
MIXED BORDERS FOR GARDENS IN THE HILL COUNTRY

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THE annual and perennial border commonly called the mixed border is a characteristic feature in hill country gardens. A mixed border is easy to maintain unlike beds of annuals which need a lot of labour for general upkeep. Such a border once planted lasts several years, and requires very little attention except annual forking and manuring, planting annuals for the Nuwara Eliya season, occasional division and replanting of perennials, and weeding. A wide range of annuals and perennials of temperate origin can be grown successfully at the higher elevations, and hence a well constructed border is ideal for the display of a mass of colour.

SITUATION, ASPECT AND SOIL

A FLOWER border may be established at the edge of a lawn, around the verandah of a house or along a drive or path, but one should consider the availability of light and protection from strong wind in the selection of a site. In the hill-country, it is best to allow the border to face due east wherever possible to enable the plants to benefit by the morning sun. A hedge may be established at the back of the border to protect the plants from strong south-westerly winds which prevail in this part of the country during June and July. This hedge should not be planted too close to the border as roots from the hedge plants may interfere and compete for nourishment. In addition to the hedge, a suitable background where necessary may be established. The background may take the form of a fence or a trellis covered with a rambler rose like '*Euphrosyne*'.

Garden annuals and perennials grow in almost any soil, but a deep rich loamy soil is preferred. The hill-country soils are ideal for borders, and require very little amendment for growing annuals and perennials.

CONSTRUCTION OF THE BORDER

A BORDER is constructed to last many years, and skilful planning, construction and planting are required at the very start. The width of the border depends on the amount of space available and the position. Generally, a border should not be less than 4 feet or more than 12 feet wide. An 8ft. border is ideal. A border exceeding 12 feet is not recommended as routine garden operations like weeding, manuring, forking and watering are rendered inconvenient.

The selected site should be well drained, and then dug and trenched to a depth of about 2-2½ feet. The subsoil should not be brought to surface. If the subsoil is clayey in nature, sufficient sand and some lime may be incorporated. The topsoil should be mixed with well-decomposed farmyard manure and leaf mould. If the topsoil is clayey, sufficient sand and a large volume of leaf mould should be added. If the topsoil is too sandy, well pulverised clay should be worked in. The level of soil in the border should be raised a few inches above ground level for better drainage and better display of flowers.

COLOUR HARMONY IN THE BORDER

COLOUR harmony and colour grouping are two of the most important aspects of border construction. Grouping colours should be done in such a way that the tints merge from one into the other from the pale to the most brilliant shades. It is best to avoid contrasts in colour, as such a grouping is not pleasing to the eye.

There are four main colour groups in garden flowers namely, red, yellow, blue and purple. In between these colours, there are intermediate hues like pink, orange, crimson and lilac. The red group should be arranged as follows : start with pale pinks, and next to them insert the dark pinks followed by the crimsons and deep reds. From this zenith, proceed backwards to pale pinks again. The yellow, blue and purple groups should be similarly arranged. Next is the question of the arrangement of these four groups in harmony. Pale pinks and pale yellows go well side by side, and thus they can join the red group to the yellow. Again pale blues and pale yellows can be juxtaposed, and thus : the blue group can pass into a yellow group. Pale pink and lilac go well with each other, and hence they can join a purple group to the red group. It is also possible to harmonize colours by allowing them to lead from one to the other. For instance, the yellows can merge into orange, orange to orange-scarlet and scarlet, and scarlet to crimson. Similarly, pale blues lead to dark blues, then purple and down through lilac to pale blue. White occupies a very important

place in the border as it helps in difficult situations. White can be placed in between contrasting colours as well as between pale and well matching colours.

