

EROSION CONTROL PLANTING

This brochure provides an overview of landscape planting and mulching for erosion control. Potential for soil erosion occurs when slopes and hillsides are left bare after construction or disturbance. The planting of vegetative cover will reduce erosion by absorbing the impact of raindrops, allowing more rainfall to enter the soil than run off down slope, binding soil particles together, and reducing the velocity and volume of runoff. Vegetative cover may be grasses or ground cover plantings. This brochure has lists of plants suitable for erosion control planting. There are other erosion control methods, such as mechanical or structural means to control run off or wind erosion, that may be necessary on a site in addition to planting and mulching. **Further information can be obtained from your local Natural Resources Conservation District or from a landscape professional.**

CHOOSING PLANT SPECIES

When deciding which plants to use on a particular site, consider these factors:

- 1) type of soil
- 2) degree of slope
- 3) whether the site will be irrigated
- 4) growth rate of plant (for sites with high potential for erosion, a faster growth rate is advised)
- 5) the micro-climate of the site
- 6) time of year.

Seeding with grasses and legumes can provide quick and immediate coverage. Ground covers, shrubs and trees planted from containers (and sometimes by seed) can provide long term erosion control and ornamental landscaping. Plants listed in this brochure have dense, spreading and strong root systems, the most effective for erosion control. A mixture of species should be used, since the success of each plant species will vary with each site, and diversity assures good

coverage. Using a variety of species also reflects conditions in natural settings where plant species are mixed in communities.

The lists of seeds and plants in this brochure can help you choose the right species.

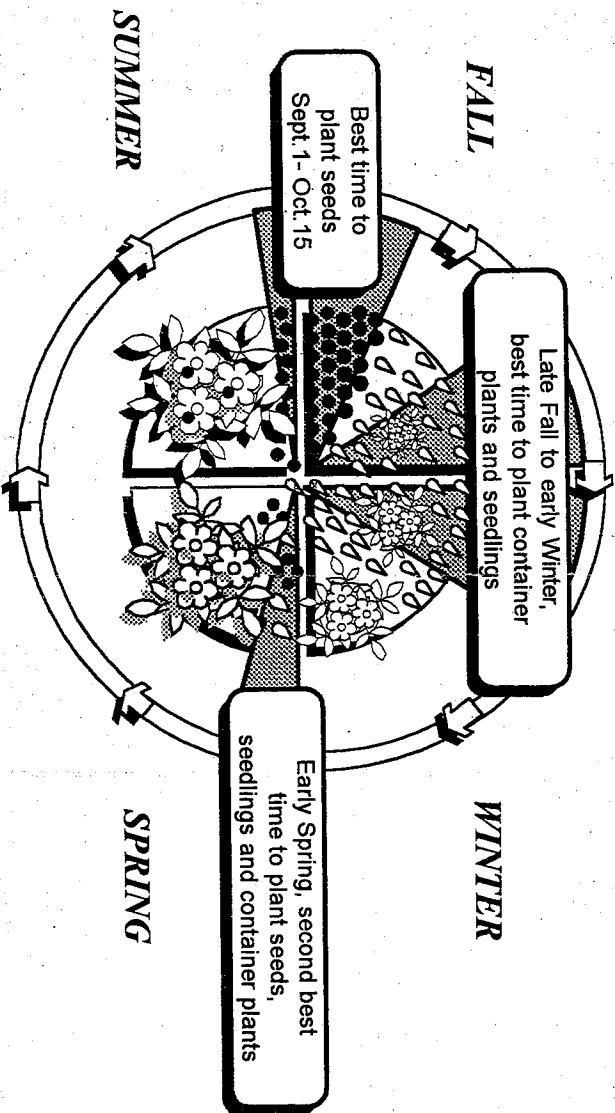
METHODS OF APPLICATION

The method of seed application depends on the type of seed, size of the area, degree of slope and the season. Large scale areas can be treated with hydroseeding - seeds and fertilizer in a wet mixture with wood fiber are sprayed on the soil with pumping equipment. The wood fiber acts as a mulch and anchoring agent for the seeds and fertilizer. Broadcasting of seeds is used on smaller sites, or when inaccessible to hydroseeding equipment. The soil surface is roughened with a rake or other tool to provide places for the seeds and fertilizer to lodge. Seeds are scattered with hand cranked seed spreader or by hand. Direct seeding of larger seeds, such as tree seeds, is done by hand planting directly in the soil.

