

Land suitability and socioeconomic factors for pigeonpea cultivation in Uganda

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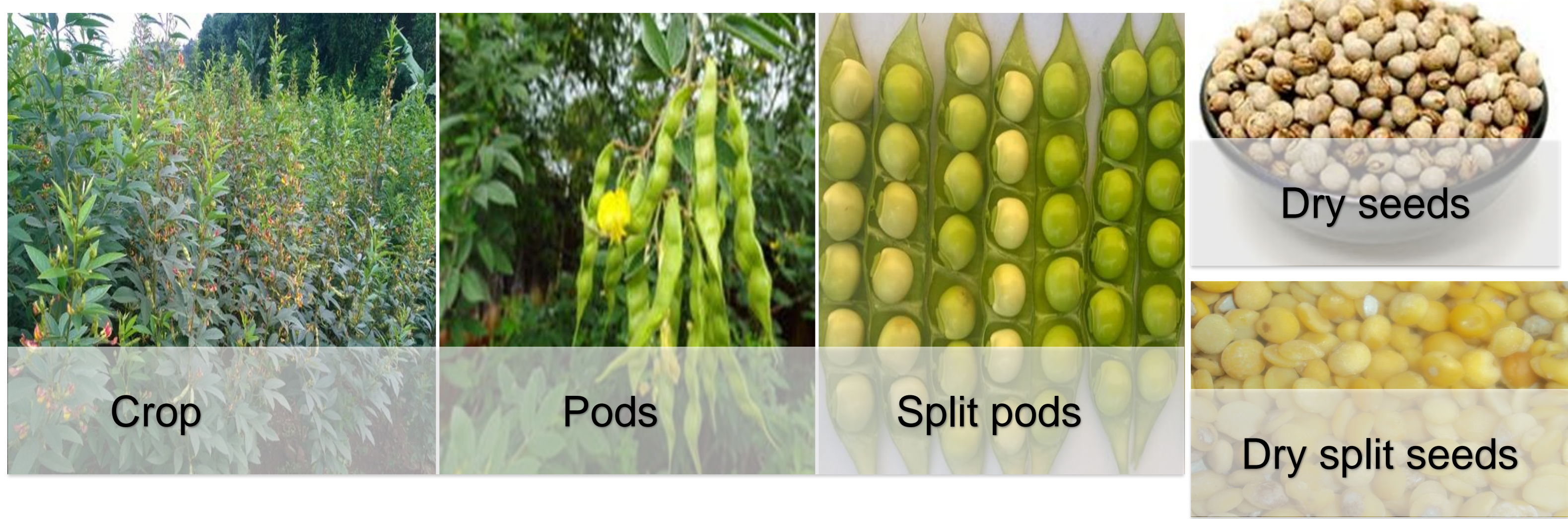
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Pigeonpea (*Cajanus cajan* (L.) Millsp.) is one of Uganda's many traditional pulses. It is a hardy crop with diverse uses, and is resilient to climate change¹. Pigeonpea may have an important role to play in Uganda's food and nutritional security, while protecting and enhancing natural resources in a changing climate. Farmer's adoption is linked to uses, biophysical conditions and farmer's preferences². In Uganda, however, pigeonpea has received little attention. The sustainable cultivation of pigeonpea in Uganda will require, among other things, identification of suitable regions for cultivation and a better understanding of the factors that influence its adoption by farmers.

