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# *Oregon's Grass and Legume Seed Industry*

*In Economic Perspective*



SPECIAL REPORT 284 • APRIL 1970  
COOPERATIVE EXTENSION SERVICE  
OREGON STATE UNIVERSITY  
CORVALLIS

# OREGON'S GRASS AND LEGUME SEED INDUSTRY IN BRIEF

- OREGON PRODUCES ON AT OF WHICH AND**

41% of all U.S. grass and legume seeds  
308,000 + acres  
a sales value of \$31 million  
\$25 million or almost 81% is in the Willamette Valley  
nearly 43% is in Linn County.
- GRASS SEEDS SALES VALUE OF WHICH WITH**

are grown on 250,000 + acres at a  
of \$26 million  
\$22.4 million or 86% is in the Willamette Valley  
\$13 million in Linn County.
- VIRTUALLY ALL ON AT A VALUE OF WITH**

of the U.S. ryegrass seed is produced  
134,000 acres in Oregon (87,000 acres annual and 47,000 acres perennial)  
nearly \$13 million—½ the total state grass seed sales  
75% coming from Linn County.
- PROCESSING**

added about 12% or \$3.7 million to the value of sales of all seeds.
- ECONOMIC IMPACT**

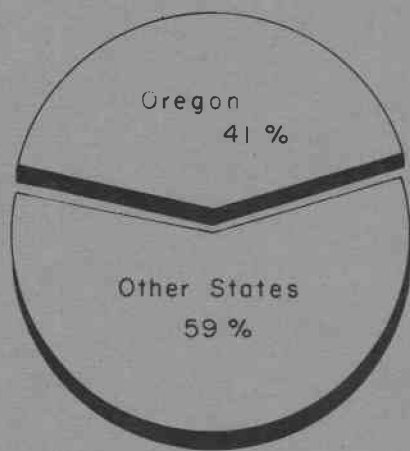
from the ENTIRE seed industry is estimated at \$43.5 million, 1.4 times the  
original \$31 million income.

**ECONOMIC IMPACT**

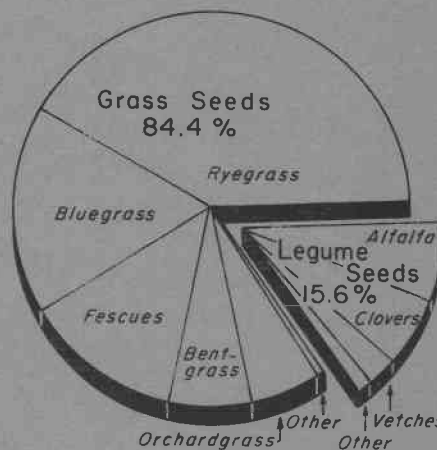
from the GRASS seed industry is estimated at \$36.4 million.
- REAL PROPERTY TAXES OF WHICH**

amounted to about \$1.6 million from all seed crop acres  
\$1.3 million came from grass seed lands.

Based on 1968 when a higher sales value of ryegrass seed offset declines for other seeds resulting in an increased value of all seeds.



U.S. Grass and Legume Seed Production, 1968



Oregon's Seed Industry, 1968

# *Oregon's Grass and Legume Seed Industry* *in* *Economic Perspective*

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## *Acknowledgments*

Stanley D. Miles, Farm Management Technologist, was of great assistance in providing and interpreting the enterprise data sheets shown in Appendix II. Mr. Miles and certain county extension agents met with grass seed growers to develop the estimates of cost contained in the enterprise data sheets.

The Oregon Seed Council provided funds for compiling the data and publishing this report.

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# OREGON'S GRASS AND LEGUME SEED INDUSTRY IN ECONOMIC PERSPECTIVE

## Introduction

The seed industry is important to the economy of Oregon and especially to the many people who depend on the industry for their livelihood. Types of seed grown in Oregon include corn and small grain, vegetable, sugar beet, potato, grass, and legume seeds. However, the people of Oregon commonly think of only grasses and legumes when referring to the state's seed industry. This common tradition is followed in this report so that reference to "all seeds" and "the seed industry" include only grasses and legumes grown for seed. An effort is made herein to examine the grass and legume seed industry in economic perspective. A historical background section briefly traces the growth of the industry. It is followed by a discussion of Oregon's major seed producing areas.

The primary focus of the report is on grass seeds, since the bulk of Oregon's seed industry is comprised of grass seeds. Particular attention is given to ryegrass, the state's most important seed crop. Brief sections are devoted to estimates of value added by seed processing, total economic impact of the seed industry on Oregon's economy, and real property taxes realized from seed crop land. It is hoped that further information about the influence of the seed industry on fertilizer and chemical sales, machinery and equipment sales, investment in machinery and equipment for seed growing, and similar items can be obtained from a more detailed study currently in progress.

## Historical background

The commercial seed industry in Oregon has grown to its present scope largely from grasses and legumes introduced into the state since 1920. By 1958, value of sales from Oregon's total seed crop had reached approximately 18 million dollars and Oregon had become the United States' number one producer of several kinds of seed.<sup>1</sup>

In 1968 the Oregon Crop and Livestock Reporting Service, U.S. Department of Agriculture, estimated that Oregon produced 41 percent of all U.S. grass and legume seed, excluding white clover and Kentucky bluegrass other than Merion. Oregon was the leading producer of annual and perennial ryegrass, chewings fescue, red fescue, bentgrass, crimson clover, hairy vetch, and Merion Kentucky bluegrass seeds.

## Location of seed production in Oregon—all seeds

Oregon is divided into six type-of-farming districts as shown in figure 1. It is of importance to note the amount of total seed production which takes place in each of the six districts and particularly in the individual counties within each district. This comparison is shown in table 1.

In 1968 over 308,000 acres were devoted to production of all seeds in Oregon. The value of sales of all seed from this acreage totaled almost 31 million dollars. Slightly over 25 million dollars (nearly 81%) of these total sales came from Willamette Valley production. Most of the remaining sales orig-

Figure 1. TYPE-OF-FARMING DISTRICTS, OREGON

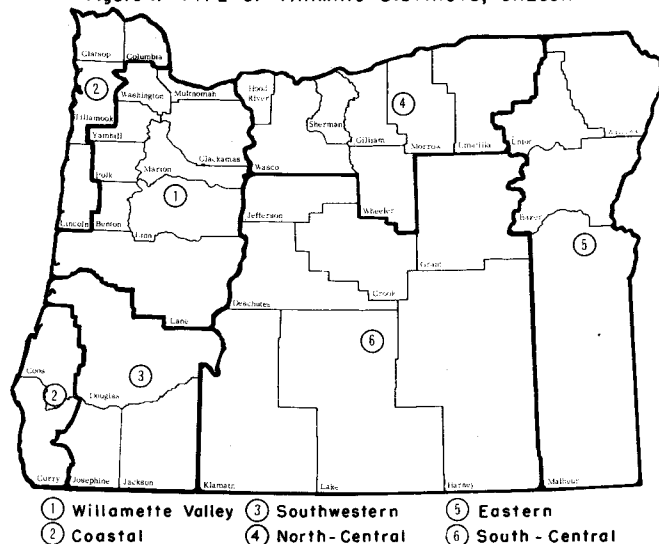


Table 1. All Seeds by Area and Major Counties: Acreage, Production, and Value of Sales, Oregon 1968

Area or county	Acreage	Production			Value of sales
		1,000 lbs.	\$1,000	Percent	
Willamette Valley	274,555	222,523	25,063	80.9	
Coastal	450	74	23	.....	
Southwestern	1,385	852	520	1.7	
North-Central	3,430	1,341	521	1.7	
Eastern	15,742	6,198	2,181	7.0	
South-Central	12,800	8,601	2,667	8.6	
State total	308,362	239,589	30,975	100.0	
<b>Major counties</b>					
Linn	132	141,715	13,192	42.6	
Marion	48,675	18,664	3,634	11.7	
Jefferson	10,070	7,398	2,401	7.6	
Benton	15,910	15,016	2,349	7.6	
Lane	17,695	16,182	1,604	5.2	
Malheur	9,965	3,751	1,497	4.8	
Polk	18,485	13,429	1,197	3.9	
Clackamas	13,885	6,128	1,191	3.8	
Yamhill	16,480	7,237	1,129	3.6	
Washington	11,105	4,152	767	2.5	
Union	5,517	2,343	648	2.1	
Jackson	1,060	761	487	1.6	
Umatilla	3,280	1,266	483	1.6	
Klamath	1,610	994	203	.6	
Other counties	2,305	553	193	.6	
State total	308,362	239,589	30,975	100.0	

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

<sup>1</sup>"Oregon's First Century of Farming," Federal Cooperative Extension Service, Oregon State University, Corvallis, 1959, p. 15.

inated from seed produced in Jefferson, Malheur, and Union counties. Virtually all of the state's grass and legume seeds were produced in 14 counties, eight of which are located in the Willamette Valley (table 1 and figure 2).

### The grass seed industry—84 percent of all seeds

Grass seed (as distinguished from all seeds) was produced on slightly over 250,000 acres in Oregon in 1968. The value of sales of grass seed produced from these acres amounted to over 26 million dollars, or more than 84 percent of the total value of sales of *all* seeds produced in the state. Over 231,000 acres of grass seed were harvested in the Willamette Valley at a sales value of 22.4 million dollars. This represents nearly 86 percent of the value of sales of Oregon's total grass seed production (table 2).

Grass seed sales in Linn County totaled 13 million dollars in 1968, about half of the state total grass seed sales. Linn, Marion, Benton, and Lane counties together accounted for nearly 77 percent of the total state value of sales of grass seed. The only major grass seed producing county lying outside the Willamette Valley is Jefferson County. Value of sales in Jeffer-

son County was just over 9 percent of the state total (figure 3).

**Table 2. Grass Seeds by Area and Major Counties: Acreage, Production, and Value of Sales, Oregon 1968**

Area or county	Acreage	Production			Value of sales	
		1,000 lbs.	\$1,000	Percent		
Willamette Valley	231,470	205,110	22,408	85.7		
Coastal	300	50	16	.....		
Southwestern	915	735	475	1.8		
North-Central	300	135	53	.....		
Eastern	5,042	2,157	573	2.2		
South-Central	12,180	7,807	2,611	10.0		
State total	250,207	215,994	26,136	100.0		
<b>Major counties</b>						
Linn	130,760	141,056	13,024	49.8		
Marion	41,300	15,051	3,190	12.2		
Jefferson	10,020	7,378	2,384	9.1		
Benton	15,275	14,852	2,272	8.7		
Lane	16,850	15,801	1,567	6.0		
Clackamas	9,465	4,253	909	3.5		
Polk	11,070	10,101	876	3.4		
Union	5,042	2,157	573	2.2		
Yamhill	6,295	3,788	527	2.0		
Jackson	890	727	474	1.8		
Klamath	1,060	224	166	0.6		
Washington	455	208	43	.....		
Umatilla	150	60	15	.....		
Malheur	0	0	0	0		
Other counties	1,575	338	116	0.4		
State total	250,207	215,994	26,136	100.0		

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

### Ryegrass seed

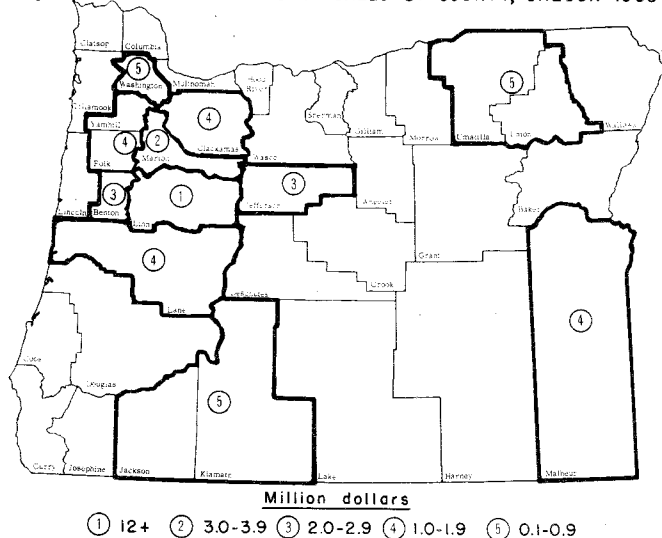
In terms of acreage and value of production, the most important grass seed produced in Oregon is ryegrass. Ryegrass seed was grown on 134,000 acres in 1968 with a value of nearly 13 million dollars. This represents almost half the value of all grass seed grown in Oregon (table 3). Acreage and value of sales for the past decade are shown in figure 4.

The Willamette Valley produces virtually all of the ryegrass seed grown in the United States. Seventy-five percent of all U.S. ryegrass seed is grown in Linn County. Another 10 percent is grown in Lane County, followed by 11 percent in Polk and Benton counties combined.

