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Impacts of *Urochloa* hybrid forage seed adoption in the global tropics 2001–2022

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Abstract

Despite the economic and social importance of cattle farming in the tropics, it is being questioned for the environmental impacts it can generate. Likewise, cattle farmers are affected by climate change, increasing vulnerability and putting food security at risk. The cattle sector is thus in a difficult position and at the centre of the political debate on how to sustainably increase productivity while reducing potential negative impacts on the environment. One of the strategies in that regard is the development of improved feeding strategies. Against this background, the International Center for Tropical Agriculture (CIAT) and its partners have launched a forage breeding programme in 1987, focused on the development of interspecific *Urochloa* (syn. *Brachiaria*) hybrids. The first hybrid was released in 2001 by Grupo Papalotla, a seed company from Mexico, and since then, hybrid adoption has happened in >70 countries. The impacts this adoption has generated over time are, however, yet largely unknown. Based on seed sales data, global databases, national statistics, grey literature, media, and expert consultations, this study analyses these impacts regarding 4 dimensions: land use, social, economic, and environmental impacts. The results indicate an adoption between 2001 and 2022 by >1.4 million farmers on >1.6 million ha, which has benefitted almost 11 million people. By 2031, this adoption will have generated an economic value of US\$ 10–17 billion. Likewise, it is estimated that the adoption has caused a reduction in GHG emissions of 23–54 megatons CO₂eq. in the Americas alone. Most of the impacts have happened in Latin America, but Africa and Asia are emerging markets with large untapped potential for further adoption and seed market development, income generation and diversification, and livelihood improvements of the most vulnerable parts of the population.

Keywords: Forage hybrids, impact analysis, improved forages, seed systems, sustainable intensification, technology adoption