AGRICULTURAL EXPERIMENT STATION
Oregon State College
Wm. A. Schoenfeld, Director
Corvallis

Circular of Information No. 241 April 1941

PROGRESS REPORT - CORN BREEDING PROJECT, YIELD TRIALS WITH HYBRID FIELD CORN - 1940

By

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Introduction

Yield trials for the purpose of testing different strains of open-pollinated corn have been conducted by the Oregon Agricultural Experiment Station for many years but extensive trials with hybrids were not started until 1937. A few hybrids were tested in 1936. These trials immediately indicated the superiority of certain hybrids over the open-pollinated strains being grown in western Oregon in both grain and silage yields. Hybrid seed corn in commercial quantities was first sold in most corn-growing areas in Oregon in 1938. The acreage grown in that year was small. Approximately 5 per cent of Oregon's corn acreage was planted to hybrid seed in 1939. During the 1940 season approximately* 16 per cent of the acreage was planted to hybrid seed and it is estimated that 20 to 25 per cent of Oregon's corn acreage will be planted with hybrid seed during the 1941 season.

Its performance has caused it to gain favor in Oregon as it has in the mid-west corn belt states. Ordinary varieties are being replaced by hybrids for several reasons:

(1) Adapted hybrids will ordinarily yield from 10 to 30 per cent more than the best open-pollinated varieties.

(2) Better quality grain and silage is produced.

(3) Hybrids have a stronger root system and hence are more resistant to lodging.

(4) Hybrids mature uniformly.

(5) Hybrids produce a low per cent of nubbins.

(6) Some hybrids are resistant to certain diseases.

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*Estimate made by Lawrence Jenkins, Assistant Extension Specialist in Farm Crops.

Yield trials with hybrids are being conducted at the Experiment Station and in the corn-growing counties of the state to determine which hybrids are adapted to the varying conditions of different localities. Hundreds of hybrids are on the market but few are adapted to any one locality. Hybrids vary widely in climatic and soil adaptation and adaptation cannot be changed by selection as in open-pollinated corn. Growers must secure new freshly crossed seed each year, which prevents any opportunity to change a hybrid by selection. Since hybrids are produced by combining inbred lines in certain definite ways, a particular hybrid will be the same in its inherited characteristics year after year without reference to where the seed was grown.

Yield Trials at Corvallis - 1940

Yield trials in which 51 varieties and hybrids were included were planted at the East Farm on river bottom soil. In this trial, each variety was planted in two row plots, 10 hills long, and was replicated three times, giving a total of 60 hills per variety. The soil in the field in which this trial was planted was rather variable in fertility and three replications were considered to be insufficient. This is indicated by the fact that a difference of 11 bushels per acre was required for significance at 19 to 1 odds.

The average yields of hybrids and varieties for two or more years are given in Table 1. Wisconsin Hybrid 525 ranks at the top among those included in the Corvallis trial for a 4-year period although Wisconsin 455, Wisconsin 570 and Wisconsin 606 had nearly the same average yields. The 4-year average yield of Wisconsin 525 is 9.2 bushels per acre or 20 per cent above the average yield of Minnesota #13. National hybrids 95 and 110 gave good yields during the years in which they were included. Some of the later-maturing hybrids, such as Wisconsin 645, Wisconsin 696, Ohio K-23 and Nebraska 238 were high in yield during the 1939 and 1940 seasons. However, these hybrids are too late in maturity to be safely recommended for the Willamette Valley. Both the 1939 and the 1940 growing seasons were favorable to late-maturing varieties.

Table 1. Average Yields of Hybrids and Varieties Grown at Corvallis for Two or More Years.

