INSTRUCTIONS FOR INSPECTION

of

CANNED FIELD PEAS

and

CANNED BLACK-EYE PEAS

For Use of USDA Processed Products Inspectors

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
FRUIT AND VEGETABLE DIVISION
PROCESSED PRODUCTS STANDARDIZATION AND INSPECTION BRANCH
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VARIETIES

Some varieties are more widely grown than others because of resistance to nematodes, cowpea curculio (weevil), and diseases. Growers prefer varieties that yield high and adapt to mechanical harvesting.

Some of the many varieties grown for processing are: Purple Hull, Brown Crowder, White Acre, Lady, Black-eye, Mississippi Silver, and Arkansas 83.

HARVESTING

Until recently, Southern peas were harvested by hand and Pixall machines for commercial canning operations. Several different hand pickings were required during the growing season to harvest the crop.

Now, Pixall machines and mobile combines are used exclusively to harvest the crop. These machines are designed to move through the field and harvest all of the crop at one time. Combines do not recover peas from immature pods. To increase yield, growers wait until few green pods are present before the crop is harvested.

Combines incorporate foreign materials (sand, dirt, pieces of plant material, etc.) with the harvested peas. These materials must be removed before canning.

Combine peas constitute the main source of raw material for canned peas. Few intense green peas are found in combine peas.

PROCESSING

Empty cans are filled with peas and hot brine. A closing machine places lids on the cans and seals them. Hot brine spills over onto the sides of the cans as they are sealed. Unless this spillage is washed from the can prior to cooking, it bakes onto the can exterior. This is one of the causes of rusting and pinholing of cans during storage.
PRODUCT DESCRIPTION

FDA "Standards of Identity" require that canned field peas and canned black-eye peas be prepared from succulent peas. "Dry-soaked" peas (prepared from seed-dry peas) are often added to succulent peas. While this practice is a deviation from the FDA "Standards of Identity," it is difficult to prove under "lot inspection."

"Combine peas" are in between young, tender, green Southern peas and "dry-soaked" peas. They are dry enough to enable harvesting by field shelling, but are too high moisture to enable storage without processing. They are not "dry-soaked" peas. Also, there are many different degrees of maturity in "combine peas."

If "dry-soaked" peas or "combine peas" are used in the product, certify it as follows:

"DRI-Y-SOAKED" AND VERY MATURE "COMBINE" PEAS

ON-LINE INSPECTION

LOT INSPECTION

NOT MORE THAN 10% "DRI-Y-SOAKED"; OR 100% "COMBINE" PEAS

MORE THAN 10% "DRI-Y-SOAKED" PEAS

100% "DRI-Y-SOAKED" OR "COMBINE PEAS"

CERTIFY AS "CANNED FIELD PEAS"

CERTIFY AS "CANNED DRIED BEANS"

CERTIFY AS "CANNED FIELD PEAS"

BUT

BUT

SCORE DOWN "CHARACTER" ACCORDING TO "FIRM," "HARD," "MEALY" PEAS
DRAINED WEIGHT AND COUNT OF SNAPS

Wait until at least 48 hours after packing to make drained weight determinations.

After determining the drained weight of the peas, separate the snaps from the peas, weigh, and record the drained weight and count of snaps.

STYLE

Without snaps.

Consider any snaps present in canned peas that are labeled or declared as "without snaps" as extraneous vegetable material (EVM). Score EVM under the factor of defects.

With snaps.

If canned peas contain snaps, the pods must be of field pea plant origin. Cut green beans cannot be used as substitutes.

"Field peas with snaps" should not exceed 10 percent, by weight, of snaps. If snaps exceed the 10 percent limit, consider the product as "field peas and snaps."

Definition of a snap. Snaps may be any length. The pods may be snapped or cut. Two parts of a pod that is split lengthwise is "one snap."

Previously processed snaps. Snaps may be from previously frozen, canned, or brined pods. Snaps must not affect the overall appearance or overall flavor of the product because of excessive salty taste or discoloration.

