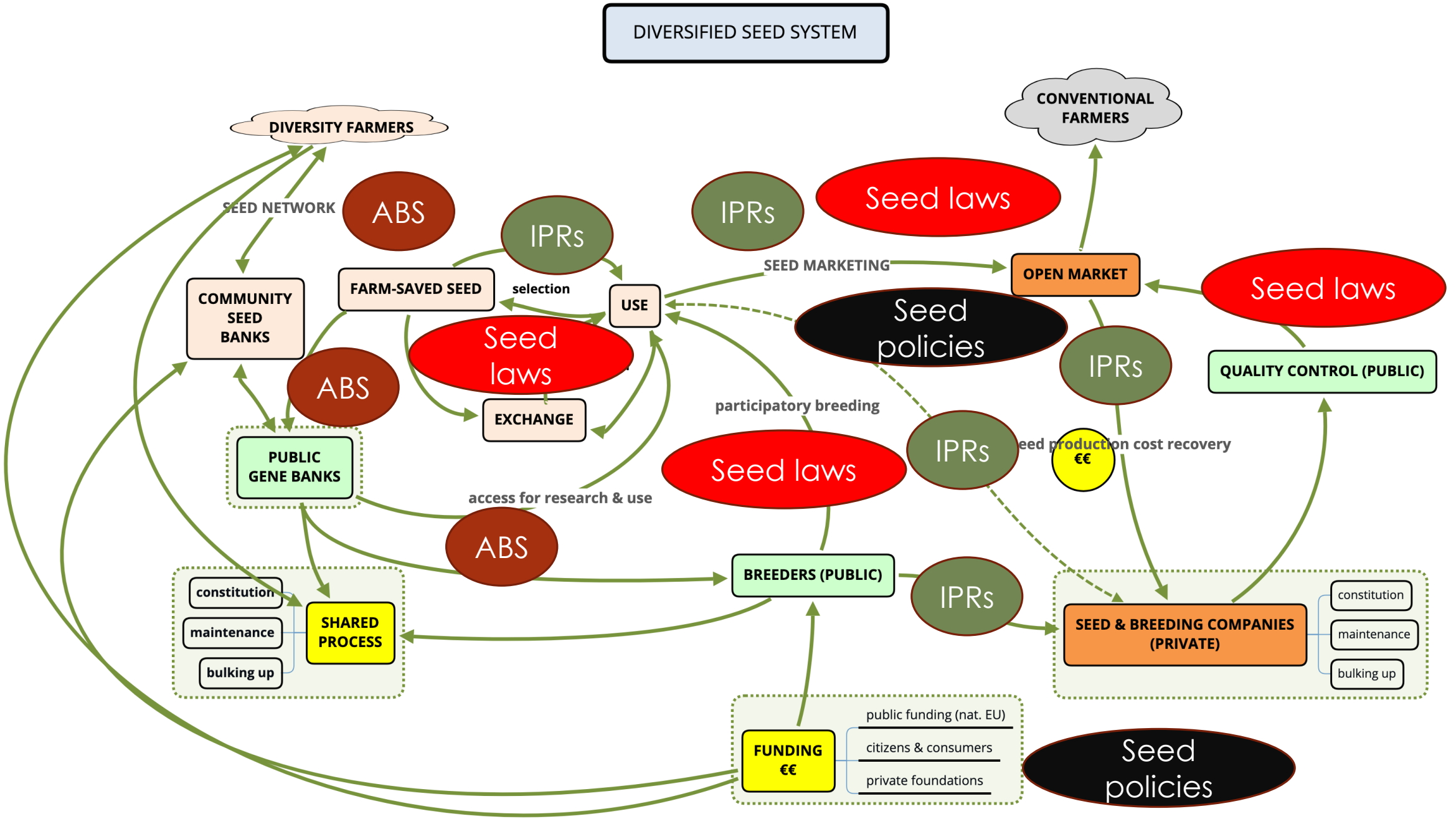
IPRs

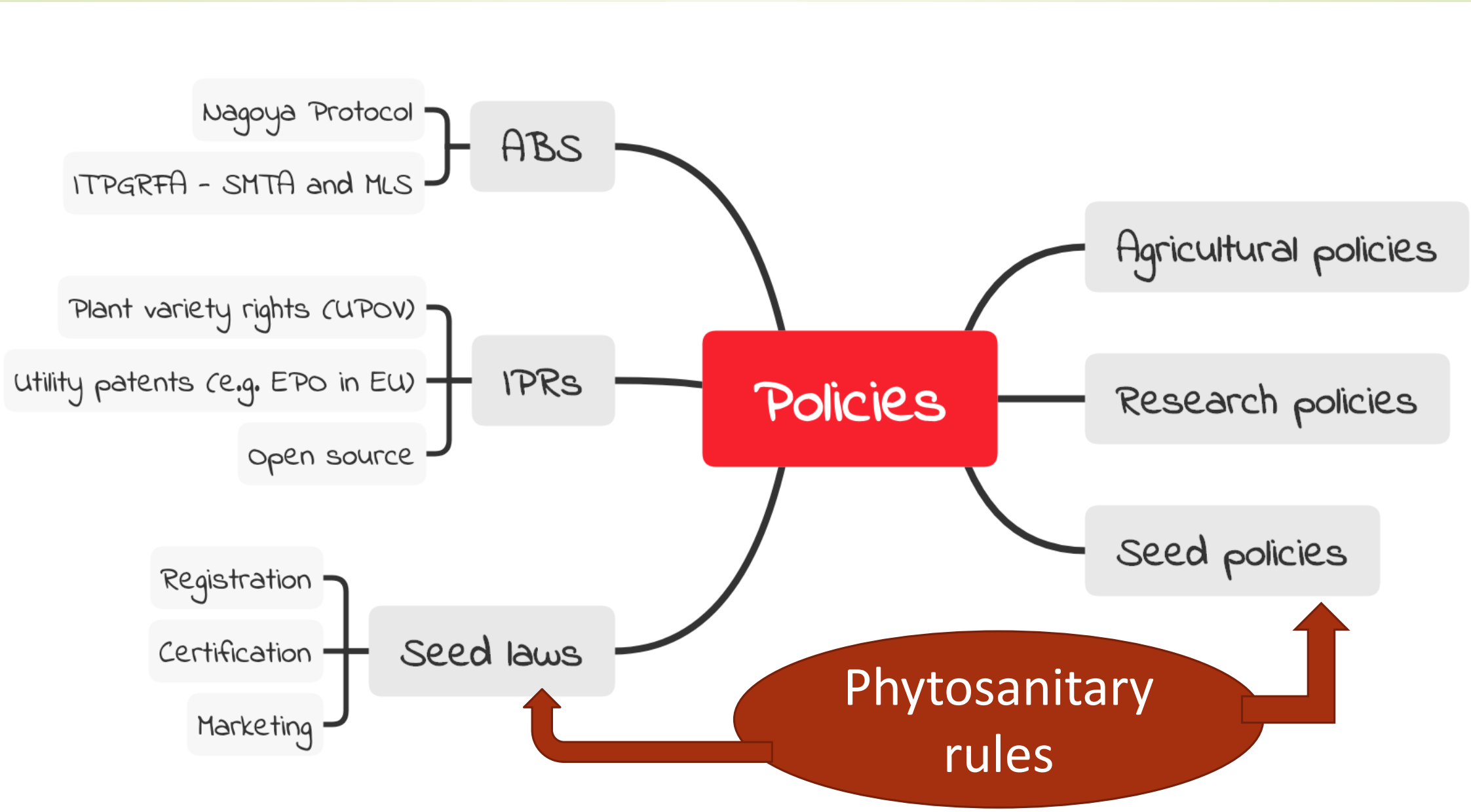
Distinction

Uniformity

Stability


Seed marketin g
ABS
IPRs
Seed
Genetic resource
Grain
Breeding
Product
Market
Labeling


