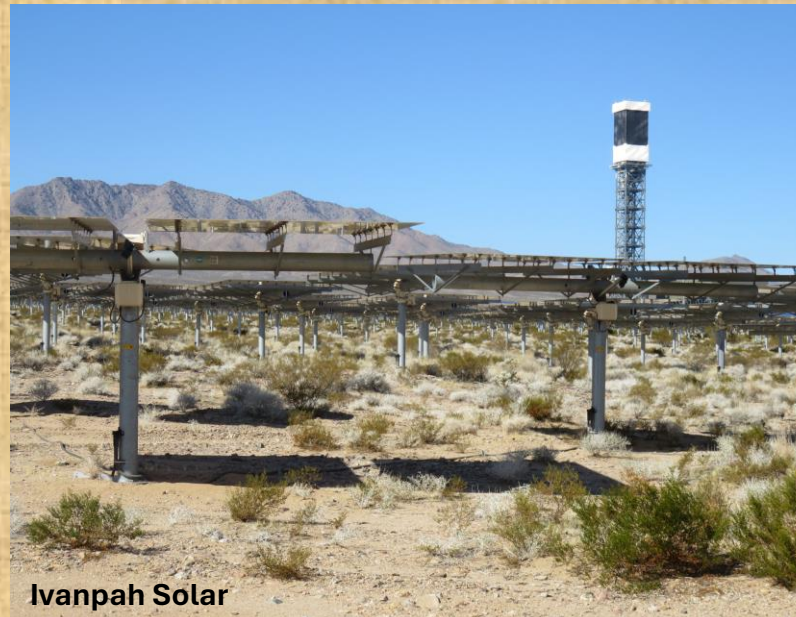


- **A SURVEY OF NATIVE SEED MARKETS;**
 - **EMERGING MARKETS;**
- **CHALLENGES ON THE FARM;**
- **LET'S MOVE-ON, TOGETHER**



Caldor Fire 221,000 acres 8-21

ED S KLEINER
COMSTOCK SEED LLC
917 HWY 88
GARDNERVILLE, NV 89460
775-265-0090
ed@comstockseed.com



Ivanpah Solar



Bluebunch wheatgrass Somerset Reno

DEMAND

SURVEY OF NATIVE SEED MARKETS

SEED MARKETS ARE DIVERSE AND GROWING

FEDERAL SEED AGENCIES FIRE SEEDINGS CURRENTLY, TAMERACK, CALDOR, MOSQUITO, DIXIE, GROZIER
BLM REGIONAL PURCHASING

USFS, USFWS, NRCS, USGS RANGELAND RESTORATION IN-HOUSE CUSTOM COLLECTIONS

MILITARY DIRECT OR VIA CONTRACTORS NAS, EDWARDS, NELLIS

MINING

UTILITY CORRIDORS TUSCARORA SOUTHWEST INTERTIE GREENLINKS

GEOTHERMAL ENERGY

SOLAR ENERGY PV WIND

SEED COMPANIES

STATE AGENCIES HIGHWAY DEPARTMENTS NDOT CALTRANS

CITIES, COUNTIES

NGO'S NATURE CONSERVANCY, CAL DEER, AMERICAN RIVERS, FEATHER RIVER LAND TRUST,

HIGH DESERT PARTNERSHIP, WALKER BASIN CONSERVANCY, CALIFORNIA TAHOE CONSERVANCY

REGIONAL AGENCIES TAHOE REGIONAL PLANNING AGENCY,

LOS ANGELES DEPT OF WATER AND POWER SOUTHERN NEVADA WATER AUTHORITY

SKI RESORTS TAHOE REGION, SOUTHERN SIERRAS, ROCKIES

GOLF COURSES ROUGHS, FLOWERS, TURF ALTERNATIVES; CONVERSIONS

HOMEOWNERS NATURAL and DROUGHT TOLERANT LANDSCAPE ALTERNATIVES

LANDSCAPE CONTRACTORS RESIDENTIAL/COMMERCIAL ENVIRONMENTAL PROTECTION SERVICES,
NV ENVIRONMENTAL, KELLY EROSION CONTROL, SOIL TECH, MOANA POST FIRE SEEDINGS

BUILDERS COMMERCIAL/RESIDENTIAL

LANDSCAPE DESIGN INTERPRETIVE GARDENS

ENGINEERING FIRMS CH2MHILL, Q&D, AECOM, RESOURCE CONCEPTS

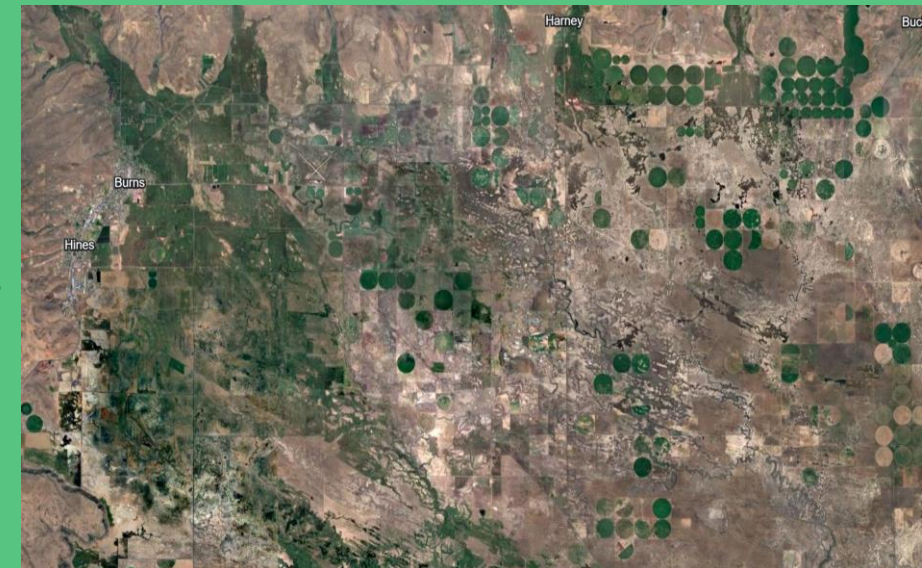
PARKS AND RECREATION AREAS City, County, Regional, State, National

AGRICULTURE TRADITIONAL AND DRYLAND PASTURE ALTERNATIVES HEDGEROWS

WILDLIFE REFUGES



Caldor Fire



Burns Oregon

Co-author Shin-Han Shiu

Matching genetics to project ecotypes matter



Why it matters: AI is often touted as a tool to help scientists in a key aspect of their work: keeping up with a deluge of scientific papers.

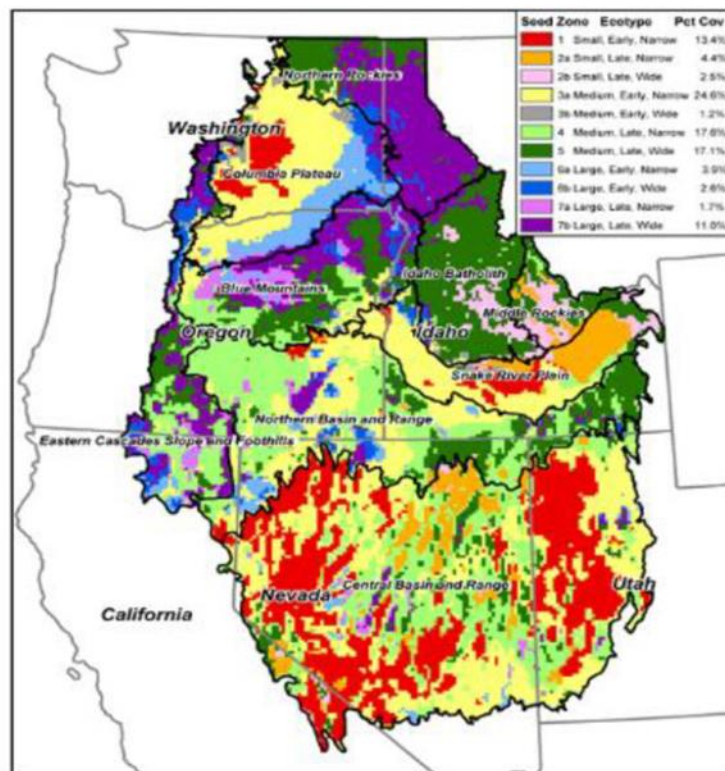
"What they found: Using machine learning and language algorithms to analyze nearly 422,000 abstracts of plant science papers, **they found that evolution in the field of plant biology is often driven by technology that matures or reduces in cost.**

That was seen in a few major transitions in the field in the early 1980s as techniques for cloning genes became more widely used and a decade later as the tools for developing mutant plants improved, they write in PLoS Biology today.

