University of Nebraska - Lincoln
DigitalCommons@University of Nebraska - Lincoln

Historical Materials from University of Nebraska-Lincoln Extension

Extension

6-1950

EC737 Grain Drying Nebraska Outstate Demonstrations 1949 Summary

Follow this and additional works at: https://digitalcommons.unl.edu/extensionhist

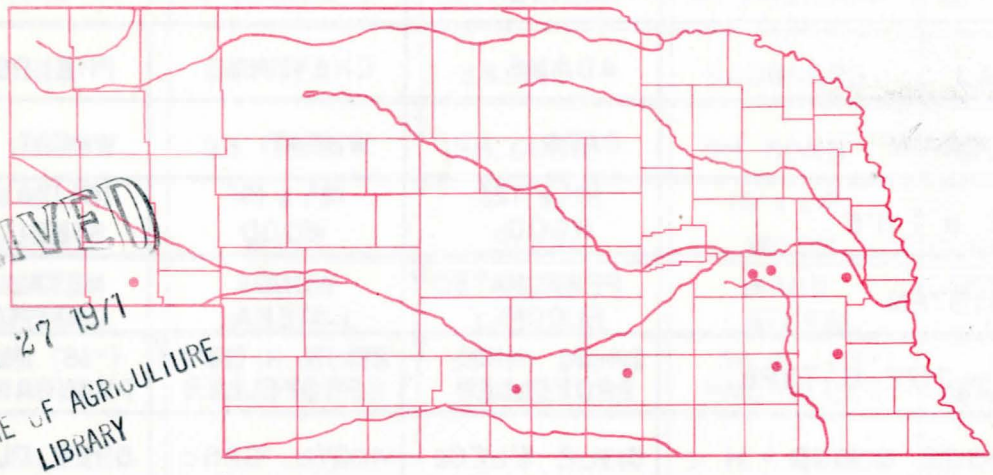
"EC737 Grain Drying Nebraska Outstate Demonstrations 1949 Summary" (1950). *Historical Materials from University of Nebraska-Lincoln Extension*. 2261.
https://digitalcommons.unl.edu/extensionhist/2261

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

Neb. R. 4n3/3.4: 737
S
85
E7
#737
E.C. 737b

JUNE 1950 E.C. 737b

GRAIN DRYING
NEBRASKA OUTSTATE DEMONSTRATIONS
1949 Summary



RECEIVED
MAY 27 1971
COLLEGE OF AGRICULTURE
LIBRARY

Small grain and corn drying demonstrations using unheated forced air were carried on during 1949 on several farms in Nebraska. These demonstrations and the resulting data were made possible through the cooperation of farmers, county agents, local power suppliers, blower distribution and grain bin manufacturers. For more detailed information on grain drying see Extension Circular 736, "Grain Drying with Forced Air Circulation".

Observations of the grain drying demonstrations indicate the following:

1. For best results, blowers should be capable of delivering 5 to 10 c.f.m. per bushel against a static pressure of approximately $1\frac{1}{2}$ inches of water for shelled corn and 3 inches for wheat. Maximum grain depths should be held to approximately 6 feet.

2. A lateral duct air distribution system seems fully as satisfactory as the raised perforated floor. The duct system is lower in first cost, more easily installed, and is readily removed for thorough cleaning of the bin.

3. Electricity has a number of advantages as a power source. An electric motor requires little attention, is easily started, and in many areas has a lower operating cost than other power units.

4. Drying of wheat and oats can be satisfactorily accomplished with unheated air if the conditions stated in paragraph 1 are met.

5. Good results can also be obtained in drying corn. Ear corn was dried satisfactorily. A greater air volume is more easily forced through ear corn, but because of the additional moisture in the cob, drying time may be longer than for shelled corn. Some difficulty was encountered with unclean corn and with shelled corn containing cracked kernels. Serious kernel damage occurred only when a blower-type elevator was used.

Cooperative Extension Work in Agriculture and Home Economics, University of Nebraska College of Agriculture, and the United States Department of Agriculture Cooperating, E. W. Janike, Acting Associate Director, Lincoln.

