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► To cite this version:

Vincent Thenard, Sarah Milhout, Marie-Angéline Magne. Rearing two-bree-dairy cattle to improve farms' forage self-sufficiency in relation to climate change. 63. Meeting of the European Association for Animal Production (EAAP), Aug 2012, Bratislava, Slovakia. pp.337. hal-02745606

HAL Id: hal-02745606

<https://hal.inrae.fr/hal-02745606>

Submitted on 3 Jun 2020

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ENRA. v. Thémard

Book of Abstracts of the 63rd Annual Meeting of the European Federation of Animal Science



**Book of abstracts No. 18 (2012)
Bratislava, Slovakia
27 - 31 August 2012**

Rearing two-breed-dairy-cattle to improve farms' forage self-sufficiency in relation to climate chan

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One challenge in Livestock Farming System research is adaptation to climate change. At the farm level, source of flexibility, is the diversity of animal and forage resources. In intensive dairy farms with high level feeding, high herd turnover rate and few breed choices, animal diversity is limited. In France, though rearing two-breed-dairy-cattle is not promoted, there are such systems in less favored regions. In this study, we wanted to test if breed diversity increases farm's adaptive capacity, faced with climate change. The aims have been to define farms' diversity management and to assess the farms' forage self-sufficiency status. Two kinds of data, collected in 22 two-breed-dairy-cattle herds (Holstein breed in association with a hardier breed) have been analyzed: structural and performance variables extracted from the French Dairy Herd Information and livestock farming practices have been recorded by farmers' interviews. Data have been analyzed (MCA) and five patterns of farms' diversity management have been built by two axes characterizing respectively: the individualization of herd management practices and the valorization of the breed diversity. Forage self-sufficiency has been defined as the annual ratio between grass production and grass consumption. For each studied farms, we could characterize forage self-sufficiency status. We have studied the links between this status and the pattern of diversity management. Finally in the case of systems based on grazing feeding, we have shown that farmers, who promote the diversity, forage self-sufficiency increases in their farm. On the contrary, in the farms based on maize feeding, promoting diversity limits the forage self-sufficiency. Results suggested that breed diversity can be a lever for farmers to adapt to climate change, but increasing self sufficiency must be analyzed according to the feeding management.