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## Buying Canned Vegetables: Time Savers in Vegetable Cookery

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# *Buying Canned Vegetables*

Time Savers in Vegetable Cookery



More than two hundred different sizes of cans are on the market. Exhibit by Foods Laboratory, All College Day, State College, Brookings, S. Dak., Amanda Rosenquist in charge.

SOUTH DAKOTA STATE COLLEGE  
EXTENSION SERVICE  
A. M. Eberle, Director  
Brookings, S. D.

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# Buying Canned Vegetables

By

Zusan Z. Wilder

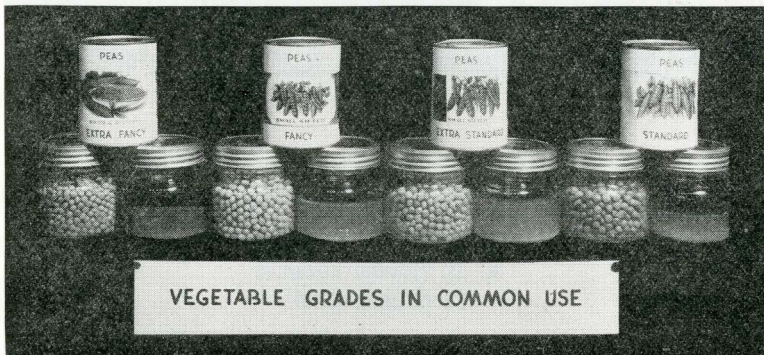
Extension Nutritionist

Canning is an inexpensive method of saving food. Foods produced in distant lands can never become available unless they are preserved in some way. Commercial canning is one means of making perishable products available over a wide area. Inasmuch as vegetables are canned at their best and in great quantity, they reach the consumer in excellent condition at low cost.

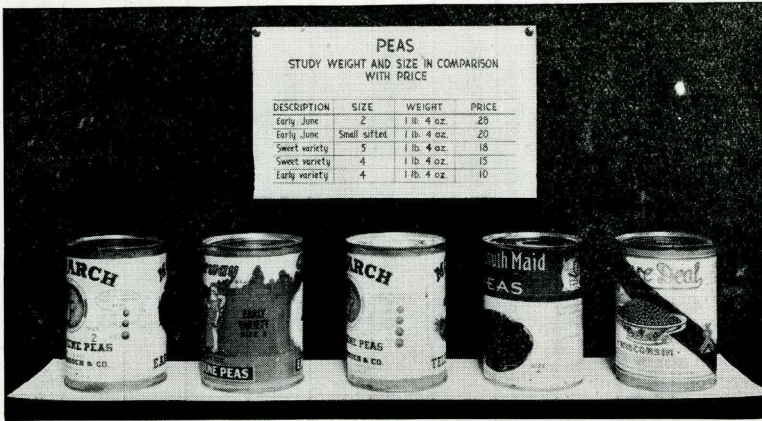
The homemaker should determine the size of can and grade that will suit her family best. The following gives the standard can sizes in common use:

| Sizes | Cups full | Weight                          |
|-------|-----------|---------------------------------|
| 1     | 1 1/3     | 10 1/2 oz. to 1 lb.             |
| 2     | 1 2/5     | 1 lb., 2, 3 or 4 oz.            |
| 2 1/2 | 3 3/5     | 1 lb., 12, 13 or 14 oz.         |
| 3     | 4         | 2 lbs., to 2 lbs. 4 oz.         |
| 10    | 13 1/4    | 6 lbs., 4 oz. to 6 lbs., 14 oz. |

Vegetables are commonly sold in No. 1 and 2 cans; kraut, spinach and pumpkin in No. 2½ cans. The large cans are available but they contain more than the average family can use at one time. Instead of buying the



Common vegetable grades are Extra Fancy, Fancy, Extra Standard and Standard.



Size of pea within can is indicated on label. Check the contents with the label to improve buying practices.

very large cans, the homemaker, to save on cost can buy a dozen cans of the size best suited to her family.

