

1. Introduction

ABOUT: This poster discuss the *Onto-CropBase*, a web-based intelligent search engine for underutilized-crops information retrieval.

Ontology: Any explicit specification of Concepts guiding knowledge representation of a domain. Also the knowledge model of the Semantic Web.

Semantic Web: An extension to the current web of documents. Considered as the 'future web' of linked data.

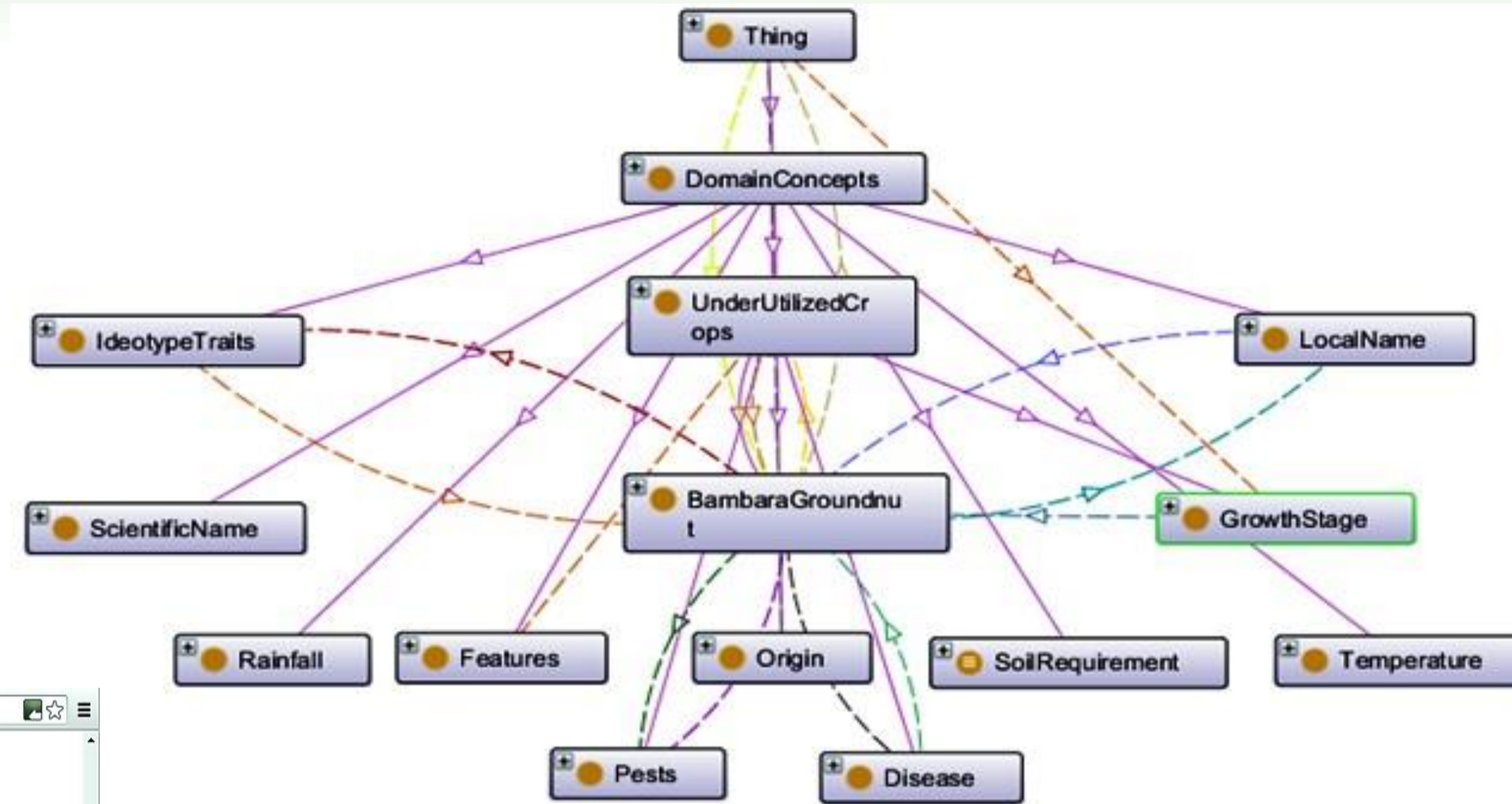


Fig.1 – The Ontology fragment showing *BambaraGroundnut* class and related concepts, as viewed in the Protégé Ontology Editor.

3. Methodology

- Ontology model development and integration with other data sources: using the Web Ontology Languages (OWL & RDF).
- Developing a web interface for easier and wider access to the knowledge models: using Java EE.
- Developing an ontology-based Semantic Search Engine (SSE) for answering user queries – using SPARQL as query language.
- Selecting a Mediator Component – Apache Jena to integrate the ontology models with the SE.

