

Hindsite Inc.
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THANK YOU University of Wyoming

ROW Spacing 7 to 12 inches



7 inch

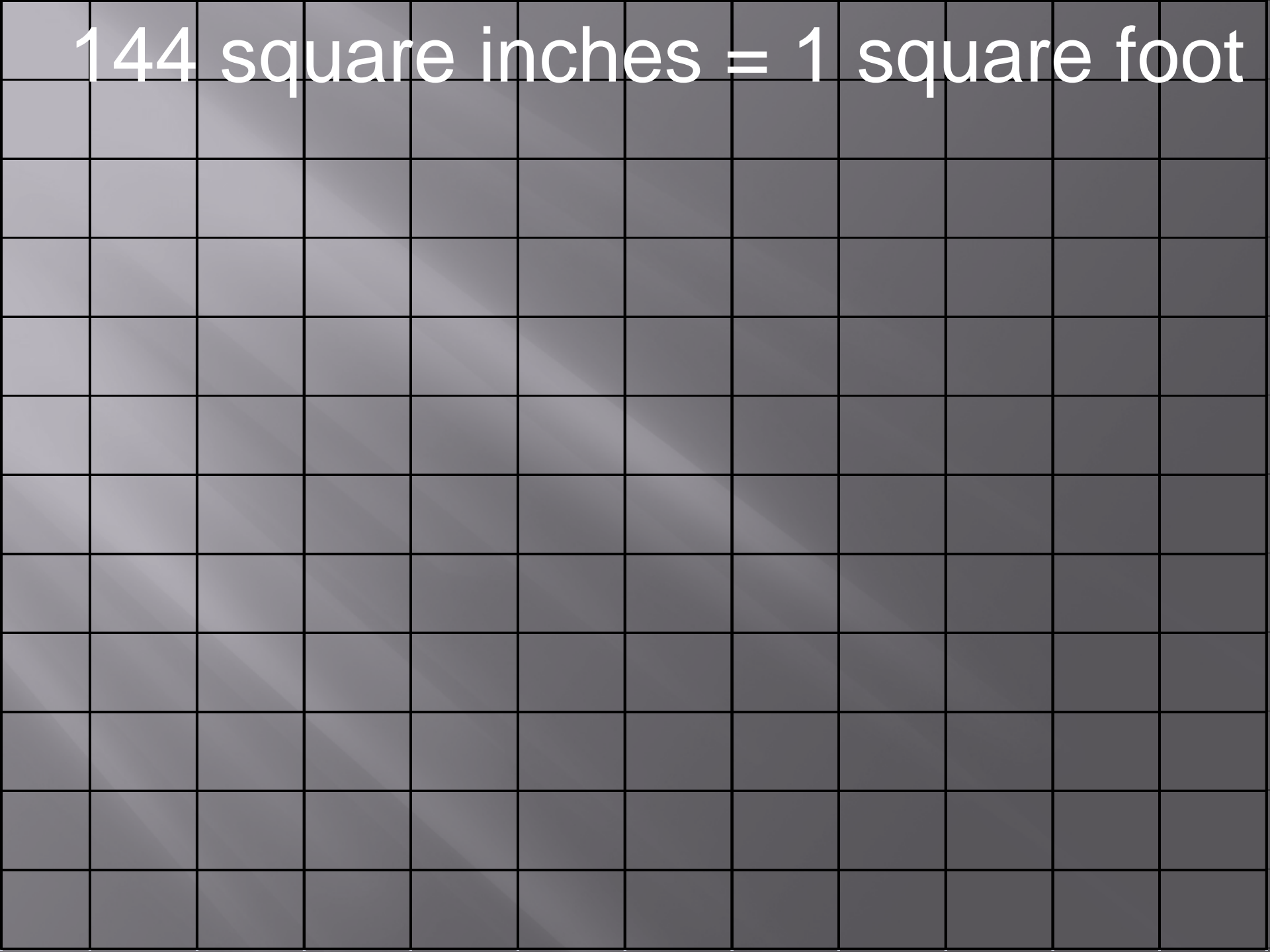
== $1/28^{\text{th}}$ of the area to be seeded