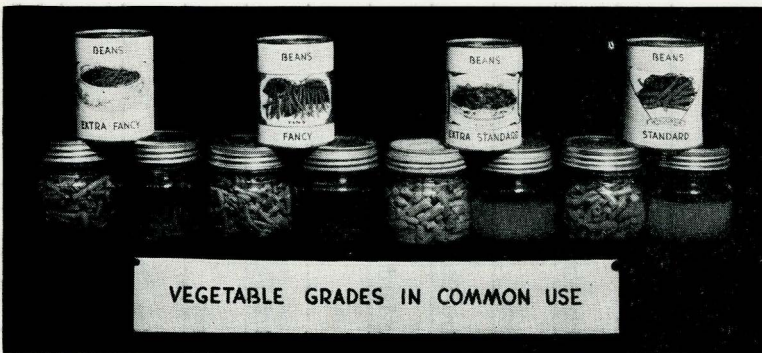
One homemaker reported that she saved 30 cents by buying one dozen cans of No. 2 string beans in Extra Standard grade for \$1.50. If purchased as single cans they would have cost \$1.80.

Vegetables are commonly sold under four grades:

Extra Fancy—The vegetables are the finest in color, tenderness, appearance and size.

Fancy—The vegetables are not so attractive. They may be broken but the quality and color are good. There are no blemishes.

Extra Standard—The quality is good. There may be blemishes and the color may not be quite uniform.



VEGETABLE GRADES IN COMMON USE

Common vegetable grades are Extra Fancy, Fancy, Extra Standard and Standard.

## COMPARISON OF GRADES OF VEGETABLES IN COMMON USE

4

### NO. 2 CANS

#### Peas

| Grade             | Price* | Weight contents | Measure (solid) | Measure (liquid) | Description                          |
|-------------------|--------|-----------------|-----------------|------------------|--------------------------------------|
| 1. Extra Fancy    | 28¢    | 1 lb. 4 oz.     | 2 1/4 c.        | 14 T.            | Very small, even size                |
| 2. Fancy          | 20¢    | 1 lb. 4 oz.     | 2 1/3 c.        | 16 T.            | Small, even size and color           |
| 3. Extra Standard | 15¢    | 1 lb. 4 oz.     | 2 c. 1 T.       | 18 T.            | Few crushed, medium size, even color |
| 4. Standard       | 10¢    | 1 lb. 4 oz.     | 2 c. 1 T.       | 12 T.            | Medium large, even color             |

#### Beans (green)

|                   |     |             |          |       |  |
|-------------------|-----|-------------|----------|-------|--|
| 1. Extra Fancy    | 23¢ | 1 lb. 3 oz. | 2 1/2 c. | 18 T. | Whole bean, liquid clear, beans uniform size |
| 2. Fancy          | 20¢ | 1 lb. 3 oz. | 2 1/2 c. | 18 T. | Small bean, whole, even green and same size  |
| 3. Extra Standard | 15¢ | 1 lb. 3 oz. | 2 1/2 c. | 16 T. | Cut bean, color fair, even size              |
| 4. Standard       | 10¢ | 1 lb. 3 oz. | 2 1/2 c. | 16 T. | Good quality cut bean, medium green          |

\* The examination of these products revealed very little difference between the Extra Fancy and Fancy or the Extra Standard and Standard. There was quite a marked difference between the Fancy and Extra Standard. A comparison of the quality of different grades and brands with price gives the homemaker a basis on which to buy canned vegetables.

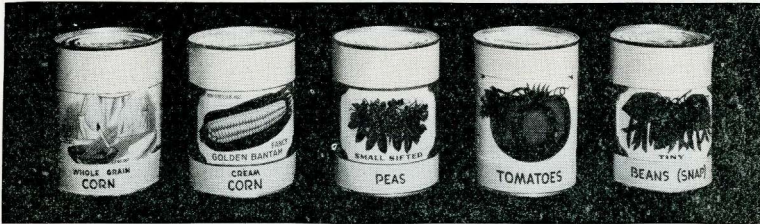
**Standard**—The food is wholesome but not entirely free of blemishes. Not as careful attention is given to color and size.

