

Farm Shop Facilities For Modern Machinery Service

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Technological advancements made by the farming industry in the past decade have not left the present farming operation untouched. In fact, they have led not only to an increase in the variety and amount of mechanical equipment on the farm, but also to an increase in its size and complexity. With the importance of timeliness and small profit margins in agriculture, the farmer must be able to rely increasingly on the smooth operation of his mechanized equipment, especially during peak seasons.

These important factors require today's farmer to possess competency in agricultural mechanics or to have someone available who can perform machinery repair and maintenance as a safeguard against failure in busy seasons.

However, in many farming areas, other changes also are taking place. For example, small local garages or agricultural service facilities are disappearing with our small farms and towns. Present service facilities are being taken over by larger concerns. These trends lead to the fact that farmers are losing the personal and dependable service on which they had been able to rely in the past for servicing and repairing their mechanical equipment.

One of the surest ways to overcome these increasing problems is for the farmer to provide himself with a well-designed farm shop, and ensure that someone on the farm is skilled enough to make good use of the shop for emergency repairs, maintenance and for building special equipment for the farming operation.

But all too often the farm shop is one of the most neglected buildings on the farm, in spite of

the fact that practically every farm operation could come to an abrupt halt if its equipment fails.

Although farms in recent years have increased in size and have become more highly mechanized, some farm shops have not been improved or changed accordingly.

Today, farm shops with enough floor area are being classified by farmers as inadequate because wall heights and door sizes are not large enough for tractors with cabs and dual wheels and for large modern machinery. Farmers also list other reasons for why their farm shops are inadequate: (1) floor area too small; (2) too high an investment for expected return, and (3) high cost of heating during winter months.

A farm shop does not need to be a complicated building or a fancy showplace. But it should be planned and built to serve the needs of the farming operation.

Purpose of study

This study was conducted to determine the size and type of construction for a farm shop, on the average size farm in North Dakota, according to the individual farmer's evaluation as to the adequacy of his present farm shop.

Procedure

Information was obtained from questionnaires mailed to farmers throughout the state of North Dakota. The questionnaire consisted of five major areas.

1. Personal and Farm Business Information
2. Present Farm Shop Facilities and Conveniences
3. Type of Work Done in Your Present Farm Shop

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4. Inventory of Hand Tools, Power Tools, and shop equipment
5. Inventory of Vehicles and Farm Equipment

The farmers were asked to check entries in each of the five areas as the items pertained to their present farming operation. Space was also provided for the farmers to write in comments or recommendations, and indicate their farm shops as being adequate or inadequate and to give reasons for inadequacy.

A random sample of farmers who returned the questionnaire was visited to get personal opinions, attitudes and recommendations for farm shops in North Dakota. While visiting the farm, a picture of the farm shop was taken to show the type of building, type of construction materials and door size.

Information obtained from the questionnaires and farm visits was used to help make recommendations for size and type of construction for farm shops in North Dakota.

Treatment of Data

Returned questionnaires were divided into three categories with relation to farm size in acres: (1) 600 - 1,499 acres, (2) 1,500 - 2,999 acres, and (3) 3,000 and more acres.

The farmer's present farm shop facilities in each category were divided into two classifications: (1) adequate farm shops, and (2) inadequate farm shops.

Mean value ratings were computed for present farm shop facilities and conveniences, and compared between adequate and inadequate farm shops in each category. The mean value rating provided a basis for analyzing the importance of each facility

and convenience as related to the adequacy of the farmer's present farm shop.

Information from the other parts of the questionnaire were totaled, averaged and percentages computed. These percentages and means were compared in each category according to adequate and inadequate farm shops. Table 1 shows selected mean characteristics for size and type of construction for a farm shop.

As a result of these analyses, a recommendation for a suggested size and type of construction for a farm shop in North Dakota was made.

Conclusions

Conclusions and recommendations for size and type of construction for a farm shop in North Dakota were made according to mean characteristics of farm shops considered adequate by farm operators.

Selected mean characteristics for adequate farm shops in each category indicate that a farm shop should be a minimum of 30 feet wide and 42 feet long. Ceiling height should be a minimum of 12 feet, with a minimum door size of 16 by 12 feet. Construction of the adequate farm shops consisted of a concrete floor, walls of (1) wood frame with wood or metal siding, or (2) metal frame with metal siding, and a roof of (1) wood frame with wood or asphalt shingles, or (2) metal frame with metal as roofing material.

