

The effect of planting depth and mulch on the emergence and flowering dates of lilies

In the fall of 2008 trials were initiated at Olds College to determine the effect of planting depth and the depth of mulch on emergence and flowering data in six cultivars of Asiatic lilies. Data were collected in the summer of 2009.

Two bulbs of each cultivar were planted per trial. The conditions applied included planting the lilies at a 5, 10, 15 and 20 cm depth without mulch and at 15 cm depth with a 5 and 10 cm mulch layer. The mulch used was pine and spruce wood chips. During the summer of 2009 the following data were recorded: emergence date, height, breadth or spread, date at first flowering, bud count, date at last flower. Height and spread were recorded on weekly basis. During flowering data were collected every two or three days.



Our results showed that emergence was affected by planting depth and the depth of mulch but that flowering dates were not affected. Below are two graphs showing the emergence dates and dates of first flowers for each cultivar under the various planting conditions. As two plants were studied per trial, an average date was taken if the two plants did not emerge or bloom on the same day.

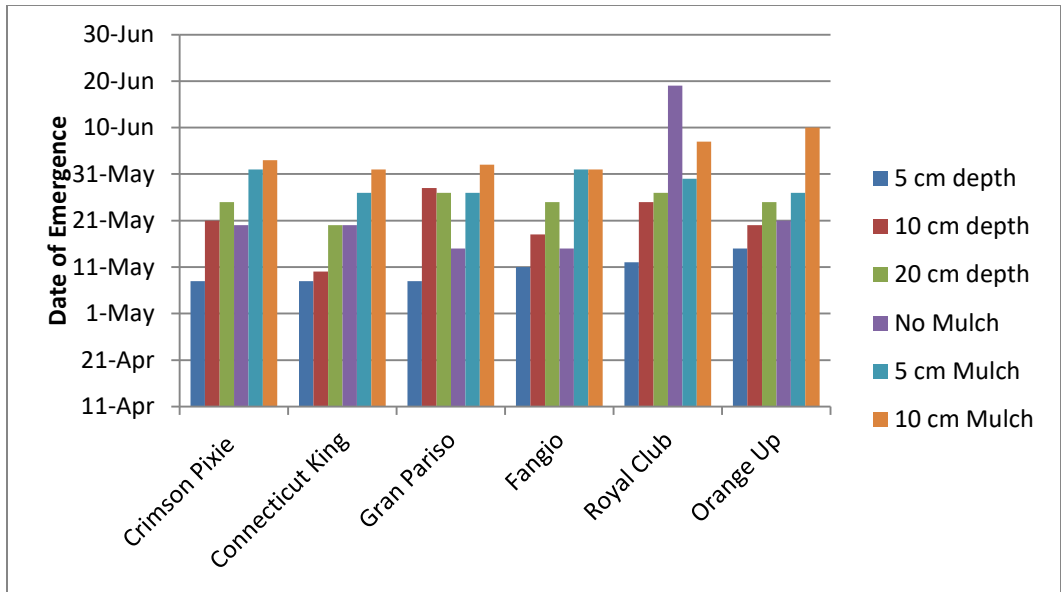


Figure 1. Emergence dates at various planting depths and depths of mulch. Bulbs in the mulch trials were planted at 15 cm.

