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Pacific Bulb Society

~gardening with bulbs~

The Best Time To Plant Bulbs

by Sheri Anne Richerson

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Fall is the perfect planting time to add bulbs and perennials to your flowerbeds. Perennials are plants that over-winter in the garden and will come back the following year. Perennials also multiply over time. Skillful combinations of bulbs and perennials can be quite dramatic.

"In the last decade, American gardeners have become increasingly sophisticated in their uses of perennials in the garden," says Frans Roozen, technical director of the International Flower Bulb Center in Hillegom, Holland. "Fall planting gives perennials a leg up on the next season. If they're fully rooted in fall before winter season snows or rains, come spring, they're fully established and ready to grow. With fall planting, everything happens faster and plants acquire extra strength."

Many of you know that you should plant your bulbs in the fall, but did you know that there are sixteen different U.S. Bulb planting regions? These regions greatly affect your choices in bulbs and proper planting times. It is important to take into consideration such things as climate, elevation, average rainfall as well as other various seasonal weather patterns. This regional information will help you to achieve the maximum success possible with your bulbs.

New England

Region "A" is the New England area including USDA Hardiness Zones 3, 4 and 5. The conditions here are almost perfect for spring-flowering bulbs.

If you would like to try to grow something that is not hardy to your area, you can try these tips. Although success is not guaranteed, you just might be surprised at the outcome.

Choose a site that is well protected from wind and extreme cold and mulch your bulbs heavily. Plant the bulb deeper than you would if it were in its natural environment. A good place to try this is up against a foundation or another equally protected spot.

The optimum planting time for this region is September 15th through November 15th.

Bulbs that naturalize well in this area include *Scilla siberica, Narcissus poeticus* var. *recurvus, Tulipa clusiana 'Cynthia,' Allium moly, Eranthis cilicica, Galanthus nivalis, Colchicum byzantinum* and *Crocus tommasinianus.*

Mid-Atlantic Coast

Region "B" is the Mid-Atlantic Coastal area including USDA Hardiness Zones 6, 7 and 8.

This is an area to try those tropical or other marginally hardy plants. Be sure to plant them in an area that is protected from wind and extreme cold. You can a light mulch of straw or pine needles around the foliage that emerges early to help protect it from burn. However, a slight foliage burn will not affect flowering.

The optimum planting time for this region is October 1st through November 30th.

Good choices for bulbs that naturalize easily in this area include *Narcissus bulbocodium conspicuus, Narcissus obvallaris, Tulipa clusiana* var. *chrysantha, Chionodoxa forbesii, Hyacinthoides hispanicus, Ipheion uniflorum* and *Ornithogalum nutans.*

Appalachia

Region "C" is the Appalachian area, which includes USDA Hardiness Zones 5 and 6.

Due to the variety of elevations in the region, you have many opportunities for different planting styles. The many hills and banks make perfect spots for creative designs.

The optimum planting time in this region is September 15th through November 30th.

Bulbs that naturalize well here include *Chionodoxa sardensis, Crocus ancyrensis 'Golden Bunch', Erthronium dens-canis* (in woodland areas), *Fritillaria meleagris* (in damp meadow areas), *Geranium tuberosum, Hyacinthoides hispanica* and *Scilla bifolia.*

South Atlantic Coast

Region "D" is the South Atlantic Coastal area. It includes USDA Hardiness Zones 7 and 8.

The climate is moderate with hot, moist summers and cool or cold, moist winters. This creates the opportunity to grow many spring-flowering bulbs successfully. The only drawback here is that many bulbs do not perennialize well due

to the moist conditions. If this is your goal, check with local gardening centers for their advice. Plant your bulbs where they will remain relatively dry if you use an automatic irrigation system.

The optimum planting time for this zone is October 15th through December 15th.

Bulbs that easily naturalize here include *Narcissus bulbocodium* (in the lawn), *Narcissus jonquilla* (perfect for hot summers), *Tulipa saxatilis, Allium sphaerocephalon, Arum italicum* (shade), *Chionodoxa forbesii, Crocus tommasinianus* and *Ipheion uniflorum* (in the lawn.)

