

DIVERSIFICATION OF CRESTED WHEATGRASS FIELDS: PRACTICAL EXPERIENCES

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Why Diversify?

- Improve habitat for wildlife



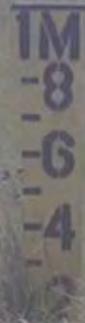
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Why Diversify?

- Improve habitat for wildlife
 - Sage-grouse broods use areas rich in forbs
(Drut et al. 1994; Apa 1998)
 - Forbs contributed 20 to 50% to the diet of pre-laying sage-grouse hens
(Barnett and Crawford 1994)
 - Sharp-tailed grouse use areas that contain a high diversity of forbs and bunchgrasses
(Hart et al. 1950, Klott and Lindzey 1989, Meints 1991)

Funding Sources

- Public landowners
 - BLM
 - WDFW
- Enrollment in CRP-SAFE
 - Provides cost share to establish 7-8 species, including forbs, grasses, and shrubs



Methods

- Site Preparation – 15 months process starting in summer
 - Mow – Harrow – Spray – Spray
- Staged Planting
 - Grasses – Broadleaf Control – Forbs

Mowing

- Timing – Summer following seed shatter



Rotary Blade Mower

Harrowing

- Timing – Fall; A heavy spring-tine harrow is used



Chemical Fallow

- Mid-Spring Heavy Round-Up
 - 96 oz Round-Up + 12 oz AMS + 1 oz R-11
(4 lbs a.i. / gallon; e.g. Round-Up Pro)
- Summer Round-Up
 - 20 - 24 oz Round-Up + 10 oz AMS + 1 oz R-11
- Fall Round-Up
 - 12 – 16 oz Round-Up + 10 oz AMS + 1 oz R-11



Ready to Plant...



Deep Tillage

- Dense crested wheatgrass may need tillage
 - Breaks up sod
 - Sweep chisel
 - One week following heavy RU application

Seeding

- Dormant seeding with TruAx Flex II
- Seeding depth ranges from $\frac{1}{4}$ - $\frac{1}{2}$ inches