DIVERSIFIED SEED SYSTEM
DIVERSITY FARMERS
CONVENTIONAL FARMERS
SEED NETWORK
ABS
IPRs
IPRs
Seed laws
SEED MARKETING
OPEN MARKET
Seed laws
COMMUNITY SEED BANKS
FARM-SAVED SEED
selection
USE
Seed policies
IPRs
QUALITY CONTROL (PUBLIC)
ABS
Seed laws
EXCHANGE
participatory breeding
PUBLIC GENE BANKS
IPRs
Seed production cost recovery
€€
Seed laws
access for research & use
ABS
BREEDERS (PUBLIC)
IPRs
constitution
maintenance
bulking up
SHARED PROCESS
SEED & BREEDING COMPANIES (PRIVATE)
constitution
maintenance
bulking up
FUNDING €€
public funding (nat. EU)
citizens & consumers
private foundations
Seed policies


Nagoya Protocol
ITPGRFA - SMTA and MLS
ABS
Plant variety rights (UPOV)
Utility patents (e.g. EPO in EU)
Open source
IPRs
Registration
Certification
Marketing
Seed laws
Policies
Agricultural policies
Research policies
Seed policies
Phytosanitary rules

reinventing farming, bringing back diversity to farming systems, creating a new system of rules adapted to these challenges

The new openings on seed marketing in Europe

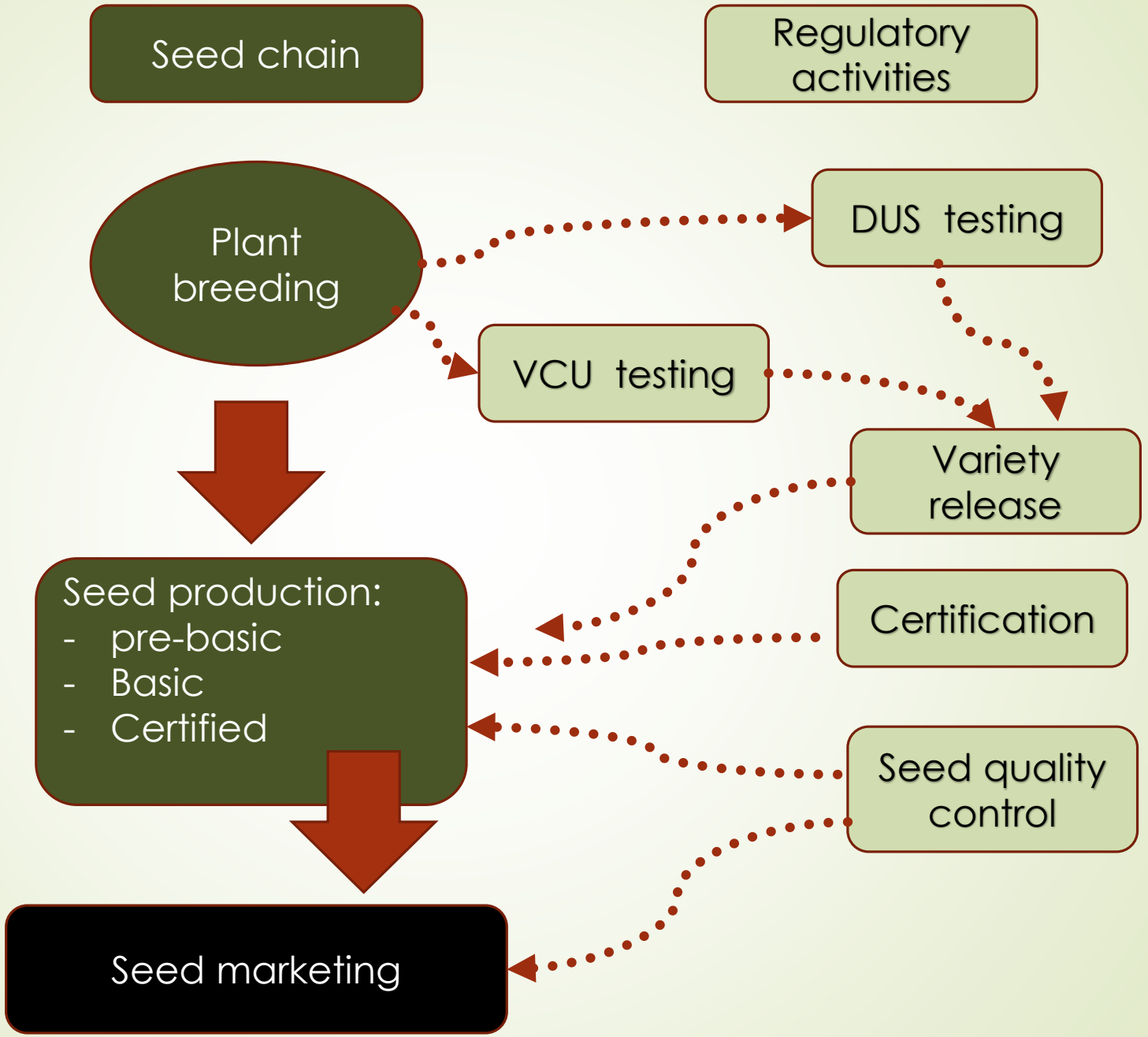
Riccardo Bocci - RSR

Why a focus on Europe?

- Europe has developed the legal framework that is now promoted and exported into other regions (e.g. seed laws, plant variety protection under UPOV);
- The process of copying and pasting EU rules by the Global South is based on the old framework developed in the ’60 - ’80 and it doesn’t consider the new developments;
- EU is a key player in bilateral trade agreements, which in many case have as a side the effect the adoption of the old EU legal framework.

UK 1869 – The Adulteration seed act –
Hungary 1895 – declaration of seed origin

Since the end of the nineteenth century, various definitions of "professional sales" have been regulated by legislation (e.g. Austria 1903).