12 inch

== $1/48^{\text{th}}$ of the area to be seeded

144 square inches = 1 square foot



144 square inches = 1 square foot

Grey area reserved
for natural selection

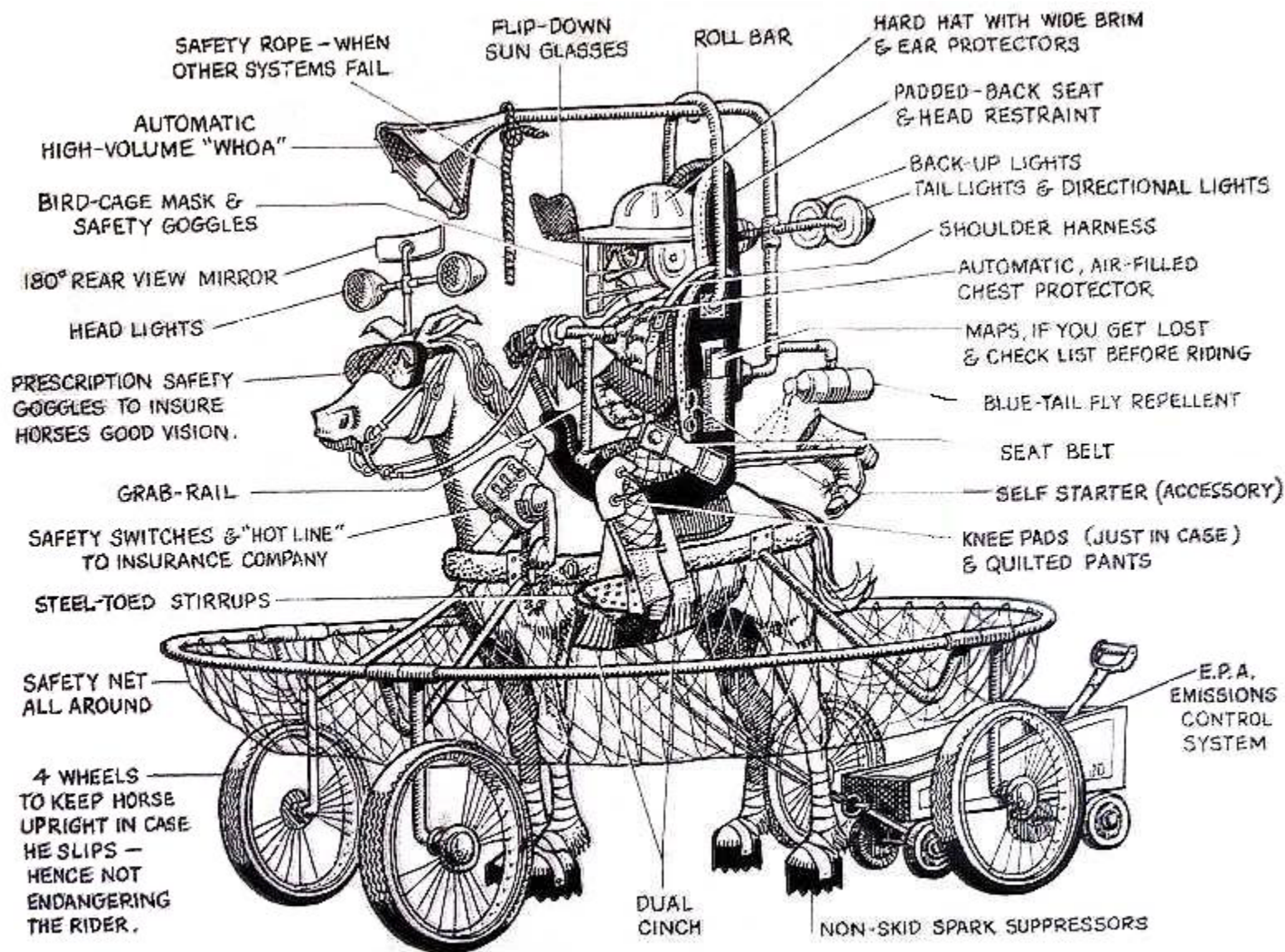
Amount of area seeded using a drill with 7 inch ROW spacing

Grey area reserved for
natural selection

Amount of area seeded using a drill with 12 inch ROW spacing

WOW!