Variety	Yield in Bushels per Acre by Years. 1937	1938	1939	1940	Ave. Yield for Years Grown. In bushels. 2-Yr Ave. '39 &'40	3-Yr. Ave. 1938 '39 &'40	4-Yr. Ave. 1937-1940.
1. Wisconsin 525	71.2	28.0	28.0	59.7	43.9	38.6	46.7
2. Wisconsin 455	77.7	26.1	26.0	56.1	41.1	36.1	46.5
3. Wisconsin 570	77.7	28.1	29.9	49.8	39.9	35.9	46.4
4. Wisconsin 606	65.6	26.1	26.4	60.4	43.4	37.6	44.6
5. Wisconsin 355	69.7	25.2	23.1	45.2	34.2	31.2	40.8
6. Minnesota #13	64.1	16.1	23.1	46.8	35.0	27.7	37.5
7. Eureka	51.2	17.5	17.6	34.2	25.9	23.1	30.1
8. National 110	----	28.2	27.6	63.5	45.6	39.4	----
9. National 95	----	----	32.4	72.0	52.4	----	----
10. Wisconsin 645	----	----	29.6	69.3	49.5	----	----
11. Wisconsin 696	----	----	27.9	67.0	47.5	----	----
12. Ohio K-23	----	----	31.6	61.1	46.4	----	----
13. Nebraska 238	----	----	33.2	59.6	46.4	----	----
14. Wisconsin 625	----	----	31.3	60.5	45.9	----	----
15. Michigan 1218	----	----	23.9	63.4	43.7	----	----
16. Idahybrid 416	----	----	26.4	56.5	41.5	----	----
17. Iowealth 90-A	----	----	25.1	57.4	41.3	----	----
18. Minhybrid 403	----	----	24.1	56.4	40.3	----	----
19. Wisconsin 330	----	----	18.9	52.6	35.8	----	----
20. Weaver's Yel. Dent	----	----	15.3	51.7	33.5	----	----

Data obtained from the hybrids and varieties grown at Corvallis during the 1940 season are given in Table 2. Yields were calculated on the basis of 15 per cent moisture. Silking date was determined by inspection, a variety being recorded as silked when approximately 50 per cent of the silks were visible. Average length of ear, average circumference of ear, size of cob, and texture of kernel were determined in the laboratory from three dried ears of each variety. The ears were selected at harvest time as being typical of the variety.

Since a difference of 11 bushels was required for significance in this test, little weight should be given to the small differences in yield between many of the hybrids listed in Table 2. The 1940 season seemed to be favorable to some of the late-maturing hybrids and hence the majority of those ranking near the top in yield are late in maturity. The majority of these hybrids are too late in maturity to be safely recommended for Willamette Valley conditions, although their yields were significantly higher during the 1940 season than the hybrids now being grown in this area. Some of these later-maturing hybrids may be adapted to the corn-growing areas of southern or eastern Oregon. One exception to the above statements is noted in the case of National Hybrid 95. This hybrid was high in yield and is early in maturity.

Table 2. Yield per Acre and Other Data on 51 Hybrids and Varieties Grown at Corvallis, Oregon, during the 1940 Season.

Planted May 7, 1940. Harvested October 12, 1941.

