

# The Use of Seed Enhancement Technologies to Improve Sagebrush Establishment Across an Elevation Gradient

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USDA-Agricultural Research Service | Burns, Oregon





**Fire Severity**

*Photographer: kval.com*

**Competition**

**Elevation**

**Aspect**

**Soil Depth/Texture**



# Sagebrush Restoration Methods



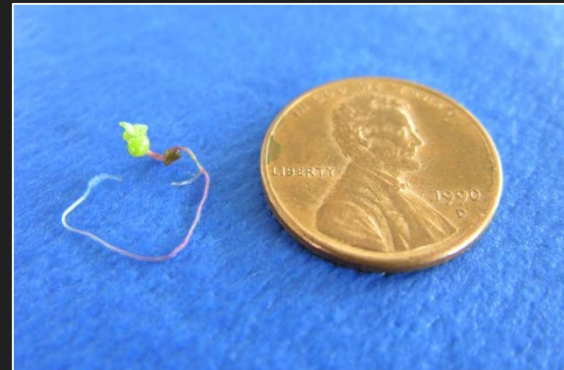
**Rangeland Drills**



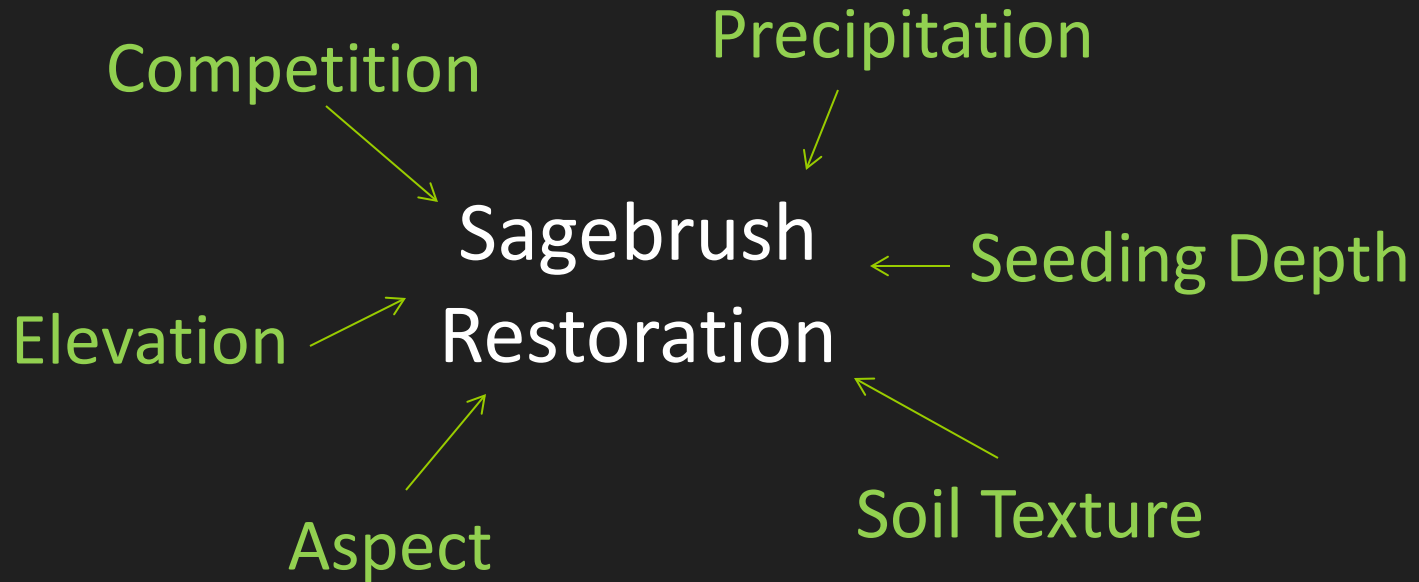
**Aerial Seeding**



<http://www.blm.gov>



Limited by Biotic and Abiotic constraints



Seed Enhancement Technologies

