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CIHEAM

Operational framework to characterize the diversity and the efficiency of farming systems in dryland areas : the case of Saïs, Morocco

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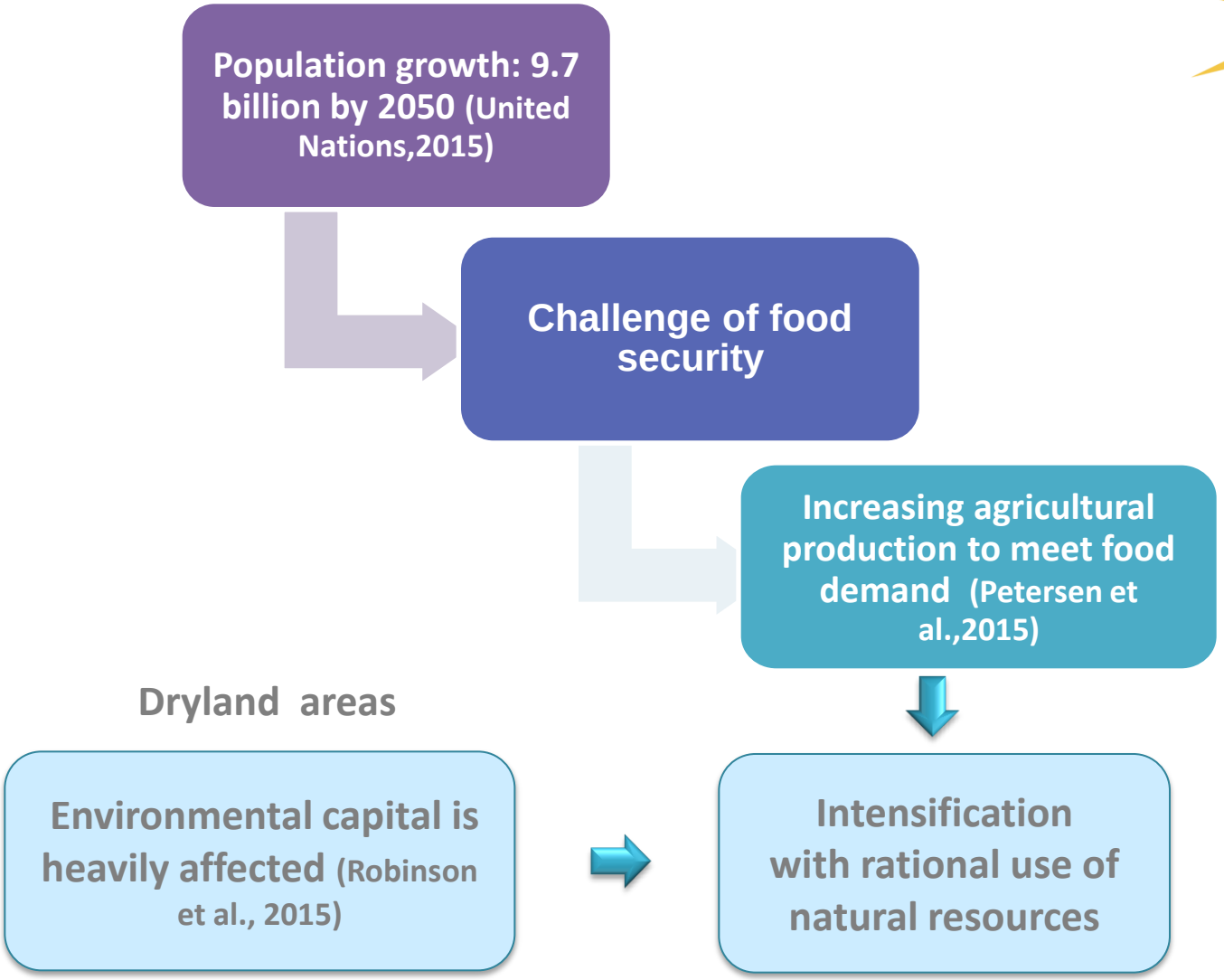