Great Lakes

Region "E" is the Great Lakes area. It includes USDA Hardiness Zones 5, 6 and 7.

This region is greatly affected by extreme climate changes and heavy winds from the Great Lakes. Choose shorter, sturdier cultivars that can stand up to these conditions.

The optimum planting time for this zone is September 15th through November 15th.

Bulbs that easily naturalize here include *Allium triquetrum* (in woodland areas), *Crocus tommasinianus 'Ruby Giant', Eranthis cilicica* (damp, woodland areas), *Erythronium* (woodland areas), *Leucojum aestivum* (at a streams edge), *Scilla siberica* (in woodland areas or lawns) and *Triteleia 'Queen Fabiola'* (dry, meadow areas).

East Central

Region "F" is the East Central area with USDA Hardiness Zones 5, 6 and 7.

This is an excellent area for most spring-flowering bulbs because of the moderately cold winters, ample moisture and the warm to hot summers.

The optimum planting time for this region is October 1st to November 30th.

Bulbs that naturalize well here are *Allium roseum, Anemone nemorosa* (woodland area), *Chionodoxa forbesii, Crocus sieberi 'Firefly,' Crocus tommasin-ianus, Geranium tuberosum, Hyancinthoides hispanica* and *Nectaroscordum siculum.*

South Central

Region "G" is the South Central area including USDA Hardiness Zones 7 and 8.

Although the climate allows most spring-flowering bulbs to flourish, bulbs that have longer cold requirements and a drier summer dormancy period do not. On occasion some tropical, semi-tender bulbs naturalize here. Many heirloom bulbs are found in old homes and cemeteries in this region.

The optimum planting time for this zone is October 15th through December 15th.

Bulbs that naturalize here include *Narcissus jonquilla, Tulipa clusiana 'Cynthia,' Tulipa saxatilis, Allium neapolitanum, Allium sphaerocephalon, Dracunculus vulgaris, Muscari neglectum* and *Triteleia laxa 'Queen Fabiola'.*

Tropical

Region "H" is the Tropical area with USDA Zone 10.

Although this climate rarely gets frost, it does have very hot and humid summers. This is an ideal climate for many summer-blooming tropical bulbs but is not such a great environment for more traditional spring-flowering bulbs such as the tulip.

If you really must have tulips or other spring-blooming bulbs that won't thrive in your climate, you can buy them yearly from a local garden center. Another approach is to try forcing them after over-wintering in your refrigerator to give them a proper chill. You can improve drainage from the summer storms by using raised beds.

The optimum planting time for bulbs in this region is December 1st through January 31st.

Bulbs that naturalize in his region include *Oxalis regnellii* var. *triangularis, Oxalis tetraphylla* and *Oxalis tetraphylla 'Iron Cross.'*

Gulf Coast

Region "I" is the Gulf Coast area with USDA Hardiness Zones 8 and 9.

This is another region for summer blooming bulbs. It also is a fine area for many spring-blooming bulbs as long as they are carefully chosen. Daffodils and other *Narcissi* will thrive here.

The optimum planting time for this region is October 1st to December 31st.

Bulbs for naturalizing here include *Narcissus jonquilla, Narcissus odorus campernelli, Dracunculus vulgaris, Gladiolus communis byzantinus, Hyacinthoides hispanica, Ipheion uniflorum, Leucojum aestivum, Ornithogalum nutans* and *Oxalis tetraphylla 'Iron Cross.'*

North Central

Region "J" is the Northern Central area, which includes USDA Hardiness Zones 3 and 4.

The biggest challenge gardeners face here is the moisture level. To help offset this problem a bit of extra water during dry autumns may help the rooting process. Add an extra layer of mulch over the top of the bulbs to help keep them cool when snowfall is sparse.

The optimum planting time for this region is September 15th to November 1st.

Bulbs that naturalize well in this region include *Narcissus poeticus* var. *recurvus, Tulipa clusiana chrysantha, Allium flavum, Allium oreophilum, Eremurus stenophyllus, Muscari azureum* and *Scilla siberica.*

Central and Great Plains

Region "K" is the Central and Great Plains area. It includes USDA Hardiness Zones 5 and 6.