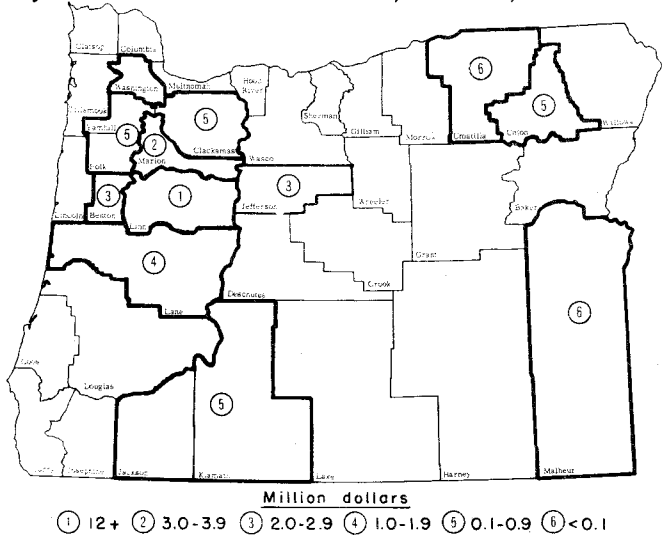
Ryegrass is grown primarily on poorly drained Dayton and similar soil series. These soils have excellent topsoil, but 16 to 24 inches below the surface lies a 12-inch layer of highly impermeable clay material. This restrictive layer results in a water table at or near the surface during most of the November through April rainy season. Spring tillage and fall harvest are often hampered because of wetness. Available manganese often reaches levels which are toxic to some crops.

A study initiated by the Agricultural Experiment Station in 1963 indicated that with a combination of supplemental summer irrigation, provision of surface drainage, and certain cultural practices, satisfactory yields could be obtained from lotus and white clover; corn for silage and grain; bush green beans and dry beans; sweet corn and green peas. However,

**Figure 2. ALL SEEDS: VALUE OF SALES BY COUNTY, OREGON 1968**



**Figure 3. GRASS SEEDS: VALUE OF SALES, BY COUNTY, OREGON 1968**



**Table 3. Grass and Other Seeds by Type: Acreage, Production, and Value of Sales, Oregon 1968**

Seed	Acreage	Production	Value of sales	
		1,000 lbs.	\$1,000	Percent
Grass seed				
Ryegrass	134,000	163,480	12,845	41.5
Other Kentucky				
Bluegrass	27,000	15,795	4,502	14.5
Bentgrass	28,000	6,160	2,248	7.3
Orchardgrass	8,590	7,200	1,925	6.2
Red Fescue	15,000	6,450	1,354	4.4
Chewings Fescue	16,000	5,760	1,267	4.1
Tall Fescue	15,500	9,145	1,235	4.0
Merion Kentucky				
Bluegrass	4,500	1,575	669	2.2
All Wheatgrass	1,217	229	67	.....
Bromegrass	240	100	15	.....
Sudan	160	100	5	.....
Tall Oat	.....	.....	4	.....
Total grass seed	250,207	215,994	26,136	84.4
Other seeds				
Alfalfa	13,500	5,130	2,026	6.5
Crimson Clover	14,500	5,365	1,175	3.8
Red Clover	8,000	1,080	428	1.4
Hairy Vetch	8,000	3,280	403	1.3
Common Vetch	6,800	4,120	288	0.9
Austrian Peas	4,750	4,035	161	0.1
White and Ladino				
Clover	1,385	346	149	.....
Lotus Major	400	39	35	.....
Subterrean Clover	270	80	28	.....
Mixed Vetch	400	80	4	.....
Alsike Clover	50	20	3	.....
Hungarian Vetch	100	20	2	.....
Total other seeds	58,155	23,595	4,839 <sup>1</sup>	15.6
State total	308,362	239,589	30,975	100.0

Totals may not sum due to rounding.

<sup>1</sup> Includes \$137,000 of miscellaneous seeds.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

two critical factors must be taken into account. First, it is questionable whether irrigation and surface drainage are economically feasible. Second, there is at present no shortage of higher quality land for production of horticultural crops. The major deterrents to expansion of these crops are limited market demand and prices rather than availability of suitable

cropland. In most cases, access to market requires contractual agreements with processors.<sup>2</sup>

**Annual and perennial ryegrass seed.** Both annual and perennial varieties of ryegrass seed are grown in Oregon. Annual ryegrass seed was grown on about 87 thousand acres in the Willamette Valley in 1968. Perennial ryegrass seed was grown on about 47 thousand acres. In other words, approximately two-thirds (65%) of Oregon's 134 thousand acres of ryegrass seed was of the annual variety. Annual ryegrass yields have averaged approximately 1,300 pounds per acre since 1964. Perennial ryegrass yields have averaged about 860 pounds per acre over the same period.

Along with an appreciable yield difference is a significant price difference between annual and perennial ryegrass seed. Perennial ryegrass, while having a lower seed yield, has consistently commanded a higher price per pound than annual ryegrass seed. For a given year it is a combination of yield and price that determines which of the two crops results in the higher gross dollar return per acre. Acreage, production, yield, value of sales, and price behavior of annual and perennial ryegrass seed for the ten-year period, 1959-1968, are shown in figure 5. More detailed comparisons can be made from Appendix I. Combinations of cultural practices and approximations of costs of production can be compared from the enterprise data sheets presented in Appendix II. To understand the uses and limitations of the enterprise data sheets, it is extremely important to carefully read the pages at the beginning of Appendix II.

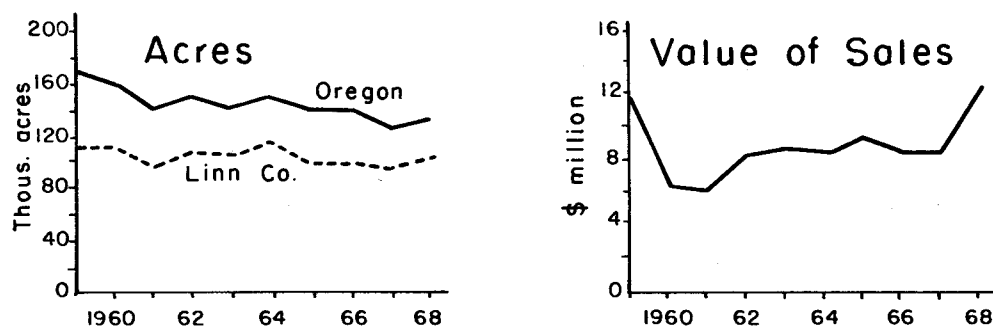
#### Other grass seeds

Acreage and value of sales, 1959-68, for bentgrass, red fescue, chewings fescue, tall fescue, and Merion Kentucky bluegrass are shown graphically in figure 6. A more complete set of detailed tables and graphs showing acreage, production, value of sales, yield, and price for these grasses as well as annual and perennial ryegrass is presented in Appendix I. Limited tables for Kentucky bluegrass other than Merion and orchardgrass are also included in the Appendix.

Enterprise data sheets are presented in Appendix II for Newport bluegrass, bentgrass, orchardgrass, fine fescue (includes red and chewings), and Merion bluegrass. Production

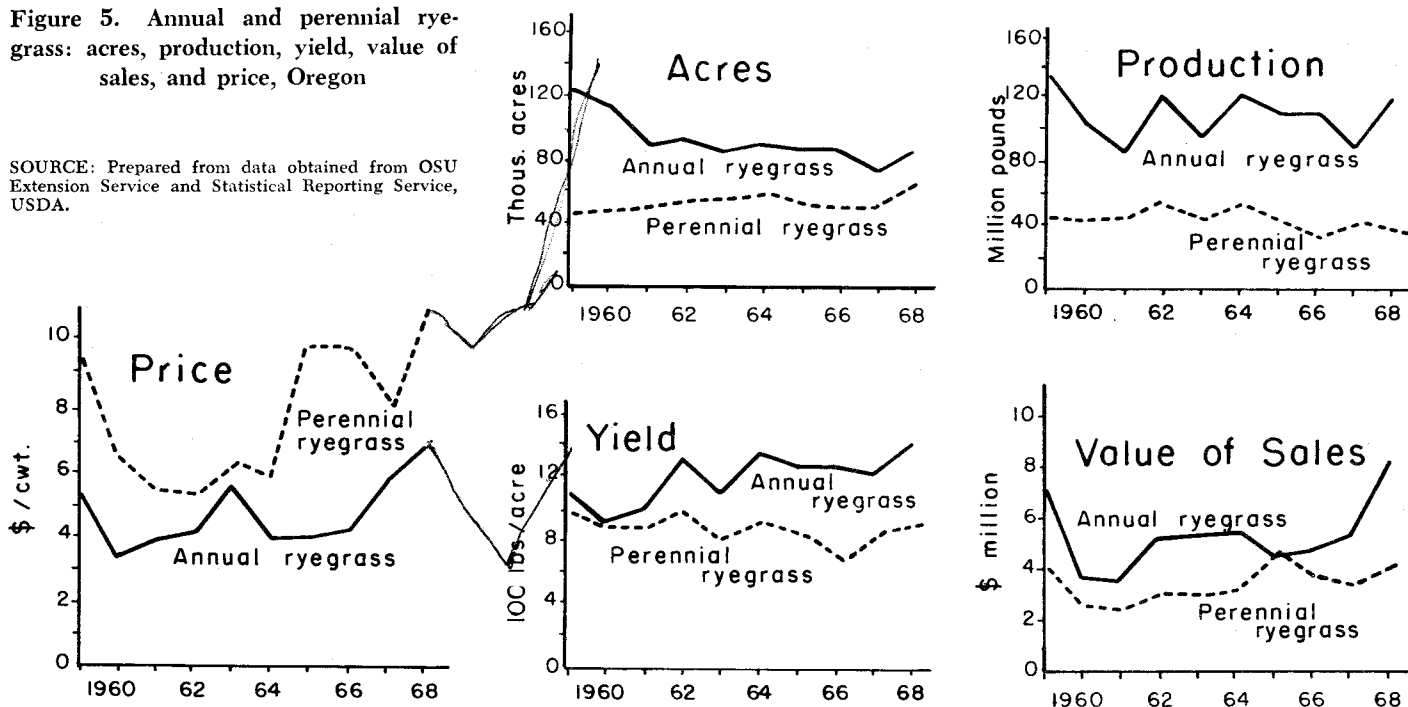
<sup>2</sup> For further discussion see H. J. Mack and W. H. Foote, "Alternative Crops to Grass Seed Production on Poorly Drained Soils," Soils Air Resources Center, Oregon State University, Corvallis, January 1969.

**Figure 4. All Ryegrass Seed: Acres and Value of Sales, Oregon**



**Figure 5. Annual and perennial ryegrass: acres, production, yield, value of sales, and price, Oregon**

SOURCE: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.



costs shown in the enterprise data sheets are approximations of costs which could be expected in the local area for which the enterprise data sheets were developed, using the combination of cultural practices listed. It is imperative that the two pages at the beginning of Appendix II be studied in order to understand the uses and limitations of the enterprise data sheets.

#### Value added by processing

A study recently completed at Oregon State University showed that cleaning, sacking, and handling added 3.2 million dollars to the value of Oregon's 1967 seed crop (all seeds).<sup>3</sup> This was nearly 12 percent of the total value of grass and legume seed before processing. Payrolls amounted to 1.3 million dollars or 41 percent of the value added by processing.

Assuming, based on 1967 information, that processing added 12 percent to the value of Oregon's total seed crop in 1968, the value added by processing is estimated at 3.7 million dollars. Adding this 3.7 million dollars to a total seed crop value of 31 million dollars (before processing), the total processed value of Oregon's 1968 crop was approximately 34.7 million dollars after cleaning and sacking.

There has been some increase in the amount of processing taking place in Oregon in very recent years. Blending and small packaging of grass seeds are being increased within Oregon rather than leaving this to distributors outside the state. To the extent that this form of processing continues to increase, employment and payroll accruing to seed processing will increase accordingly.

#### The economic significance of Oregon's seed industry

Seed sales provided Oregon farmers with 31 million dollars in 1968. As this 31 million dollars moves through the economy,

additional income is generated and the impact of the "seed dollar" is magnified.

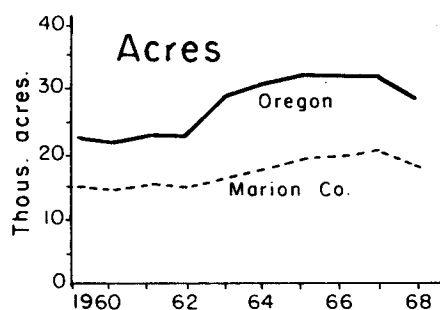
As the effect of a transaction is traced through the many people involved, it becomes apparent how the income impact is realized through ensuing transactions. As this chain of transactions evolves, there are essentially three forces which reduce the final impact by steadily removing dollars from the state's economy: 1) savings by individuals, 2) out-of-state purchases by individuals, and 3) out-of-state purchases by businesses. As a given dollar circulates through the economy, the "leakages" claim a share at every point, so that each time the dollar turns over, it has been reduced in size.

To illustrate how impact is determined, an example is presented in table 4. While this table represents only an example, a reasonable approximation of the impact is obtained. Below the table is the multiplier formula, giving the number (multiplier) by which to multiply the original income in order to calculate total impact. Using the formula or working out the result step-by-step in the table will yield the same estimates.

