NOTICE OF THE

NAMING AND RELEASE

OF

'REDONDO' ARIZONA FESCUE

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NEW MEXICO STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
NEW MEXICO STATE HIGHWAY DEPARTMENT
COLORADO STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
AND
UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

NOTICE OF THE NAMING AND RELEASE OF 'REDONDO' ARIZONA FESCUE FOR SOIL STABILIZATION AND RANGE FORAGE.

The Agricultural Experiment Stations of New Mexico State University and Colorado State University, New Mexico State Highway Department, and the United States Department of Agriculture, Soil Conservation Service, announce the naming and release of 'Redondo' Arizona fescue (Festuca arizonica Vasey).

Description: Redondo Arizona fescue is a native, long-lived, bunchgrass. Culms are densely tufted in large bunches 30 to 100 cm. tall. Leaves are numerous, usually elongate, scabrous, filiform and involute, Propagation is by seed. Natural range of adaptation of the species is from Colorado south to Texas and west to Nevada at elevations from 6,000 to 10,000 feet, It is found on shallow clay loam to loam and sandy to gravelly soils mainly in association with ponderosa pine, It has an extensive, tough, fibrous root system which makes it a valuable plant for soil stabilization, Its ability to tolerate extended dry periods, especially in the spring months, allows this plant to occupy the shallow, often droughty soils in the intermountain regions of Arizona, Colorado, and New Mexico where the summer precipitation is predominant.1/

Testing: Redondo Arizona fescue was evaluated at the Los Lunas, New Mexico and Bridger, Montana Plant Materials Centers and at field locations in Colorado and New Mexico. It was evaluated as accession number NM-5. Original seed was collected in 1956 from many plants in a good stand in the ponderosa pine zone on the Baca Grant west of Los Alamos, New Mexico.

1/ Description and natural geographic range of adaptation adapted from:

Hitchcock, A. S., 1950. Manual of the Grasses of the United Stetes. 2nd. ed. USDA Misc. Pub. No. 200. 1051 pp.

Range Plant Handbook. 1937. USDA, FS. US Govt. Print. Office.

Initial evaluation plots of eleven strains of Arizona fescue were established at Los Lunas in 1960. Redondo was equal to all other accessions tested in seedling vigor and stand establishment, except for A–13331 (Table 2). Adequate seed for field testing was never available for A–13331.

Redondo was evaluated at 12 locations in Colorado and 7 locations in New Mexico without supplemental water, Poor to excellent stands were obtained in 14 of these plantings, Redondo was the only strain of Arizona fescue with adequate seed for field testing, Its performance was compared with numerous other species in these plantings. Redondo was equal to or better than all other species in stand in 8 of these plantings and in vigor in 10 (Tables 3, 4, 5, 6). There were no stands of any species established in 4 of the 19 plantings.

Propagation: An initial seed increase planting of Redondo was made at the Los Lunas Plant Materials Center in 1957. This was the only strain for which there was adequate seed available for seed production purposes, One harvest of 24 bulk (18 PLS) pounds of seed per acre was made in 1959. This was the only seed harvested from this planting, A second planting was made in 1960. This planting failed to produce enough seed to Justify keeping the field in production. Performance of Redondo in this planting indicates that Redondo does not grow well on saline, heavy textured, poorly drained soils at low elevations.

Seed from the 1959 harvest was sent to Bridger, Montana Plant Materials Center, They made a seed increase planting in October, 1960. This planting resulted in excellent stands and seed production (Table 1).

Use: Redondo Arizona fescue is being released as the first named variety of Arizona fescue. It fills a stabilization and range revegatation need not now being met in the Intermountain regions of Colorado and New Mexico on steep, infertile, shallow loams to sandy and gravelly soils in the ponderosa pine zone that are droughty during part of the year. It has been successfully grown and stands have been established in the field where adequate performance has been exhibited to warrant release for commercial production,

Seed Source: Breeder and foundation seed will he produced by the Seed Certification Department of Colorado State University. Limited quantities of seed will be available to growers through Crop Improvement Associations and Soil and Water Conservation Districts. Standards for all classes of seed will be included in the New Mexico, Seed Certification Handbook and in Grass Seed Certification Standards adopted in Colorado,

Approval signatures:

Marvin L. Wilson — 5/8/73
Marvin L. Wilson, Associate Director
New Mexico Agricultural Experiment Station

A. Baltensperger — May 7 73
Arden Baltensperger, Head
Agronomy Department, New Mexico State University

Fred B. Widmoyer — 5/08/73
Fred B. Widmoyer. Head
Horticulture Department, New Mexico State University

M. E. Strong — 5/30/73
Marion Strong, State Conservationist
USDA, Soil Conservation Service

J. E. McCall — 5-24-73
New Mexico State Highway Department

D. D. Johnson — 4/11/72
D. D. Johnson, Associate Director
Colorado Agricultural Experiment Station
Colorado State University

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Table 1. Seed production of Redondo (NM-5) Arizona fescue at Los Lunas and Bridger, Montana Plant Materials Center, 1959 and 1962-1966.

