

**Extension Circular 299**  
**December 1958**



**1958**  
TESTS WITH  
**CORN**  
AND SORGHUM

**Outlying Testing Report 17**

**Extension Service • Institute of Agricultural Sciences**  
**State College of Washington • Pullman, Washington**

# 1958

## Tests with Corn and Sorghum

A. I. Dow\*, Extension Specialist in Outlying Testing

### *Conclusions and Recommendations*

#### Method of Applying Fertilizers

Fertilizer should be several inches beneath the soil surface. The trials demonstrated that nitrogen fertilizers should be plowed under or side-dressed or a combination of these two. It can also be injected or placed beneath the surface. If harrowed or disked in, the fertilizer is not deep enough to be "within reach" of the corn roots for that season.

If leaching is a problem, side-dress at least half of the fertilizer. Avoid excessive irrigation since leaching can cause serious loss of fertilizer.

#### Corn Varieties

A number of excellent hybrids are available. Choose one with the right maturity for the frost-free season in your location. Wisconsin 642 or its maturity equivalent is adapted to most of the corn growing area in central Washington. Plant about May 1 or when the soil reaches an average daily temperature of 60°F. at the 6-inch depth.

#### Sorghum Varieties

Yields were comparable to good corn yields. Some of the new hybrids may show considerable promise in the next few years.

---

\*This work was done in cooperation with County Extension Agents in Franklin, Adams, Grant and Benton Counties. Other Extension Service workers and staff members of the Irrigation Experiment Station also helped in the work.

## Methods of Applying Nitrogen Fertilizer on Corn

Fertilizer trials on corn were conducted at three locations. In all cases 160 pounds per acre of nitrogen as ammonium nitrate were applied. Six methods of applying the fertilizer were used as follows:

1. *Plowed*—The fertilizer broadcast and plowed under before planting.

2. *Harrowed*—The fertilizer broadcast after plowing and harrowed once with a spiketooth harrow.

3. *Disked* (lightly)—The fertilizer broadcast after plowing and disked once to a depth of 1 to 2 inches.

4. *Disked* (heavily)—Similar to No. 3 except the area disked twice—each time to a depth of 3 to 4 inches.

5. *Side-dressed*—All of the fertilizer side-dressed after emergence of the crop.

6. *Split*—One-half of the fertilizer plowed under before planting and one-half side-dressed after emergence of the crop.

The results of these trials are shown in Table 1. Each figure is the average from four plots receiving the same treatment.

The soil at Mesa was Ephrata sandy loam which grew corn the previous year. At this location, fertilizer plowed under or side-dressed or a combination of these two (split) was superior to the harrowed or disked in. The highest yield was obtained from the split application.

At Othello the soil was a Burke fine sandy loam previously in alfalfa. The soil apparently was already quite high

in nitrogen. Under this condition the method of applying fertilizer influenced yields less than it would if the soil were low in nitrogen. Although the harrowing and disking treatments are slightly higher than the other three, it is not likely that these differences are actually due to treatment.

At the Royal Slope location the soil was a Corfu fine sandy loam previously cropped to beans. Here side-dressing was slightly better than splitting the application, and both of these were definitely better than all other treatments. Evidently leaching was a serious problem at this location, especially where the fertilizer had been plowed under. The long runs, the rather heavy irrigations, and the nature of the soil profile were such that leaching could occur.

In general, the trials show very little difference among the "harrowed" and "disked" treatments. Even after a heavy disking, the fertilizer is not deep enough.

Past experimental work has shown that where irrigation can be controlled, plowing fertilizer under is as good as side-dressing or splitting the applications. These are better than any method which does not get the fertilizer several inches beneath the soil surface. Fertilizer which is on or near the surface remains isolated during the entire season in a cultivated crop such as corn.

On the other hand, if leaching is a problem at least half of the fertilizer should be side-dressed at the time of the second cultivation.