The magnitude of the economic impact is directly determined by the three forces mentioned above. Incomplete data requires that assumptions be made about the exact size of these three forces. These assumptions are based on other studies and an understanding of economic activity in Oregon's economy. These three assumptions are: 1) individuals will save 20 percent of any additional income they receive; 2) consumers will spend about 10 percent of their income out-of-state for vacations, mail purchases, and similar purchases; and 3) businessmen, both wholesalers and retailers, will spend about 60 percent of their gross income out-of-state, mainly for purchase of equipment and goods for resale such as refrigerators, television sets, automobiles, machinery, clothes, furniture, and other goods manufactured outside the state. These assumptions are as realistic as possible from existing information and represent what would be expected from an expensive time-consuming research project.

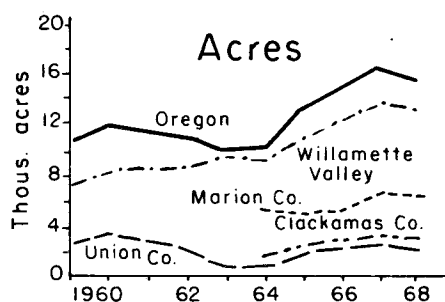
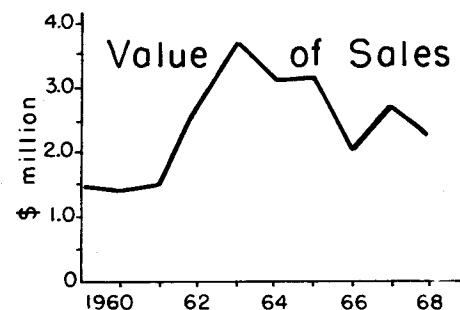
<sup>3</sup> Gerald E. Korzan, "Oregon's Food and Fiber Industry," Special Report 226 of the Agricultural Experiment Station, Oregon State University, Corvallis, 1968. The definition of all seeds in Korzan's report differs slightly from those included in this report.

Figure 6. Selected Grass Seeds: Acreage and Sales, Oregon



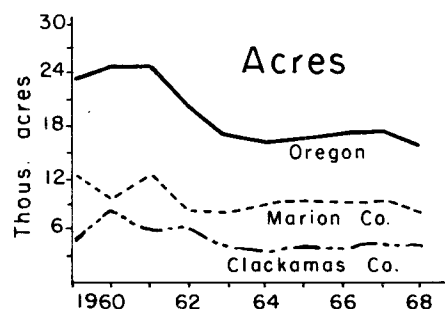
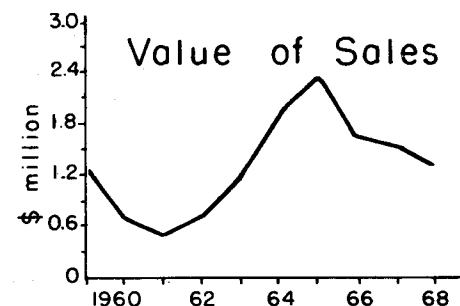
**Bentgrass**

Oregon produces nearly all of the bentgrass seed grown in the United States. The Willamette Valley had over 86% of Oregon's bentgrass seed acreage in 1968.



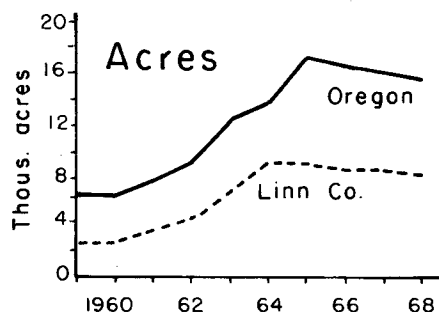
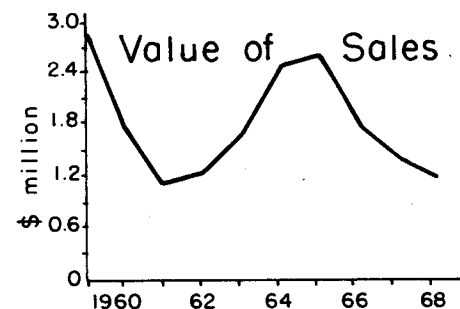
**Red Fescue**

Since 1962 Oregon has been producing over 95% of the red fescue seed grown in the United States. The Willamette Valley has 70-90 percent of Oregon's red fescue acreage.



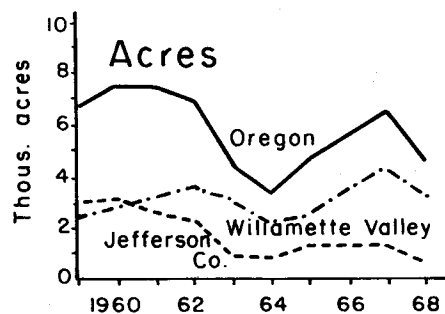
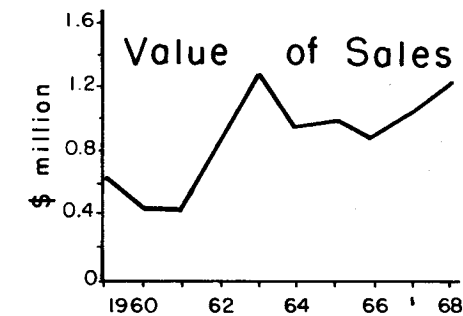
**Chewings Fescue**

Oregon produces virtually all of the chewings fescue seed grown in the United States. Over 95% of Oregon's chewings fescue acreage is in the Willamette Valley.



**Tall Fescue**

Oregon has produced 10-20 percent (ave. 15.5) of the United States production of tall fescue seed since 1959. Over 95% of Oregon's tall fescue acreage is in the Willamette Valley.



**Merion-Kentucky Bluegrass**

Acreage was reported for Linn and Marion counties beginning in 1966. Since that time these two counties combined produced approximately 70 percent of the Merion-Kentucky bluegrass grown in the Willamette Valley.

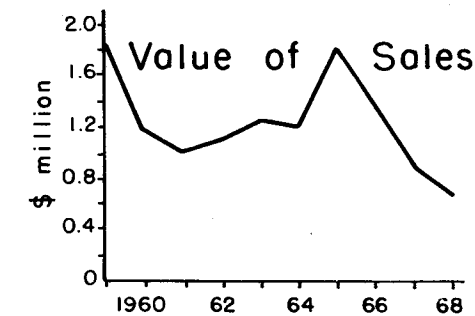


Table 4. An Example Demonstrating the Economic Impact of the Seed Industry in Oregon

Round	State-wide impact (1)	Total savings <sup>1</sup> (2)	Total consumption (3)	Consumer leakage <sup>1</sup> (4)	Local consumption (5)	Business leakage <sup>1</sup> (6)	Retained in state's economy (7)
<i>Thousand dollars</i>							
1	31,000		24,800		22,320		8,928
2		8,928	7,142		6,428		2,571
3		2,571	2,057		1,851		740
4		740	592		533		213
5		213	170		153		61
6		61	49		44		18
7		18	14		13		5
8		5	4		4		2
9		2	2		2		1
10		1	1		1		0

Total impact 43,539

<sup>1</sup> The headings for these columns are retained to illustrate when leakages occur.

Column 1—Original income and successive amounts retained in state's economy

Column 2—Column 1 times assumed marginal propensity to save (MPS) of .20

Column 3—Column 1 times assumed marginal propensity to consume (MPC) of .80

Column 4—Column 3 times assumed consumer leakage of .10

Column 5—Column 3 times 1 minus (consumer leakage)

Column 6—Column 5 times assumed business leakage of .60

Column 7—Column 5 times 1 minus (business leakage)

General multiplier formula:

$$k = \frac{1}{1 - (MPC)(1 - L_c)(1 - L_b)}$$

where:  $k$  = income multiplier  
 $MPC$  = marginal propensity to consume  
 $L_c$  = consumer leakage  
 $L_b$  = business leakage

Applying the formula:

$$k = \frac{1}{1 - (.80)(1 - .10)(1 - .60)} = \frac{1}{1 - (.80)(.90)(.40)} = 1.404494$$

where:  $k$  = income multiplier  
 $.80$  = marginal percentage consumed  
 $.10$  = consumer leakage  
 $.60$  = business leakage

Beginning with round 1 in the table, notice how the initial expenditure of the 31 million dollars is passed from consumers to businessmen. By the time an Oregon business receives payment for goods and services, savings and consumer leakage have reduced local consumption by nearly one-third. After a business pays the suppliers for the goods sold the consumer, only 29 percent (\$8,928,000) of the original expenditure is returned to the state's economy in the form of personal income.

In this example, 10 rounds of spending completely exhaust the original expenditure. The first round (or "turnover") of spending accounts for 90 percent of the total impact. By the seventh round, virtually all of the final economic impact has already occurred and the tenth round completes the process.

Summing the impact of the successive rounds reveals a total economic impact on the state's economy of 43,539,000 dollars or 1.404494 times the beginning expenditure. This represents the *seed* industry's impact on the state.<sup>4</sup> The economic impact of the *grass seed* industry is slightly lower. Rounding

the income multiplier to 1.4, grass seed sales of 26 million dollars generate a total economic impact of 36.4 million dollars to the economy of the state.

The governing factors—savings, consumer leakage, and business leakage—were determined by estimates guided by results of studies made in other states. Though these estimates are not necessarily exact, any reasonable change would not materially affect the economic impact. The multiplier will be less than two and the total impact will thus be less than double the original income. This statement would hold true for most industries in Oregon. Even if consumer leakage were very small (say 5 percent) and business leakage were also low (say 35 percent), the resulting multiplier would be 1.98, still below two.

<sup>4</sup> A detailed breakdown estimating the seed industry's influence on individual wholesale and retail businesses is not possible here due to incomplete data.

### Real property taxes

Seed growers in the 14 major seed producing counties are paying an average property tax of \$5.35 per acre on seed crop lands for the current tax year, according to assessors in these counties (table 5).<sup>5</sup> Applying this rate to the total 308,362 seed crop acres for 1968, Oregon seed growers paid about 1.6 million dollars in property taxes on their seed producing land. More than 1.3 million of these tax dollars can be attributed to grass seed land. It must be remembered that these figures say nothing about taxes paid on farm dwellings or other buildings, machinery and equipment, or other property.

### Summary

In 1968 Oregon produced 41 percent of the total U.S. grass and legume seeds on approximately 308,000 acres. The value of Oregon's total seed crop to farmers was about 31 million dollars. The Willamette Valley accounted for 25 million dollars, or nearly 81 percent of the total state seed crop value. Nearly 43 percent of the total state seed crop value was in Linn County.

Grass seeds were grown on about 250,000 acres at a value of 26 million dollars. Of this amount 86 percent, or 22.4 million dollars, was in the Willamette Valley. About one-half (13 million dollars) was in Linn County.

Ryegrass seed was grown on 134,000 acres in 1968 at a value of nearly 13 million dollars—almost one-half of the total value of grass seed sales. Essentially all of the U.S. ryegrass seed is produced in the Willamette Valley, with 75 percent being grown in Linn County. Most ryegrass seed is grown on poorly drained soils on which alternative uses are quite limited. About 65 percent (87 thousand acres) of all ryegrass acreage is annual ryegrass. Perennial ryegrass is grown on the remaining 35 percent (47 thousand acres).

Cleaning, sacking, and handling added about 12 percent,

<sup>5</sup> This is a weighted average based on 1969-70 county tax rates and the proportion of total state seed crop acres in each respective county.

Table 5. All Seeds: Real Property Taxes on Seed Crop Lands, 14 Major Counties, Oregon 1969-1970

County	Average tax rate per acre <sup>1</sup>	Acreage all seeds	Total tax on all seed land
Linn	\$5.08	132,320	\$672,190
Marion	4.44	48,675	216,120
Clackamas	6.14	13,885	85,250
Polk	4.57	18,485	84,480
Jefferson	8.25	10,070	83,080
Yamhill	4.69	16,480	77,290
Washington	6.95	11,105	77,180
Malheur	7.50	9,965	74,740
Lane	4.20	17,695	74,320
Benton	3.46	15,910	55,050
Union	5.03	5,517	27,750
Umatilla	6.43	3,280	21,080
Jackson	12.51	1,060	13,260
Klamath	5.61	1,610	9,030
Total	5.35 <sup>2</sup>	308,362 <sup>3</sup>	1,570,820

<sup>1</sup> Tax rates shown in this table were compiled from information obtained from assessors in the respective counties. The proportion of land taxed on a basis of true cash value and that proportion taxed on a basis of farm use have been taken into account.

<sup>2</sup> This average is weighted according to the proportion of total state seed crop acreage in each respective county.

<sup>3</sup> Includes 2,305 acres in other counties.

or 3.7 million dollars, to the value of the 1968 total seed crop. Blending and small packaging of grass seeds has been increasing within Oregon in recent years.

The economic impact from Oregon's 31 million dollar total seed industry is estimated at approximately 43.5 million dollars. This estimated impact figure is 1.4 times the original seed industry income. Applying the same multiplier to the 26 million dollar grass seed industry represents an economic impact of 36.4 million dollars to the economy of the state.

Finally, property taxes accruing to all seed crop land totaled approximately 1.6 million dollars in 1968.

# APPENDIX I

## Detailed Tables, Major Grass Seeds: Acreage, Yield, Production, Price, and Value of Sales

### ANNUAL RYEGRASS

The Willamette Valley produces virtually all of the annual ryegrass seed grown in the United States. The 1968 acreage totaled 87,000 acres—65 percent of all ryegrass seed acreage.