Year	Bulk Seed (lbs/acre)	% Purity	% Germ
Los Lunas			
1959	24	93	81
Bridger			
1962	67	-	-
1963	497	89	74
1964	381	87	78
1965	426	91	70
1966	91	95	80
5 year ave. Bridger	292	90*	75"

* Average of the 4 years shown.

Table 2, Performance of Arizona fescue in strain trials at the Los Lunas Plant Materials Center, seedling year evaluations, August, 1960.

Accession Number	Stand Rating a/	Vigor Rating a/
Redondo	6 b/	5 b/
A-13331	3	3
NM-34	9	6
NM-225	5	5
NM-103	5	5
A-10005	7	5
NM-39	7	6

a/ Stand and performance ratings: 1 = excellent; 3 = good; 5 = fair; 7 = poor; 9 = very poor; 0 = dead.

b/ Average of 4 plots for Redondo, all other ratings are for one plot only.

Table 3. Last evaluations of plantings of Redondo Arizona fescue in Colorado and New Mexico,

Planting No. & Location	Date of Evaluation	Stand*	Vigor*
1-Walden, Colo.	1969	P	E
2-Meeker, Colo.	1970	E	-
3-Cripple Creek, Colo.	1972	F	G
4-Glentivar, Colo.	1971	G	G
5-Gunnison, Colo,	1968	0	0
6-Gunnison, Colo.	1971	G	G
7-Salida, Colo,	1971	0	0
8-Westcliffe, Colo.	1966	0	0
9-Westcliffe, Colo.	1971	F	G
10-Westcliffe, Colo.	1971	0	-
11-Norwood, Colo.	1967	F	E
12-Pagosa Springs, Colo.	1967	P	G
13-Ojo Caliente, N.M.	1971	F	E
14-Raton, N.M.	1967	0	0
15-Los Alamos, N.M.	1968	G	G
16-Jemez Springs, N.M.	1971	F	G
17-Glorieta, N.M.	1971	F	G
18-Grants, N.M.	1971	F	-
19-Quemado, N.M.	1972	G	G

* E = excellent; G = good; F = fair; P = poor; 0 = none, dead; - = not rated

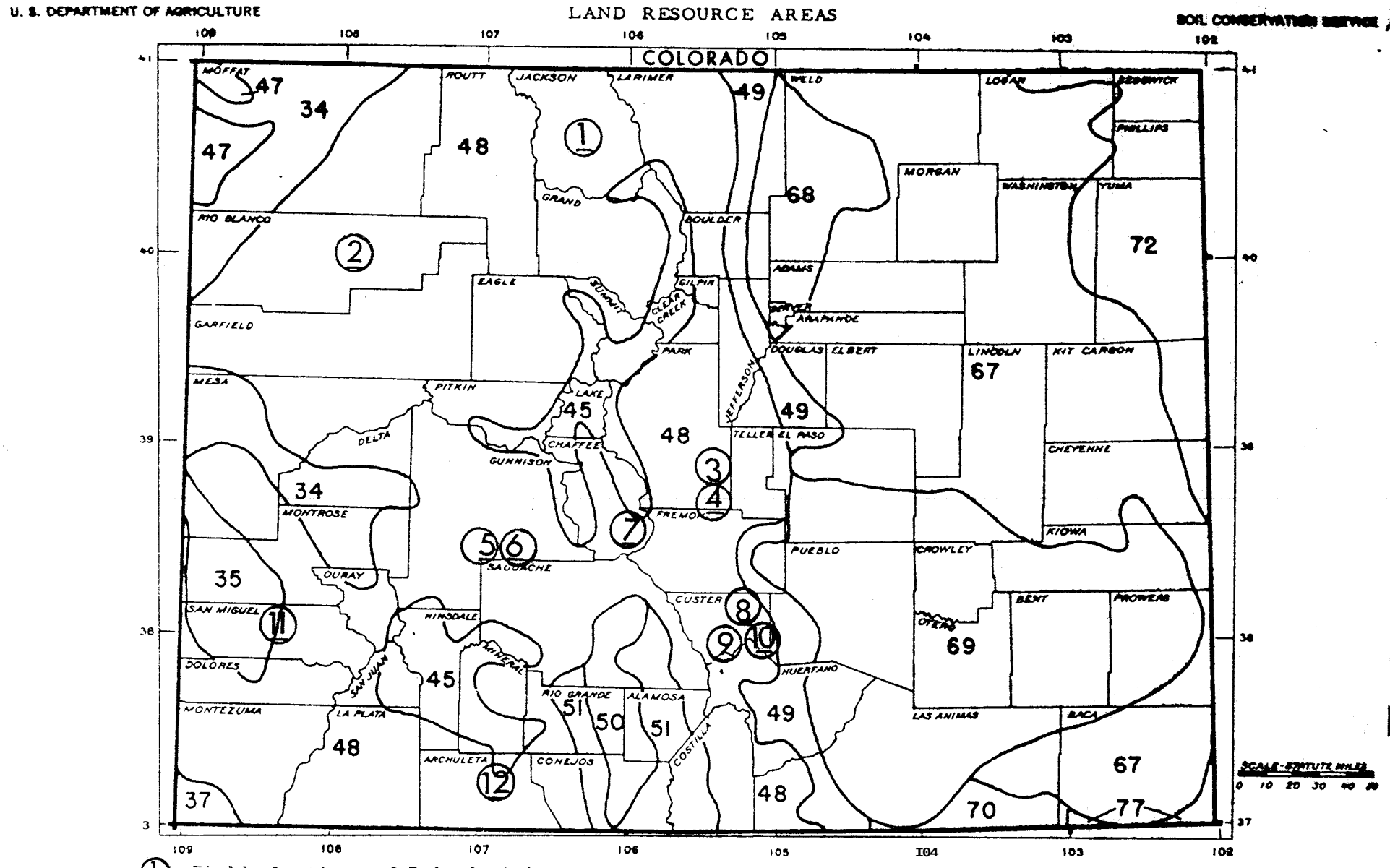
Table 4. Summary of the above Table 3.

