

Genomic Selection to Accelerate Willow Breeding & Deployment (AWBD) for Biomass Energy Production

Five hundred and sixty biomass willow genotypes, primarily *Salix viminalis* and their hybrids, were selected based upon their genome sequence relatedness and planted at four main **environmentally contrasting trial sites** across the UK (map).

Trials (76 x 149 m) have 4 replicate blocks, each with 70 sub-blocks of 9 plots, including one control genotype plot per sub-block, enabling adjustment for spatial variation.

An additional site at AFBI, Northern Ireland was planted with 144 genotypes for G x E comparison.

In total >70,000 cuttings were planted and will be managed as Short Rotation Coppice (SRC).

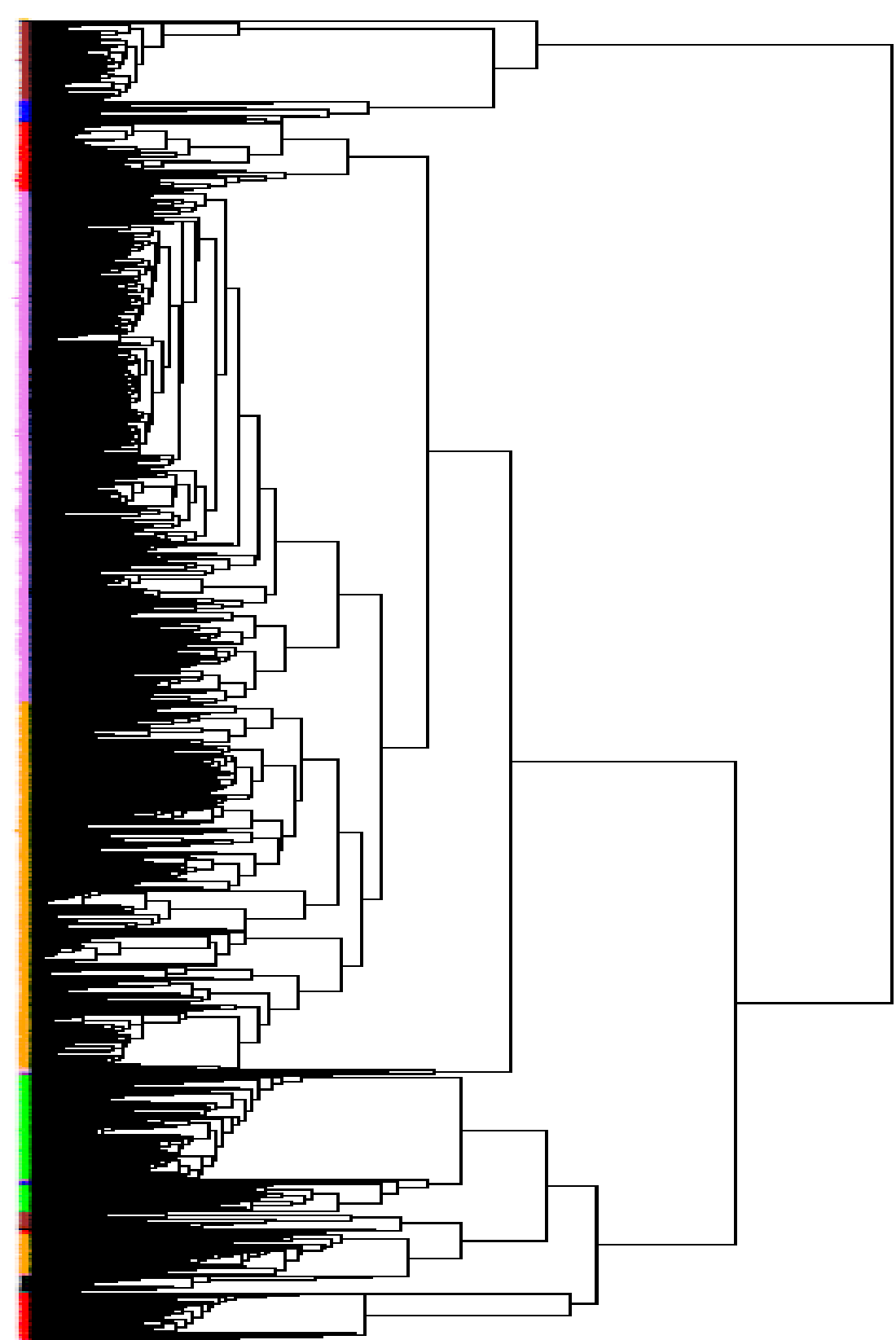
Phenotyping is ongoing for biomass traits of interest: **establishment, pests, pathogens and yield.**

Site management and weather data will be collated.