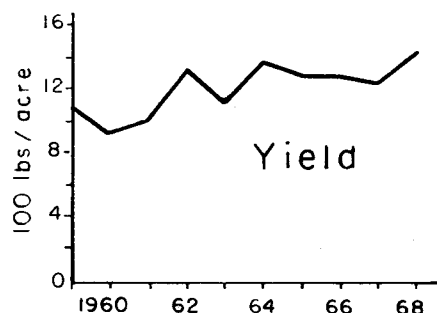
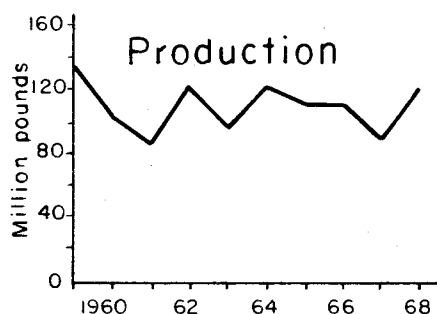
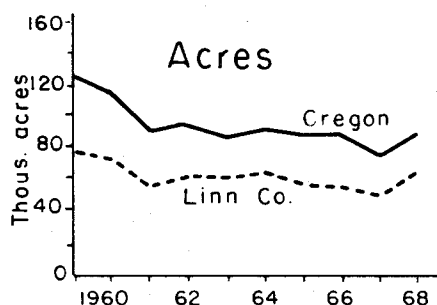


Table 6. Annual Ryegrass Seed: Acreage, Yield, Production, Price, and Value of Sales, Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed	Price received by farmers	Value of sales
	1,000	lbs/acre	1,000 lbs	Percent (of U.S.)	\$1,000
1959	124	1,100	136,400	Essentially 100% of U.S.	7,420
1960	115	930	106,950	Essentially 100% of U.S.	3,656
1961	90	1,000	90,000	Essentially 100% of U.S.	3,561
1962	95	1,300	123,500	Essentially 100% of U.S.	5,309
1963	88	1,105	97,275	Essentially 100% of U.S.	5,746
1964	91	1,355	123,305	Essentially 100% of U.S.	5,055
1965	88	1,290	113,480	Essentially 100% of U.S.	4,603
1966	88	1,279	112,520	Essentially 100% of U.S.	4,871
1967	75	1,218	91,380	Essentially 100% of U.S.	5,339
1968	87	1,404	122,120	Essentially 100% of U.S.	8,463
Average	94	1,198	111,693	Essentially 100% of U.S.	5,502

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Table 7. Annual Ryegrass Seed: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
Acres						
Benton	7,300	6,200	7,400	6,800	5,000	3,500
Lane	11,940	7,700	8,800	10,800	8,000	6,300
Linn	65,260	64,100	56,200	55,700	49,700	64,500
Marion	4,990	1,955	3,900	3,000	2,500	2,800
Polk	9,860	9,050	8,700	8,525	7,000	7,200
Yamhill	2,730	1,960	2,725	2,900	2,500	2,450
Willamette Valley total <sup>1</sup>	102,400	91,000	88,000	88,000	75,000	87,000
State total	102,400	91,000	88,000	88,000	75,000	87,000

Totals may not sum due to rounding.

<sup>1</sup> Includes Clackamas, Multnomah, and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

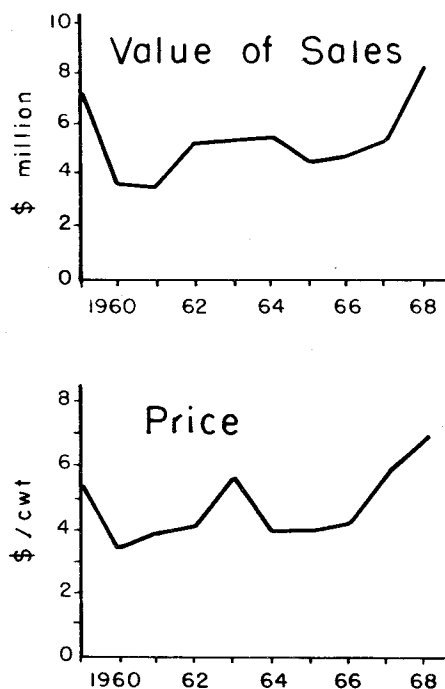


Table 8. Annual Ryegrass Seed: Production and Value of Sales, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968	Prod. by county 1968
1,000 lbs. (\$1,000)							Percent
Benton	6,968 (324)	6,950 (289)	10,100 (430)	9,300 (441)	6,500 (380)	5,670 (454)	4.6
Lane	12,578 (595)	10,460 (430)	11,100 (453)	12,800 (559)	8,800 (515)	9,495 (652)	7.8
Linn	77,162 (3,512)	91,870 (3,713)	77,750 (2,961)	75,740 (3,127)	64,700 (3,785)	93,517 (6,426)	76.6
Marion	4,290 (195)	1,960 (80)	3,850 (185)	3,650 (163)	2,500 (146)	2,660 (197)	2.2
Polk	8,134 (400)	10,180 (457)	8,120 (432)	8,080 (437)	6,300 (362)	8,280 (538)	6.8
Yamhill	2,127 (105)	1,857 (85)	2,365 (131)	2,785 (136)	2,400 (140)	2,328 (184)	1.9
Willam- ette Valley total <sup>1</sup>	110,825 (5,138)	123,305 (5,055)	113,480 (4,603)	112,520 (4,871)	91,380 (5,339)	122,120 (8,463)	100.0
State total	110,825 (5,138)	123,305 (5,055)	113,480 (4,603)	112,520 (4,871)	91,380 (5,339)	122,120 (8,463)	100.0

Totals may not sum due to rounding.

<sup>1</sup> Includes Clackamas, Multnomah, and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

## PERENNIAL RYEGRASS

Virtually all of the perennial ryegrass seed produced in the United States is grown in the Willamette Valley. Approximately 47,000 acres were grown in 1968—35 percent of all ryegrass seed.

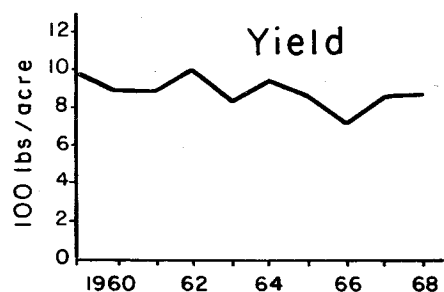
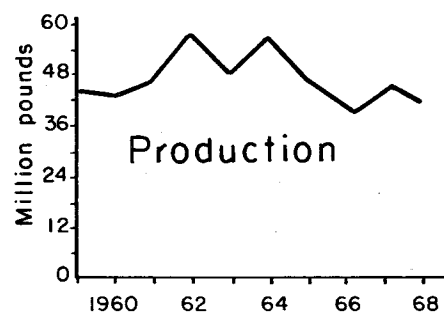
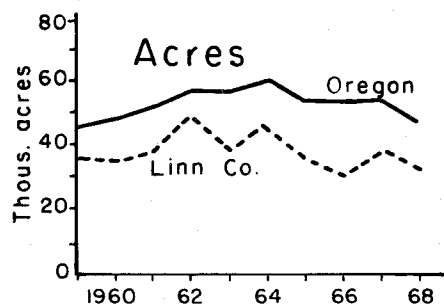


Table 9. Perennial Ryegrass Seed: Acreage, Yield, Production, Price, and Value of Sales, Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed	Price received by farmers	Value of sales
	1,000	lbs/acre	1,000 lbs.	\$/cwt	\$1,000
1959	46	980	45,080	Essentially 100% of U.S.	4,396
1960	48	896	43,010	Essentially 100% of U.S.	2,810
1961	52	890	46,320	Essentially 100% of U.S.	2,535
1962	57	1,005	57,380	Essentially 100% of U.S.	2,192
1963	57	850	48,450	Essentially 100% of U.S.	3,037
1964	60	940	56,385	Essentially 100% of U.S.	3,310
1965	54	870	46,980	Essentially 100% of U.S.	4,675
1966	54	730	39,420	Essentially 100% of U.S.	3,922
1967	53	860	45,580	Essentially 100% of U.S.	3,587
1968	47	880	41,360	Essentially 100% of U.S.	4,382
Average	53	890	47,000	Essentially 100% of U.S.	3,557

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Table 10. Perennial Ryegrass Seed: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
Benton	3,900	3,700	4,100	4,000	3,300	3,000
Lane	3,414	5,000	5,200	4,600	5,200	5,875
Linn	41,460	48,100	42,100	42,700	42,700	36,000
Marion	1,890	1,030	1,100	1,500	900	1,200
Polk	840	1,950	1,300	975	700	700
Yamhill	308	160	175	200	175	200
Willamette Valley total <sup>1</sup>	52,000	60,000	54,000	54,000	53,000	47,000
State total	52,000	60,000	54,000	54,000	53,000	47,000
Willamette Valley percent	100	100	100	100	100	100

Totals may not sum due to rounding.

<sup>1</sup> Includes Clackamas, Multnomah, and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

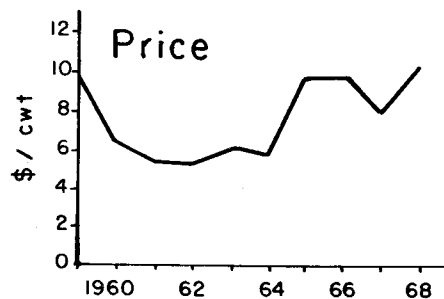
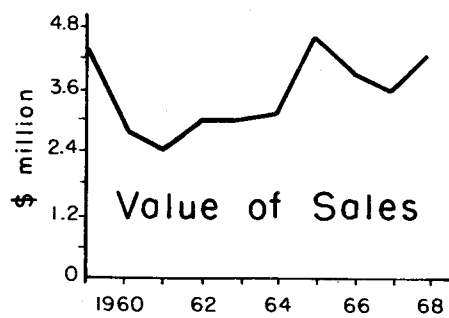


Table 11. Perennial Ryegrass Seed: Production and Value of Sales, Willamette Valley Counties and Oregon 1959-1968

County	Average	1964	1965	1966	1967	1968	Prod. by
	1959-1963						county
							1968
			1,000 lbs.				Percent
			(\$1,000)				
Benton	3,192	2,800	3,700	2,500	2,987	3,300	8.0
	(213)	(164)	(368)	(248)	(231)	(362)	
Lane	3,202	4,700	4,450	3,910	3,510	3,995	9.7
	(210)	(276)	(443)	(389)	(270)	(434)	
Linn	39,400	46,390	36,900	31,310	38,073	32,726	79.1
	(2,565)	(2,723)	(3,671)	(3,115)	(3,007)	(3,430)	
Marion	1,424	950	900	1,050	540	840	2.0
	(95)	(56)	(90)	(105)	(42)	(105)	
Polk	520	1,400	880	520	350	364	0.9
	(33)	(82)	(88)	(51)	(27)	(36)	
Yamhill	199	100	135	115	105	120	0.3
	(14)	(12)	(14)	(12)	(9)	(14)	
Willamette							
Valley total	48,012	56,340	46,965	39,405	45,565	41,345	100.0
	(3,135)	(3,310)	(4,675)	(3,922)	(3,587)	(4,382)	
State total	48,048	56,385	46,980	39,420	45,580	41,360	100.0
	(3,138)	(3,310)	(4,675)	(3,922)	(3,587)	(4,382)	

Totals may not sum due to rounding.

<sup>1</sup> Includes Clackamas, Multnomah, and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

## BENTGRASS

Oregon produces nearly all of the bentgrass seed grown in the United States. The Willamette Valley had over 86 percent of Oregon's bentgrass seed acreage in 1968.

