

## Integrated Management of *Tithonia Diversifolia* in the Vhembe Biosphere Reserve

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**Abstract :** Invasive alien plants (IAP's) are referred to as species that are non-native to the ecosystem under consideration. Whose introduction causes or is likely to cause economic, ecological, or environmental harm. The integrated management of the invasive plant, *Tithonia diversifolia*, will be assessed through two herbicide trials (one on the seedlings and the other on matured plants) and a competitive trial between *Tithonia* and invasive grass species. The initial herbicide trial will be undertaken at the University of Venda Agricultural greenhouse facilities, where *Tithonia* will be planted in pot plants and watered every after two days until they reach at least 30 cm and will then be subjected to four different herbicide treatments (Metsulfuron methyl, Fluroxypyr, Picloram, Triclopyr), water will be utilised as a control. The percentage damage to foliar will be recorded. The second herbicide trial will be undertaken at Levubu road site, where matured *Tithonia* will be cut at at least 10cm above the ground and the subjected to herbicide treatments (Picloram, Fluroxypyr, Imazapyr, and Water as a control). The site will be visited post treatment for assessment. For the competition trial, tall grass species will be chosen as competitors (*Panicum maximum* and *Eragrostis murvula*), they will be grown at six densities per pot in the greenhouse facilities at the University of Venda, where they will be kept watered for the duration of the experiment. At the end of the experiment, plants will be removed from pots, and the above and below ground biomass will be weighed. The expected results are to know the effective integrated management strategy for *T. diversifolia*, the effective rehabilitation of *T. diversifolia* invaded habitats, and the effective chemical control of *T. diversifolia*

**Keywords :** foliar, biomass, competition, invasion

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