United States
Department of
Agriculture

Agricultural
Marketing
Service

Fruit and
Vegetable
Division

Processed
Products
Branch

Grading Manual for Frozen Turnip Greens with Turnips

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I GENERAL

A. Purpose and Scope.

The instructions are designed to assist inspectors in the interpretation and uniform application of the United States Standards for Grades of Frozen Turnip Greens with Turnips. These instructions also serve to familiarize inspectors with the commercial production of frozen turnip greens with turnips and the general processing procedure used by the industry. Where these instructions do not appear to fully cover the situation, inspectors and supervisors are urged to refer the matter to the Washington office for consideration.

B. Caution.

These are administrative instructions and are not for public distribution.

C. Keep Instructions Current.

These instructions may be revised, in whole or in part whenever the need for such revision is indicated. Therefore, any comments or suggestions, such as the detection of errors or the development of new and better inspection techniques, should be forwarded in detail to the Washington office.

II PRODUCTION

A. Importance.

Frozen turnip greens with turnips is becoming an increasingly important pack each year. Complete production figures are not available but approximately 2,000,000 pounds were certified during the 1957 packing season.

B. Production Areas.

Frozen turnip greens with turnips are packed principally in the Southern states of Tennessee, Arkansas, Texas, Georgia, Lousiiana, and Maryland.

C. Varieties and Types.

Some varieties of turnips may be dual-purpose which may be grown for both turnip greens and turnips. Other varieties are only suited for the production of either turnip greens or turnips (roots). Most commercial growers and packers grow turnip greens in one field and turnips (roots) in another field or area. The most important varieties for producing greens are the Shogoin (Japanese) and Seven Top, whereas the purple top globe is generally grown for turnips (roots). The variety Orange Jelly or Golden Ball is a high quality yellow fleshed turnip and may be used in packing this product. The turnip root of the Seven Top variety is woody, tough and undesirable for food.

D. Harvesting and Delivery.

Proper time of harvesting is highly important in freezing turnip greens with turnips. If the turnip greens are allowed to remain in the field too long after the proper stage of maturity they may become bitter or tough, especially the stems. If the turnips (roots) remain in the field too long before harvest they may become fibrous or pithy. In order to control harvesting time, turnips are usually grown under freezer-grower contracts. The freezer may exercise rigid control of seed, spray programs, and planting dates. In many cases the freezer owns and maintains the harvesting equipment. There are generally two seasons in the sough of harvest and production of frozen turnip greens with turnips. The highest quality is packed in the fall during the months of October, November, and the first part of December. The spring pack starts during the altter part of January and continues through February, Mamrch and April. If the parking season extends too far into warm weather seed stems and yellow blooms with form in turnip fields and the quality of the turnip greens will be adversely affected by seed stems. These seed stems are genearlly tough and inedible. Extremely cold freezing weather may injure the tunip greens and turnips.

Turnip greens are usually planted in narrow rows or broadcase and grown on level fields. The turnip greens are genearlly harvested mechanically with a mower-type machine that loads the greens directly onto a wagon. The turnips (roots) may be harvested machanically but generally they are harvested by hand. When they are harvested by hand the larger roots may be harvested and the smaller roots are left for the next harvest. The turnips (roots) may be stored or shipped to another area before processing. For example the turnips (roots) grown in Colorado may be shipped to Louisiana for processing with locally grown turnip greens. Turnip greens should be processed as soon as possible after harvest.

E Inspection of Ray Material.

Processed products inspectors should make general observation of the quality and condition of the raw products deleivered to the plant for processing. However, they should not attempt to establish the grade of the raw product or enter into a discussion between the processor and the grower in regard to the quality of the raw product. The observaitons of the U.S.D.A. processed products inspector with respect to raw material should be recorded in the inspection records. If a residue is present of the leaf surface this should be investigated further. The inspector shoulld inquire whether chemical sprays or dust were used on the crop prior to harvest. This information should be discussed with the supervisor. Most chemical companies and their representatives are very helpful in furnishing dependabe information about their chemical sprays and dusts. The presence of insects should also be noted.

III PREPARATION AND FREEZING

A. Washing.

In a typical processing operation the turnip greens are washed in a tank or combination tank and spray washers. When the greens are harvested during rainy weather the volume of greens through the washers may have to be reduced or washing facilities increased to insure a thorough cleaning. Special wetting agents may be used in the washers to aid in removing insects and earthy material. When wetting agents or detergents are used in the washing operation the inspector should obtain the necessary information to determine whether these cleansing agents are permitted by Federal and State Food and Drug agencies.

The turnip roots are generally washed in a vat and may be cleaned in a brush type washer or under sprays of water in a squirrel type washer.

B. Sorting, Peeling and Trimming.

There should be some provision for sorting defective leaves and trimming defective roots before they are sliced or chopped. The turnip roots may be peeled by placing them in a low concentration of lye. They should be thoroughly washed after peeling. Usually there is no problem during the peeling operation. If the turnip roots are not peeled special care should be taken in sorting roots before slicing, dicing, chopping or cutting.

C. Blanching.

Turnip greens with turnips are blanched to inactivate or destroy enzyme activity. The type of blancher most commonly used is of the hot water rotary type, although some steam blanchers are used. More of the vitamins are retained in the product if a steam blancher is used. The temperature of the blanch is thermostatically controlled at approximately 190 degrees F. and the blanching time varies with the temperature.

D. Cooling.

It is very important to thoroughly water cool the product after blanching. This will preserve the color and is important in producing a good quality product. The product should be cooled down to near room temperature and thoroughly drained before packaging.

E. Packaging and Freezing.

The product is generally placed in the packages by hand, but some processors use mechanical fillers for some styles of this products. The product should be thoroughly frozen as soon as possible after packaging. In some cases the turnips (roots) are prepared and frozen in bulk containers to be used later in preparing the product in consumer or institutional size cartons. Generally, when frozen in bulk if the turnip ingredient is drained and frozen properly it is not necessary to thay this ingredient before re-packaging.

F. Containers.

The common container size for consumer use for frozen turnip greens with turnips is the 10-ounce carton. Only a relatively small volume of other retail size containers is packed. The usual containers for institutional use are the 2-1/2 and 3 pound cartons.

G. Storing.

After freezing, the cartons are packed in corrugated fiber cased which are sealed and stored in a cold storage room at 0 to 10 degrees F. until ready for shipment

IV INSPECTION OF THE PRODUCTS

A. General.

The United States Standards for Grades of Frozen Turnip Greens with Turnips describes and established requirements for the quality factors and should be followed in the inspection of the products, except when another specification is specificallly requested.