**Sub-standard**—Poor quality. The vegetables are inferior. The quality is so inferior that no packer will affix his brand.

U. S. standards for grades of canned corn, whole-grain and cream style; peas; tomatoes, and snap beans have been accepted as official grades. The grades are: A (Fancy), B (Extra Standard or Choice), C (Standard), and Off-grade (sub-standard). Two national retail organizations have accepted them and are selling their products so labeled. Others no doubt will follow their lead. The homemaker should ask for these grades every time she buys canned vegetables until she is able to get them. The label gives definite information as to contents so that she will receive the same quality in a grade regardless of the brand she buys.

After the U. S. standard for vegetables is accepted and printed on the labels, the contents is considered misbranded if it does not come up to the standard specified.

The definitions for the following five vegetables are quotations from the leaflets Service and Regulatory Announcement Nos. 138, 139, 140, 141 and 142 for U. S. Department of Agriculture, Washington, D. C. Copies of each can be secured on request. They give detailed information as to the grades and are invaluable to the homemaker who is interested in buying canned products to advantage.



Buy these canned vegetables by U. S. Grades A, B, C, and Off-Grade.  
See label for grade.

**Corn**—Canned corn is the canned vegetable prepared from the immature grain of sweet corn with or without the addition of salt and/or sugar, with the addition of such quantities of potable water as may be necessary in the proper preparation of the product, packed in hermetically sealed containers, and sterilized by heat.

Corn is sold as whole kernel, which includes only that top-cut in such a manner as to leave the grain substantially whole. The scrapings of the cob are discarded or used for soups. The cream style canned corn is canned sweet corn prepared from corn removed from the cob by shallow cutting through the grain and subsequent scraping causing it to have a creamy consistency. The U. S. standards for both whole kernel and cream are: Grade A (Fancy), Grade B (Extra Standard or Choice), Grade C (Standard), and Off-grade (Sub-standard).

**Peas**—Peas are sieved for grades. The very fine are the most expensive. The medium sized are well flavored and tender. The ungraded include peas of varying sizes.

Canned peas are the canned vegetable prepared from the seed of the common or garden pea by shelling, winnowing, and thorough washing, with or without grading as to size, with or without precooking (blanching), and by the addition, before sterilization, of the necessary quantity of potable water with or without salt and sugar, packed in hermetically sealed containers, and sterilized by heat. The U. S. standard grades as approved are: Grade A (Fancy), Grade B (Extra Standard or Choice), Grade C (Standard), and Off-grade (Sub-standard).

**Tomatoes**—Canned tomatoes are the canned vegetable prepared from sound, ripe, fresh tomatoes, of any red variety or varieties, by thorough washing and scalding and by proper peeling, coring, and trimming, with or without the addition of sugar or salt, packed in hermetically sealed containers, and sterilized by heat. The liquor used for filling the spaces between the vegetables is the natural juice of the tomatoes and does not exceed in quantity the juice derived during proper peeling, coring, and trimming from the tomatoes in the can. However, the juice of other tomatoes of the same quality and preparation may be used, provided the total quantity of juice is not increased, except as hereinafter provided. The U. S. standard grades for canned tomatoes are: Grade A (Fancy), Grade B (Extra Standard or Choice), Grade C (Standard), and Off-grade (Sub-standard).

**Snap beans**—String beans are also sieved for size. The young tender beans are the most desirable and grade the highest. They are canned whole. The larger pods are sold as cut beans.

Canned snap beans are the vegetables prepared from fresh, immature



Tentative U. S. grades have been developed in these canned vegetables. Read labels.

Pods of any of the varieties of the common garden bean, with ends of pods snipped, washed, with or without precooking (blanching), with the addition of potable water, with or without salt, packed in hermetically sealed containers, and sterilized by heat. The U. S. standards for grades of canned snap beans include: Grade A (Fancy), Grade B (Extra Standard), Grade C (Standard), and Off-grade (Sub-standard).