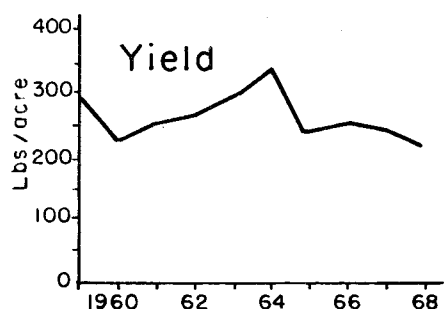
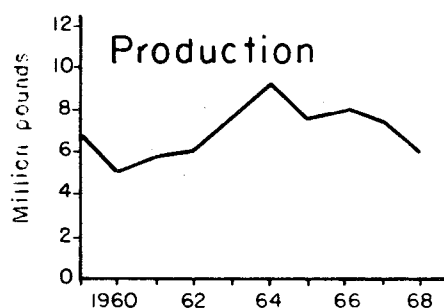
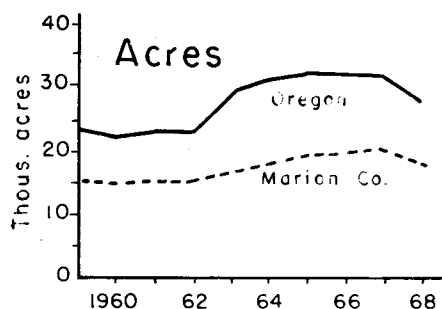


Table 12. Bentgrass: Acreage, Yield, Production, Price, and Value of Sales, Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed		Price received by farmers	Value of sales
	1,000	lbs./acre	1,000 lbs.	Percent (of U.S.)	\$/cwt	\$1,000
1959	23.0	290	6,670	98.5	22.00	1,467
1960	22.0	230	5,060	100.0	28.00	1,410
1961	23.0	255	5,865	100.0	27.50	1,611
1962	23.0	270	6,210	100.0	44.50	2,750
1963	27.0	290	7,830	98.7	48.00	3,740
1964	31.0	310	9,610	98.9	33.50	3,203
1965	32.0	240	7,680	100.0	41.50	3,171
1966	32.0	255	8,160	100.0	25.50	2,071
1967	32.0	245	7,840	98.7	35.00	2,744
1968	28.0	220	6,160	100.0	36.50	2,248
Average	27.3	260.5	7,108	99.4	34.20	2,442

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Table 13. Bentgrass: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
<i>acres</i>						
Benton	660	1,200	1,600	1,400	1,350	2,150
Lane	364	400	450	600	700	450
Linn	2,900	4,900	4,500	5,000	5,400	3,300
Marion	15,260	18,150	19,500	20,000	20,300	18,200
Polk		350	450	400	400	200
Yamhill	1,320	2,050	2,500	2,100	2,000	1,900
Willamette Valley total	20,592	27,200	29,160	29,660	30,310	26,360
Clatsop	370	850	350	300	150	100
Columbia	1,130	1,200	900	400	200	200
Coastal, total <sup>2</sup>	1,580	2,050	1,250	700	350	300
Other counties	1,428	1,750	1,590	1,640	1,340	1,340
State total	23,600	31,000	32,000	32,000	32,000	28,000
<i>Percent</i>						
Willamette Valley	87.2	87.7	91.1	92.6	95.0	93.9
Coastal	6.7	6.6	3.9	2.2	1.0	1.2
Other	6.1	5.6	5.0	5.2	4.0	4.9

Totals may not sum due to rounding.

<sup>1</sup> Includes Clackamas, Multnomah, and Washington counties.

<sup>2</sup> Includes all counties in Coastal District.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

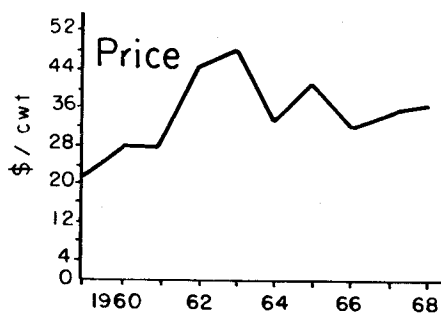
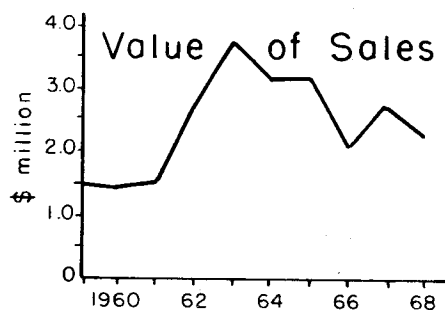


Table 14. Bentgrass: Production and Value of Sales, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968	Prod. by county 1968
	1,000 lbs. (\$1,000)						Percent
Benton	219 (75)	372 (118)	512 (205)	511 (107)	544 (168)	794 (333)	12.9
Lane	109 (33)	92 (34)	144 (72)	192 (40)	283 (100)	94 (47)	1.5
Linn	784 (274)	1,568 (628)	1,192 (532)	1,150 (308)	1,764 (608)	643 (223)	10.4
Marion	4,144 (1,177)	5,990 (1,343)	4,192 (1,457)	4,800 (1,007)	3,964 (1,225)	3,640 (1,125)	59.1
Polk		133 (107)	100 (85)	120 (60)	114 (55)	30 (12)	0.5
Yamhill	400 (158)	697 (228)	875 (262)	777 (147)	784 (242)	532 (154)	8.6
Willamette Valley total	5,678 (1,718)	8,903 (2,475)	7,075 (2,635)	7,615 (1,686)	7,515 (2,432)	5,780 (1,912)	93.8
Coastal, total	267 (153)	271 (232)	223 (112)	119 (34)	62 (18)	50 (16)	0.8
Other counties total	382 (325)	436 (496)	382 (424)	426 (351)	263 (294)	330 (320)	5.3
State total	6,327 (2,196)	9,610 (3,203)	7,680 (3,171)	8,160 (2,071)	7,840 (2,744)	6,160 (2,248)	100.0

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

## RED FESCUE

Since 1962 Oregon has been producing over 95 percent of the red fescue seed grown in the United States. The Willamette Valley has 70-90 percent of Oregon's red fescue acreage.

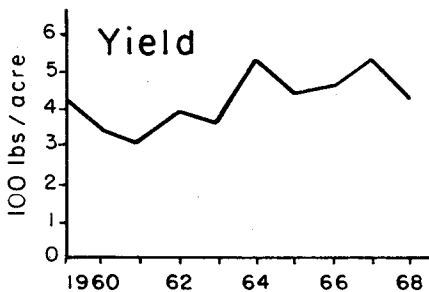
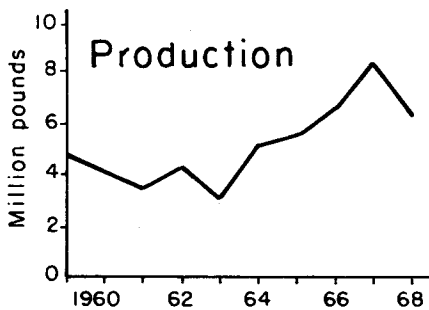
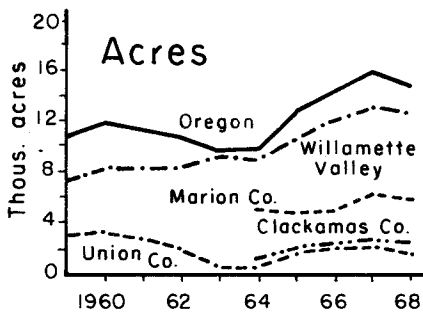


Table 15. Red Fescue: Acreage, Yield, Production, Price, and Value of Sales, Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed		Price received by farmers	Value of sales
	1,000	lbs./acre	1,000 lbs.	Percent (of U.S.)	\$/cwt	\$1,000
1959	11.0	430	4,730	82.6	26.50	1,253
1960	12.0	410	4,920	84.0	17.00	836
1961	11.5	350	4,025	81.8	14.50	578
1962	11.0	440	4,840	95.6	16.50	795
1963	10.0	375	3,750	96.9	36.00	1,343
1964	10.0	525	5,250	98.1	36.50	1,897
1965	13.0	440	5,720	95.0	42.00	2,378
1966	14.5	460	6,670	97.1	25.50	1,683
1967	16.0	530	8,480	95.5	19.00	1,611
1968	15.0	430	6,450	96.0	21.00	1,354
Average	12.4	439	5,484	92.7	25.45	1,373

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Table 16. Red Fescue: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
<i>Acres</i>						
Benton	581	650	950	1,100	950	1,000
Clackamas	1,421	1,300	2,400	2,700	2,800	2,800
Lane	615	550	650	800	800	700
Linn	367	350	400	400	650	650
Marion	3,980	5,150	5,000	5,400	6,500	6,300
Polk	623	700	900	1,000	1,000	800
Yamhill	447	450	500	600	600	600
Willamette Valley total <sup>1</sup>	8,318	9,330	10,980	12,180	13,480	12,980
Union	2,570	650	2,000	2,300	2,500	2,000
Other counties	212	20	20	20	20	20
State total	11,100	10,000	13,000	14,500	16,000	15,000
<i>Percent</i>						
Willamette Valley	74.9	93.3	84.4	84.0	84.3	86.6
Union County	23.1	6.5	15.5	15.9	15.6	13.3

Totals may not sum due to rounding.

<sup>1</sup> Includes Multnomah and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Based on:

1. 150 A. on a 600 A. farm (all in grass seed)
2. 900 lb. yield (clean seed)
3. Spring planted
4. 6 yr. stand life (after estab.)
5. Labor at \$2.50/hour
6. 100 h.p. tractor @ \$5/hour,  
2 plow tractor @ \$2/hour

ESTABLISHMENT YEAR	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural Operations 1/</u>						
Plow (Spring)	.5	1.25	3.60			4.85
Harrow & Roll (3x)	.5	1.25	3.50			4.75
Springtooth & Roll (3x)	.6	1.50	3.90			5.40
Level (2x)	.5	1.25	2.80			4.05
Seed & Fertilize 3/	.2	.50	.80	seed-25#	3.75	
				125#16-20	5.00	10.05
Spray (2,4-D) 3/				1 qt.	.75	
				cus. app.	1.25	2.00
<u>Fixed Charges</u>						
Taxes on land					5.00	5.00
Interest on investment in land \$400 @ 5%					20.00	20.00
Interest on operating capital @ 8%					1.45	1.45
General overhead 2/					1.85	1.85
Establishment cash costs		2.75	5.85		19.05	27.65
Establishment non-cash costs		3.00	8.75		20.00	31.75
Establishment total costs		5.75	14.60		39.05	59.40
Credit for grazing (sheep)						(2.00)
Establishment costs after grazing credit						57.40
Amortized over 6 years @ 7%						12.05/yr.

These data were obtained and computed by county agents and farm management specialists in cooperation with Linn County farmers, October, 1969.

- 1/ Consult your county agent for recommendations on specific cultural practices.
- 2/ 7% of cash costs.
- 3/ Check with your county agent for specific fertilizer and spray recommendations.

ANNUAL PRODUCTION COSTS	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value			Qty.	Value
<u>Cultural Operations</u>						
Fertilize (2x) <u>3/</u>				120#N	15.60	
				30#P2O5	2.40	
				cus.app.	2.00	20.00
Spray <u>3/</u>				1.5 atra.	3.75	
				0th. chem.	1.00	
				cus.app.	1.25	6.00
<u>Harvest Costs</u>						
Swath				custom	4.00	4.00
Combine	.4	1.00	6.50			7.50
Hauling	.4	1.00	2.00			3.00
Processing (includes bags) \$1.25/100 lbs.					11.25	11.25
Certification (60¢/acre + 4¢/100)					.95	.95
Field sanitation (burning)					.75	.75
<u>Fixed Charges</u>						
Taxes on land					5.00	5.00
Interest on land investment \$400 @ 5%					20.00	20.00
Interest on average operating capital @ 8%					2.15	2.15
General overhead <u>2/</u>					3.70	3.70
Cash cost/producing year		1.00	2.50		53.80	57.30
Non-cash cost/producing year		1.00	6.00		20.00	27.00
Total cost/producing year		2.00	8.50		73.80	84.30
Credit for grazing (sheep)						(1.00)
Producing year costs after grazing						83.30
Establishment cost/producing year						12.05
Total cost: producing year + establishment						95.35
Cost/100# at 900#/acre						10.60
Cost/100# at 600#/acre						14.65
Cost/100# at 1200#/acre						8.57

Based on:

1. 120 A. Bentgrass on 300 A. farm
2. 275 #/A. yield
3. 65 h.p. tractor @ \$4/hr.
4. Operators labor @ \$3/hr.
5. Combine labor @ \$2/hr.
6. Sacking labor @ \$1.50/hr.

	INPUTS PER ACRE				
	Labor		Mach. 1/	Other	
	Hrs.	Value		Item	Total Cost
<u>Cultural Operations</u> 2/					
Field burning 3/	.2	.45	.45		.90
Maintenance of firebreaks 4/	.1	.30	.45		.75
Spray				custom	7.00
Rodent & insect control 5/					1.00
Spring fert. & spray	.2	.60	.90	MTL	13.65
Spot spray	.8	2.00	.90	MTL	5.90
<u>Harvest &amp; Hauling</u>					
Combine (2 - 12' S.P. 3 men)	2.0	4.00	12.50		16.50
<u>Other Costs</u>					
Certification					.80
Fire insurance					.30
Cleaning costs & fees				custom	10.30
<u>Fixed Charges*</u>					
Interest on land, \$350 @ 6%					21.00
Taxes on land					5.50
Interest on average operating capital @ 8%					2.20
General overhead 6/					2.60
Total cash costs		3.30	6.90		52.85
Total non-cash costs		4.05	8.30		35.55
Total costs/acre		7.35	15.20		88.40
Amortization of est. costs 7/					5.30
Net cost per acre					93.70
Cost/# 275# yield					34.1¢
Cost/# 350# yield					29.5¢
Cost/# 150# yield					58.5¢

These data were obtained and computed by county agents and farm management specialists in cooperation with Marion County growers, November, 1969.

1/ Machinery and labor hours are not the same.

2/ Consult your county agent for recommendations on specific cultural practices.

3/ Three tractors computed as burning done on joint basis.

4/ Three A. diverted to firebreaks, no loss figured for this.

5/ Not done annually cost pro-rated for annual cost.

6/ 5% cash costs excluding harvest labor.

7/ Establishment cost \$51.75/A. Life of stand 15 years.

\* Charges for management not computed in costs. 5% gross income figure based on average price would equal \$4.10/A.

Based on:

1. 150 acres on 350 acre farm
2. 500# per acre yield
3. Life of stand - 6 yrs. production
4. 4 plow tractor @ \$4/hr.
5. Operators labor @ \$3/hr.
6. Hired labor @ \$2/hr.

