Many cropping lands that were left abandoned during the previous century along the West Coast of South Africa are today dominated by the unpalatable, sometimes poisonous shrub Galenia africana with few other species present. The objective of the study was to determine what rehabilitation methods and which species are the most successful and economically feasible to rehabilitate old lands to a more productive state with a richer diversity.

A complete randomised block design was followed with eight treatments and four replications. The treatments were: Seeding only (S); Spade and seeding (SS); Ripping and seeding (RpS); Rolling and seeding (RS); Brush-cut and seeding (BS); Ploughing and seeding (PS); Herbicide and seeding (HS) and a Control (C). Seed of five different indigenous species were sown into the treatments, namely Tripteris sinuata, Tetragonia fruticosa, Manochlamys albicans, Chaetobromus dregeanus and Ehrharta calycina. The treatments were applied in May 2012. The number of perennial species increased from 4 to 12 species across all treatments. Chaetobromus dregeanus was the most successful sown-in species and has established in most of the treatments, followed by E. calycina and T. sinuata (F = 4.74; p = 0.0016). Soil disturbance is necessary for successful rehabilitation with the PS and RS treatments that were the most successful (F = 2.99; p = 0.0242). They are also the most economically viable treatments, with most plants established for each rand spent (PS: R0.48/plant established; RS: R0.65/plant established).

We would recommend using the Rolling and seeding treatment (RS) to rehabilitate G. africana dominated old lands as ploughing is a very drastic disturbance of the soil. Rainfall, however plays a vital role in the overall success of the rehabilitation.

Keywords: soil disturbance, indigenous plant species