



## **Processes inducing banded vegetation patterns depending on their biomass growth function**

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Among the processes that induce the formation of vegetation patterns, soil moisture diffusion and the feedback between plant density and water infiltration, have been recognized to be crucial. Both induce instability of the biomass, soil moisture and surface water balance, leading to vegetation patterns formation. Models that attribute to one of the two mechanisms the cause for vegetation patterns formation, are based on different assumption concerning the biomass growth. Indeed it is demonstrated that only one or both mechanisms, affect the organization of vegetation depending on the functionality of the biomass growth, and thus ultimately, on the vegetation characteristics. According with previous studies, two extreme cases are considered: linear and quadratic biomass growth. Soil moisture diffusion affects the equilibrium of biomass density for quadratic biomass growth and has negligible effect for linear biomass growth. Opposite, the feedback induces patterns formation under the hypothesis of linear biomass growth, whereas for quadratic biomass growth the impact of feedback is minor.