This region allows for a wide variety of hardy spring-flowering bulbs. Plant them in areas with less wind and

extreme cold exposure to help extend the blooming season. This also helps to protect early spring or late fall bloomers from the extreme temperature fluctuations. In the event of a dry spring, water weekly as long as the foliage is green.

The optimum planting time for this region is September 30th to November 30th.

Bulbs to choose for naturalizing in this region include *Tulipa tarda, Allium caeruleum, Chionodoxa forbesii* (for shady areas), *Crocus tommasinianus, Dichelostemma congestum, Eremurus stenophyllus, Ixiolirion tataricum* and *Muscari armeniacum.*

Rocky Mountains

Region "L" is the Rocky Mountain area. It includes USDA Hardiness Zones 2, 3 and 4.

This is largely an alpine environment, making it excellent for hardy spring-flowering bulbs.

The optimum planting time for this region is September 15th to November 1st.

Bulbs that naturalize well in this area include *Narcissus poeticus* var. *recurvus, Tulipa tarda, Allium caeruleum, Allium Flavum, Allium neapolitanum, Camassia leichtlinii, Eremurus stenophyllus* and *Erythronium.*

Arid West

Region "M" is the Arid West area including USDA Hardiness Zones 5, 6 and 7.

This region is good for growing many bulbs, especially those native to dry climates. However, it is a very diverse region and your specific climatic conditions must be taken into consideration. Some of the major factors to consider include high-mountain altitude, low-desert heat and sheltered valley basins.

Because of the numerous pockets of extreme climate variance, you may want to supplement the information here with a reference book. The Sunset Western Garden Book is one recommendation. (Sunset's web site is http://www.sunset.com.)

The best planting time for this region is September 30th through November 30th.

Some suggested bulbs for naturalizing include *Allium neapolitanum, Allium uniflorum, Eremurus, Fritillaria purdyi, Triteleia hyancinthis* and *Ipheion.*

North Pacific Coast

Region "N" is the Northern Pacific Coast area with USDA Hardiness Zone 8.

This is a perfect region for many spring-flowering bulbs. It is the closest we come in the U.S. to the English countryside climate.

Suggestions for ordering bulbs for people in this climate include writing a letter with your order explaining that you would like your bulbs sent at a specific time. This will help to avoid your bulbs arriving after the heavy rains have begun.

The optimum planting time for this zone is October 1st through December 1st.

Bulbs that naturalize in this area include *Anemone ranunculoides, Arum italicum, Calochortus 'Golden Orb,' Dichelostemma 'Pink Diamond,' Eranthis cilicica, Galanthus nivalis 'Viridi-apice,' Hermodactylus* and *Nectaroscordum siculum.*

Southern Pacific Coast

Region "O" is the Southern Pacific Coast area which includes USDA Hardiness Zones 9 and 10.

Few gardeners realize that this is a great area for flower bulbs. Try bulbs such as trumpet daffodils, dwarf *Narcissi* and iris. Tulips that usually do well in this climate include single lates, double lates, lily-flowered and some of the species types.

There are two major fall planting seasons for this climate. For bulbs that are native to the Mediterranean area or other similar climates, plant from mid-August (or sooner if available) to December. Dutch bulbs should be planted from mid-October through late January.

Quite a few bulbs naturalize in this climate. Some of these include *Allium sphaerocephalon, Spanish bluebells, Scilla peruviana, Oxalis purpurea,* Bearded Iris, Paper-white *narcissi, Freesia, Watsonia, Sparaxis, Tritonia, Leucojum aestivum* and *Ixia.*

Alaska

Region "P" is Alaska including USDA Hardiness Zones 1 through 7.

This area is very large and variable with a very short growing season. A creative gardener can help many bulbs to thrive here.

The best planting time is from September 15th through October 15th.