Cowboy after O.S.H.A. Inspection

WESTERN TRADING CO.
P. O. Box 723
POKESHA, MT 59237
Phone 1-800-555-1442

Shrubs/Trees

Amelanchier alnifolia (Serviceberry) -- This native shrub grows up to 15 feet tall. It has white flowers in spring and produces edible, blue fruits in summer. Plant in full to partial sun, this shrub is moderately drought tolerant.

Arctostaphylos uva-ursi (Kinnickinnick) -- A low-growing, spreading, subshrub with evergreen leaves, small pink flowers, and red berries in the fall. It needs a moderately shady or north-facing location. Moderately drought tolerant.

Artemisia tridentata ssp. *vaseyana* (Mountain big sagebrush) -- Mountain big sage grows 4-5 feet tall. This subspecies typically occurs above 4,000 feet, where precipitation is slightly higher than in the Treasure Valley. Mountain big sage requires full sun. It can flower and produce seedlings by the 3rd year.

Atriplex canescens (Fourwing saltbush) -- This 4-6 foot tall shrub has grayish-white deciduous leaves and non-showy flowers. It is grown primarily for wildlife, for its drought tolerance, and as a firewise species.

Berberis aquifolium (Tall Oregon grape) -- Tall Oregon grape is an evergreen shrub with leathery compound leaves. It can grow to over ten feet tall (usually < five feet) and has 5-9 leaflets with one central vein. Flowers are dark yellow, clustered, and bloom April through May. Fruits are waxy blue berries in grape-like clusters. Plant in sun or partial shade.

Berberis repens (Creeping Oregon grape) -- A low-growing, evergreen subshrub or ground cover with holly-like leaves. Drought and shade tolerant, it is native to the forest understory. Grows 1 foot tall and flowers are a bright yellow in April and May.

Betula occidentalis (Water birch) -- This multi-stemmed tree grows 15-25 feet tall, producing decorative catkins in April and May. It grows well on moist sites, especially near a pond or stream. Native to the Rocky Mountain states from 3,000-9,000 feet elevation.

Celtis reticulata (Netleaf hackberry) -- This drought tolerant shrub to small tree can grow to nearly 30 feet tall. Slow-growing unless regularly watered, it is tolerant of pruning, a variety of soil types, and provides excellent cover for wildlife. The purplish-red drupes it produces in fall are favored by a variety of wildlife species.

Cercocarpus ledifolius (Curl-leaf mountain mahogany) -- A 10-15 foot tall evergreen shrub with narrow, entire leaves. Drought tolerant, it prefers well-drained soils and full sun. Tolerant of pruning. Preferred deer browse.

Cercocarpus montanus (Birchleaf mountain mahogany) -- Native to Oregon, Wyoming, Utah, Colorado, and California, this deciduous shrub grows to about 10 feet tall by 3-5 feet wide. It

Chrysothamnus nauseosus (Gray rabbitbrush) -- This 3-6 foot tall, yellow flowering shrub is extremely drought tolerant. It flowers in late summer/early fall, and performs best if pruned each spring prior to regrowth.

Cornus sericea (Red-osier dogwood) -- Showy, bright red stems make this a favorite shrub for landscaping. It grows to about 8 feet and spreads by layering. Produces white berries in fall. Deciduous, large leaves w/prominent venation.

Crataegus douglasii (Douglas hawthorne) -- This thorn-bearing shrub can grow to 15 feet tall. It is moderately drought tolerant and produces a purple-black fruit in summer that is favored by birds.