Rating	Number of times item occurs	
	Stand	Vigor
Excellent	1	3
Good	4	9
Fair	7	0
Poor	2	0
No stand	5	5
No rating	0	2

Table 5. Performance of Redondo in comparison to all other entries in the 19 field plantings. (Summary of Table 6.)

Characteristic	Superior	Equal	Inferior	Planting failure
Stand	1	7	7	4
Vigor	2	8	5	4

Figure 1. Map of Colorado showing the locations of field plantings of Redondo Arizona fescue.

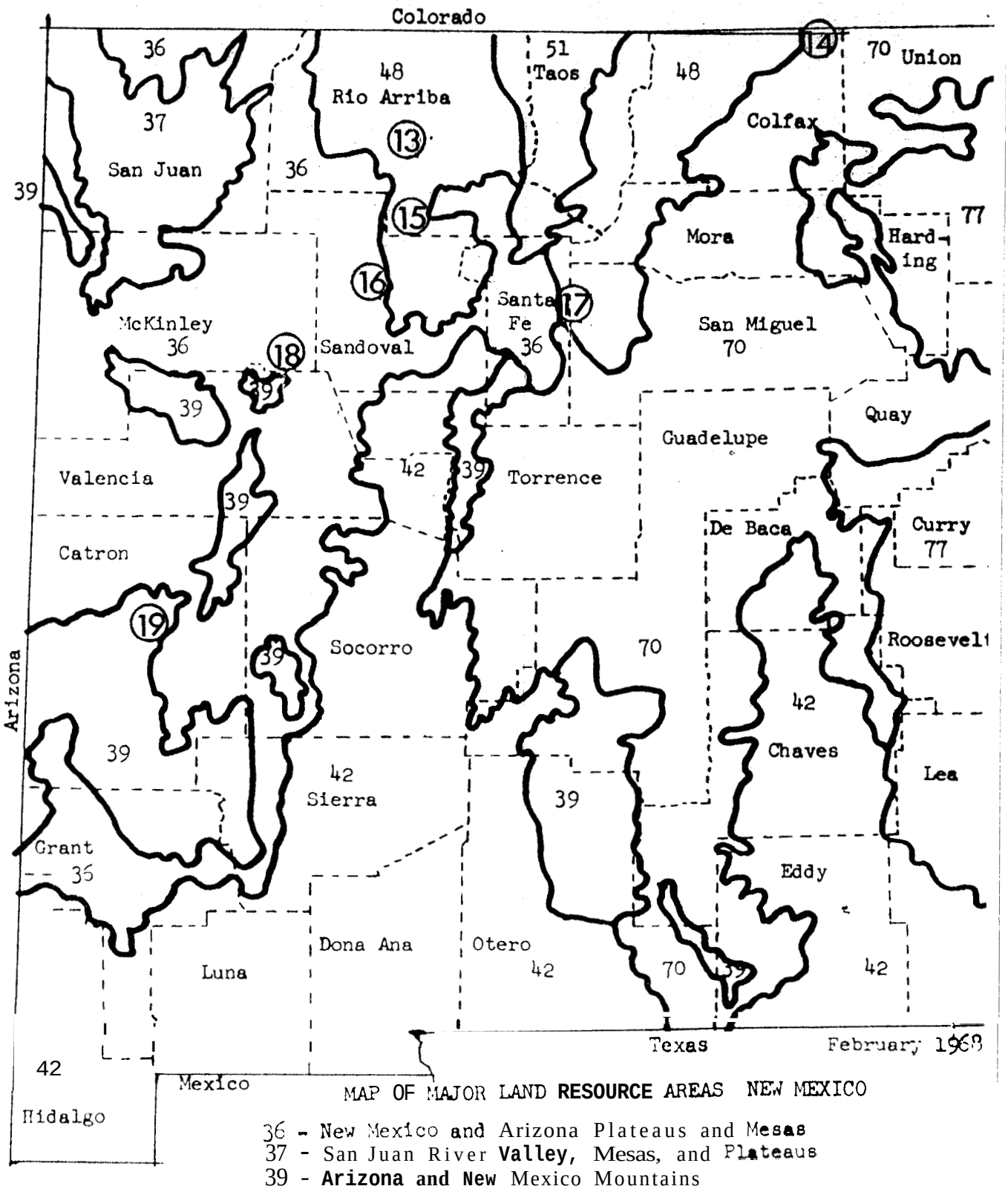


(1)- Field plantings of Redondo Arizona fescue

LEGEND

34 Central Desertic Basins, Mountains and Plateaus
35 Colorado and Green Rivers Plateaur
37 San Juan River Valley Mesas and Plateaus
48 Southern Rocky Mountains
49 Southern Rocky Mountain Foothills
50 San Luis Valley
68 Irrigated Upper Platte River Valley
69 Upper Arkansas Valley Rolling Plains
70 Pecos-Canadian Plains and Valleys

Figure 2. Map of New Mexico showing the Locations of field plantings of Redondo Arizona fescue.



MAP OF MAJOR LAND RESOURCE AREAS NEW MEXICO

36 - New Mexico and Arizona Plateaus and Mesas
37 - San Juan River Valley, Mesas, and Plateaus
39 - Arizona and New Mexico Mountains
42 - Southern Desertic Basins, Plains and Mountains
48 - Southern Rocky Mountains
51 - High Intermountain Valleys
70 - Pecoe-Canadian Plains and Valleys
77 - Southern High Plains

Table 6. Performance of Redondo Arizona fescue in dryland plantings at various locations in Colorado and New Mexico.

Legend for ratings:

E = excellent	VG = very good	0 = none
G = good	GE = between good & excellent	- = not evaluated
F = fair	FG = between fair & good	S = stand
P = poor	PF = between poor & fair	V = vigor
T = trace		

Planting 1 Cofo.		Year 1966 S	1967 S	1967 V	1968 S	1968 V	1969 S	1969 V
Owen Geer, Walden, Colorado	Redondo Festuca arizonica	F	F	G	-	G	P	E