Bulbs that naturalize here include *Allium moly,Allium oreophilum, Camassia leichtlinii, Chionodoxa forbesii, Crocus tommasinianus, Fritillaria camschantcensis, Galanthus elwesii* and *Narcissus poeticus* var. *recurvus.*

When To Plant Bulbs

Plant your bulbs when the nighttime temperatures are between 40-50 degrees F. Make sure to plant at least six weeks before freezing to allow them to root. Water your bulbs thoroughly after you plant them and apply a slow release fertilizer that is specifically designed for bulbs. Do not put the fertilizer in the same hole as the bulb. This can cause the tender roots of the bulb to burn.

Once the ground has frozen, mulch your bulbs with lightweight mulch such as pine needles, straw or chopped up leaves.

Tips For Discouraging Wildlife From Eating Your Bulbs

If you have problems with voles or other animals eating your tulips, crocuses or lilies, try to spray the bulb with a product such as Ropel. For problems with "bulb rustlers", try placing Vole Block or sharp granules of a

gravel-like substance around the bulbs. To help ward off deer, try spraying Deer Off on the plant as soon as it begins to emerge until it begins to bloom.

You may also want to make a note of the fact that modern bone meal is generally useless as a bulb fertilizer. It is, however, an excellent attractor of dogs and rodents who will dig up your bulbs looking for bones.

Some bulbs are considered to be pest-resistant. They include *Narcissus, Leucojum, Galanthus* and other members of the Amaryllidaceae family.

Unique Planting Ideas

Consider planting your bulbs on a hill. This opens up endless possibilities for creative designs and artistic combinations. You can even use bulbs to spell out specific words.

Extend your bloom season by choosing a range of bulbs that flower throughout early-spring, mid-spring and late-spring. You can also use this technique with summer and fall-flowering bulbs.

Tips For Getting Spring-Flowering Bulbs To Bloom In Hot Climates

For tulips, crocus and hyacinths try this tip. Store the bulbs in the refrigerator crisper or other area where it is between 35 to 45 degrees F for a minimum of 8 weeks and possibly as long as 14 weeks. Do not store near ripening fruit. The ethylene gas that the fruit emits can damage the flower inside the bulb. Plant the bulbs immediately upon removal.

If you follow these tips and take the time to find your proper region then your bulb garden next year should be quite a success. Don't be afraid to experiment. Whether you choose to mix your bulbs in with perennials or make unique plantings on hillsides, following the proper techniques will make all the difference in your success.

Predicting Bloom Dates for Garden Bulbs

By Roy Sachs

Roy is Professor Emeritus, Department of Environmental Horticulture, University of California, Davis; where he taught applied plant physiology and did research on control of flowering, drought, salt and freeze tolerance, and short rotation forestry for biomass accumulation.. He began a nursery in 1990 that specializes in the production of Alstroemeria and a few other geophytes. Web site: http://www.buy-alstroemeria.com; e-mail rmsachs@ucdavis.edu. This is part one of a two part series. The next article will discuss chill factors and bloom date.

Can we predict the approximate time from emergence of leaves until bloom for a garden plant, including our tulips or daffodils? We can if we have some historic data for bloom date by local area of the variety (in any area) and if we keep a real time record of heat units for our area. Plant Scientists have long recognized that plants are thermal integrators, behaving as if a thermal clock regulates and coordinates the sequences of shoot and root development (Poethig 2003.)

Heat Unit Accumulation

Heat unit accumulation from the time of planting, emergence, or bud break usually suffices for tracking the development of most annuals and perennials. The key factor is that the heat units required to complete development for a given species does not vary. This means that the measure of the combination of temperature and time will always be the same from year to year. Of course, this is true only if plants are irrigated and water stress is not a variable. (Thermal sum is combined with day length in some schemes but for selected day length-sensitive species only.) These climatic variables record physiological time and provide a common reference for stages of shoot development as shown in the 'corn' example cited later in this article. The study of the developmental rate of plants from sowing to seed set for annuals (and from bud break or emergence to full bloom and fruit ripening for perennials) is called Phenology.