The most dramatic shift was in the early 2000s, when genome sequencing became less costly.

Regional analysis of Bluebunch wheatgrass across the intermountain west has yielded three distinct varieties with differing morphological and temporal qualities. These qualities reflect evolution under varying microhabitat conditions

Genetic variation in adaptive traits and seed transfer zones for *Pseudoroegneria spicata* (bluebunch wheatgrass) in the northwestern United States



Evolutionary Applications

Volume 5, Issue 6, pages 933-948, 6 JUN 2013 DOI: 10.1111/eva.12077

<http://onlinelibrary.wiley.com/doi/10.1111/eva.12077/full#eva12077-fig-0003>

Arid land reclamation in housing developments

Recreating sage steppe in the urban sector



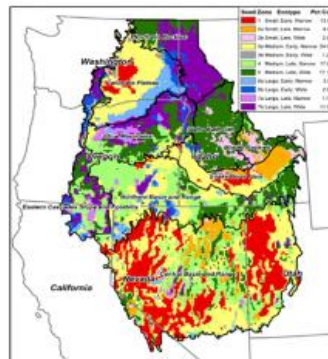
Somersett
Reno, NV
2011

Secar bluebunch wheatgrass



Common cultivars used
include Goldar and Secar
from southeastern WA

Genetic variation in adaptive traits and seed transfer zones for *Pseudoroegneria spicata* (bluebunch wheatgrass) in the northwestern United States



Genetic advancements
should provide new
cultivars of native
species acclimated to
the Great Basin

Certified seed sourcing from state departments of agriculture

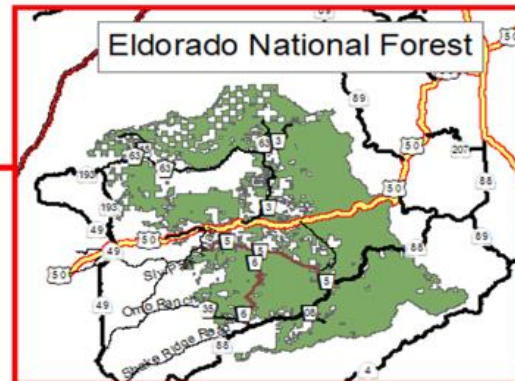
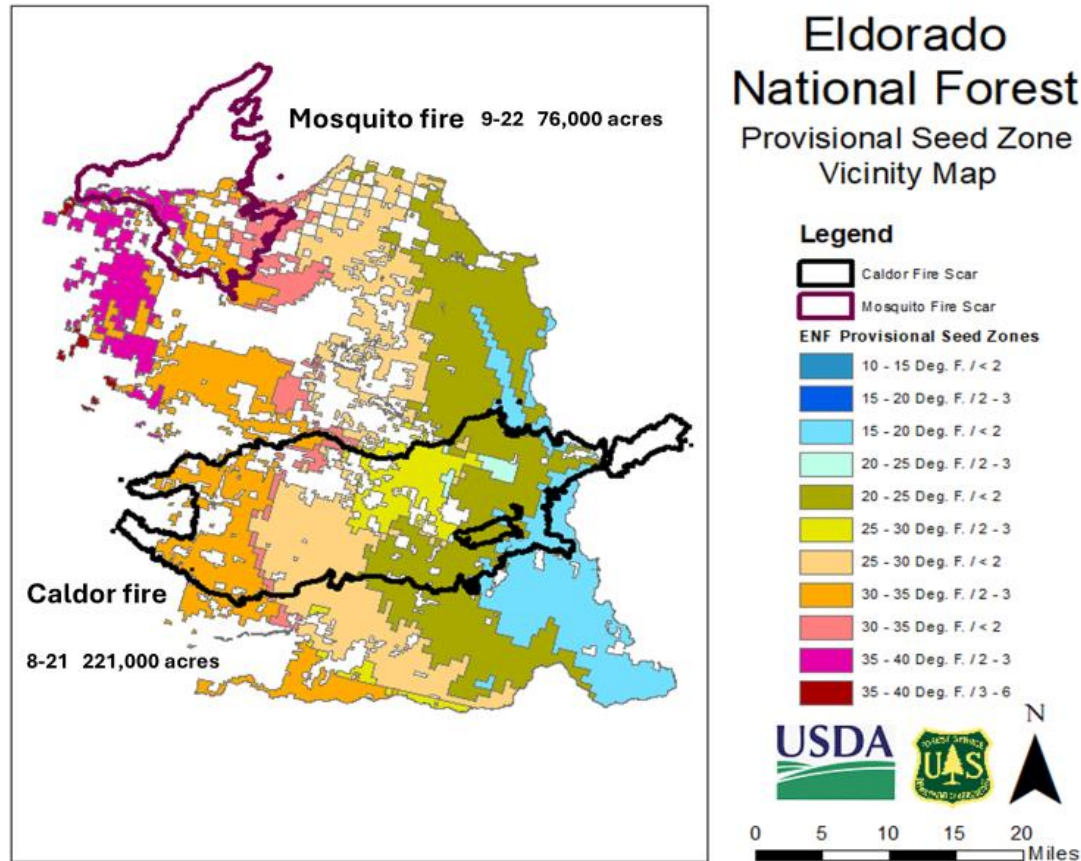
FIGURE 2. *AOSCA Pre-Variety Germplasm and Variety/Cultivar tag examples.*

SOURCE IDENTIFIED SEED		
Agency logo here	Species Name	<i>Sporobolus heterolepis</i>
	Common Name	Prairie Dropseed
	Germplasm ID, Gen.	G3/5
	G3 State, County, Elev.	WI, Dane, 800 ft.
	G0 State, Region, Elev.	WI, Southwest, 790 ft.
	G0 Indigenous?	Yes
	Natural-Track?	Yes
Lot: 2999-SPOHET-3-SE; 03346		
MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES		

SELECTED CLASS SEED		
Agency logo here	Species Name	<i>Krascheninnikovia lanata</i>
	Common Name	Winterfat
	Germplasm ID, Gen.	Northern Cold Desert, G2/3
	G2 State, County, Elev.	OR, Malheur, 2300 ft.
	G0 State, County, Elev.	ID, Bingham, 4100 ft.
	G0 Indigenous?	No
	Natural-Track?	No
Cert. #: 00497		
Lot #: KL203		
MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES		

TESTED CLASS SEED		
Agency logo here	Species Name	<i>Dalea candida</i>
	Common Name	White Prairie Clover
	Germplasm ID, Gen.	Antelope, G2/5
	G2 State, County, Elev.	MT, Carbon, 3350 ft.
	G0 State, County, Elev.	ND, Stark, 2400 ft.
	G0 Indigenous? Yes	Cert. #: 026962
	Natural-Track? Yes	Lot #: SFD-02-FLD20-1
MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES		

