



Comparison of five shea tree (*Vitellaria paradoxa* C. F. Gaertn.) regeneration techniques in Burkina Faso

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Introduction

Vitellaria paradoxa C. F. Gaertn. is a highly utilitarian species whose growth is slow. This study focuses on the comparison of five regeneration techniques. Its objective is to propose appropriate techniques to rejuvenate and restore at low cost the shea tree parklands in the areas of disappearance / reduction of the species, in order to ensure a good dynamism of the species in Burkina Faso.

Study area

Four sites distributed along a climatic gradient were selected for tests : Kakoumana (Sudano-Guinean zone), Noumoudara (South-Sudanian zone), Gonsé (North-Sudanian zone) and Bouria (Sub-Saharan zone) (Fig. 1).

Methodology

Three repetitions were performed per site in fields and/or fallows. 90 planted subjects (Fig. 2), 150 transplanted subjects (Fig. 3), 150 sowings in bushes (Fig. 4), 300 free sowings (Fig. 5) and 270 subjects for seedling protection (Fig. 6). we measured survival and growth rates.

Results and discussion

The plantation is very efficient in terms of survival rate ranging from 13% in the sub-Saharan zone to 90% in the Sudano-Guinean zone (Fig. 7). Sowing in bushes are less successful but provide survival rates from 15% in the sub-Saharan zone to 31% in the south-Sudanian zone (Fig. 8). Free sowing offer relatively low rates from 4% in the sub-Saharan zone to 29% in the Sudano-Guinean zone (Fig. 9). The transplantation have also low survival rate from 3% in the sub-Saharan zone to 32% in the Sudano-Guinean zone (Fig. 10). Survival rate varies from 60% in the sub-Saharan zone to 95% in the Sudano-Guinean zone for seedling protection (Fig. 11).

The bushes protect the seedlings against drought and cattle (grazing and trampling). They provide the seedling with nutrients. The effectiveness may vary from one bushy species to another, hence the interest of testing the synergy of seedlings with the various bushy species abundant on the sites.

Conclusion

Planting and sowing in bushes are therefore the two techniques recommended to the farmers for the regeneration / restoration of their shea tree parklands in Burkina Faso. Seedling protection is also an advisable technique because it protects and supports spontaneously established seedlings that ensure optimal growth with a low cost.