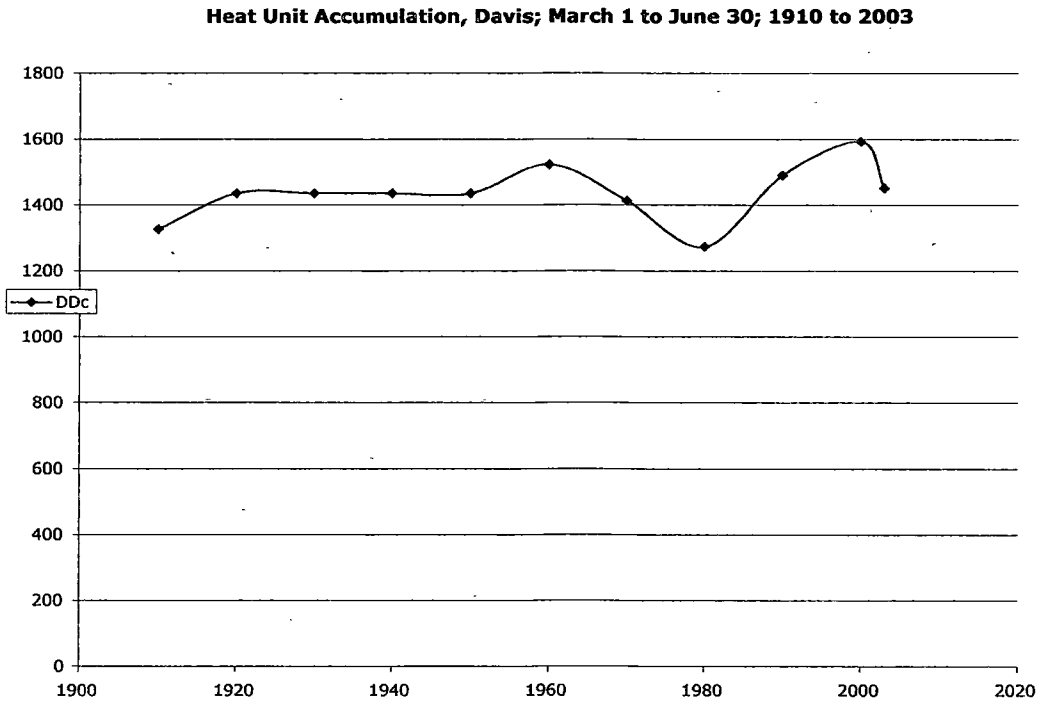
Base Temperature

Each species has a unique base temperature, which represents the minimum temperature for growth. If the ambient temperature is above the base temperature, the plant progresses toward bloom. Researchers have identified upper and lower thermal thresholds for development of some species in controlled greenhouse and field experiments and in micro-calorimetric studies. (In the latter, oxidative metabolic rate of small meristematic tissue pieces is measured as a function of temperature. Using this method, minimum, optimum and maximum temperatures (threshold values) for each species can be determined quickly without having to measure plant growth.) For many species of interest to bulbophiles, the lowest base temperature appears to be about 5° C and the upper threshold is 30°C. Thresholds vary and considerable effort goes into determining them accurately for commercially important species.

Heat Units are measured in Degree-Days

Degree-days are the accumulated product of time and temperature between the upper and lower thresholds for each day. One degree-day is one 24-hour period during which the physiological average temperature is above the lower developmental threshold by one degree. (The physiological average temperature is that which approximates the mean of a 24 hour temperature record.) For instance, if the lower developmental threshold for an organism is 5°C and the physiological average temperature is 6°Cfor 24 hours, one degree-day is accumulated.

Heat units can be calculated from records of maximum and minimum temperatures using hourly records of temperature to compute the mean. Hourly records are recorded for several weather stations in California and these are available to registered users at http://www.cimis.water.ca.gov/



Heat Units in Davis.

Figure 1 shows the number of degree days in centigrade (DDc) logged in the area of Davis, CA from March 1 through June 30 for the years 1910 to 2003 (10 year intervals selected except for adding 2003.) The average DDc is 1438 (with variance of approximately 100 DDc.) The March through June interval was selected to give me an idea of what "spring was like" before and particularly since 1960, the year that I began gardening and doing field work in and around Davis with trees, shrubs, bulbs and annuals.

