

## Video image analyzer used to evaluate beef carcasses

CLAY CENTER, NB. — Predicting lean and fat composition of beef carcasses has been achieved more accurately and faster with a video camera and a computer than with conventional measurements applied in predictive equations for USDA grading standards.

Video image analysis should still be considered experimental at this point, says food technologist H. Russell Cross of USDA's Agricultural Research Service (ARS). A larger scale study in commercial settings will be needed before the automated procedure can become considered for official yield grading. It appears that the video image analysis may be the wave of the future, providing an efficient way for the meat industry to assure consumers that they will get the leanness in beef that they desire.

In laboratory tests, the technique was estimated to be 93.6 percent accurate in its measurements of the lean and fat content of the 9th, 10th and 11th ribs of the carcass which is the indicator of the carcass leanness.

USDA meat graders, in the current system, measure visible areas of lean and fat of the 12th and

13th ribs and then apply an equation to predict the total content. The conventional way of determining the same measurement was 84 percent accurate.

Accuracy differences between the two methods conceivably could have been more striking than they were if the methods had been compared in a typical grading situation rather than in the laboratory, Cross says.

That's because determining yield grades by using the conventional measurements in the standard equation was done painstakingly and took longer in the experiment than in typical grading conditions.

"Under typical grading conditions, USDA meat graders are expected to quality and yield grade more than 250 carcasses per hour," says Cross.

Engineers of Kansas State University developed the instrument under a contract with ARS and also cooperated in the latest research.

The video image analyzer consists of a video camera, video monitor, data terminal and computer. The computer converts what the camera sees into

numerical codes for fat, lean and marbled portions of the meat section.

Cross said the analyzer "did an excellent job" of duplicating lean and fat measurements. It was precise 97 percent of the time in measuring total fat areas and 98 percent for total lean areas. For counting marbling pieces and measuring subcutaneous fat thickness, results suggest that repeated handling of carcasses may reduce the precision.

Not including subcutaneous fat measurements in a yield-grading prediction equation, however, does not make the instrument's equation less accurate than conventional predictions that are complicated by adjustments for fat trimming prior to chilling, Cross says.

As few or as many kinds of measurements as necessary may be made to formulate an accurate prediction equation for instrument

## Angus named reserve senior bull



Kruegers Foolish Pride took the reserve senior Angus bull title at the 1983 American Royal Livestock Show in Kansas City, Missouri. He is owned by Greg Krueger and Family, Coatesville; Michigan State University, East Lansing; and Fred Frey and Sons, Quarryville.

grading, Cross says, while adding measurements to conventional prediction equations may increase the time needed for yield grading.



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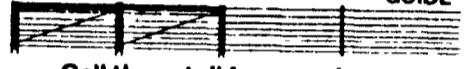
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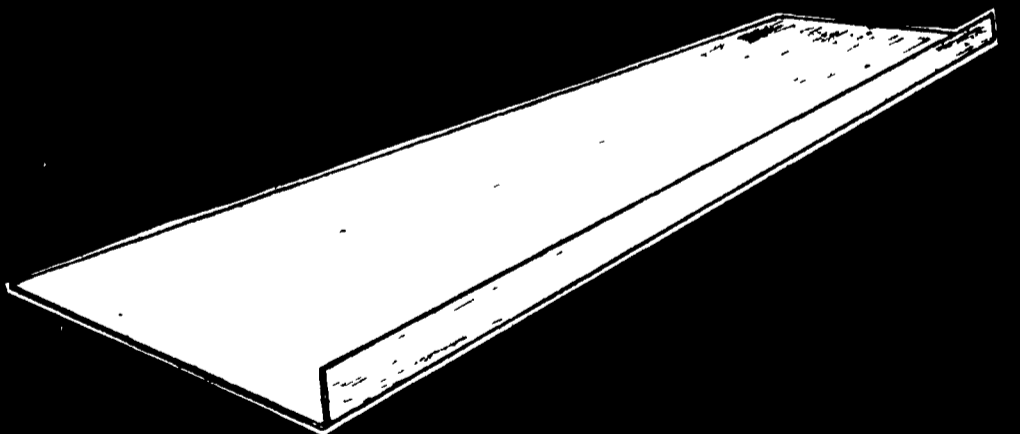


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