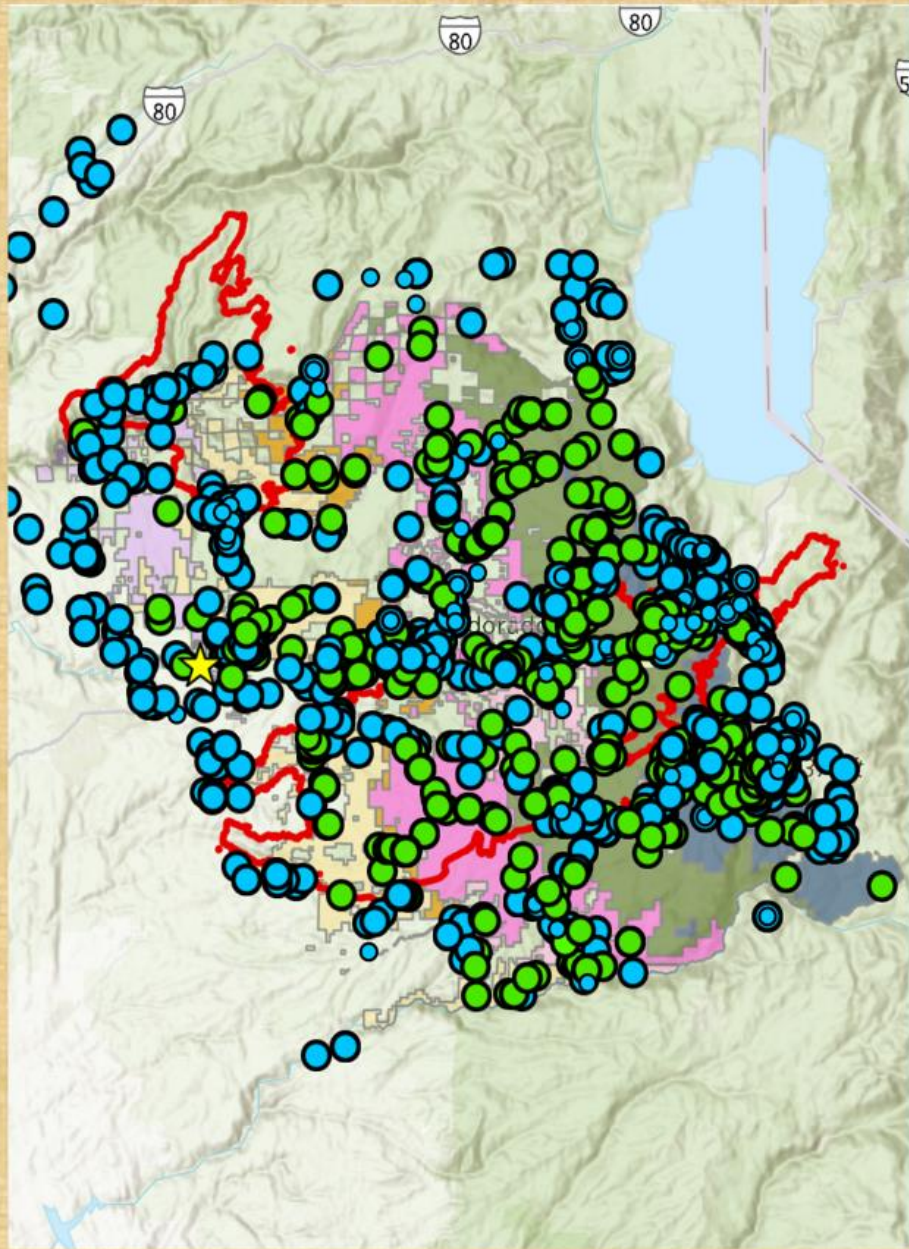
CERTIFIED CLASS SEED		
Agency logo here	KIND:	Mountain Big Sagebrush
	VARIETY:	Hobble Creek, "Natural-track"
	CERT. #:	WC-1852
	LOT #:	ArTrVaHC-02001
MEMBER OF ASSOCIATION OF OFFICIAL SEED CERTIFYING AGENCIES		



**The Eldorado National Forest issued
a solicitation for a two-year seed collection
contract in the spring of 2024
Comstock Seed was awarded the contract**

**The 11 PSZ parameters include
minimum winter temperatures
and aridity and follow
elevational gradients between
the Sierra crest and
the foothills at elevations
between 2500' and 8000'**

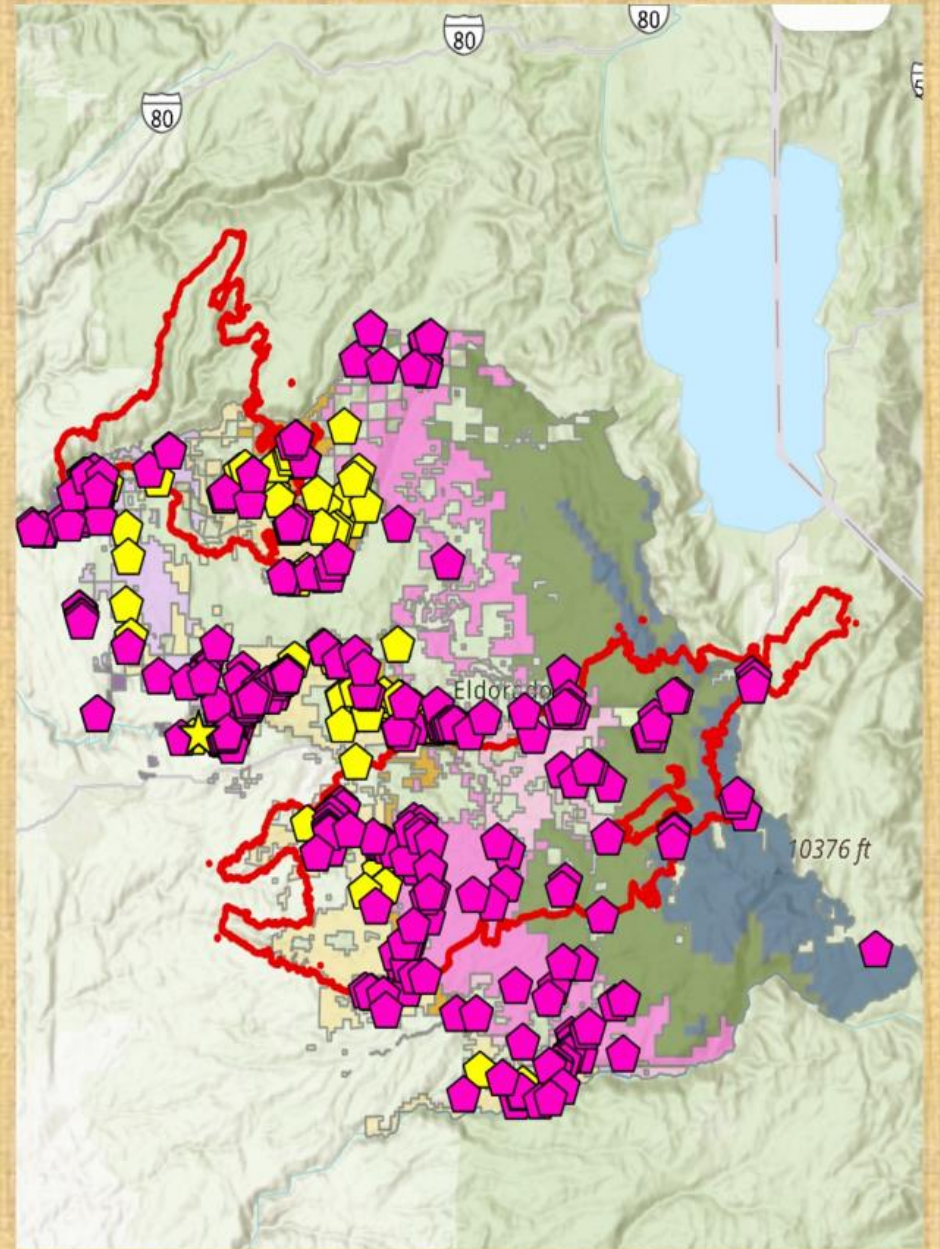
**35 SPECIES 108 COLLECTIONS
233 COLLECTION SITES TO DATE
350 CLEAN LBS ORDERED**