	INPUTS PER ACRE				
	Labor		Mach. 1/	Other	
	Hrs.	Value		Item	Value
					Total Cost
<u>*Cultural Practices 2/</u>					
Field burning 3/	.3	.65	.70		1.35
Maintain firebreak	.1	.30	.45		.75
Spray	.1	.30	.45	MTL 6.25	7.00
Fertilize (Fall)	.2	.60	.90	MTL 7.20	8.70
Spot spray (2x)	2.0	4.70	6.00	MTL 2.50	13.20
Fertilize (Spring)	.2	.60	.90	MTL 14.00	15.50
Spray (Spring)	.1	.30	.45	MTL 3.00	3.75
Certification				.90	.90
Fire insurance				1.25	1.25
<u>Harvest &amp; Hauling</u>					
Swathing	.5	1.50	2.75		4.25
Combining (2-12' S.P.)	.7	1.75	8.75		10.50
<u>Other Costs</u>					
Cleaning costs and fees				25.25	25.25
<u>Fixed Charges**</u>					
Interest on land, \$500 @ 6% 5/				30.00	30.00
Taxes on land				8.00	8.00
Interest on average operating capital @ 8%				2.70	2.70
General overhead 4/				3.40	3.40
Total cash costs		5.70	11.20	68.35	85.25
Total non-cash costs		5.00	10.15	36.10	51.25
Total cost/acre		10.70	21.35	104.45	136.50
Amortization of est. costs 6/					16.70
Net cost per acre					153.20
Cost/# 500# yield					30.6¢
Cost/# 700# yield					23.5¢
Cost/# 350# yield					41.2¢

These data were obtained and computed by county agents and farm management specialists in cooperation with Marion County growers, November, 1969.

1/ Machinery and labor hours are not the same.

2/ Consult your county agent for recommendations on specific cultural practices.

3/ Three tractors computed as burning done on joint basis.

4/ 5% cash costs excluding harvest labor.

5/ Considered as average value of foothill and bottom land where fine fescues are typically grown.

6/ Establishment cost \$82.00. Life of stand 6 years.

\* In some cases 2 years summerfallow may be necessary prior to crop establishment. These costs not computed in cost figures. Estimated at \$25 per acre per year.

\*\* Charges for management not computed in cost. 5% gross income figure based on average price would equal \$5.75 per acre.

Based on:

1. 200 A. on a 800 A. grass seed farm
2. 400# yield
3. Fall planted
4. 6 year stand life after estab. year
5. Labor @ \$2.50/hr.
6. 100 h.p. tractor @ \$5/hr.  
2 plow tractor @ \$2/hr.

ESTABLISHMENT YEAR	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value			Qty.	Value
<u>Cultural Operations</u> 1/						
Plow	.5	1.25	3.60			4.85
Harrow & Roll (3x)	.5	1.25	3.50			4.75
Level (2x)	.5	1.25	2.80			4.05
Harrow & Roll (1x)	.2	.50	.40			.90
Chemical seed bed prep.				MTL	11.00	
				appl.	1.50	12.50
Seed and fertilize	.2	.50	.80	3#seed	6.00	
				250# fert.	10.00	17.30
Spray (2,4-D & Banvill D)				MTL	2.50	
				appl.	1.25	3.75
Clipping (6x)	1.5	3.75	4.50			8.25
Fertilize				200#16-20	7.00	
				appl.	1.00	8.00
Karmex application				4#	11.80	
				appl.	1.50	13.30
<u>Fixes Charges</u>						
Taxes on land					6.00	6.00
Interest on land investment, \$500 @ 6%					30.00	30.00
Interest on operating capital @ 8%					3.60	3.60
General overhead 2/					5.15	5.15
Total cash costs		3.00	6.25		68.30	77.55
Total non-cash costs		5.50	9.35		30.00	44.85
Total costs		8.50	15.60		98.30	122.40
Amortized over 6 years @ 8%						26.50

These data were obtained and computed by county agents and farm management specialists in cooperation with Linn County farmers, December, 1969.

<sup>1/</sup> Consult your county agent for recommendations on specific cultural practices.

<sup>2/</sup> Approximately 7% of cash costs.

ANNUAL PRODUCTION COSTS	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural Operations 1/</u>						
Spot spray					3.00	3.00
Fertilize (3x)				mixed	25.00	
				appl.	3.00	28.00
Spray (2,4-D)				MTL	1.00	
				appl.	1.00	2.00
Rust control (3x)				MTL	9.00	
				appl.	4.50	13.50
Boarder spray					1.00	1.00
<u>Harvest Costs</u>						
Swath				custom	2.00	2.00
Combine	1.0	2.50	16.20			18.70
Hauling	1.0	2.50	2.25			4.75
Processing (\$4.50/100#, includes bags)				custom	18.00	18.00
Certification (60¢/A. = 4¢/50#)					.90	.90
M. Bluegrass assoc. fee (2¢/#)					8.00	8.00
Insurance, test, etc.					2.50	2.50
Field sanitation (burning)					2.00	2.00
Karmex application				4#	11.80	
				appl.	1.50	13.30
<u>Fixed Charges</u>						
Taxes on land					6.00	6.00
Interest on land investment, \$500 @ 6%					30.00	30.00
Interest on average operating capital @ 8%					4.50	4.50
General overhead 2/					7.50	7.50
Cash costs/production year	2.50	7.45			112.20	122.15
Non-cash costs/production year	2.50	11.00			30.00	43.50
Total costs/production year	5.00	18.45			142.20	165.65
Amortized establishment costs						26.50
<u>Total cost with amortization and grazing credit</u>						192.15
Cost/100#. at 400#						48.04
Cost/100# at 300#						59.40
Cost/100# at 500#						41.22

Based on:

1. 200 A. on a 800 A. grass seed farm
2. 800# yield
3. Fall planted
4. 8 yr. stand life after estab. year
5. Labor @ \$2.50/hr.
6. 100 h.p. tractor @ \$5/hr.  
2 plow tractor @ \$2/hr.

ESTABLISHMENT YEAR	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural Operations 1/</u>						
Plow	.5	1.25	3.60			4.85
Harrow & Roll (3x)	.5	1.25	3.50			4.75
Level (2x)	.5	1.25	2.80			4.05
Harrow & Roll (1x)	.2	.50	.40			.90
Chemical seed bed prep.				MTL	7.00	
				appl.	1.00	8.00
Seed and fertilize	.2	.50	.80	3# seed	3.75	
				250#16-20	8.75	13.80
Spray (2,4-D & Banvill D)				MTL	2.50	
				appl.	1.25	3.75
Clipping (6x)	1.5	3.75	4.50			8.25
Fertilize				200#16-20	7.00	
				appl.	1.00	8.00
Karmex application				4#	11.80	
				appl.	1.50	13.30
<u>Fixed Charges</u>						
Taxes on land					6.00	6.00
Interest on land investment, \$450 @ 6%					27.00	27.00
Interest on operating capital @ 8%					3.60	3.60
General overhead 2/					4.50	4.50
Total cash costs		3.00	6.25		59.65	68.90
Total non-cash costs		5.50	9.35		27.00	41.85
Total costs		8.50	15.60		86.65	110.75
Amortized over 8 years @ 8%						19.25

These data were obtained and computed by county agents and farm management specialists in cooperation with Linn County farmers, November, 1969.

- 1/ Consult your county agent for recommendations on specific cultural practices.  
2/ 7% of cash costs.

ANNUAL PRODUCTION COSTS	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural Operations 1/</u>						
Spot spray					3.00	3.00
Fertilize (3x)				mixed	25.00	
				appl.	3.00	28.00
Spray (2,4-D)				MTL	1.00	
				appl.	1.00	2.00
Rust control (3x)				MTL	9.00	
				appl.	4.50	13.50
Boarder spray					1.00	1.00
<u>Harvest Costs</u>						
Swath				custom	2.00	2.00
Combine	1.0	2.50	16.20			18.70
Hauling	1.0	2.50	2.25			4.75
Processing (\$3.50/100#, includes bags)				custom	28.00	28.00
Certification (60¢/A. + 4¢/50#)					1.25	1.25
Bluegrass assoc. fee					.80	.80
Insurance, test, etc.					2.50	2.50
Field sanitation (burning)					2.00	2.00
Karmex application				4#	11.80	
				appl.	1.50	13.30
<u>Fixed Charges</u>						
Taxes on land					6.00	6.00
Interest on land investment, \$450 @ 6%					27.00	27.00
Interest on average operating capital @ 8%					4.50	4.50
General overhead 2/					7.50	7.50
Cash costs/production year	2.50	7.45			115.35	125.30
Non-cash costs/production year	2.50	11.00			27.00	40.50
Total costs/production year	5.00	18.45			142.35	165.80
Amortized establishment costs						19.25
Credit for grazing (sheep)						(2.00)
Total cost with amortization and grazing credit						183.05
Cost/100# at 800#						22.85
Cost/100# at 600#						28.28
Cost/100# at 1000#						19.64

Based on:

- |   |   |
|---|---|
| 1. 250 A. on a 600 A. farm (all grass seed) | 4. 750#/acre yield (clean seed)                 |
| 2. Spring planted                           | 5. Labor @ \$2.50/hr. (hand weeding \$1.50/hr.) |
| 3. 6 year life of stand                     | 6. 4 plow tractor @ \$4.00/hr.                  |
|   | 2 plow tractor @ \$2.00/hr.                     |

ESTABLISHMENT YEAR	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural operations 1/</u>						
Plow (Spring)	.5	1.25	3.15			4.40
Disc & Harrow (2x)	.6	1.50	3.60			5.10
Harrow & Roll (2x)	.5	1.25	2.70			3.95
Level (2x)	.5	1.25	2.45			3.70
Harrow & Roll (1x)	.2	.50	1.10			1.60
Chemical seed bed prep. 2/				custom	10.00	10.00
Seed & Fertilize	.3	.75	1.70	3#seed	3.00	13.45
				fert.	8.00	
Spray (24D) (Custom)				mt'l	1.00	2.00
				appl.	1.00	3.85
Mow (2x)	.7	1.75	2.10			
<u>Fixed Charges</u>						
Interest on investment in land; \$400 @ 5%					20.00	20.00
Taxes on land					6.00	6.00
Interest on operating capital					2.00	2.00
General overhead 3/					2.10	2.10
Establishment cash costs		3.00	6.70		33.10	42.80
Establishment non-cash costs		5.25	10.10		20.00	35.35
Establishment total costs		8.25	16.80		53.10	78.15
Costs amortized over 6 years @ 8%						16.90

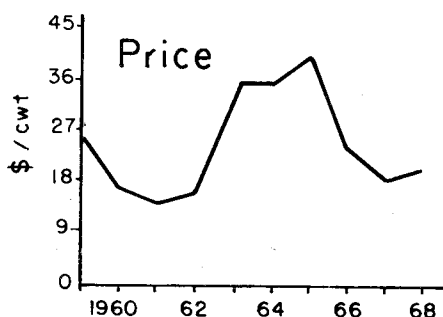
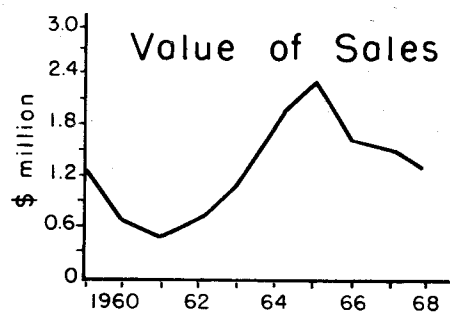
These data were obtained and computed by county agents and farm management specialists in cooperation with Benton County farmers, October, 1969.

1/ Consult your county agent for recommendations on specific practices.

2/ \$20/acre; required on about half the acreage.

3/ 5% of cash costs.

