

# Greenstrips- A Tool to Reduce Wildfire Impacts

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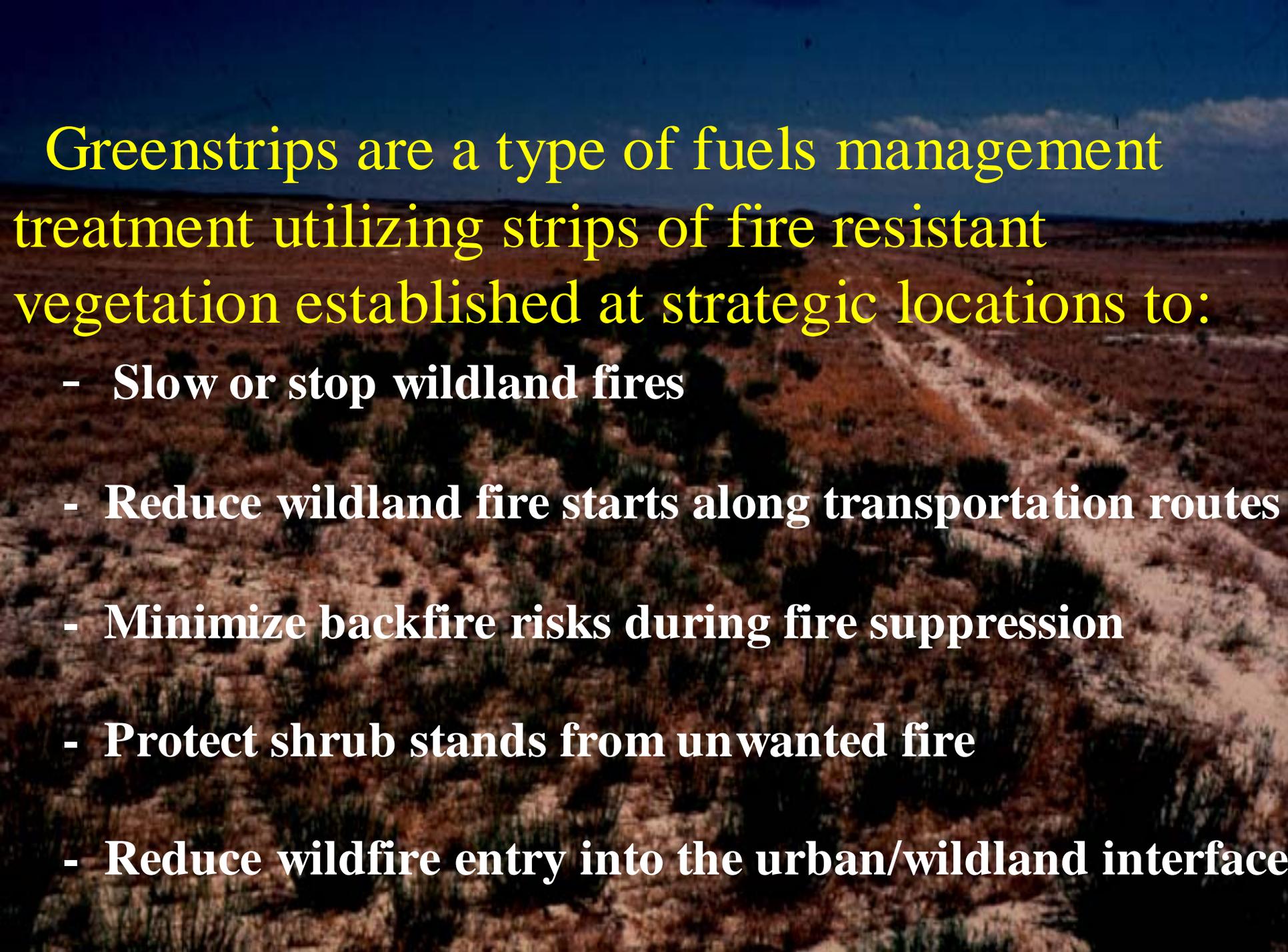


# The Cheatgrass-Wildfire Cycle



Fuels Management is the manipulation of plants and litter to reduce the frequency, rate of spread, and size of wildland fire (USDI 1998).



A landscape photograph showing a dirt road winding through a dry, brushy area. The vegetation is a mix of brown and green, with distinct green strips of vegetation running along the road, illustrating the concept of greenstrips. The sky is blue with some light clouds.

**Greenstrips are a type of fuels management treatment utilizing strips of fire resistant vegetation established at strategic locations to:**

- Slow or stop wildland fires**
- Reduce wildland fire starts along transportation routes**
- Minimize backfire risks during fire suppression**
- Protect shrub stands from unwanted fire**
- Reduce wildfire entry into the urban/wildland interface**

# Greenstripping



**Platt & Jackson (1946),  
The Cheatgrass Problem in Oregon**

*“That cheatgrass areas be broken at  
suitable intervals with strips of  
fire-resistant vegetation such  
as crested wheatgrass”*