# Seed Enhancement Technologies: Dr. Matt Madsen

## Seed Pillows



## Seed Pellets





# Extruded Seed Pillows

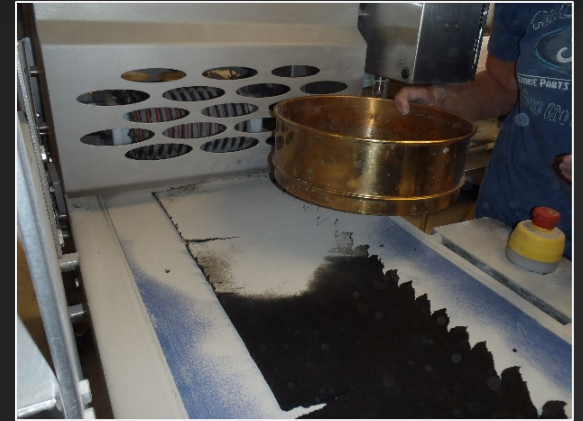
## Ingredients



## Dough extrusion



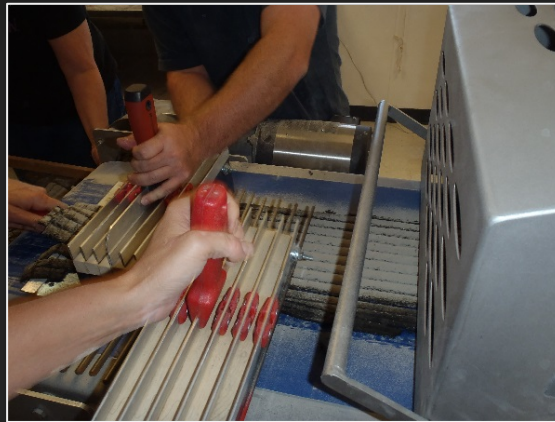
## Dusting



## Rip cut



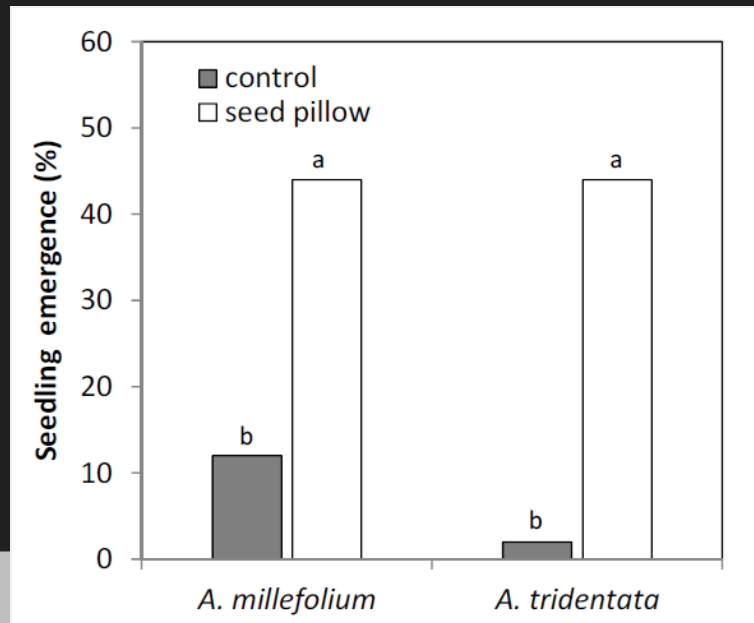
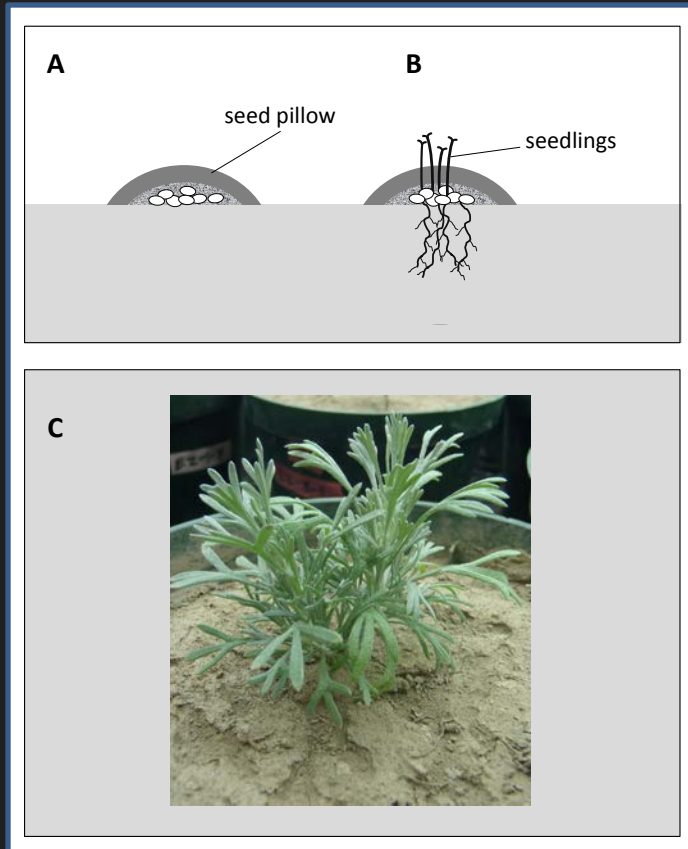
## Cross cut



## Dried seed pillows



# Extruded Seed Pillows





# Extruded Seed Pellets



*Rosito Bisani*

A collage of images related to pasta making. The top right shows a pasta machine. The middle shows a bowl of shredded cheese, a large pile of spaghetti, a basket of eggs, and a rolling pin on a wooden surface. The bottom left shows a white pasta machine on a stand.