Seed chain
Regulatory activities
Plant breeding
DUS testing
VCU testing
Variety release
Seed production:
- pre-basic
- Basic
- Certified
Certification
Seed quality control
Seed marketing

The situation in Europe

1998

2008

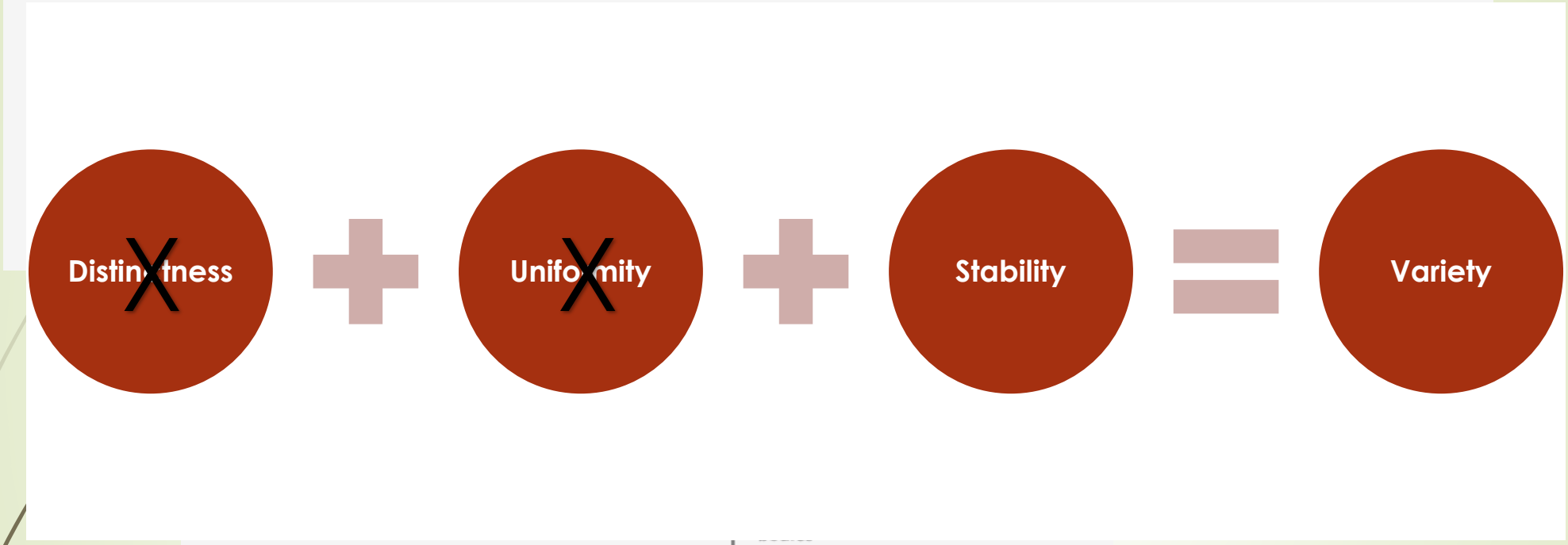
2011

2018

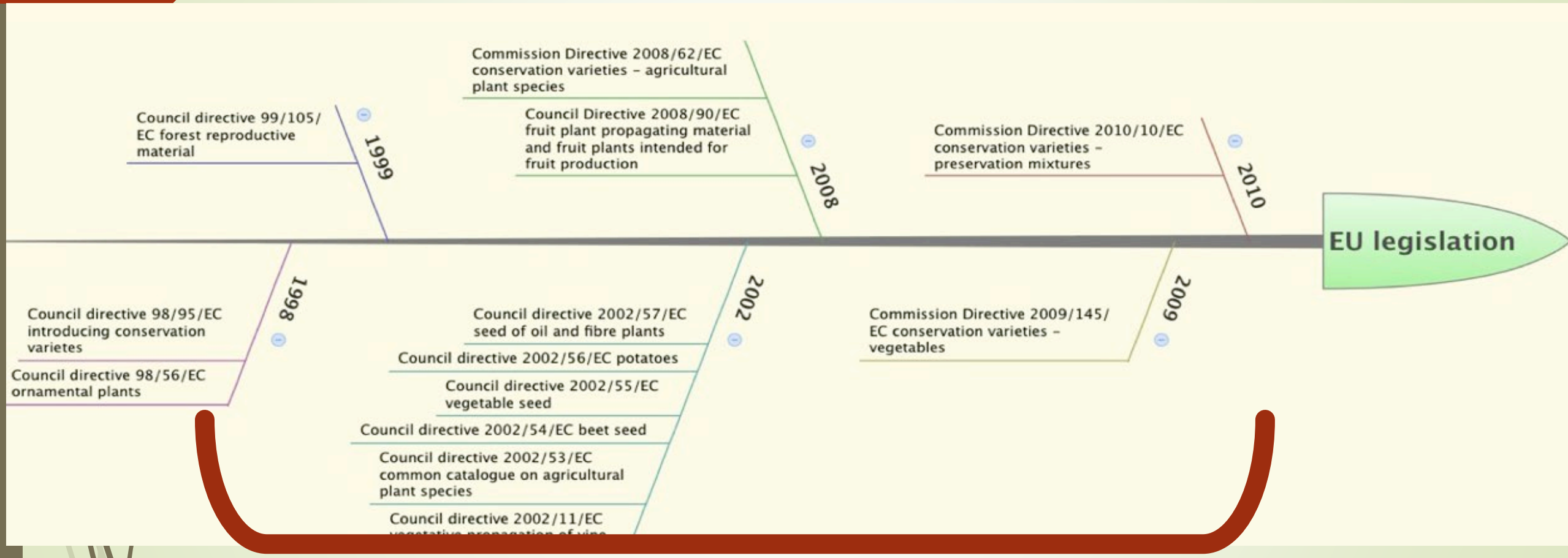
Type of S&PM

- Conventional varieties
  - DUS/VCU
  - IPRs (UPOV)
- Conservation varieties
  - Adapted DUS/ no VCU
  - No IPRs (UPOV)
- Heterogeneous material (OA)
  - No DUS/ no VCU
  - No IPRs (UPOV)

Why seed laws??



Conservation varieties in EU



12 years

Conservation varieties

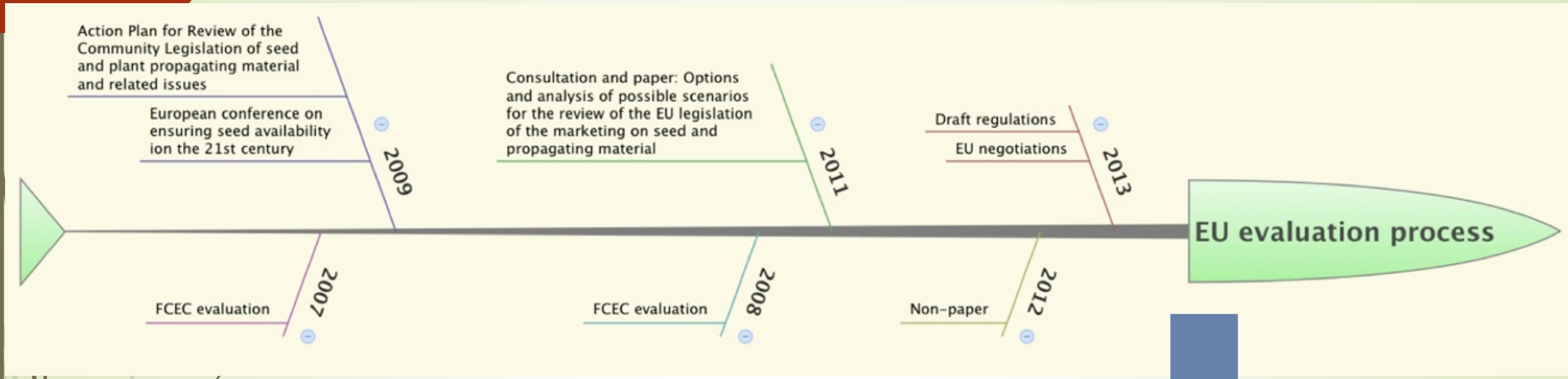
PGR Conservation  Seed legislation

The directive is an important step forward because it implicitly acknowledges that seed regulations since the 1960s have contributed to the genetic erosion of agricultural diversity and so must be amended somehow.