OWINZA WILDFIRE--AUGUST 1949

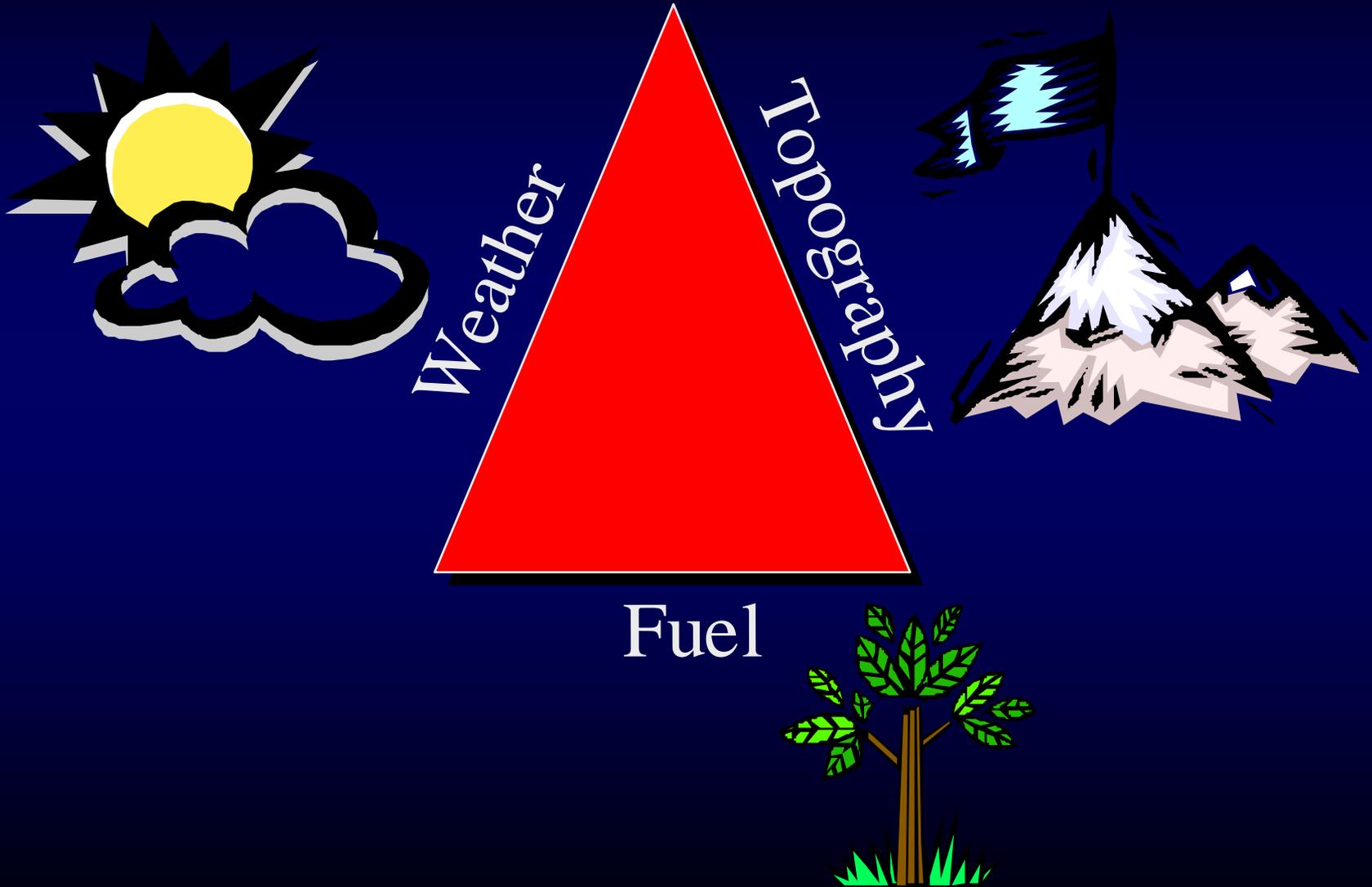
BESSLEN SEEDING



## 1949 Owinza Fire, BLM- Shoshone Idaho

*“The reseeded area on Owinza Butte, which has a good stand of crested wheat, shows without doubt the value of this type of planting in fire control work.”*