Tentative grades have also been developed by the U. S. Bureau of Agricultural Economics in cooperation with the canners, for the following canned vegetables: beets, carrots, dry beans, lima beans, pimento, pumpkin, sauerkraut, spinach, succotash, tomato pulp, catsup and tomato juice.

New grades are tried out for three or four years and then adopted with modifications if advisable, as official grades.

The homemaker can learn about the product by reading the label. With the wider distribution of the new U. S. standards for grades, she will get from the label definite information as to contents. The label should give her the grade, the size of can, the proportion of liquid to solid, the number and size of pieces (where possible) and the quality. The information on the label should be so clear-cut that the homemaker knows exactly what she is getting when she buys a grade.

There are a number of tests on canned vegetables which the homemaker can apply. Cost of the tests can be paid for by the club. The canned vegetable may be purchased in one size (No. 2 is more usable for the average family), in as many grades and brands as are sold in the community. The cans are opened, the fullness noted, the liquid and solid measured, the liquid and solid weighed, and the cost of the solid computed per pound by the Cost-Weight Table published by the Extension Service, Brookings, S. D. Every item of the investigation is recorded as the work progresses. The cost per pound of the commercially canned is compared with that of the home canned, the stored and the fresh.

A No. 2 can of peas was purchased for 28 cents. Total weight, 20 ounces, liquid, 8 ounces, solid 12 ounces. The homemaker did not buy the canned product for the liquid but for the solid, so she figured the cost per pound on the basis of the solid. Twelve ounces then cost 28 cents.

The cost per pound is:

$$\frac{28}{12} \times \frac{16}{1} = \frac{112}{3} \text{ or } 37\text{c per pound.}$$

The cost per pound can be determined quickly by the Cost-Weight Table.

In testing vegetables, note the size and flavor. A comparison of the cost of vegetables in the same size cans and brands from different stores should be made. The price cannot be taken as an indication of quality, flavor or color. In the cans of peas and beans summarized in the table "Comparison of Grades of Vegetables in Common Use," there was no apparent difference between Extra Fancy and Fancy and yet there was a difference of 8 cents in the price of peas and 3 cents in beans. The home-



maker needs to know from investigation and comparison what the market affords and what is the best buy for the money.

The canner puts out a limited number of canned products. He may have his own sales force but he is more likely to turn the whole output over to a jobber, commission man or wholesale grocer. He may brand his product or the jobber having contracted for the output of a number of factories may affix his brand.

The cost of the canned product includes the cost of growing, harvesting, processing, factory upkeep, personnel, and distribution. It is a seasonal business. The factory is closed a part of the year.

### Factors Leading to the Establishment of Grades.

Government grades were established in order that the owners might secure credit for loans on the canned products which they had in storage.

Men are authorized by the Secretary of Agriculture to act as graders of these products. They issue a certificate that covers the canned goods



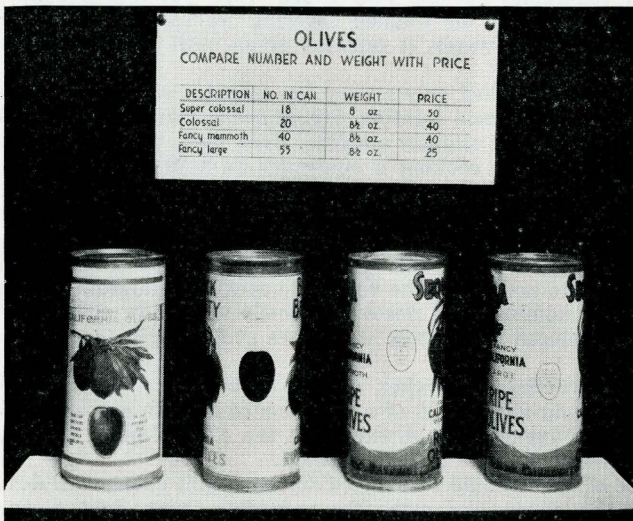
Cans of different sizes may contain the same weight. Also cans may appear to be of the same size but actually contain different weights.

only during the time that they are in the licensed warehouses. The inspectors visit the warehouses four times a year. They take samples and ship them to the Bureau of Agricultural Economics for testing and grading. The service is voluntary. There is no exact record of the amount of canned goods which is graded. The greater part of the grading is done in the

East, Middle West and Ozark Mountains. Very little is done on the Pacific Coast.

