

Context

- Climate change demands the pursuit of crop diversity that thrives under drought, waterlogging, heat, and salinity, addressing biodiversity requirements.
- Exacerbated by climate change, malnutrition and dietary deficiencies pose significant challenges in numerous regions.
- Grass pea's nutritional potential offers a distinct opportunity to combat health and nutritional issues.
- Nonetheless, the need to manage Oxalyldiaminopropionic acid (ODAP) presents a hurdle, affecting the safety and acceptability of the crop for food consumption and animal feed.

Our innovative approach

- **Trait Discovery:** Pioneering the identification of desirable traits.
- **Genebank Material Assessment:** Evaluating vital grasspea genebank resources for target traits.
- **Molecular Breeding:** Establishing an advanced molecular breeding platform for swift varietal development in grass pea.
- **Harnessing Crop Wild Relatives:** Uncovering valuable traits, including minimal ODAP content

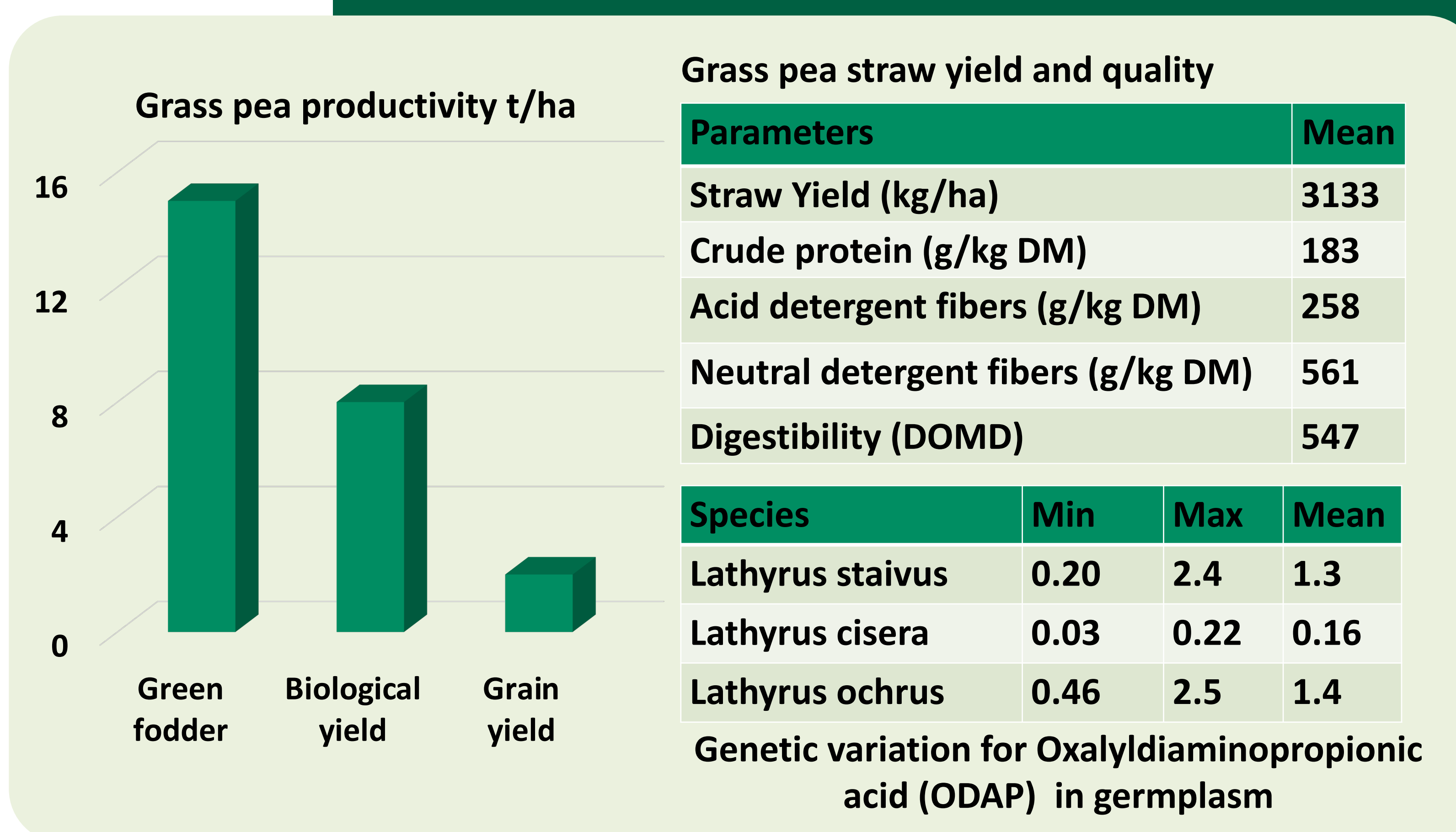


INITIATIVE ON

Livestock and Climate

Cultivating Resilience: Climate-Smart Grass pea as a Multifunctional Feed, Forage, and Fodder Crop in Dry Areas through Integrated Genomic Approaches

- Grass pea: A Climate-Smart Nutritional Resource for Food, Feed, and Fodder.
- High-yielding low-ODAP (Oxalyldiaminopropionic acid) cultivars are available for adoption
- Grass pea thrives in fragile agro-ecosystems plagued by frequent drought, extreme heat, and mild salinity.



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Progress/outcomes

- Expansion of grass pea after the harvest of rice in rainfed areas of South Asia.
- Relay planting of grass pea in rice fields helps mitigate the terminal water stress in South Asia.
- Overnight soaking of grains helps reduce the ODAP content in grass pea substantially.
- Established global partnership for grasspea research and development.
- Breeding populations of low-toxin grasspea to national and international programs in >17 countries.
- Four International nurseries established
- **Next steps**
- Utilizing Genome wide association studies (GWAS) for trait-marker association and genome editing for zero ODAP germplasm development
- Farmers in Bangladesh, Nepal, India, and Ethiopia participating in on-farm prebreeding line evaluations.



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