**Appendix 1.** Land management practices methods and results

## ETHNO-TECHNICAL SURVEY ON FARMERS' LAND-MANAGEMENT PRACTICES

Interviews took place in farmers' house. They lasted between 1 and 3 hours. Maps showing the respondent's plots in the landscape were created from the CAP land unit data base and printed beforehand. They were used during the interview as a facilitator in the discussion about land management practices. The following topics were addressed:

(1) General information : legal status, condition when setting-up, education, number of workers, cooperation with other farmers and agricultural advisers;
(2) Main productions and side-productions (product transformation and hosting on the farm) and recent history of changes in productions;
(3) Land management at the farm level: UAA, irrigation and drainage systems, sloppy areas, soil type, far-off lands management, wooded areas ;
(4) Crops and grasslands management : type, number, areas, crop rotations as well as history of changes and choices rationale ;
(5) Livestock systems management : type of production , size, variety, animal husbandry, type of feed ;
(6) Land management at the plot level: type of tillage, fertilization (mineral and organic), use of plant health products (including information on expenditures) ;
(7) Field borders management: frequency, type of management, planting and removal, rationale of choice and type of subsidies received (if applicable) ;
(8) CAP subsidies and participation to Agri-Environmental Scheme;
(9) Future project for the farmer and the farm.

Besides, the density of hedges and slopes (>30%) amongst each farmer's lands was evaluated through a GIS by FC.

## TYPOLOGY METHODS

Groups were identified using a partition of the dendrogram from the AHC (Agglomerative Hierarchical Clustering). We observed high levels of inter-individual heterogeneity in farmers' practices, both for crop management and semi-natural areas management. As a result, we selected three groups for each typology to maximize both intra-group homogeneity and inter-group dissimilarities (Köbrich et al. 2003).

Details of the multivariate analysis outputs for each typology (crop and semi-natural areas management) are provided below.

### Typology 1: Crop management practices

We selected 4 axes that represented 69% of the total inertia.

**Table A1.1 Contribution of the indicators used for Typology 1 on the 4 axes (see Table 1 in the main text for the meaning of indicators' codes)**

| INDICATORS | AXE 1 | AXE 2 | AXE 3 | AXE 4 |
|---|---|---|---|---|
| SIZE | 92 | 87 | 2197 | 734 |
| CROPDIV | 8 | 2378 | 74 | 88 |
| SDI | 148 | 1283 | 764 | 2318 |
| ROT_L | 844 | 1566 | 2 | 597 |
| ROT_nb | 195 | 491 | 1630 | 123 |
| ANNU | 2485 | 12 | 323 | 274 |
| SHALL | 14 | 1189 | 626 | 1206 |
| NO T | 4 | 340 | 179 | 345 |
| ORGAF | 1565 | 65 | 127 | 835 |
| NFW | 751 | 81 | 590 | 2808 |
| NFG | 23 | 42 | 2874 | 19 |
| PHYTO | 2129 | 359 | 291 | 35 |
| SYST | 344 | 1102 | 10 | 25 |
| INTEG | 3 | 963 | 92 | 44 |
| NO P | 1395 | 41 | 220 | 551 |