If a canned product must come up to a standard before credit will be extended for a loan, why is it not just as valuable to the homemaker who is investing her money? She also wants assurance of value received. The groceryman buys canned products only on well defined grades. The one who buys blindly is the homemaker. A definite step forward has been taken in the new U. S. grades. The homemaker will get them if she continues to ask for them.

Products which fall below quality standards must be so labeled. Minimum standards have been established in peas and tomatoes. During the canning season, the inspectors visit the canning factories. If they suspect that sub-standard products are being packed, they find out where they are being shipped and if out of the state, notify the inspector at that point. He has samples tested. Because the Act applies only to inter-state



Buy olives by number and weight in comparison with price.  
(See extension circular No. 355, "Buying Canned Fruits.")

trade, the inspectors cannot seize the product at the plant but have to wait until it has crossed the state line.

If canned foods which are sub-standard are not so marked, the Food and Drug Administration refers the facts to the courts and they order a

Food which is canned and sold within a state does not come under the seizure of the shipment. There are very few contests of seizure because the inspectors are very sure of the condition of the goods before the seizure is made. The total seizures July 1, 1932 to February 1, 1935 was 161. regulations of the Federal Food and Drug Administration. State laws, which may or may not include the federal regulations, govern this.

## Cooking Vegetables\*

Many cooked vegetables have a dark color, flat taste and strong odor. This may account in part for the dislike which many people have for cooked vegetables. If they are properly cooked, seasoned, and attractively served, more people will enjoy eating them.

Vegetables are classified for cooking according to color—green, red, yellow and creamy white. Each one requires special attention.

### Green Vegetables

The green vegetables include asparagus, peas, string beans, greens, etc. The green color in vegetables, known as chlorophyll, is almost insoluble in water. The loss of color in cooking is due to the breaking down of the chlorophyll.

Heat and acid from the vegetable itself destroys the coloring very easily when it is cooked in a small amount of water in a covered kettle.

Green vegetables become very green when put into hot water. The chlorophyll goes into the outside covering where it is visible. Since it does not dissolve in water, it remains green until the acid and heat destroy it.

Vegetables, if cooked only a very few minutes will remain green even in neutral or faintly acid solution. String beans lose their color unless the cooking water is kept slightly alkaline. Even then, the vegetable will lose its green color if the cooking is continued an hour or more.

Tests indicate that probably most tap water is slightly alkaline. To keep the water slightly alkaline, the vegetable should be cooked in a large proportion of water to vegetable in an uncovered vessel, at least during the first few minutes of cooking. The large amount of water will have enough alkali to neutralize the vegetable acid and maintain a slight alkalinity of the solution. The uncovered kettle will allow the volatile acids which are produced in greatest abundance at the beginning, to pass off in the steam.

To preserve the color when green vegetables are cooked, it will be necessary to add about 1/16 of a teaspoon of soda to a quart of water to neutralize the vegetable acid, except in the case of quick cooking vegetables such as spinach and other greens.

The use of soda should be avoided since a slight excess will destroy the vitamins, the flavor, and make the vegetable slimy. In the steamer or pressure cooker, the vegetable acid is retained and concentrated to the point where it changes the color. In the steam pressure cooker the high temperature alone will break down the chlorophyll.

The time of cooking should be shortened since it saves time and nutrients. The water should be boiling when the vegetables are put in, and kept boiling. The kettle should be uncovered and a large volume of water used. In the case of spinach the stems should be removed. Green vegetables except spinach are not cooked in a steamer or steam pressure cooker.

### Yellow Vegetables

Carrots, squash, sweet potatoes, pumpkin, and rutabagas belong to the yellow vegetables known as "carotinoids." The yellow color is present

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\* Excerpts from "Hows and Whys of Cooking"—Halliday & Noble.

with the chlorophyll in green vegetables but it does not show up unless the green disappears. If a part of the green color is destroyed in cooking vegetables, that which remains combined with the carotinoids gives a bronze-green color to the cooked vegetables.