Fallugia paradoxa (Apache plume) -- A drought tolerant 4-6 foot tall shrub native to the Colorado Plateau, Apache plume grows well in the Treasure Valley. It is in the rose family and produces simple white flowers through the summer. Its showy, pink-tinged, feathery-plumed fruits persist on the plant from fall through winter.

Mahonia repens (Creeping Oregon grape) -- A low-growing, evergreen subshrub or ground cover with holly-like leaves. Drought and shade tolerant, it is native to the forest understory. Grows 1 foot tall and flowers are a bright yellow in April and May.

Philadelphus lewisii (Syringa) - Idaho's state flower, this deciduous shrub grows up to 10 feet tall and has showy, 4-petaled white flowers in early June. It has opposite branches and leaves that are ovate with entire to serrate margins. Grows best in well-drained soil in sun to partial shade.

Pinus albicaulis (Whitebark pine) – Grows 20-50 feet tall, whitebark pine are known from British Columbia to California and east to Wyoming and Montana. They generally grow on south-facing slopes near timberline. There are 5 short (1-3" long) needles per fascicle. Can live more than 1000 years in their natural habitat. Needs well-drained soil and full sun. Unknown how well they will grow in the Treasure Valley (none of us have grown them before).

Pinus flexilis (Limber pine) - Native to eastern Idaho and other Rocky Mountain states, limber pine is slow-growing and, like whitebark pine, has 5 needles per fascicle. Grows in full sun on well-drained soils.

Pinus ponderosa (Ponderosa pine) -- One of the largest pine trees in the world (up to 130' tall) and one of the most common trees in western North America. Needles are 6-10" long and 3 per bundle. Grows best in full sun in well-drained soils. Drought tolerant.

Potentilla fruticosa (Shrubby cinquefoil) – Hardy to Zone 2, this 2-4 foot tall deciduous shrub has a rounded habit and slow rate of growth. It has yellow flowers from June until first frost. It is widely used and there are many cultivars. It is tolerant of a variety of soil types but grows best in full sun with moderate amounts of water (not drought tolerant).

Prunus virginiana (Chokecherry) -- This deciduous shrub typically grows 8-15 feet tall and spreads vegetatively. It produces clusters of white flowers on pendulant spikes in the spring. Fruits ripen to a deep purple to black color in summer. Tolerant of a variety of soil conditions.

Purshia tridentata (Bitterbrush) - Typically grows 4-6 feet tall, though can reach heights of 10 feet. Extremely drought tolerant, bitterbrush grows best on well-drained soils in full sun. It produces sweet-smelling, 5-petaled yellow flowers in early May. Preferred deer browse. Do not overwater.

Rhus trilobata (Oakleaf sumac) - A drought tolerant shrub that obtains a height up to 6 feet and 8 feet across. It has attractive foliage that is particularly showy in the fall. Also known as lemonade bush due to the lemon flavor of the fruits. However, fruits are best eaten by wildlife rather than humans.

Ribes aureum (Golden currant) -- This 4-6 foot tall deciduous shrub produces bright yellow flowers in late March and early April. It is tolerant of a variety of site conditions, though grows best with regular irrigation and in partial sun. An excellent species for birds due to the small orange-red fruits it produces in summer.

Ribes cereum (Wax currant) -- Native at mid-elevations in Idaho, this 4-5 foot tall deciduous shrub produces a white to pink-tinged tubular flower, followed by a dull to bright red unpalatable berry. Requires regular irrigation.

Ribes sanguineum (Red-flowering currant) – This northern Idaho native grows 5-10 feet tall and is intolerant of saturated soil. It grows best in full sun to partial shade. The pink to reddish flowers bloom in early spring (April). Leaves are deciduous, have 3-5 lobes and are a dark green color. Hardy to Zone 5, this is a highly attractive shrub.

Rosa woodsii (Wood's rose) – Native along riparian corridors primarily, this 3-4 foot tall shrub produced simple pink flowers in late May and early June. This shrub spreads vegetatively to form thickets, so it must be planted accordingly. Bright red rose hips in fall and winter are showy and attractive to wildlife.