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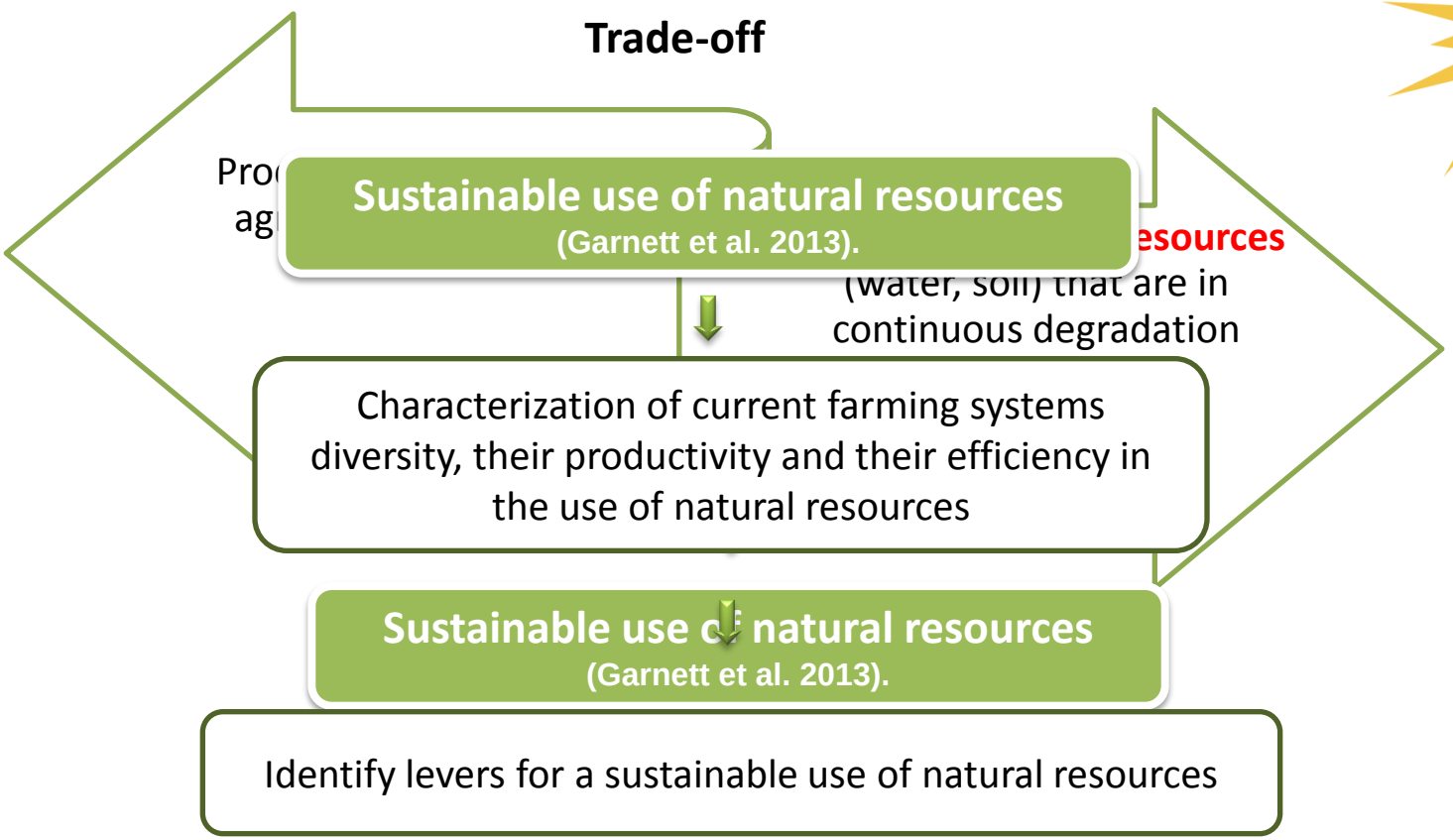

Operational framework to characterize the diversity and the efficiency of farming systems in dryland areas : the case of Saïs, Morocco

