NRSP10 Progress in the last 12 months

1. Tripal Core Database Infrastructure Development
    - Tripal v2.0 released on June 1 and an alpha version of Tripal 3 released January 2016
    - Web service implementation underway that is backend independent so more users can use Tripal that don't need to have Chado as a database backend. This provides more flexability for Tripal use.
    - Tripal is now being used for more than 80 species/clade databases
    - Specific NRSP10 crop database usage statistics in 2015 (by Google Analytics)
        - GDR - 18,089 users from 145 countries, 196,562 pages viewed
        - CottonGen - 19,760 users from 142 countries, 102,549 pages viewed
        - CSFL - 2,977 users from 126 countries, 17,317 pages viewed
        - CGD - 4,262 users from 117 countries, 21,961 pages viewed
        - GDV- 1,324 users from 73 countries, 6,444 pages viewed

2. NRSP10 Crop Databases
   New, more user-friendly website designed for all the databases using Tripal2 and Drupal7. The new designs include development of an NRSP customized logo for each of the five databases. So far the CottonGen (Figure 1) and Cool Season Food Legume (Figure 2) databases are live with the new design and the other three will go live later this year. Important new features in these designs include addition of major species overview pages to more easily view the data and tools available for the major species from a single page as well as quick links to the most used features from the home page. A significant volume of new data has been added to 4 out of the 5 databases, with major expansion planned for the remaining database (Vaccinium) later this year**.**

