

UNITED STATES DEPARTMENT OF AGRICULTURE
Consumer and Marketing Service
Fruit and Vegetable Division
Processed Products Standardization
and Inspection Branch

FOR USE OF USDA
PROCESSED FOOD INSPECTORS:

A - 412

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TO: All Processed Food Inspectors
FROM: Fred Dunn, Chief of the Branch
SUBJECT: Frozen Whole Kernel Corn --
Evaluation of Tenderness and Maturity

I PURPOSE AND SCOPE

The evaluation of the factor of "Tenderness and Maturity" in frozen corn continues to challenge the expertise of inspection personnel. This instruction is not intended to solve the entire problem but will promote greater objectivity to the inspector's judgment.

II INSPECTION PROCEDURE

Follow these steps in evaluating tenderness and maturity:

- 1) Thaw the frozen corn in accordance with the Branch instructions.
- 2) Select a representative sub-sample (about 100 kernels) and apply the "squeeze" test.
- 3) Classify the kernels into the following categories:

Pre-milk or blister
Milk
Early cream
Cream
Early dough
Dough.

- 4) Determine the tentative grade classification and tentative score point based upon the squeeze test keeping in mind that for --

Grade A -- Milk or Early Cream
Grade B -- Cream
Grade C -- Early Dough to Dough.

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- 5) Adjust the tentative score point within the appropriate grade according to the results of the squeeze test. For example, in Grade A if the kernels are predominantly in the milk stage the sample unit should receive a higher tentative score than if they are predominantly in the early cream stage. The score is adjusted downward depending upon the number of kernels in the next lower grade classification as per the scoring guide in this instruction.
- 6) Confirm tentative grade and score point by cooking a representative number of samples. This is very important since the effect of pericarp can best be determined on the cooked sample. The testing of cooked samples will also confirm the inspector's judgment in classifying individual kernels into the proper maturity level.
- 7) If evaluation of the cooked sample does not confirm the squeeze test, adjust the score point and grade based on the cooked sample. This is the way the consumer is going to use the product and should be the final test as far as the tenderness and maturity score is concerned.
- 8) Whenever practical check samples according to the trimetric test (see memorandum A-155). Although this procedure is time consuming and requires good laboratory technique, it tends to promote uniformity of inspection results.

III SCORING GUIDE

In most seasons it is difficult to control the harvesting to the point that all the corn delivered will be reasonably uniform maturity. Consequently, occasional kernels of lower quality will be found in some of the sample units. Therefore, allow a maximum of 10% by count of kernels of the next lower grade than that grade classification indicated by the squeeze test. For example, in the Grade A classification allow a maximum of 10% kernels that may be in the cream stage, subject to verification by the cook test.

The presence of pre-milk or blister corn is undesirable in all the grade classifications. Consequently the score and probably grade must be lowered when significant number of blister (water) kernels are present.

As a guide, permit a maximum of blister kernels --

- In Grade A -- 15% by count
- In Grade B -- 25% by count
- In Grade C -- 50% by count.