Key elements for conservation varieties:

- No IPRs, not listed in the EU catalogue on PVP;
- Link with territory, some history of the variety;
- Quantitative restrictions as basis for derogation;
- No VCU for agricultural species;
- Data for registration coming from non-official testing/experiments/data;
- No new varieties.

The failure of the Better regulation process



6 May 2013

Regulation proposal by the Commission

11 March 2014

The EU Parliament reject the proposal

- Food Chain Evaluation Consortium suggests “that the two different systems of the large commercial breeding companies and the smaller market or regional breeders and producers could run side by side because they are targeting completely different markets”

The proposal

Niche market varieties

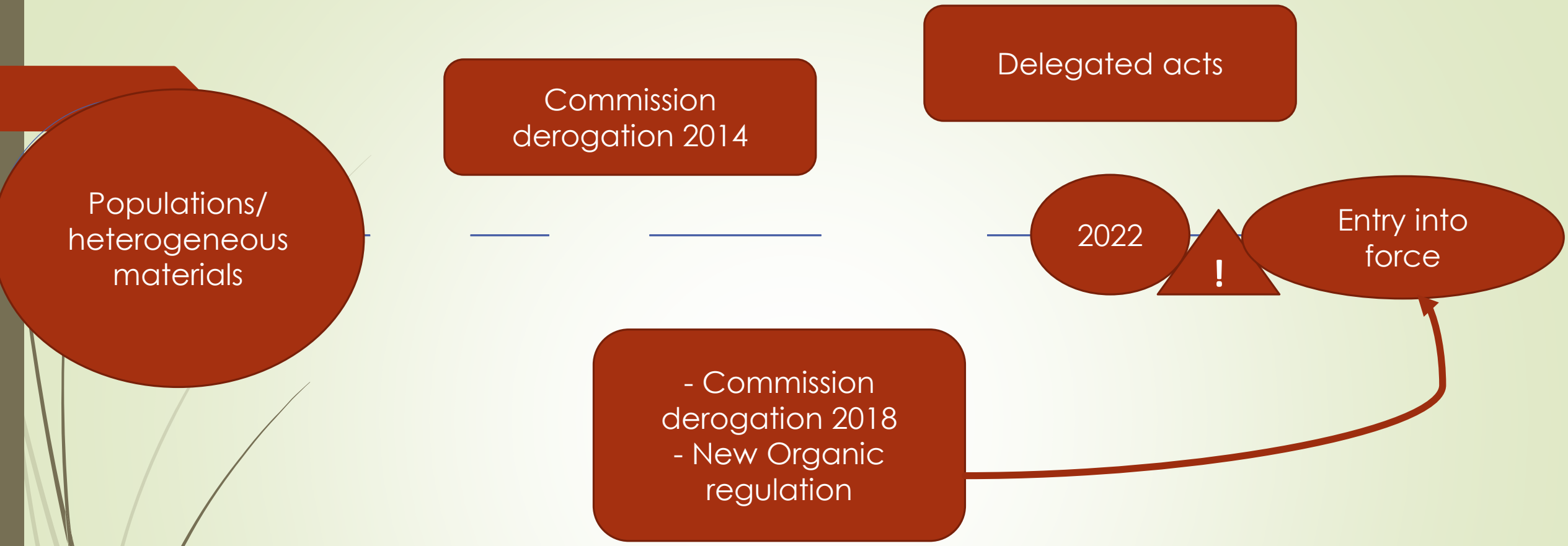
No catalogue but limited market!

Heterogeneous material

No uniformity but dedicated market!

Varieties with officially recognised description

No official testing for variety release!



Post better regulation…

Heterogeneous materials: definition

The material referred to in paragraph 1(b) may be generated by one of the following techniques:

(a) **crossing of several different types of parental material**, using crossing protocols to produce diverse organic heterogeneous material by bulking of the progeny, repeatedly re-sowing and exposing the stock to natural and/or human selection, provided that this material shows a high level of genetic diversity which is in accordance with Article 4(18) of Regulation 2018/848;

(b) **on-farm-management practices, including selection, establishing or maintaining material, which is characterized by a high level of genetic diversity** in accordance with Article 4(18) of Regulation 2018/848 and which, in particular, is not falling under the scope of Directives 2008/62/EC and 2009/145/EC;

(c) **any other technique used for breeding or production of organic heterogeneous material, taking into account particular features of propagation.**

Evolutionary Participatory Breeding: 8 years of European research projects

DIVERSIFOOD

2015 -2018

Dynamic management of agro-biodiversity

Solibam

2010 -2014

Generating new diversity

Research Questions

- How and to what extent have **populations** (CCPs, mixtures) grown in different areas of cultivation under organic conditions **evolved**?
- When an **Evolutionary Population** (EP) grown for several generations in the same location is moved to a different area, is it still able to adapt to the new environment?
- What are **farmers'** perceptions and **preferences** between EPs, local and modern varieties?