# Fire Triangle

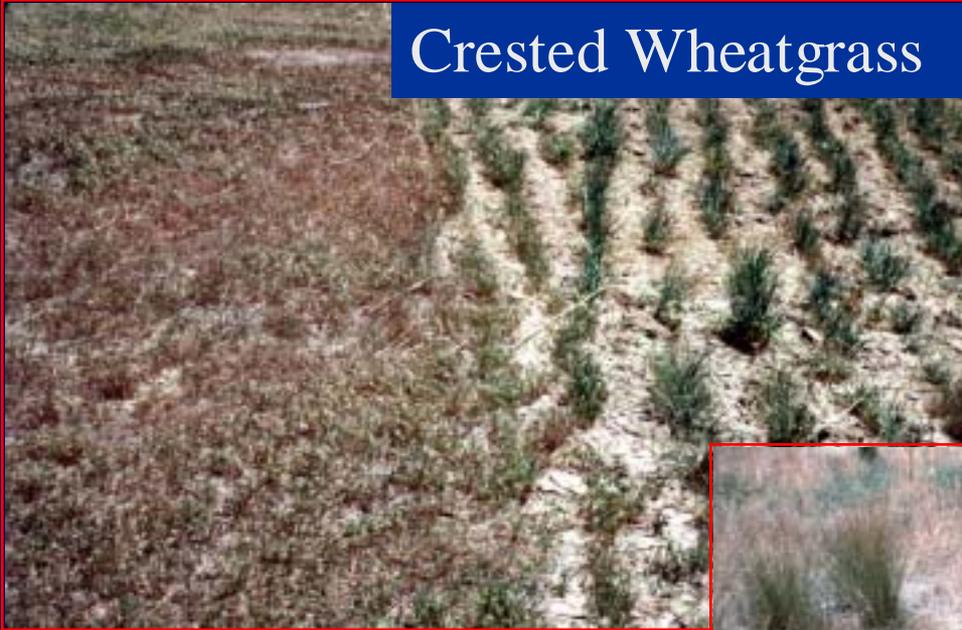


# Wildland Fuel Characteristics

1. Fine (grass) versus coarse (woody)
2. Load (amount of fuel)
3. Continuity (closeness)
4. Water content
5. Volatility

# 1. Fuels Management- Reduce Fuel Continuity

Crested Wheatgrass



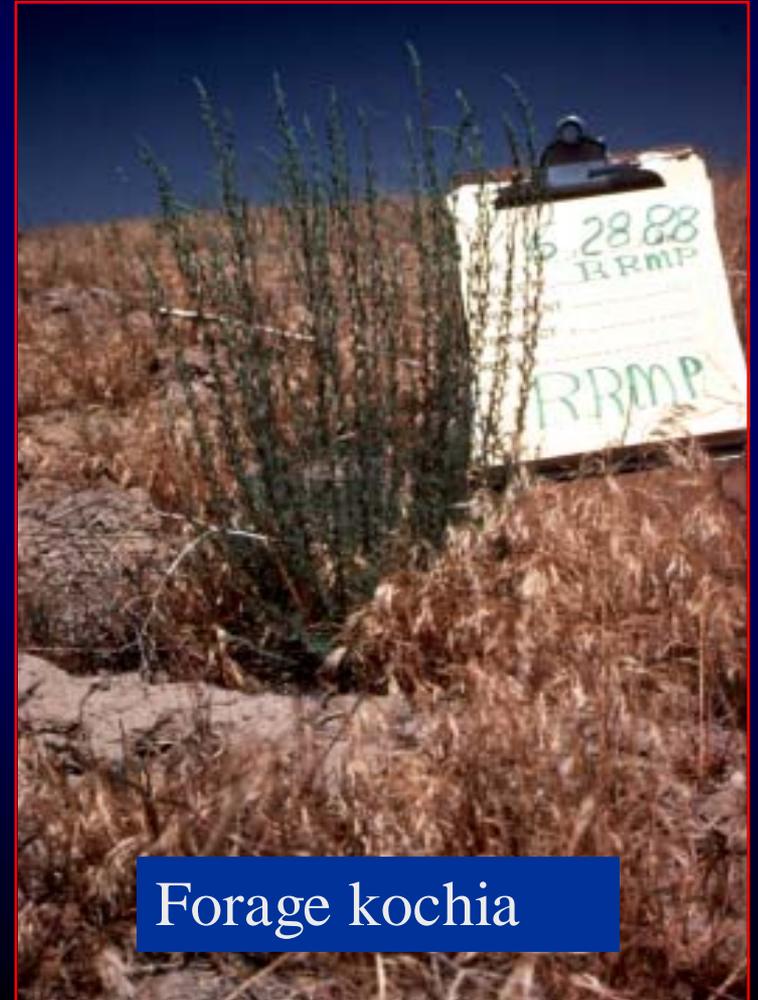
Bluebunch Wheatgrass



## 2. Fuels Management- Increase the proportion of plants with a higher moisture content



Crested wheatgrass



Forage kochia

### 3. Fuels Management- Reduce fuel loads and/or fuel volatility

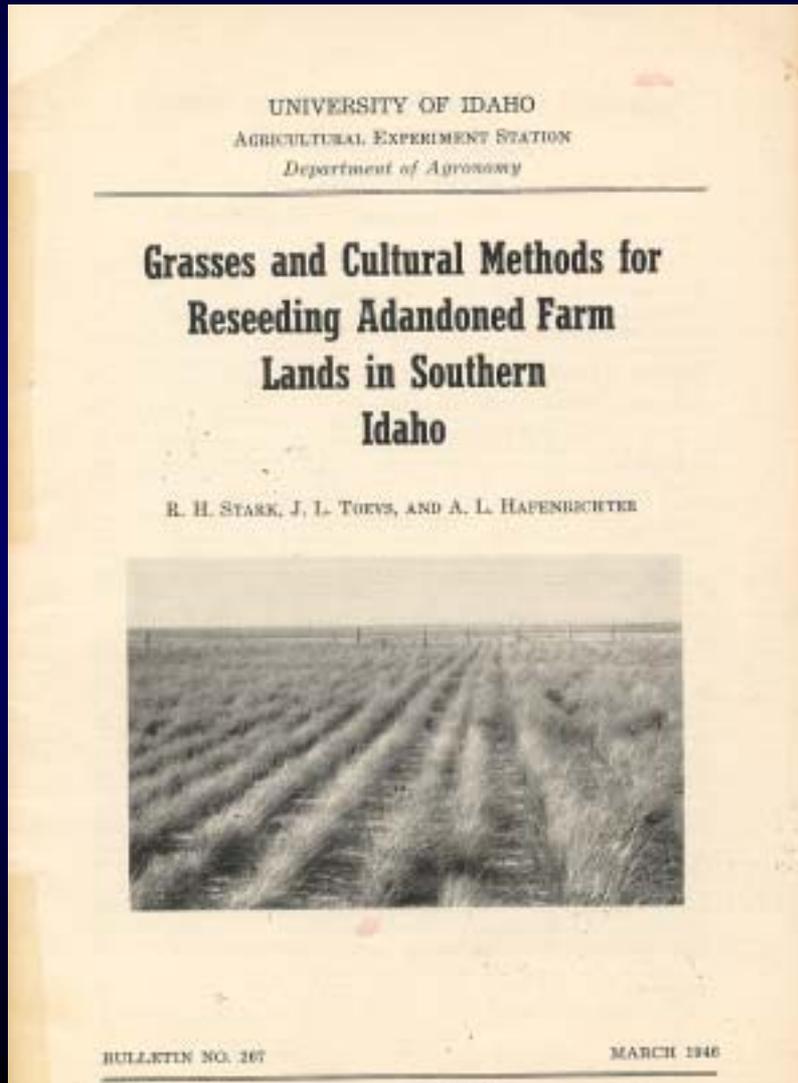


A photograph of a vast green field, likely a pasture or agricultural field, with a path or strip of different vegetation running through it. The grass is lush and green, and the background shows a flat horizon under a clear sky.

# Greenstrips

1. Cheatgrass Control
2. Plant Materials