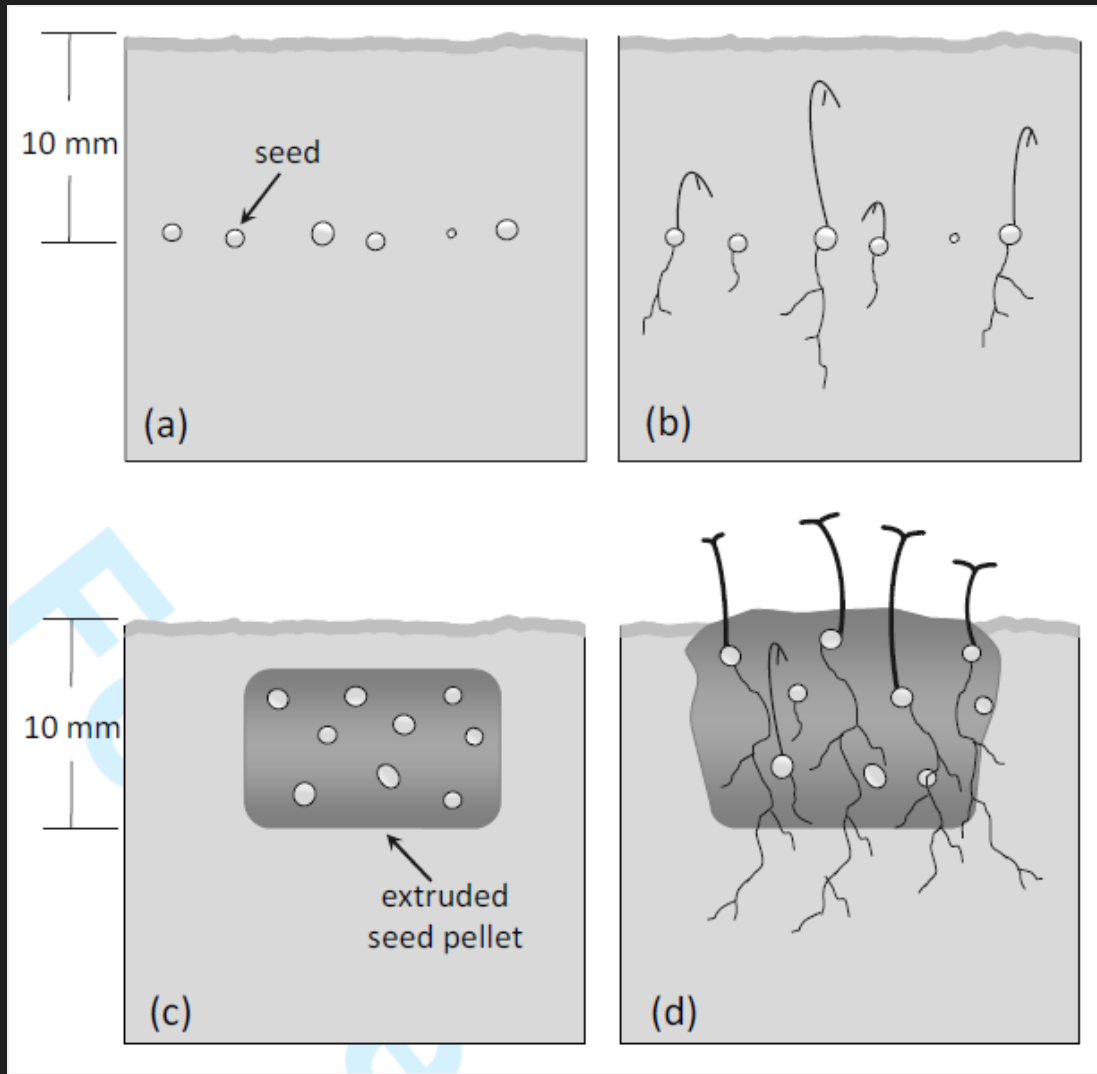
**Fresh Pasta Machine Operations Manual  
FOR MODELS:**

