

# Grasses & Cerco.

Not stratified

## Seed Germination

Sumner 5/27  
Harney Feb 14/61

Location Lab 17

Seed collected 1960 in Harney Valley

Berkeley

Date	Festuca californensis	Pea nevadensis	Stamium bystrix	Stipa occidentalis	Cercocarpus lanceifolia
Jan 16 1961	Into Petri dishes at lab. temps approx 72°F				
Total number of seeds ✓	300	459	152		
Total good seeds ✓	95	148	86		
Total defective seeds	205	311	66		
Total unger. seeds	6	86	58		

Date	Festuca		Pea		Stamium		Stipa		Cercocarpus	
		Cum.		Cum.		Cum.		Cum.		Cum.
Jan 20	1	1	3	3	0	0	0	0	0	0
" 23	30	31	17	20	5	5	0	0	0	0
24	13	44	9	29	4	9	0	0	0	0
25	12	56	5	34	3	12	0	0	0	0
26	9	65	5	39	0	12	0	0	0	0
Febr 6	19	84	16	55	10	22	0	0	0	0
" 9	5	89	0	55	4	26	0	0	0	0
" 10	0	89	7	62	2	28	0	0	0	0
	end		end		end					

% good seeds	32	32	57
% ger. of good seeds	94	42	33

Febr	213		Replicate 326	
13 Treated				
20	40	40	24	24
23	25	65	14	38
27	7	72	2	40
Mar 10	1	73	4	44
Mar 22	end		5	49
			end	

Note 50 % Cercocarpus dried out Febr 8 & 9 and re-mat Febr 10. Again Febr 15-50 Febr 15, 16 CER.

✓ includes empty shoots in grasses  
 ✓ " " " " " "

# Grasses Ger. Strat.

March 30 1961

Sitation hystrix

→ 1960 seed Strat. Febr 13 to Mar 10 @ 41°F  
Prob. 80% ger. viable seeds

1956 seed Like above

Prob 80% ger viable seeds. About 20 percent  
seed non viable - deteriorated in time

→ *Festuca idahoensis*

1960 Strat 37°F Febr. 13 to Mar 10

Prob 90% viable seeds germinated

→ *Poa nevadensis*

{ 1960 Strat 41°F Febr. 13 - Mar 15

High germination Prob about 80% viable seeds

{ 1960 Strat 37°F Febr 13 - Mar 15

High germination 75% by Mar 22

1956 Strat 41°F Feb 13 - Mar 15

Med. light ger. 50% seeds lost viability.

75% by Mar 22

So

Seed collected  
Hornay Valley  
1956

GERMINATION AND GROWTH

41°F  
Strat

Purpose Stratification

Exp. no. at Susanville of Stipa occidentalis seed Date started \_\_\_\_\_  
7/11 1960

Sample no. \_\_\_\_\_ No. days treated \_\_\_\_\_ Name Hornay

Date: Febr. 13 1961 Time of day: \_\_\_\_\_ Seed treatment Into 41°F for stratification  
Not seed.

Germination statistics

Total seeds used \_\_\_\_\_  
Total germinated \_\_\_\_\_  
a) Sound \_\_\_\_\_  
b) Defective \_\_\_\_\_  
Total ungerminated \_\_\_\_\_  
a) Sound (excised) \_\_\_\_\_  
b) Defective (excised) \_\_\_\_\_

Germination details

	No. of days germ.	Germ. no.	Length of:		Germ. %	Notes
			Roots (In.)	Tops (In.)		
<u>May 1 noon</u>		<u>About 5%</u>	<u>germination in strat.</u>	<u>Seedlings</u>		
		<u>to 3/4"</u>				
<u>May 4 noon</u>		<u>About 90%</u>	<u>germination</u>			

Expose of dry seed to summer heat and winter cold in Susanville may have conditioned seed to germinate. Seed collected in 1960 and stratified for some length of time shows no signs of germinating yet - that is in strat @ 41°F

*Cercocarpus* seed (fruit)