3. Placement and Effectiveness
4. Summary

# Cheatgrass Control for Greenstrips



Well established that cheatgrass must be controlled prior to implementing any kind of a seeding project.

# Cheatgrass Control in Preparation for Seeding a Greenstrip

1. Biological- Livestock
2. Mechanical
3. Prescribed Fire
4. Herbicides
5. Combinations of Previous Treatments



# Biological Control- Livestock



- Season of use
- Intensity of use
- Distribution
- Duration of use
- Class of livestock

**To be effective in reducing cheatgrass you must:**

Repeat appropriate grazing practices over a multi-year period under different climatic conditions over a diverse landscape.

# Biological Control- Livestock Considerations

June, 1990



Variable Annual  
Production of Cheatgrass

June, 1995

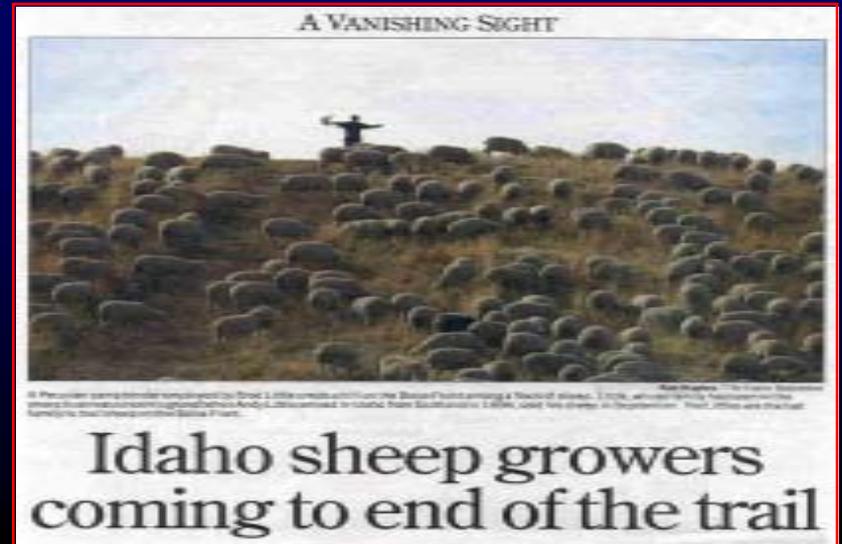
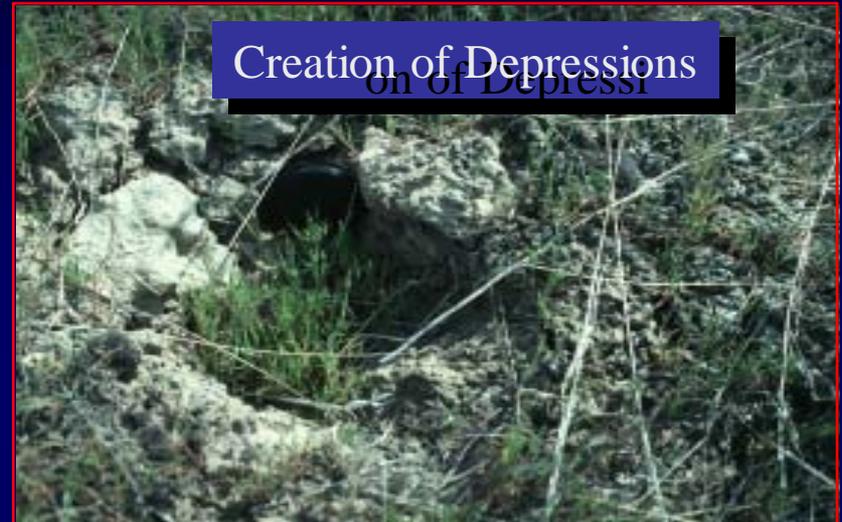