Rubus parviflora (Thimbleberry) - Native to the understory in many Idaho forests, thimbleberry grows best in partial shade and requires regular water. It spreads vegetatively similar to raspberries, but much more slowly.

Sambucus cerulea (Blue elderberry) - Deciduous shrub to 15 feet tall, it produces small white flowers in summer and powdery blue fruits in late summer. Blue elderberry has pinnately compound leaves, grows best in well-drained soil in sun to partial shade, requires plentiful water, and is **not preferred by deer**. Blue elderberry grows from Canada to Arizona. To maintain good form, it is best to prune it back heavily each spring.

The Granddaddy of all of them





Sheperdia argentea (Silver buffaloberry) - This deciduous shrub to multi-stemmed small tree reaches 10-15 feet in height. It has silvery, narrow, entire leaves. Branches are opposite and somewhat spine-tipped, and its fruits are reddish-yellow and provide an excellent food source for birds. Will spread vegetatively. Drought tolerant and grows best in full sun.

Sorbus scopulina (Mountain ash) -- This 10-15 foot tall shrub to small tree is deciduous with pinnately compound leaves. Leaflets are sharply serrated. The small white flowers are borne in large, dense, flat-topped clusters and appear in summer. Fruits are reddish-orange and occur in clusters that ripen in late summer to early fall. Best grown on a northerly aspect in the Treasure Valley. Requires moderate amounts of water and is tolerant of a variety of soils.

Spirea douglasii (Pink spirea) -- A deciduous shrub that forms thickets (it spreads vegetatively) and grows to 4-6 feet tall by 3-6 feet wide, it forms spires of pink to purple flowers in the summer. Grows in partial shade to shade, requires moderate amounts of water, and tolerates a variety of soil types.

Symphoricarpos albus (Snowberry) -- This opposite branching shrub produces pink to white flowers in May or June, followed by a white, berry-like fruit in late summer and winter. It grows to about 5' tall and spreads vegetatively. Tolerant of partial shade, it requires regular irrigation.

Forbs

Anaphalis margaritacea (Pearly everlasting) – This white-flowered perennial blooms prolifically from June to September. It grows to 18" tall, is tolerant of poor soils, needs moderate amounts of water, spreads by rhizomes, but is not aggressive. Common in forested habitats of Idaho.

Antennaria microphylla (Rosy pussytoes) -- A low-growing perennial that is somewhat mat-forming. Leaves are a silvery gray color. Prefers well-drained soils and low to moderate amounts of water. Flowers cream colored to pink tinged.

Aquilegia coerulea (Rocky Mountain columbine) -- This widespread blue and white flowering species is native to most western states. It is Colorado's state flower. It grows to 24" tall in partial to full sun where well watered.

Balsamorhiza sagittata (Arrowleaf balsamroot) - A long-lived, drought tolerant native perennial that emerges in April and flowers in May around Boise. Doesn't flower until it is 4-7 years old. Flowers are sunflower-like. Goes dormant in summer until the following spring.

Camassia quamash (Blue camas) - Six dark blue petals and 6 bright yellow stamens characterize this species of wet meadow habitats. Grows about 1 foot tall from a bulb. Dormant through the summer. Edible bulb.

Eriogonum heracleoides (Wyeth buckwheat) - Woody, long-lived buckwheat that reaches a maximum height of 18". Unusual garden plant with creamy white flowers in the summer. Best if grown in partial to full sun. Moderately drought tolerant.

Eriogonum umbellatum (Sulfur buckwheat) -- This long-lived, creeping perennial requires good drainage and full sun. Its deep yellow flowers appear in early summer and can be dried for flower arrangements. It has attractive, evergreen, round leaves. Drought tolerant.