Count requirements of "field peas with snaps."

<table>
<thead>
<tr>
<th>Sample Average</th>
<th>Individual cans</th>
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<tbody>
<tr>
<td>Not less than 1 snap per 4 ounces total contents (net weight).</td>
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<tr>
<td>Not more than:</td>
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<tr>
<td>1 can in 13,</td>
<td></td>
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<tr>
<td>2 cans in 29,</td>
<td></td>
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<td>3 cans in 48,</td>
<td></td>
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<tr>
<td>4 cans in 60,</td>
<td></td>
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<tr>
<td>may have less than 2 snaps in a single can</td>
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Canned Field Peas and Canned Black-eye Peas
May 1977

VARIETAL TYPES

*Black-eye peas.*

California Black-eye — white or tan with black hilum.

Purple Hull — white or tan with brown hilum.

Other varieties having black or brown hila and a bean shape, including Arkansas 83.

*Field peas.*

Cream peas or White Acre — solid cream color.

Crowder peas — solid tan or brown color and blunt ends, including Mississippi Silver.

Lady — solid creamy-white.

Other varieties, such as Whippoorwill.

SIMILAR VARIETAL CHARACTERISTICS

Canned field peas must comply with this requirement to grade above Substandard. The canned field pea standards don’t provide for mixed varietal types, the frozen field pea standards do provide for mixed types.

Allow a sample average of 5 peas with noticeably different varietal characteristics, from the predominating varietal type, in each 16 ounces net contents of canned field peas. Allow no more than 10 dissimilar peas in each 16 ounces net contents in any individual can.

Some varietal types are not objectionable if mixed together. Use the following guideline:

\[
\begin{align*}
\text{Not objectionable} & : & \begin{aligned}
& \text{Arkansas 83's and Purple Hull} \\
& \text{Purple Hull and Black-eye} \\
& \text{Brown Crowder and Mississippi Silver} \\
& \text{Cream Peas and Brown Crowder}
\end{aligned} \\
\text{Objectionable} & : & \begin{aligned}
& \text{Black-eye and Crowder}
\end{aligned}
\end{align*}
\]
Canned Field Peas and Canned Black-eye Peas
May 1977

FLAVOR AND ODOR

Normal flavor and odor is a prerequisite requirement for all grades
above Substandard. Assign the grade of Substandard to all edible
sample units that fail normal flavor and odor. "Off-flavor" is
any objectionable flavor or odor. Consider all flavor deviants
as quality deviants and allow them collectively with other quality
deviants.

Salt

A good salt balance is expected in canned peas unless the product
is labeled or declared as containing "no added salt." Consider
sample units containing no added salt, when salt is normally
expected or declared on the label, or too much salt, as quality
deviants to normal flavor. If brined snaps are used in canned
peas, the snaps should not be so excessively salty as to affect
the overall flavor of the product.

Do not downgrade for lack of salt in canned peas packed with "no
added salt," and labeled or declared as "no salt."

COLOR

Color is not limiting in grade C. Grade C color in an otherwise
grade A sample unit is acceptable, provided, the total score is
85 points or more.

Dark pigmentation may leach from peas with dark hila during
processing. This produces a grayish cast to the skins and cotyledons.
Score this grayish cast against color. This is also an indication
of "dry-soaked" peas.

Occasionally, peas in the bottom of large containers are scorched
during heat processing. If the color of the peas in the entire
bottom portions of the container is seriously affected, assign a
Substandard score for color.

Greater variation is expected in the color of light-color varieties
(black-eye, purple hull, cream, etc.), than in reddish-brown or
brown peas. Further, heat processing affects the overall color
of the light varieties. This is noticed more in Number 10 cans
because of the longer heat process required for sterilization.

EDTA is permitted by FDA. EDTA tends to brighten the overall
appearance of the peas. It is especially effective in brightening
the appearance of "dry-soaked" peas.
DEFECTS

Use a gram scale to make the defects determination. Separate and weigh each category of defects. Disregard any slight or insignificant discoloration which does not affect the appearance or eating quality of the peas.