The mean characteristics among the three categories indicated small differences between size and type of construction for an adequate farm shop. Therefore, a conception of a farm shop considered adequate by farm operators is found in Figure 1.

Table 1. Selected mean characteristics for size and type of construction for adequate farm shops compared with size and type of construction for inadequate farm shops.

Characteristics	600-1,499 Acres 46 Farm Shops		1,500-2,999 Acres 52 Farm Shops		3,000 and more Acres 24 Farm Shops	
	26-Adequate	20-Inadequate	27-Adequate	25-Inadequate	15-Adequate	9-Inadequate
Farm Shop Size						
Width (ft.)	29.8	23.8	31.5	24.5	36.1	21.1
Length (ft.)	42.6	34.1	42.5	37.8	52.9	34.7
Ceiling height (ft.)	12.4	9.4	11.8	10.3	13.9	8.9
Door Size						
Width (ft.)	16.6	12.4	15.3	12.9	16.6	11.8
Height (ft.)	11.6	9.2	11.0	10.0	12.8	8.7
Farm Shop Construction*						
Floor	A	A	A	A	A	A
Walls	B	C	D	C	D	D
Roof	E	F	F	F	F	F

*(A) Concrete

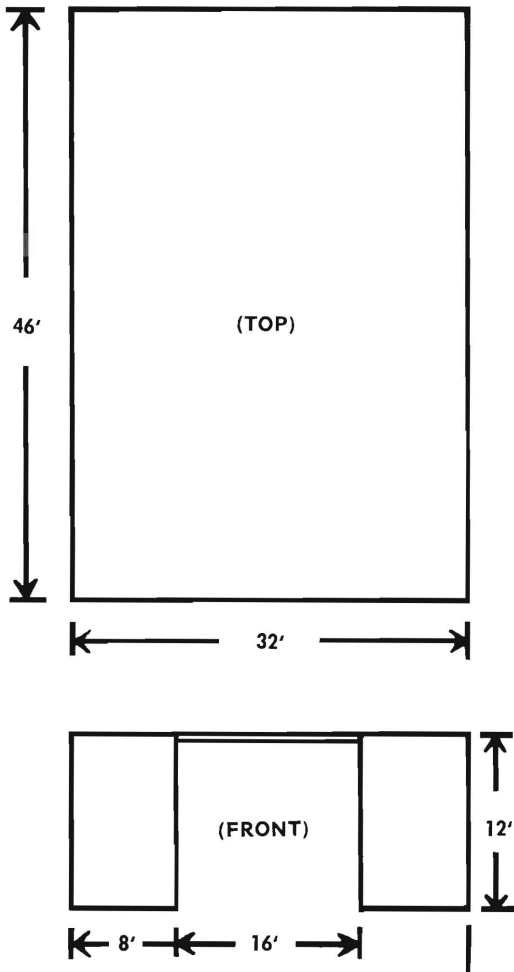
(B) Wood frame with wood siding and steel frame with metal siding

(C) Wood frame with wood siding

(D) Wood frame with wood or metal siding

(E) Wood frame with wood or asphalt shingles and steel frame with metal as roofing material

(F) Wood frame with wood or asphalt shingles



FARM SHOP SIZE:

- Width - 32 feet
- Length - 46 feet
- Ceiling Height - 12 feet
- Door Size - 16 ft. x 12 ft.

TYPE OF CONSTRUCTION:

- Floor - Concrete
- Walls - Wood frame with wood or metal siding
- Roof - Wood frame with wood or asphalt shingles

Figure 1. Mean size and type of construction of a farm shop considered adequate by 68 farm operators.

The low value ratings given to facilities and conveniences by farm operators who considered their farm shops inadequate add to the justification of the selected mean characteristics for an adequate farm shop.



Figure 2. This 32' x 48' farm shop with a wall height of 12'5" and 18' x 12' door opening is considered to be adequate and economical.

It is recommended that size and type of construction for the farm shop shown in Figure 1 be a suggested model to a farm operator in North Dakota who is considering building a farm shop to service and repair today's modern machinery.



Figure 3. The 36' x 40' x 13.5' size of this farm shop is considered adequate overall, with a 20' x 12' door, but would be hard to heat in winter without good insulation.