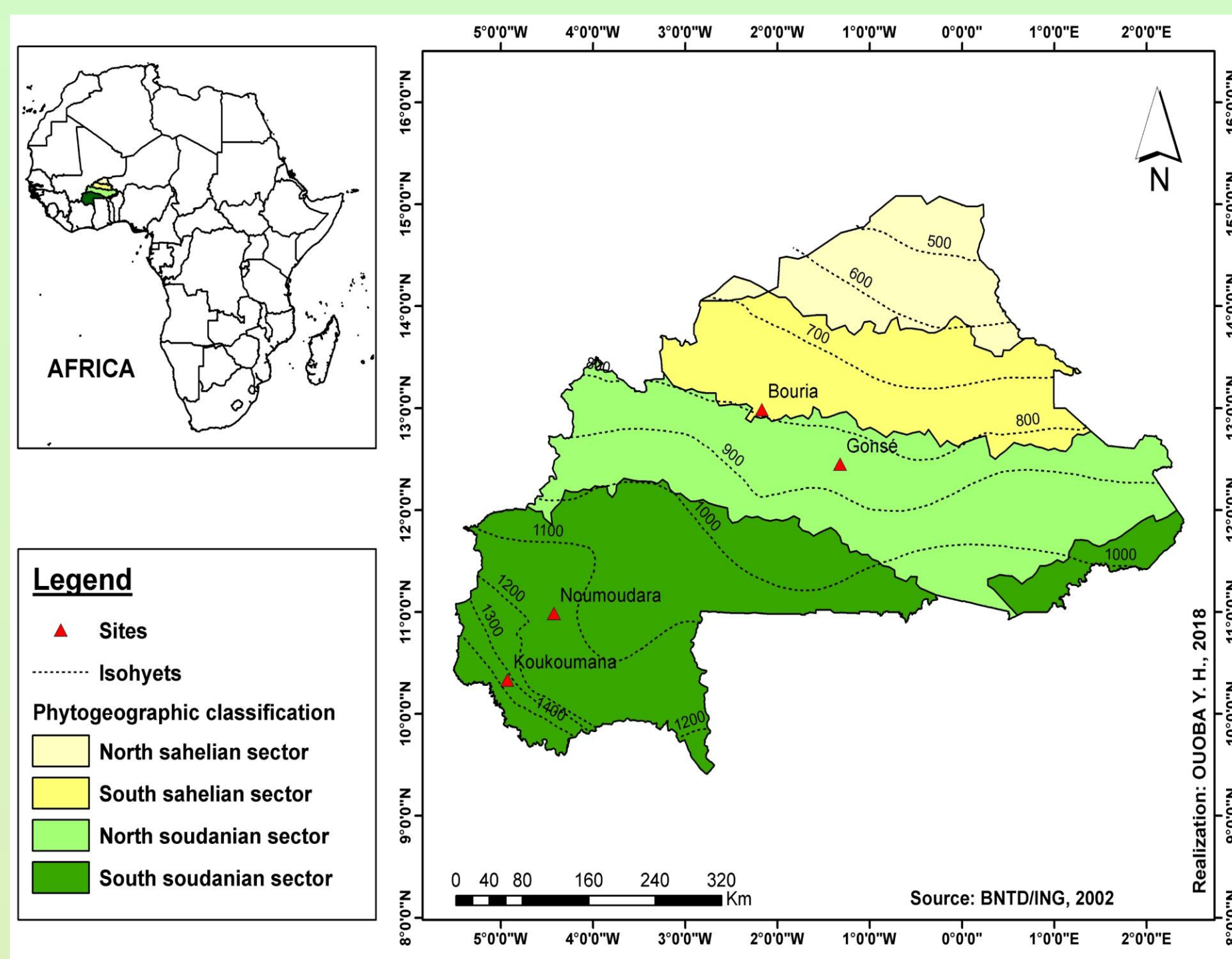


Fig. 1: Study area



Fig. 2: The plantation



Fig. 3: The transplantation



Fig. 4: The sowing in bushes



Fig. 5: The free sowing



Fig. 6: The seedling protection



Fig.11: Survival rate of the seedling protection



