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Connecting Indicators with land degradation and desertification

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A series of 72 selected candidate indicators corresponding to the physical environment, social, economic, and land management characteristics were defined in 1672 field sites located in 17 study sites in the Mediterranean and eastern Europe, Latin America, Africa, and Asia. The selected indicators refer to specific farm characteristics such as family status, land tenure, present and previous types of land use, period of existing type of land use, soil depth, slope gradient, tillage operations, tillage depth and direction, etc., as well as to regional characteristics such as annual rainfall, rain seasonality, water availability, water quality and quantity, rate of land abandonment, rate of burned area, etc. Based on existing geo-referenced database, classes have been designated for each indicator and presented in a tabulated form. Weighing indices have been assigned to each class based on existing research or empirically assessing the importance to land degradation and desertification. Various processes or causes related to land degradation and desertification important for the study sites have been studied and the most relevant indicators have been defined. Questionnaires for each process or cause have been prepared and data were collected at field site level in collaboration with land users. The obtained data were statistically analyzed to identify the most important indicators related to each process or cause affecting land degradation and desertification.
The analyses have shown that indicators may be widely, even globally, used for assessing the various land degradation and desertification processes or causes at field level. Of course, some indicators related to agriculture, social, and institutional characteristics in some cases show trends that are opposite to what happens in other study sites. These trends can be explained by further investigation including other indicators or processes affecting land degradation and desertification that it was not possible to consider in this effort. Efficiency and performance indicators seem the most promising for further research, particularly combined with economic principles for assessing land degradation and desertification.

Key words: Indicators, land degradation, desertification