



## Climate change and agricultural risk management: the role of the family-farm characteristics

G. Quaranta and R. Salvia

University of Basilicata, Potenza, Italy (giovanni.quaranta@unibas.it)

During recent years, water-related anomalies (drought, water scarcity, flood) have become a common occurrence in most areas and especially in the arid and semiarid regions of Mediterranean areas. There are evidences of increasing inter-annual variability, as increasing deviation from the long-term mean. This could be the main reason for the increasing incidence of drought, rather than any decline in long-term rainfall, also if a decrease of total amount of water is expected by the IPCC scenarios. Another reason for increasing drought and water scarcity conditions is growing demand for water needed by different productive sectors. These anomalies greatly increase the uncertainties of the agricultural sector affecting performance and management and leading to substantial augment in agricultural risk and destabilization of farm incomes.

Agricultural adaptation to drought and climate change at the farm level as well as changes in activity level strongly depend on the technological potential (different varieties of crops, irrigation technologies); soil, water, and biological response; and the capability of farmers to detect changes and undertake any necessary actions as result of perception of the problem and capacity/willingness to react.

Farm characteristics (size, technological level and other characteristics) and the social economic features of the family running those farms (number of components, age, education level, etc) act as important variables influencing, at farm level, the capacity and rate of adaptation/mitigation options implementation. The ability or inability to avoid/react from a risk could be interpreted as a social resilience of an area, deriving mainly from its socio-demographic features.

The shift from a paradigm mainly focuses upon the physical agents in the natural or human-modified environment, which cause a threat to society, to a new approach where the social, economical and political conditions are overcoming and gaining importance in the incidence and distribution of natural events, constitutes the theoretical background of the emphasis posed on social agents.

Innovative interpretative frameworks, derived from this paradigm, are necessary in order to reshape both management approaches and policy elaboration. Local authorities and local actors should increase awareness and have suitable and new tools to improve the management and to mitigate the risks impacts on agro-natural resources where the role of the social agents is explicitly acknowledged. Mitigation and adaptation strategies should be shaped mainly taking in account the end-users characteristics.

The framework presented and discussed in this paper internalizes the social agents perspective recognizing that perception of the risks in the agricultural sector may affect the farmers compliance decision and the level of management practices undertaken. Therefore the intensity of management practices both structural and non-structural has captured in two participatory stages: a model of perception in the first stage and a model of adoption (compliance) and the level of adoption of management practices.

In the first stage the factors that condition the farmer perception of the risk linked to water availability are examined. The factors considered are household-specific elements that influence diffusion of information, social capital, farm assets, labour force characteristics. The second stage is finalized to examine the factors that determine the rate of adoption.

The methodology has been used in a pilot area of Southern Italy and it has demonstrated to be very effective in depicting farm behaviours definitely showing a great attitude to be utilized for policies ex-ante evaluation and rural policies formulation.