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Agroecology in North African irrigated plains?

Mapping promising practices and characterizing farmers' rationales

In the irrigated plains of North Africa, productive resource sustainability is subject to multiple threats linked to the prevailing productivist irrigated agriculture model. These threats—such as soil degradation and unequal access to resources, markets and information—prompt farmers to mobilize depleting natural resources, including soil and water, often in an environmentally unsustainable way. Farmers sometimes update their strategies by implementing alternative farming practices to sustain their farming systems and derived incomes. A group of researchers, led by the G-EAU joint research unit in Montpellier, conducted a study to map and analyze these existing local farming practices with agroecological potential. The approach involved direct observations combined with 150 interviews of farmers in three major irrigated plain regions in North Africa, i.e. Merguellil, Upper Cheliff and Saiss plains in Tunisia, Algeria, and Morocco, respectively. The findings showed that **a wide range of alternative practices with agroecological potential exist or are emerging, in contrast to the predominant intensive farming-oriented model**. The most common practices are geared towards improving soil fertility management (manure tea production,

integration of legumes in crop successions), increasing per-ha agricultural production (relay intercropping, intercropping, agroforestry), or providing multiple ecosystem services (diversification, livestock integration). These practices are jointly used, mostly to: (i) increase land-use efficiency, and hence address land fragmentation; (ii) diversify cropping strategies, and decrease market-related risks; and (iii) reduce expensive production costs related to irrigation and chemical fertilization. The large differences observed in the adoption of these practices in the three case study sites suggests a strong influence of contrasting sociopolitical and historical factors at regional and national levels. An analysis of farmers' rationales with regard to implementing such practices revealed that economic imperatives take precedence over environmental concerns. As such, these practices can be seen as: (i) a means of access to low-cost strategies for smallholder farmers; or (ii) a pathway to international markets for agribusiness farmers. Awareness of the extensive local knowledge related to ecological intensification strategies, as identified here, could help pave the way to more sustainable agriculture in this intensively cultivated region of the world.

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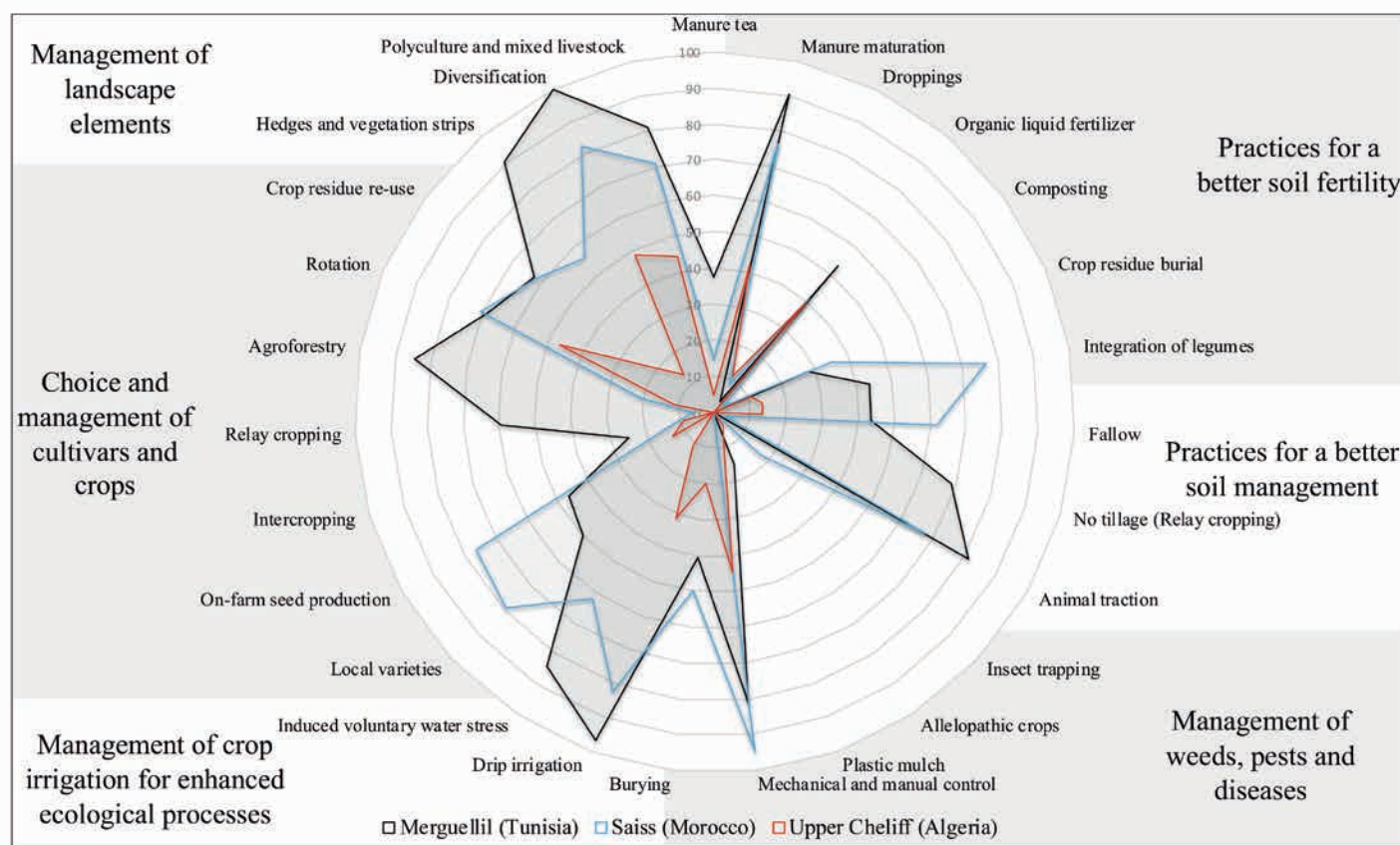
For further information

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• Ameur F., Amichi H., Leauthaud C., 2020. Agroecology in North African irrigated plains? Mapping promising practices and characterizing farmers' underlying logics. *Regional Environmental Change*, 20(4): 1-17.

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• Project website: <http://viana.cirad.fr/>



▲ Presence (%) of each identified practice with agroecological potentials at the three case study sites, differentiated by practice type. From Ameur et al. (2020)