Genomic selection will model phenotype and genotype sequence data to:

- **Predict parental selection for complex traits, e.g. biomass yield, in contrasting environments i.e. drought, flood, cool, warm, exposed, short day length, high disease pressures.**
- **Bring new, superior varieties to market faster.**
- **Lower breeding costs.**

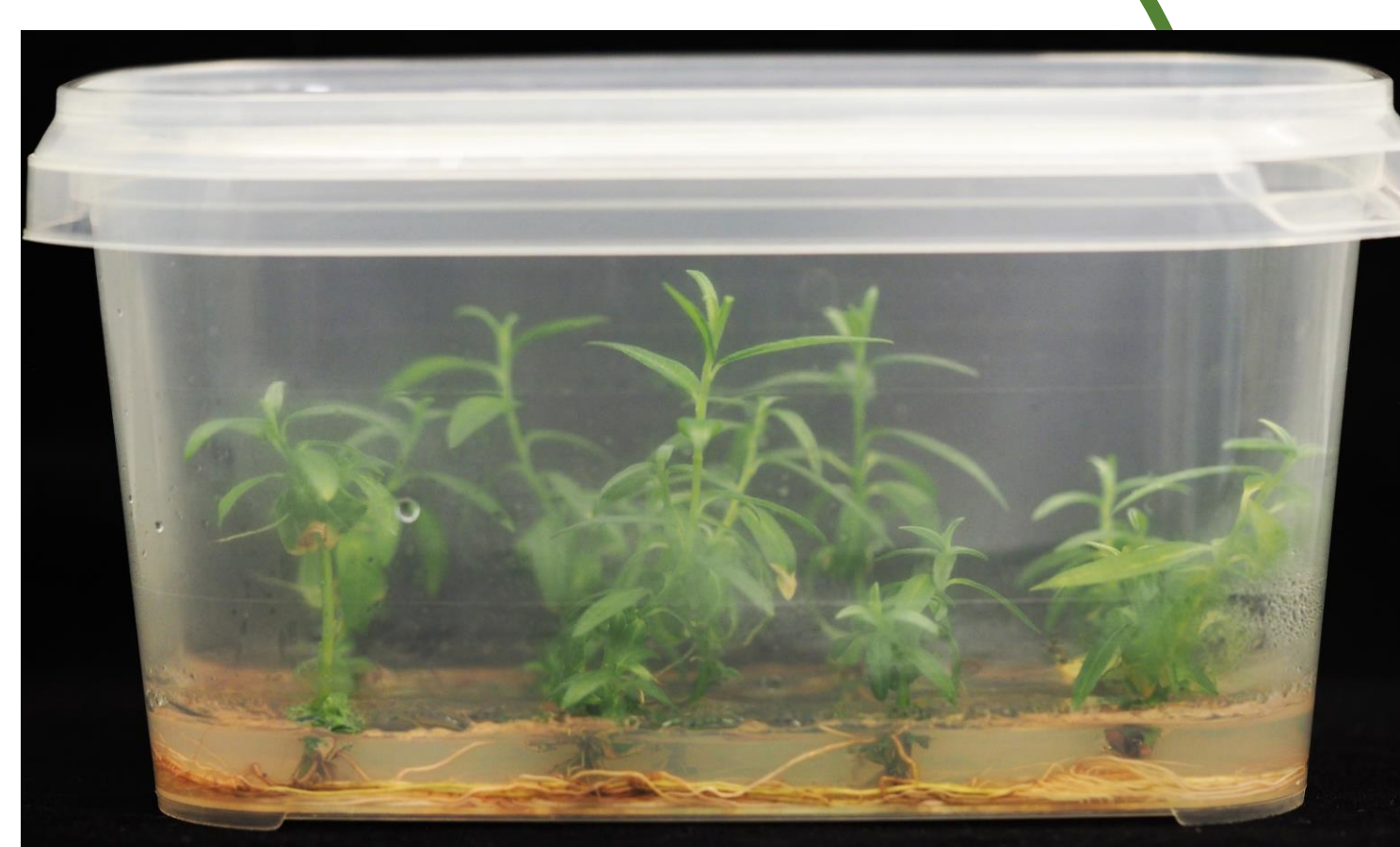
Micropropagation techniques are being developed to ensure new willow varieties can be rapidly upscaled, as faster breeding schemes will provide less planting material in the early phase of variety introduction.



● SRUC Craibstone



● Newcastle University
Cockle Park Farm



● Rothamsted Research
Woburn Experimental Farm

● AFBI-NI Hillsborough

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