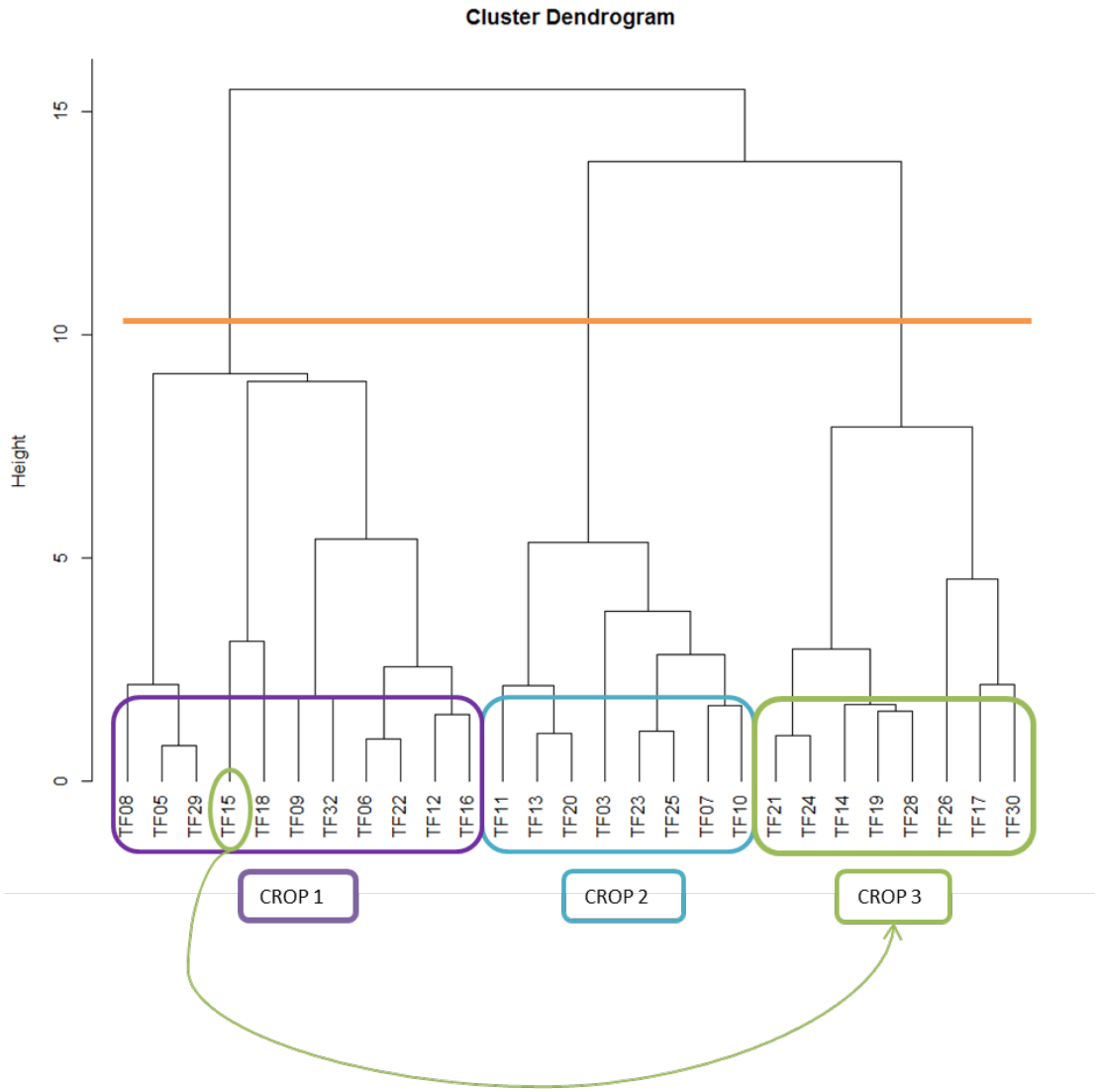


**Figure A1.1 Cluster Dendrogram obtained from the AHC on the scores of famers on the axes of the multivariate analysis on cropland management practices**

TF15 (Farmer number 15) was clustered in the CROP1 group mainly because of his high share of annual crops in his cropping plan. However, this farmer has a very extensive farming system with no use of pesticide, no fertilization of temporary grasslands and no tillage, which makes his crop management closer to farmers in CROP3. We thus included TF15 in CROP3 management practices instead of CROP1.

## Typology 2: semi-natural areas management practices

We selected 4 axes that represented 68% of the total inertia.

