

# AGRICULTURAL ENGINEERING NEWS LETTER

AGRICULTURAL EXTENSION DIVISION  
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## AN INEXPENSIVE FARM STORAGE CELLAR

H. B. WHITE

This year in each of a dozen counties in Minnesota there will probably be raised over half a million bushels of potatoes. Past experiences have shown that the wise grower will have storage space on his farm for at least one-half the crop. On the farm is the cheapest place to store the surplus when there is a large crop. When harvesting the crop is the big job, storing a part of it on the farm avoids the rush of marketing and prevents over-supplying the market and forcing a drop in price.

Many farmers will need more storage space. Some will construct concrete storage cellars which are very dependable and long-lived structures. Many will remodel present structures or build new inexpensive cellars. Storage conditions in the ground are usually very good. The temperature is uniform and the requirements for potatoes and root crops are met

weather sets in is very helpful in reducing the temperature during the autumn. After they have been cooled down there is a period of several weeks when they are dormant and very little ventilation is required and the cellar may be kept closed.

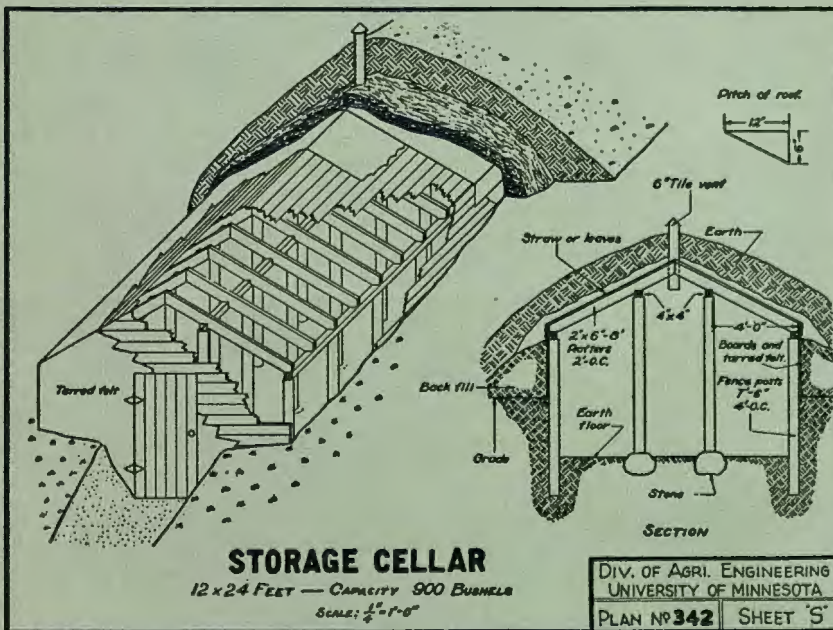
The size of cellar required is determined by multiplying the number of bushels by one and one-quarter. This gives the number of cubic feet required. Usually the depth of the potatoes should not exceed five feet. Dividing the number of cubic feet required for storage by the depth the potatoes may be stored will give the floor area required. If it is necessary to ascertain the number of bushels a certain bin or cellar will store, the number of cubic feet available multiplied by 0.8 will give the capacity.

The storage cellar shown, Plan No. 342, is twelve feet wide and twenty-four feet long and has a capacity of about 900

scraper. Posts are placed around the outside of the excavation and boards and tarred felt are nailed on, then the balance of the earth is removed and serves as backfill. Two rows of posts lengthwise near the middle serve as supports for the purlins and sides of the bins. There is a four-foot alley down the middle. Poles may be used for purlins and rafters. Roof boards with tarred felt over them make a better roof than branches covered with straw, although the latter are frequently used to reduce cost. Straw or leaves serve for insulation and the whole roof may then be covered with earth to a depth of one foot or more. During the coldest weather straw or snow will have to be banked against the door or else there should be a vestibule built as a storm entrance.

On many farms the storage cellar may be located in the side of a knoll and the filling done by sliding the potatoes down a chute through hatchways along the sides of the roof. During cold weather the hatchways, and in some cases the whole roof, is covered over with straw. When the potatoes are to be removed they are brought out the downhill end, thus avoiding much of the lifting in both unloading and loading.

While a storage cellar with wooden walls does not last as long as a masonry structure, it does simplify construction as the potatoes may come directly in contact with the outside wall. With masonry walls there is danger of freezing next to the wall. To prevent this, slatted false walls and floors are necessary. The partitions are slatted on both sides of the studding to increase ventilation. The conditions in the cellar with an earth floor seem to be the most natural for storing potatoes and roots. With some care in drying out this type of storage cellar in the summer it will last for a number of years. Those interested should write for Bulletin No. 111 which contains a list of over two hundred plans of buildings and equipment including the following storage cellars and trackside potato warehouses:



**STORAGE CELLAR**  
12x24 FEET — CAPACITY 900 BUSHELS  
SCALE: 1/4" = 1'-0"

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PLAN NO. 342 SHEET 'S'

better than in a house basement or above ground storage.

Potatoes need to be dried and cooled when first taken from the field. Putting them in bins requires ventilation to carry off the heat and cool them. They keep best at about 36-40°. Freezing will not occur until cooled to about 29°. Opening the doors at night and leaving roof filling doors or ventilators open until cold

bushels. If made longer, roof doors for filling and ventilating are required. Such a cellar should be located so there is drainage of the floor and entrance as no water should stand in or around the structure. The plan of the cellar is very simple and the construction is easily understood. After the outside dimensions have been staked out, most of the excavating may be done with a team and 167

Storage Cellars			
Plan	Size	Type	Capacity
243	12x20	Pole frame	810 bushels
342	12x24	Pole frame	900 bushels
201	12x25	Concrete	900 bushels
229	12x34	Concrete	1,150 bushels
Potato Warehouses			
156	40x50	Two story	14,000 bushels
162	40x50	Two story	16,000 bushels
160	40x80	Two story	22,000 bushels
167	40x100	Two story	29,000 bushels