**Hull and Pehanec (1947):**  
Cheatgrass production in

Wet year--3,461 lbs/ac

Dry year-- 361 lbs/ac

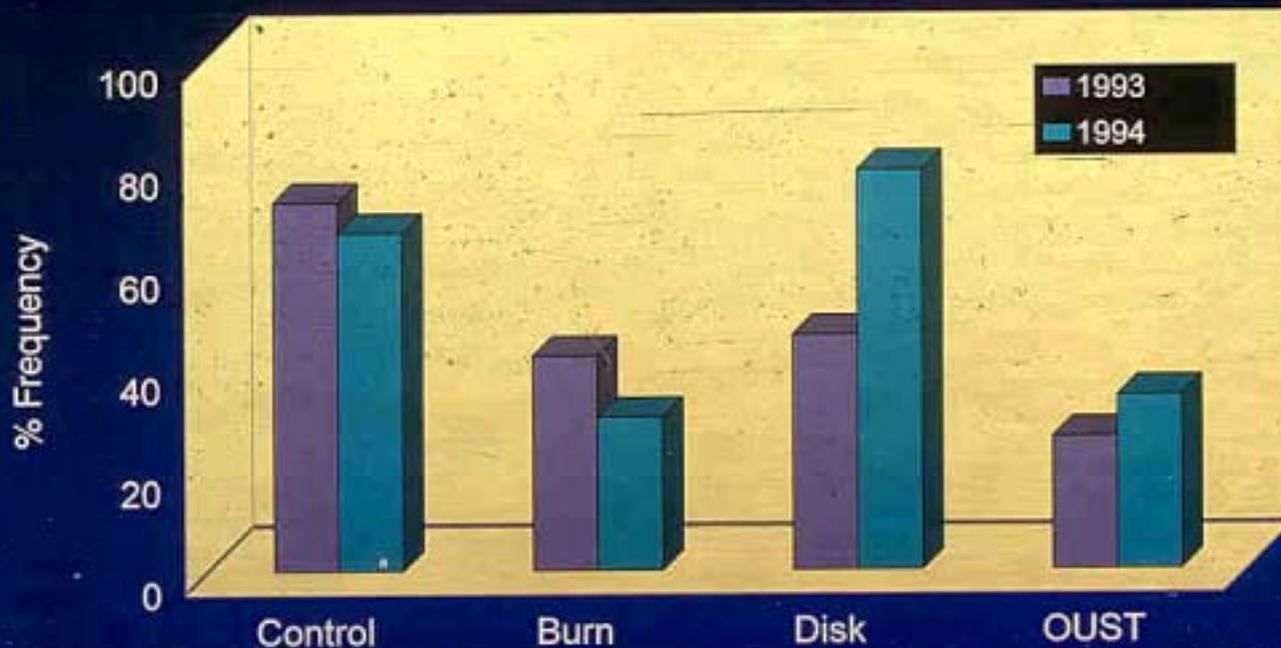
# Biological Control- Livestock Considerations



# Burn vs. Herbicide (OUST) vs. Disk



## Cheatgrass Control Elko, NV Area

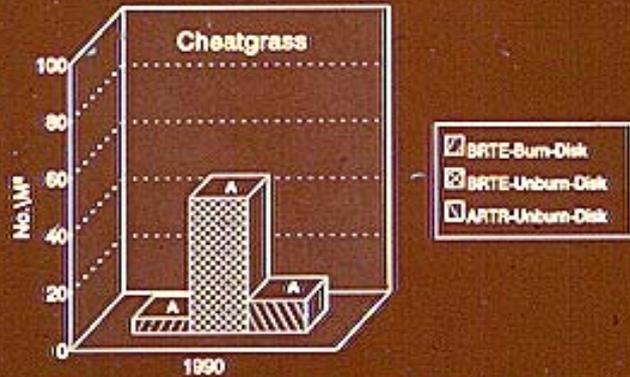


# Mechanical Control

**Cheatgrass control requires seed to be buried 2-3 inches (Hulbert 1955) or live plants to be disked or plowed before cheatgrass turns “purple”**

# Mechanical– Disk Chain

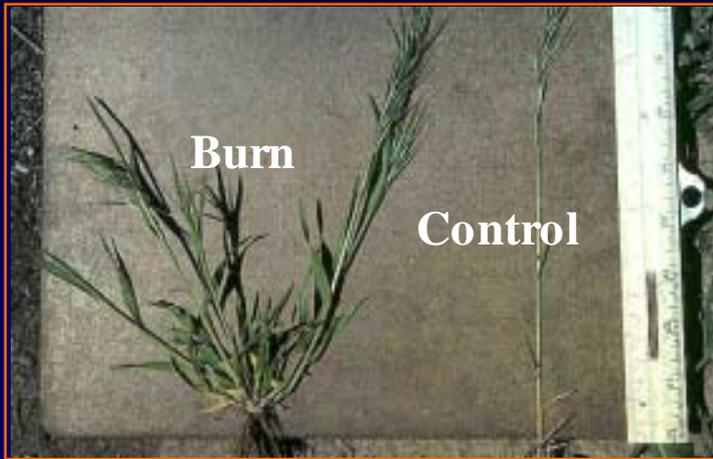
Orchard Disk Chain  
Comparison of Treatments by Site-1990



Bars with same letter do not differ significantly [ $P > .05$ ]



# Prescribed Fire



Vigor (seed production) of next years cheatgrass plants increased 4X



# Selecting Fire Resistant Plants

## *Requirements for Plant Materials*

- 1. Competitive with annuals.*
- 2. Adapted to harsh environments.*
- 3. Fire tolerant/resistant.*
- 4. Palatable.*



Yarrow

# Match Plants to be Seeded with Soils and Site Potential



Date Prepared: 3/69  
Author(s): BK/GED  
MLRA: 25

South Slope 8-12" P-2.  
028XV018HV  
ARTRM/AGSD

## Ecological Site Description

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

NEVADA  
Range Site Description

### A. PHYSICAL CHARACTERISTICS

#### 1. PHYSIOGRAPHIC FEATURES

This site occurs on southerly facing sideslopes of hills, erosional fan remnants and rock-pediment remnants. Slopes range from 15 to 75 percent, but slope gradients of 30 to 50 percent are most typical. Elevations are 5500 to 6500 feet.