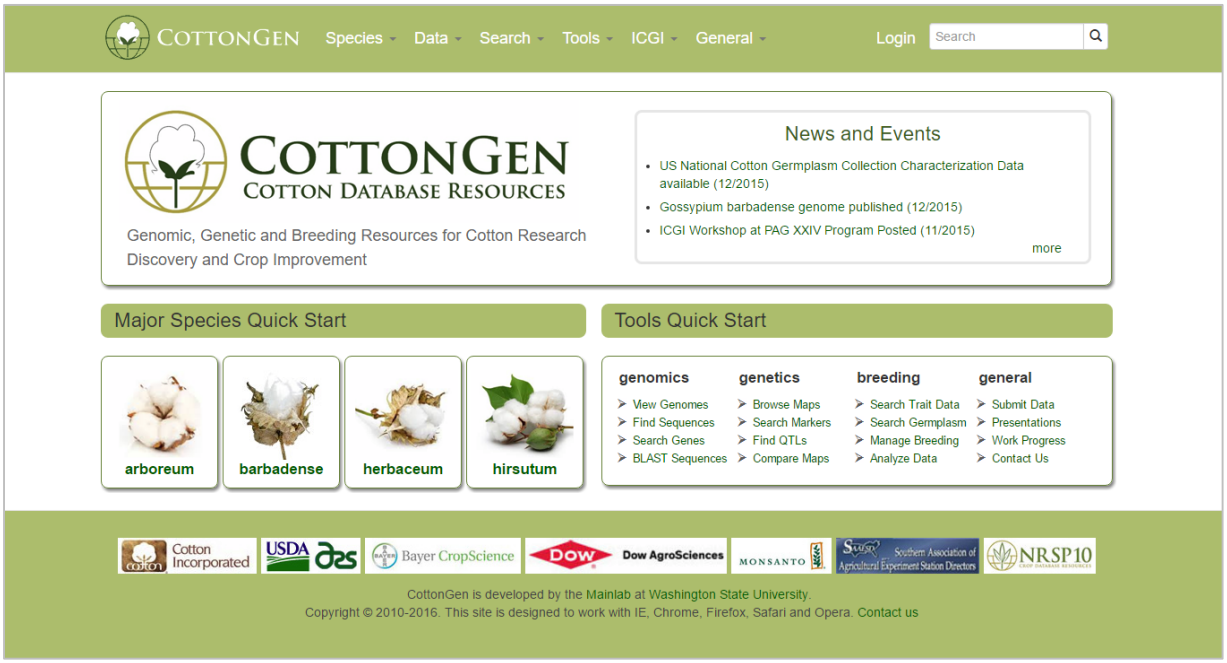

Figure 1: CottonGen Database in Tripal2

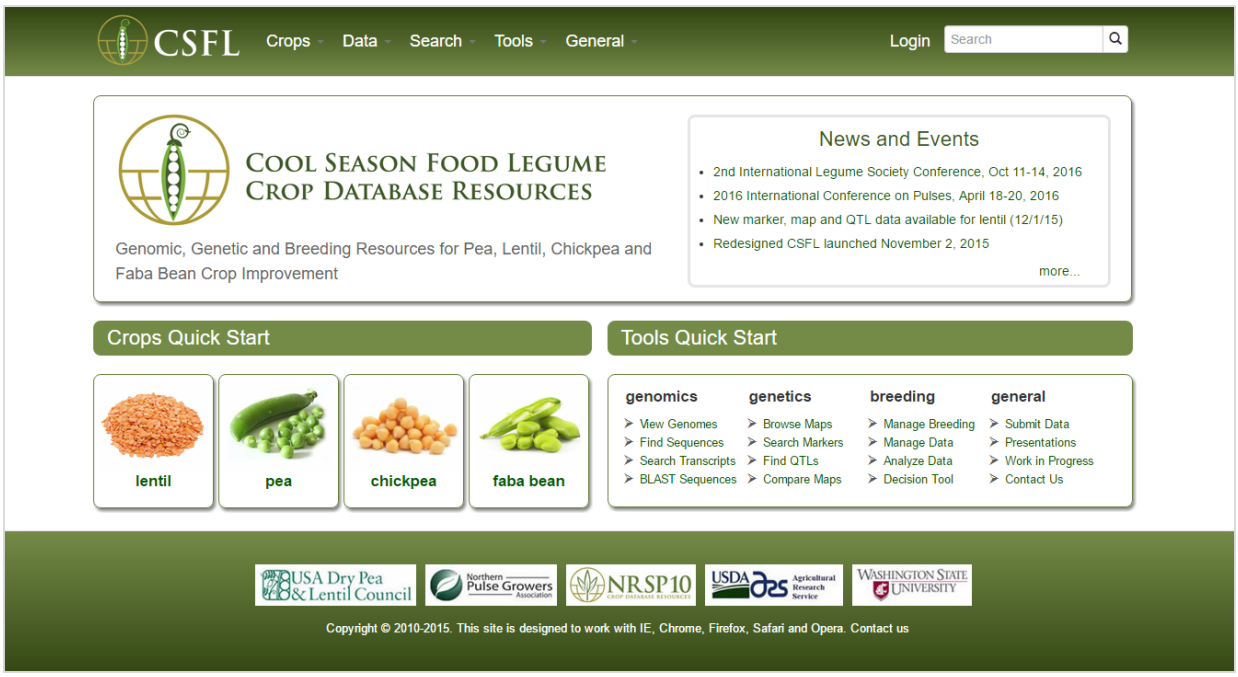

Figure 2: Cool Season Food Legume Database in Tripal2

3. Development of Breeding Tools
    - Held NRSP10 breeders needs assessment workshops at the National Association of Plant Breeders Annual Conference in July 2015 and at the RosBREED participant project meeting in Michigan 2016
    - Over 20 NRSP10 breeders now assessing use of Jesse Polands' FieldBook App for collecting phenotypic data. Reports are very encouraging; we plan to divert funds for a 50% developer position from NRSP10 to Jesse toward continued development of FieldApp to meet NRSP10 crop breeders needs.
    - Major development ongoing of a comprehensive Breeding information Management System for Tripal databases that will allow breeders to store, manage and analyze all their breeding data within a secure portal that connects up to all relevant public breeding data and genomic, genetic and breeding data in the crop database (Figure 3).

4. Genome Sequence Annotation Server (GenSAS)
    - GenSAS v3.0 released in December 2014 and GenSAS v4.0 (Figure 4) released in January 2015
    - Major improvements include ability to use HPC to parallel process jobs for enhanced speed of large genomes and addition of full functional annotation capability as well as additional tools for structural annotation, integrated with JBrowse and WebApollo. In the last year GenSAS has been accessed by 1,135 visitors from 73 countries, with 2,333 sessions and 7,850 pages viewed. There are currently 2009 active accounts