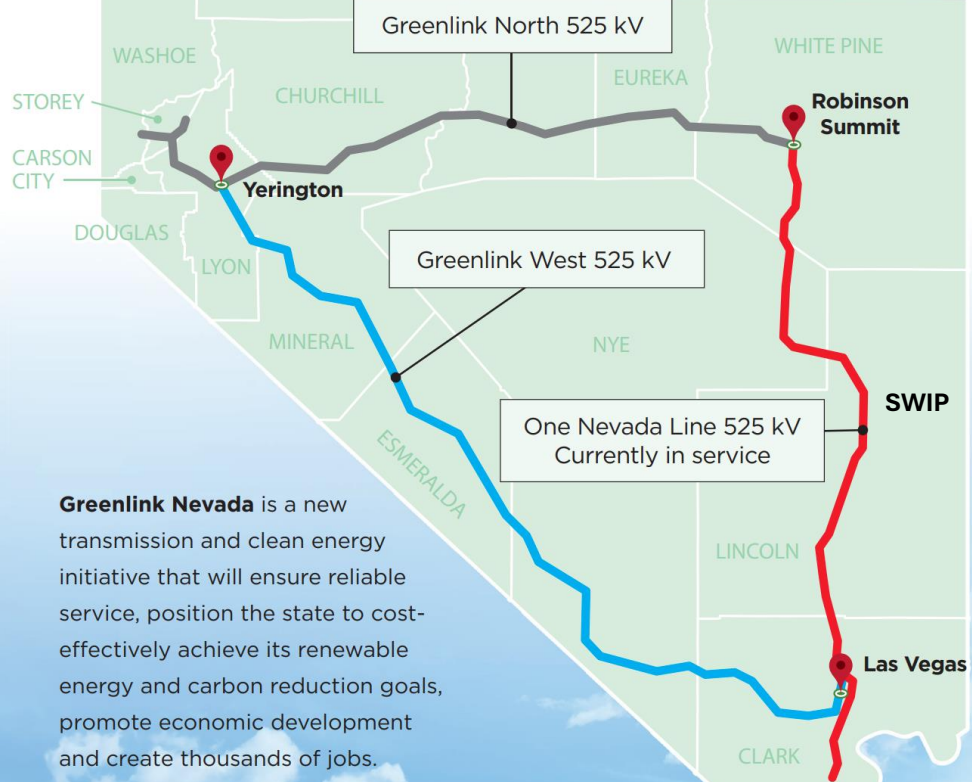
**ARC GIS layers
supplied by USFS
included Calflora
and Inaturalist
data fields**

**Blue dots Calflora
Green dots Inaturalist**

**Yellow dots ENF
Red dots Comstock**



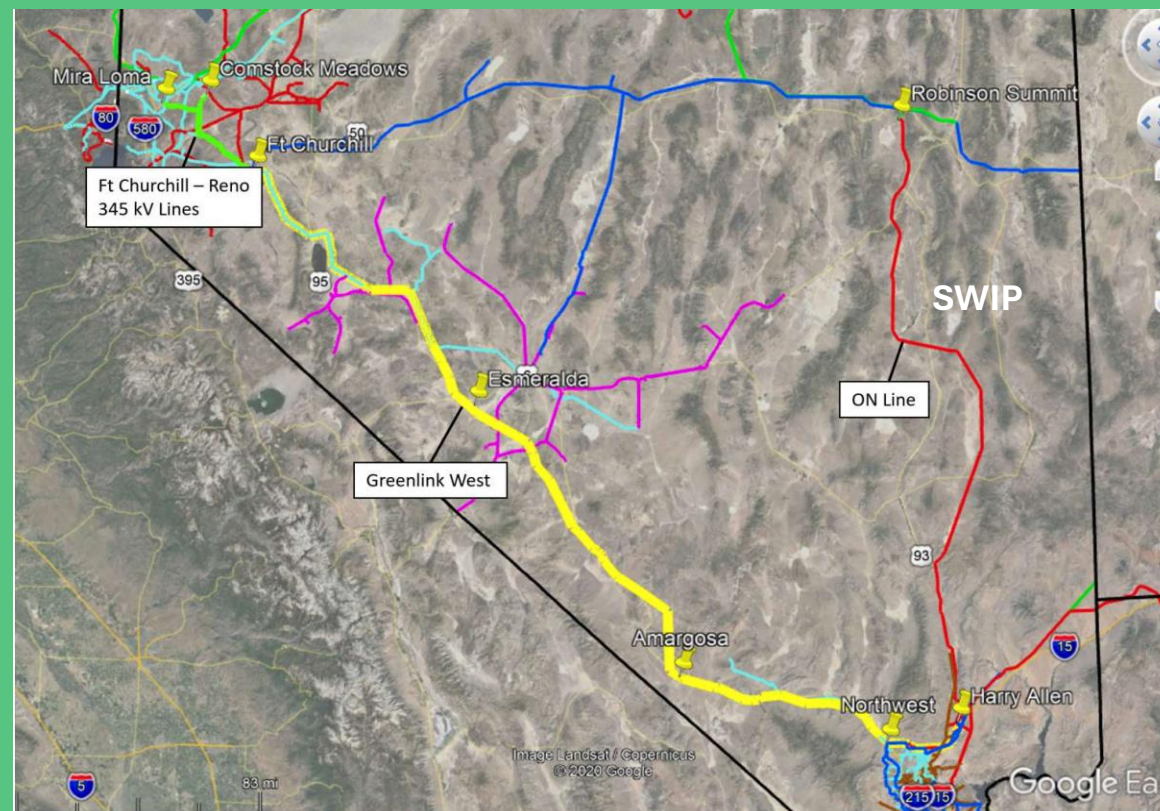
Greenlink Nevada



Greenlink Nevada is a new transmission and clean energy initiative that will ensure reliable service, position the state to cost-effectively achieve its renewable energy and carbon reduction goals, promote economic development and create thousands of jobs.