← radicle end



← Cotyledons

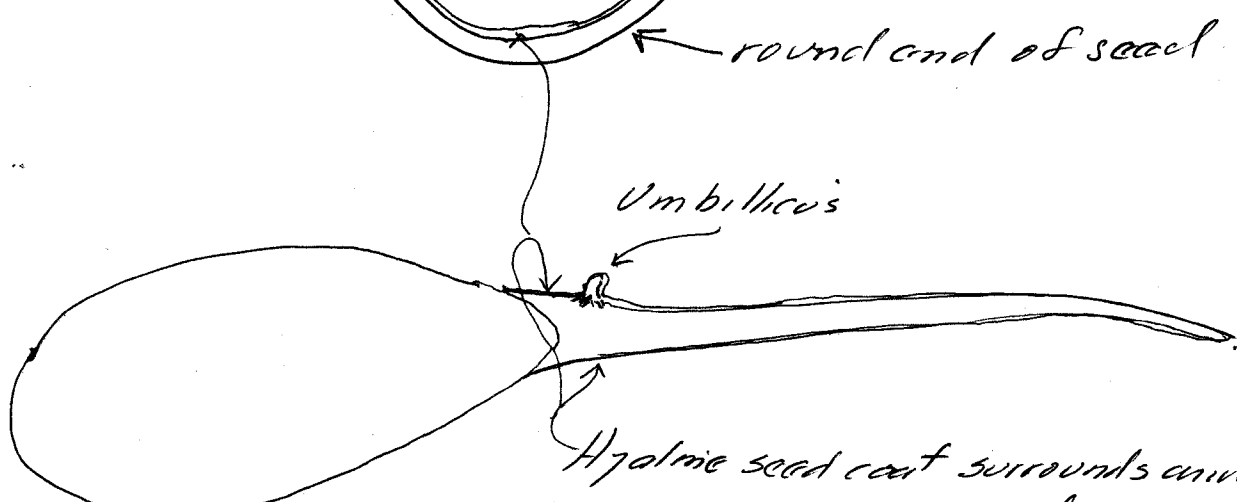
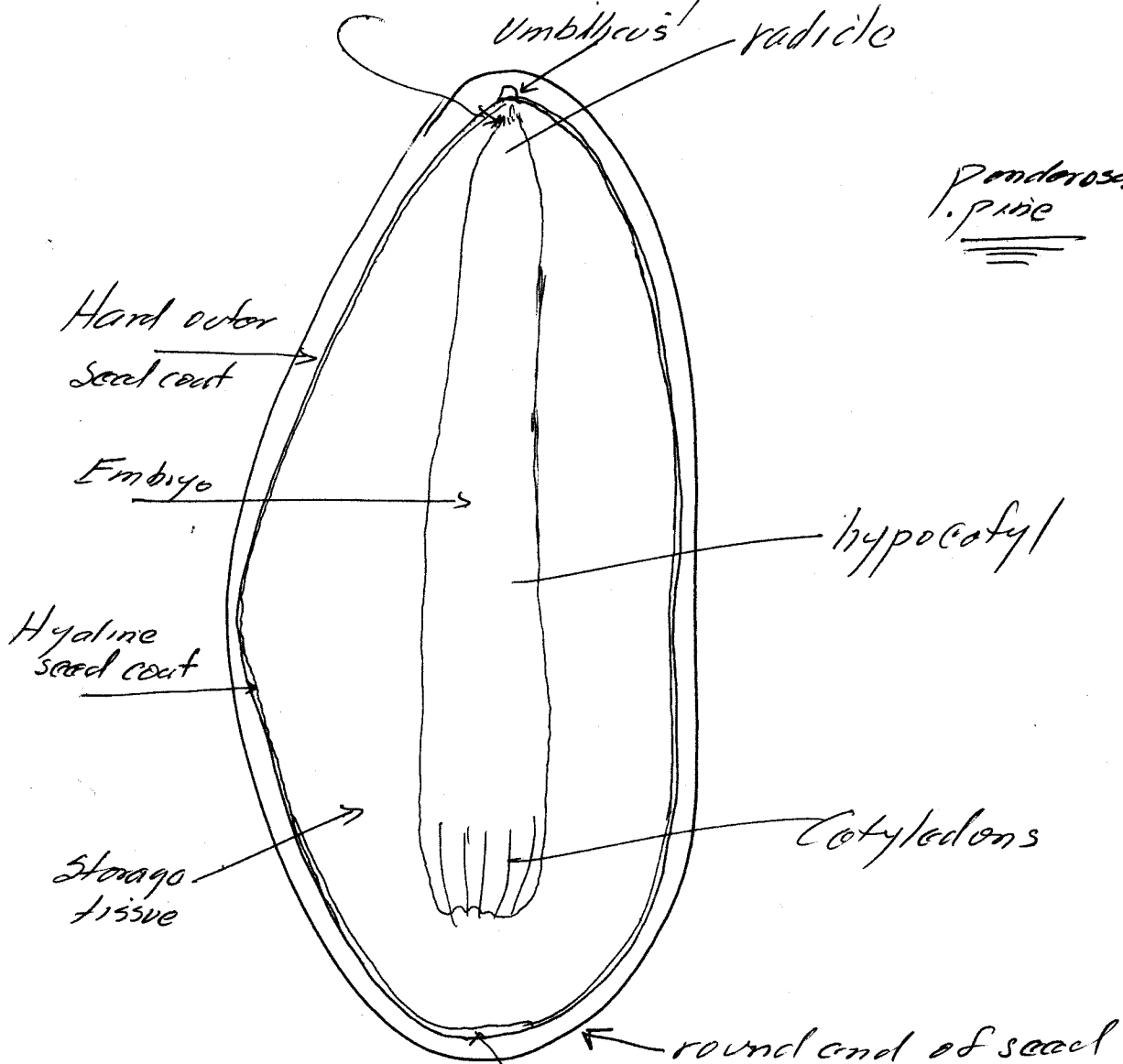
Embryo

← radicle

Mar. 23 1961  
Hormay

Floccose stands on root tip  
Umbilicus radicle

Ponderosa  
pinie



→ Surprising that this sheath should grow or stretch like this

Hyaline seed coat surrounds and encompasses growing root as a complete sheath. Sheath intact even when root is 3/4" long and perhaps longer.