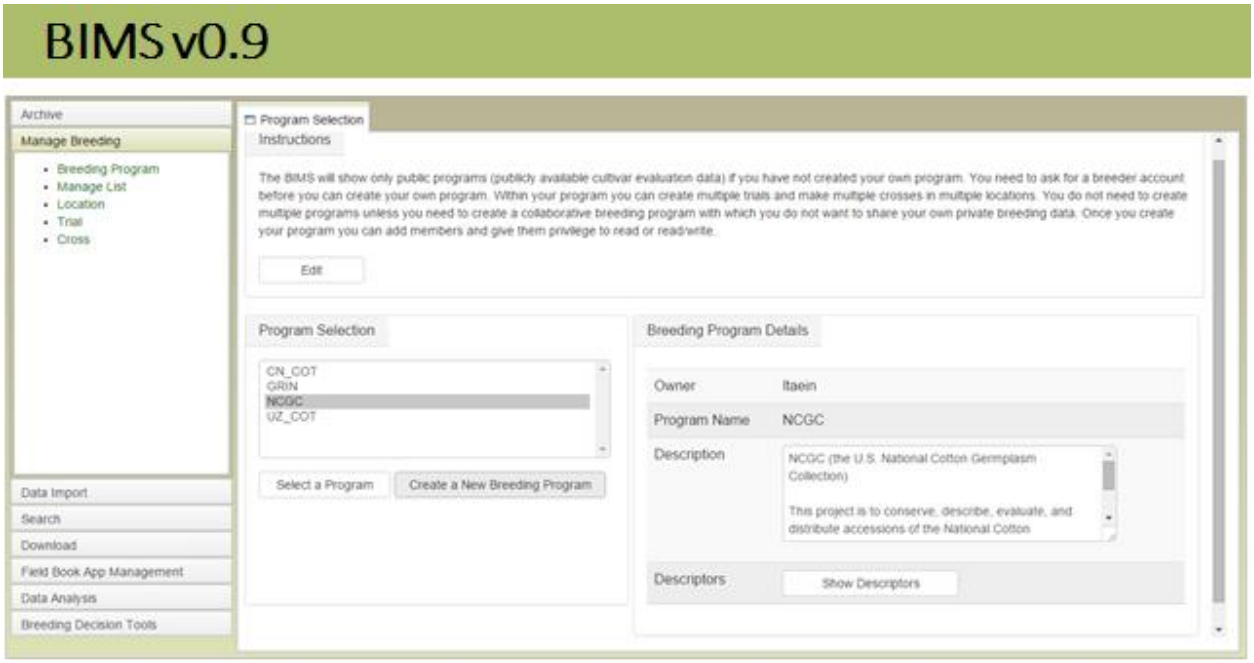

Figure 3: BIMS v0.9

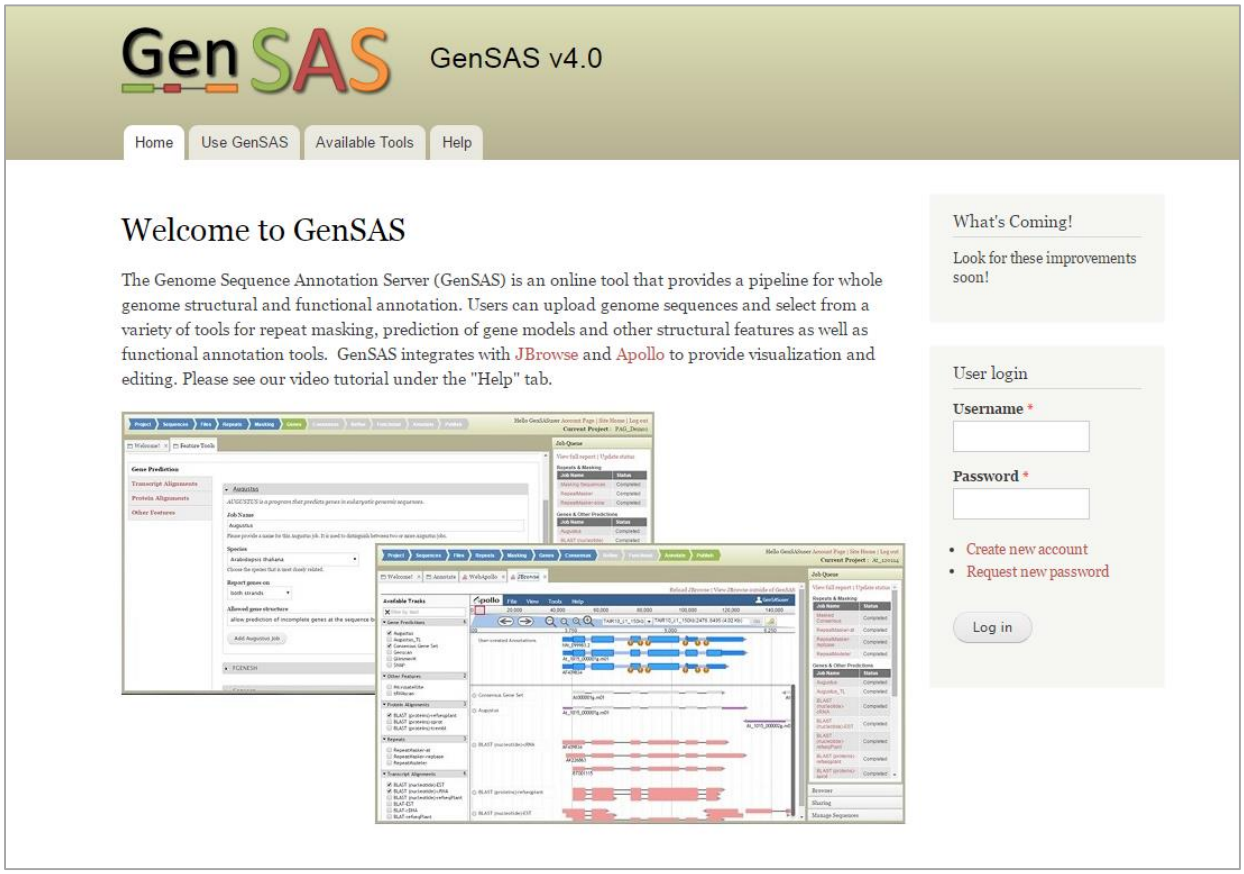

Figure 4: GenSAS V4.0

5. Other activities
   - Held monthly Tripal developer meetings
   - Held second Tripal Workshop at the 2016 Plant and Animal Genome Conference
   - Developed an NRSP10 website (Figure 5)
