

VEGETABLE STORAGE



Good Storage Saves Food

RETAIN ORIGINAL QUALITY
BY CAREFUL STORAGE

- A. *Fresh Parsnip*
- B. *Parsnip 5 days later
without proper storage.*

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VEGETABLE STORAGE

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Storage of vegetables is not difficult. Factors which contribute most towards successful storage are: (1) proper temperature, (2) proper moisture or humidity, (3) sanitation, (4) ventilation, and (5) selection of sound, properly matured vegetables, handled carefully to avoid bruising or damaging.

Common vegetables can be classified into three separate groups according to their storage requirements.

Beets, carrots, celery, kohlrabi, parsnips, rutabagas, turnips, cabbage, apples and potatoes require *cool, moist* air with little air circulation.

Onions, dry beans, dry peas, require *dry, cool* air with ample air circulation.

Squash and pumpkins require *moderately warm, dry* air with ample circulation.

Any storage which will meet these requirements will be satisfactory. Vegetables when stored are not dead but are living, and growth continues for a time after the vegetable is stored. Proper control of temperature and humidity tends to hold back this growth and increases the time the vegetables can be kept.

Temperature

Temperature control is the most important factor in vegetable storage, as temperature largely determines the rate at which vegetables are broken down. Higher temperatures should generally be avoided, as molds, rots and other disease organisms grow more rapidly and readily in warm places.

Most green vegetables retain their quality longest when kept at temperatures between 32 and 40 degrees F.

Pumpkins, squash and tomatoes require higher temperatures and keep best at the moderately warm temperature of about 50 degrees F.

Potatoes should be held at a 50 degree temperature for 10 days to 2 weeks after digging and then dropped to a 34 to 38 degree temperature. This period of high temperature enables the potatoes to heal the small bruises they received during harvest.

Parsnips, horseradish and kohlrabi will withstand considerable frost and can be stored successfully in surface pits, if protected from very severe freezing by straw or some other insulating material.

Cabbage can withstand temperatures to 20 degrees F. Any temperature below this will be destructive.

If any of the above vegetables are frozen they should be kept in that condition until ready for use. All other vegetables cannot be stored at temperatures below 32 degrees F. It is well to keep a cheap thermometer in the storage to check temperatures.

Humidity

A moist atmosphere tends to prevent water loss from the stored vegetable and thus enables root crops and leafy vegetables to retain their plumpness and freshness longer. The relative humidity of the air should be kept above 90 percent for storage of most root crops and all leafy vegetables. When difficulty is had in maintaining the proper humidity in storages having concrete floors, cover the floor with 3 or 4 inches of sand and keep the sand thoroughly moistened.

Onions, squash and pumpkins are exceptions in that they are very susceptible to rots and molds when kept moist and should be stored in a dry storage.

All vegetables requiring moist air for storage should be placed in tight-covered cans, in covered crocks or in tight boxes lined with wax

centered building paper before being placed in any storage. This will eliminate the shrinkage effect from the movement of the free air that needs to be circulated for cooling purposes.

Carrots and other root crops have also been stored successfully in cans of *damp* sand.

Placing the vegetables in a tight container or in sand will not eliminate the need for storing the vegetables in a cool temperature.

Ventilation

Excessive ventilation should be avoided, but sufficient ventilating must be done to keep the temperature down, the humidity correct, and foul odors out of the storage. Considerable ventilation is desirable during the fall in order to reduce the temperature of the storage as rapidly as possible.

In designing the ventilating system the cold air should be taken in near the floor and the warm air taken off near the ceiling. One intake ventilator 8 by 10 inches cross section is sufficient for most family sized storages. A similar opening is necessary near the ceiling as an outlet flue. Put dampers or slides on both flues near the outside wall to control the ventilating rate. (See diagram on last page.)

Sanitation

Keep the storage room clean and sanitary at all times. After the vegetables are removed in the spring, all dirt and trash should be removed, and the walls, shelves and floors should be thoroughly cleaned. It is also desirable to spray the storage with some disinfectant, such as a solution of copper sulfate (blue vitriol), to remove disease organisms which might damage the vegetables after storing. Mix the solution to a strength of 1 pound of copper sulfate to 15 gallons of water.

