A high degree of weed control is most desirable in bedding plant areas. Bedding plants are used to attract attention. They are the centerpiece of many landscapes. Weeds can rapidly change bedding plant areas into very unattractive and displeasing displays. To produce a desired effect, therefore, bedding plant areas must be maintained in a virtually weed-free condition.

Like many crops, special considerations need to be made when attempting weed control in bedding plants. Most often these plants have a short landscape life. One bed may be replanted 2, 3 or 4 times per year. This allows for weed control through cultivation between plantings, but if preemergence herbicides are used their residual life must be short. Bedding plants are also highly variable. There are many species available, and many varieties of some species. Growth rates and characteristics will vary among species, and weed control strategies must consider this variability. Many have fleshy leaves and shallow roots. Cultivation or herbicide use may injure sensitive plants. If an individual plant fails to survive, then replanting is usually necessary. Weed control practices have to allow for this possibility.

Weed Control Strategies

1. Mulches

In some cases, weed control in bedding plants can be achieved using mulches. Most commonly, organic materials are laid on top of the soil of newly planted beds. Mulches should be thick enough to block light from reaching the soil surface. This may require a 3 to 4 inch mulch layer. Annual weeds are generally controlled more effectively than perennials by this method.

2. Spacing

Close spacing of plants can help to minimize weed development. When well developed (4" pot) bedding plants are installed, they may be spaced close enough to significantly reduce the amount of light reaching the soil surface. Although this would mean more plants per unit area and, therefore, be more costly, it is a practice that can reduce weed development. Close spacing and mulching together may result in better weed control than either practice used alone.

*University of California Cooperative Extension, San Mateo County and Davis, respectively
3. Cultivation

Cultivation of beds can effectively control weeds. In most cases, only hoes can be used to minimize plant injury. Hoeing should be done frequently to control the weeds when they are small. If damage does occur, then hand pulling should be considered. This approach to weed control is practical for small beds, home gardens, or when labor costs are not an important consideration.

4. Preplant Treatments

Seeds of many weed species can be effectively controlled by fumigants, such as metham (Vapam®). It is important to follow label directions when using fumigants. Be sure to allow time between treatment and planting to avoid plant injury. Transplants are injured more easily than directly seeding if planting is started too soon after fumigation. This technique is particularly useful for controlling many perennial weeds.

Heat treatment of beds using plastic tarps (solarization) can also be considered for preplant weed control. Unshaded areas can be treated in the summer for 4 to 6 weeks before planting fall bedding plants. University of California Cooperative Extension No. 21377 describes this practice.

5. Postemergence Herbicides

Postemergence herbicides have limited use in bedding plant areas. Due to the close proximity of the weeds and bedding plants, it is difficult to spot spray weeds without injuring nontarget plants, i.e., when using nonselective materials. Nonetheless, some perennial weeds may require the use of a postemergence herbicide for control. Careful use of nonselective materials is recommended. The selective herbicides (sethoxydim and fluazifop) will control certain weeds (grasses) of selected bedding plant species. Annual bluegrass and fine-leaf fescues are not controlled. Some species will tolerate broadcast sprays, but some must be treated with a directed spray.

6. Preemergence Herbicides

Preemergence herbicides can provide effective and long lasting weed control. They are applied after plants are in the ground and have been irrigated to settle soil around their roots. Application to tolerant species can be made as an "over-the-top" spray. For many preemergence herbicides, it is beneficial to irrigate shortly after application. Check the product label for manufacturer's recommendations.

Several preemergence herbicides are registered for use in bedding plants. Selection of the appropriate materials depends on a number of factors: phytotoxicity, residual life, soil organic matter content, and weed species to be controlled.
Phytotoxicity

Bedding plant species do not have equal tolerance for preemergence herbicides. Some species are easily injured by certain materials, while others are tolerant. Tolerant species may be injured by high rates of certain formulations of an otherwise noninjurious material. Limited data is available on the sensitivity/tolerance of bedding plants (Table 1). Caution must be taken when using preemergence materials on species that have not been evaluated.

Residual Life

Since bedding plant areas are usually replanted 2 or more times per year, long-term residual materials may not be appropriate. For instance, if the beds are replanted every 3 months and a preemergence herbicide with a 6-month residual life is used, then injury may be expected to occur in replants. Short residual materials (less than 3 months in this case) are preferable.

Soil Organic Matter Content

Bedding plant soils are usually amended heavily with organic materials. Beds may commonly contain 50% organic matter per unit volume. Preemergence herbicides that are tightly bound by organic matter may not provide good weed control. It would be important to know the effect of organic matter on herbicide efficacy for any preemergence material selected.

Weed Species Controlled

Certain weed species are controlled more effectively by certain herbicides. Identification of weeds common to the area which may develop in a planting bed is critical for appropriate herbicide selection. There may be some species that are partially controlled or not controlled at all by the preemergence material selected. If these weeds occur in abundance, then desirable weed control will not be achieved. Herbicide labels provide information on weed species controlled.
| AGERATUM | T | T | T | T | T | S | T |
| ALYSSUM | T | T | T | RT | T | T | S-T |
| COSMOS | T | T | S | S | - | - | - |
| DIANTHUS | - | T | T | T | T | T | T |
| MARIGOLD | T | T | T | T | S-T | T | T |
| PANSY | S-T | S-T | T | T | S-T | S-T | S | S |
| PETUNIA | T | T | T | RT | T | S-T | S-T |
| PORTULACA | - | T | - | S-T | S-T | S-T | S-T | S-T |
| SNAPDRAGON | T | S-T | S-T | T | S-T | S-T | S-T |
| SWEET WILLIAM | S | T | - | - | T | T | T |

T = Tolerant  
RT = Relatively tolerant  
S = Susceptible  
S-T = Suppressed but regrew  
- = Information unavailable