Fig. 12: 2-year-old seedling from plantation

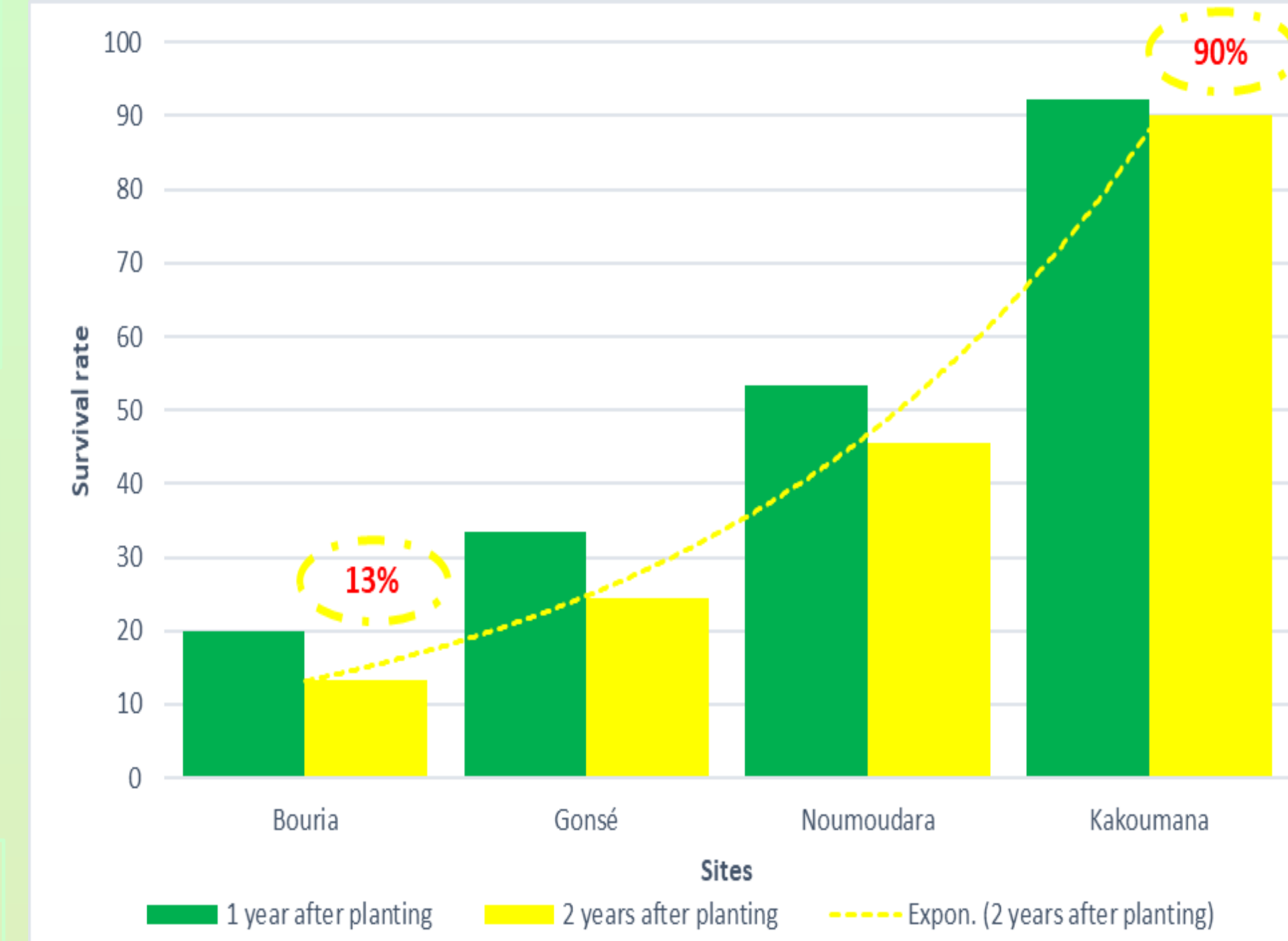


Fig. 7: Survival rate of the seedlings from plantation



Fig. 8: Survival rate of the seedlings from sowing in bushes

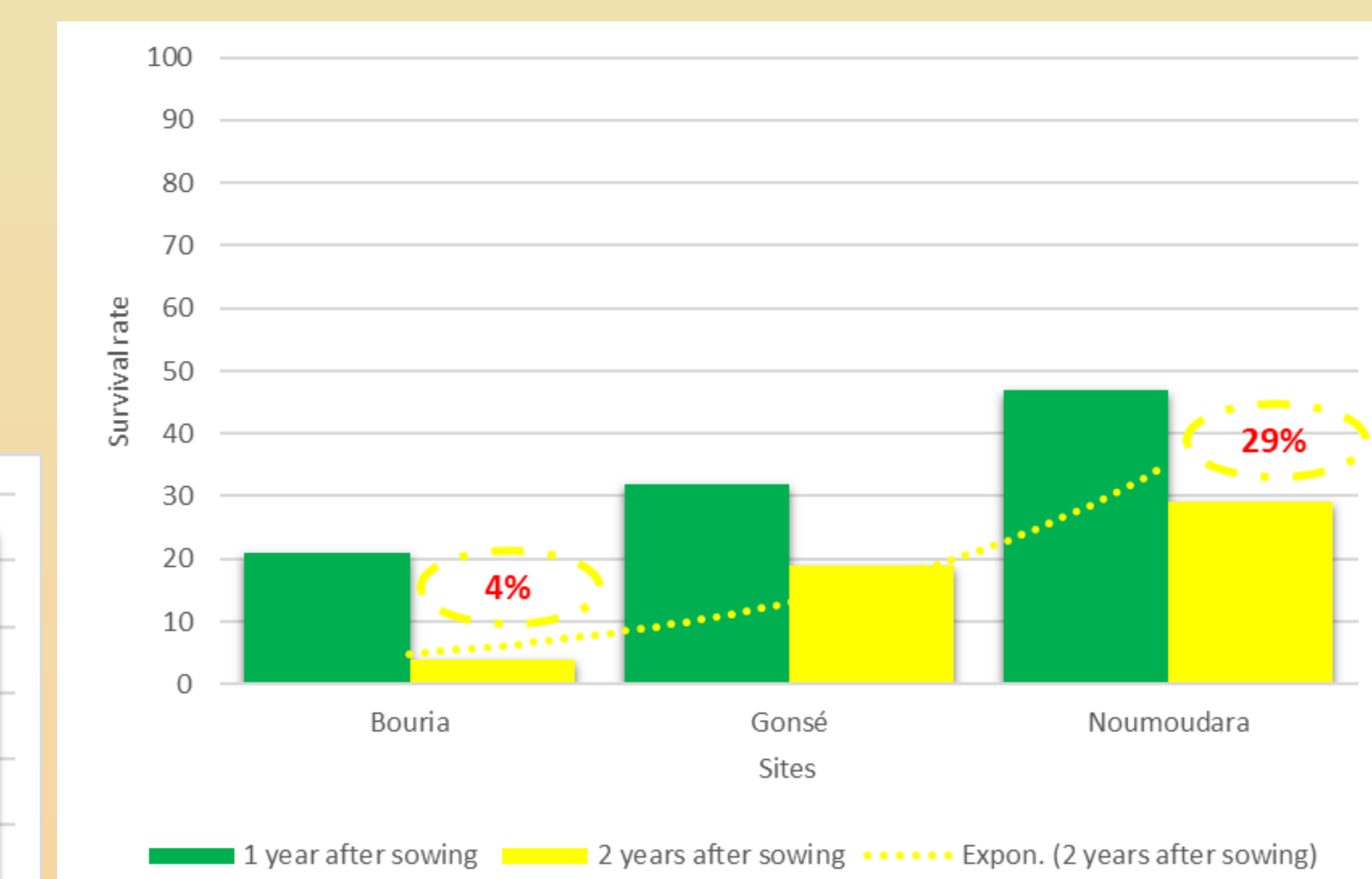