- TR/75C
- TR/95
- TR/110
- TRD/110

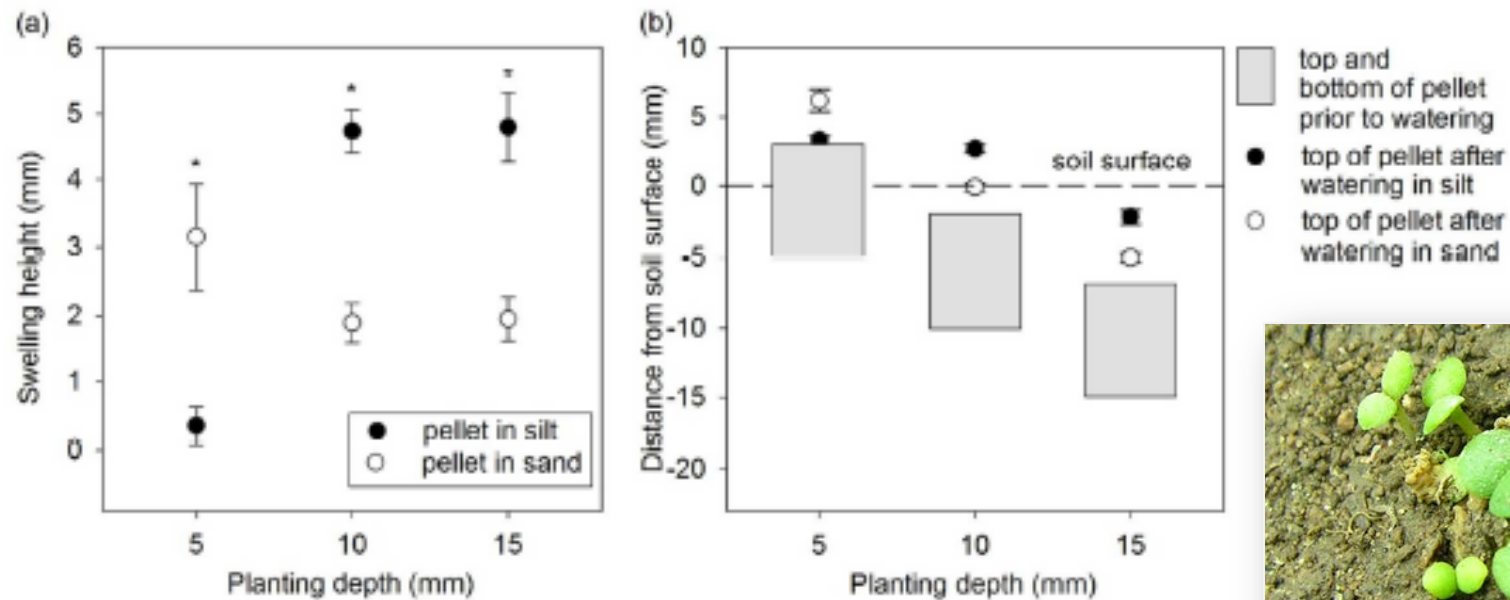
**Rosito & Bisani Imports Inc.**



# Extruded Seed Pellets

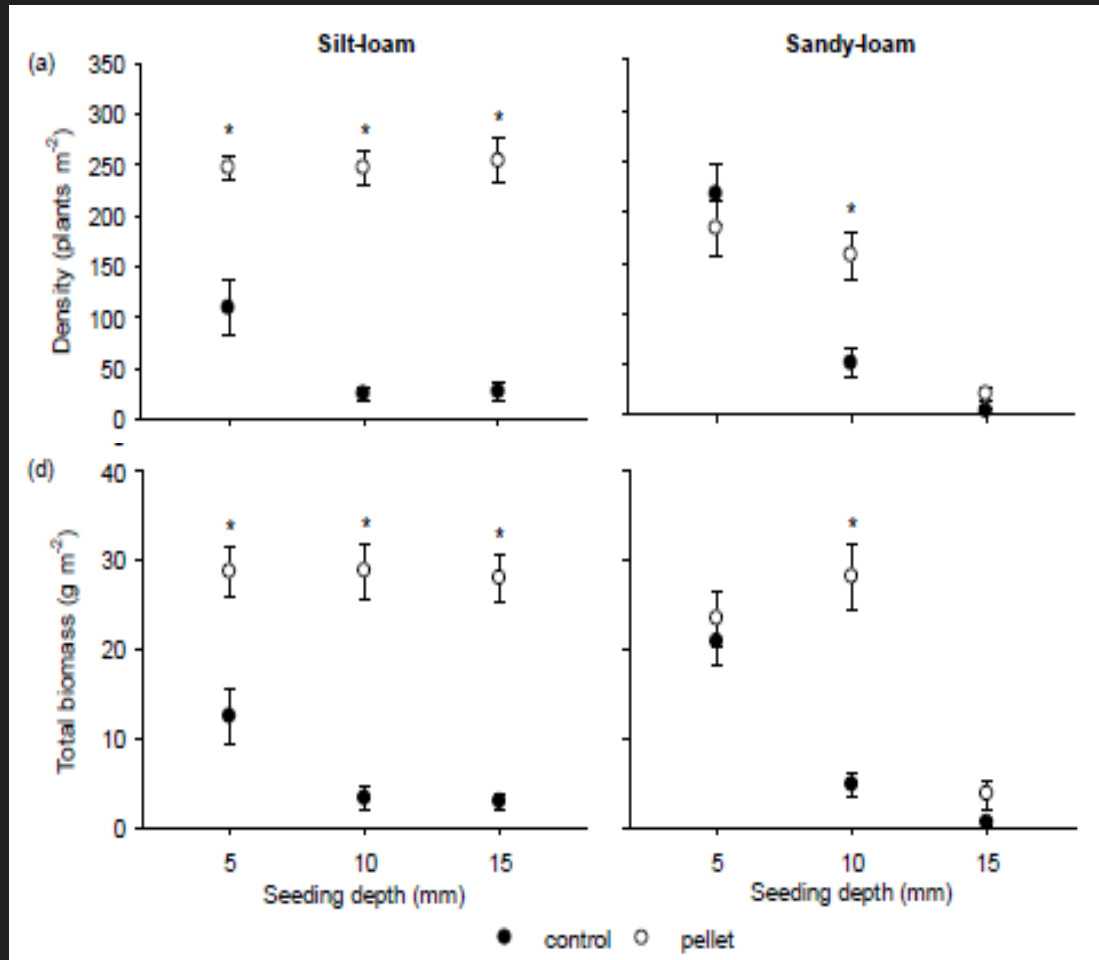


# Extruded Seed Pellets



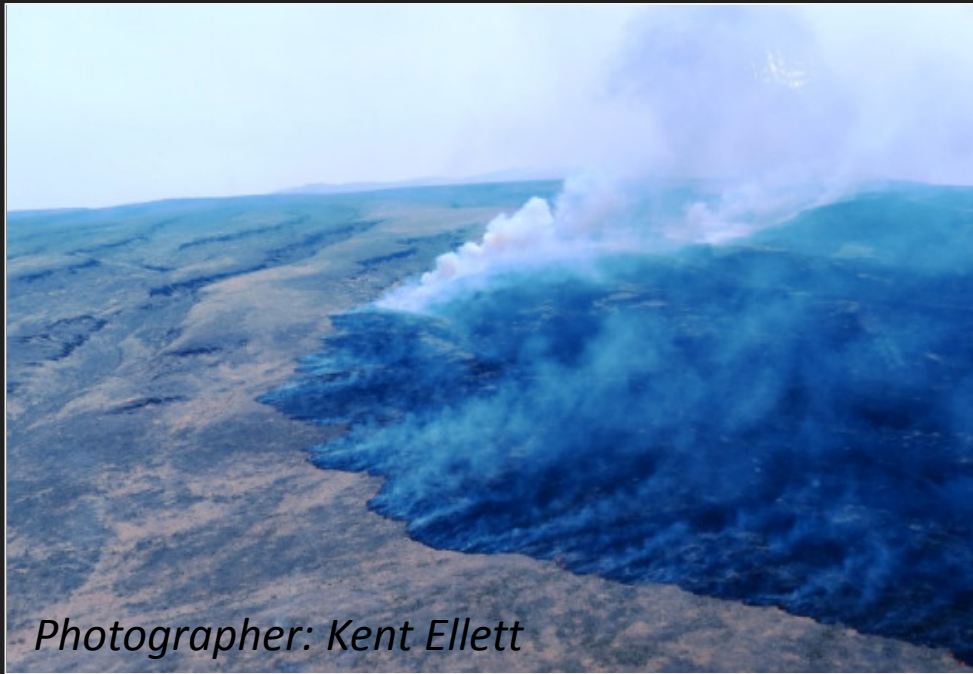


# Extruded Seed Pellets

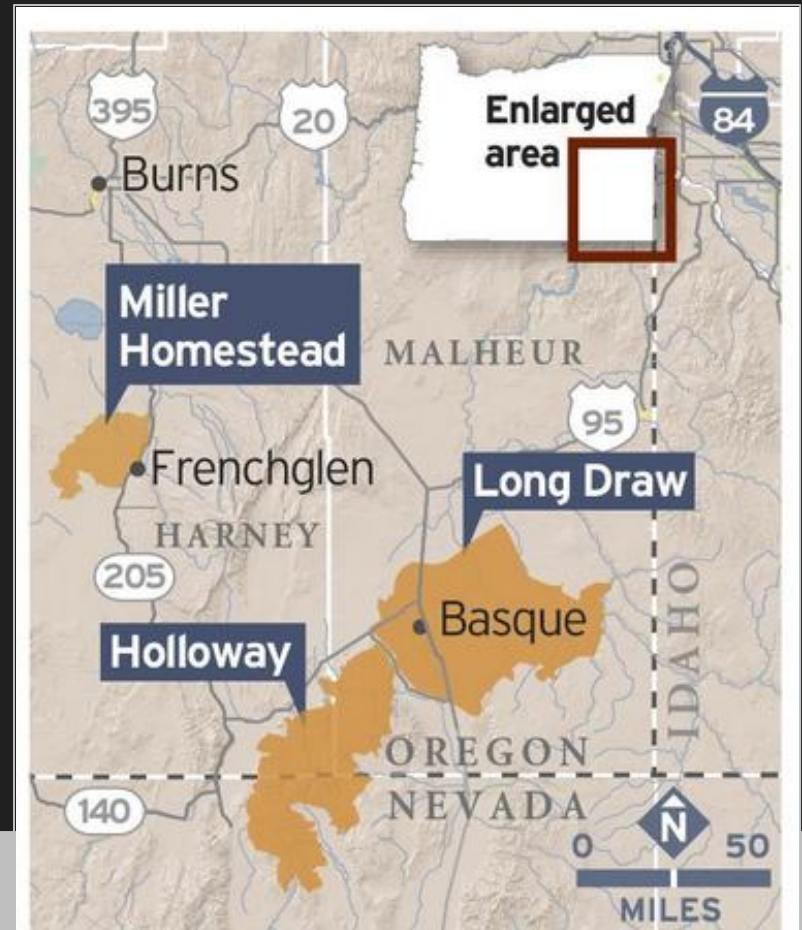


# Restoring Sage-grouse Habitat after Fire:

## Success of Different Restoration Methods across an Elevation Gradient



*Photographer: Kent Ellett*



DAN AGUAYO/THE OREGONIAN



