

Enhanced flowering of Protea in Hawaii  
1 July – 31 December 2010

Progress Report

# Enhancing Protea Flowering in Hawaii

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## **Enhancing Protea Flowering in Hawaii**

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The objective of this study is to utilize a combination of pruning times and application of cytokinin to manipulate flowering times for *Protea* cultivars popularly grown in Hawaii.

### **Progress Report**

Funding was received too late for the first scheduled time of pruning in July 2010, so a third pruning time was added for January 2011. Funds were spent to travel to the island of Maui where the protea plants were established at the University of Hawaii Maui Agricultural Research Station. Trips were made September 20, and November 18, 2010 with the third trip scheduled for January 18, 2011.

Eleven cultivars/species of *Protea* were selected. Plant age ranged from 5 to 12 years since planting. Branches were chosen to be cut back that were not bearing flower buds that would be harvested by the Station farm crew. These branches were 8 to 12 mm in diameter at the point of cutback with mature green leaves. The cutback was usually in the second flush below the growing point or an old inflorescence. For each cultivar or species 5 to 7 branches were chosen, anticipating that return shoots would number 10 to 12 for cytokinin treatment after the production of 3 flushes. Each pruning site was tagged with a numbered tag so that it could be followed to maturity and flowering.

At the November cutback, branches from the September cutback were examined. Buds that were swelling or beginning to elongate (Figure 1) were noted as well as ones that were not yet active. Similar observations will be made on both sets of pruned branches during the January pruning.

The 2 trips have cost about \$440 of the grant amount.

### **Planned continuation:**

The three times of cutback should yield different times at which the start of the third flush is reached. This is the stage at which cytokinin treatments will be applied to stimulate inflorescence initiation. A technician at the Station will monitor shoot development and advise when the third flushes beginning their elongation, estimated to be some time in late summer or fall 2011. South African studies have determined that flower initiation occurs as the third flush begins to elongate. This timing corresponds to the autumn timing of South African research upon which this study is based. (Normal flower initiation occurs in the spring.) Control shoots from pruned branches will be compared with treated branches in terms of flower initiation and harvest.

Additional travel to Maui will be necessary to apply the cytokinin at the “green point” stage of development – the terminal bud is about 1.5 cm long. As the time of

pruning spans 5 months, treatment times are likely to vary with the different cultivars. I estimate 4 or 5 trips will be necessary.

A no cost extension is requested to use any unexpended funds past June 30, 2011, as our Business Office will restrict spending of the granted funds sometime in early June.

A proposal for funding to support continuation of this study will be made separately. As for this first year, it will be used for travel to Maui from Oahu to conduct the research.



Figure 1. Pruned September 20, 2010. Three growth flushes elongating at end of December 2010. Weakest flush will be removed.