weather factors on the growth and flowering of these sunflowers. Uniformity of stem length and flower diameter were best for Procut Orange and Procut Lemon, while there was more variation in Procut Bicolor and considerable variation in Golden Cheer, which threw off-types and required disbudding to produce single flower heads. Procut Orange and Procut Lemon averaged 54 days from seed sprout to flower during the high light period, but required a longer time during December–January. Procut Bicolor averaged 59 days from sprout to harvest during the high light period and took longer during December–February. Golden Cheer followed a similar pattern, requiring the longest average time from sprouting to harvest. While marketable stems were considered to be a minimum of 60 cm, and all varieties achieved this year around, longer and stronger stems were produced during the high light time of year. Correlation with daily light integral and degree day accumulation did not reveal a relationship for stem length or days to harvest from seed sprouting. Stronger influences were irrigation and weed density competition.

Specified source(s) of funding for the work presented in this abstract: Department, College, State and/or HATCH

(366) Peonies as Field Crown Cut Flowers for Alaska

Patricia Holloway*, Univ. of Alaska Fairbanks, Fairbanks, AK, ffpsh@uaf.edu

Janice Hanscom, Univ. of Alaska Fairbanks, Fairbanks, AK, fnjth1@uaf.edu

Peonies as field-grown cut flowers have potential as a horticultural export from Alaska because harvest times occur in late June to August when peonies from other world markets are not available. Research was begun in 2001 to identify appropriate cultivars and best management practices for field cultivation. Six cultivars were eliminated from cultivar trials because they died or productivity was too low for commercial production: 'Better Times', 'Gardenia', 'Mos. Jules Elie', 'Nancy Nichols', 'Raspberry Sundae', and 'Vivid Rose'. The cultivars producing the greatest number of U.S. quality grade cut stems were 'Dr. Alexander Fleming', 'Duchess de Nemours', 'Sarah Bernhardt', 'Felix Crouse', 'David Harum' and 'Festiva Maxima'. Amending soils with garden waste compost or Lemeta peat moss did not increase the number of flowering or vegetative stems in the first 3 years. A within-row plant spacing of 30, 45, or 60 cm showed no consistent difference in number of flowering and vegetative stems or stem quality in the first 3 years. Variation among individual plants in both experiments was so great it masked any treatment effects. No differences were recorded in flowering times, and number of vegetative and flowering stems during the first growing season between 'Sarah Bernhardt' and 'Duchess de Nemours' with three levels of shade (0, 10, and 60%) used to delay spring snow melt and potentially delay flowering times. A test market of Alaska peonies with Los Angeles wholesale flower distributor affirmed that Alaska peonies meet market standards and may be sold for at least three times the value of peony stems sold during the major May–June market season.

Specified source(s) of funding for the work presented in this abstract: Federal competitive

(367) Increasing Snapdragon Cut Flower Yields with Early Pinching

H. Chris Wien*, Cornell Univ., Ithaca, NY, hcw2@cornell.edu

Snapdragon (*Antirrhinum majus*) is a popular species of cut flowers that is often grown in greenhouses, as well as in fields and high tunnels. Greenhouse production is typically at high density, with only one stem harvested per plant. In field culture, lower plant densities reduce initial costs, and encourage basal branching of the plants. In experiments conducted in a field, and in an adjacent high tunnel, four cultivars of snapdragon, spanning the major flowering response groups were compared in their response to apex removal (pinching). The field study was transplanted 8 May in a 2-cm square planting pattern, with four plants across the beds 91 cm wide. The high tunnel planting on July 13 had the same plant arrangement and cultivars. Pinching that left seven main stem nodes delayed first harvest 3 to 6 weeks depending on cultivar earliness, but increased total yields by 35 and 48% for the field and tunnel experiment, respectively. Length of harvested stems was not significantly affected in the field trial, but reduced by 10% in the tunnel. The latest cultivar in the field trial was less responsive to pinching than the others, leading to a significant cultivar by treatment interaction with regard to yield. Results suggest that pinching is a technique especially useful for snapdragon cultivars in flowering response groups I to III in this cool temperate environment.

(368) Effect of Silverthiosulphate (STS) and Sucrose on Postharvest Display Life of Cut Panicles of *Ipomopsis rubra* L.

Wayne Mackay*, Texas A&M Univ., Dallas, TX, w-mackay@tamu.edu

Narendra Sankhla, Texas A&M Univ., Dallas, TX, n-sankhla@tamu.edu

Cynthia McKenney, Texas Tech Univ., Lubbock, TX, Cynthia.McKenney@ttu.edu

Ipomopsis rubra (L.) Wherry (Standing Cypress), a member of phlox family, is native to North America and is native to West Texas. It produces a thyrse-like attractive panicle consisting of 1-3 flowered cymose inflorescences with scarlet–yellow-red flowers on a long axis with dark green pinnately parted leaves. These attractive panicles have potential as a specialty cut flower crop. Herein, we report our preliminary observations relating to postharvest performance of cut flowering stems of this plant. Our studies indicated that as in phlox, the flowers exhibited the characteristic "corolla abscission", but were found to be relatively more tolerant to ethylene than phlox. However, a pretreatment with STS considerably delayed corolla abscission and, to some extent, flower senescence. Incorporation of sucrose in the vase solution dramatically promoted opening of new flower buds, although some flowers continued to abscise during the vase life. In spite of flower abscission, the presence of sucrose in the holding solution greatly improved vase life because of an enormous number of new flower buds that continued to open during the vase life. Placement of STS-treated flowering stems in vases containing sucrose suppressed the induction of abscission of flowers, but the new buds continued to open and develop into flowers. Thus, a combined treatment with STS and sucrose resulted in a further enhancement of post harvest performance of cut panicles of Standing Cypress.

Specified source(s) of funding for the work presented in this abstract: Department, College, State and/or HATCH

(369) Establishment of Proper Handling Protocols for Increased Growth After Storage of Dried Tubers of *Ranunculus asiaticus*

Christopher Cerveny*, Cornell Univ., Ithaca, NY, cbc35@cornell.edu

William B. Miller, Cornell Univ., Ithaca, NY, wbm8@cornell.edu

Alan G. Taylor, Cornell Univ., Ithaca, NY, agt1@cornell.edu

Ranunculus asiaticus is a traditional cut flower and flowering potted plant showing increased popularity for use in early spring gardening and landscape designs. Unfortunately, growers have observed reduced viability with *R. asiaticus* roots when stored for extended time periods. It has been suggested that optimal storage temperature of dried tubers is within the range of 14 to 25C; however, specific handling conditions for *R. asiaticus* tubers has not been fully documented. To investigate the issues surrounding viability after storage, an initial experiment was conducted to determine appropriate relative humidity (RH) conditions for dried tubers during storage. Dried R. asiaticus tubers were stored in modified controlled-environment chambers, which provided controlled humidity using glycerol-water solutions mixed at specific ratios. Tubers were stored 3 weeks at 50% RH, and then divided into specific RH environments. After holding an additional 6 weeks at