# Restoring Sage-grouse Habitat after Fire:

## Success of Different Restoration Methods across an Elevation Gradient

Broadcast Seeding

Broadcast Seeding and Packing



# Restoring Sage-grouse Habitat after Fire:

## Success of Different Restoration Methods across an Elevation Gradient

Broadcast Seeding

Broadcast Seeding and Packing

Seed Pillows





# Restoring Sage-grouse Habitat after Fire:

## Success of Different Restoration Methods across an Elevation Gradient



Broadcast Seeding

Broadcast Seeding and Packing

Seed Pillows

Sagebrush Seedlings

# Restoring Sage-grouse Habitat after Fire:

## Success of Different **Restoration Methods** across an **Elevation Gradient**



Broadcast Seeding

Broadcast Seeding and Packing

Seed Pillows

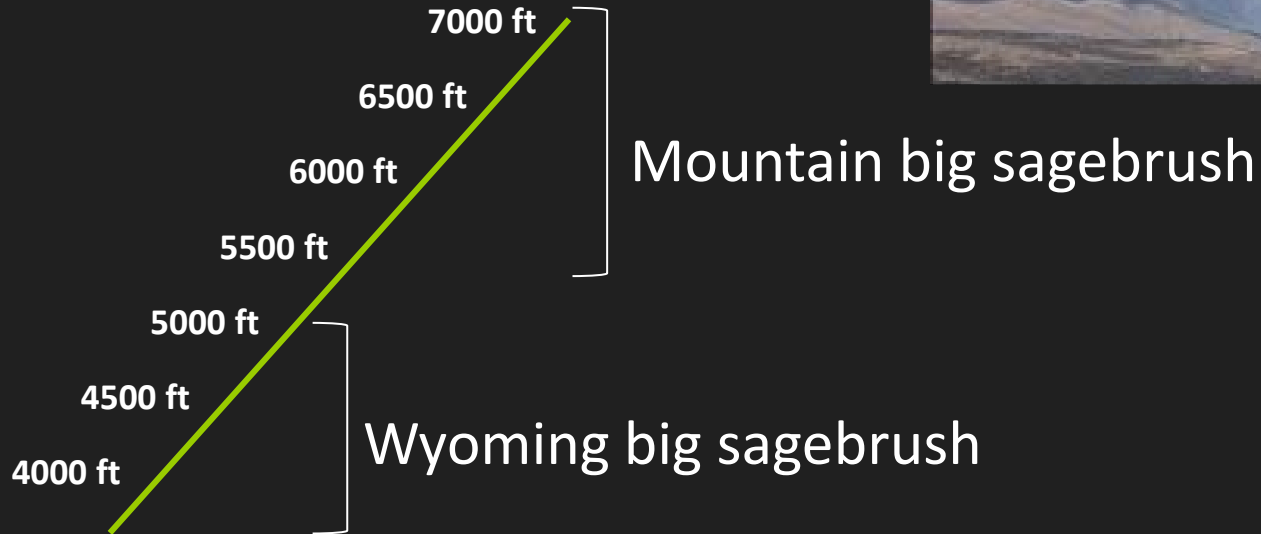
Sagebrush Seedlings

Natural Recovery



# Restoring Sage-grouse Habitat after Fire:

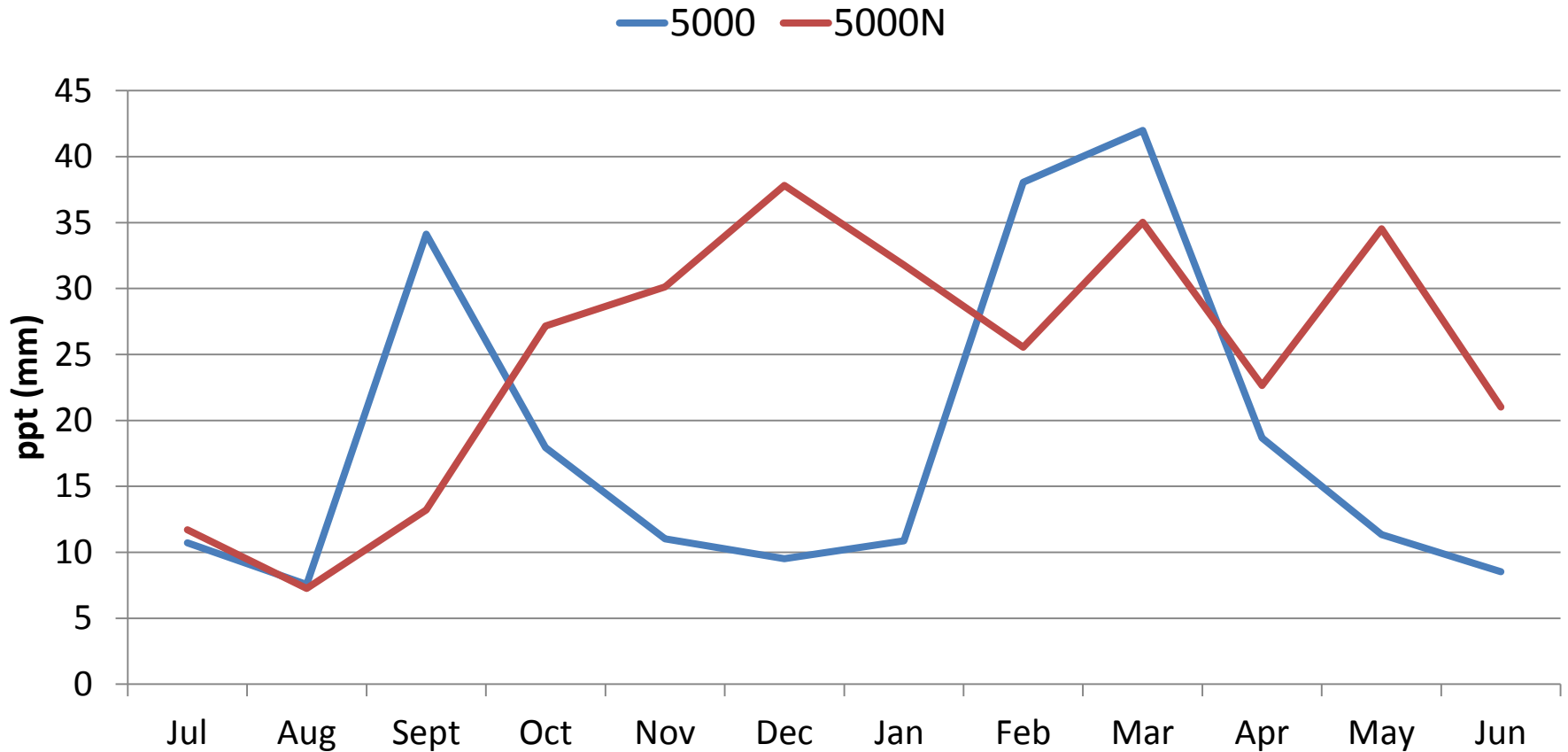
## Success of Different Restoration Methods across an Elevation Gradient