The table below for development of irrigated sweet corn (planted in western Oregon, data from UC IPM web site) shows the DDc for various stages significant for coordinating insect control strategies and for marketing of the crop. The data is based on lower and upper thresholds of 10 and 30 °C.

Count from planting	DD (c)
TASSEL LENGTH 12 cm:	491
5% SILKS EMERGED:	558
50% SILKS EMERGED:	590
95% SILKS EMERGED:	636
EARS WITH SILKS 50% BROWN:	716
MATURE FOR FRESH MARKET:	855
MATURE FOR PROCESSING:	887

Using data for Davis for the last 90 years, the earliest date for reaching 855 DDc occurred on June 18, 2000 and the latest on July 12, 1980. Although considerable variation in heat unit accumulation was noted, there's little question that farmers could easily coordinate pesticide treatment and harvesting crews by appropriate monitoring of the thermal factor.

In writing this article I found that memory has served me poorly in attempts to recall 'early (high heat unit)' and 'late' (relatively low heat unit) springs. 1980 was a cool spring, the coolest on record, but I would not have known this without looking at the thermal records. Nothing in my experiments or classroom teaching suggested that I paid particular attention to the spring of 1980! I recall freezes very well, but not the more benign vagaries of the weather where plant death is not a question; there's not even a memory trace of 'record' hot summers (they're all hot in Davis but some are more so than others.)

An Example of the use of Degree-Days for Selected Geophytes

From Heat Unit Accumulation records and the first spring peak of flower harvests, I estimated that it requires 600 DDc for the *Alstroemeria* seedlings I grow to bloom. I used 5 C for the lower threshold for development based on observations on when first shoots are seen emerging in the spring. I used 30 C for the upper threshold based on results from a few experiments in controlled temperature chambers showing that shoot growth seems to stop above 26 C. The DDc estimates were made for data obtained in Davis (California) for 1999 and 2000.

For 2003 approximately 600 DDc were recorded on May 9 and this was very close to the peak bloom date of my *Alstroemeria* (they continue blooming for weeks afterwards). The standard deviation of 100 DDc over a near century of recorded heat units would translate into

bloom date being 8 to 12 days earlier or later than May 9 about one of every three years.

Unfortunately, I do not have two year, recorded data for other geophytes of interest, but some inferences from bloom dates can be made for the one year, 1999, that I did record dates of bloom. For example most species tulips I have grown are in the 600 DDc range, with the same base temperature, but *Watsonia, Acidanthera* and *Crocosmia* have much higher DDc, 800 to 1000, and the base temperatures for growth are significantly greater, say over 10 C. *Tuberose* does not begin to emerge in Davis until late June or early July when the average temperature is likely to be above 15 C.

Inflorescence initiation in both *Crinum* and *Amaryllis belladonna* occur only after 1000 or more DDc have been tallied, but the initiation of leaves occurs much earlier, say during the preceding fall, or in the spring. In these species, more than others I have grown, many more phenological observations are required before thermal unit correlations will be meaningful. The white calla, *Zantedeschia aethiopica*, seems to have approximately the same base temperature as *Alstroemeria* but requires somewhat less than 600 DDc for full bloom.

Complications, Interesting Ones.

I have been growing hundreds of *Alstroemeria* seedlings since 1990. These are all from two seed populations developed by Leonard Carrier and Fred Meyer (both now deceased.) I also have four clones of *Alstroemeria* that probably 'escaped' from some Dutch breeding programs. During the summer of 2003, while writing this article, I noticed several seedlings and one clone blooming as late as July 31, about 8 weeks after the end of the major bloom period for most *Alstroemeria* growing in the nursery. The flower quality is excellent for these selections. For one late-blooming clone, I believe that the base temperature is higher than 5 C (because it blooms later in May and June.) My guess is that the late-blooming seedlings, all of which are of a dark pink or lavender hue, tolerate much higher temperatures than their relatives (that is, the upper threshold for development may be above 30 C.) These significant characteristics, which make the varieties especially valuable in high temperature areas, can be established more firmly with at least two more years of bloom dates and DDc records.