#### 2. CLIMATIC FACTORS

Average annual precipitation is 8 to 12 inches. Mean annual temperature is 45 to 50 degrees F. The average growing season is about 100 to 120 days.

#### 3. SOIL FACTORS

The soils in this site are typically moderately deep and well drained. Surface soils are medium to moderately fine textured and are normally less than 10 inches thick. Subsoils are moderately fine to fine textured. Most of these soils are modified with 35 to 50 percent rock fragments through the soil profile. Available water capacity is low to moderate. On the southerly exposures of this site, more sunlight is received and the soils tend to have high evapotranspiration potentials on this site result in depletion of the available soil moisture supply early in the growing season. Runoff is medium to rapid. Potential for sheet and rill erosion is moderate to high depending on slope. A surface cover of gravels and/or cobbles on these soils provides a stabilizing effect on surface erosion conditions.

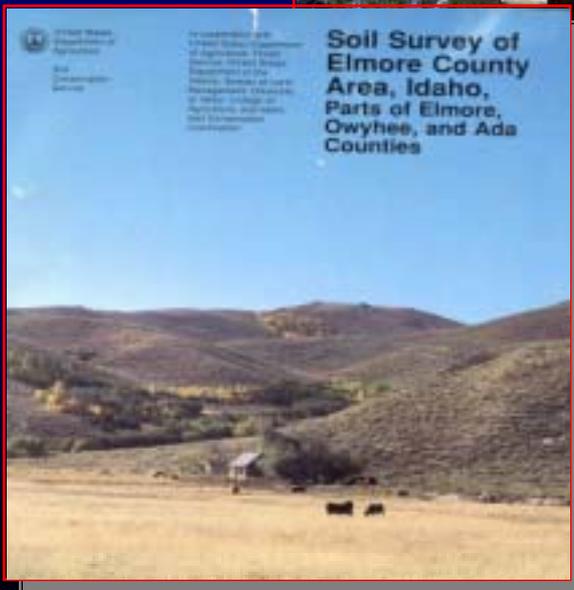
For a listing of soils correlated to this range site and representative pedons, see Appendix II.

#### 4. VEGETATION FACTORS

##### a. Potential Native Vegetation

The plant community is dominated by bluebunch wheatgrass. Other plants of importance are Thurber needlegrass and Wyoming big sagebrush.

Potential vegetative composition is about 80% grasses, 5% forbs and 15% shrubs.



# Non-Native Greenstrip Plants

1. Crested Wheatgrass (8-14" annual precip.)
2. Intermediate Wheatgrass (14-18" an. precip.)
3. Dryland Alfalfa (Ladak, Nomad & Rambler)
4. Sheep fescue
5. Small Burnett
6. 'Apar' Lewis Flax



# Native Greenstripping Plants

1. Bluebunch Wheatgrass (10-14" annual precip.)
2. Indian Ricegrass (sandy soils)
3. Basin Wildrye
4. Bottlebrush Squirreltail
5. Western Yarrow
6. Thurber's Needlegrass