ARRANGEMENT OF PLANTS ACCORDING TO HEIGHT

IN addition to colour harmony, correct gradation of height of the respective plants in the groupings has an important role. Generally, the taller plants like African Marigold, Delphiniums, Everlasting, Hollyhock and *Salvia splendens* are planted at the back through a gentle gradation of plants of medium height like Penstemons, Schizanthus, Balsams, Silene, Campanulas, Michaelmas Daisies, Poppies and Sweet Williams to dwarfs like Violets, Verbena, Alyssum, Candytuft and Begonia in front. This scheme should not be followed indefinitely, taller plants should be interpolated among dwarf species to ensure variety. Similarly, dwarf stragglers like Verbena should be allowed to find their way into groups of taller growing species. Irregularity tends to hide one section of the border from the other, a factor which lends the border charm and beauty.

PLANTING BORDERS IN HILL COUNTRY GARDENS

THERE are two principal dry seasons in the hill country of Ceylon namely, the main March-April dry season and a second dry season in August. It is a well known fact that plants flower during the dry season, and if a grand display of colour in the garden is expected during these seasons, planning and planting the flower border should be done beforehand. For the March-April dry season commonly called the Nuwara Eliya season, planting should commence from November of the previous year and end by January. For the August season, planting should commence in May, but very little can be done during this time on account of the strong winds which are experienced during June and July. However, weather-resistant, early-flowering annuals and perennials like *Salvia*, *Browallia Cuphea*, Marigold, Solidago, Michaelmas Daisies, Calendulas and Begonias may be planted in borders during this period. This planting programme applies to well established borders, but planting a newly constructed border should commence earlier as the newly planted perennials take some time to establish.

A plan of a mixed border suitable for a hill-country garden is given in Fig. 1. This plan can be modified to suit individual preferences. The separate species should be planted in clumps of about four or five of each kind. The distance between individual plants in a