	A-13043 Agropyron desertorum	G	E	E	E	G	E	G
	Whitmar Agropyron inerme	P	G	G	F	F	F	F
Soils, Chestnut valley bench,	c-61 Agropyron inerme	G	G	G	G	G	G	G
	A-13045 MC Agropyron intermedium	G	C	G	G	G	G	G
	A-10675 Agropyron sibiricum	G	E	G	G	G	G	G
Seedbed: Pitting-disc seeder	C-29 MB Agropyron spicatum	G	F	C	E	E	E	E
	Luna Agropyron tricophorum	G	E	G	E	E	E	E
	A-1488 Agropyron tricophorum	F	E	G	G	G	G	G
Seeding method broadcast	A-11701 Agropyron tricophorum	G	E	G	G	G	E	E
	A-10691 Festuca ovina	G	G	G	E	E	E	E
	M-1 Poa ampla	P	P	F	P	G	P	G
Seeding date: 8/31/65	NDG-397 Stipa viridula	P	O	-	P	G	P	G
25 acres/plot, each species planted alone								

Planting 2 Colo.	Species	Year 1965	1966	1968		1969		1970	1970 a/
		S	S	S	V	S	V	S	lbs/acre
Meeker Airport	Redondo Festuca arizonica	P	F	P	P	P	G	■	3112(848) b/
Meeker, Colo.	Amur Agropyron intermedium	G	E	E	E	G	GE	E	1666(117)
	Luna Agropyron tricophorum	E	E	E	E	G	F	E	1292(88)
Soil: Chestnut	Oahe Agropyron intermedium	G	E	E	E	G	G	E	1705(94)
loam from Loess	C-27 Agropyron smithii	G	G	G	G	G	F	E	1581(39)
	C-30 Agropyron smithii	E	E	G	G	G	F	E	2104(62)
Seedbed: plowed,	C-29 Agropyron spicatum	G	GE	FG	FG	G	VG	E	1061(106)
summer fallowed.	C-92 Agropyron spicatum c/	P	P	F	F	G	G	G	1372(104)
	A-11701 Agropyron tricophorum	G	G	E	E	G	FG	E	1490(60)
Seeding method:	C-43 Elymus cinereus	P	G	P	P	G	G	G	1778(324)
drilled	C-28 Elymus salinas	P	F	P	P	P	P	FG	1240(154)
	C-47 Koleria cristata	P	P	P	P	P	G	■	595(50)
Planting date:	C-42 Oryzopsis hymenoides	E	G	G	G	FG	G	F	893(165)
5/10/65	NM-168 Oryzopsis hymenoides	F	F	FG	FG	P	P	F	517(117)
	M-1 Poa ampla	P	F	PF	PF	P	FG	FG	617(86)

a/ Average of 10 plots (5 plots each on 2 exposures) except for Redondo Arizona fescue which is the average of 5 plots on one exposure only.