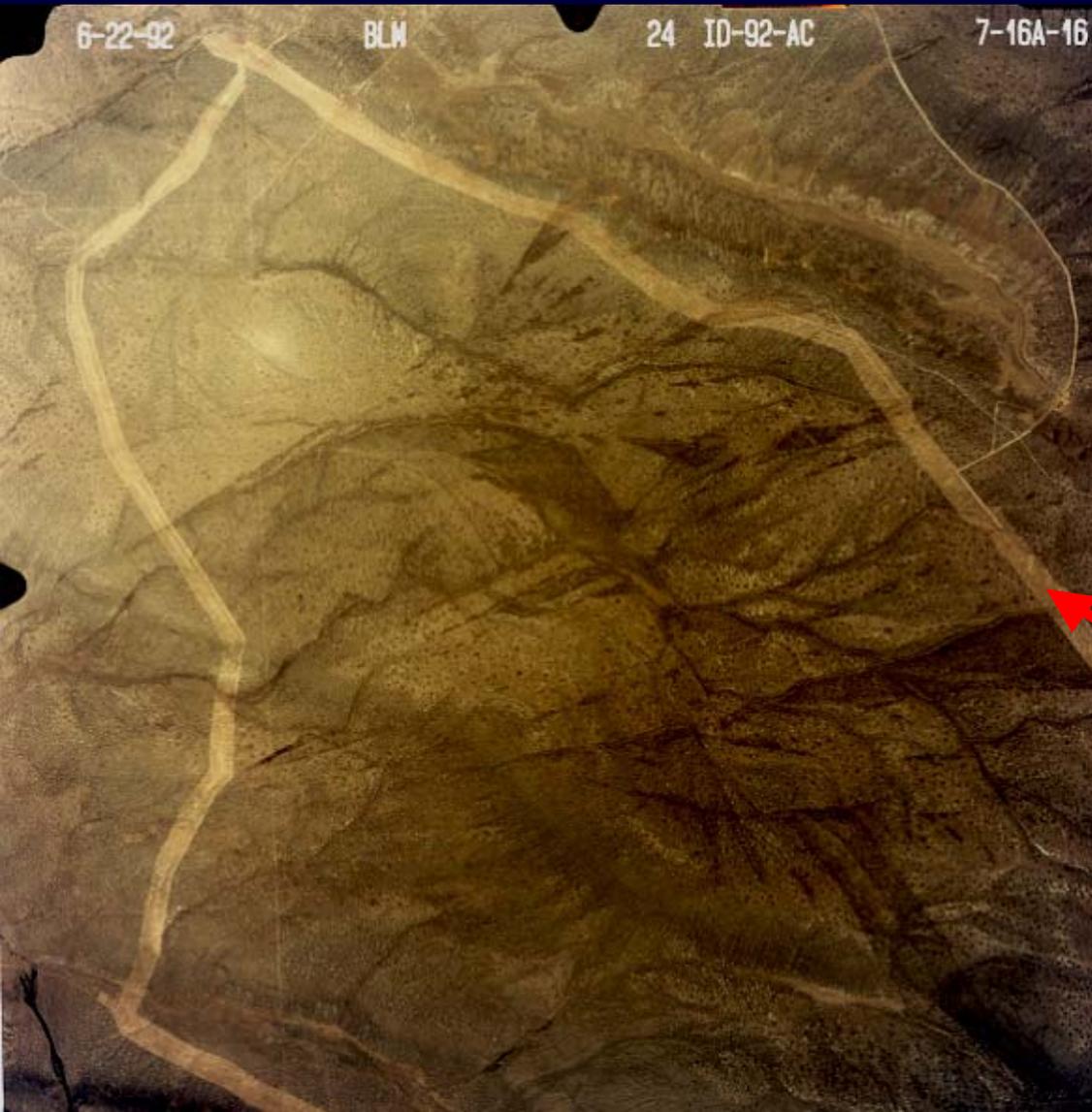


Thurber's needlegrass

# Native Grass Greenstrip Trials Kuna Butte, Idaho



# Greenstrip Strategy



## Greenstrip Width

- 50-100 ft. in light fuels
- 200-300 ft in heavy fuels



# Consider Topography



# Keep Wildfires out of Shrublands

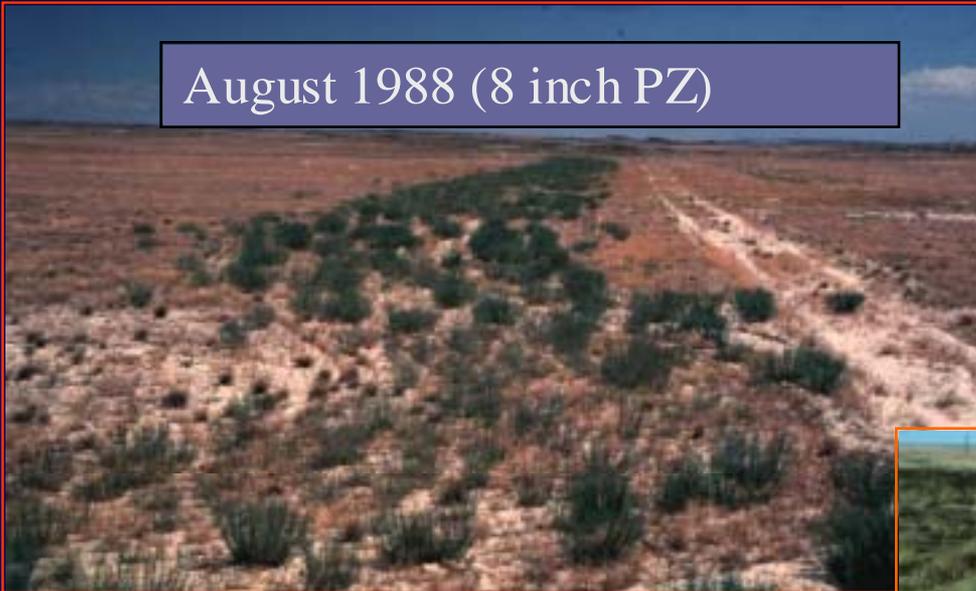


# Greenstrip Effectiveness



# Forage Kochia (*Kochia prostrata*) Greenstrip

August 1988 (8 inch PZ)