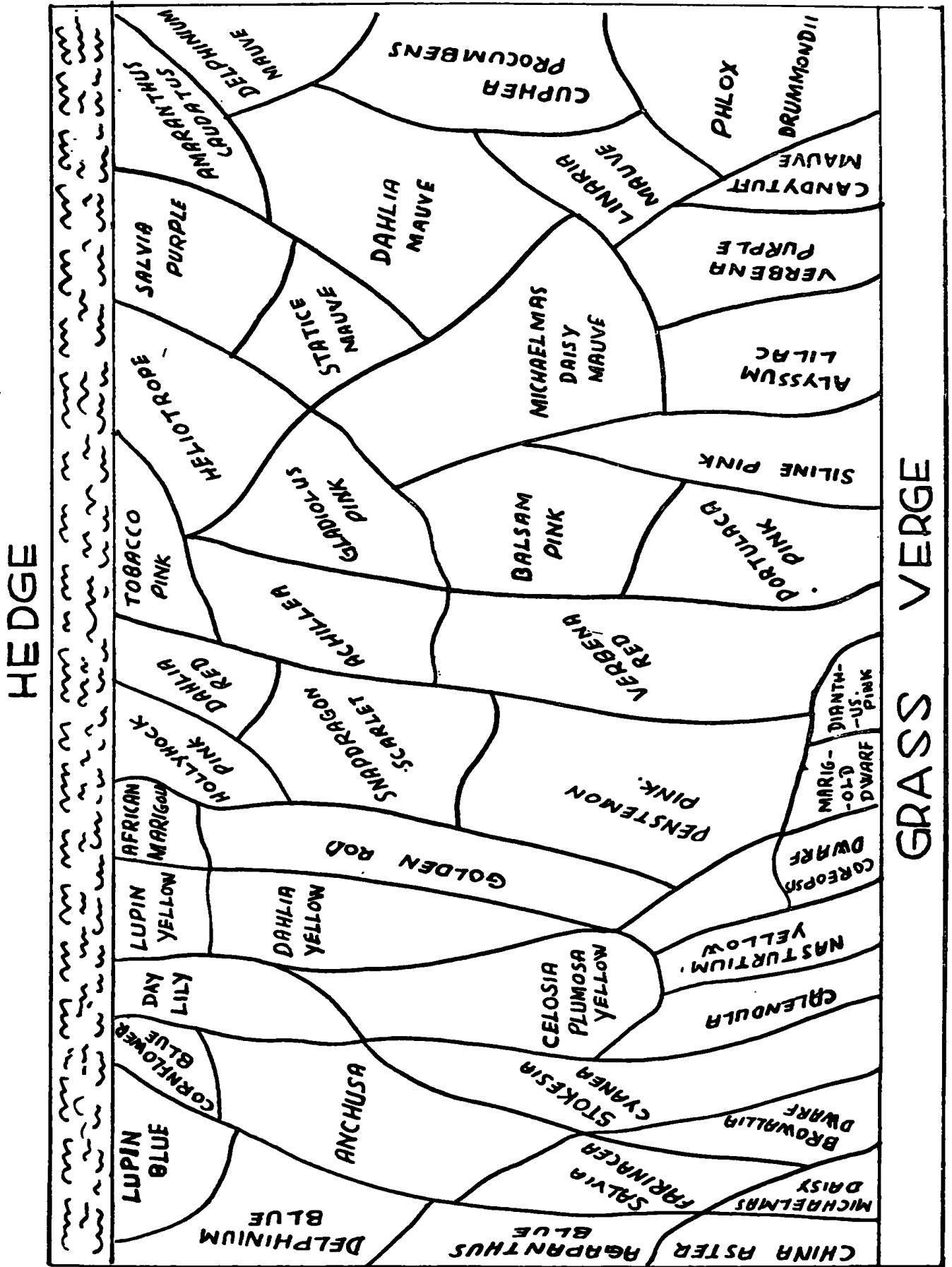


Fig. 1.—Plan of a mixed border.

clump should be in proportion to the heights of the plants. Overcrowding should be avoided but, planting should be uniform to eliminate bare patches. For the main Nuwara Eliya season in April, seeds of snapdragon, pansies, dianthus, hollyhock, phlox and other late flowering varieties should be sown from September onwards of the previous year. When the seedlings are hardy enough, they should be planted in the border in their appropriate places. All general planting should be over by January. In high elevation districts, like Nuwara Eliya, it will be necessary to cover the young plants in the night with cadjans to protect them from frost. The frost should be washed down by watering early in the morning.

BULBS IN THE MIXED BORDER

A WIDE range of bulbous plants are grown in hill districts, and as true perennials, bulbs should be given a place in the flower border. Most of the bulbs like *Hemerocallis* (Day lily), *Crinum* and *Agapanthus* produce flowers during the off season. Thus during the monsoons, when it is not possible to cultivate annuals, the bulbs will provide colour.

CARE AND MAINTENANCE OF THE BORDER

WHEN the plants are well established in the border, regular tillage in the form of forking around the plants is essential. It is also beneficial to apply a dressing of artificial manure. The following mixture has been found very satisfactory at the Botanic Gardens, Hakgala—

2 parts sulphate of ammonia,
2 parts superphosphate,
1 part sulphate of potash.

This mixture should be applied at the rate of about 3 oz. per sq. yd. After application, the soil should be lightly forked and heavily watered. Occasional weeding, removal of dead plants, staking of tall plants and filling of vacancies should be done. During dry spells, watering should be done once a day.

PESTS AND DISEASES IN THE FLOWER BORDER

THE common pests in up country gardens are caterpillars, beetle larvae, cut-worms, slugs and snails, greenfly and other aphids, capsid bugs and red spider, and other mites. Caterpillars eat leaves, leaf buds and flowers, and are best destroyed by a spray consisting of :

Lead arsenate 1 oz.
Water 1 gallon.

Caterpillars on flowers and flower buds should be removed by hand picking as spraying an insecticide may damage the flowers. Beetle larvae and cut worms are destroyed by using insecticides like aldrin or Intox 8 or any other insecticide suitable for soil pests. Slugs and snails are very troublesome pests in mixed borders. They usually attack seedlings in the night. They are destroyed by using a suitable slug bait available in the market. Greenfly and other aphids are destroyed by using contact poisons like D.D.T., Gammexane, Basudin 60, Gammalin and Nicotine sulphate. Mealy bugs and capsid bugs are difficult to destroy, and special insecticides have to be used against them. Red spider, which is a troublesome pest during dry weather, is destroyed by using an insecticide like Fernasul.