Materials and Method

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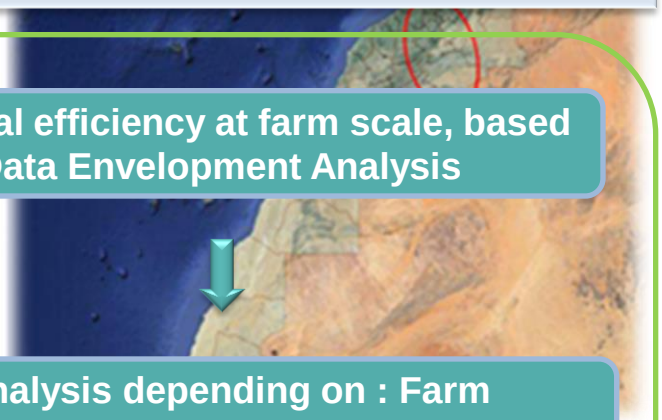
- ✓ The
- ✓ known for the richness and diversity of its agriculture;
- ✓ Da… the 201… cro…
- ✓ The… ley, faba bean, chickpea, onion and potat…

Step 1: Characterization of farming systems based on farm clustering

Data collection for farm household composed of three components : structural, economic, and consumption data

Farm typology based on clustering analysis : Principal Component Analysis (PCA) & Hierarchical Ascendant Classification (HAC)

