Breeding Resources

Characterization of the haplotype blocks in chromosome Pv01 (left) and analysis of the variation of linkage disequilibrium (above) across the 11 chromosomes of the bean (Phaseolus vulgaris L.) genome.

http://www.beancap.org/

Drought Tolerance

The stomatal conductance of reciprocal grafts (shoot/root) of drought susceptible P. vulgaris ‘Jaguar’ (jag) and the drought tolerant P. acutifolius ‘Tepary’ (tep), grown to maturity, and then exposed to progressively increasing water stress. Water withheld for seven days, then watering resumed on day 8 (left).

Symbiotic Nitrogen Fixation

Yield and percent N derived from atmosphere (fixdf) of select black bean recombinant inbred lines (RIL) developed by crossing Puebla 152 and Zorro (circled in red) grown in a low N field. The RILs vary in the proportion of N fixed from the atmosphere.

Association analysis for seed yield on Pv09 under rainfed conditions in the Middle American BeanCAP diversity panel (above). Valerio Hoyos-Villegas

The Breeding Cycle

Information gained from the surrounding projects helps improve the breeding process.

Disease Resistance

Fusarium root rot. Quantitative Trait Locus (QTL) for resistance detected on chromosome Pv02 (below) using a Puebla x Zorro RIL population.

Flowering and Maturity

Association analysis showing significant SNP markers for flowering (top) and maturity (bottom) in field studies of the ADP. Model of candidate gene with high sequence similarity to A. thaliana gene phyA (photoperiod sensitivity control).

International Projects

Former student: Dr. Gerardine Mukeshimana, current Minister of Agriculture for Rwanda

http://legumelab.msu.edu/

Two major team efforts: The Feed the Future Legume Innovation Lab project is focused on improving genetic yield potential of Andean beans with increased resistances to drought and major foliar diseases and enhanced biological nitrogen fixation in Uganda and Zambia and developing common bean germplasm with resistance to the major soil borne pathogens in Rwanda and Uganda.

*Contact: kellyj@msu.edu
http://bean.css.msu.edu/