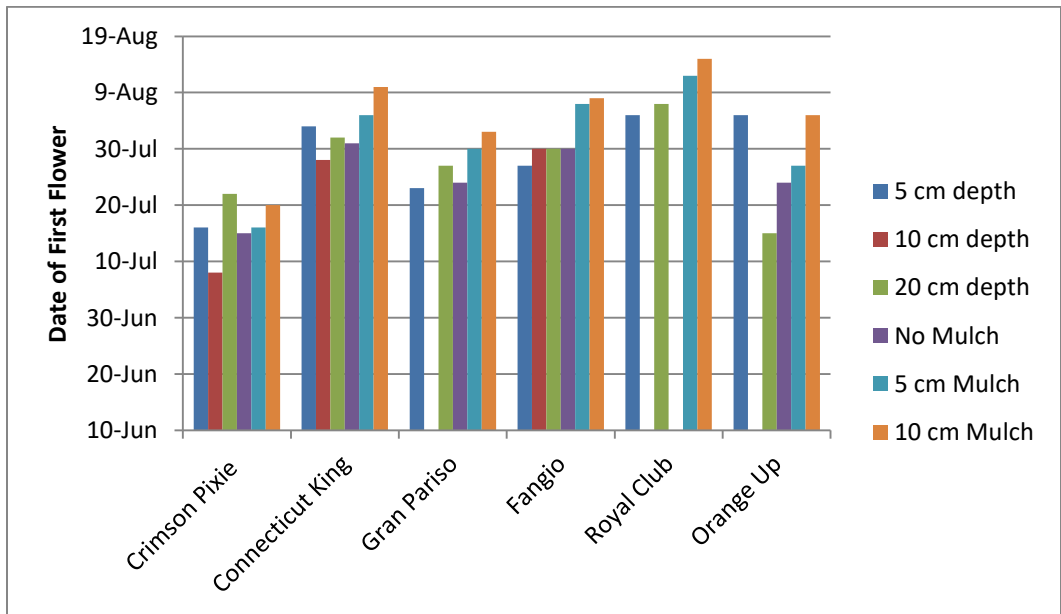


Figure 2. First flower dates at various planting depths and depths of mulch . Bulbs in the mulch trials were planted at 15 cm depth. In some cases no data were obtained because????

There was a general trend for emergence date to be later for bulbs planted at greater depth or those planted with more mulch (Figure 1). Bulbs planted at a shallow depth, say 5 cm, consistently emerged earliest and as the bulbs were planted deeper or with a mulch covering, the

plants emerged later. One exception was 'Royal Club', and LA, lilies planted at 15 cm depth with no mulch covering emerged last- much later than those planted at 15 cm depth with 5 or 10 cm of mulch..

Flowering date was much less strongly related to planting depth and mulch cover than was emergence (Figure 20 suggesting that the plants partially compensated for later emergence. In several cases bulbs planted at 5 cm without mulch flowered later than bulbs planted at 10cm.,. Generally lilies of the same cultivar bloomed within five days of one another , despite (inspite of?) the fact that they may have emerged from the soil as much as a few weeks later than the first emerging plant of their cultivar. The exception to this is the plants with 10 cm of mulch, which seemed to bloom later than all other lilies.

Lilies of the same cultivar generally bloomed around the same time, despite emerging at varying times. The question to ask now is whether the lilies grew to an equal height at bloom time, or if some lilies bloomed at a shorter height, giving up growth in size for a fixed flowering time. . If the lilies that emerged later did bloom at a similar time and height to those that emerged earlier, they would have a faster growth rate than their earlier emerging counterparts . To test this hypothesis daily growth rate was calculated by dividing the height of the plant when the first bloom was recorded by the number of days since the plant had emerged to the date on which it first flowered (Figure 5).