Rank	Variety	Yield(1) Bu. per Acre	Total % Moisture	Shelling %	Silking Date	Ave. Length of Ear	Ave. Circ. of Ear	Size(2) of Cob.	Texture(3) of Kernel
1	Ohio W-17	82.1	39.6	81.0	8/15	8.0	7.5	Med.L.	Med.
2	Indiana 432	77.4	48.2	80.2	8/15	8.5	6.5	Med.	Med. S.
3	Iowa 4174	76.5	48.5	79.7	8/17	9.5	7.0	Med.	Med. F.
4	Wisconsin 695	72.5	46.9	79.4	8/17	8.0	7.0	Med.	Med. F.
5	Iowa 3816	72.4	48.0	82.8	8/17	7.5	6.0	Med.S.	Med. S.
6	National 95	72.0	39.8	83.2	8/ 4	7.5	6.0	Med.S.	Med.
7	Iowa 3836	71.9	50.0	81.6	8/18	7.5	7.0	Med.L.	Med. S.
8	Idahybrid 544	71.5	40.9	80.6	8/18	8.0	6.5	Med.	Med. F.
9	Iowa 4057	71.0	46.9	80.9	8/16	8.0	6.5	Med.	Med. S.
10	Wisconsin 680	69.7	41.6	81.4	8/13	7.5	6.5	Med.	Med. F.
11	Wisconsin 645	69.3	41.8	83.1	8/10	8.5	7.5	Med.	Med. F.
12	Wisconsin 696	67.0	46.0	80.4	8/15	7.5	7.0	Med.L.	Med. F.
13	Idahybrid 680	66.4	52.0	77.4	8/26	8.5	6.0	Small	Med. F.
14	Illinois 339	64.6	46.6	81.6	8/14	8.0	6.0	Med.	Med. F.
15	Iowa 4028	64.6	50.4	82.6	8/17	7.0	6.0	Med.S.	F.
16	Iowealth W-6	64.0	32.1	84.0	8/ 5	7.5	6.0	Med.	Med. F.
17	Golden Glow (Marsh)	63.7	36.8	80.4	7/28	7.0	6.5	Med.	Med. F.
18	National 110	63.5	44.1	80.9	8/ 4	7.5	6.5	Med.	Med. F.
19	Michigan 1218	63.4	42.2	81.8	7/29	8.0	6.0	Small	F.
20	Iowa 4164	62.9	52.7	80.5	8/14	8.0	6.0	Med.S.	Med. F.
21	National 112	62.4	44.6	83.5	8/ 9	8.0	6.0	Med.	Med. F.
22	Iowealth W-12	61.7	36.2	85.0	8/ 3	8.0	6.5	Med.	Med. F.
23	Ohio K-23	61.1	44.2	81.7	8/12	7.5	6.0	Med.	Med.
24	Wisconsin 625	60.5	42.0	78.9	8/10	7.5	7.0	Med.L.	Med. F.
25	Wisconsin 606	60.4	43.5	82.2	8/ 6	8.0	6.5	Med.	Med. F.
26	Wisconsin 525	59.7	44.0	81.1	8/ 5	8.5	6.5	Med.	Med. F.
27	Nebraska 238	59.6	47.2	78.4	8/18	8.5	6.5	Med.L.	Med.
28	Illinois K X WF9	59.3	48.0	84.3	8/18	8.0	6.0	Med.	Med.
29	Iowealth 90-A	57.4	39.3	85.0	7/23	7.5	6.5	Med.L.	Med. F.
30	Pickett Yel.Dent	56.8	40.3	85.6	8/ 3	7.5	6.0	Med.S.	Med. S.
31	Idahybrid 416	56.5	49.2	81.5	8/23	7.0	6.0	Small	F.
32	Minhybrid 403	56.4	44.2	79.0	8/ 5	8.0	6.0	Med.S.	F.
33	Oregon 455	56.1	42.4	81.3	8/ 2	8.0	6.5	Med.	Med. F.
34	Duncan Yel.Dent	55.5	45.7	80.0	8/13	8.0	6.5	Med.	Med. F.
35	Wisconsin 455	54.9	44.2	83.0	8/ 3	8.0	6.5	Med.	Med. F.
36	Wisconsin 25	54.3	30.5	83.3	7/26	7.5	5.5	Med.	Med. F.
37	Wisconsin 460	54.0	42.5	80.8	7/26	7.5	7.0	Med.L.	Med. F.
38	Wisconsin 330	52.6	35.2	81.1	7/24	7.0	6.0	Med.L.	Med. F.
39	Weaver's Yel. Dent	51.7	46.6	84.4	8/11	9.0	6.5	Med.S.	Med. S.
40	Wisconsin 570	49.8	42.2	83.5	8/ 5	7.5	6.0	Med.	Med. F.

continued--

Table 2, Continued.

Planted May 7, 1940. Harvested October 12, 1941.

Rank	Variety	Yield(1) Bu. per Acre	Total % Moisture	Shelling %	Silking Date	Ave. Length of Ear	Ave. Circ. of Ear	Size(2) of Cob	Texture(3) of Kernel
41	Wisconsin 404	48.6	47.4	79.3	7/26	8.0	6.5	Med.S.	Med. F.
42	Golden Glow (Fischer)	48.1	36.3	84.5	7/24	7.0	6.5	Med.L.	Soft
43	Iowealth W-16	48.1	40.7	85.0	8/10	9.0	7.0	Med.	Med. S.
44	Minn.13 (Fischer)	46.8	34.7	85.5	7/24	6.5	6.5	Med.L.	Med. S.
45	Minn.13 (Mibell)	46.5	32.3	81.3	7/23	7.0	6.5	L.	Med. S.
46	Wisconsin 355	45.2	38.4	80.1	7/31	7.0	6.0	Med.L.	Med. F.
47	Putnam Red Dent	42.5	44.2	81.0	7/26	7.5	7.5	Large	Soft
48	Golden Glow (Freitag)	42.0	50.9	82.5	8/ 9	7.0	6.5	Med.L.	Med. S.
49	Minn. Exp. Hybrid	41.7	34.2	75.4	7/24	7.5	5.0	Med.S.	Med. F.
50	Eureka	34.2	38.7	78.3	7/26	7.0	5.5	Med.S.	F.
51	Page Flint	30.1	43.0	77.9	7/24	8.0	5.0	S	Flint

A difference of 11 bushels is required for significance.

(1) Yields were calculated on a 15 per cent moisture basis.

(2) Size of cob was determined by inspection, the varieties being grouped into five classes; small, medium small, medium, medium large, and large.

(3) Texture of kernel was determined by cutting kernels and by inspection. The varieties were grouped into the classes flinty, medium flinty, medium, medium soft, and soft. The type classed as flinty was considerably softer than regular flint corn.