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2. Research Goals

- Use of ontologies and other semantic technologies to advance knowledge sharing and standardization for underutilized crops.
- To explore how Semantic Web applications can utilize those ontologies with relevant linked-open-data to aid users in decision making (on underutilized crops and their products).

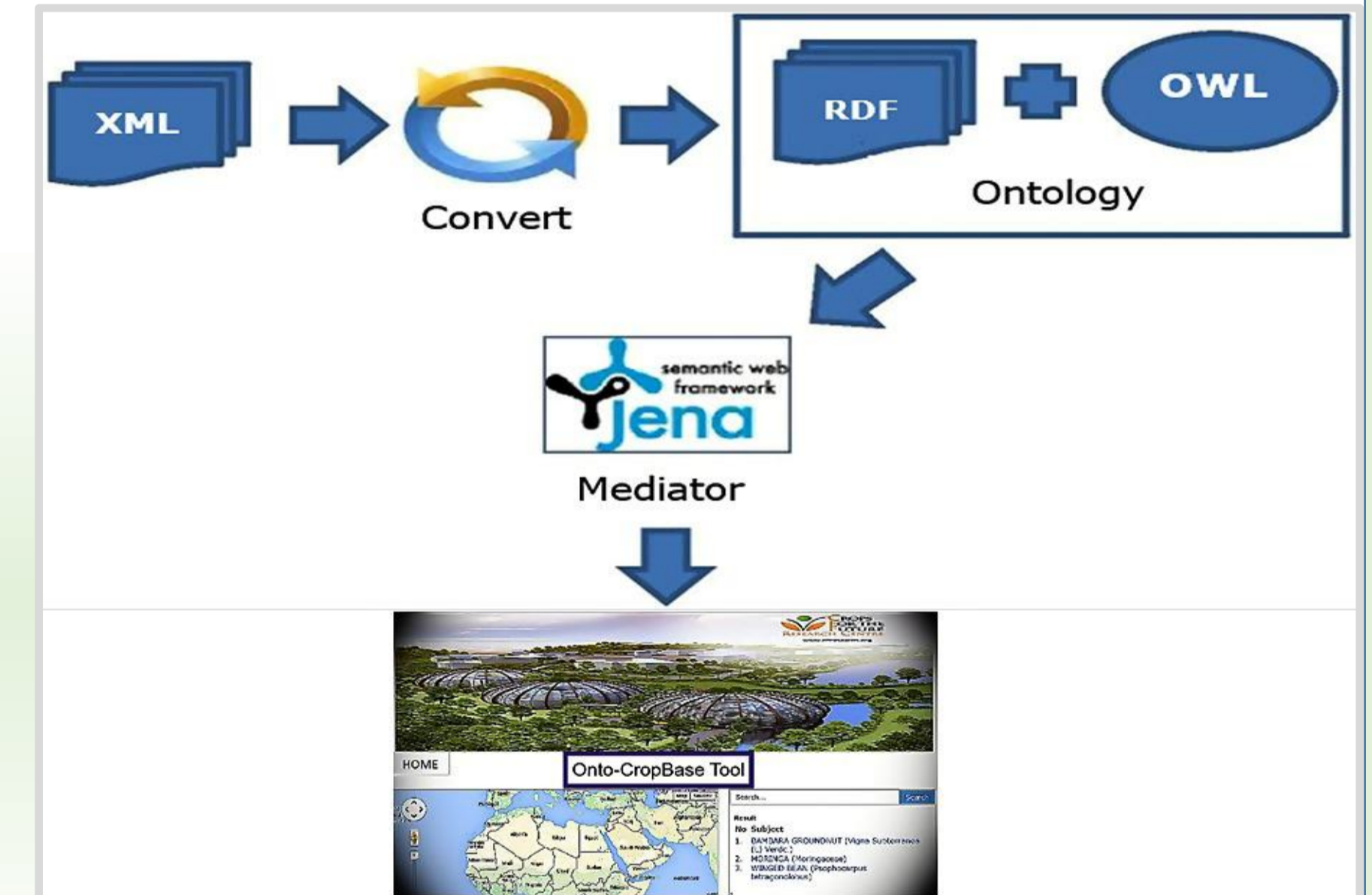


Fig.3 – A Framework showing Onto-CropBase components.