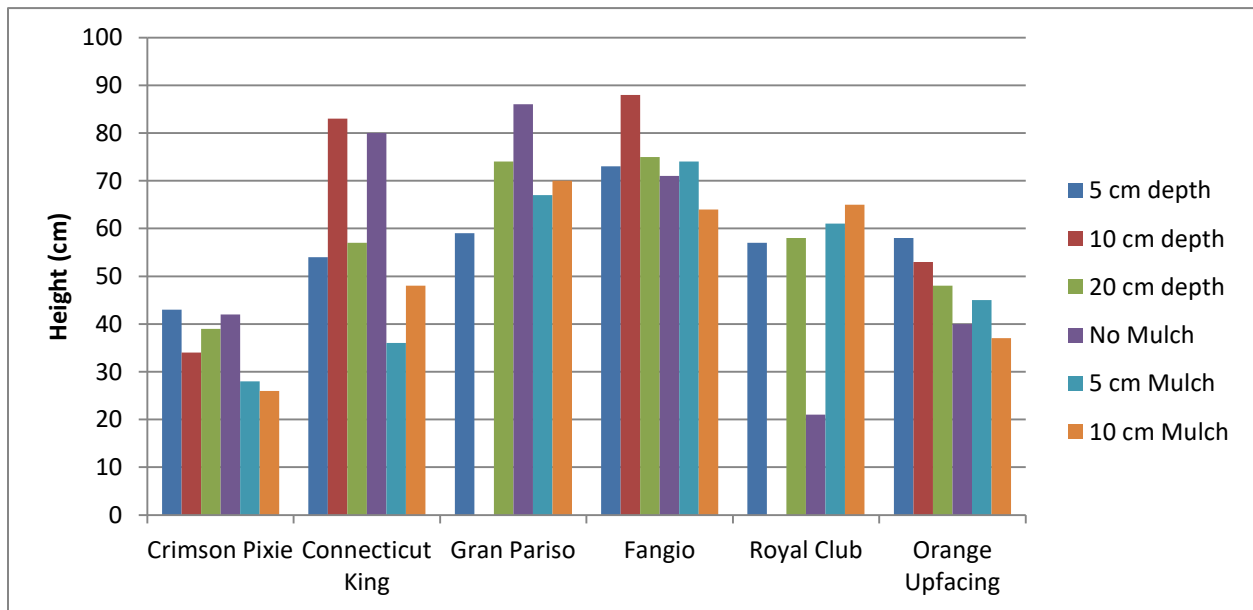


Figure 3. Height of lilies when first bloom was recorded. depths and depths of mulch . Bulbs in the mulch trials were planted at 15 cm depth. In some cases no data were obtained because????

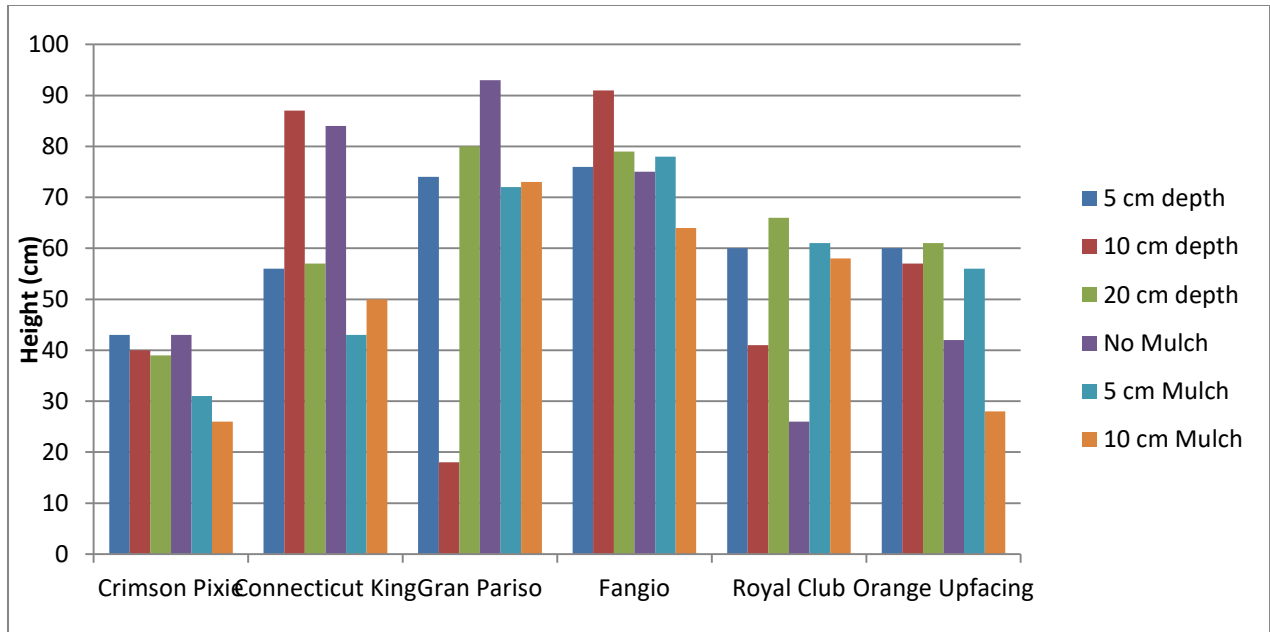


Figure 4. Peak height of lilies planted at different depths and with different depths of mulch. Bulbs in the mulch trials were planted at 15 cm depth