**Extraneous vegetable material (EVM).**

In canned peas with snaps do not count pods as EVM. In canned peas without snaps, count pods as EVM.

Unstemmed snaps are EVM in either field peas with snaps or field peas without snaps.

"Combine" peas contain large amounts of EVM when they are received at the cannery. Thorough sorting is required to remove this material.

**Mashed or broken.**

"Combine peas" receive mechanical damage which increases the amount of loose skins and broken cotyledons. Sprouted peas are occasionally encountered. If the pea is damaged by the sprout, count it as broken. Include the sprout itself (attached or detached) in the weight of canned peas scoreable against the allowance for broken peas. Loose skins are more prevalent in some varieties, such as cream peas.

**Blemished.**

Green peas in mechanically harvested peas often oxidize and turn brown. Score noticeably discolored peas as blemished.

Weevil damage occurs as visible holes eaten into the cotyledons or as discoloration commonly called "weevil sting." Consider the damage insignificant or scoreable, depending upon the extent to which it is noticeable. Score units affected by larva holes and dark discoloration ("stings") as blemished. Slight discoloration of light-colored "stings" is insignificant.
DEFECTS (continuation)

Sand and grit.

Although the standards do not specifically mention sand and grit, consider it at the time the peas are chewed to determine maturity. Also, the liquor may contain grit if the peas are noticeably gritty. Use a small pyrex beaker to check for grit in the liquor. Set the beaker in the tray and slowly move it around through the liquor. Any detectable amount of grit will impart a scratching noise.

Canned peas must be practically free of earthy materials in any grade above Substandard. After chewing the peas, score any gritty material as Substandard. Consider gritty sample units as quality deviants, collectively, and allow with other deviants.

Cowpea curculio.

Consider cowpea curculio as an unavoidable defect in field peas and black-eye peas. Some varieties of crowder peas and the California black-eye are more susceptible than other varieties.

The greatest damage from the cowpea curculio is done by the larvae feeding on the seed within the green pods. Shelled peas with curculio damage have small dark spots present which may or may not contain an egg or larva. These small dark spots are commonly called "weevil stings."

The curculio is legless and C-shaped. Its body is pale yellow and the head is brown. The larva is less than 1/4-inch in length when full grown.

A magnifying glass is helpful in detecting small larvae. "Weevil stings" cause blemished units if the appearance or eating quality is affected.

See File Code 172 for the method of analysis and the level of infestation permitted.
CHARACTER

The advent of "combine peas" has placed a large amount of hard peas in the raw product used for canning. Soaking and cooking may or may not make these peas tender. Also, some processors make a practice of adding a percentage of "dry-soak" (seed-dry) peas to more succulent peas.

Score the factor of character in relationship to the amount of estimated "dry-soaked" or "combine peas" that have been added. Character is very subjective and "firm" peas, "mealy" peas, and "hard" peas must be chewed to determine their overall effect on the eating quality. Most "combine peas" would fall in the "nearly mature" classification. If the peas are hard, classify the sample unit Substandard.

Snaps are required to be succulent pods. If the product contains snaps, consider the character of the snaps too. Tender snaps are required in grade A. However, immature field pea pods do not have the same tenderness as might be expected in green beans. Make allowances for the natural characteristics of the field pea pod.

If "dry-soaked" peas have been added to the succulent peas, specific characteristics of these peas are noticeable. Some of these are as follows:

1. Large, uniform size peas;
2. Practically uniform color;
3. Uniform, dark brown or black hila;
4. Starchy, viscous liquor (heavy drained weights will also cause this condition);
5. Grayish overall cast (EDTA decreases this condition);
6. Excessive ruptured peas with granular texture; and
7. Alcohol insoluble solids (AIS) may be 25 % or more and ascorbic acid content is 1/2 milligram per 100 grams or less.

Starch gelation.

Succulent legumes are subject to starch gelation. Gelation may occur in the peas or in the liquor. Some amount of starch gelation should be expected in canned field peas.