County Yield Trials and Demonstrations

County yield trials or demonstration plots were conducted cooperatively by the Agricultural Experiment Station and the Extension Service in nearly all of the corn-growing counties of Oregon during the 1940 season. Seed for the majority of these trials was furnished by the Oregon Agricultural Experiment Station. The trials and demonstrations were conducted by the county agent of the respective counties in cooperation with one or more farmers. Data were not obtained from several of these trials due to weather conditions, insect damage or other causes beyond the control of the county agent. Data obtained in the counties sending in reports are given below.

Willamette Valley

Benton County.

No yield trials were conducted in 1940. However, County Agent W. S. Averill has kept a rather close check on the acreage of hybrid corn grown in the county. He estimated that 195 acres of hybrid corn were grown in Benton county in 1939 and that the acreage increased to approximately 500 acres in 1940, of which 400 acres were planted to Wisconsin 525. An estimated 1000 acres of corn were grown in the county for grain purposes. Observation and trials during the 1939 season indicated that Wisconsin 525 was well adapted to this area.

Clackamas County.

Yield trials in which hybrids were included have been conducted by County Agent J. J. Inskeep since 1936. The acreage of hybrid corn grown for grain in Clackamas county has grown from 0 to approximately 2500 acres from 1936 to 1940.

The results from a yield trial conducted by Mr. Inskeep on the Otto Lucht farm during the 1940 season are given in Table 3. Wisconsin Hybrid 355 and the open-pollinated variety, Eureka, seem to be well adapted to Clackamas county conditions.

Table 3. Comparative Results of Corn Hybrids and Varieties in Clackamas County - 1940

Location - Otto Lucht Farm, Route #3, Molalla.
Soil Series - Amity silt loam.
Date planted - May 13 and 14, 1940

Variety	Yield - Bu. per acre. 15% Moisture	Total % Moisture	Shelling %
1. Wisconsin 90-day (1938 seed)	45.14	43.4	83.3
2. Wisconsin 355	42.34	42.2	75.8
3. Eureka (Lucht's seed)	41.00	35.7	81.7
4. Red Hybrid	40.74	43.1	81.7
5. Bowman's Yellow Dent	40.24	41.8	85.0
6. H. O. Bowman - Red	39.86	41.8	84.2
7. Hybrid 355	39.76	44.7	80.8
8. Wisconsin 570	39.14	49.0	85.8
9. Wisconsin 456	37.92	46.2	80.0
10. Wisconsin 404	36.92	45.3	82.5
11. Lehman's Yellow Dent	35.94	41.3	79.2
12. Wisconsin 525	35.34	52.6	81.7
13. Wisconsin 460	35.22	46.8	79.2
14. Wisconsin 325	34.14	44.0	81.7
15. Wisconsin 455	29.30	52.4	82.5
16. Wisconsin 531	27.50	48.3	80.0

Linn County.

Yield trials in which hybrids and open-pollinated varieties were compared have been conducted in Linn county for a number of years by County Agent F. C. Mullen and 4-H Club Agent O. E. Mikesell. Data from the 1940 trials in Linn county are given in Table 4.

Yield trials were conducted during the 1940 season on the Frank Richardson farm, Stayton, on Olympic silt loam; the Charles Lamb farm, Albany, on Chehalis silt loam; and the E. A. Canning farm, Albany, on Amity silt loam.

Table 4. Comparative Results of Corn Hybrids and Varieties in Linn County Yield Trials - 1940.

Variety	Grain Yields - Bu. per Acre			Silage Yields
	Frank Richardson Farm	Charles Lamb Farm	Ave. for Varieties Grown on both farms	Tons per Acre E. A. Canning Farm
1. Wisconsin 404	35.5	46.1	40.8	---
2. Minhybrid 301	38.6	38.5	38.6	3.9
3. Minhybrid 403	38.8	37.0	37.9	4.3
4. Wisconsin 570	32.3	42.1	37.2	4.0
5. Wisconsin 525	30.1	37.5	33.8	5.8
6. Golden Glow	24.3	40.0	32.2	3.9
7. Wisconsin 455	21.1	30.9	26.0	5.3
8. Wisconsin 355	---	46.8	---	---
9. National 110	---	39.3	---	---
10. Kingscrost 311	35.1	---	---	---
11. Wisconsin 330	---	34.4	---	---
12. Wisconsin 606	---	33.9	---	3.9
13. Minnesota 13	26.7	---	---	---
14. Kingscrost F B	---	---	---	6.3
15. Iowealth 90-A	---	---	---	4.2

Marion County.