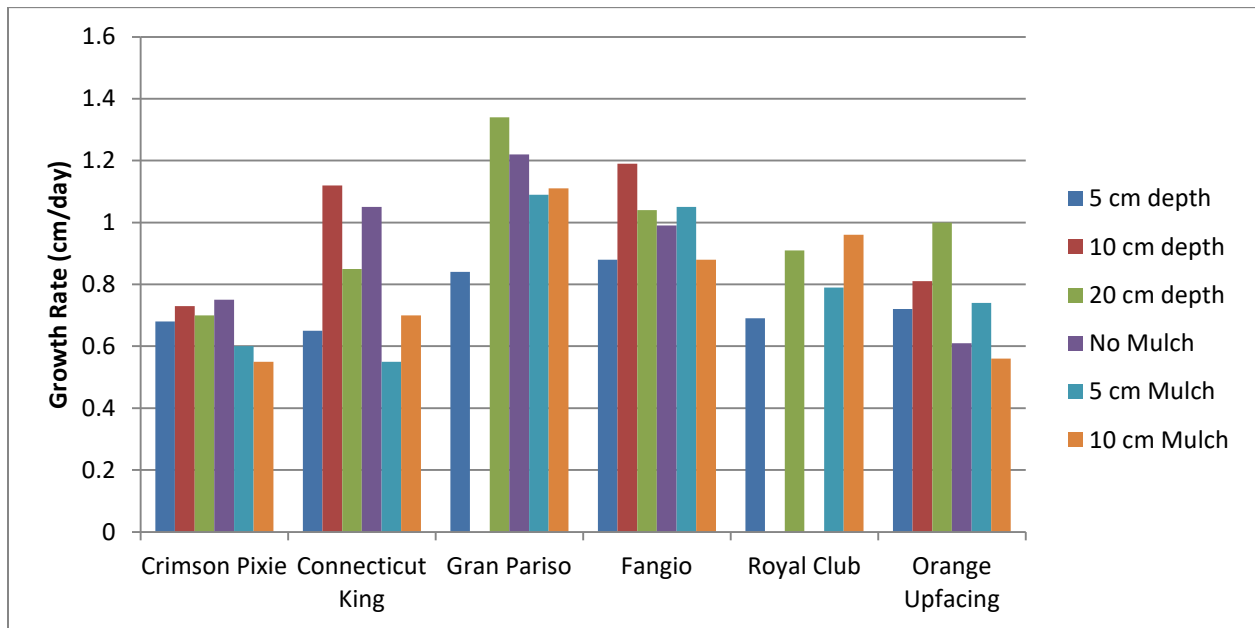


Figure 5. Growth rate of lilies planted at different depths and with different depths of mulch. Bulbs in the mulch trials were planted at 15 cm depth. In some cases no data were obtained because????

The differences in daily growth rate are subtle, but there are a few noticeable trends. First of all lilies planted at 10, 15 and 20 cm depth with no mulch had greater growth rates than those planted at a 5 cm depth. They were also of equal or greater height than those planted at 5 cm depth when blooms were first recorded. This suggests that the plants that emerged later caught up to the plants that emerged earlier. However, looking at the mulch trials (5 cm mulch and 10 cm mulch over bulbs planted in 15 cm of soil) we see that they are consistently shorter than the other plants and had slower growth rates. This suggests that the presence of mulch slightly hinders the growth of the lilies. It also indicates that the lilies with 5 cm and 10 cm of mulch bloomed before reaching a peak height. This trend may imply that lilies will bloom at a fairly specific time in the growing season, even if they are not at full height for the cultivar.

These results may be useful when deciding how to plant your lilies. Our Albertan climate is sometimes harsh, and despite promises of spring oftentimes a late frost can kill plants that emerge too early. By planting the bulbs deeper or with a mulch covering, the plants will emerge later, avoiding the frost, but you may still enjoy their flowers at the usual time. The addition of mulch may slow the growth of your lilies, but the differences are small enough to go unnoticed.