Other mathematical models

But there are also several more complex mathematical models that yield the 'physiological' average temperature using maximum and minimum temperatures. For example, the sine-wave model is used here and was computed by the Integrated Pest management Group at UC Davis (see: http://www.ipm.ucdavis.edu/WEATHER/ddretrieve.html. This model connects the maximum and minimum temperatures by a sine wave and uses computations of area under the curves above and below the mean to get the 'physiological' average.

The mathematical mean of the maximum and minimum are used in some instances for simplicity; we are assuming a square wave model where each day has12 hours at the maximum and 12 hours at the minimum (clearly, temperature does not vary in this manner in any climatic zone.) The average temperature in the square wave model is calculated as (Tmax +Tmin)/2.

Useful Web sites:

For calculations of Degree Days in California,
http://www.ipm.ucdavis.edu/WEATHER/ddretrieve.html
For weather data for California:
http://www.cimis.water.ca.gov/

Article References:

(Poethig, R. S. 2003. Phase change and the regulation of developmental timing in plants. Science 301: 334-336.

For papers that give fuller discussion of heat units and plant development models in other parts of the US and Canada go to Google and type in Heat Units, Plant Development. One such paper is at
http://www.plant.uoguelph.ca/research/homepages/ttollena/cropheatunits.htm

Plant Portraits

Fall Blooming Bulbs

By Marguerite English

Marguerite lives in the mountains of Southern California at 3500 feet (1000 m). She loves Salvias, Penstemons, Lewisias, California natives, roses and specialty bulbs but is always open to a new Genus in her life. She gardens about two acres, leaving the surrounding property in its native Chaparral and Oak Grassland plant communities. The native shrubs and trees burned over during this year's Cedar Fire. Spring wildflowers will be wonderful, but the land seems desolate now

Sternbergia

One fall bloomer that is successful in my garden is *Sternbergia lutea*. This *Sternbergia* lived in a large pot for many years and survived several different moves (one from Washington state to California.) The corms bloomed most years, but didn't increase. Four years ago, they moved from their container into one corner of raised garden bed with about ten inches (app. 25 cm.) of good

soil. Since then, they have bloomed every September and increased slightly. Their companion is an unknown species of Thyme, which has light green variegated (white) foliage and gets about three inches (8 cm.) tall. The bright yellow blossoms are delightful peeping up near the edges of the fragrant mound.

Colchicum

Colchicum speciosus is a lavender treat for fall. The delicate petals fade to white in the center. It has been in a raised planter with about 3 feet (1 m.) of soil for a few years. It is planted at the base of a large Aquilegia 'Swallowtail', which provides shady protection most of the year and has it's own eye-catching yellow blooms in the spring. The bed receives afternoon shade from a nearby oak tree (*Quercus engelmannii*) The cluster of bulbs has increased nicely over the years and now blooms in an area about one foot (30 cm.) square. It blooms only for a few days, but provides a vivid spot of color when little else is blooming.

Rhodophiala

Rhodophiala bifida is another vivid and interesting fall bloomer. It puts up its stalks and starts blooming usually within the same week. You can't miss its blooms when walking around the garden. A near-by companion is *Epilobium canum* or California fuchsia, a native fall blooming California ground cover. The orange-red of the *Epilobium* doesn't exactly match the deep maroon of the *Rhodophiala,* but since the blooms are several inches apart, it works out. The deep red of the *Rhodophiala* lasted only a week in this warm fall but most years they are popping up for 3 or more weeks. These are planted in a sunny raised bed, protected from critters. This bed is about 4 feet high, so it is pleasant to have its contents at eye (and nose) level. I feed them when I see leaves starting and in the spring when I feed the whole bed.

Crocus

Last year, one of the first articles in *The Bulb Garden* was "*Crocus* in the Garden" by David Stephens (Volume 1, Issue 2.) I had previously tried *Crocus* only a few times, and given up on them, since my garden is open to many pests that feast on *Crocuses* and *Tulips*. David's article and his apparent love for *Crocus* tempted me to try some members of the Genus again, and I am delighted that I did.