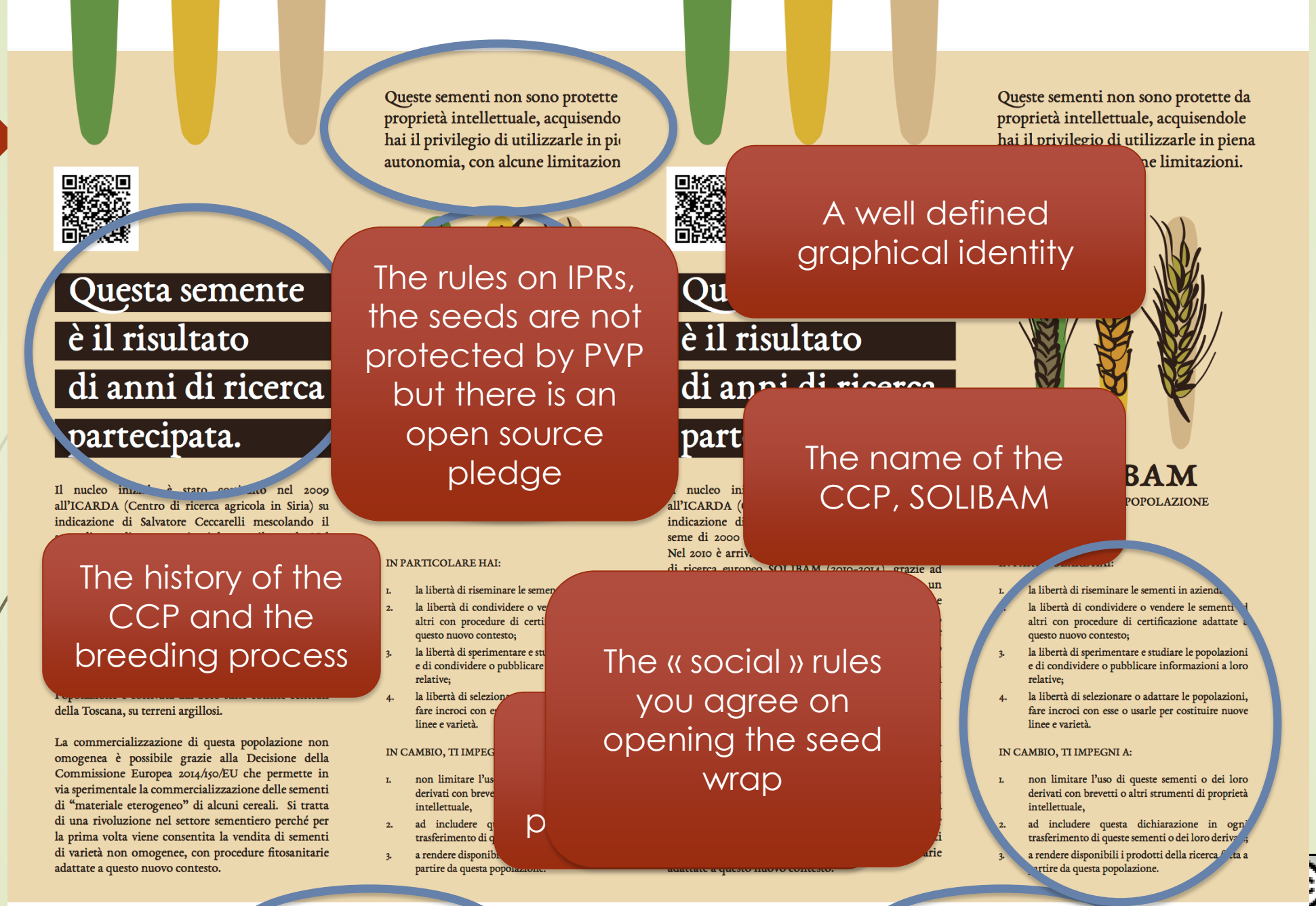
The Bread Wheat Evolutionary Population

The certified seed became commercially available in 2017 thanks to 2014/150/EU

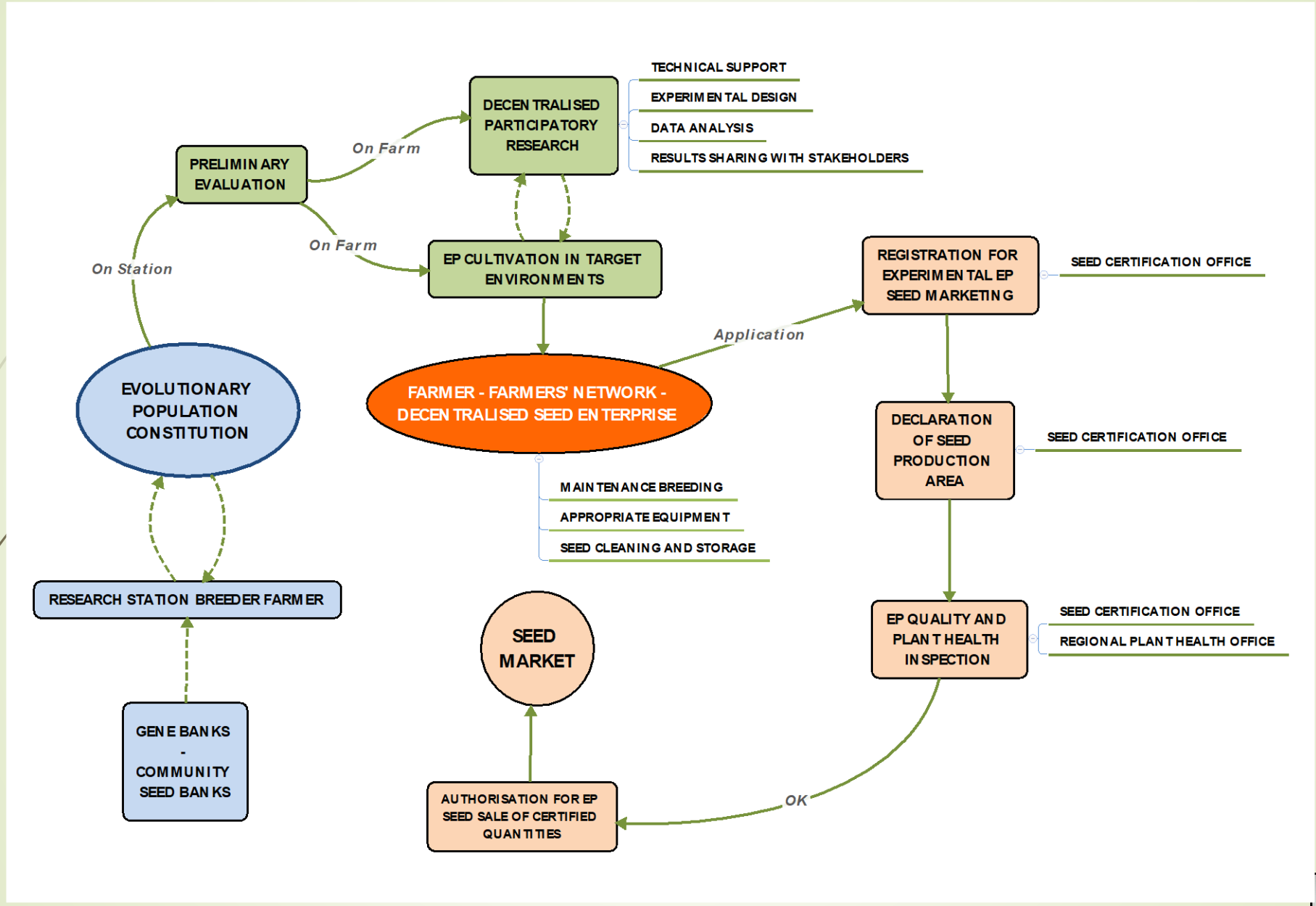
Practical outcomes of RSR's research

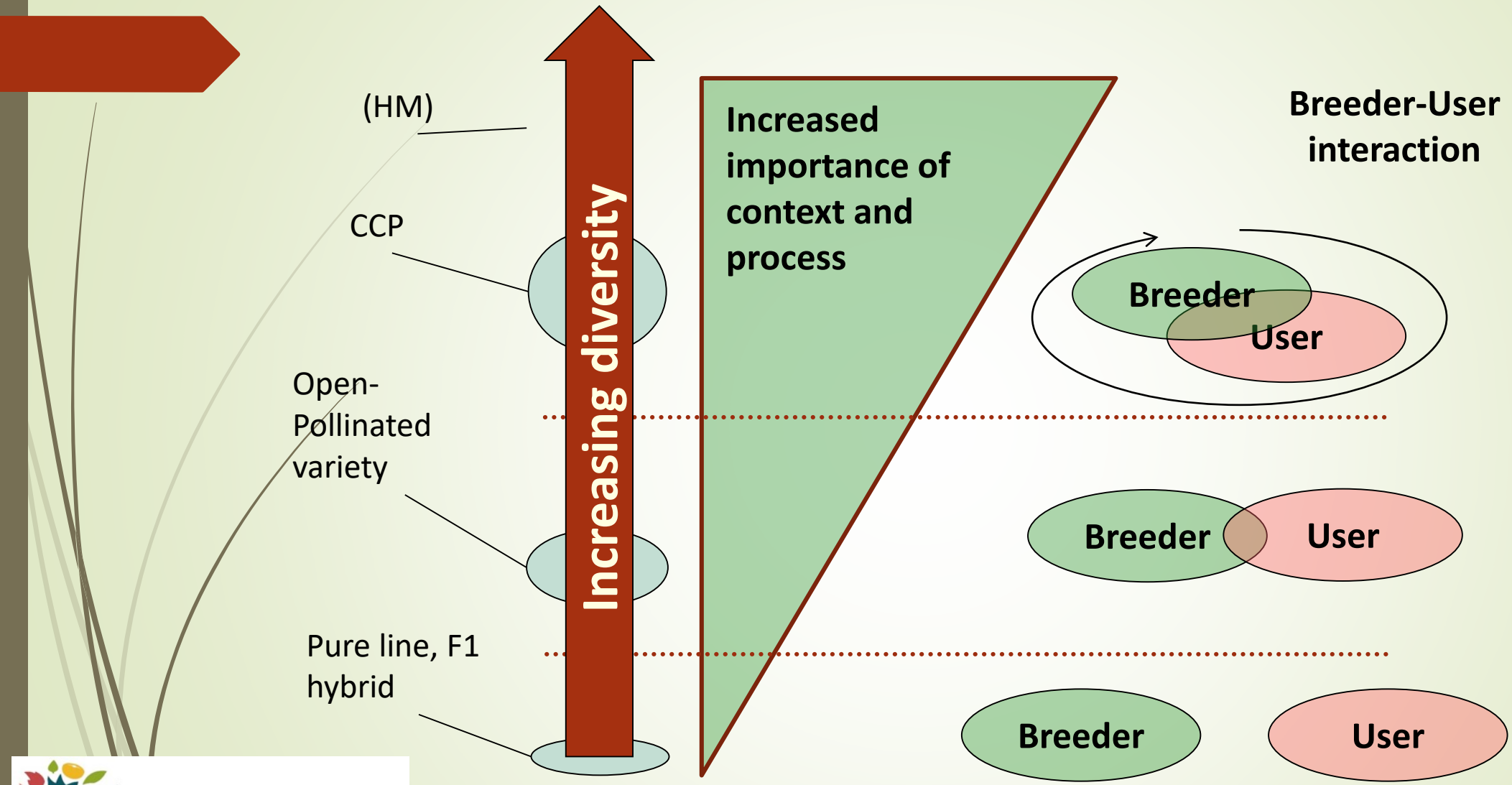
- **Farmers' involvement and empowerment**
- **OSS seed label**

- **Evolutionary Populations enter the seed market and the product value chain**


Queste sementi non sono protette
proprietà intellettuale, acquisendo
hai il privilegio di utilizzarle in pi
autonomia, con alcune limitazion
Questa semente
è il risultato
di anni di ricerca
partecipata.
Queste sementi non sono protette da
proprietà intellettuale, acquisendole
hai il privilegio di utilizzarle in piena
limitazioni.
BAM
POPOLAZIONE
della Toscana, su terreni argillosi.
La commercializzazione di questa popolazione non omogenea è possibile grazie alla Decisione della Commissione Europea 2014/150/EU che permette in via sperimentale la commercializzazione delle sementi di "materiale eterogeneo" di alcuni cereali. Si tratta di una rivoluzione nel settore sementiero perché per la prima volta viene consentita la vendita di sementi di varietà non omogenee, con procedure fitosanitarie adattate a questo nuovo contesto.
IN PARTICOLARE HAI:
1. la libertà di riseminare le semen
2. la libertà di condividere o ve
altri con procedure di certi