b/ Figure in parenthesis is SE (standard error) for the sample,

c/ Some material from plot reidentified as A. griffithsii.

Planting 3 Colo.	Species	rear 1967 S	1967 V	1968 S	1968 V	1969 S	1969 V	1970 S	1970 V	1972 S	1972 V
Don W. Slaughter	Redondo Festuca arizonica	P	F	G	G	G,F,P	G,E,F	F,E,P	F,E,F	G,G,P	E,E,P [a/]
Cripple Creek, Colo.	A-17770 Agropyron cristatum	F	G	F	G	F	F	F	F	F	G
	Nordan Agropyron desertorum	G	G	G	G	E,G	G,G	E,G	G,G	F,G	F,G [a/]
Soils, dry mountain	A-1874 Agropyron desertorum	G	F	E	G	G	F	G	G	FP	P
loam	A-13043 Agropyron desertorum	G	G	G	G	G	E	E	E	F	P
	C-27 Agropyron smithii	F	G	F	G	F	F	FG	E	G	G
Seedbed:	C-30 Agropyron smithii	F	F	P	G	P	F	F	E	G	G
	A-10675 Agropyron sibiricum	G	F	F	F G	G	G	E	E	G	F
Seeding method:	C-29 Agropyron spicatum	G	G	G	G	G	G	F	G	FP	F
drilled	C-92 Agropyron spicatum	G	F	F	F	P	F	F	G	F	F
	M-161 Agropyron spicatum	G	F	E	GE	G	E	E	E	G	G
Seeding date:	Luna Agropyron tricophorum	F	G	F	F	F	G	G	E	F	F
11/13/65	Vinall Elymus junceus	E	G	E	G	E	F	E	F	E	G
	C-47 Koeleria cristata	P	G	F	F	P	F	P	F	F	P
29 acres	A-8604 Muhlenbergia wrighti	0	-	0	-	0	-	0	-	0	0
	C-42 Oryzopsis hymenoides	F	F	F	F	P	F	G	E	P	P
	NM-168 Oryzopsis hymenoides	P	F	P	G	P	F	P	G	0	0

a/ Separate ratings shown for 2 or more plots. All other ratings are for one plot only.

Planting & Colo.	Species	Year 1969 S	1969 V	1970 S	1970 V	1971 S	1971 V
Eleven Mile Grazing Assoc. Glentivar, Colo. Soils: Dry mountain sandy loam	Redondo Festuca arizonica	P	F	P	G	F	G
	A-10675 Agropyron sibiricum	G	G	E	G	E	P
	c-29 Agropyron spicatum	P	F	P	F	P	G
	C-61 Agropyron spicatum	E	G	E	G	E	F
	C-92 Agropyron spicatum	G	G	G	G	E	G
	Luna Agropyron tricophorum	F	G	F	G	F	F
	Vinall Elymus junceus	F	F	F	F	G	F
	C-42 Oryzopsis hymenoides	G	G	E	G	F	G
	NM-168 Oryzopsis hymenoides	G	E	G	G	P	G
	Sherman Poa ampla	P	F	P	G	P	G
	C-30 Agropyron smithii] mixture	F	F	F	G	G	G
	C-42 Oryzopsis hymenoides] mixture	-	-	-	-	G	G
Planting date: 8/27-8/28/68							
Seedbed: Pitting - disc, broadcast	Redondo Festuca arizonica	F	G	G	E	E	E
	Luna Agropyron tricophorum	G	E	G	E	G	G
Seeding Method: Sweep, pitting disc, broadcast							
Sweep, drill	Redondo Festuca arizonica	P	P	F	G	G	G
	A-10675 Agropyron sibiricum	P	G	F	G	P	G
	C-29 Agropyron spicatum	0	-	P	G	P	F
	C-61 Agropyron spicatum	F	F	F	G	F	F
	C-92 Agropyron spicatum	F	G	G	E	F	F
	Luna Agropyron tricophorum	P	G	F	E	F	G
	Vinall Elymus junceus	P	F	P	F	F	F
	C-42 Oryzopsis hymenoides	P,G	?,F	F	G	P	G
	NM-168 Oryzopsis hymenoides	P	G	P	E	0	0
	Sherman Poa ampla	0	-	P	E	P	G
	C-30 Agropyron smithii] mixture	P	G	F	E	F	G
	C-42 Oryzopsis hymenoides] mixture	-	-	-	-	P	F