FERTILIZING

Fertilizer can be applied just prior to seeding or at the same time. It should be applied and incorporated into the soil before mulching. The fertilizer generally recommended is ammonium phosphate with sulfur (16-20-0) at 12 pounds per 1,000 square feet. The amount of fertilizer needed can be decreased by the planting of nitrogen-fixing species which take nitrogen from the air and add it to the soil. Examples are: Lana vetch, Purple vetch, Crimson clover and Ladino clover. Seeds of all clovers and vetches should be inoculated with the proper strain of nitrogen-fixing bacteria prior to seeding. **Do not over-fertilize.** Over fertilizing results in a highly increased rate of grass growth, which can become a fire hazard during dry season. Do not use nitrogen fertilizer with wildflowers or clovers when mixed with annual grasses or when weeds are present. The grass or weeds will overtake the wildflowers and clover and choke them out.

TIMING OF PLANTING



GRASSES AND LEGUMES

Common Name	Botanical Name	Type of Plant	Characteristics
'Blando' Brome	Bromus mollis	Annual grass	Rapid growing, highly competitive with native grasses
Cereal Barley	Hordeum vulgare	Winter annual cereal grain	Fast-growing, does not reseed well
Clover, Crimson	Trifolium incarnatum	Winter annual legume	Does not reseed well
Clover, 'Hykon' Rose	Trifolium hirtum	Annual legume (upright)	Drought tolerant, reseeds well
Clover, Ladino	Trifolium repens	Perennial legume (semi-prostrate)	Best shade tolerance and nitrogen-fixing ability, not drought tolerant
Clover, Strawberry	Trifolium fragiferum	Perennial legume (semi-prostrate)	Tolerates wet soils
Fescue, Creeping Red	Festuca rubra	Perennial grass	Shade tolerant
Fescue, 'Zorro' Annual	Vulpia myuros	Annual grass	Tolerates poor soil, less competitive with native grasses
Oats, Cereal	Avena sativa	Grain crop	For late season plantings, does not reseed well
Rigors, Annual	Lolium multiflorum	Annual grass	Does not reseed well, leaves chemical residue in soil that impedes other grasses
Rigors, Perennial	Lolium perenne	Perennial grass	Needs good soil
Verch, 'Lana' Woollypod	Vicia dasycarpa	Annual legume (vine-like)	Reseeds well, difficult to mow and makes fire-hazardous mass of stems
Verch, Purple	Vicia benghalensis	Annual legume (upright)	Reseeds, difficult to mow

Before planting, inoculate all clovers and vetches with proper strain of nitrogen-fixing bacteria

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(All are drought resistant)

Botanical name	Common name
GROUND COVERS	
*Aristolaphylos densiflora	Howard McMilln
*Aristolaphylos hookeri	Manzanilla
*Ceanothus gloriosus	Pt. Reyes Ceanothus
*Ceanothus griseus 'horizontalis'	Carmel Creeper
*Ceanothus thyrsiflorus	Blue Blossom
*Eriogonum fasciculatum	California Buckwheat
*Eschscholzia californica	California Poppy
Hypericum calycinum	St. Johnswort
Juniperus species	Juniper
Lantana (spreading types)	Lantana
*Mahonia repens	Creeping Mahonia
*Ribes viburnifolium	Evergreen Currant