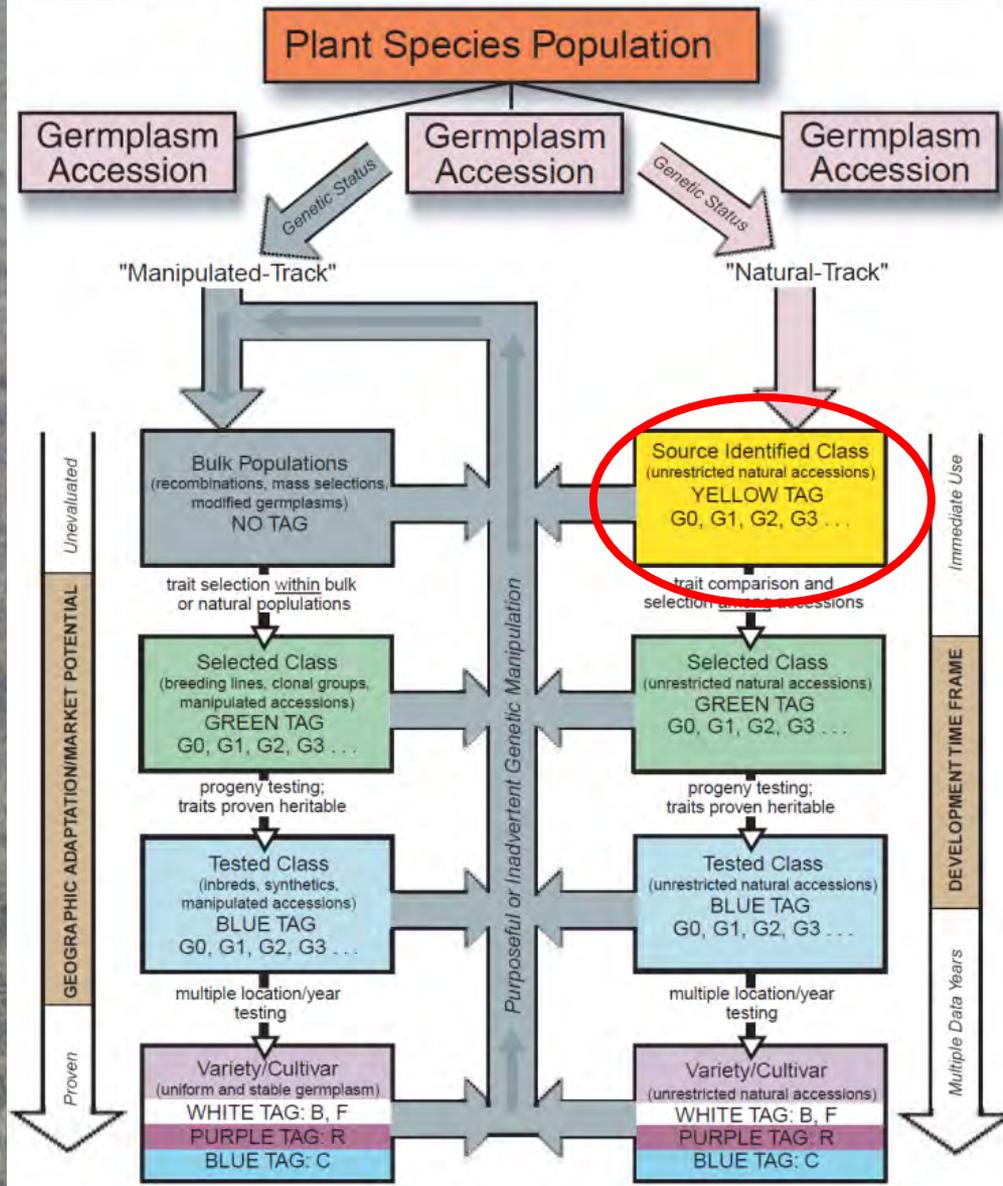


Grass Seed Mixes

Grass Species	Eco-Types	Lbs / Acre
Bluebunch Wheatgrass	Duffy Creek/Hawk Creek	5
Idaho Fescue	Touchet/Tucannon	3
Sandberg Bluegrass	Sprague	1.6
Prairie Junegrass	Zumwalt	1
	TOTAL	10.6

Grass Species	Eco-Types	Lbs/Acre
Bluebunch wheatgrass	Wahluke	3.6
Sandberg's bluegrass	Frenchman Hills	1.6
Indian ricegrass	Nezpar	1.4
Bottlebrush squirreltail	Yakama	1.1
Thickspike wheatgrass	Schwendimar	1.4
	TOTAL	9

SEED CERTIFICATION NOMENCLATURE AND LABELING FOR PLANT GERMPLASM TYPES



Spring After Grass Planting



Spring After Grass Planting

- Timing – Later spring – 50% of rosettes are 2-3 inches
- 10 oz MCPA + 8 oz Buctril + 1 oz R-11
 - Add 0.2 oz Express for purple mustard control



Summer After Grass Planting

- Depending spring rain, a follow-up application or mowing is often required to control weed flushes



Forb Inter-seeding

- Forbs are drilled the fall after grass seeding

Forb Seed Mixes

Forb Species	Ecotypes	Lbs/Ac
Arrowleaf balsamroot	Spokane River	0.8
Silky lupine	Spokane River	0.4
Threadleaf fleabane	Duffy Creek	0.2
Nineleaf biscuitroot	Columbia Basin	0.3
Lewis' flax	Columbia	0.8
Sulfur buckwheat		0.4
Western Yarrow	Methow	0.1
	TOTAL	3

Forb Species	Ecotypes	Lbs/ac
Big sagebrush	Columbia Basin	0.2
Arrowleaf balsamroot	Red Mountain	0.5
Shaggy fleabane daisy	Duffy Creek	0.2
Creamy buckwheat	Duffy Creek	0.2
Lewis' flax	Columbia	0.2
Nineleaf biscuitroot	Columbia Basin	0.2
Silky lupine	Columbia Basin	0.3
Tapertip Hawksbeard		0.2
	TOTAL	2

Follow-Up Weed Control

- Spot spraying
- Mowing



Three Years Post Seeding



Notes on Forb/Shrub Inter-seeding

- Species readily established by seed include:
 - Fleabane daisies
 - Balsamroot
 - Yarrow
 - Silky lupine
 - Lewis' flax
 - Sagebrush



Notes on Forb Inter-seeding

- Unlike most grasses, many forb seeds are dormant
 - Balsamroot – 90 day cold-stratification



Carey's balsamroot

Estimated Cost Per Acre

TREATMENT	Per Acre Cost
Summer mowing	\$18
Fall harrowing	\$12
Spring Spraying (Chemical + Application)	\$27
Summer sweep chisel	\$14
Summer Spraying (Chemical + Application)	\$17
Year 1 Planting (Grass seed + Drill Seeding)	\$100 - 115
Spring Spraying (Chemical + Application)	\$17
Year 2 Planting (Forb/Shrub Seed + Drill Seeding)	\$120+

Summary

- Involves a multi-year, aggressive process
- Site preparation takes approx 15 months, and involves at least 4 steps
- Staged plantings are encouraged
- More forbs needed!!
- Once established, have patience....

Questions??