Greenlink North expected to be on-line by 12-28



Greenlink West expected to be on-line by 5-27

SWIP tower installation

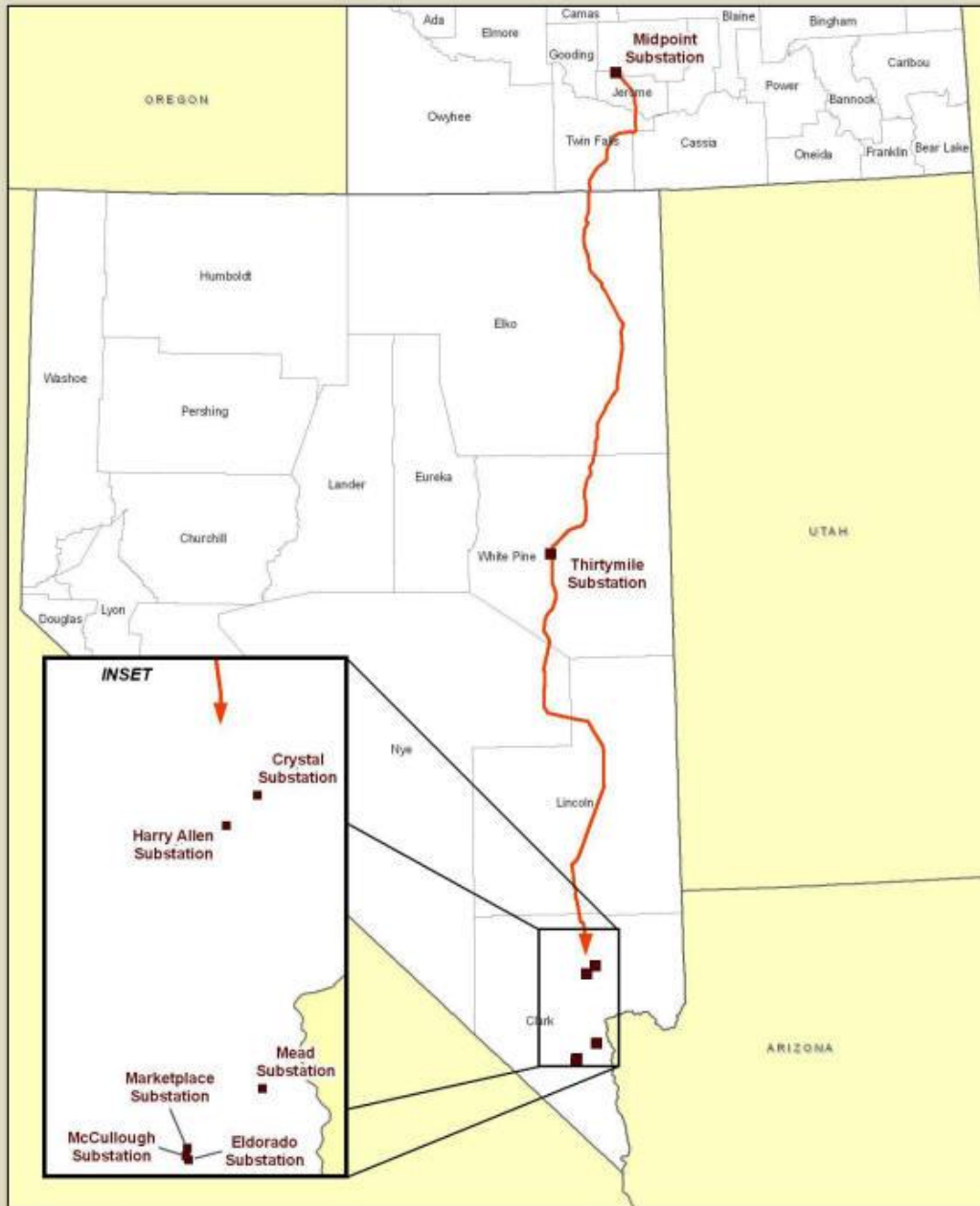


NV Energy Southwest Intertie Project

16 seed blends, reflecting
the various ecotypes
along the utility corridor

Great Basin woodland PJ
Great Basin sagebrush
Great Basin salt desert shrub
GB woodland grass shrub
Mojave grass shrub flower