Step 2: Cross analysis based on farm efficiency analysis



Technical efficiency at farm scale, based on the Data Envelopment Analysis

Cross analysis depending on : Farm income inputs, energy, total inputs cost

Results and discussion

Step 1: Characterization of farming systems based on farm clustering

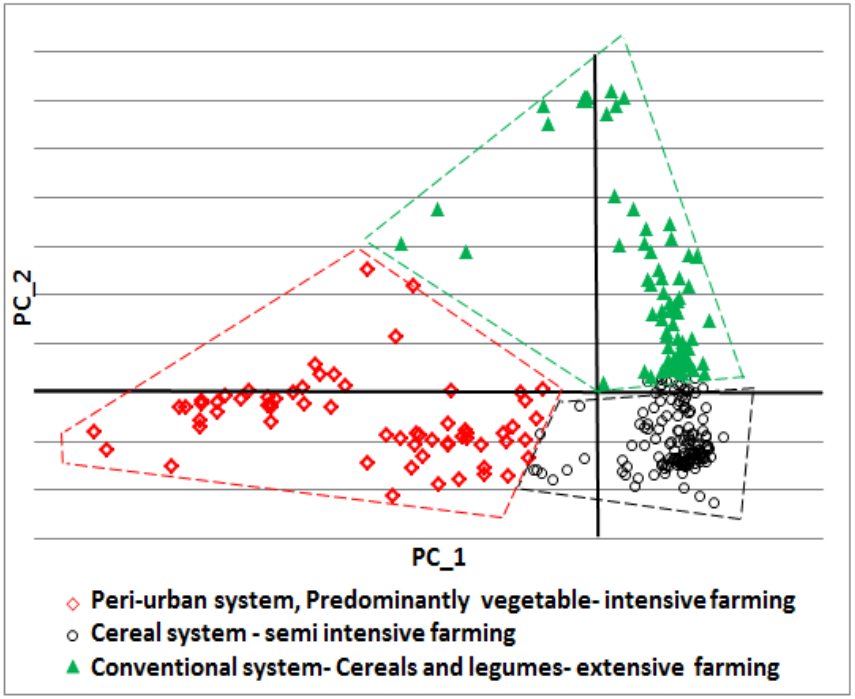


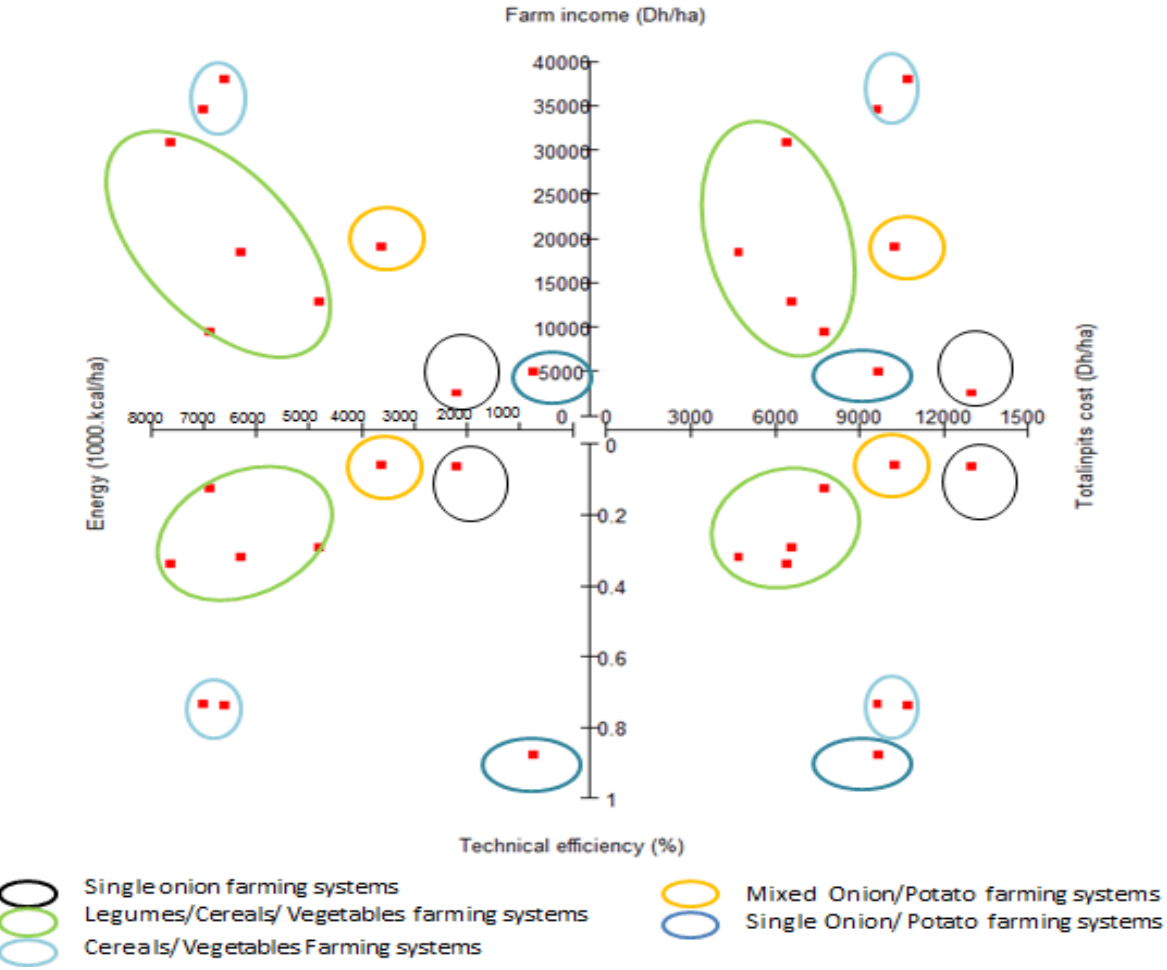
Fig.1: Distribution of farms surveyed (n = 287) by classes of farms as a function of PC1 and PC2.

Table 1: Typical Farms according to the typology criteria, based on the clustering analysis

Class-typology	Quantity-Nitrogen (kg/ha)	Quantity-irrigation water (m3/ha)	Farm income (dh/ha)	Labor (person-day/ha)	Total Mechanic labor (dh/ha)	Technical orientation _Cereals (%)	Technical orientation _Legumes (%)	Technical orientation _Vegetables (%)	Off Farm income (dh)
Peri-urban system, predominantly vegetable-intensive farming	142.89	583.94	19985	56	671	11	2	87	3697
Cereal system - semi intensive farming	83.36	41.44	7379	15	768	95	2	3	3628
Conventional system- Cereals &legumes- extensive farming	60.96	6.93	6492	11	585	47	56	1	2458

Results and discussion

Step 2: Cross analysis based on farm efficiency analysis



- **Mixed cereals/ vegetables farming systems:** the most efficient in term of farm income, inputs use, and energy;

- **Single vegetables farming systems**: the least efficient and performing systems;

- **Mixed cereals/legumes/ vegetables farming systems**: the intermediate systems which can improve efficiencies and farm income.

Fig.2: Cross analysis of farming systems, based on farm efficiency analysis- Peri-urban system, Predominantly vegetable- intensive farming

Thank you for your attention