Trials and demonstrations comparing hybrids and open-pollinated corn have been conducted by County Agent H. L. Riches and Acting County Agent R. E. Rieder for several years. The interest in hybrid corn and the sizable acreage being grown in the county are indicated by the fact that 2000 pounds of Wisconsin Hybrid 525 seed were distributed to farmers through the county agent's office in the spring of 1940. A number of seed dealers also carried hybrid seed.

Washington County.

County Agent Wm. F. Cyrus and Assistant County Agent Palmer Torvend have tested various hybrids in Washington county for a number of years. Wisconsin Hybrid 525 was seeded on a considerable acreage in Washington county in both 1939

and 1940. One thousand pounds of seed of this hybrid were distributed through the county agent's office during the 1940 season.

Table 5. Comparative Results of Corn Hybrids and Varieties in Washington County - 1940.

Grown on the W. T. Putnam Farm, R.2, Hillsboro.

Planted May 19, 1940. Soil Type - Amity. Size of Plots - .048 Acre.

Variety	Grain Yield Bu. per Acre.	Fodder Yield Tons per Acre	Remarks
1. Wisconsin 460	73.9	11.75	Not quite mature. Too thick.
2. Minhybrid 301-I-96	66.8	8.25	Not quite mature.
3. Jones 95 Flat	62.9	10.50	Mature.
4. Red Dent	61.9	9.50	Mature. Large cobs.
5. Kingscrost	61.7	9.50	Mature.
6. Wisconsin 455	59.6	10.50	Not quite mature.
7. Minhybrid 403	59.8	10.00	Not quite mature.
8. Kingscrost	57.9	10.50	Well matured.
9. Ohio W-17	53.8	15.50	Immature. Too thick.
10. Wisconsin 525 -14R	51.7	10.25	Mature.
11. Wisconsin 525 -14F	46.4	11.50	Mature.
12. Iowealth W-16	45.8	8.75	Immature.
13. Idahybrid 544	44.1	15.75	Immature. Too thick.

Planted in 42-inch rows. Hills, 18 inches apart.

The majority of growers planting this seed were pleased with it for both grain and silage purposes.

Results from a yield trial conducted during the 1940 season on the W. T. Putnam farm are given in Table 5. The plot size was small in these trials and the stand was quite variable. Hence the yields obtained in this trial may not present the production ability of all the varieties.

Yamhill County.

Results from a yield trial conducted by County Agent Rex Warren are given in Table 6. In this small plot trial, three Wisconsin hybrids, 570, 455, and 525, exceeded Minnesota 13 in silage yields but were lower in grain yields. However, it is doubtful if the differences in grain yield are significant. The difference in grain yield between Minnesota 13 and Wisconsin 455 is only .7 bushel, which is too small a difference to be significant.

Table 6. Comparative Results of Corn Hybrids and Varieties in Yamhill County - 1940.

Grown on the Fred Muhs Farm.

Plots - 1/100 Acre.

Variety	Silage Yield - Lbs.	Grain Yield - Bu. per Acre
1. Wisconsin 570	17,900	56.3
2. Wisconsin 455	17,000	60.7
3. Wisconsin 525	15,800	53.7
4. Muhs Special	13,500	54.0
5. Minnesota 13	12,900	61.4

Two hybrids, Wisconsin 355 and Wisconsin 455, and one open-pollinated variety, Eureka, were grown on the Harry Hawkins farm. The Eureka is an early-maturing variety. Twenty acres of this variety were hogged-off early in the fall. The Wisconsin 355 appeared to be about three weeks earlier than Wisconsin 455 and the yields were estimated to be the same although actual yields were not determined.

Southern Oregon

Douglas County.

Mr. J. Roland Parker, County Agent, and Mr. A. E. Britton, 4-H Club Agent of Douglas County, have tested various hybrids in the county for a number of years. The leading hybrid being grown at the present time is Wisconsin 525. Six hundred pounds of seed of this hybrid were distributed through the county agent's office during the spring of 1940.

Yields of hybrids and open-pollinated varieties were obtained from two farmers' fields in which they were planted side by side. The moisture content of the corn was determined and yields calculated on a 15 per cent moisture basis. These yields are given in Table 7.

Table 7.