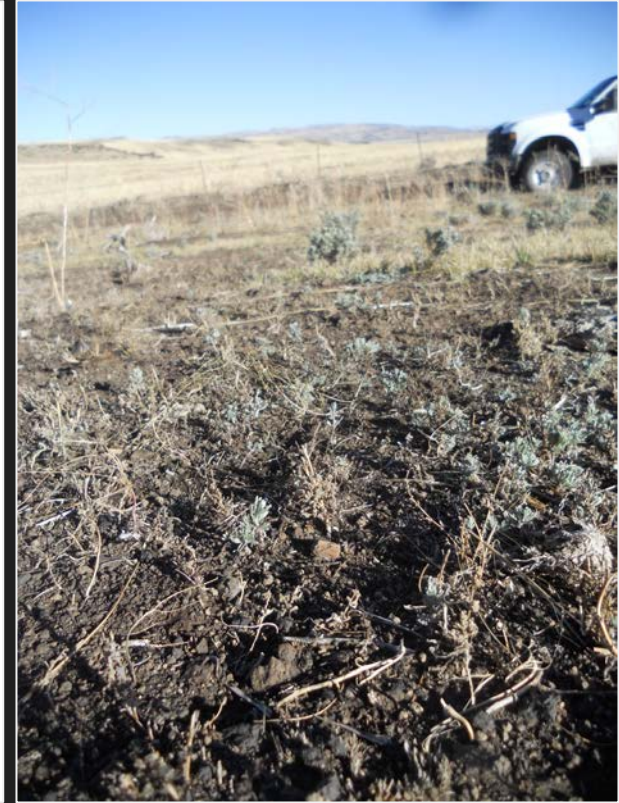
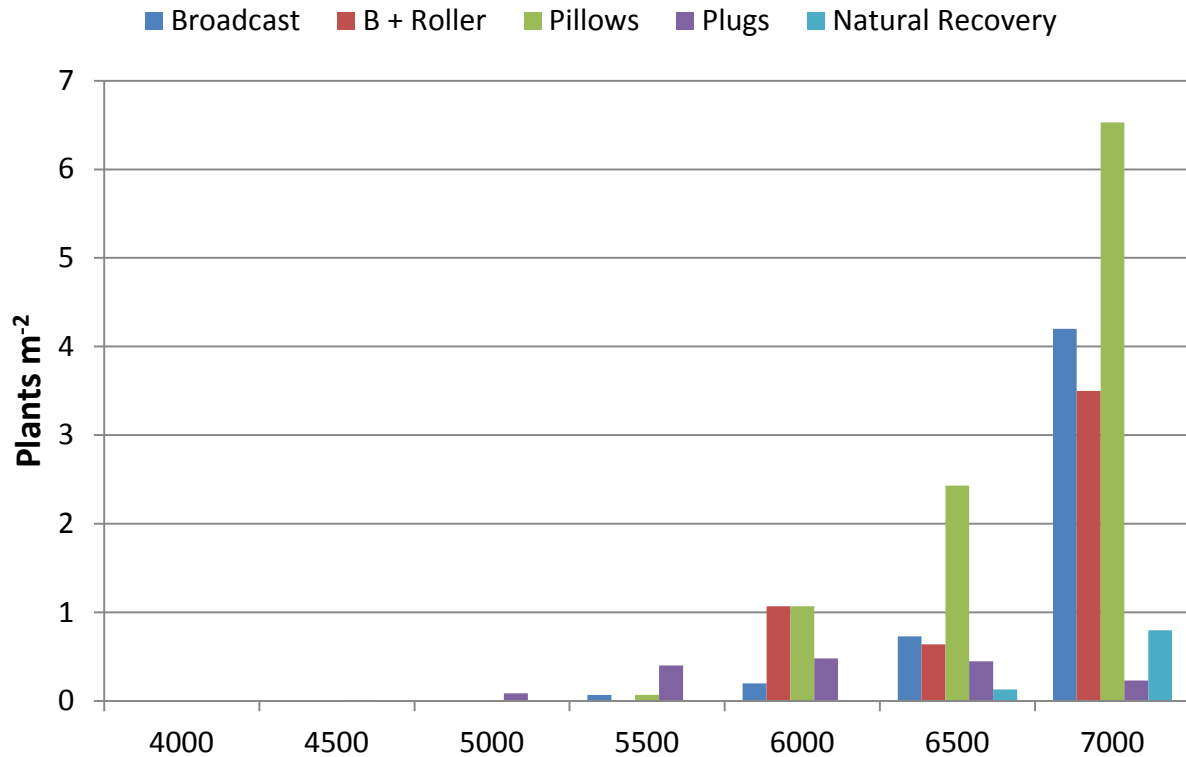
*Photographer: kval.com*