First, some light violet *C. sieberi 'Firefly'* jumped out of a catalog and found a new home here. The description sounded attractive in the catalog. David described this species as easy and so it has proven. Two large clay bulb pans received these corms; one protected in the greenhouse and one out in the open. Well, the local squirrels had several lovely meals from the outside pot, but the protected container bloomed nicely in the early winter and increased slightly. It is a dainty plant with a yellow throat, and creates a bright spot during the winter doldrums. It has not yet found a well-suited companion.

Later, the pictures of *C. tommasinianus 'Ruby Giant'* caught my eye. David also recommended the 'Tommies' in his article. This collection of four inch tall flowers takes up three medium sized bulb pans (two clay and once plastic) in the green house, and provided distinctive violet blooms late last winter. Those in the plastic pot dwindled, so this year I will transplant them into clay. There are one or two pale yellow primrose hybrids planted in the center of one group and white primroses planted in another. The color combination is attractive, but the *Primula* is sparse when the *Crocus* blooms, and doesn't properly set it off. Later, I ordered some other *C. tommasinianus* corms, and started them in clay pots.

Not everything was successful, however. *C. pulchellus* put out small green shoots last spring, but never bloomed. I mistakenly placed the corms in a tiny pot because they were so small. The pot dried out too soon, but I have transplanted them to a larger clay pot this year.

All of the fall and spring blooming bulbs receive a sprinkling of bulb meal in the fall. Their containers get watered about once every ten days from sometime in September until they bloom, and more often if there is a hot spell. The foliage remains in place until it dries out, then I tuck the pots under a bench in a cool area and water them lightly about once a month to keep the soil from completely drying out.

This fall's bulb order includes *C. goulimyi,* C. *ochroleucus and C. serotinus.* There is a new raised bed in the yard with a protective cover over the top. It already contains several *Lewisias* and a miniature *Campanula choruhnensis.* It is calling for a population of new and transplanted *Crocus* and a sprinkling of our native Platystemon Californica seeds!

Message from the Editor

I apologize for the late delivery of the newsletter and the omission of some of the standard news information. As many of you know, I have had some personal catastrophes this fall.

I still don't have a telephone after the fires, so am off my usual E-mail patterns. I thank all of you who have sent notes, and will answer them when I get my E-mail back. I did get electricity back last week, and am waiting for 'the well guy' to come this week to get the water turned back on.

My daughter and son-in-law are staying with me until they can get a new manufactured home put in place, and my son-in-law is doing a valiant job of hauling water in for our needs. He even hauls water so I can keep things alive in the greenhouse, which miraculously survived! The fire burned right up to it's foundation on two sides! There was no damage to my house, but the chaparral and Oak trees have been severely damaged. Since California natives co-exist with wild-fire, some will recover.

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Miracles are happening daily. There is already a 3-inch layer of grass sprouting over the open meadows. Many birds and small animals have been seen throughout the valley.

Please consider donating your extra plant material when you divide or harvest. Donors get a credit for postage on their future BX orders every time they contribute. Send clean, clearly labeled seeds or bulbs to: Dell Sherk, PO Box 224, Holicong, PA 18928, USA.

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This newsletter provides gardening or bulb related articles, news of interest to members and announcements of the PBS organization.
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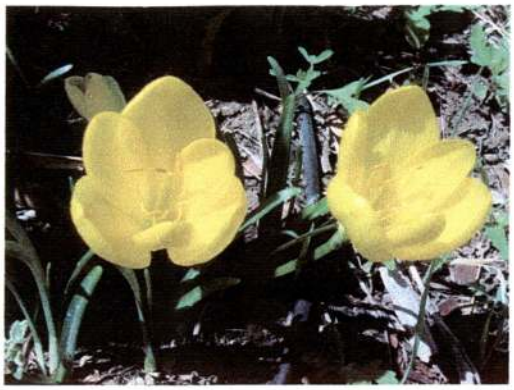

Sternbergia lutea

Colchicum speciosus

Crocus 'Firefly'

Rhodolphiala bifida

Epilobium canum

Aquilegia 'Swallowtail'

Platystemon californicus