Growth and use of pigeonpea



Pigeonpea for food system resilience in Uganda

Aims

Understanding the role of pigeonpea in building resilient food systems in Uganda

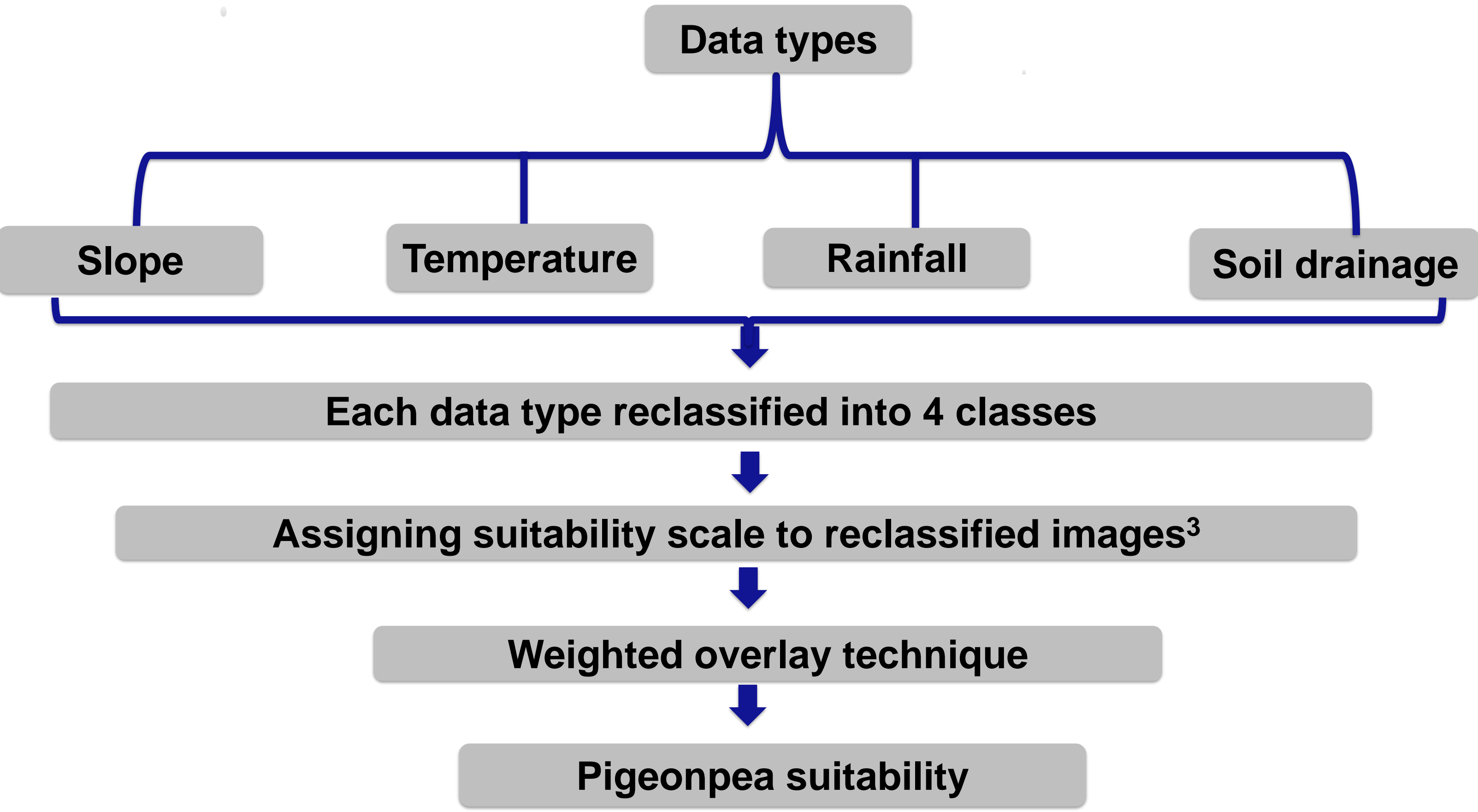
Specific objectives

- Determine areas with suitable biophysical conditions for production of pigeonpea in Uganda
- Determine factors that influence the adoption of pigeonpea in Uganda

Unique methods for understanding suitability

Suitability analysis was performed by matching land characteristics with crop requirements using a GIS weighted overlay technique

Suitability analysis steps



Factors influencing pigeonpea adoption

Household surveys using semi-structured questionnaires were conducted together with focus group discussions from April to May 2019.