Fragaria vesca (Mountain strawberry) -- Also known as woodland strawberry, this small plant (4-6 inches tall) is commonly found in meadows, young woodlands, sparse forest, woodland edges and clearings. Spreads fast by runners and can form dense mats. Fruits are much smaller than the commercial variety. Grow in sun to partial shade. Somewhat drought tolerant. Flowers white with 5 petals, from 3-15 on a stem.

Geranium viscosissimum (Sticky geranium) -- Grows from 18-30" tall at low to moderate elevations in the mountains. Pink to lavender colored flowers bloom in the summer. Requires moderate amounts of water.

Geum triflorum (Prairie smoke) -- This mountain meadow native requires full to partial sun and moderate amounts of water. It produces interesting reddish flowers from early to mid-summer. Low-growing, evergreen foliage. Flower stalks are 10-18" tall.

Linum perenne v. lewisii (Blue flax) -- This 12-24" tall plant produces blue flowers from spring to summer. Each 5-petaled flower lasts just 1 day. Grows best in full sun, is drought tolerant, and stays green through summer. This variety is native throughout most of western North America, while the ornamental var. *perenne* is of Eurasian origin. It produces a lot of seed and can spread if the site is well watered.

Lupinus polyphyllus (Bigleaf lupine) -- Plants grow up to 30" tall and are generally associated with moist areas in the mountains. Summer flowers vary from lavender to blue to pink.

Mimulus lewisii (Lewis monkeyflower) -- This moisture-loving plant grows along mountain streams and springs. It grows to about 18" tall in full to partial sun. First discovered by Meriwether Lewis, this stunning plant has large, purplish-red tubular flowers.

Penstemon cyaneus (Blue penstemon) -- Large, deep purple tubular flowers grace this native perennial that grows to 2 feet tall. Blooms in May and June when planted in full sun. Drought tolerant.

Penstemon deustus (Hotrock penstemon) -- Low-growing perennial forb native to Idaho. Easily grown in full sun, producing lots of whitetubular flowers from May-June. Drought tolerant. Often self seeds. Avoid overwatering.

Grasses

Achnatherum hymenoides (= *Oryzopsis* h.) (Indian ricegrass) -- A native perennial bunchgrass of sandy sites in the western U.S. Flower stalks grow up to 18" tall and are quite airy and attractive. Drought tolerant and relatively short lived, particularly on soils that are not well-drained.

Festuca idahoensis (Idaho fescue) -- This native perennial bunchgrass obtains heights of up to 18" (with flower stalks). Prefers medium to moderately fine deep soils and moderate amounts of water. Full sun is best.

Pseudoroegneria spicata (Agropyron s.) (Bluebunch wheatgrass) -- A large, long-lived bunchgrass that can grow up to 2.5' tall. Very widespread in the western U.S. This drought tolerant species requires full sun.

Penstemon eatonii (Firecracker penstemon) -- Perennial forb of the Great Basin (UT, NV; not native to Idaho). Easily grown in full sun, produces many red, tubular flowers from May to June. An excellent hummingbird attractant. Drought tolerant. Avoid overwatering. Relatively long-lived.

Penstemon fruticosus (Shrubby penstemon) -- A low-growing (to 18" tall), semi-evergreen subshrub with large, blue to lavender tubular flowers in June and July. Requires well-drained soils and is longer lived than many other Penstemons.

Penstemon palmeri (Palmer penstemon) -- Short-lived perennial forb of the Great Basin (Utah, Nevada - not native to Idaho). Easily grown in full sun, producing lots of large pink, tubular flowers from May-June. Drought tolerant. Often self seeds. Avoid overwatering.

Penstemon payettensis (Payette penstemon) -- Native to west-central Idaho, Payette penstemon produces light to medium blue flowers in late May and June. It is moderately drought tolerant and requires full sun and good drainage.

Penstemon venustus (Lovely penstemon) -- Numerous bluish to purple tubular flowers are produced by this 2-3 foot tall plant in May and June. Also a good species for hummingbirds. An Idaho native, this spectacular penstemon requires more moisture than firecracker, hotrock, or Palmer penstemon.

