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Water management in the wooded pastures of the Jura, between hydroclimatic and agro-cultural constraints

Wooded pastures - agro-forestry systems combining forest components, mainly spruce, and agricultural components (extensive pastures) - are one of the landscape emblems of the Jura mountain range. They are the result of a long history of land clearing that has favored the introduction of livestock in a karstic geomorphological context. They require a reasoned and balanced management of the breeding to allow the maintenance of both forest and agricultural characteristics of these spaces. Within the framework of a collaboration with the Parc Jura vaudois (PJV), we are conducting a research on water management in the alpine pastures located on the Park territory. Several hydroclimatic constraints have been identified: - the karstic character of the region leads to a scarcity of water on the anticlines. The availability of water is particularly reduced in the second half of summer. Adaptation practices have been developed by agricultural and tourist actors, such as the recovery of water on the roofs of buildings and its storage in cisterns or the installation of solar pump systems to bring water to the high points. Over the last two decades, the Jura mountain range has been confronted on several occasions with water shortages in the mountain pastures (2003, 2011, 2015, 2018), which led to the supply of water to the livestock by tanker trucks; - The climate change scenarios all foresee a strengthening and lengthening of summer droughts, which will require a strengthening and diversification of adaptation methods. In this context, in addition to livestock management and forestry practices, water management can be seen as a tool for the long-term maintenance of woodlands. We are currently exploring several opportunities with the PJV and certain communes: - Targeted management of water points to ensure a sufficient supply of water in all parts of the alpine pastures; - Inter-communal water sharing and management or at least between alpine pastures in situations of shortage; - Creation of agro-ecological ponds on high points. Nevertheless, beyond the specific adaptations at the alpine pasture level and upstream of the identified water management opportunities, regional water management based on a holistic understanding of water demands and water access points is necessary in order to anticipate water stress in the Jura wooded pastures.