Fig.9: Survival rate of the seedlings from free sowing

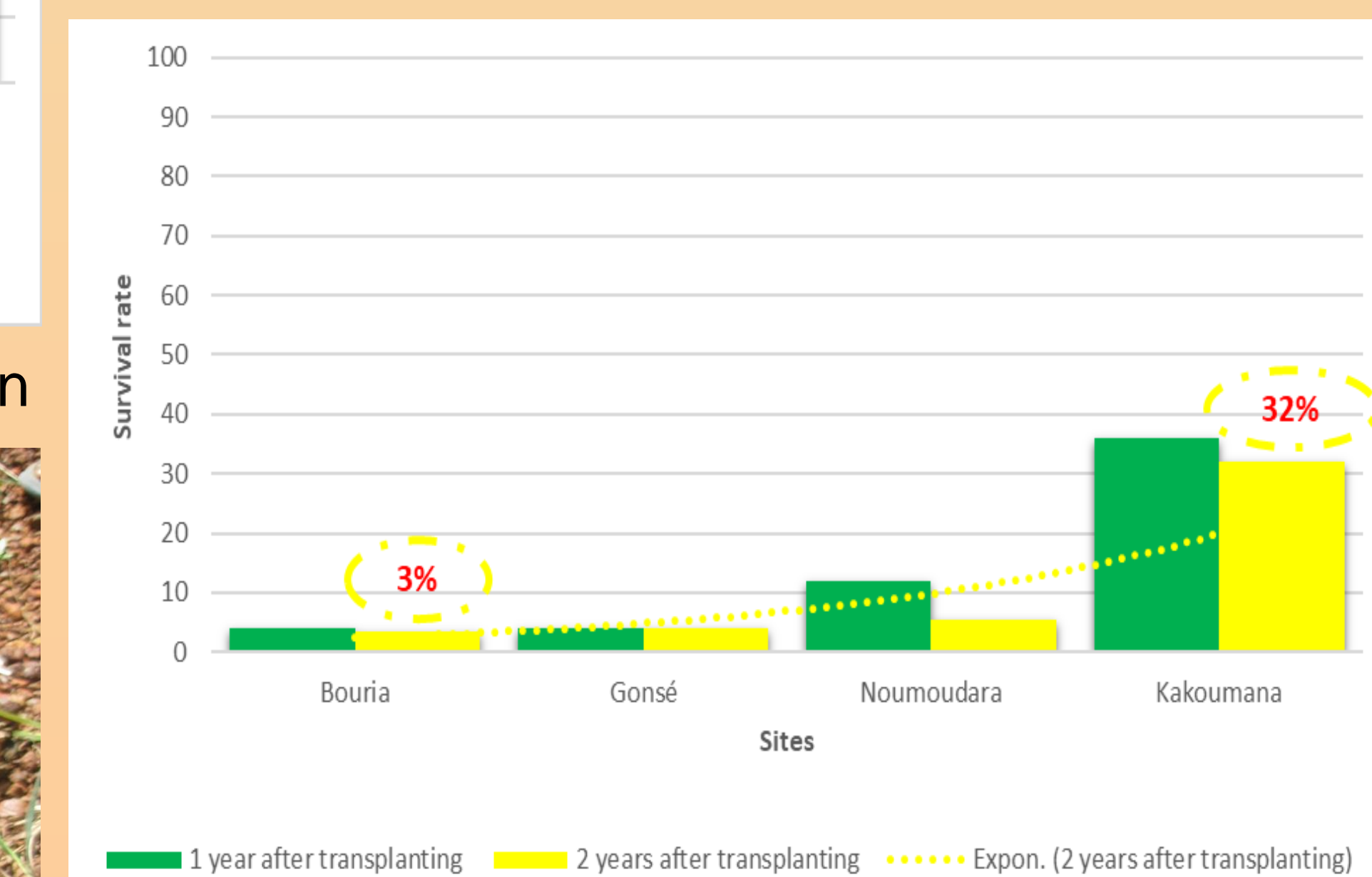


Fig.10: Survival rate of the seedlings from the transplantation

Aknowledgment:

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Populations of Kakoumana, Noumoudara, Gonsé and Bouria.