18,483 pls lbs of seed



THE SUPPLY SIDE

FARM PRODUCTION NATIVE SEED

Sulfur buckwheat

Comstock Seed



YARROW



BENSON FARMS
WASHINGTON



CREAMY BUCKWHEAT



IDAHO
FESCUE



SQUIRRELTAIL

BLUEBUNCH WHEATGRASS



SANDERG BLUEGRASS



SHOWY GOLDENEYE



WIND RIVER SEED
WHOLESALE

PENSTEMON PROCERUS



SQUIRRELTAIL



ASTER CHILENSIS



Northern sweetvetch



PENSTEMON PROCERUS



WYOMING BIG
SAGEBRUSH



FIRECRACKER PENSTEMON



USFS Seed Extractory Bend, OR



Seed
Cleaning
Testing



Small quantity cleaning tools

One acre
Great Basin Wildrye
generated \$6500 in sales

Comstock Farm sales Hay and Seed 2018

**Roadside
Sagebrush**
\$674

Vineyard
300 Frontenac
Vines .6 acres

**Alternative crop
experimental field**
3.3 acres
\$7675 sales

**Experimental
Green manure
crop .6 acres**



Hay production
26 acres
\$6600

Wetland seed
\$339

Many natives do not like heavy bottomland clay soils

Great Basin Wildrye establishment



10-11
with
weeds
1st year
growth

Witchgrass Panicum



11-11
burnt



3-12

5-14

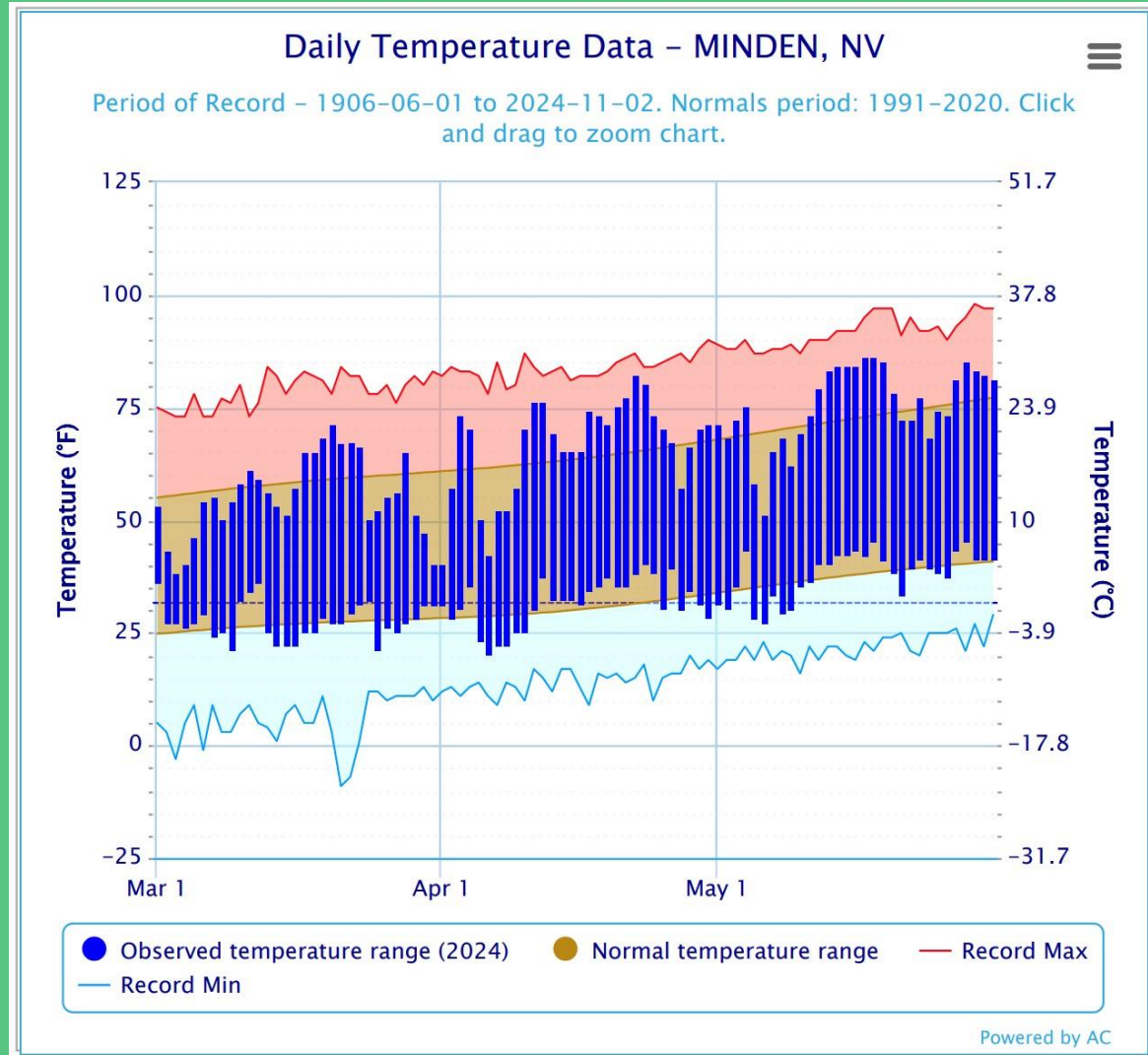


Level your fields before seeding perennials

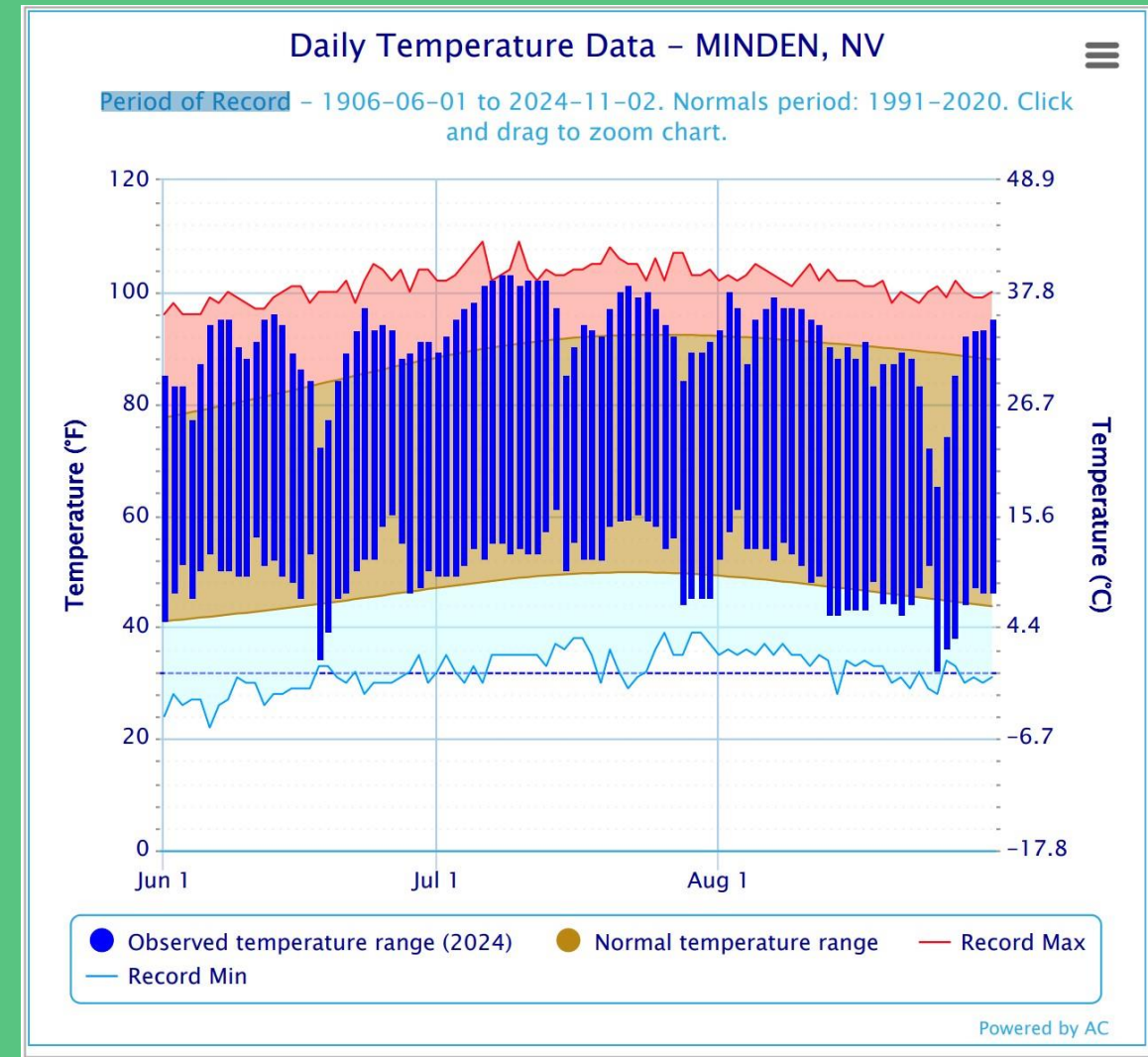
June
2024



16 days below freezing early April into May



June 18th freeze; Comstock Farm is colder than Minden
Last irrigation July 1; early July, 8 days above 100 degrees



Normal hay production 25-30 tons; 2024 7 tons; native seed production down 60%
Normal hay processing fee, \$4-6.00/bale; 2024 \$16/bale

**CStwP 2017-1 Contract Map
8193271707M**

Date: 9/12/2017

Customer(s): EDGAR S KLEINER

District: CARSON VALLEY CONSERVATION DISTRICT

Approximate Acres: 43.7

Legal Description: Farm 363, Tract 395, Fields 1 - 10
T12N, R20E, Section 18

Field Office: MINDEN SERVICE CENTER

Agency: USDA - NRCS

Assisted By: JIM GIFFORD

State and County: Douglas County, Nevada



Prepared with assistance from USDA-Natural Resources Conservation Service

Legend

Practices (polygons)

<all other values>

Practice code, notes

315, Herbaceous Weed Control: Chemical - Spot Treatment - 13.3 acres - CIN 1 (2018)

340, Cover Crop: Basic Organic/Non-Organic - Winter Kill - 0.6 acres - CIN 2 (2018)

E340106Z3, Intensive Cover Cropping (orchard/vineyard floor) to increase soil health and OM - CIN 3 (2018)

CStwP_Plan_2017-1



NRCS Field designations at Comstock Farm

High tunnel installation 2010

Fields 1,3,4 Maintained hay fields; **Regenerative seeding** 10-22

Field 2,10 Maintains wetlands; physical and chemical treatments

Field 3 NRCS Fallow field 2022

Field 5 Experimental native seed production fields

Great Basin wildrye, Penstemons, Sulfur buckwheat

Blue area NRCS **green manure field** 2017-19

NRCS Monarch seeding 2021-

Regenerative seeding 1-24

Field 6 Vineyard with NRCS **groundcover seeding** 11-18

Future designation

2022 Hedgerow development planted along Hwy 88; 30' width

Wildrye field expansion beginning fall 2024

NRCS groundcover establishment

Annual weeds 6-19



Vineyard cover crop seeding
11-18



Grass groundcover
5-23

Sheep and Hard Fescue
and remnant Tall fescue





2nd year

NRCS Green manure cover crop 7-19



DAIKON RADISH

BILL TO:
COMSTOCK FARM
917 STATE ROUTE 88

GARDNERVILLE, NV 89460

GARDNERVILLE, NV 89460

PO Number:

seeded daikon radish 5-2-18 2 lb

Blnd No	Quantity		Lot Number	Description
	PLS	Bulk		
1		12.00	TS991520	CEREAL RYE FALL V.N.S
1		12.00	Y16-16-CO-4	CEREAL OATS SPRING VNS
1		8.40	B1-16-52V	VETCH, HAIRY
1		6.00	17-0024	CLOVER ALSIKE
1		12.00	L106-17-5GC	RYEGRASS ANNUAL GULF
	47.21	50.40		



Pollinator garden; seeded 12-21

Comstock Seed

DATE OF QUOTE: December 7, 2021
QUOTE EXPIRES: January 6, 2022

QUOTE BY: ED

CUSTOMER: COMSTOCK FARM

TELEPHONE:

FAX:

PROJECT NAME: POLLINATOR SEED BLEND

PROJECT #:

PRICING: Bulk

AREA: Area 1		Total Area: 0.50 Acres		
SPECIES	LBS/ACRE	SEEDS/LB	SEEDS/FT SQ	% SEEDS *
MILKWEED SHOWY p	2.00	87,000.00	3.99	9.67
MILKWEED THIN LEAF p	3.00	100,000.00	6.89	16.66
BEEPLANT, YELLOW p	1.00	65,900.00	1.51	3.66
BEEPLANT ROCKY MOUNTAIN	1.00	65,900.00	1.51	3.66
YARROW WHITE	0.15	2,770,000.00	9.54	23.08
LUPINE BLEND p	1.00	20,000.00	0.46	1.11
PENSTEMON BLEND p	1.00	550,000.00	12.63	30.55
BUCKWHEAT SULFUR p	1.00	209,000.00	4.80	11.61
	10.15		41.33	100.00%

* - "% SEEDS" IS YOUR DESIRED PROPORTIONAL REPRESENTATION OF EACH SPECIES FOR THE SITE. OR IN OTHER WORDS, HOW MANY PLANTS OF EACH TYPE DO YOU WANT TO SEE GROWING.