   - Held steering committee meetings
   - Gave 17 presentations of NRSP10 or NRSP10 individual databases at local, national and international conferences or meetings
   - Active participation in the AgBioData workgroup (monthly meetings)

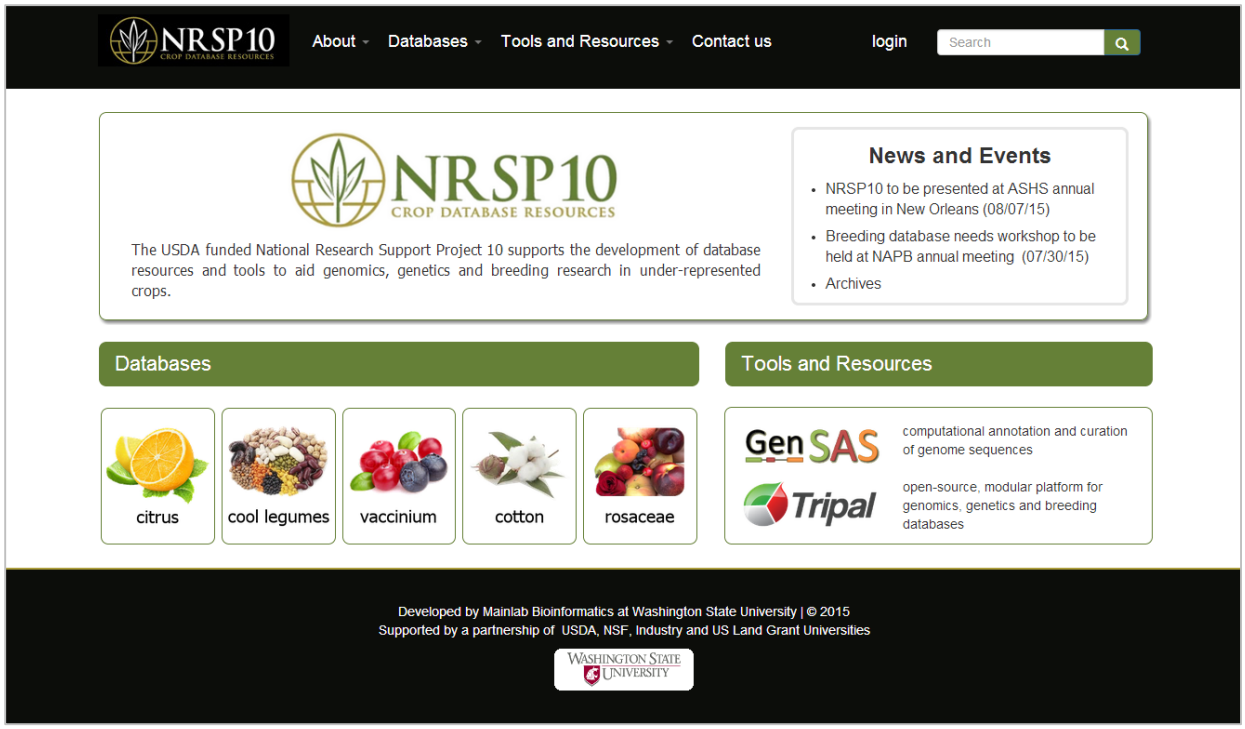

Figure 5: NRSP10 Website