Planting 5 Colo.	Species	Year 1962	1963	1968
		S	S	S
Margaret Besecker	Redondo Festuca arizonica	P	F	0
Gunnison, Colorado	Nordan Agropyron desertom	F	FG	0
	A-1874 Agropyron desertorum	0	FG	0
Soils: Chestnut,	A-12477 Agropyron hybrid	0	0	0
dry mountain loam.	A-10675 Agropyron sibiricum	T	T	0
	C-902 Agropyron smithii	P	T	0
Seedbed:	C-25 Agropyron trachycalum	0	P	0
	Luna Agropyron tricophorum	0	T	0
Seeding method:	A-2355 Elymus junceus	G	T	0
drilled	A-10691 Festuca ovina	0	F	0
	NM-17 Oryzopsis hymenoides	T	0	0
Planting date:	C-34 Stipa comata	P	T	0
9/28/60				

Planting 6 Colo.	Species	Year 1963 S	1968 V	1971 S	V
Margaret Besecker, Gunnison, Colorado	Redondo Festuca arizonica	0	G	G	G
	Nordan Agropyron desertorum	G	-	P	P
	A-1874 Agropyron desertorum	F	-	P	F
Soils: Chestnut dry mountain loam.	Whitmar Agropyron inerme	0	0	-	-
	A-10675 Agropyron sibiricum	G	-	P	G
	C-27 Agropyron smithii	0	-	-	-
Seedbed: Pitting disc-seeder	C-30 Agropyron smithii	0	G	G	G
	M-23 Agropyron smithii	0	-	-	-
	Luna Agropyron tricophorum	F	G	G	F
Seeding method: broadcast	M-161 Agropyron smithii	0	F	P	F
	C-47 Koleria cristata	0	F	-	-
	NM-15 Oryzopsis hymenoides	0	0	-	-
Planting date: 9/27/62	M-1 Poa ample	0	G	G	F
	NM-168 Oryzopsis hymenoides	T	T	F	F
	A-12438 Stipa viridula	F	0	-	-

Planting 7 Colo.	Species	Year 1969 S	1969 V	1971 S
Sill Rooks, Salida, Colorado	Redondo Festuca arizonica	P	P	0*/
	A-13043 Agropyron cristatum	P	P	0
	Nordan Agropyron desertorum	P	P	0
Soils, Dominic gravelly, sandy loam	C-61 Agropyron inerme	P	P	0
	C-30 Agropyron smithii	P	P	0
	Comm. Agropyron smithii	P	P	0
Seedbed :	C-92 Agropyron spicatum	P	P	0
	Vinall Elymus junceus	P	P	0
Seeding method: grass drill	A-14173 Sanguisorba minor	P	P	0
	NM-104 Stipa scribneri	F	F	0
	C-127 Stipa viridula	F	F	0
Seeding date: 5/22/69				

*/ Planting was aade in or adjacent to a campground. Planting was apparently destroyed by heavy traffic during a camper-trailer rally,

Planting 8 Colo.	Species	Year 1966 5
John Young, Westcliffe, Colo.	Redondo Festuca arizonica	0
	Whitmar Agropyron inerme	0
	A-12477 Agropyron hybrid	0
Soils: Dry mountain loam	C-27 Agropyron smithii	0
	C-30 Agropyron smithii	0
	NM-481 Agropyron smithii	0
Seedbed: pitting disc seeder.	C-29 Agropyron spicatum	0
	Luna Agropyron trichophorum	0
	Vinall Elymus junceus	0
Seeding method: broadcast	A-10691 Festuca ovina	0
	C-42 Oryzopsis hymenoides	0
	ND-771 Stipa oryzopsis	0
Planting date: 4/10/61	NM-104 Stipa scribneri	0

Planting 9 Colo.	Species	Year 1969 S	1969 V	1970 S	1970 V	1971 S	1971 V
B. J, Peggram	Redondo Festuca arizonica	C	E	G	G	F	G
Westcliffe, Colorado	2-56 Muhlenburgia montana	P	G	P	F	P	F

Soils:

Seedbed:

Seeding method:

Seeding date:
7/20/67

Planting 10 Colo.			
Seeding date 8/20/71		S	V
B. J. Peggram			
Westcliffe, Colo.	Redondo Festuca arizonica	0	-
	Comm. Agropyron intermedium	E	G
	NM-28 Bouteloua curtipendula	0	-
	Comm, Elymus junceus	F	F
	C-56 Muhlenbergia nontanus	P	P