# Restoring Sage-grouse Habitat after Fire: PRISM data

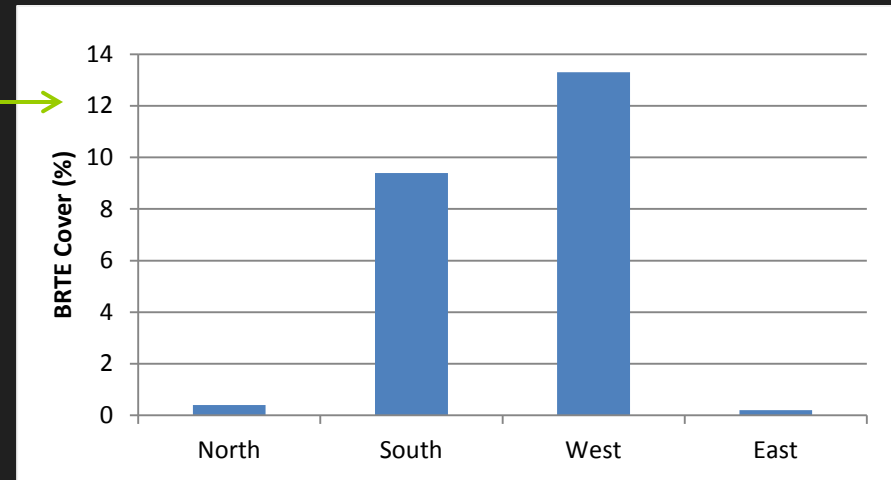
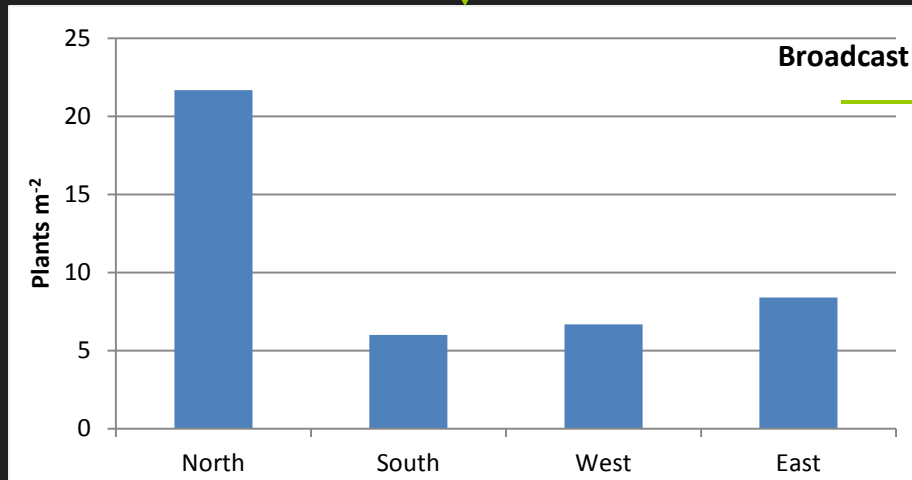
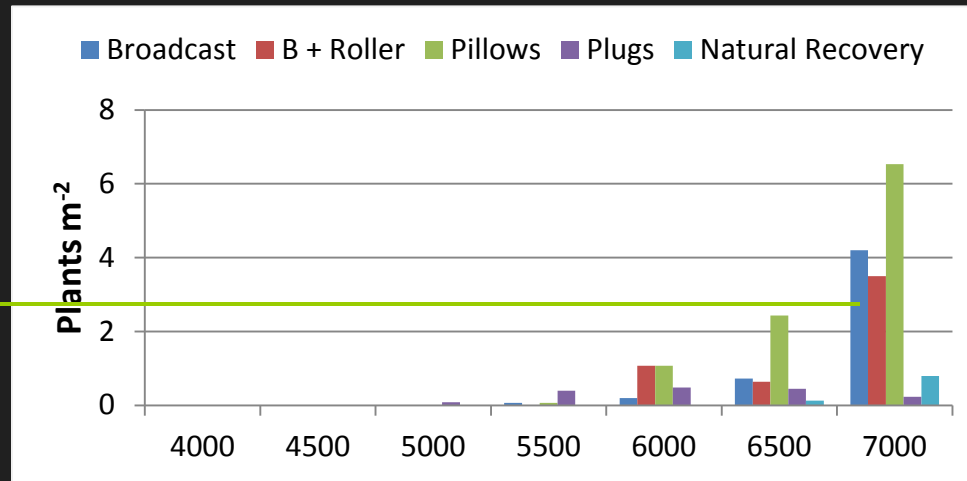


# Restoring Sage-grouse Habitat after Fire: Preliminary Results

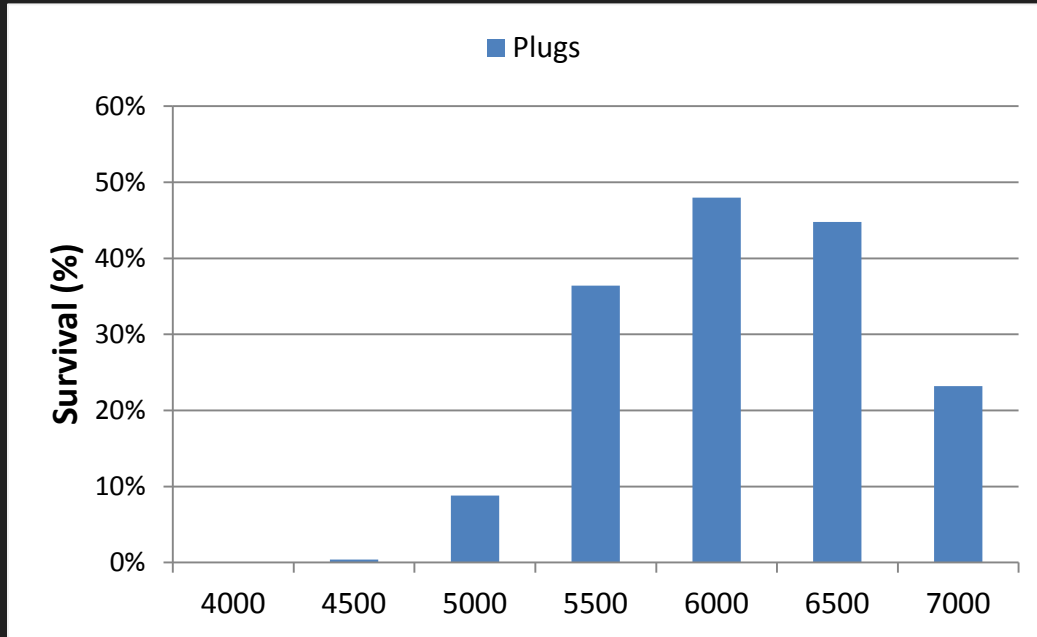




# Restoring Sage-grouse Habitat after Fire: Preliminary Results



# Restoring Sage-grouse Habitat after Fire: Preliminary Results



# Restoring Sage-grouse Habitat after Fire





# Questions

