

crisphead cultivars were asymptomatic (resistant) and all modern romaine cultivars were susceptible. Both resistant and susceptible accessions were identified among modern leaf lettuce cultivars, heirloom crisphead cultivars, and romaine-like PI accessions. The romaine PI 491224 was used in the development of resistant romaine breeding lines (Grube and Ryder 2003). Focusing on the modern crisphead cv. Salinas and PI 491224, both of which fail to develop symptoms in infested fields, our objectives were to determine the inheritance of resistance and to assess whether the viral pathogen systemically infects asymptomatic plants under field and laboratory conditions. Preliminary data suggest that resistance in PI 491224 is conferred by a dominant allele at a single locus. We will discuss the implications of our results on the potential for the long-term control of lettuce dieback through the use of resistant cultivars.

1:30 pm–3:15 pm ORAL SESSION 6

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Ornamental Plant BreedingModerator: *To be announced*1:30 **Molecular Genetic Components of Inflorescence Architecture in *Buddleja***Jeffrey A. Adkins^{*}, Dennis J. Werner

Horticultural Science, North Carolina State University, Campus Box 7609, Raleigh, NC, 27695-7609

Rapid progress has been made over the past decade in understanding the molecular genetic control of meristematic phase change and inflorescence development. Several pathways for floral induction and development have been extensively characterized in model plant species. These findings provide increased insight into the molecular genetic components of inflorescence diversity. *Buddleja*, a cosmopolitan taxon of roughly 100 species, provides a unique model for studying inflorescence development at the molecular level. Great diversity in inflorescence architecture exists among *Buddleja* species, and numerous hybrids exist between and among many of these taxa. Breeding goals have included the enhancement of floral architecture through increased panicle branching and total flowers per inflorescence. Homologues of floral meristem identity genes FLORICAULA (FLO) and LEAFY (LFY) from *Antirrhinum majus* and *Arabidopsis thaliana* have been isolated from *B. davidii* 'Nanho Purple' ($2n = 4x = 76$) and *B. lindleyana* ($2n = 2x = 38$). A Reverse Transcriptase-Polymerase Chain Reaction (RT-PCR) technique was used to isolate partial internal cDNAs of putative homologues from total RNA extracted from young developing inflorescences. Additional DNA sequences corresponding to the 5' and 3' ends of the coding regions were isolated by Random Amplification of cDNA Ends (RACE). DNA sequences representing the coding regions of *B. davidii* and *B. lindleyana* homologues show strong sequence identity with FLO and other FLO/LFY homologues. FLO/LFY homologues exist as single copy genes in most other plant species. Three unique coding sequences have been identified in *B. davidii* and *B. lindleyana* representing at least two gene copies each. Deletions in the coding sequences from both taxa are consistent with other FLO/LFY homologues. Additionally, *B. lindleyana* transcripts are shorter than *B. davidii* transcripts. However, no deletions within functional domains were found.

1:45 **Breeding and Studies of Flower Color in *Anagallis monelli* L.**Rosanna Freyre^{*1}, Robert J. Griesbach²

¹Plant Biology, University of New Hampshire, G36 Spaulding Hall, Durham, NH, 03824, ²U.S. Dept. of Agriculture, Floral and Nursery Plant Research, Agricultural Research Service, BARC-West, Bldg. 010A, Beltsville, 20705

Breeding of *Anagallis monelli* (Blue Pimpernel) was initiated at UNH in 1998. *A. monelli* is an annual plant of Mediterranean origin with beautiful blue flowers and trailing habit. In 1998, only one blue cultivar ('Skylover Blue') was grown commercially. Although attractive, 'Skylover Blue' is very leggy (long internode length) and flowers later than desired for spring sales. A cultivar with small orange flowers

('Sunrise') was also available. Breeding goals were to develop plants with earlier flowering, more compact growth, bigger flowers, long blooming period and outstanding performance as bedding plants or in hanging baskets. Breeding methods have included multitrail selection, polyploidization and interspecific hybridizations. Selection cycles are initiated under artificial lighting in the greenhouse during fall and winter months. During summer, selected lines are trialed in the field and as outdoor and greenhouse hanging baskets. In Spring 2002 the first two cultivars developed at UNH were released: 'Wildcat Blue' and 'Wildcat Orange'. We have also obtained breeding lines with pink and violet flower colors. Currently, other *Anagallis* breeding lines are under industry trials with the goal of releasing cultivars with other flower colors. The inheritance of flower color in *A. monelli* is being studied. Based on pigment analysis of blue, orange and red anthocyanins and genetic segregation data, we propose a three-gene model determining flower color in this species. Research is in progress to test this hypothesis with populations developed using diploid blue and orange wild accessions of *A. monelli* collected in Southern Europe.

2:00 **The Ornamental Plant Germplasm Center—Ranking Priority Genera For Conservation**David Tay^{*}

Ornamental Plant Germplasm Center, The Ohio State University, 670 Tharp Street, Columbus, OH, 43210

The Ornamental Plant Germplasm Center (OPGC), the new US National Plant Germplasm System (NPGS) repository at The Ohio State University is mandated to conserve, evaluate and distribute herbaceous ornamental plant germplasm. It is the first specialized genebank for flowers in the world. The center's mission, goal and objectives have been formulated, presented and approved by the US Department of Agriculture, floriculture industry and academia following its official inauguration in July 2001. Herbaceous ornamentals consist of many genera and species and one of OPGC key tasks is the prioritization of plant genera for conservation. The center works in consultation with the NPGS Herbaceous Ornamental Crop Germplasm Committee (HOCGC) on this. The HOCGC in 1995 proposed the first list of 24 priority genera and was superseded by a second list of 48 genera from a survey among HOCGC members in 1999. The current priority genera list effective from 2001 includes thirty genera as follows: Aglaonema, Alstroemeria, Anthurium, Aquilegia, Aster, Baptisia, Begonia, Campanula, Chrysanthemum (Dendranthema), Dianthus, Dieffenbachia, Euphorbia (Poinsettia), Geranium, Hemerocallis, Impatiens, Iris, Lilium, Narcissus, Pelargonium, Petunia, Phalaenopsis, Philodendron, Phlox, Rudbeckia, Salvia, Spathiphyllum, Tagetes, Verbena, Veronica and Viola. Together they represent some 6,692 species based on Hortus Third (1976) and thus too many taxa for a new center to handle. It was decided at the 2001 HOCGC meeting to rank them. Eight criteria were used to score the degree of importance in term of germplasm conservation and commercial value. The questionnaire was distributed to the current 37 HOCGC members from the floriculture industry, universities, USDA and botanic gardens, and 16 responses were received. The questionnaire was also sent to the industry by OFA An Association of Floriculture Professionals and 13 responses were returned. Weighted means were used to handle missing values and to take care of differences in scoring level between responses. The HOCGC and non-HOCGC group were analyzed separately and then combined together. The top fifteen genera in descending order are as follows: Begonia, Impatiens, geranium (referring to Pelargonium), Petunia, Salvia, Pelargonium, Viola, Dianthus, Campanula, Hemerocallis, Alstroemeria, Lilium, Verbena, Rudbeckia and Phlox.

2:15 **Breeding New Chilean Bulb Species**Mark Bridgen^{*}

Department of Horticulture, Cornell University, 3059 Sound Ave. LIHREC, Riverhead, New York, 11901

Along-term breeding project with several Chilean geophytes began