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Improving the water productivity of integrated crop-livestock systems in the semi-arid tropics of Zimbabwe: an ex-ante analysis using simulation modeling

The semi-arid tropics of Zimbabwe are characterized by low economic activity, high incidence of land degradation, and a high concentration of the rural poor. Water scarcity is also a principle constraint, and available water is used ineffectively, as evidenced by low crop and livestock water productivity. Low crop productivity is partly attributed to inherent low soil fertility, while low livestock productivity is caused mainly by feed shortages, especially during the dry season. A simulation modeling approach was used to evaluate potential interventions that can be used as entry points to improve water productivity. The simulations show that inclusion of a forage legume (*Mucuna pruriens*) in current crop-livestock systems can improve crop and livestock water productivity through improved soil fertility and fodder availability.