questo nuovo contesto;
3. la libertà di sperimentare e stu
e di condividere o pubblicare
relative;
4. la libertà di selezion
fare incroci con e
linee e varietà.
IN CAMBIO, TI IMPEG
1. non limitare l'us
derivati con breve
intellettuale,
2. ad includere q
trasferimento di q
3. a rendere disponibi
partire da questa popolazione.
1. la libertà di riseminare le sementi in azienda;
2. la libertà di condividere o vendere le sementi ad altri con procedure di certificazione adattate a questo nuovo contesto;
3. la libertà di sperimentare e studiare le popolazioni e di condividere o pubblicare informazioni a loro relative;
4. la libertà di selezionare o adattare le popolazioni, fare incroci con esse o usarle per costituire nuove linee e varietà.
IN CAMBIO, TI IMPEGNI A:
1. non limitare l'uso di queste sementi o dei loro derivati con brevetti o altri strumenti di proprietà intellettuale,
2. ad includere questa dichiarazione in ogni trasferimento di queste sementi o dei loro derivati;
3. a rendere disponibili i prodotti della ricerca fatta a partire da questa popolazione.
SOLIBAM TENERO FLORIDDIA POPOLAZIONE
SOLIBAM TENERO LI ROSI POPOLAZIONE
The rules on IPRs, the seeds are not protected by PVP but there is an open source pledge
A well defined graphical identity
The name of the CCP, SOLIBAM
The history of the CCP and the breeding process
The « social » rules you agree on opening the seed wrap