ANNUAL PRODUCTION COSTS	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural operations 1/</u>						
Spray (herbicide in fall)				chem.	7.50	
				appl.	1.00	8.50
Spray (Broadleaf & insect control)				chem.	7.00	
				appl.	1.00	8.00
Fertilize (2x)				fert.	20.00	
				appl.	2.50	22.50
Hauling fertilizer	.2	.50	.45			.95
Spot weed control	1.0	1.50		chem.	.50	2.00
<u>Harvest costs</u>						
Swath	.3	.75	2.50			3.25
Combine	.8	2.00	10.35			12.35
Hauling seed	.8	2.00	3.60			5.60
Processing (3¢/# + 28¢/bag)				custom	26.70	26.70
Certification (60¢/acre + 4¢/50)					1.20	1.20
Field sanitation (burning)					1.00	1.00
Orchard grass commission (33¢/100)					2.40	2.40
<u>Fixed Charges</u>						
Interest on investment in land; \$400 @ 5%					20.00	20.00
Taxes on land					6.00	6.00
Interest on operating capital					4.00	4.00
General overhead 3/					4.25	4.25
Cash costs/producing year		3.00	6.75		85.05	94.80
Non-cash costs/producing year		3.75	10.15		20.00	33.90
Total costs/producing year		6.75	16.90		105.05	128.70
Amortized establishment costs						16.90
Total cost: producing year + establishment						145.60
Cost/100# at 750#/acre						19.40
Cost/100# at 500#/acre						26.10
Cost/100# at 1000#/acre						16.10



**Table 17. Red Fescue: Production and Value of Sales, Willamette Valley Counties and Oregon 1959-1968**

County	Average 1959-1963	1964	1965	1966	1967	1968	Prod. by county 1968
	(\$1,000)						Percent
	1,000 lbs.						
Benton	273 (60)	450 (163)	600 (233)	605 (152)	725 (138)	660 (114)	10.2
Clackamas	636 (136)	700 (253)	1,000 (410)	1,135 (286)	1,400 (273)	1,260 (277)	19.5
Lane	281 (59)	310 (112)	350 (147)	435 (111)	440 (88)	330 (68)	5.1
Linn	152 (35)	170 (61)	220 (86)	225 (56)	360 (65)	260 (54)	4.0
Marion	1,660 (372)	2,880 (1,041)	1,870 (806)	2,480 (628)	3,465 (633)	2,645 (582)	41.0
Polk	285 (62)	300 (109)	355 (138)	440 (111)	500 (100)	320 (48)	5.0
Yamhill	162 (34)	170 (61)	240 (93)	300 (75)	340 (61)	300 (56)	4.7
Willamette Valley total <sup>1</sup>	3,555 (780)	5,064 (1,830)	4,710 (1,944)	5,765 (1,455)	7,370 (1,389)	5,840 (1,211)	90.5
Union county	809 (161)	180 (65)	1,000 (430)	895 (225)	1,100 (220)	600 (141)	9.3
Other counties	89 (20)	6 (2)	10 (4)	10 (3)	10 (2)	10 (2)	
State total	4,453 (961)	5,250 (1,897)	5,720 (2,378)	6,670 (1,683)	8,480 (1,611)	6,450 (1,354)	100.0

Totals may not sum due to rounding.

<sup>1</sup> Includes Multnomah and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

## CHEWINGS FESCUE

Oregon produces virtually all of the chewings fescue seed grown in the United States. Over 95 percent of Oregon's chewings fescue acreage is in the Willamette Valley.

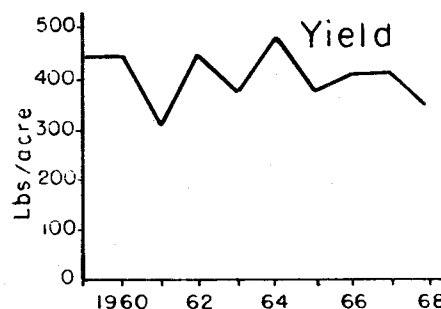
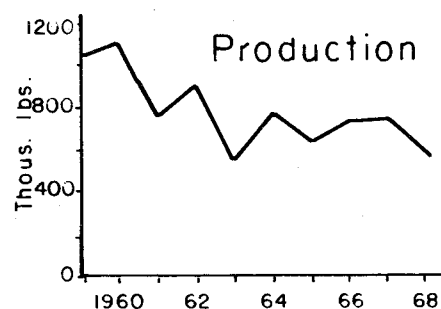
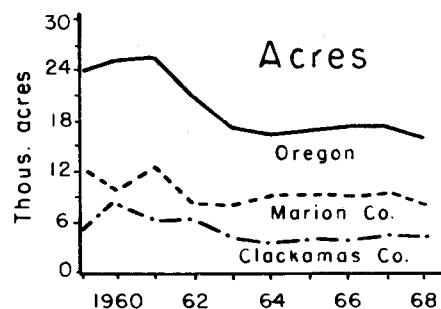


Table 18. Chewings Fescue: Acreage, Yield, Production, Price, and Value of Sales, Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed	Price received by farmers	Value of sales
	1,000	lbs./acre	1,000 lbs.	\$/cwt	\$1,000
1959	24.0	440	10,560	Essentially 100% of U.S.	2,904
1960	25.0	440	11,000	Essentially 100% of U.S.	1,782
1961	25.0	300	7,500	Essentially 100% of U.S.	1,083
1962	20.0	450	9,000	Essentially 100% of U.S.	1,254
1963	17.0	370	6,290	Essentially 100% of U.S.	1,940
1964	16.5	480	7,920	Essentially 100% of U.S.	2,600
1965	17.0	370	6,290	Essentially 100% of U.S.	2,660
1966	17.5	410	7,175	Essentially 100% of U.S.	1,821
1967	17.5	420	7,350	Essentially 100% of U.S.	1,433
1968	16.0	360	5,760	Essentially 100% of U.S.	1,267
Average	19.6	404	7,884	Essentially 100% of U.S.	1,874

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Table 19. Chewings Fescue: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
<i>Acres</i>						
Clackamas	6,300	4,000	4,200	4,400	4,600	4,500
Linn	2,860	1,800	1,900	2,000	1,800	1,700
Marion	10,410	9,300	9,400	9,300	9,500	8,300
Polk	572	650	700	600	600	500
Yamhill	590	400	450	400	380	400
Other counties <sup>1</sup>	626	310	300	300	120	100
Willamette Valley total	21,350	16,460	16,950	17,000	17,000	15,500
All other counties	842	40	50	500	500	500
State total	22,200	16,500	17,000	17,500	17,500	16,000
Willamette Valley percent	96.2	99.8	99.8	97.1	97.1	96.9

Totals may not sum due to rounding.

<sup>1</sup> Includes Lane, Multnomah, and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

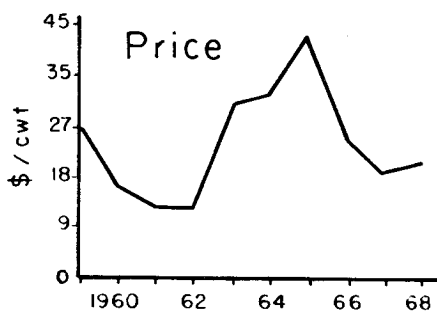
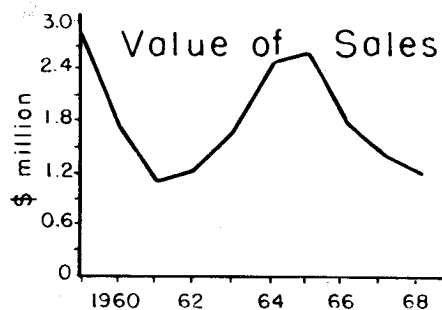


Table 20. Chewings Fescue: Production and Value of Sales, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968	Prod. by county 1968
1,000 lbs. (\$1,000)							Percent
Clackamas	2,774 (537)	1,980 (650)	1,550 (650)	1,800 (448)	1,955 (391)	1,755 (389)	30.5
Linn	1,073 (221)	795 (261)	760 (350)	860 (218)	720 (130)	595 (128)	10.3
Marion	4,083 (850)	4,515 (1,482)	3,360 (1,410)	3,810 (975)	3,922 (733)	2,852 (628)	49.5
Polk	204 (43)	285 (94)	270 (110)	240 (60)	210 (40)	145 (29)	2.5
Yamhill	202 (41)	225 (74)	180 (73)	165 (42)	171 (31)	148 (30)	2.6
Willamette Valley total <sup>1</sup>	8,563 (1,784)	7,912 (2,597)	6,272 (2,653)	7,000 (1,776)	7,030 (1,375)	5,535 (1,213)	96.1
All other counties	307 (9)	8 (3)	18 (7)	175 (45)	320 (58)	225 (54)	3.9
State total	8,870 (1,793)	7,920 (2,600)	6,290 (2,660)	7,175 (1,821)	7,350 (1,433)	5,760 (1,267)	100.0

Totals may not sum due to rounding.

<sup>1</sup> Includes Benton, Lane, Multnomah, and Washington counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

## TALL FESCUE

Oregon has produced 10-20 percent (ave. 15.5) of the United States production of tall fescue seed since 1959. Over 95 percent of Oregon's tall fescue acreage is in the Willamette Valley.

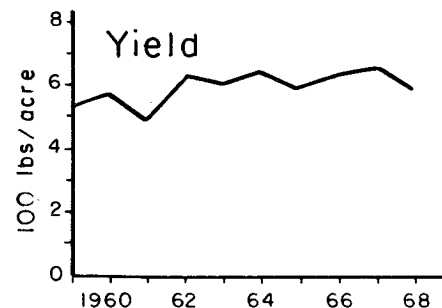
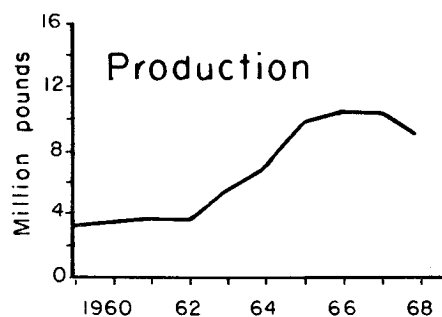
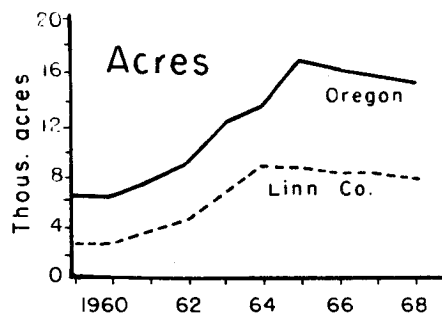


Table 21. Tall Fescue: Acreage, Yield, Production, Price Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed	Price received by farmers	Value of sales
	1,000	lbs./acre	thou. lbs.	Percent (of U.S.)	\$/cwt
1959	6.3	540	3,402	11.9	18.00
1960	6.2	580	3,596	9.6	12.50
1961	7.5	500	3,750	11.1	12.00
1962	9.0	630	5,670	12.9	15.00
1963	12.0	605	7,260	20.8	18.50
1964	15.5	650	10,075	15.3	10.00
1965	17.0	600	10,200	19.4	10.00
1966	16.5	640	10,560	13.4	8.50
1967	16.0	670	10,720	21.5	9.90
1968	15.5	590	9,145	16.2	13.50
Average	12.2	600	7,438	15.5	12.79

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Table 22. Tall Fescue: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
Acres						
Benton	1,030	2,000	2,700	2,500	1,900	2,000
Clackamas	358	450	650	650	750	850
Lane	730	1,550	1,800	1,800	2,000	2,000
Linn	4,090	8,700	8,800	8,500	8,400	8,000
Marion	1,200	1,400	1,900	1,900	1,900	1,800
Polk	296	900	900	900	800	600
Willamette Valley total <sup>1</sup>	7,952	15,200	16,950	16,450	15,925	15,425
All other counties	248	300	50	50	75	75
State total	8,200	15,500	17,000	16,500	16,000	15,500
Willamette Valley percent	97.0	98.1	99.7	99.7	99.6	99.5

Totals may not sum due to rounding.

<sup>1</sup> Includes Multnomah, Washington, and Yamhill counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

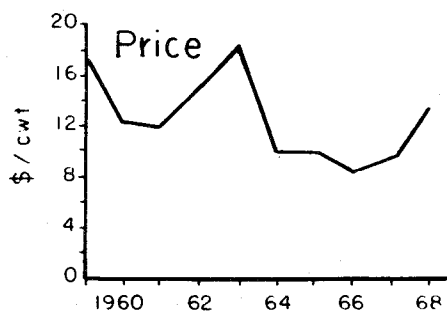
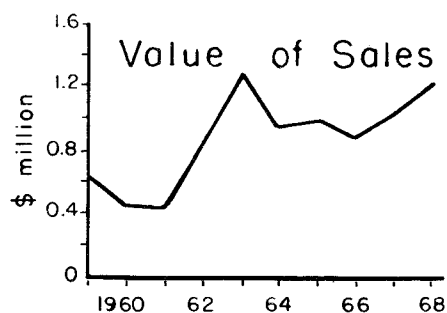


Table 23. Tall Fescue: Production and Value of Sales, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968	Prod. by county 1968
	1,000 lbs. (1,000)						Percent
Benton	549 (85)	1,000 (99)	1,566 (149)	940 (79)	950 (94)	1,017 (124)	11.1
Clackamas	145 (22)	175 (17)	299 (28)	305 (26)	375 (41)	510 (66)	5.6
Lane	391 (63)	1,060 (105)	1,116 (102)	1,000 (84)	900 (89)	1,017 (133)	11.1
Linn	2,759 (428)	6,400 (634)	5,720 (577)	6,640 (559)	6,730 (657)	5,045 (693)	55.2
Marion	609 (94)	700 (69)	1,026 (109)	1,175 (99)	1,282 (122)	998 (142)	10.9
Polk	119 (19)	565 (56)	343 (31)	375 (32)	360 (34)	420 (55)	4.6
Willamette Valley total <sup>1</sup>	4,593 (725)	9,940 (984)	10,170 (1,006)	10,530 (887)	10,692 (1,048)	9,117 (1,230)	99.7
Other counties	143 (13)	135 (13)	30 (4)	30 (2)	28 (3)	28 (5)	0.2
State total	4,736 (738)	10,075 (997)	10,200 (1,010)	10,560 (889)	10,720 (1,051)	9,145 (1,235)	100.0

Totals may not sum due to rounding.

<sup>1</sup>Includes Multnomah, Washington, and Yamhill counties.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

## MERION KENTUCKY BLUEGRASS

Acreage was reported for Linn and Marion counties beginning in 1966. Since that time these two counties combined produced approximately 70 percent of the Merion Kentucky bluegrass grown in the Willamette Valley.