SHRUBS

*Atriplex lentiformis breweri	Brewer Saltbush
*Baccharis pilularis	Coyote Bush
*Ceanothus species	California Lilac
Cistus hybrids	Rockrose
*Coloneaster microphylla	Rockspray
Echium fastuosum	Pride of Madelia
*Fremontodendron californicum	Flannel Bush
*Fallugia paradoxa	Apache Plume
*Heteromeles arbutifolia	Toyon
*Isomeris arborea	Bladderpod
Lantana species	Lantana
*Mayrica californica	Pacific Wax Myrtle
Prunus ilicifolia	Holly-leaf Cherry
*Rhamnus alaternus	Italian Buckhorn
*Rhamnus crocea ilicifolia	Holly-leaf Redberry
*Rhus integrifolia	Lemonade Berry
*Ribes viburnifolium	Evergreen Currant
*Romneya coulteri	Matilija Poppy
*Rosmarinus officinalis	Rosemary
Salvia species	Sage
Symphocarpus albus	Common Snowberry
Symphocarpus mollis	Creeping Snowberry
Zauschneria californica	California Fuchsia

TREES

*Abutilus menziesii	Madrone
*Cedrus deodard	Deodar Cedar
*Lithocarpus densiflora	Tanbark Oak
*Pinus ponderosa	Ponderosa Pine
*Pinus radiata	Monterey Pine
*Pseudotsuga menziesii	Douglas Fir
*Umbellularia californica	California Bay

VINES

Cissus hypoglauca	Cissus
Euonymus fortunei	Euonymus
Lonicera japonica 'halliana'	Hall's Honeysuckle
*Rosa californica	California Wild Rose
Rosa rugosa	Ramadas Rose
Trachelospermum jasminoides	Star Jasmine

* California Natives

PLANTS TO AVOID

These plants are invasive exotic species that tend to spread rapidly, competing with native plants and disrupting native habitats and ecosystems. They can quickly spread to adjoining properties and become major weed problems, and should not be used in wildlands of the Central Coast.

PLANTS FOR HYDROSEEDING

Botanical Name	Common Name	Botanical Name	Common Name
GROUND COVERS			
Abronia species	Sand Verbena	Artemesia species	Sagebrush
Achillea species	Yarrow	Atriplex species	Saltbush
Atriplex semibacatta	Creeping Saltbush	Baccharis pilularis	Coyote Bush
Coreopsis species	Coreopsis	Cercocarpus species	Mountain Mahogany
Dimorphotheca species	African Daisy	Cistus species	Rockrose
Eschscholzia californica	California Poppy	Encelia species	Brittlebush
Gazania species	Gazania	Eriogonum species	Buckwheat
Leptodactylon californi	Prickly Phlox	Eriophyllum confertiflorum	Golden Yarrow
Lobularia maritima	Sweet Alyssum	Fremontodendron speci	Flannel Bush
Lotus scoparius	Deerweed	Rhus species	Sumac
Lupinus species	Lupine	Salvia species	Sage
Penstemonum species	Fountain Grass	Trichostema lanatum	Woolly Blue Curly
Penstemon	Penstemon species		
Salvia columbariae	Chia		
Salvia sonomensis	Creeping Sage		
Trifolium species	Clover		
Zauschneria species	California Fuchsia		

MULCHES

The purpose of mulching is to reduce run-off and erosion, to hold moisture in the soil, to promote seed germination, and prevent surface compaction or crusting. Mulch provides temporary erosion control until the seed is established. There are various types of mulch for erosion control use, see chart for options. Mulch should be applied so that soil is visible through the mulch, allowing enough sunlight for seed sprouts to survive.