SUMMARY OF 1949 OUTSTATE

COMPILED BY EXTENSION AGRICULTURAI ENGINEERING IN COO

FARM COOPERATER	C.STARR [1]	E. BLOCK	E. LINNER [1]	S. PINNEO
COUNTY	ADAMS	CHEYENNE	PHELPS	BUTLER
KIND OF GRAIN	OATS	WHEAT	WHEAT	EAR CORN
BIN—SIZE & TYPE	10′ x 12′ WOOD	12′ x 16′ WOOD	18′ DIAM. STEEL	10′ x 36′ CRIB
DUCT SYSTEM	PERFORATED [5] FLOOR	WOOD LATERAL	METAL [6] LATERAL	3.5 SQ. FT. SINGLE DUCT
BLOWER — SIZE & TYPE	24 IN. (18°) [7] PROPELLER	27 IN. (18°) [7] PROPELLER	18 IN. [8] VANEAXIAL	36 IN. (14°) PROPELLER
POWER — SIZE & KIND	5 H.P. ELEC.	4 CYL. GAS	5 H.P. ELEC.	5 H.P. ELEC.
GRAIN DEPTH — FEET	6	8	6.5	12
EST. BU. OF GRAIN	600	1200	1200	1500
S.P.—INCHES OF WATER (STATIC PRESSURE)	2.1	3.0	2.4	1.1
AIR FLOW C.F.M./BU. *	6.8	3.0	4.0	10.6
% MOISTURE — INITIAL AVE.	22.0	17.0	16.5	25.0
% MOISTURE — FINAL AVE.	11.5	11.8	11.9	17.0
STARTED DRYING	JULY 14	JULY 16	JULY 9	OCT. 17
STOPPED DRYING	JULY 22	OCT. 13	AUG. 11	DEC. 3
OPERATING TIME — HOURS	71.5	14.4	14.8	302.5
POWER USED — KWH	222	———	444	1551
OPERATING COST CENTS PER BU.—APPROX.	0.5	———	0.5	1.5

* AIR FLOW FIGURES FROM BLOWER MFR. DATA FOR OBSERVED S.

1 IN COOPERATION WITH SOUTHERN NEBRASKA R.P.P. DISTRICT

2 IN COOPERATION WITH BUTLER COUNTY R.P.P. DISTRICT

3 IN COOPERATION WITH NORRIS R.P.P. DISTRICT

4 IN COOPERATION WITH OMAHA P.P. DISTRICT

RAIN DRYING DEMONSTRATIONS

ERATION WITH AGRICULTURAL ENGINEERING DEPARTMENT

E. LINNER [1]	J. BIRKEL [2]	J. BIRKEL [2]	H. HEEREN [3]	W. THORSON [4]	H. EHLERS [3]
PHELPS	BUTLER	BUTLER	SALINE	SAUNDERS	LANCASTER
SH. CORN	SH. CORN	SH. CORN	SH. CORN	SH. CORN	SH. CORN
9.5′ DIAM. STEEL	11′ x 11′ WOOD	11′ x 11′ WOOD	14′ DIAM. STEEL	16′ x 24′ WOOD	9′ x 9′ CLAY TILE
WOOD LATERAL	WOOD LATERAL	WOOD LATERAL	WOOD LATERAL	WOOD LATERAL	PERFORATED FLOOR
18 IN. VANEAXIAL [8]	36 IN. (14°) PROPELLER	36 IN. (14°) PROPELLER	36 IN. (18°) PROPELLER	36 IN. (14°) PROPELLER	18 IN. CENTRIFUGAL [9]
5 H. P. ELEC.	5 H. P. ELEC.	5 H.P. ELEC.	5 H. P. ELEC.	5 H. P. ELEC.	3 H. P. ELEC.
6	7	10	9	10	6
340	680	1000	1015	3000	380
3.0	1.9	1.4	1.9	1.9	2.9
7.0	15.0	6.1	UNKNOWN	3.8	10.9
27.8	19.6	19.9	26.0	21.8	17.9
13.0	12.4	11.4	15.5	11.5	13.7
OCT. 21	OCT. 15	NOV. 11	OCT. 12	OCT. 21	NOV. 22
NOV. 7	NOV. 7	DEC. 7	NOV. 20	DEC. 14	DEC. 7
169.0	174.3	183.5	460.0	470.0	84.0
533	829	667	1830	2134	223
2.4	2.0	1.0	2.7	1.0	0.7

5 FURNISHED BY HASTINGS EQUITY GRAIN BIN CO.

6 FURNISHED BY EATON METAL PRODUCTS CORP.

7 FURNISHED BY HABCO MANUFACTURING CO.

8 FURNISHED BY BUFFALO FORGE CO.

9 FURNISHED BY ROBINSON VENTILATING CO.

UNIVERSITY OF NEBRASKA
LIBRARY
JUL 3 1950
DOCUMENTS
ROOM