**Table 1. Yield of Corn Resulting from Various Methods of Applying Nitrogen.**

(Bushels per acre at 15.5% Moisture)

Treatment	Mesa	Othello	Royal Slope
Plowed	134	161	40
Harrowed	83	172	48
Disked (lightly)	100	171	32
Disked (heavily)	102	171	46
Sidedressed	132	163	109
Split	150	158	86

## Sorghum Variety Trials

Grain sorghum variety trials were started at three locations. Two of these were of observational value only. The results of the trial conducted in Block 74, west of Quincy, are shown in Table 2. While some of these varieties yielded well, the moisture content may have been too high

in a normal season. However, varieties such as RS 501, P.A.G. 405, and P.A.G. 425 may show some promise if they continue in future years to yield well and to have a moisture content comparable to that of Ryer 15. Ryer 15 is low in moisture in most seasons.

**Table 2. Yield and Moisture Content of Grain Sorghum Varieties at Quincy.**

Variety	Yield	Moisture at Harvest
	bu./ac.*	%
D.D. Yellow Sooner	166	14.4
Redbine 60	173	14.9
Plainsman	167	16.9
Ryer 15	137	13.4
RS 501	189	13.4
RS 590	161	15.4
RS 610	170	15.6
P.A.G. 405	182	13.0
P.A.G. 425	189	13.4
D-55	206	16.1

\*50 lbs. per bu. at 15.5% moisture.

## Corn Variety Trials

Eleven varieties of corn—including eight commercial varieties—were included in the 1958 Outlying Testing program. These trials were conducted at six locations in the Columbia Basin and the new land of the Kennewick Irrigation District. Except at Kennewick, all the land had been cropped previously under irrigation. The corn was planted to give 18,500 plants per acre.

The yields resulting from these trials are shown in Table 3. The moisture content at harvest is in Table 4. In general, yields were good. Moisture content at harvest was low because of an extremely warm season. For this reason, 1958 was a poor year for measuring maturity. Late maturing varieties, normally high in moisture at harvest time, could have been grown successfully in 1958.

**Table 3. Yield of Corn Varieties at Six Locations.**  
(Bushels per acre at 15.5% moisture)

Variety	Kennewick K.I.D.	Pasco Blk. 1	Othello Blk. 2	Royal Slope Blk. 86	Moses Lake Blk. 41	Quincy Blk. 73
Wisc. 413	97	115	142	118	150	158
Wisc. 642	101	138	174	137	135	177
Minn. 412	80	139	144	130	150	166
KS 5	90	126	174	144	132	157
KY 4	81	135	159	155	142	162
Idahybrid 330	95	119	145	131	130	167
Idahybrid 544	90	129	175	134	154	164
P.A.G. 62	92	124	173	129	165	168
P.A.G. 234	96	118	167	159	151	164
DeKalb 409	111	120	189	156	165	179
DeKalb 459	107	143	171	153	138	179
Planted	5/20	5/8	5/15	4/25	5/14	4/29

**Table 4. Moisture Percentage of Corn Varieties at Harvest at Six Locations.**

Variety	Kennewick K.I.D.	Pasco Blk. 1	Othello Blk. 2	Royal Slope Blk. 86	Moses Lake Blk. 41	Quincy Blk. 73
Wisc. 413	9.3	9.5	11.0	7.1	10.8	10.5
Wisc. 642	16.1	15.3	16.2	9.2	14.3	17.8
Minn. 412	17.1	14.8	16.3	9.8	13.7	17.9
KS 5	13.9	12.0	13.4	8.0	12.5	15.1
KY 4	15.7	12.8	16.1	8.4	15.3	19.0
Idahybrid 330	14.1	13.8	13.5	8.9	13.5	14.5
Idahybrid 544	17.9	17.5	18.2	9.9	14.4	20.2
P.A.G. 62	13.9	13.5	14.2	7.7	12.6	15.6
P.A.G. 234	19.3	15.8	14.9	9.8	15.6	19.5
DeKalb 409	13.3	12.7	15.2	8.8	13.0	16.4
DeKalb 459	17.0	15.1	18.4	8.7	14.5	21.0
Harvested	10/1	9/25	10/23	10/26	10/30	9/18

# Central Washington Outlying Testing Locations—1958

