



## Annual Flower Seed Mixes: Transplanted or Direct-Seeded?

by Hope Lockwood, Pat Holloway and Pat Wagner

For the past three seasons, the Georgeson Botanical Garden has experimented with annual flower seed mixes. Results of the direct-seeded mixes were stunning. We were not prepared for the mid-summer explosion of color that captured everyone's attention. Predictably, the mixes bloomed late in the season. Throughout June and sometimes into July, the beds looked like masses of weeds with very little color. Nevertheless, the vibrant colors in July and August certainly made up for the late start.

One method of hastening bloom time is well known to Alaska gardeners and is the mainstay of Alaska's largest agricultural industry--bedding plant transplants. We wondered if it would be possible to start the seed mixes in the greenhouse, then transplant containers of seedlings into the garden at planting time. Would transplanting hasten blooming? What about the length of bloom? Are there some flowers that cannot be transplanted?

In 1994, we conducted an experiment to answer all these questions. We placed 18, 3 x 3-inch containers into greenhouse flats and filled them with a sterile soil mix. Annual flower seed mixes were sown exactly as they would be outdoors by mixing the seeds with moist sand to a corn meal consistency, and broadcasting the sand/seed mix over the flats. Flats were moistened, then covered with an opaque plastic sheet until germination commenced. We sowed flats on two different dates: April 25 (4 1/2 weeks prior to transplanting), and May 10 (2 1/2 weeks prior to transplanting). On May 26, the containers of seedlings were transplanted into garden plots at 12-inch spacing, with two, 3 x 3-inch containers per space. These transplants were compared with plots that were direct-seeded on the same date. The experiment was conducted using two annual flower seed mixes: Golf Course Mix® (Applewood Seed Co.) and the GBG Annual Flower Seed Mix developed by Pat Wagner.

The first thing we noticed was that the 2 1/2-week transplants were too young. The seedling root systems were too small, and the soils in the container fell apart upon transplanting. No doubt considerable damage occurred to the roots. The 4 1/2-week transplants were easy to handle.

The tables on the next two pages show flowering dates for the two mixes. The response to transplanting varied with species. In most instances, flowering was one to three weeks earlier from transplants than from direct seeding. Plants such as baby's breath and catchfly, bloomed earlier in the season from transplants, but also stopped blooming at an earlier date. Other wildflowers such as California poppy, spurred snapdragon, and globe gilia, had a longer flowering season when transplanted. Black-eyed Susan, which barely began blooming in late August when direct seeded, bloomed for the entire month of August from 4 1/2-week transplants. Only two plants showed adverse effects of transplanting. Rocket larkspur did not bloom from transplants. Tidy tips exhibited a 2 1/2-week bloom period from transplants, but bloomed for at least six weeks when direct seeded.

This study showed that for most flowers, sowing containers of seedlings in the greenhouse at least four weeks prior to planting can hasten bloom time. Four weeks in the greenhouse provided sufficient time for root development to make handling of transplants easy. In 1995, we will repeat this experiment using three- and six-week transplants to learn more about sowing dates. Commercial growers can sell flats of wildflower mix or homeowners can start their own mixes in flats and enjoy an extended bloom time in our short growing season.

Wildflowers Golf Course Mix	June				July				August			
	1	8	15	22	1	8	15	22	1	8	15	22
African daisy			-----	-----	-----	-----	-----	-----	-----	-----		
Baby blue-eyes					-----	-----	-----	-----	-----	-----	-----	-----
Baby's breath		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Black-eyed Susan									-----	-----	-----	-----
California poppy		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Candytuft			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Catchfly		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Clarkia							-----	-----	-----	-----	-----	-----
Corn poppy				-----	-----	-----	-----	-----	-----	-----	-----	-----
Dwarf cornflower			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Dwarf godetia									-----	-----	-----	-----
Dw. plains coreopsis					-----	-----	-----	-----	-----	-----	-----	-----
Rocket larkspur												-----
Spurred snapdragon			-----	-----	-----	-----	-----	-----	-----	-----	-----	-----
Virginia stock		-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

----- Seeds sown in greenhouse, April 25 (4 1/2-week transplants)  
 \_\_\_\_\_ Seeds sown in greenhouse, May 10 (2 1/2-week transplants)  
 ..... Direct-seeded mix

Table 1. Flowering dates for wildflowers in the Golf Course Mix grown as 4 1/2-week-old transplants, 2 1/2-week-old transplants and direct-seeded mix.

Wildflowers GBG Seed Mix	June				July				August			
	1	8	15	22	1	8	15	22	1	8	15	22
<b>Baby's breath</b>			---	---	---	---	---	---	---	---	---	---
<b>Bachelor's button</b>				---	---	---	---	---	---	---	---	---
<b>Bishop's flower</b>						---	---	---	---	---	---	---
<b>Calendula</b>						---	---	---	---	---	---	---
<b>California bluebell</b>	---	---	---	---	---	---	---	---	---	---	---	---
<b>Catchfly</b>		---	---	---	---	---	---	---	---	---	---	---
<b>Dwarf poppy</b>				---	---	---	---	---	---	---	---	---
<b>Farewell-to-spring</b>								---	---	---	---	---
<b>Globe gilia</b>					---	---	---	---	---	---	---	---
<b>Tidy-tips</b>							---	---	---	---	---	---

--- Seeds sown in greenhouse, April 25 (4 1/2-week transplants)  
 ——— Seeds sown in greenhouse, May 10 (2 1/2-week transplants)  
 ..... Direct-seeded mix

*Table 2. Flowering dates for wildflowers in the GBG Annual Flower Seed Mix comparing 4 1/2-week-old transplants, 2 1/2-week-old transplants and direct-seeded mix.*

### Tips for starting seed mixes in the greenhouse

Use clean containers and flats, and sterile soil mix. If flats have been used before, soak them in a 10 percent clorox solution for 30 minutes to eliminate disease. Fill the containers as you would for transplanting. Follow the direction for sowing rates for the particular seed mix. If one ounce of a mix will cover 250 square feet, it will be sufficient for flats arranged to fit snugly together in an area 10 feet by 25 feet. Sow as many containers as necessary to allow for a 12-inch spacing in the garden. Use two, 3 x 3-inch containers or one, 3 x 6 inch container per space.

Combine the seed mix with slightly moistened washed quartz sand (available in garden centers) in a ratio of two parts sand to one part seeds. Divide the sand/seed mix in half. Spread the mix evenly over the flats working in one direction, say east to west. Repeat with the remaining seed/sand mix, this time working in a north-south direction. Water thoroughly, but gently to avoid washing the seeds out of the containers. Cover the flats with a clear plastic sheet until seeds begin to germinate. Remove the sheet and keep containers moist. Fertilize weekly with a complete fertilizer. Harden off for at least one week and transplant into the garden.

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