Variety	Busenbark Bros. Farm		Kamp Bros. Farm	
	Yield - Bu.	% Moisture	Yield - Bu.	% Moisture
1. Own variety	51.7	18.1	----	----
2. Wisconsin 525	65.3	17.0	54.6	19.6
3. Wisconsin 455	----	----	57.2	16.7
4. Wisconsin 570	----	----	50.3	19.2
5. Golden Glow	----	----	44.7	17.0

Jackson County

Yield trials were conducted by County Agent R. G. Fowler in cooperation with three farmers during the 1940 season. Previous trials in this county indicated that probably the hybrids being grown in the Willamette Valley were too early in maturity to produce the highest possible yields and hence could not be recommended for general use in Jackson county. Seed of Wisconsin 525 has, however, been produced for the past two years and the commercial hybrid is being grown by farmers desiring early maturity. A number of later-maturing hybrids were included in the 1940 yield trials in an attempt to find some better adapted for general use. Results from these trials are given in Table 8.

Table 8. Comparative Results of Corn Hybrids Grown in Jackson County - 1940.

Variety	Yield - Bu. per Acre				Ear Worm Resistance	Maturity*
	Ben Day Farm	Dixon Salsgaver Farm	John Day Farm	Average 3 Farms		
1. Ohio W-17	31.0	81.0	56.4	56.1	Fair	B
2. Idahybrid 544	32.0	76.2	58.5	55.6	Good	A
3. Wisconsin 695	28.7	79.0	57.7	55.1	Fair	A
4. Wisconsin 680	29.2	75.0	50.5	51.6	Good	A
5. Wisconsin 645	32.5	67.0	53.0	50.8	Good	A
6. Wisconsin 696	30.5	69.2	49.0	49.6	Good	A
7. Wisconsin 625	22.0	69.0	56.0	49.0	Good	A
8. Idahybrid 680	29.5	65.4	46.6	47.2	Fair	B
9. Wisconsin 606	28.0	55.0	54.6	45.9	Good	A
10. Wisconsin 455	27.5	48.5	53.7	43.2	Fair	A
11. Illinois K X WF 9	30.2	53.0	44.6	42.6	Fair	A
12. Illinois 339	29.5	59.2	38.5	42.4	Good	A
13. Wisconsin 525	25.7	45.2	54.7	41.9	Fair	A
14. Idahybrid 416	28.0	59.2	38.5	41.9	Good	B
15. Wisconsin 570	25.3	51.5	43.4	40.1	Good	A
16. Indiana 432	41.0	----	55.0	----	Good	B
17. Ohio K 23	31.2	48.5	----	----	Fair	A
18. Oregon Yel. Dent	33.5	----	----	----	Fair	B
19. Idahybrid 413	----	----	32.6	----	Good	C
20. Iowealth A Q 3	30.2	----	----	----	Fair	B
21. Iowealth A Q 10	30.0	----	----	----	Good	A

* Maturity: A - Mature
B - Nearly mature
C - Immature

Josephine County.

Yield trials in which hybrids were compared with local varieties have been conducted by County Agent O. K. Beals for a number of years. Josephine county farmers have grown a considerable acreage of hybrid corn during the past two years,

the major hybrid used being Wisconsin 525. Many growers are well satisfied with this hybrid although yield trials indicate that Wisconsin 525 may be too early in maturity to produce the highest possible yields in some seasons. Results from a yield trial on the J. E. Richardson and Son farm during the 1940 season are given in Table 9.

Table 9. Comparative Results of Corn Hybrids and Varieties Grown in Josephine County - 1940.

Grown on the J. E. Richardson & Son Farm.

Variety	Yield - Bu. per Acre. 15% Moisture	Total % Moisture	Silage Yields Tons per Acre
1. Wisconsin 695	129.4	37.1	14.6
2. Idahybrid 680	127.3	43.9	16.7
3. Wisconsin 680	127.0	37.4	12.1
4. Idahybrid 416	126.3	40.0	13.8
5. Wisconsin 696	123.8	36.5	12.4
6. Illinois 339	121.3	34.1	11.5
7. Wisconsin 645	115.3	35.4	11.7
8. Idahybrid 544	115.0	35.6	13.0
9. Wisconsin 625	114.9	29.4	11.1
10. Jones 95	111.2	26.8	10.7
11. Ohio W 17	109.4	33.5	12.4
12. Wisconsin 570	105.7	27.8	12.1
13. Illinois (K X WF9)	104.9	35.6	10.7
14. 110 A Type 1	103.3	34.5	9.8
15. Hyde Yellow Dent	103.1	30.0	10.9
16. Wisconsin 606	101.2	33.2	11.5
17. Wisconsin 525	99.7	31.1	11.1
18. Wisconsin 455	99.6	38.6	12.3
19. Ohio K 23	93.0	39.8	10.2
20. Hayes Yellow Dent	90.2	33.5	10.4

Eastern Oregon

Baker County.