# Pericarpus ledifolius 410F

## GERMINATION AND GROWTH

Purpose Strat @ 41°F

Exp. no. \_\_\_\_\_

Date started \_\_\_\_\_

Sample no. \_\_\_\_\_

No. days treated 95 Strat

Name Harman

Date: \_\_\_\_\_ Time of day: \_\_\_\_\_

Seed treatment \_\_\_\_\_

Jan 16 1961

Into strat @ 41°F in Petri dish  
seeds (fruits) with "tails"

### Germination statistics

Total seeds used \_\_\_\_\_

102 (95V) - 95V

Total germinated \_\_\_\_\_

92

a) Sound \_\_\_\_\_

92

b) Defective \_\_\_\_\_

Total ungerminated \_\_\_\_\_

see drawing on back side

a) Sound (excised) \_\_\_\_\_

3

b) Defective (excised) \_\_\_\_\_

### Germination details

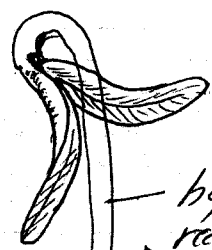
	No. of days germ.	Germ. no.	Length of:		Germ. %	Notes
			Roots (In.)	Tops (In.)		
<u>April 21 out strat</u>		<u>26</u>	<u>1 1/4"</u>	<u>5/8"</u>	<u>26</u>	<u>Healthy, Root</u>
<u>23 10 AM</u>		<u>52</u>	<u>to 5/8"</u>		<u>78</u>	<u>hair present</u>
<u>24 8 AM</u>		<u>8</u>			<u>86</u>	<u>color (red, orange)</u>
<u>25 8 AM</u>		<u>4</u>			<u>90</u>	<u>in long cotyledons</u>
<u>26 8 AM</u>		<u>2</u>			<u>92</u>	<u>end top of</u>
<u>27 11 AM</u>		<u>0</u>			<u>92</u>	<u>hypocotyl</u>
					<u>(end)</u>	
	<u>Days</u>					
<u>Jan-16 - 31</u>	<u>15</u>					
<u>Feb</u>	<u>28</u>					
<u>Mar</u>	<u>31</u>					
<u>Apr.</u>	<u>21</u>					
	<u>95 days</u>					
						<u>Note! Full strat. reached in less than 95 days. Run and checked Strat. very effective</u>



Cotyledon ventral side

reddish margin green interior

irregular  
veinatura

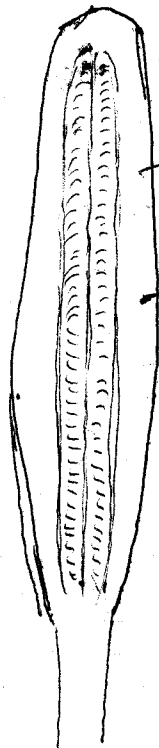


hypocotyl  
reddish  
upper 1/3

white  
below

Seedling habit  
reflexed cotyledons

root



Cotyledon  
shape

Dorsal side  
reddish

## Grasses for Reseeding

Green or wheatgrass (*Agropyron intermedium*)

P-7377 - mild seed former.

North eastern California above 4000'  
Slightly alkaline or slightly <sup>acid</sup> alkaline  
soils; well drained

8 lbs / acre in 6" rows

Same adaptation as smooth brome  
but superior to it.

Obtain seed SCS Pleasanton Nursery.

Cross pollinates with Taper.

## Management grass and grass mixtures

Habenrichter

1. Simple mixtures - no more than two grasses - one legume
2. Short lived species should not be used
3. Grain nurse crops undesirable
4. Do careful planting job - site selection
5. Fertilization important management tool.

Sow grass with alfalfa (30-35% grass)  
Earlier first cut of hay desirable



## Good planting job

1. Proper site
2. Reduce weed competition
3. Shallow cultivation, <sup>just</sup> prior to seeding
4. Uniform firm seedbed
5. Shallow precise drilling

## Seed sources - California

Bergard Van W. Box 61 Standish

Ferry Morse Seed Co. Box 967

Mountain View

Georring Seed Co. 747 Terminal

St. Los Angeles 21, Calif

→ In TN No 32 - Plant Materials  
Nov. 29 1957

H. W. Miller

Plant Materials Technician

Pleasanton, California

SOS

TN = Technical Note.

TN. No 11 Plant materials

August 1956

"Standard Seeding Rates"

Management

Fertilization

Irrigation (proper)

Tall wheatgrass

Goats fescue

Narrow leaf trefoil (Las Banderas strain)