In contrast to insect pests, fungus diseases of flowers are rare. Damping off is very common in the hill country during wet weather. The fungus attacks seedlings at ground level, and the plants fall over at that point. Overcrowding and overwatering should be avoided. Blight, leafspot and stem rot are often troublesome. These diseases are controlled with copper fungicides. Bacterial wilt occurs frequently, but there is no known cure for this disease. Affected plants should be removed and destroyed without delay.

SELECTIONS OF PLANTS FOR BORDERS IN HILL COUNTRY GARDENS

Plants for the blue section of the mixed border :

Annuals :

<i>Botanical Name</i>	<i>Common Name</i>	<i>Height in inches</i>
Ageratum mexicanum ..	.. Ageratum ..	6-12
Anchusa italica ..	.. Anchusa ..	12-18
Browallia (dwarf) ..	.. Browallia ..	6-9
Browallia (tall) ..	.. do. ..	12-15
Callistephus chinensis ..	.. China Aster ..	9-18
Centaurea cyanus ..	.. Cornflower ..	36-48
Delphinium Spp. ..	.. Larkspur ..	18-24
Lupinus Spp. ..	.. Lupins ..	24-36
Nigella damascena ..	.. Love-in-a-Mist ..	12-18

Perennials :

Agapanthus umbellatus ..	.. Agapanthus ..	24-36
Aquilegia vulgaris ..	.. Columbine ..	9-12
Aster amellus ..	.. Michaelmas Daisy ..	9-15
Campanula rapunculoides ..	.. Campanula ..	9-12
Delphinium Spp. ..	.. Larkspur ..	24-36
Limonium sinuatum ..	.. Statice ..	12-18
Lupinus Spp. ..	.. Lupins ..	24-48
Salvia farinacea ..	.. Salvia ..	12-15
Stokesia cyanea Stoke's Aster ..	6-9
Vinca minor Periwinkle ..	6-9
Viola cornuta Pansy ..	6-9

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Plant for the red section of the mixed border :

Annuals :

<i>Botanical Name</i>	<i>Common Name</i>	<i>Height in inches</i>
Amaranthus caudatus ..	Love-lies-bleeding ..	18-24
Clarkia elegans ..	Clarikia ..	18-24
Cosmos bipinnatus ..	Mexican Aster ..	36-72
Cuphea procumbens ..	Cuphea ..	9-12
Dianthus chinensis ..	Pinks ..	9-12
Linaria Spp. ..	Linaria ..	24-36
Malcomia maritima ..	Virginian Stock..	6-9
Nicotiana alata grandiflora ..	Tobacco plant ..	18-36
Papaver Spp. ..	Poppy ..	18-24
Petunia hybrida ..	Petunia ..	9-18
Phlox drummondii ..	Phlox ..	9-12
Portulaca grandiflora ..	Sun Flower ..	4-6
Schizanthus hybridus grandiflorus ..	Butterfly Flower ..	18-32
Silene picta ..	Silence ..	12-15
Tropaeolum majus ..	Nasturtium ..	9-12

Perennials :

Achillea Spp. ..	Milfoil ..	18-25
Agrostemma coronaria ..	Campion ..	12-14
Althaea rosea ..	Hollyhock ..	72-128
Anemone japonica ..	Windflower ..	12-10
Antirrhinum majus ..	Snapdragon ..	12-18
Aster amellus ..	Michaelmas Daisy ..	9-18
Bellis perennis ..	Daisy ..	4-5
Dahlia Spp. ..	Dahlia ..	18-16
Dianthus barbatus ..	Sweet William ..	9-16
Gladiolus Spp. ..	Gladioli ..	36-45
Impatiens sultani ..	Balsam ..	9-15
Mesembryanthemum Spp. ..	Fig Marigold ..	6-9
Penstemon Spp. ..	Beard Tongue ..	12-24
Salvia coccinea ..	Salvia ..	12-24
Salvia splendens ..	Scarlet Sage ..	12-38
Verbena Spp. ..	Vervain ..	6-6