Seed of several hybrids was secured for a number of Baker county farmers by County Agent P. T. Fortner during the spring of 1940. All hybrids showed less lodging than open-pollinated varieties. Wisconsin 570 was the most satisfactory from all standpoints in Eagle Valley, which is the best corn district in the county. Iowealth hybrids were better for silage in Baker valley and for grain in Pine valley.

Indications to date are that Wisconsin 570, Wisconsin 525, and K. 311 are best for grain and silage at lower elevations. At higher elevations, K. 97DH gave

good grain yields and Iowealth AQ, Wisconsin 525, Wisconsin 570, and K. 311 appeared best for silage.

Malheur County.

Malheur county is one of the largest corn-growing counties in the state and has grown hybrid corn successfully for a number of years. According to County Agent R. M. McKennon, 3,500 acres were grown in the county in 1940.

All corn in Malheur county is produced on irrigated land and the summer temperatures are considerably higher than those of western Oregon. Hence fairly late-maturing hybrids are recommended. Hybrids appearing to be best adapted are Iowealth AP, Iowealth AQ, Idahybrid 468, and Idahybrid 680.

Umatilla County.

Yield tests were conducted in Umatilla county by Assistant County Agents M. E. Knickerbocker and Harry F. Cline and County Agent Walter A. Holt. Weather conditions in Umatilla county favor medium late-maturing hybrids such as those adapted to Malheur county. Results from small trials conducted in cooperation with farmers during the 1940 season are given in Table 10.

Table 10. Comparative Yields of Corn Hybrids Grown in Umatilla County - 1940.

Paul Van Arsdale Farm		Carl Groth Farm	
Variety	Yield - Bu. per Acre.	Variety	Yield - Bu. per Acre.
1. Iowealth A Q	71.0	1. Carlson - Iowa Hybrid	116.0
2. Idahybrid 680	71.0	2. Pioneer Hybrid	110.0
3. Prosser 939	61.3	3. Iowealth S.	110.0
4. Iowa 4174	61.3	4. Iowealth A Q	80.0
5. Iowa 3836	58.1	5. Iowealth 18	70.0
6. Iowa 4057	58.1	6. Iowealth 12	65.2
7. Iowa 4164	58.1	7. Minnesota #13	60.7
8. Iowa 16	54.9		
9. Wisconsin 570	51.6		
10. Iowa 4028	51.6		
11. Iowa 695	48.4		
12. Iowa 3816	45.2		
13. Wisconsin 525	38.7		
14. Wisconsin 455	32.3		

Recommended Hybrids

Corn is grown under widely varying soil, rainfall, elevation, irrigation and temperature conditions in Oregon. Considerable variability in soil and climate has been found even in individual communities. Data from yield trials are not available for all corn-growing areas and are too meager from some sections to be conclusive. Hybrids in general are rather limited in adaptation. Hence, it is not possible to make definite recommendations with regard to best-adapted hybrids for all corn-growing areas of the state. Recommendations given are based on the best information available for general areas and may not be applicable to each individual farm. It is suggested that growers check with their county agent regarding hybrids most likely to succeed on individual farms. Sources of hybrid seed can be obtained from the Oregon Agricultural Experiment Station, Corvallis, Oregon.

Hybrids of Which Oregon-Grown Seed is Available

1. Wisconsin 525.

This hybrid appears to be one of the most widely adapted of those tested to date in Oregon. It is well adapted to the major portion of the Willamette Valley as both a grain and a silage type and is being grown in the corn-producing areas of Jackson, Josephine, and Douglas counties as an early-maturing grain type. It also appears promising for grain and silage in the corn areas at lower elevations in Baker county. This hybrid is about the same, to a few days later, in maturity than most strains of Minnesota 13.

2. Wisconsin 570.

Wisconsin 570 appears to be an excellent silage type for the central portion of the Willamette Valley and is adapted to the major corn-growing areas of Baker county. This hybrid is about 5 days later in maturity than Hybrid 525.

3. Wisconsin 355.

This hybrid has given excellent results in Clackamas county. It also appears to have some promise in the upland sections of Marion and Linn counties.

4. Wisconsin 455.

This hybrid is about 5 days earlier in maturity than Hybrid 525 and has been a high-yielding grain type in trials at Corvallis. However, it appears to be rather limited in adaptation. Reported results with this hybrid have been variable even in the central portion of the Willamette Valley. Yields in some localities have been equal to or above Wisconsin 525 while in other near-by communities lower yields have been reported.

Other Hybrids Showing Promise.