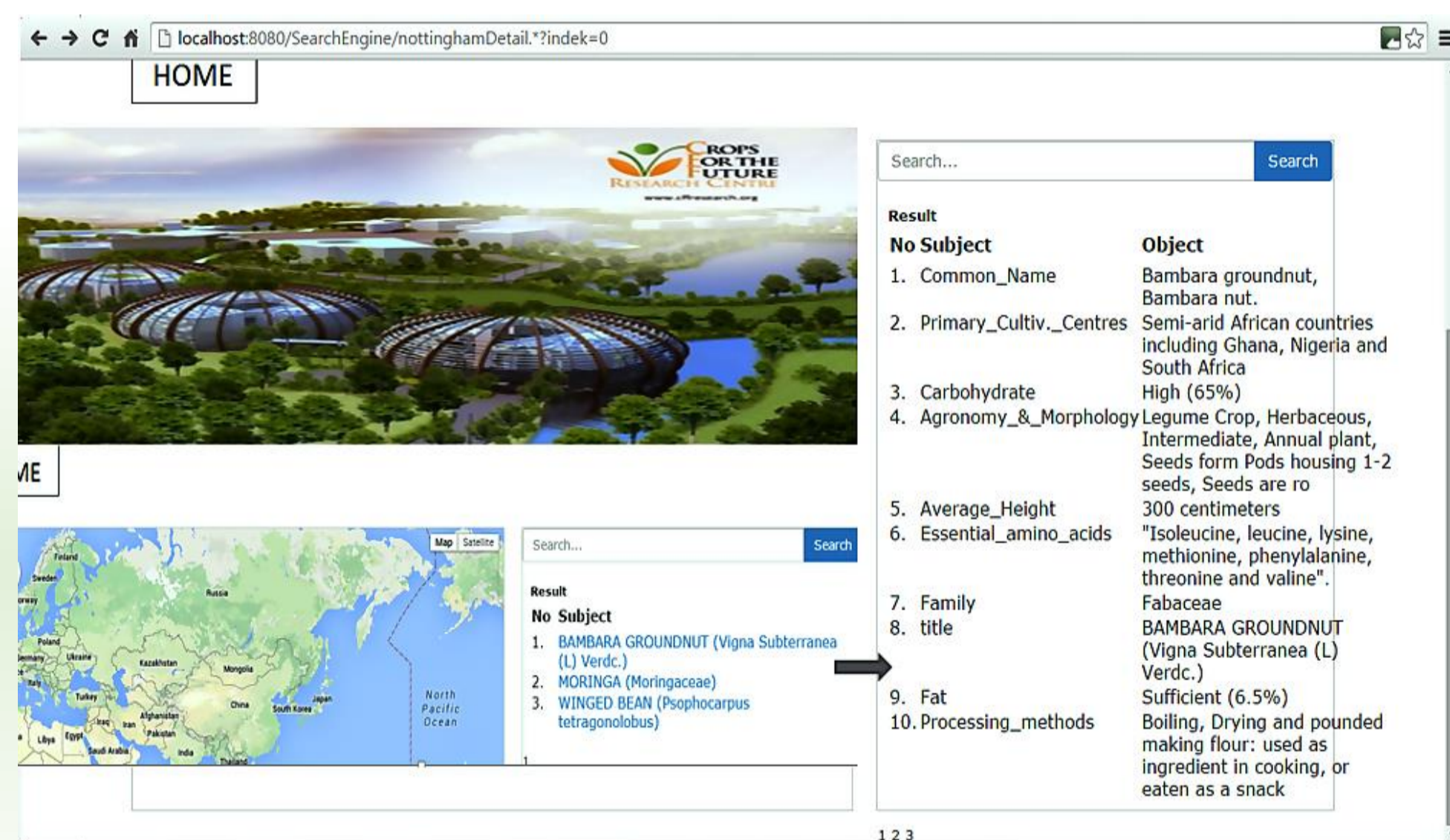


Fig.2 – The Onto-CropBase Home Page showing search results.

4. Results

- An underutilized crops ontology (UC-ONTO) representing basic information on *Moringa*, *BambaraGroundnut*, and *Winged Bean*.
- A keyword-based search engine for exploring the knowledgebase.
- Query answering and presentation mechanism.
- Map interface for location-based data.

5. References

- Lawan, A., Rakib A., Alechina N., Karunaratne, A., (2014): Advancing Underutilized Crops Knowledge Using SWRL-enabled Ontologies - A survey and early experiment. In Proceedings of workshop on Linked Data and Ontology in Practice (JIST-WP 2014), CEUR Workshop Proceedings, ISSN 1613-0073, available from: http://ceur-ws.org/Vol-1312/ldop2014_paper2.pdf.
- Rakib, A., Lawan, A., Walker, S., (2015): An Ontological Approach for Knowledge Modeling and Reasoning Over Heterogeneous Crop Data Sources. In: Abraham, A., Muda, A. K., Choo, Y. H. (eds.): Pattern Analysis, Intelligent Security and the Internet of Things. In: Advances in Intelligent Systems and Computing, Volume 355, 2015, pp 35-47.