**Table A1.2 Contribution of the indicators used for Typology 2 on the 4 axes (see Table 1 in the main text for the meaning of indicators' codes**

| INDICATORS | AXE 1 | AXE 2 | AXE 3 | AXE 4 |
|---|---|---|---|---|
| RECENT_R | 1 | 27 | 444 | 3730 |
| OLD_R | 318 | 60 | 260 | 3056 |
| PLANT | 621 | 371 | 3041 | 74 |
| FREQ | 97 | 499 | 163 | 52 |
| RARE | 426 | 2196 | 719 | 227 |
| CHEMI | 919 | 117 | 373 | 702 |
| MECHA | 736 | 93 | 299 | 562 |
| PROPPP | 2976 | 170 | 218 | 735 |
| UNDIF | 614 | 727 | 758 | 17 |
| EXTENS | 1404 | 136 | 732 | 199 |
| NO GS | 213 | 3393 | 19 | 184 |
| AES | 568 | 745 | 1857 | 159 |
| NO_AES | 199 | 261 | 650 | 56 |
| HEDGE_D | 908 | 1204 | 468 | 248 |

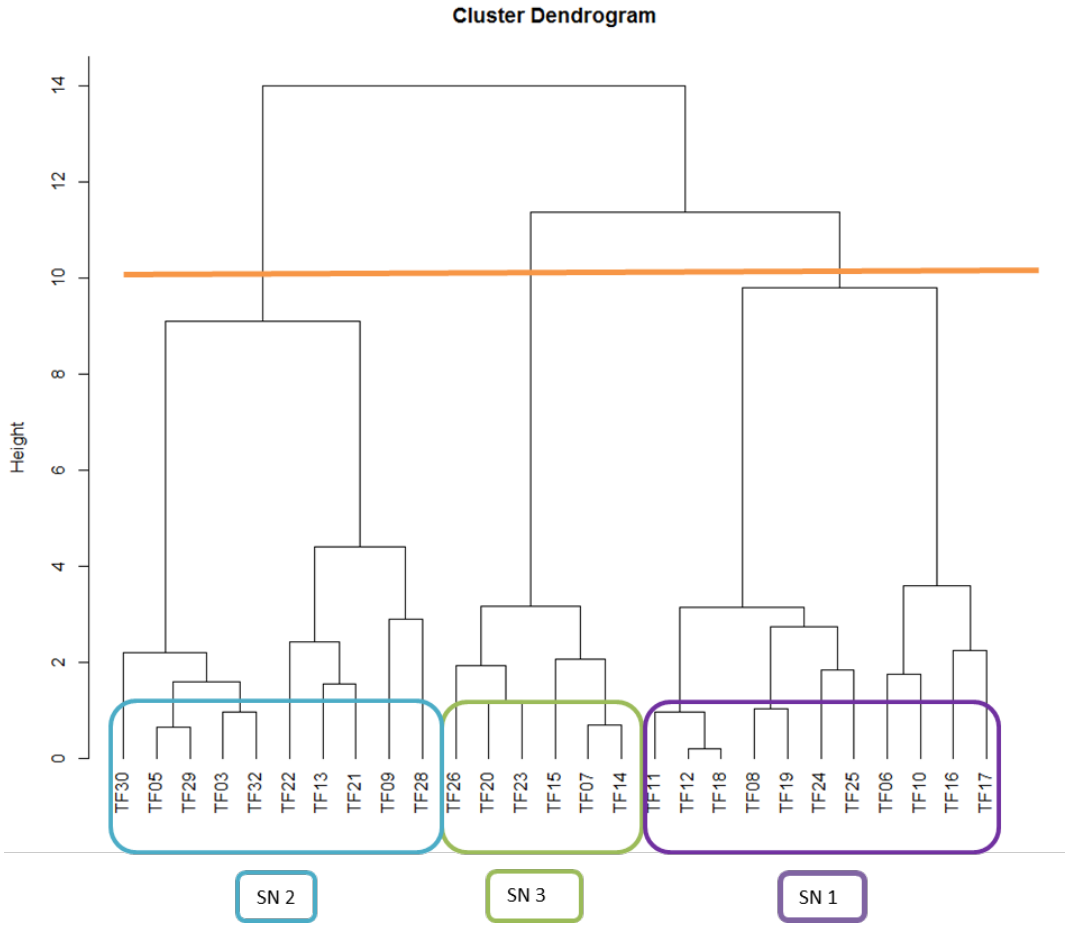


**Figure A1.2 Cluster Dendrogram obtained from the AHC on the scores of famers on the axes of the multivariate analysis on semi-natural areas management practices.**