Selecting and Handling Vegetables for Storage

Select for winter storage only disease-free, unbruised and otherwise undamaged, mature vegetables.

Storage of disease-free vegetables is very important as one diseased plant may cause large quantities of vegetables to spoil while in storage.

Injuries offer a point of entrance for rot organisms that otherwise could not have entered the vegetable. Inspect all vegetables to be put in storage very closely and reject all damaged plants.

Many root crops, such as parsnips, carrots or rutabagas, continue growth until harvested and must be regarded as mature when they have reached the proper size. In the case of pumpkins or squash, full maturity is absolutely necessary for storage. Avoid storing over-sized vegetables, as they are likely to be woody and tasteless and not worth storing. Size of root crops can be controlled quite satisfactorily during the growing season by proper spacing of the plant in the row. Before placing the vegetables in storage, all excess dirt and any other foreign material should be removed.

Waxing of vegetables has proved desirable for merchandising purposes but is not practical for farm storage. Waxed vegetables cannot be expected to keep any better than unwaxed vegetables unless the storage temperature is below 40 degrees F. See your County Extension Agent for leaflet on waxing vegetables.

Complete darkness is quite necessary in the storage room. Light will turn onions and potatoes green and also tends to start growth in potatoes.

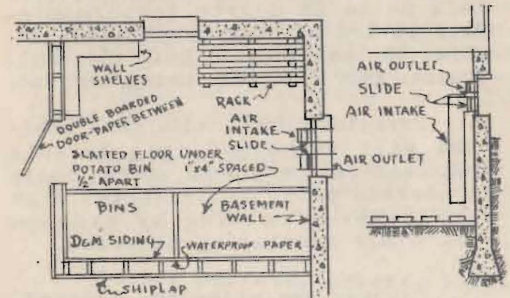
Storage Structures

Storages of sufficient size to store enough fresh vegetables for the entire family, plus space for shelves for the family supply of canned goods, should be provided. A storage of 8 feet by 10 feet is large enough for an average family of 4 to 6 persons.

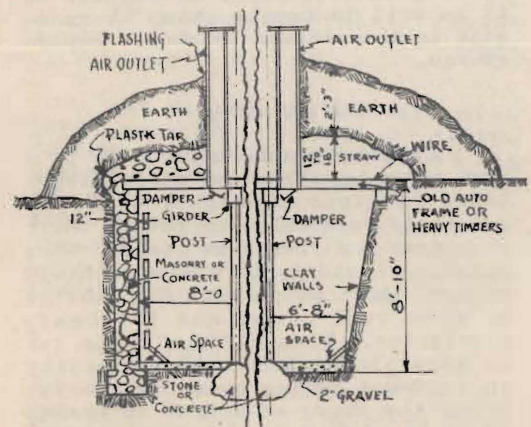
Unheated house basements are excellent for vegetable storage. It is generally necessary to install ventilating flues to maintain the desired low temperature.

Heated basements can be made satisfactory by partitioning off a

portion of the coolest part of a basement, then insulating and ventilating sufficiently to maintain the desired low temperature. Two thicknesses of $\frac{1}{2}$ -inch moisture-proof insulation board or a double-boarded wall with moisture-proof paper between the inside wall and the studding will provide sufficient insulation. The accompanying sketch shows a very satisfactory storage arrangement, ventilator and wall section.



Outdoor storages should be used only where space does not permit utilization of the house basement for vegetable storage. Wherever possible, the outdoor storage should be connected to the basement by means of a double door.



Pit storages or caves entirely separate from the house are inconvenient but are satisfactory if located on a well drained spot and well enough insulated to insure against frost damage. Pit storages have the advantage of usually having a slightly cooler temperature during the summer months than a basement storage. Ventilation is very important in any pit storage. The accompanying sketches show types of satisfactory pit storages.