1. Wisconsin 606.

This hybrid appears to be a good silage type throughout the central portion of the Willamette Valley.

2. Wisconsin 695.

This hybrid has given excellent yields in trials in ~~Douglas~~ and Josephine counties and appears to mature in the proper season for the main corn-producing areas of these counties.

3. National 95.

This hybrid has given excellent yields in trials at Corvallis and appears to be of the proper maturity for the central portion of the Willamette Valley.

The following hybrids have been grown commercially in Jackson, Malheur, or Umatilla counties. They are all medium late in maturity and apparently are not adapted to western Oregon.

1. Iowealth A Q.
2. Iowealth A P.
3. Idahybrid 416.
4. Idahybrid 468.
5. Idahybrid 680.

It is suggested that growers check with local county agents regarding the adaptation of these hybrids.

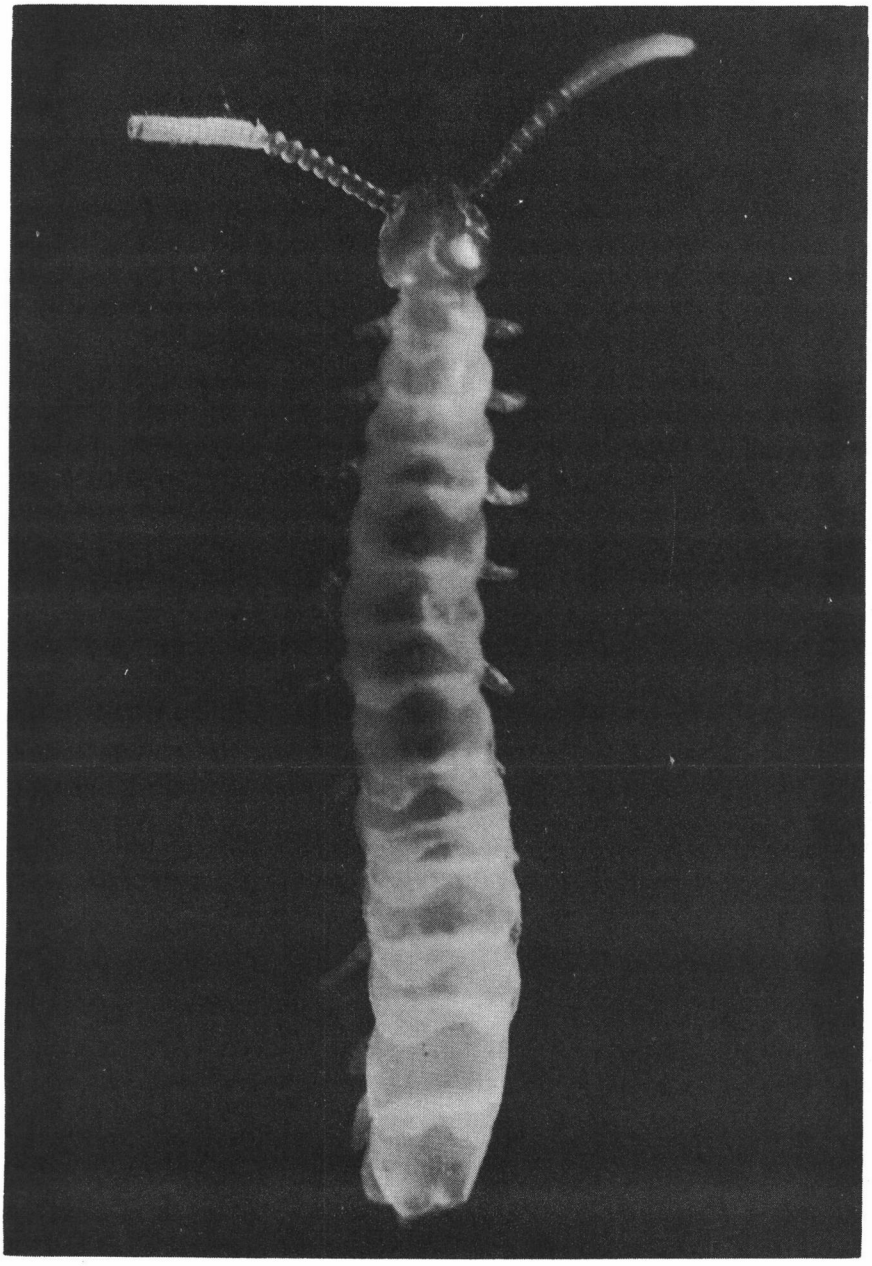

Fig. 1

The Symphylid, Scutiguella immaculata Newport
greatly enlarged