Plant for the yellow section of the mixed border :

Annuals :

Calendula officinalis ..	Calendula ..	9-12
Celosia plumosa ..	Celosia ..	15-24
Eschscholtzia californica ..	Californian Poppy ..	12-18
Helianthus annuus ..	Sunflower ..	48-60
Linaria Spp. ..	Linaria ..	24-36
Lupinus Spp. ..	Lupins ..	24-48
Tagetes erecta ..	African Marigold ..	36-48
Tagetas patula ..	French Marigold ..	9-24

Perennials :

Antirrhinum majus ..	Snapdragon ..	12-18
Coreopsis grandiflora ..	Coreopsis ..	9-12
Coreopsis dwarf ..	do. ..	4-6
Dahlia Spp. ..	Dahlia ..	18-60
Gladiolus Spp. ..	Gladioli ..	36-48
Hemerocallis Spp. ..	Day Lily ..	24-36
Limonium sinuatum ..	Statice ..	12-18
Linum trigynum ..	Linum ..	36-48
Solidago Spp. ..	Golden Rod ..	12-18
Streptosolen jamesoni ..	Fire-bush ..	48-60
Tithonia diversifolia ..	Wild Sunflower ..	48-120
Tropaeolum majus ..	Nasturtium ..	9-12
Viola cornuta ..	Pansy ..	6-9

Plant for the purple section of the mixed border :*Annuals :*

<i>Botanical Name</i>	<i>Common Name</i>	<i>Height in inches</i>
Alyssum maritimum Lilac Queen	Sweet Alyssum	4-6
Callistephus chinensis	China Aster	9-18
Clarkia elegans	Clarkia	18-24
Delphinium Spp.	Larkspur	18-24
Iberis umbellata	Candytuft	6-12
Linaria Spp.	Linaria	24-36
Lupinus Spp.	Lupins	24-48
Malcomia maritima	Virginian Stock	6-9
Petunia hybrida	Petunia	9-18
Phlox drummondii	Phlox	9-12
Schizanthus hybridus	Butterfly Flower	18-32
Verbena Spp.	Vervain	6-9

Perennials :

Althaea rosea	Hollyhock	72-120
Antirrhinum majus	Snapdragon	12-18
Aster amellus	Michaelmas Daisy	9-15
Brunfelsia uniflora	Brunfelsia	4-5
Delphinium Spp.	Larkspur	24-36
Heliotropium peruvianum	Heliotrope, Cherry-Pie	3-4
Hibiscus syriacus	Rose Mallow	4-6
Limonium sinuatum	Statice	12-18
Phlox drummondii	Phlox	9-12
Prunella grandiflora	Self Heal	6-9
Salvia farinacea	Salvia	12-18
Scutellaria violacea	Skullcap	9-12
Verbens Spp.	Vervain	6-9

White flowers for the mixed border :*Annuals :*

Alyssum maritimum	Sweet Alyssum	4-6
Ammi majus	Lady's Lace	36-60
Iberis umbellata	Candytuft	6-12
Malcomia maritima	Virginian Stock	6-9
Silene picta	Silene	12-15

Perennials :

Aster amellus	Michaelmas Daisy	9-15
Bellis perennis	Daisy	4-6
Chrysanthemum leucanthemum	Ox-Eye Daisy	18-36
Crinum moorei, alba	Monsoon Lily	24-48
Dahlia Spp.	Dahlia	18-60
Gladiolus Spp.	Gladioli	36-48
Hydrangea hortensis	Hydrangea	24-48
Watsonia densiflora	Watsonia	18-36