MULCHES	(Rate per 1000 square feet)		
Material	Rate	Depth of Application	Remarks
Straw or Hay	75 -100 lbs 3 bales (approx.)	About 2 inches	Clean, weed free, mold free, air-dried. Use pieces at least 4 - 6 inches long. Cover about 75% of surface.
Wood Chips	6 Cubic Yds	2-3 Inches	Use pieces at least 1 to 1 1/2 inches diameter. Air dried and free of leaves, twigs or saw-dust. Effective for several years. Use more if weed control is desired.
Crushed or Smooth stone	10 Cubic Yds (10-12 tons)	3 inches	Use 1 1/2 to 3 inch diameter washed stone. Best for small areas, not suitable for slopes. Not generally used with vegetation.
Hardwood Tree Leaves and Redwood Needles	6 Cubic Yds	2-3 inches	Effective for one year. Not suitable for steep slopes.
Plastic Netting *		Single layer	Very effective. Photo-degradable plastic mesh or an non-dyed, plain-weave natural fiber mesh. Four ft. wide rolls. Apply over straw and anchor with 6-9" metal staples.
Jute Mesh*		Single layer	3-5 ft wide blanket of mulch material attached to plastic mesh. Lasts 1-3 years. Suitable for use on very steep slopes or in channels.
Erosion Control Blankets*		Single layer	

* Must be properly installed to be effective. Refer to manufacturer's instructions or consult a landscape professional or your local USDA Natural Resources Conservation Service for instructions.



Botanical Name	Common Name	DO NOT USE THESE PLANTS	Botanical Name	Common Name
Acacia baileyar.	Bailey Acacia	Cytisus scoparius	Scotch Broom	
and other acaci. species		Eucaelyptus globulus	Blue Gum Eucalyptus	
Ammophila arenaria	Beach Grass	Hedera canariensis	Algerian Ivy	
Carpobrotus edulis	Hottentot Fig Ice Plant	Hedera helix	English Ivy	
Cortaderia jubata	Pampas Grass	Senecio mikanoides	German Ivy	
Cytisus monspessulanus	French Broom	Vinca major	Periwinkle	

NATIVE GRASS SEED

Most native grasses are perennials and establish more slowly than the "wild" or naturalized grasses that commonly exist. Annual grasses which are more vigorous and fast growing have often been used for erosion control for this reason. However, many annual grasses such as Blando Brome and Annual Ryegrass, are highly competitive with native grass habitats that still exist. The protection of these native grass populations is important because they contribute to the ecological balance by providing wildlife habitat, reduced fire hazard, and growth of native wildflowers. If native grass seed from the local area is available, it can be a suitable erosion control seed. However, seed from the local genetic population is not always available, in which case it is best to use an annual grass seed (where appropriate) which is less competitive with native grass populations, such as Zorro Annual Fescue. Native seeds can sometimes be collected from the region around the site.

SOURCES:

- *Ground Covers, a Planting Guide for Erosion Control and Site Improvement on the Central Coast, Steve Singer, Santa Cruz County Resource Conservation District
- *Trees and Shrubs for Dry California Landscapes, Bob Perry, Land Design Publications
- *Univ. of California, Div. of Agricultural Sciences Leaflets 21137 & 21304
- *U.S.D.A. Soil Conservation Service
- *Western Garden Book, Sunset Publications

Additional Permit Brochures

are available at
Monterey County Planning and
Building Inspection Department
230 Church St. Building 1
Salinas, California 93901
(831) 755-5025 Fax (831) 755-5487
E-mail: pbi@moco.monterey.ca.us

or
Coastal Office
2620 First Street
Marina, California 93933
(831) 883-7500 Fax (831) 384-3261

or
King City Office:
522 - C Broadway St.
King City, California 93930
(831) 385-8315 Fax (831) 385-8387

- * Deer Resistant Plants *
- * Fire Resistant Landscaping *
- * Preserving Oak Trees *
- * How to Submit a Landscape Plan *
- * Invasive Exotic Plants *
- * Landscape Screening *
- * Seacoast Plants in Mo. Co. *
- * Suggested Species of Plants for N. Co. *



For specific information
contact the
Planning and Building Inspection
Department
and consult the Monterey County
Zoning Ordinance
or Coastal Implementation Plan.

Erosion Control Plantings