Planting 11 Colo.	Species	Year 1960	1963	1967	
		S	S	S	V
Willard Rogers, Norwood, Colorado	Redondo Festuca arizonica	T	T	F	E
	Amur Agropyron intermedium	FG	E	E'	G
	A-12477 Agropyron hybrid	FG	FG	F	G

Soils: Mountain shale

Seedbed: summer fallowed

Seeding method: drilled

Planting date: 10/23/59

Planting 12 Colo.	Species	Year 1966 S	1966 V	1967 S	1967 V
P. B. Davis Pagosa Springs, Colorado	Redondo Festuca arizonica	T	P	P	G
	C-30 Agropyron smithii	FG	E	F	F
	C-92 Agropyron spicatum	-	-	P	F
Soil: clay loam	C-25 Agropyron trachycaulum	E	E	F	G
	C-47 Koleria cristata	-	-	P	P
Seedbed:	NM-168 Oryzopsis hymenoides	F	F	P	P
	M-1 Poa ampla	FG	F	G	G
Seeding method: Crilled					
Planting date: 3/27/65					

Planting 13 N.M	Species	Year 1971 S	V
Ojo Caliente	Redondo Festuca arizonica	F	E
Borrow pit stabilization FEP	Comm. Agropyron smithii	E	GE
	NM-490 Bouteloua curtipendula	O	O
Soils: Gravelly loam	NM-118 Bouteloua gracilis	PF	GE
subsoil	Corn. Eouteloua **gracilis**	GE	F
	A-1407 Bothriocloa ischaemum	O	O
Seedbed: Disked	C-42 Oryzopsis hymenoides	FG	G
	Corn, Oryzopsis hymenoides	P	F
Seeding method:	Corn, Sporobolus cryptandrus	O	O
Drilled			
Planting date:			
7/24/69			

Planting 14 N.M.	Species	Year 1967 S
US-64, 1-25 Interchange, Raton, New Mexico New Mexico State Highway Department Soils: Subsoil shale material on cutslopes Seedbed: disked Seeding method: drilled and mulched, Fertilized. Planting date: 7/1/67	Redondo Festuca arizonica	-*/
	C-30 Agropyron smithii	-
	C-119 Andropogon gerardi	-
	NM-753 Aster biglovi	-
	NM-118 Bouteloua gracilis	-
	A-1407 Bothriocloa ischaemum	-
	NM-754 Gaillardia pinnatifida	-
	NM-729 Mirabilis multiflora	-
	NDL-54 Petalostemum purpurea	-
	NM-805 Robinia neomexicana	-
	C-54 Sorghastrum nutans	-

*/ Initial emergence of all species was *good.* The entire stand was destroyed by grasshoppers.

Legend: Fertilizer treatments.

N_0P_0 = No nitrogen, no phosphorous
$N_{60}P_0$ = 60 lbs/acre nitrogen, no phosphorous
$N_{60}P_{60}$ = 60 lbs/acre nitrogen, 60 lbs/acre phosphorous (P_2O_5)
$N_{60}P_{60}S_{30}$ = 60 lbs/acre nitrogen, 60 lbs/acre phosphorous (P_2O_5), 30 lbs/acre sulfur

Planting 15 N.M.	Species		Year 1963	1964	1965	1966	1967				1968	
					lbs/acre		N_0P_0	$N_{60}P_0$	$N_{60}P_{60}$	$N_{60}P_{60}S_{30}$ lbs/acre	S	V
Baca Lana & Cattle Co, Los Alamos, NM	Nordan Agr des	G	3012	3950	2650	1275	865	950	1150	G	F
	A-1874 Agr des	E	2012	3940	1700	650	700	925	800	P	P
	A-12477 Agr hybrid	E	3650	3980	2045	900	800	1350	475	E	F
	Amur Agr int	G	4475	5180	4125	800	1025	1085	425	G	F
Soils: Mountain valley molli sol	A-12496 Agr int	G	5175	5930	4675	1375	1950	2275	1550	G	G
	A-13045 MC agr int	E	3175	2830	2840	1075	2400	2025	1300	G	F
	A-1067j Agr sib	G	2987	4430	1850	650	1085	1110	650	F	P
Seedbed: disked	C-25 Agr tra	G	3575	4380	2900	1175	2750	3110	2675	G	G
	Luna Agr tri	E	3075	3508	3175	1025	1825	1125	925	G	F
Seeding method: drilled	A-11701 Agr tri	E	1775	4380	1975	1485	2175	1860	1075	G	F
	Achenbach Bro iner	G	2700	3100	950	825	1585	1550	675	G	F
	Manchar Bro inermis	G	2775	2950	650	485	950	925	650	G	P
Seeding date: 7/16/63	Sandia Dac glo	E	2150	--	2375	1275	400	575	425	P	G
	Vinall Ely jun	E	1650	2710	1380	1000	715	1200	650	P	P
10 acres	These 7 were planted as a mixture: Redondo Fes ari	E	--	--	--	1325	1175	1650	1100	G	G
	NM-36 Ble tri	F									
	C-47 Kol cri	F									
	A-12357 Med ined	G									
	NM-9 Muh mon	F									
	M-1 Poa ampla	G									
	C-43 Sti col	E									

Note: All of grasses planted singly in strips, with the exception of C-25 Agropyron trachycaulum, have been showing a loss in vigor and herbage production. The native grasses and alfalfa planted as a mix are generally in good vigor and for the past 3 years have been picking up in herbage production (this is a visual observation, with no base yield data to support the statement. Notes do not indicate which components of the mix are superior, if any).

