

DEBATE

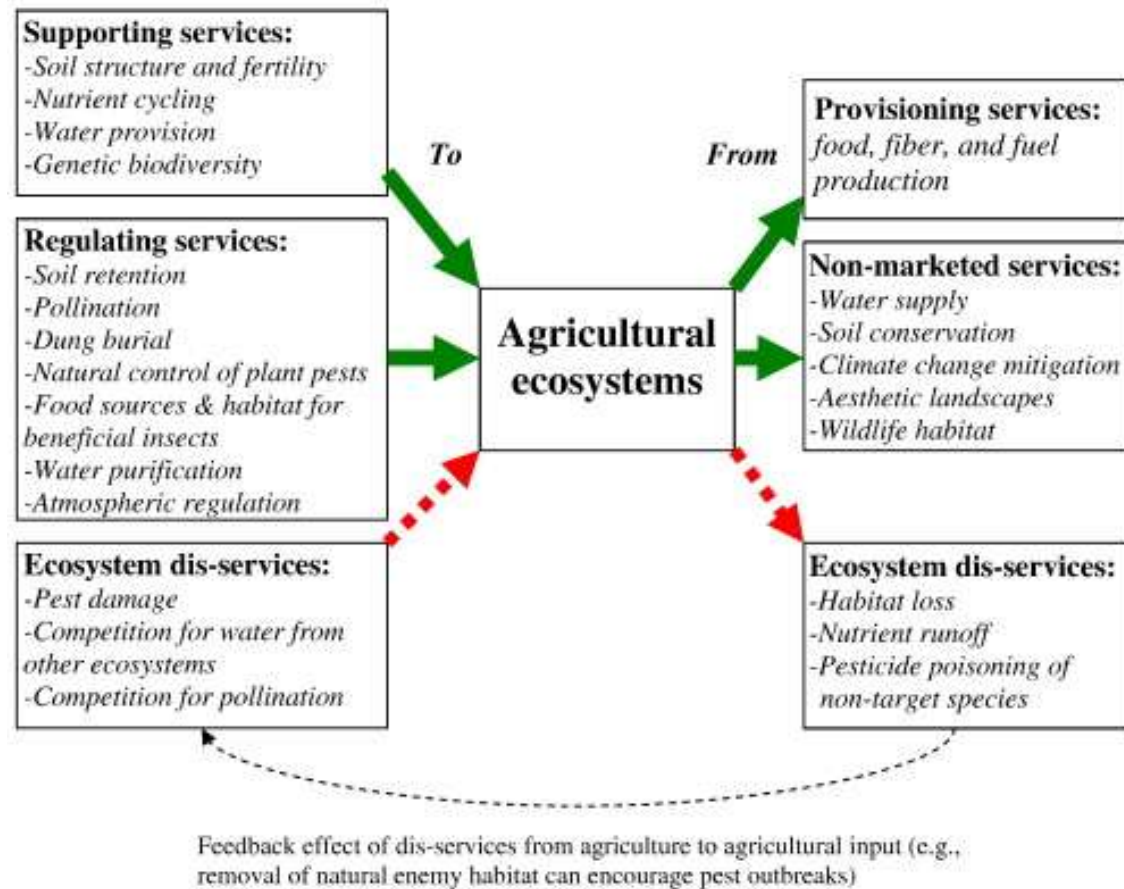
Which criteria to evaluate value of accessions for ecosystem ?

ECPGR meeting 7.05.2013

Duc G. , Millot D.

UMR 1347 Agroécologie, INRA, Dijon, France

Ecosystem services and dis-services to and from agriculture.
Solid arrows indicate services, whereas dashed arrows indicate dis-services
Zhang et al. 2007.



