W038 – Status Of The Draft Potato Ontology

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Structure of the talk
• Intended use
• Challenges & lessons learnt
• Opportunities
• Status and pendencies

Domain(s):
Breeding, genomics and ex-situ/in-situ genebank management

Main current intended application of potato crop ontology:
- Facilitate prediction of traits

Diversity of wild potatoes (~100-200)

Diversity of potato mapping population
Segregation of tuber shapes and tuber colors in DM progeny (left: D parent; right: DMD parent; below: progeny)

Morphological diversity of landraces (~5000)

Photos: International Potato Center

Photos: A. Salas
Diversity of 5 resistance traits in wild potatoes (from ~40 species)

- Significant differences among accessions and genotypes within a species
- Significant differences among species, series, clades, EBN, and ploidy levels
- No taxonomic grouping criterion identified the most resistant species
- Some biogeographic parameters sometimes predicted the distribution of resistance traits


Predicting resistance traits in cultivated potatoes

Publications from 1986 – 2001
Almost 60,000 total records but “only” ~10,000 usable
32 pests and diseases (bacteria, fungi, insects, nematodes, virus)

Opportunities: Standard descriptors & phenotyping protocols

Opportunities: genomes of two sister species

Opportunities: Phenotyping the potato mapping population

Opportunities: Using biomart as a data integration tool
Status: Potato ontology

On-going: Harmonization with other relevant ontologies
- Plant ontology
- Solanaceae ontology (SGN)
- Potato processing ontology
- ...

On-going: Annotation of field trial data from CIPs breeding network and genebank

On-going: towards biometric data

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