Crested Wheatgrass Diversification: PRACTICAL EXPERIENCES

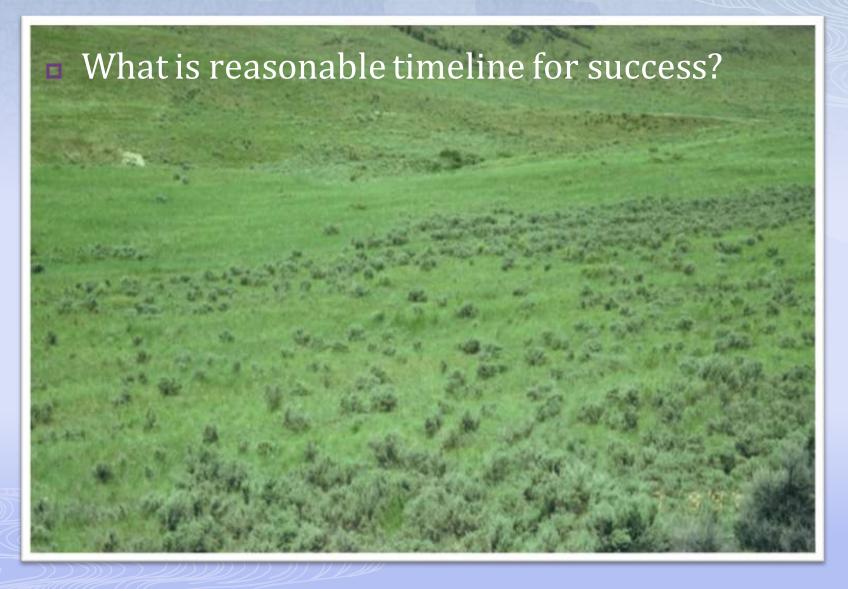




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Long-Term Thinking





Plant Material Development

Site Preparation

Planting

Post Planting Weed Control

Forb planting

Plant Material Development

- Are appropriate species/genetics available for your site?
- Timeline for development include the following:
 - 1-2 years for grasses
 - 2-3 years for forbs

| Timeline | Year 1 | | | | Year 2 | | | | Year 3 | | | | Year 4 | | | |
|-----------------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|
| Task | Winter | Spring | Summer | Fall |
| Wild Collection | | | | | | | | | | | | | | | | |
| Increasing | | | | | | | | | | | | | | | | |
| Grass | | | | | | | | | | | | | | | | |
| Forb | | | | | | | | | | | | | | | | |

Can overlap with site prep

Developing Appropriate Genetics

Begins with a genetically diverse wild collection

Seed Increasing

Continues with intensive agricultural methods and weed control



Weeding between rows of an established Sandberg's bluegrass (*Poa secunda*) stand with a chisel plow. Hand weeding a young Idaho fescue (*Festuca idahoensis*) field

Grass Production



Prairie Junegrass (Koeleria macrantha)



Sandberg's bluegrass (Poa secunda)

Forb Production



Arrowleaf balsamroot (*Balsamorhiza sagittata*), Wyeth's buckwheat (*Eriogonum heracleoides*), Venus Penstemon (*Penstemon venustus*), and Shaggy Fleabane Daisy (*Erigeron pumilis*).

Harvest Management



Combining a swathed bluebunch (*Psuedoroegneria spicata*) wheatgrass field



Silvery lupine (*Lupinus argenteus*) hand harvest

Seed Cleaning/Storage



Seed cleaning mill



Seed storage warehouse

Planting Process...

Site Preparation – Approx 15 months

Staged Planting – Grasses first, then interseed forbs/shrubs

| Timeline | | Ye | ar 1 | | | Ye | ar 2 | | Year 3 | | | | |
|-------------------------------|--------|--------|--------|------|--------|--------|--------|------|--------|--------|--------|------|--|
| Task | Winter | Spring | Summer | Fall | Winter | Spring | Summer | Fall | Winter | Spring | Summer | Fall | |
| Site Preparation | 1'' | | | | | • • | | | | 1 1 | 1 | • • | |
| Mowing | | | | | | | | | | | | | |
| Harrowing | | | | | | | | | | | | | |
| Initial Herbicide Application | | | | | | | | | | | | | |
| Follow-up Herbicide/Mowing | | | | | | | | | | | | | |
| Pre-planting Weed Control | | | | | | | | | | | | | |
| Grass Planting | | | | | | | | | | | | | |
| Broadleaf Weed Control #1 | | | | | | | | | | | | | |
| Broadleaf Weed Control #2 | | | | | | | | | | | | | |
| Forb/Shrub Planting | | | | | | | | | | | | | |
| Monitoring (Key Times) | | | | | | Х | Х | Х | | Х | Х | | |

Site Preparation

Control of Pre-existing Vegetation

Seedbank Depletion

Residue Management

Seedbed Preparation





Harrowing



Herbicide Application

- Mid-Spring Heavy Round-Up
- Summer Round-Up/Broadleaf Selective



Ready to Plant...



Seeding

Seeding occurs in late fall
Rangeland drills help with accurate seed placement



Spring After Planting

Continue annual
broadleaf control
through spring and
summer





Forb Inter-seeding

Forbs are drilled the fall after grass seeding

Establishment Success



Long-Term Success



Summary

- Multiple year, aggressive process
- Plant material development takes 2-3 years
- Site preparation and planting takes 3 years
- Planning and funding are not included!!

Once established, have patience