Carotene, one of the yellow pigments, can be transformed by the animal body into vitamin A. For this reason, yellow vegetables and fruits are important in the diet.

Yellow vegetables can be cooked in a small amount of water in steamer or pressure cooker without loss of color. The darkening of yellow vegetables may be due to scorching the sugary juice.

### **Red Vegetables**

The red vegetables include red cabbage, beets and radishes. The coloring matter of these vegetables belongs to a group of pigments called anthocyanins. Many fruits also contain them. Acids favor the color retention in red fruits and vegetables, whereas alkalies and certain metals cause undesirable changes, even to complete loss of color. Red cabbage will not stay red unless acid in the form of vinegar, lemon juice or tart apple is added to the cooking water. Beets contain sufficient acid to retain their color in cooking if the skins are not removed. They are steamed or cooked in the steam pressure cooker.

### **White Vegetables**

White vegetables appear to contain no color. Potatoes and onions do not. Many contain a small amount of certain substances which in dilute acid solutions, found in vegetable juices, turn yellow in alkali and brown or green with iron. The alkali in ordinary water may be sufficient to give a pronounced color to such vegetables as yellow-skinned onions.

There is a disagreeable unexplained color change which occurs when white vegetables are overcooked. They turn a brownish gray. Most of the white vegetables belong to the cabbage family.

#### **The Cabbage Family**

Cabbage, brussel's sprouts, cauliflower and turnips belong to this group. They are not strong juiced when raw but on cooking develop a disagreeable taste and smell due to a sulphur compound they contain. The mistake is cooking these vegetables in a small amount of water for a long time in the presence of their vegetable acid. To prevent them from discoloring and having a bad taste and odor, they should be cooked in a large amount of water in an open kettle in the shortest possible time. Never cook them in a steam pressure cooker.

#### **Onions**

Onions are strong juiced. They do not develop a new flavor when cooked but lose the one they have. Onions should be cooked in a large amount of boiling water only until tender. They should not be cooked in a steamer or pressure cooker because the onion flavor is then retained.

### **Other Vegetables**

To retain the flavor of other vegetables, cook them in a small amount of water in a steamer or pressure cooker. Baking, steaming and boiling are three methods used in cooking vegetables. The greatest loss in nutrients occurs in boiling, less in steaming and the least loss in baking.

Experiments indicate that the loss need not be so great if the cooking period is shortened. The vegetables should be cooked only until tender, or left slightly crisp. The water should be boiling when the vegetables are put on, and again brought quickly to boiling. The greater the cut surface exposed to the solvent action of the water, the greater the loss of nutrients.

The cooking water can be used in gravies or soups. The water can be evaporated if the vegetables can be cooked in a small amount of water and are not likely to discolor. Boiling is the only satisfactory cooking method to use with the cabbage family. Onions, carrots, sweet potatoes, squash, wax beans, parsnips, beets, spinach, and other greens are excellent steamed.

Shred cabbage, break cauliflower into sections, and cut root vegetables into lengthwise pieces for cooking because less nutrients are lost when so prepared. Cook asparagus by standing stalks upright, cooking butts first and then the tips; or cut off butts and cook them separately from tips.

Red cabbage needs acid present in the form of 2 or 4 apples or 4 or 5 tablespoons of vinegar to 2 cups of shredded cabbage. Use 1 to 1½ teaspoons salt to every quart of water in which the vegetables are cooked. Salt helps to retain the color and improves the flavor.

The loss from steaming is slight. Therefore cut the vegetables into serving pieces before cooking. Beets are the exception.

### References:

1. Food Buying and Our Markets—Monroe and Stratton.
2. How to Spend Money—Ruth Brindze.
3. Service and Regulatory Announcements Numbers 138, 139, 140, 141, 142—U. S. Department of Agriculture.
4. U. S. Government Grades and Standards for Canned Goods—Consumers Division, National Emergency Council.
5. Hows and Whys of Cookery—Halliday and Noble.

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