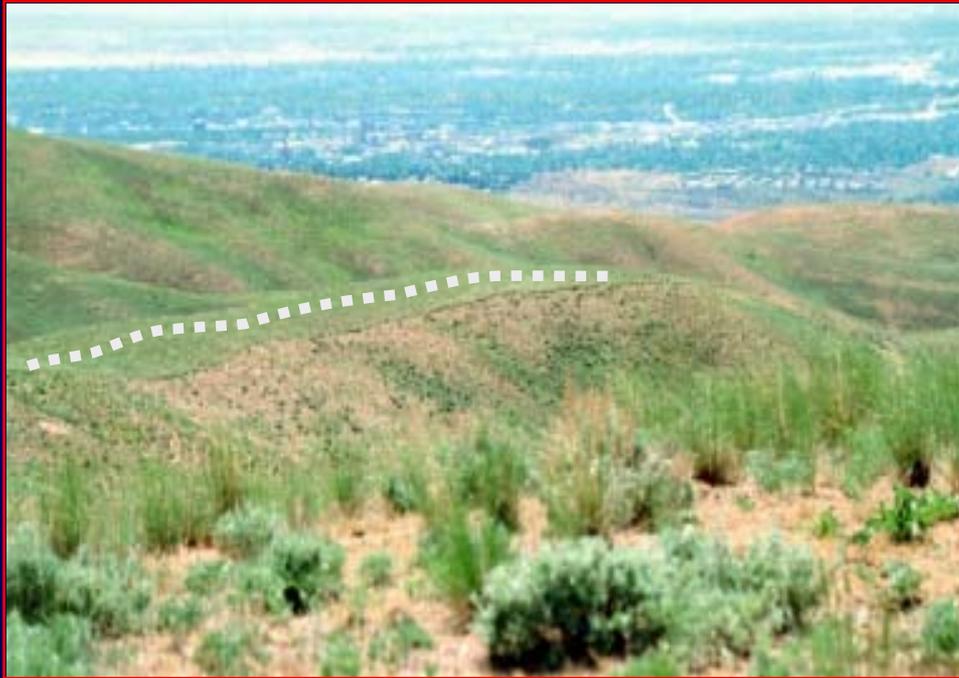


Exercise caution in use  
of non-natives

August 1997



# Greenstripping- Other Benefits



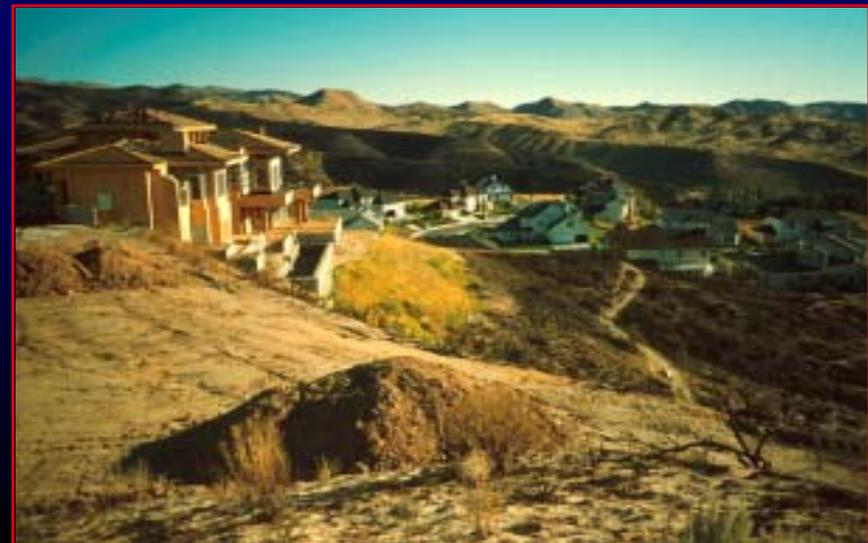
Slow the spread  
of invasive weeds



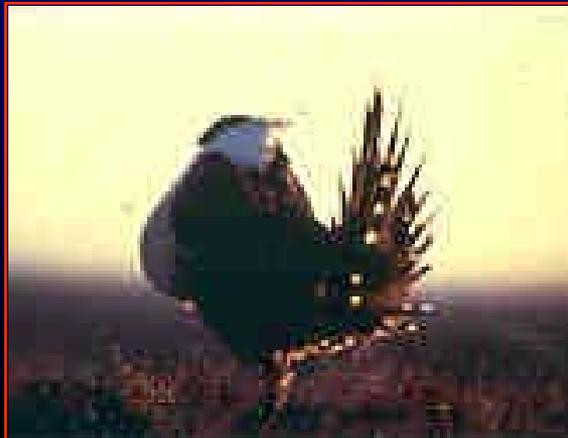
Rush skeletonweed

Bluebunch wheatgrass

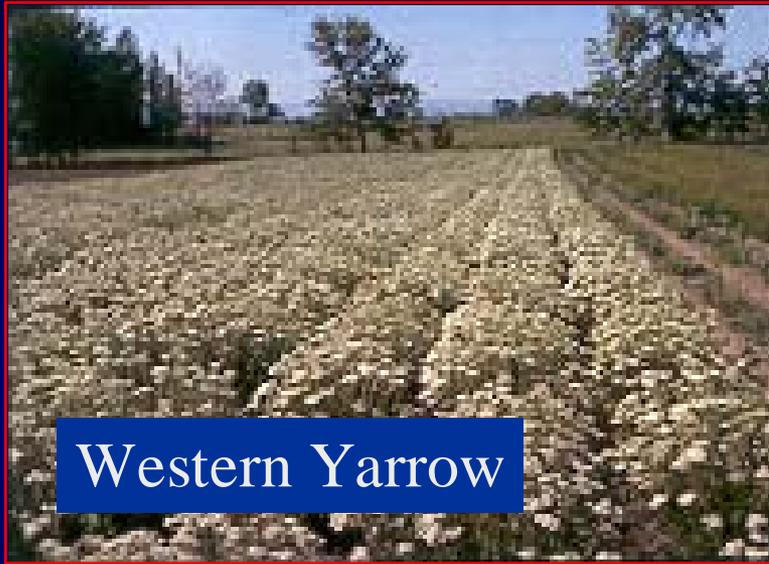
# Urban/Wildland Applications



# Summary



# Native Seed Production



Western Yarrow

Rearing (irrigation,  
fertilization & harvesting)

Develop consistent  
market for growers



Bluebunch wheatgrass

# Steps to Establish Firescape Plants on Urban-Wildland Interface

1. Select plants that are adapted to the soil.
2. Control weeds (if present).
3. Place seed in the ground (cover it with soil) at proper depth and time.
4. If it is a dry spring, water to establish plants.
5. Control weeds if they are a problem.
6. Manage the seeded plants to maintain them.