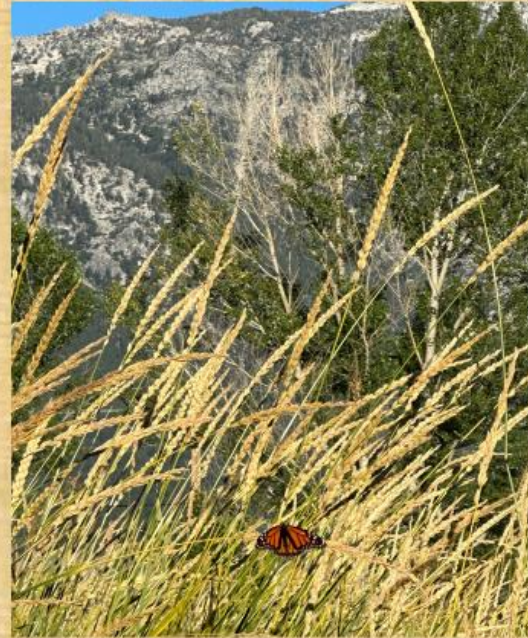
**Pollinator garden seeded into
3 year old green manure site**

917 Highway 88
Gardnerville, NV 89460
(775) 265-0090 FAX (775) 265-0040



Monarch garden 9-22

**Perennial clover dominant
and persistent with
Yarrow, vetch, and sunflowers
But where's the Milkweed,
Penstemons, and Sulfur flower?**



MILKWEED MONARCH HABITAT SUMMER 2023



Asclepias speciosa and fascicularis have increased 10-fold on the farm in the last three years

Comstock Seed

First regenerative ag seeding

From: 917 Highway 88
Gardnerville, NV 89460

1 of 30

Mix Name: **Custom Mix**

8-01550

Mix #: **237098**

Cover crop 2023

% Pure	Common Name	Variety	G + D or H	Origin
16.94	CEREAL RYE	Gazelle (S)	92 + 0 = 92	CAN
16.89	TRITICALE	Gunner (S)	99 + 0 = 99	MT
16.83	PEAS	Arvika/Austrian Peas	93 + 1 = 94	MT
8.47	SAINFOIN	Shoshone	96 -TZ	MT
8.46	VETCH, HAIRY	VNS	97 + 0 = 97	
8.45	LENTIL	Avondale	98 + 0 = 98	MT
8.42	RYEGRASS, ANNUAL	Meroa	97 + 0 = 97	OR
3.37	RYEGRASS, PERENNIAL	Nui (F)	96 + 0 = 96	NZ
3.22	INTERMEDIATE WHEATGRASS	Oahe	95 + 0 = 95	SD
3.18	PASTURE BLEND	Oro Verde	0 + 0 = 0	USA
1.69	CRESTED WHEATGRASS	Newkirk	96 + 0 = 96	CAN
1.68	BLUEGRASS, KENTUCKY	Ginger	96 + 0 = 96	OR
1.66	FORAGE RADISH	Groundhog	98 + 0 = 98	MT

0.16 Other Crop

Date Tested: 22-Oct-21

0.60 Inert Matter

Hard Seed: 0.17

0.00 Weed Seed

Noxious Weed: NONE FOUND

Net Weight: 47.53 Lbs. PLS

50.00 Lbs. Bulk

Coverage: 50,000 Bulk #

NOTICE TO BUYER LIMITATIONS OF WARRANTIES AND REMEDIES

Crop yield and quality are dependent upon many factors beyond the control of the labeled seller and NO WARRANTY is made for crop yield and quality. The labeled seller warrants that all seed sold has been labeled as required under applicable state and federal seed law and that the seed conforms to the label description, within recognized tolerances. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION ON THE LABEL.

No claim shall be asserted against the labeled seller unless Buyer reports to the labeled seller within a reasonable period after discovery (not to exceed thirty days), any condition that might lead to a complaint. BUYER'S EXCLUSIVE REMEDY FOR ANY CLAIM OR LOSS RESULTING FROM BREACH OF WARRANTY, BREACH OF CONTRACT OR NEGLIGENCE (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES) SHALL BE LIMITED TO REPAYMENT OF THE PURCHASE PRICE.

By acceptance of the seed, Buyer agrees the terms and conditions stated above are a benefit to the bargain and constitute the entire agreement between Buyer and the labeled seller. Buyer shall return the original unopened seed package to the labeled seller within twenty days of receipt for a refund of the purchase price if not accepted under these terms.

NOTICE: REQUIRED ARBITRATION / CONCILIATION / MEDIATION

The seed laws of several states including Arkansas, California, Colorado, Florida, Georgia, Idaho, Illinois, Indiana, Minnesota, Mississippi, Montana, North Dakota, South Carolina (Section 46-21-260), South Dakota, Texas and Washington require arbitration, conciliation or mediation of disputes involving alleged defective seed before certain legal actions may be maintained against a seller. North Carolina offers an alternative to court action that allows claims to be investigated and heard before the Special Seed Board. A complaint (sworn for AR, CO, FL, IL, IN, MN, MS, MT, NC, SC, TX, VA; signed only: CA, GA, ID, ND, SD) must be filed with the Department of Agriculture or Seed Commissioner (IN) or State Plant Board (AR) or Commissioner of Agriculture (NC) within such time to permit an inspection of seed, crops or plants (by an Arbitration Committee - AR, ID, MS, SC). In NC, failure to follow this procedure will limit the amount of damages recoverable. Certified copy of complaint must be sent by registered mail to the labeled seller as provided in individual state law. Information about these requirements may be obtained from the state Department of Agriculture.