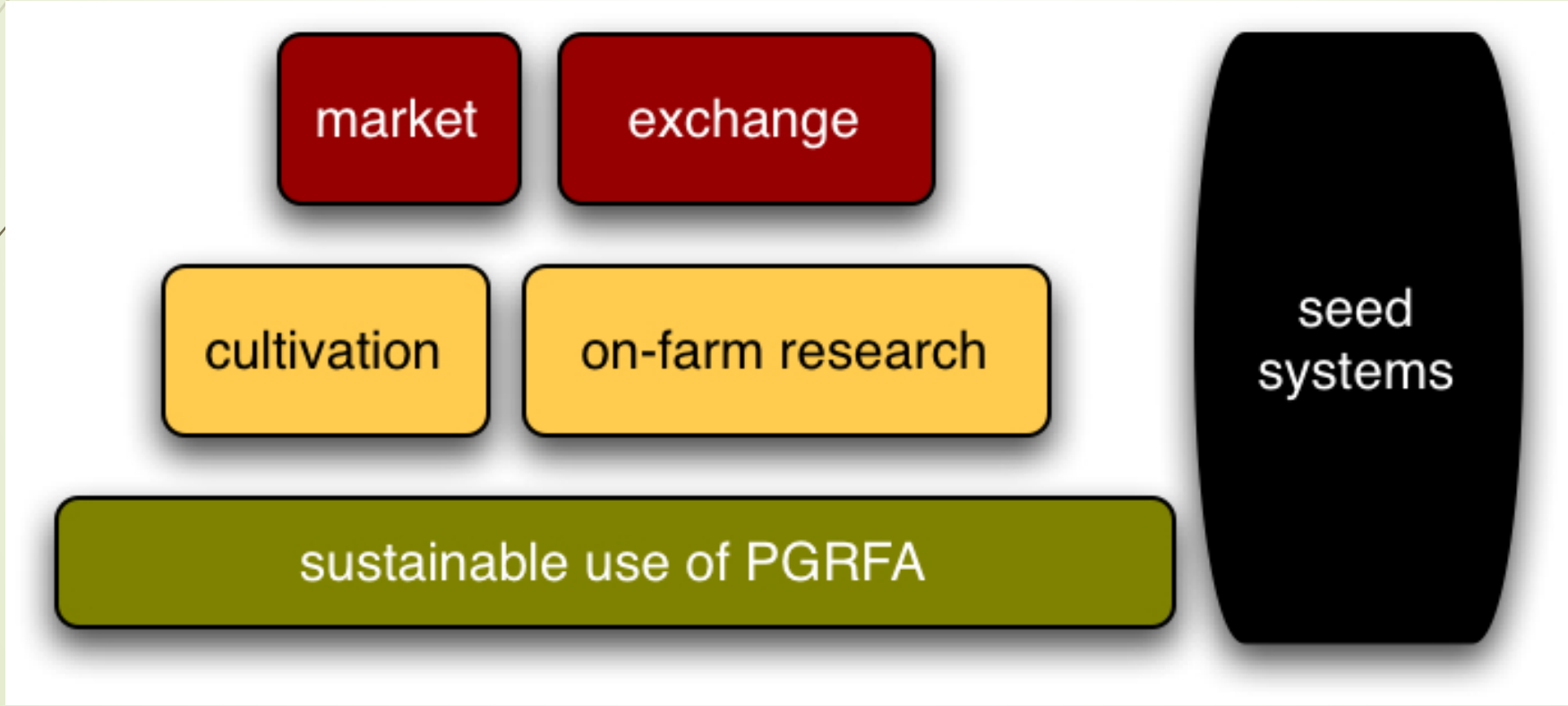
From seed to flour..


PRELIMINARY EVALUATION
On Farm
DECENTRALISED PARTICIPATORY RESEARCH
TECHNICAL SUPPORT
EXPERIMENTAL DESIGN
DATA ANALYSIS
RESULTS SHARING WITH STAKEHOLDERS
On Farm
On Station
EP CULTIVATION IN TARGET ENVIRONMENTS
REGISTRATION FOR EXPERIMENTAL EP SEED MARKETING
SEED CERTIFICATION OFFICE
Application
EVOLUTIONARY POPULATION CONSTITUTION
FARMER - FARMERS' NETWORK - DECENTRALISED SEED ENTERPRISE
DECLARATION OF SEED PRODUCTION AREA
SEED CERTIFICATION OFFICE
MAINTENANCE BREEDING
APPROPRIATE EQUIPMENT
SEED CLEANING AND STORAGE
RESEARCH STATION BREEDER FARMER
SEED MARKET
EP QUALITY AND PLANT HEALTH INSPECTION
SEED CERTIFICATION OFFICE
REGIONAL PLANT HEALTH OFFICE
GENE BANKS - COMMUNITY SEED BANKS
AUTHORISATION FOR EP SEED SALE OF CERTIFIED QUANTITIES
OK

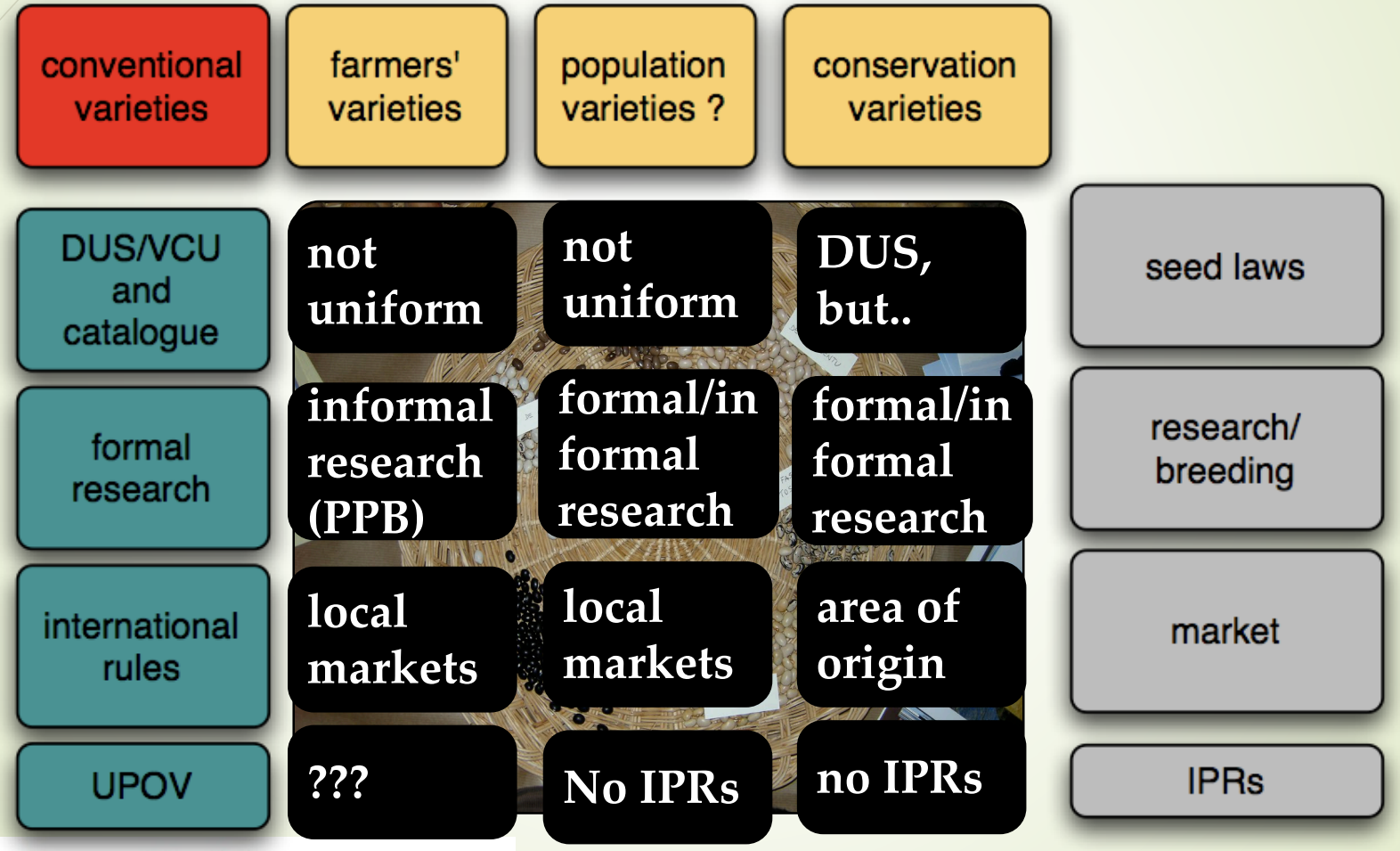

(HM)
CCP
Open-
Pollinated
variety
Pure line, F1
hybrid
Increasing diversity
Increased
importance of
context and
process
Breeder-User
interaction
Breeder
User
Breeder
User
Breeder
User