## COMPLEMENTARY RESULTS

We investigated the correlation between Typology 1 and Typology 2 to assess whether farmers' crop area management are related to their semi-natural area management. We found that semi-natural areas management practices types were not significantly different between cropland management practices types (two-sided Fisher Exact test p value =0.114). This result suggests that semi-natural area management and cropland management are two relatively independent sub-systems that need to be analyzed separately. However, none of the farmers with most intensive cropland management practices (CROP1) belonged to the group of farmers with extensive semi-natural area management practices (SN3).

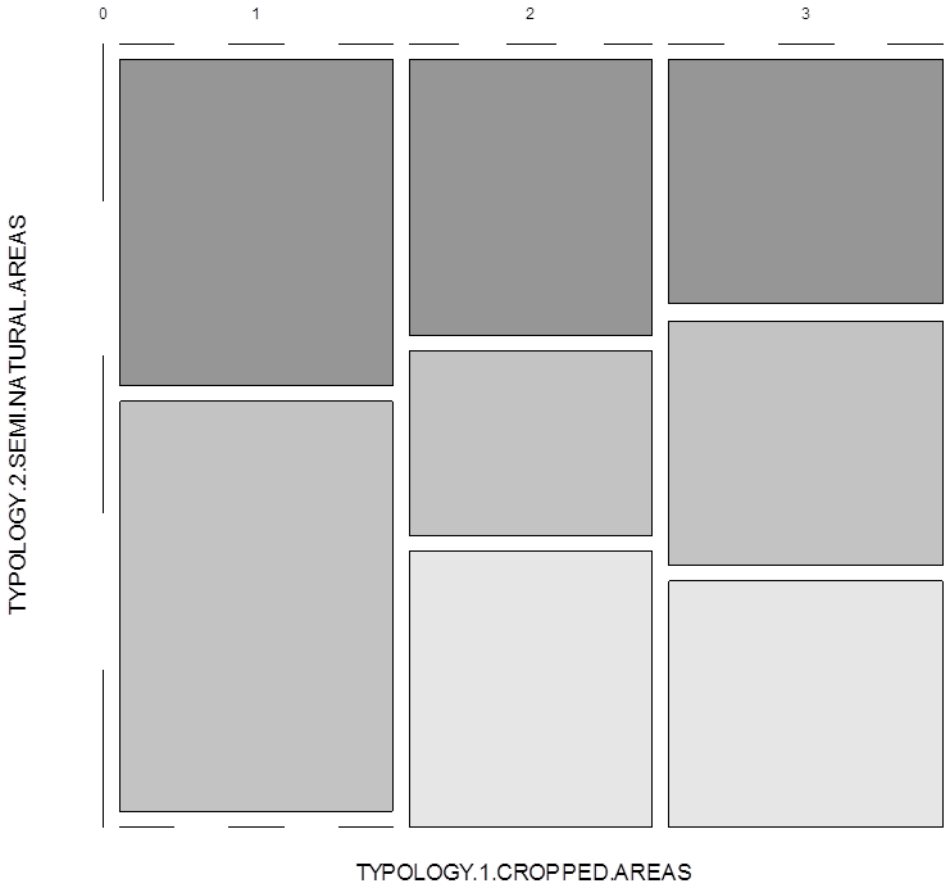


**Figure A1.3 Comparison of the distributions of farmers between groups based on cropped land management practices similarities and groups based on semi-natural area management practices similarities. Fisher Exact Test for Count Data p-value = 0.114.**

## LITERATURE CITED

Köbrich, C., T. Rehman, and M. Khan. 2003. Typification of farming systems for constructing representative farm models: two illustrations of the application of multi-variate analyses in Chile and Pakistan. *Agricultural Systems* 76(1):141–157.