Surveys and discussions



283 Household interviews



51 Focus group discussions

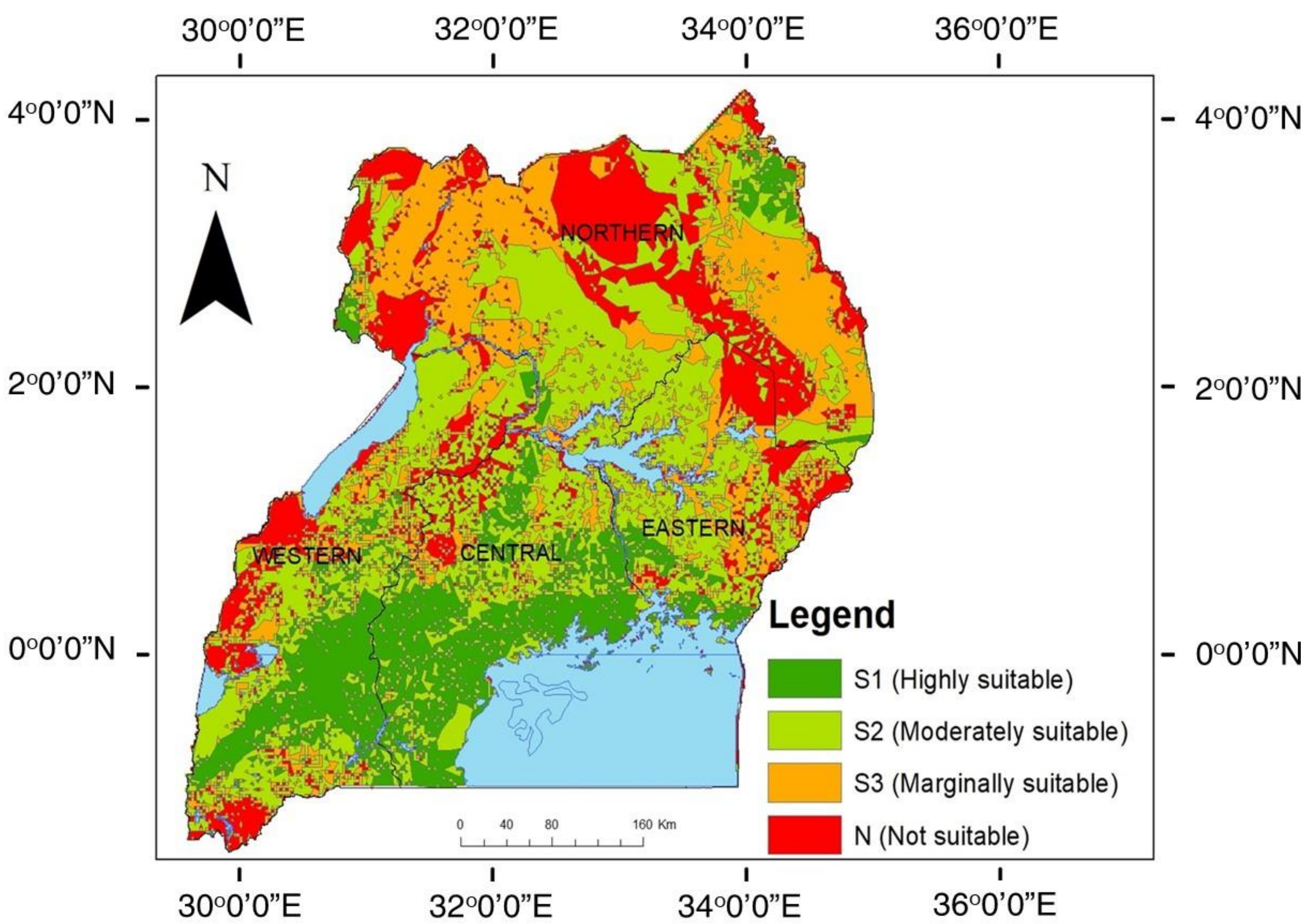
Literature cited

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2. Ayenan, T. A., Ofori, K., Ahoton, E. L. & Danquah, A. (2017) Pigeonpea (*Cajanus cajan* (L) Millsp) production system , farmers ' preferred traits and implications for variety development and introduction in Benin. *Agric. Food Secur.* 6
3. Naidu, L. G. K., Ramamurthy, V., Challa, O., Rajendra Hedge & Krishnan, P. (2006) *Manual Soil- Site Suitability Criteria for Major NBSS*

Advantages and constraints to pigeonpea production

- Our suitability map indicated that pigeonpea can be grown on 79% of arable land in Uganda

Suitability map for pigeonpea in Uganda



Constraints related to pigeonpea production

- Pests, diseases, drought and lack of improved varieties were identified as the major constraints to pigeonpea production.

| Constraints | Frequency of response |
|----------------------------|-----------------------|
| Pests and disease | 183 |
| Drought | 101 |
| Lack of improved varieties | 90 |

Farmers' preferred traits in pigeonpea

- Similarly, the most preferred traits in pigeonpea by famers included resistance to pests and diseases, early maturity and tolerance to drought.

| Preferred traits | Frequency of response |
|------------------------|-----------------------|
| Resistance to diseases | 163 |
| Early maturing | 155 |
| Resistance to drought | 146 |

Pigeonpea has potential but more work is needed

- Take advantage of the suitable areas for pigeonpea cultivation by extending the crop to these areas
- Overcome pests and disease issues with access to resistant varieties
- Save and exchange seed with resistance to diseases, early maturity and drought tolerance by farmers
- Pigeonpea should be promoted in suitable areas with strong linkage between research-extension-farmer

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