Ideas for the future …

A new approach is needed



different varieties for different markets with different innovation systems



FarmSeedOpportunities

The keywords of the new seed systems

- decentralized
- Farmer-oriented

A new role for farmer in breeding and innovation

Participatory plant breeding

Sustainable use of PGRFA

Ideas for discussion…

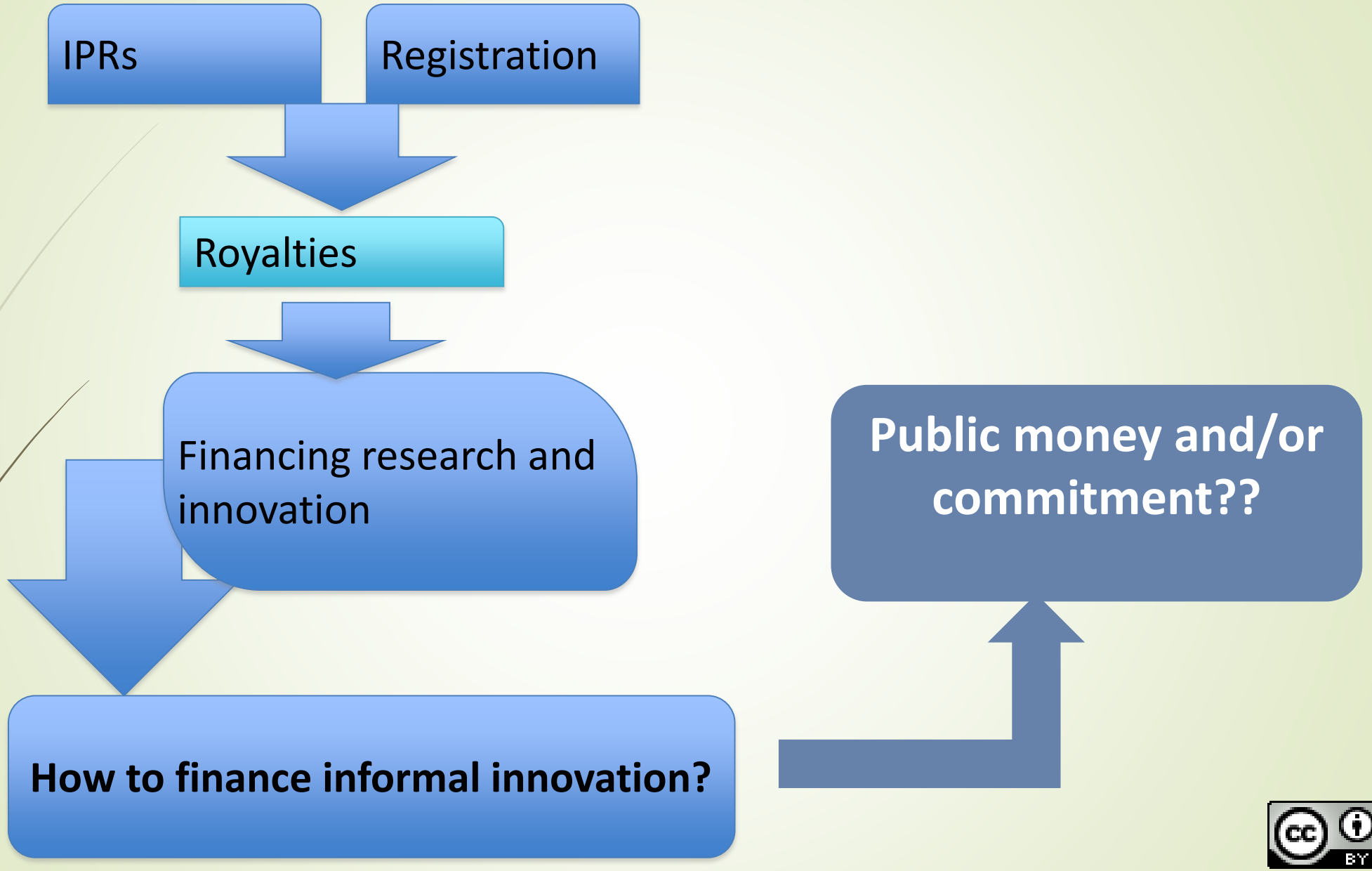
Finding a right balance between formal and informal seed systems should be one of the objectives. Such a strategy will also concretely address the implementation of the article 6 on sustainable use of PGR of the ITPGRFA and article 9 on FRs. Article 6 is mandatory for Contracting Parties and is addressing to all the crops and not only to these listed in annex I, as for example in the case of the Multilateral System.

Key elements:

- From property to protection and recognition,
- From individual to collective rights,
- From official catalogue to the register of farmers' varieties,
- From DUS criteria to identifiability.

Possible measures for implementing FRs

- Recognition of the role of farmers in breeding and maintaining diversity in the field;
- Review the concept of essentially derived varieties within the framework of the UPOV;
- Strengthen farmers' privilege and breeders' exemption in PVR legislations;
- Shift public policies from conservation to agricultural biodiversity management.


IPRs
Registration
Royalties
Financing research and innovation
How to finance informal innovation?
Public money and/or commitment??

Lessons learnt...

1. Seed marketing is not the only possibility;
2. Participatory, decentralised and multi-actors innovation/breeding;
3. Need to have a common vision shared by the actors;
4. Need a legal pluralistic framework;
5. Need of new professionalisms (e.g. *free actors/innovation brokers)*.

Weaknesses..

1. Different languages, values and visions on confrontation;
2. Social processes are fragile and time consuming;
3. Innovation is still consider only from a technological point of view;
4. Transfer of technology narrative.

Some further readings

- N. Louwaars, Seeds of confusion, PhD Dissertation, 2007.
- N. Louwaars, Plant breeding and diversity : A troubled relationship ?, Euphytica, 2018.
- N. Louwaars, W.S. de Boef, Integrated Seed Sector Development in Africa: A Conceptual Framework for Creating Coherence Between Practices, Programs, and Policies, Journal of Crop Improvement, 2012.
- C. Fowler, P. Mooney, Shattering: Food, Politics, and the Loss of Genetic Diversity, 1990
- C. Fowler, Unnatural Selection: Technology, Politics, and Plant Evolution, 1994
- https://osseeds.org - USA