Will Call:
Comstock Farm

28 ACRE DRILL SEEDING 10-22

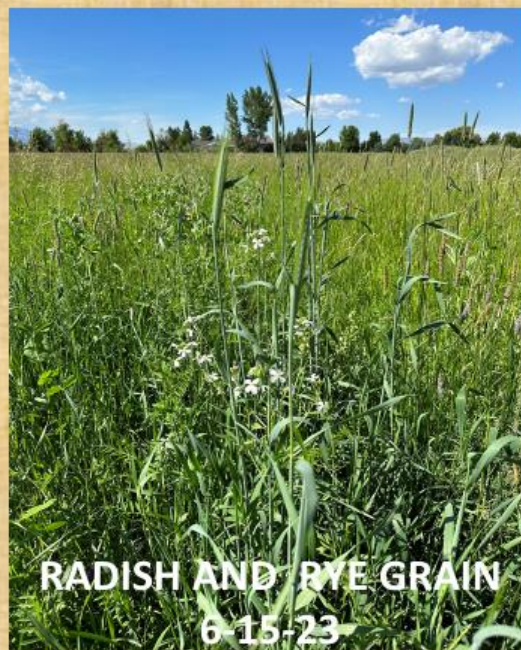
Rich Wilkinson Great Plains drill

FIELDS 1,3,4





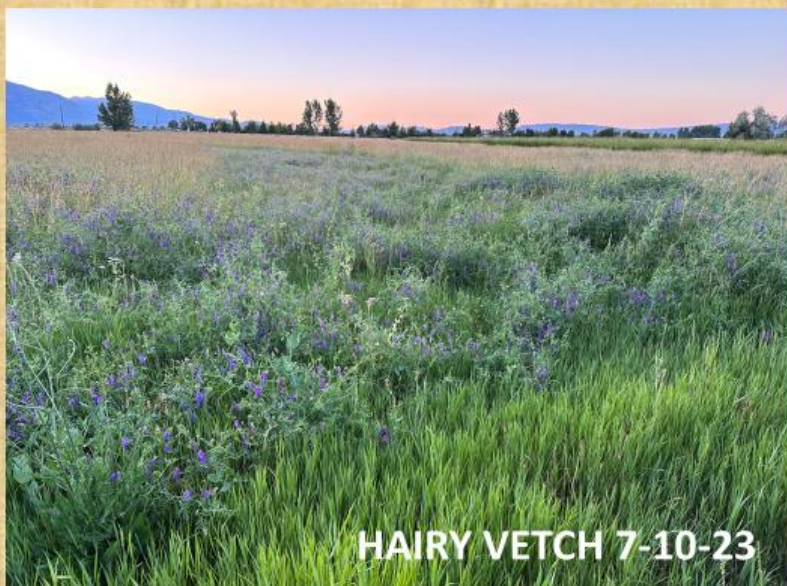
PEAS SURFACING 6-9-23



**RADISH AND RYE GRAIN
6-15-23**



ARVIKA AUSTRIAN PEAS FLOWERING 6-16-23



HAIRY VETCH 7-10-23

COVER CROP SUCCESS





**REGENERATIVE SEEDING IN
GREAT BASIN WILDRYE ROWS**

1-24

**Current groundcover
between rows**

annual broadleaf weeds

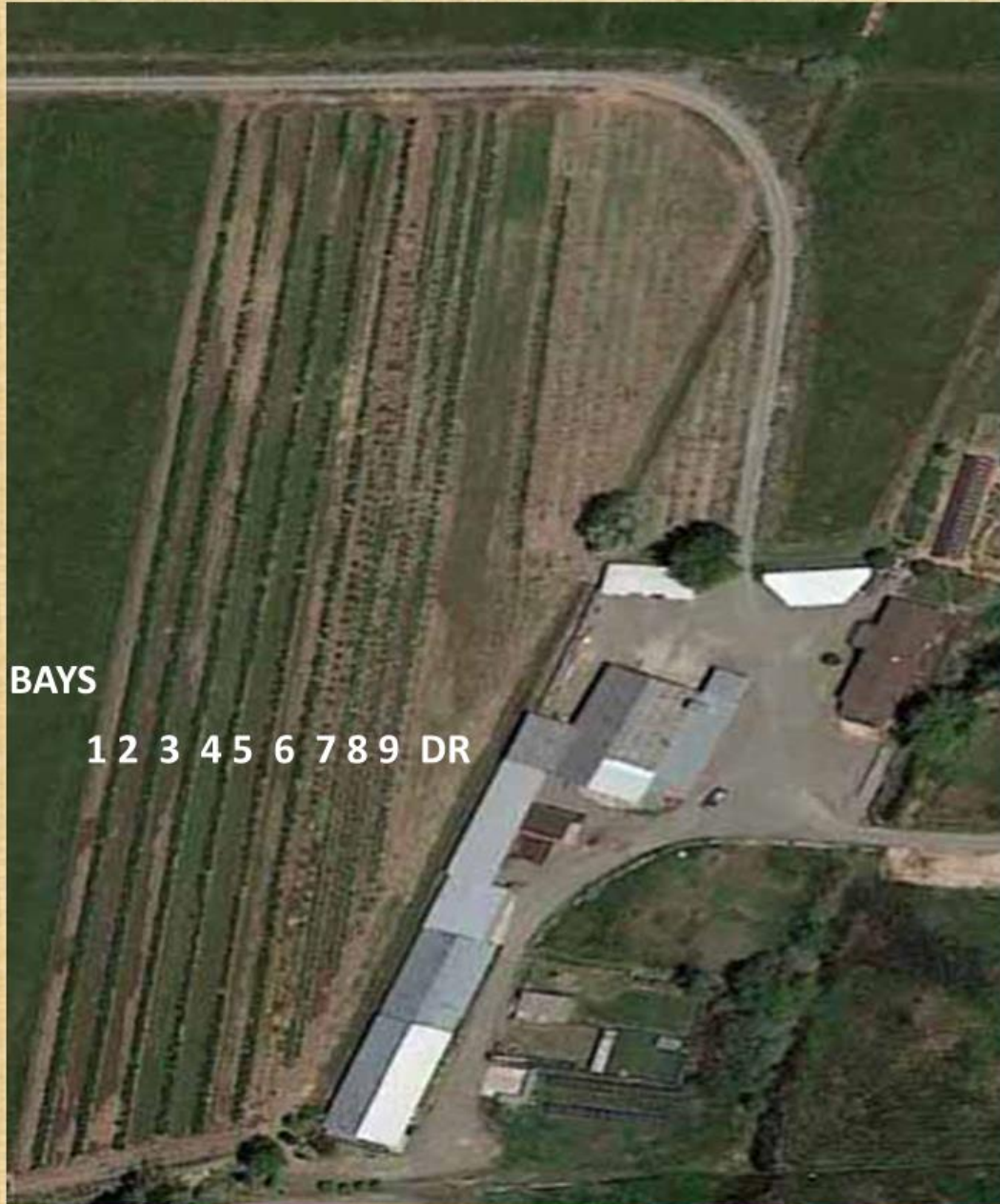
6-23

1-24 COVER CROP SEEDING

COVER CROP SEEDING 1-24

SPECIES		Bulk LBs Seeded								
Date		26-Jan	20-Jan	21-Jan	21-Jan	23-Jan	26-Jan	27-Jan	28-Jan	30-Jan
Seeding method			ddsd	dsd	dsd	sdd	dsd	dsd	dsd	dsd
		Bay 1	Bay 2	Bay 3	Bay 4	Bay 5	Bay 6	Bay 7	Bay 8-9	Ditch road
	Annual rye L73	2	2	2	2	2	2		2	2
	Radish	1	1	1	1	1	1	1	1	
	Lentils	2	2	2	2	2	2	2	2	
	Peas	2	2	2	2	2	2	2	2	
	Millet	1	1	1	1	1	1	2	2	2
	Crimson clover	1	1	1	1	1	1	1	1	1
	Hycon Rose clover	1	1	1	1	1	1	1	1	1
	Wheat winter Ray	2		2						
	Barley spring Lavina				2					
	Oats spring Monida					2				
	Oats spring Ajay							5		
	Triticale						2			
	Quickguard									5
	Hairy vetch								2	
	Wildflowers annual	1								
		13	10	12	12	12	12	14	13	11

Unlike spring 2022 seeding which also contained perennial pasture species as well



**Each bay contains a unique cover crop seed blend
and variable application techniques**



**Grass left standing until early spring mowing
4' snow drifts settled in western rows**

NRCS High Tunnel installation 2010



**500 lbs of tomatoes
harvested after
first freeze killed
outdoor plants.
717 lbs total 2011**

Tomato drying

This consortium purchases native seed from the High Plains to the Pacific ocean.

**Seed certification is important.
For new seeding, use Foundation seed for varietals and Source Identified seed for native collections.**



Broken Bow, NE

Producer and supplier of conservation and premium forage seed, primarily serving the Midwest.



Osborne, KS

Leading supplier of agriculture and conservation seed in the Midwest for over 100 years.



Lehi, UT; Denver, CO; Tempe, AZ

One-stop revegetation products and services since 1988.



Carpinteria, CA; and Albany, OR

At the forefront of the collection of seeds for native California plants since 1975.



Manteca, CA

Leading proprietor of cover crop blends for pollination and soil regeneration serving orchards and vineyards through NGOs and our distribution partners.



Tracy, CA

Native seed collection and distribution in Northern California and Nevada since 1985.



Reno, NV

Wildland seed acquisition and consultation for shrub, grass, and flower seed throughout the Western United States.



Townsend, MT; and Billings, MT

A premier grower and distributor of quality pasture, turf and reclamation seed in the western United States and Canada.



Connell, WA

Native seed farming production for internal distribution and large federal and state agencies.



Winters, CA

Highly specialized producer of local-ecotype seed for the Northern and Central California market.



Los Alamos, CA

Highly specialized producer of local-ecotype seed native seed products for the Southern and Central Southern California market.



Salt Lake City, UT

Premium online retailer of regionally adapted native, forage, pasture, and lawn seed blends spanning the entire U.S. market.

Home sweet home



Questions?