Sidalcea oregana (Oregon checkermallow) -- Produces 3 foot tall pale lavender colored spikes of flowers. Grows best in full sun, but is not drought tolerant.

Sisyrinchium idahoense (Blue-eyed grass) -- This 10-15" tall member of the Iris family produces blue to reddish-purple flowers in early spring. Native to sites that are moist in spring. Prefers full sun. Becomes dormant in summer.

Sphaeralcea grossulariifolia (Gooseberryleaf globemallow) -- A drought tolerant orange-flowered native of low elevation sites in southern Idaho. Requires full sun and very little water once established. With flower stalks, can grow about 24" tall.

Sphaeralcea munroana (Munro's Globemallow) -- Perennial forb that produces a showy, salmon-colored, five-petaled flower. Grows to about 2 feet tall. Plant in full sun and avoid overwatering.



Kemmerer Drill





ExxonMobil Tip Top 72-31
Seeded on 10-8-2005
Sage and Winterfat broadcast
On location after drill seeding
was completed





Traditional Drills with 7 inch row spacing If they are equipped with multiple boxes They can offer many different options to deliver the seed to where it is needed





Areas
drilled with
7 inch
truax flex
drill





Truax Rough Rider drills



Rainbow 11-32



6-27-09

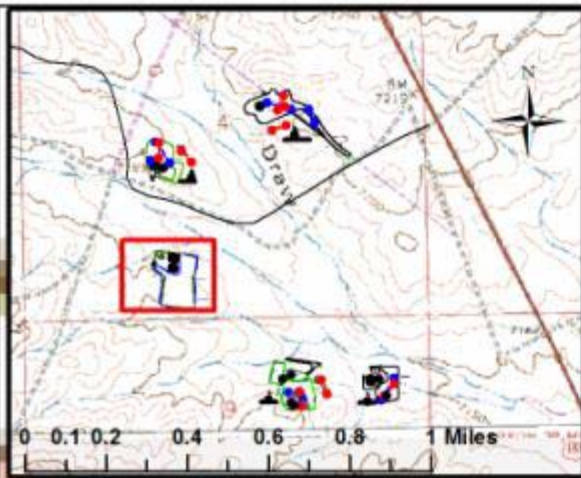


6-28-10



11-02-09

Antelope 14-4 Location



6.0 acres
Drill Seeded Location
11/05/07 (Truax Rough Rider)
Kiwi Power applied 12/4/07
No other amendments

In the
beginning
there was
GPS





Antelope 14-4

Picture taken on 7-3-2009



Antelope 14-4

Picture taken on 6-28-2010





NEW



Modified





Dick

Glade

Jim

















Old method of seeding
sagebrush on the
snow






















1st — What am I going to be planting
2nd — Where do the seeds need placed
3rd — What equipment do I have
4th - How am I going to make that
equipment do what I want it to do



GRANDPA



Seeded mid 90s

A photograph of a dry, hilly landscape. The foreground and middle ground are covered with sparse, low-lying vegetation, including various shrubs and grasses, growing on reddish-brown soil. In the background, there are rolling hills and mountains under a blue sky with scattered white clouds. On the right side, there is an industrial facility with two large white storage tanks and a yellow structure, possibly a pumpjack or wellhead. The text "Seeded Mid 90's" is overlaid in the center of the image.

Seeded Mid 90's

A photograph of a dry, scrubby landscape. The foreground and middle ground are filled with various types of low-lying, dry vegetation, including grasses and small shrubs. The ground is reddish-brown and appears to be sandy or silty. In the background, a dirt road or path runs horizontally across the frame. The overall scene suggests a semi-arid or desert environment.