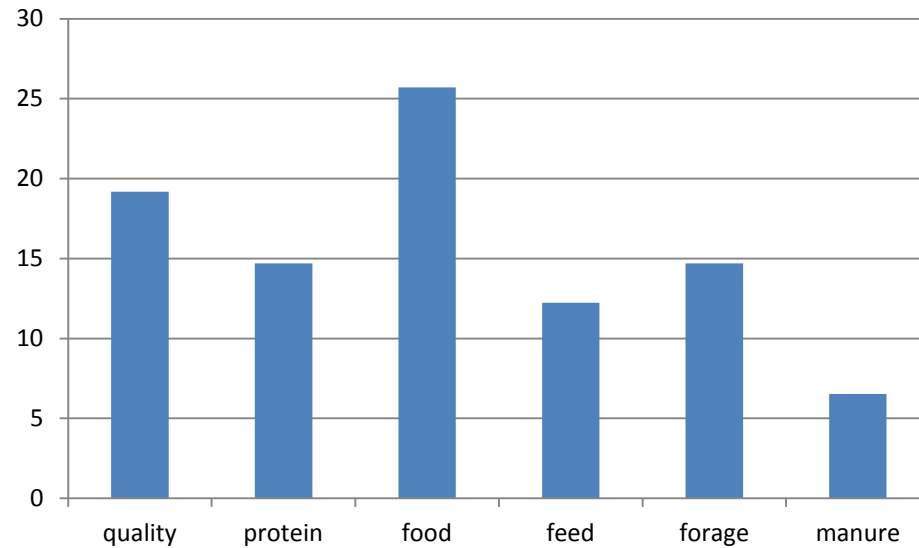
Bibliometry on the role of annual legume cultivars in ecosystem services :
 very few papers !

1975-2012
 Annual legumes
 37000 papers



1975-2012
 Ecosystem services x
 variety/breeding
 250 papers

% of papers about uses



Traits:

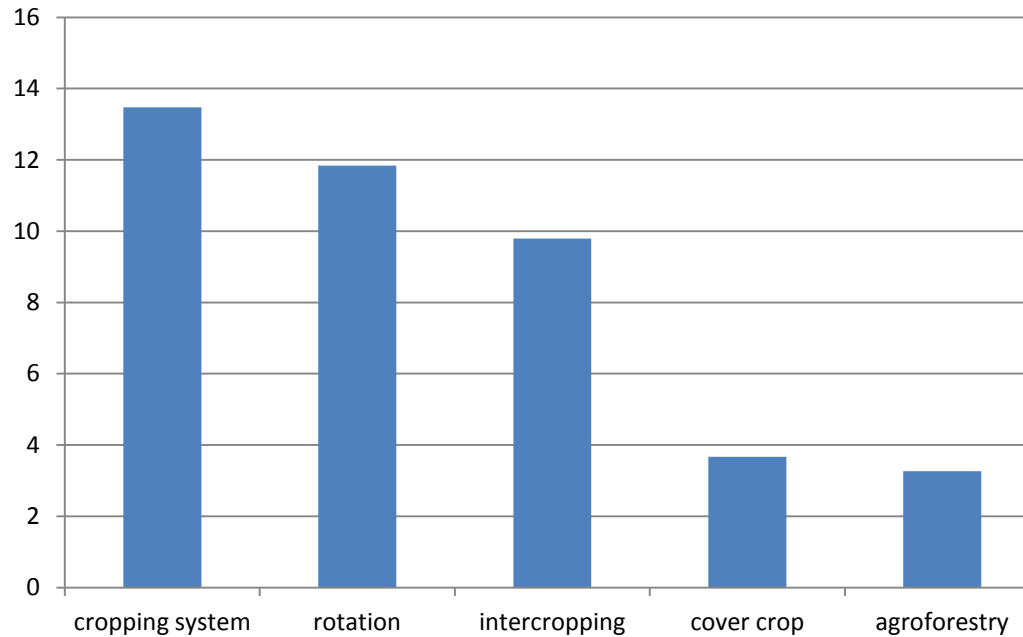
Protein content

Antinutritional factors

Bioactive components

Seed size, colours

% of papers about cropping systems



Traits:

Architecture

Phenology

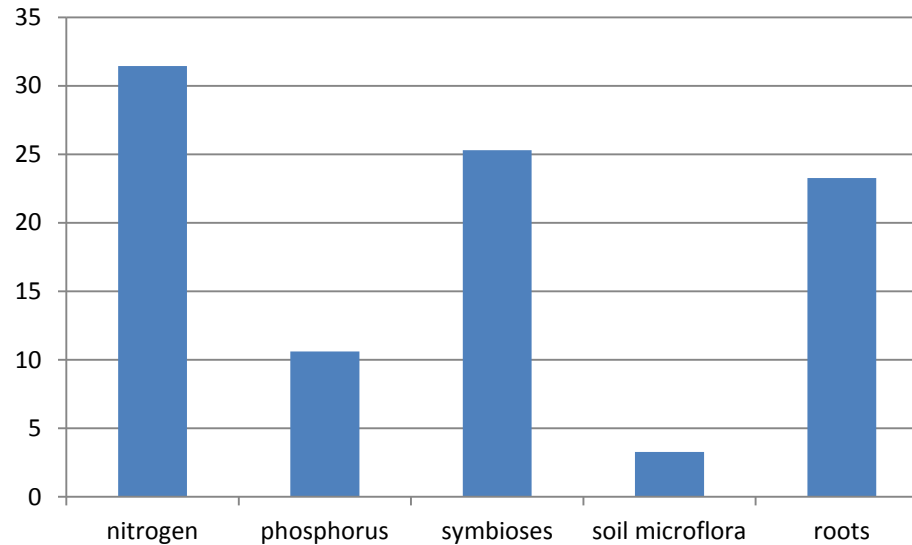
Earliness

Heat, drought, cold, freezing tolerance

Effect in rotation or in intercropping

Competing ability

% of papers about resource acquisition



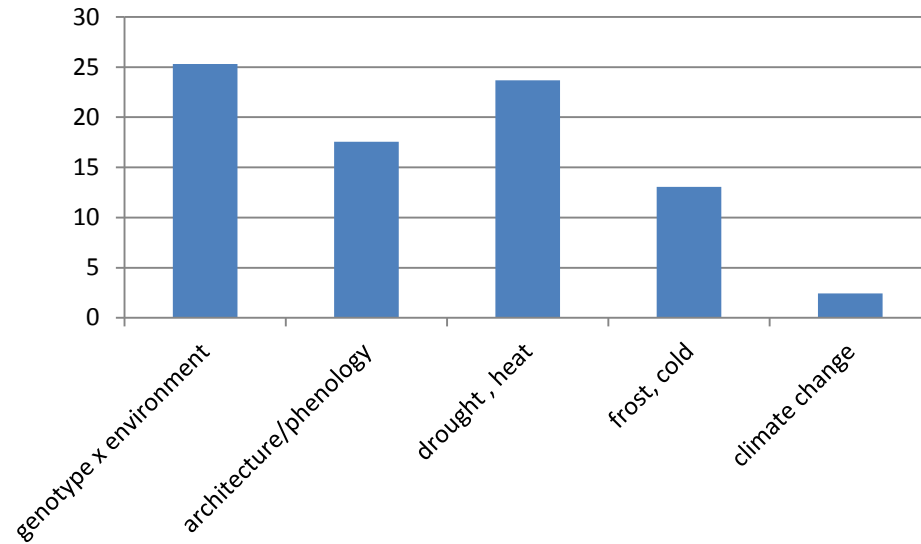
Traits:

Specificity of symbiotic associations (rhizobia, mycorrhiza)

N contents in seed and residues

N₂ fixation (evaluation of GR without N fertilization)

% of papers about adaptation to environment



Traits:

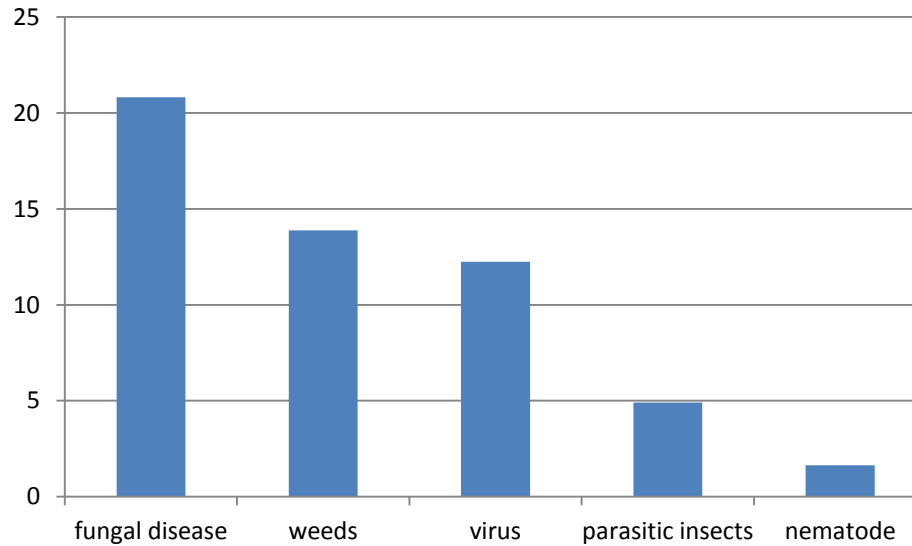
Phenology

Earliness

Heat, drought, cold, freezing tolerance

GxE interactions

% of papers about biotic stresses



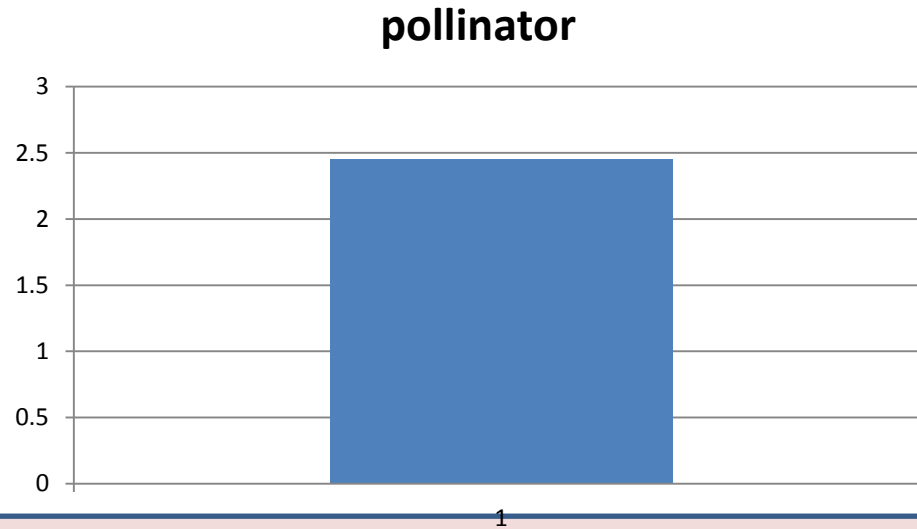
Traits:

Resistance

Escape (earliness-phenology, architecture)

Push-pull capacity

% of papers about pollinator/pollination



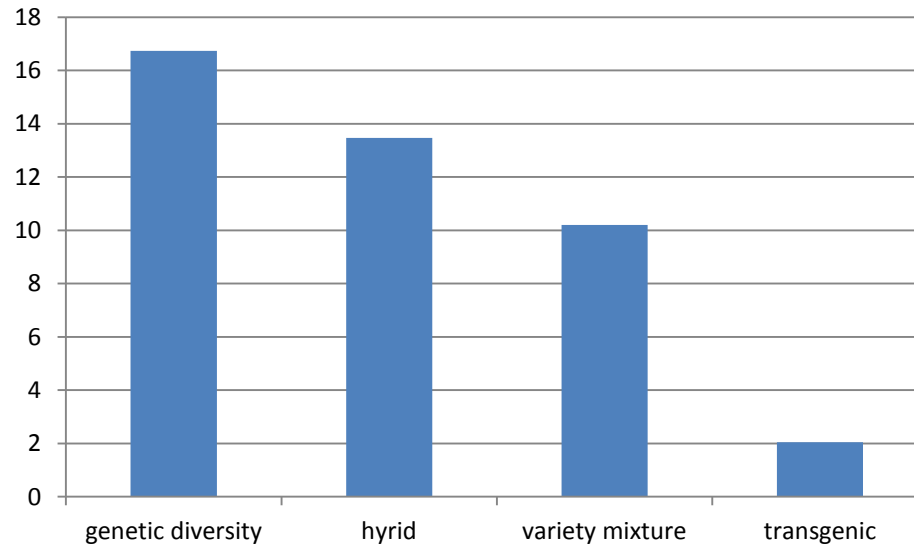
Traits:

Nectar, pollen

Flower colour

Insect species visiting

% of papers about variety types

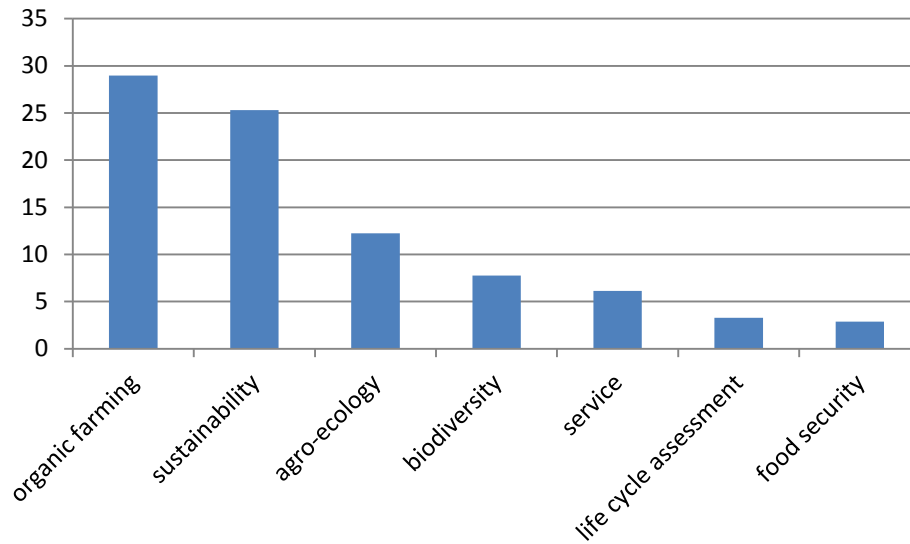


Traits:

variety type

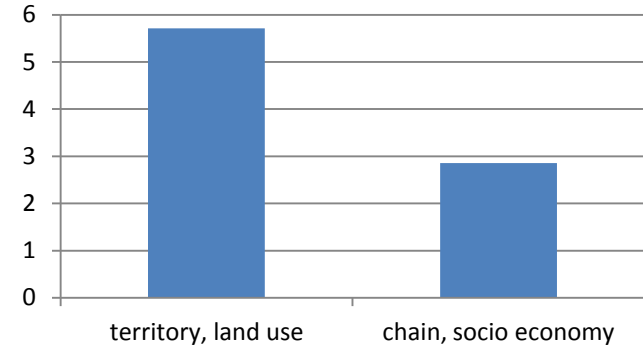
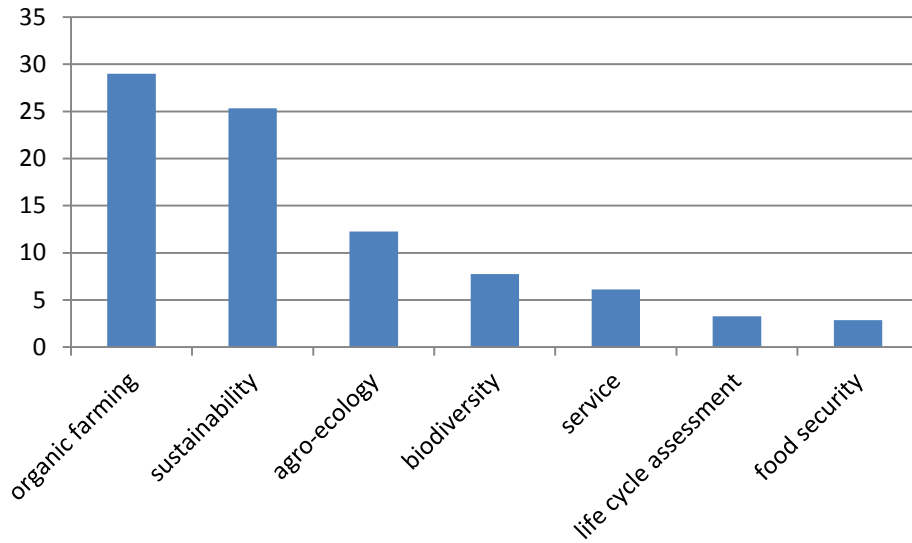
Intra accession variability

% of papers about eco-systems targets



Traits: ?

% of papers about eco-systems targets



Traits: ?

Questions:

Which targeted zones and cropping systems ?

Which important criteria (modeling assisted) ?

Which phenotyping tool ?

Joint reference genotypes to characterize environments?

Exploit GxE interactions

Identifying phenotyping platforms ?

Etc.

Proposal of a dedicated expert meeting on « criteria for ecosystem services »

With our difficulty of numerous species for different uses (grain, forage, services):

proposal of changing the name of our working group

From seed legume to annual legumes ?

Thank you