Planting 16 N.M.	Species	Year 1971 S	V
Rancho del Chaparrel Girl Scout Camp, Jemez Springs, N.M.	Redondo Festuca arizonica C-30 Agropyron smithii NM-184 Festuca arundinacae NM-628 Penstemon strictis	F E F P	G E E F

Soils: Ojitos Loam

Seedbed: Hand raked

Seeding method:
Broadcast

Pienting dzte:
6/30/70

M

Planting 17 N.M.	Species	Year 1971 S	V
Glorieta roadside seeding, 1-25 Glorieta, New Mexico New Mexico Highway Department Soils: Mixed roadfill, stony, gravelly, sandy loam,. Seedbed: disked Seeding method: drilled and mulched, Fertilized. Seeding date: 7/67	Redondo Festuca arizonica	PF	G
	C-30 Agropyron smithii	G	GE
	C-119 Andropogon gerardi	-	-
	NM-753 Aster biglovi	0	-
	NM-490 Bouteloua curtipendula	F	FG
	NM-118 Bouteloua gracilis	FG	G
	A-1407 Bothriocloa ischaemum	P	G
	NM-754 Gaillardia pinnatifida	0	-
	NM-729 Mirabilis multiflora	0	-
	NM-805 Robinia neomexicana	0	-
	C-54 Sorghastrum nutans	-	-

Planting 18 N.M.	Species	Year											
		1966	1967		1968		1969		1970		1971		
		S	S	V	S	V	S	V	S	V	S	V	
Mt. Taylor	Redondo Festuca arizonica	F	O	-	F	F	F	G	P	F	F	-	
New Mexico Game	Nordan Agropyron desertorum	F	P	F	P	F	F	F	G	F	O	-	
end Fish Depart.	A-13043 Agropyron desertorum	P	P	F	P	F	-	-	-	-	P	-	
Grants, NM	Amur Agropyron intermedium	PF	O	-	P	G	P	G	F	F	O	-	
	Comm. Agropyron intermedium	PF	O	-	O	-	-	-	-	-	P	-	
Soiis: Shallow,	A-10675 Agropyron sibiricum	P	O	-	O	-	-	-	-	-	O	-	
rocky, basaltic	C-30 Agropyron smithii	PF	P	F	F	G	-	-	-	-	G	-	
	C-92 Agropyron spicatum	T	O	-	-	-	P	G	P	-			
Seedbed: disked	Luna Agropyron tricophorum	FG	O	-	O	-	-	-	-	-	-	-	
	A-1488 Agropyron tricophorum	PG	O	-	P	G	P	G	P	G	F	G	
Seeding method:	NM-715 Cercocarpus montanus	T	P	P	-	-	-	-	-	-	-	-	
drill	Ladak Medicogo sativa	T	P	F	O	-	P	F	P	P	-	-	
	NM-168 Oryzopsis hymenoides	P	P	F	-	-	F	G	F	F	G	-	
Seeding date:	Purshia tridentata	T	P	F	O	-	-	-	-	-	-	-	
10/25/65													

Planting 19 N.M.	Species	Year 1972 S	V
Jewett Gap roadside stabilization FEP, New Mexico State Highway Department, 26 miles south of Quemado, NM on SR-32.	Redondo Festuca arizonica	G	G*/
	Comm. Agropyron smithii	G	G
	Comm. Bouteloua curtipendula	P	F
	Comm. Bouteloua gracilis	P	F
	NM-199 Muhlenbergia wrightii	F	G
	NM-628 Penstemon strictis	G	E

Soils: Mixed road cuts and **fills** - loam to shallow loam over granite,

Seedbed: disked

Seeding method: Flat areas drilled, cut slopes broadcast seeding with a hydroseeder, all areas fertilized and mulched w/hay mulch.

Seeding date: 8/70

100 acres.

*/ Redondo Arizona fescue dominates cut slope areas **there** soils are shallow, droughty, and infertile, or excessively well drained (steep or gravelly) soils. On heavier **loams** and clay *loams* NM-119 spike muhly and Corn. western wheatgrass **make** up a major portion of the vegetation **with** scattered stands of Redondo, Western wheatgrass dominates the ditch bottoms where overflow occurs.