Seeded Mid 90s

















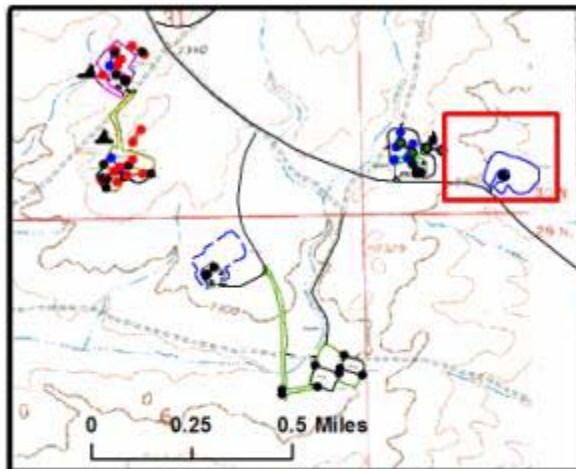
04/18/20











Rainbow 11-32 Location

6.0 acres

Drill Seeded Location

11/02/07 (Truax Rough Rider)

Kiwi Power applied 12/4/07

No other amendments

2007 reclaim area = 5.93 acres

• Rainbow 11-32
Rainbow 14-32

0 50 100 200 300 Feet





Antelope 14-4 Location

Comstock Seed (CS); Granite Seed (GS); Wind River Seed (WR)					
Shell Habitat Seed Mix SH07					
Species	#/Acre	Seeds/#	Seeds/Ft2	% Seeds	Vendor
Globemallow, Scarlet	0.05	500,000	0.52	0.53	CS
Sandberg Bluegrass	1.50	925,000	31.85	32.41	WR
Winterfat	1.00	56,700	1.30	1.32	WR
Yarrow, Western	0.10	2,770,000	6.36	6.47	CS
Penstemon eatonii (Firecracker P)	0.15	351,000	1.21	1.23	WR
WY Big Sagebrush	0.50	2,500,000	28.70	29.20	WR
Fringed Sagewort	0.10	4,536,000	10.41	10.60	WR
Thickspike Wheatgrass Critana	1.00	145,000	3.33	3.39	WR
Slender Wheatgrass Revenue	2.00	159,000	7.30	7.43	WR
Indian Ricegrass, Rimrock	2.00	141,000	6.47	6.59	WR
Four-winged Saltbush	0.50	52,000	0.60	0.61	WR
Silky Lupine; Lupinus sericeus P	0.50	20,000	0.23	0.23	GS
	9.40		98.28	100.00	

WR blend

SH07-M

SH07-M

SH07-M

SH07-B

SH07-B

SH07-B

	Truax Range Drill (Small Seed Box = Front Box)
	Truax Range Drill Surface Seed Box (Fluffy Box = Middle Box)
	Truax Range Drill (Grass "Cool Season" Box = Back Box)





11/02/07



11/02/07

Comstock Seed (CS); Granite Seed (GS); Wind River Seed (WR)					
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Thickspike Wheatgrass Critana	1.00	145,000	3.33	3.39	WR
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Silky Lupine; Lupinus sericeus P	0.50	20,000	0.23	0.23	GS
	9.40		98.28	100.00	

WR blend

SH07-M

SH07-M

SH07-M

SH07-B

SH07-B

SH07-B

	Truax Range Drill (Small Seed Box = Front Box)
	Truax Range Drill Surface Seed Box (Fluffy Box = Middle Box)
	Truax Range Drill (Grass "Cool Season" Box = Back Box)



Rainbow 11-32 Location

11/02/07

Soil Samples - 2004-2005-2006

Sample Number	Sample Location	Sample Type	Date	Month Sampled	% Organic Matter	Nitrate N ppm	Phosphorus ppm	Potassium ppm	Magnesium ppm	Calcium ppm	Sulfur ppm	Zinc ppm	Manganese ppm	Copper ppm	Iron ppm	Boron ppm	Soil pH	Buffer Index	Sodium ppm	Total CEC	Ca/Mg	CEC Ca/Mg	% Sand	% Silt	% Clay	Soil Texture
RAIN11-32	Rainbow 11-32 topsoil 2004	TP	May-04	5	1.1	6.0	17	266	212	1497	6.0	0.7	2.4	1.3	19.0	0.5	6.5		22	10.0	7.1	4.2				