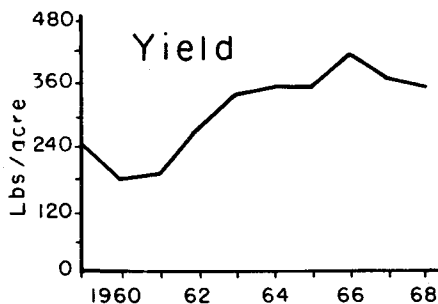
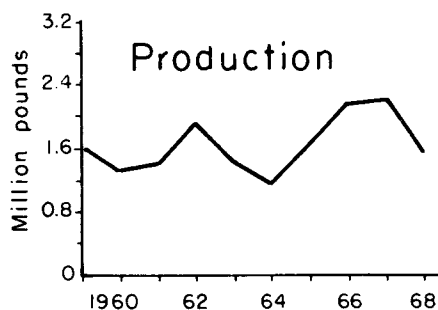
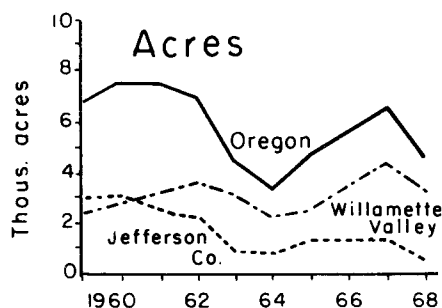


Table 24. Merion Kentucky Bluegrass: Acreage Yield, Production, Price, and Value of Sales, Oregon 1959-1968

Year	Acreage	Yield	Production, clean seed		Price received by farmers	Value of sales
	1,000	lbs./acre	1,000 lbs.	Percent (of U.S.)	\$/cwt	\$1,000
1959	6.7	240	1,608	50.3	115.00	1,849
1960	7.5	180	1,350	42.9	86.00	1,160
1961	7.5	190	1,425	41.2	70.00	998
1962	7.0	280	1,960	48.1	55.00	1,072
1963	4.3	335	1,440	43.2	85.00	1,218
1964	3.5	340	1,190	35.3	104.00	1,225
1965	4.6	355	1,633	44.9	114.00	1,843
1966	5.6	410	2,296	44.6	60.00	1,364
1967	6.5	360	2,340	36.4	38.00	889
1968	4.5	350	1,575	34.9	42.50	669
Average	5.77	304	1,682	39.2	76.95	1,229

Totals may not sum due to rounding.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

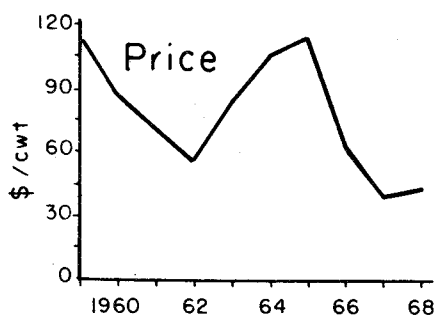
Table 25. Merion Kentucky Bluegrass: Acres Harvested, Willamette Valley Counties and Oregon 1959-1968

County	Average 1959-1963	1964	1965	1966	1967	1968
	Acres					
Willamette Valley total <sup>1</sup>	2,845	2,280	2,450	3,310	4,230	3,150
Union county	1,353	450	900	1,000	1,000	850
Jefferson county	2,300	700	1,200	1,240	1,240	500
Other counties	102	70	50	50	30	0
State total	6,600	3,500	4,600	5,600	6,500	4,500
County	Average 1959-1963	1964	1965	1966	1967	1968
	Percent					
Willamette Valley	43.1	65.1	53.2	59.1	65.0	69.8
Union county	20.5	12.9	19.6	17.9	15.4	19.1
Jefferson county	34.8	20.0	26.1	22.1	19.0	11.1
Other counties	1.5	2.0	1.1	0.9	0.6	0.0

Totals may not sum due to rounding.

<sup>1</sup> Detailed data by county is not disclosed.

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.



County	Average 1959-1963	1964	1965	1966	1967	1968	Prod. by county 1968
	1,000 lbs. (\$1,000)						Percent
Willamette Valley total <sup>1</sup>	771 (598)	714 (734)	927 (1,046)	1,383 (822)	1,615 (605)	1,029 (449)	65.3
Union county	216 (181)	126 (130)	252 (295)	325 (193)	390 (150)	366 (148)	23.2
Jefferson county	541 (454)	294 (303)	420 (463)	558 (331)	315 (126)	180 (72)	11.4
Other counties	29 (27)	56 (58)	34 (39)	30 (18)	20 (8)	.....	0.0
State total	1,557 (1,260)	1,190 (1,225)	1,633 (1,843)	2,296 (1,364)	2,340 (899)	1,575 (669)	100.0

Source: Prepared from data obtained from OSU Extension Service and Statistical Reporting Service, USDA.

Year	Acreage	Production, clean seed		Value of sales
	1,000	1,000 lbs.	Percent (of U.S.)	\$1,000
1959-1967	Official estimates relating to Kentucky bluegrass seed other than Merion are not released in order to prevent disclosure of individual producers in Washington and Idaho.			
1968	27	15,795	50	4,502

Year	Acreage	Production, clean seed	Value of sales	Price received by farmers
	1,000	1,000 lbs.	\$1,000	\$/cwt
1959-1967	Orchardgrass seed growers in Oregon have chosen not to participate in releasing the necessary information for SRS and Extension Service to make official estimates.			
1968	8.6	7,200	1,925	26.73

## **APPENDIX II**

### ***Enterprise Data Sheets***

#### **Purpose**

The purpose of the enterprise data sheets is to provide some guide or estimate of the cost of producing selected grass seeds. It is not expected that these costs will necessarily reflect the average production costs for an area since a variety of production practices and farm sizes would be found. Rather the enterprise data sheets reflect the costs and yield generally expected over time, by experienced, commercial producers using a particular set of production practices for a particular grass seed crop in a particular location. Costs and yields are greatly influenced by the size of operation, the production practices followed, the overall level of management, and farm location. The enterprise data sheets show the consensus of opinion among one group of commercial producers for one farm size and one set of production practices for one area.

#### **Development Procedure**

The following procedure is used to develop enterprise data sheets. A small group (usually about five) of experienced commercial producers is called together. The farm management specialist and/or the county agent lead the discussion. A typical size for the enterprise and a size of farm is determined. The production practices generally followed in the area are listed. The amount of time required to do the job, the kind and size of equipment, and the material used is determined for each practice. Rates for labor costs, material, land values, overhead costs, etc., are also determined. Machinery costs are developed, taking into account the amount of time each machine would typically be used on the specified size of operation.

Calculations are made by the farm management specialist and/or the county agent and a preliminary draft is reviewed by those participating in the meeting. Following the review, the material is duplicated for distribution.

#### **Limitations and Alternatives**

One should be extremely careful in using the enterprise data sheets. These sheets are limited to serving only as a guide in estimating production costs for (1) farms of other sizes, (2) areas other than the one for which the enterprise data sheet was developed, (3) farms with other enterprise combinations, (4) farms employing different combinations of cultural practices, and (5) farms operating with a different resource base. The enterprise data sheets should not be relied upon for purposes of generalizing cost of production estimates for the entire state, or even for the Willamette Valley.

In order to develop representative cost of production figures for the state, the sampling of a cross section of growers of each kind of seed would be necessary. This technique requires collecting data from individual farmers selected in the sample using a field questionnaire designed specifically for this purpose. The data obtained would have to be statistically analyzed, tested, and interpreted before general inferences could be made for any chosen combination of production conditions. Proper weight would then have to be assigned to each combination in order to derive a suitable estimate of production costs for the state or valley for a particular grass, i.e., an estimate which would fall within a certain range.

Following a procedure for each grass such as the one outlined, cost of production estimates could be made for each grass seed crop for the state. Summing these costs would then provide an estimate of total cost of production for the grass seed industry. Such estimates are time consuming and costly to obtain, but will provide accurate estimates of the costs of production for a region, which enterprise data sheets cannot hope to do.

SUMMARY OF ESTIMATED  
PRODUCTION COSTS FOR CERTAIN GRASS SEEDS 1/

Crop	Costs per Acre				- - -Estimated- - - -	
	Cash Costs	Non-Cash Costs	Establish- ment Costs <u>2/</u>	Total <u>3/</u> Costs	Yield	Cost
					lbs./acre	¢/lb.
1. Annual Ryegrass	\$72.55	\$34.15	--	\$104.70	1200 1600* 2000	8.03 6.54 5.66
2. Annual Ryegrass (Grasslanding method)	68.10	27.65	--	93.75	1200 1600* 2000	7.11 5.86 5.11
3. Perennial Ryegrass	57.30	27.00	12.05	95.35	600 900* 1200	14.65 10.60 8.57
4. Bentgrass, Highland	52.85	35.55	5.30	93.70	150 275* 350	58.5 34.1 29.5
5. Fine Fescue	85.25	51.25	16.70	153.20	350 500* 700	41.2 30.6 23.5
6. Merion Bluegrass	122.15	43.50	26.50	192.15	300 400* 500	59.40 48.04 41.22
7. Newport Bluegrass	125.30	40.50	19.25	183.05	600 800* 1000	28.28 22.85 19.64
8. Orchardgrass	94.80	33.90	16.90	145.60	500 750* 1000	26.1 19.4 16.1

\* Expected yield

- 1/ Costs taken from enterprise data sheets. Stanley D. Miles, Extension Farm Management, Oregon State University. (Specific data sheets available in room 213, Extension Hall, OSU).
- 2/ Costs per year based on establishment cost amortized over the life of the stand.
- 3/ \$1 to \$2 credit allocated to certain enterprises for sheep grazing.

Based on:

1. 300 A. on a 600 A. grass seed farm
2. 1600 lb. yield
3. Labor @ \$2.50/hr.
4. 100 h.p. tractor @ \$5/hr.  
2 plow tractor @ \$2/hr.
5. Plow and cultivate year 1  
Grassland drilling years 2 and 3

YEAR 1	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
<u>Cultural Operations</u> <sup>1/</sup>						
Field sanitation (burning)				.75	.75	
Plow	.5	1.25	3.60		4.85	
Harrow & Roll (2x)	.3	.75	1.90		2.65	
Level (1x)	.25	.65	1.40		2.05	
Springtooth & Roll (2x)	.3	.75	1.95		2.70	
Seed and Fertilize	.2	.50	.80	seed 25#	1.75	
				125#16-20	5.00	
Fertilize (2x)				130#N	16.90	
				cus.appl.	2.00	
Spray (2,4-D, 1/3/year)				.70	.70	
<u>Harvest Costs</u>						
Swath				custom	4.00	
Combine	.4	1.00	6.50		7.50	
Hauling	.3	.75	1.35		2.10	
Processing, \$1.25/100 lbs. (includes bags)					20.00	
<u>Fixed Charges</u>						
Taxes on land				5.00	5.00	
Interest on land investment, \$400 @ 5%				20.00	20.00	
Interest on average operating capital @ 8%				2.65	2.65	
General overhead <sup>2/</sup>				4.80	4.80	
Cash costs		2.00	7.00	63.55	72.55	
Non-cash costs		3.65	10.50	20.00	34.15	
Total costs		5.65	17.50	83.55	106.70	
Credit for grazing (sheep)					(2.00)	
Total costs after grazing credit (year 1)					104.70	
Cost/100# at 1600# yield					6.54	
Cost/100# at 1200# yield					8.03	
Cost/100# at 2000# yield					5.66	

These data were obtained and computed by county agents and farm management specialists in cooperation with Linn County farmers, November, 1969.

<sup>1/</sup> Check with your county agent for specific recommendations.

<sup>2/</sup> 7% of cash costs.

Grassland Ryegrass  
(after a good burn)

YEARS 2 and 3	INPUTS PER ACRE					Total Cost
	Labor		Machinery	Other		
	Hrs.	Value		Qty.	Value	
Field sanitation (burning)					.75	.75
Grassland seeding & fertilizing	.4	1.00	2.00	rent drill	.75	
				125#16-20	5.00	
				25# seed	1.75	10.50
Fertilize (2x)				130#N	16.90	
				cus.appl.	2.00	18.90
Spray (2,4-D, 1/3/year)					.70	.70
<u>Harvest Costs</u>						
Swath				custom	4.00	4.00
Combine	.4	1.00	6.50			7.50
Hauling	.3	.75	1.35			2.10
Processing, \$1.25/100 lbs. (includes bags)					20.00	20.00
<u>Fixed Charges</u>						
Taxes on land					5.00	5.00
Interest on land investment, \$400 @ 5%					20.00	20.00
Interest on average operating capital @ 8%					2.25	2.25
General overhead <u>2/</u>					4.05	4.05
Cash costs		1.00	3.95		63.15	68.10
Non-cash costs		1.75	5.90		20.00	27.65
Total costs		2.75	9.85		83.15	95.75
Credit for grazing (sheep)						(2.00)
Total costs after grazing credit (years 2 and 3)						93.75
Cost/100# at 1600# yield						5.86
Cost/100# at 1200# yield						7.11
Cost/100# at 2000# yield						5.11