

CALIFORNIA **OLIVE** COMMITTEE  
2565 Alluvial Ave • Suite 182  
Clovis, CA 93611  
PHONE 559/456-9096 FAX 559/456-9099

**AGENDA**  
**Ripe Olive Inspection Subcommittee Meeting**  
**Double Tree • Sonoma Room**  
**Tuesday, June 20, 2017**  
**10:00 a.m.**

- I. Call to Order
  - a. Roll call
  - b. Approval of 11-10-16 Inspection Subcommittee Minutes (action item)
  - c. Comments from Chairwoman
- II. Brief on Results of USDA Science & Technology Multiscan Validation Report
  - a. Comments from working group elected Spokesman
- III. Recommendation from Working Group
- IV. Other Business
- V. Adjournment

## COC Subcommittees for 2015-2017

### Executive Subcommittee:

12 Michael Silveira, G-1  
Mark Hendrixson, G-2  
Dennis Burreson, MUS  
Julia Tinsley, BCF  
Tim T. Carter, BCF  
Ed Curiel, G-1  
Janet Edwards, MUS  
Felix Musco, MUS  
Edward Garcia, G-1  
Mark Heuer, G-2  
Pat Ricchiuti, G-2  
Doug Reifsteck, BCF

### Marketing Subcommittee:

14 Bill McFarland, MUSCO  
Vacant, BCF  
Tim T. Carter, BCF  
Ed Curiel, G-1  
Wai Wu, MUS  
Julia Inestroza, G-2  
Pat Ricchiuti, G-2  
Scott Hamilton, MUS  
Mark Hendrixson, G-2  
Vacant, BCF  
Edward Garcia, G-1  
Michael Silveira, G-1  
Rick Benson, G-2  
Pablo Nerey, G-1

### Inspection Subcommittee:

16 Julia Tinsley, BCF  
Paul Danielson, G-2  
Julia Inestroza, G-2  
Dennis Burreson, MUS  
Pablo Nerey, G-1  
Rick Benson, G-2  
Janet Edwards, MUS  
Ben Hall, MUS  
Chris Henderson, G-1  
Doug Reifsteck, BCF  
Cody McCoy, BCF  
Larry McCutchen, MUS  
Vito Deleonardis, G-2  
Phil Quigley, BCF  
Art Hutcheson, G-2  
Edward Garcia, G-1

### Research Subcommittee:

15 Dennis Burreson, MUS  
Julia Tinsley, BCF  
Art Hutcheson, G-2  
Scott Patton, G-1  
Bert Ouezada, G-2  
Paul Danielson, G-2  
Vito Deleonardis, G-2  
Chris Henderson, G-1  
Cody McCoy, BCF  
Ben Hall, MUS  
Phil Quigley, BCF  
Felix Musco, MUS  
Pablo Nerey, G-1  
Ed Curiel, G-1  
Pat Ricchiuti, G-2



**CALIFORNIA OLIVE COMMITTEE**  
**COC Inspection Subcommittee Meeting Minutes**  
**Thursday, November 10, 2016**  
**10:00 a.m.**  
**Double Tree Hotel- Modesto, CA**

**I. CALL TO ORDER**

A meeting of the Inspection Subcommittee was called to order by Committee Chairwoman Julia TINSLEY at 10:05 a.m., and the following members were present:

**Members**

Dennis Burreson  
Phil Quigley  
Ed Curiel  
Chris Henderson  
Cody McCoy  
Doug Reifsteck  
Rick Benson  
Julia Tinsley  
Michael Silveira  
Ben Hall  
Vito DeLeonardis  
Paul E. Danielson  
Janet Edwards

**Affiliation:**

Musco  
Bell-Carter  
Grower  
Grower  
Bell-Carter  
Bell-Carter  
Grower  
Bell-Carter  
Grower  
Musco  
Grower  
Grower  
Musco

**Others Present:**

Alexander Ott	COC
Elizabeth Carranza	COC
Liza Ramon	COC
Todd Sanders	COC
Peter Sommers	USDA

With a majority of the Subcommittee members present, a quorum was established.

**MOVED BY Phil QUIGLEY, duly second by Chris HENDERSON, and unanimously carried THAT the minutes of the 2-17-16 Inspection Subcommittee be approved. (Motion 11-10-16 #1)**

## II. Electronic Reporting System

In 2014, the Committee launched the Olive Electronic Reporting System (OERS). In 2015, the system was refined as the COC added additional features to aide with congestion at the scale house. These included: bin tag print outs, a new entry application, and improvements for the users of the system. In addition to the OERS system, the COC and the industry continue to capitalize on technology in an effort to provide real value by implementing usage of the Multiscan I5 Optical Sizing machines. The optical sizer cuts down on labor, processors' time, and provides a higher degree of accuracy while also decreasing subjectivity in the grading process. Going into year three of this technology's usage, we have continued confidence with the system, its functionality, and stabilization. In June of 2016, the COC was able to suspend the incoming inspection requirements in the marketing order. In turn, we were able to contract directly with CDFA by using current standards to inspect incoming fruit.

Based on the circumstances we have faced in the previous year, we are recommending the following enhancements:

- Digital inventory reports from each canner;
- Direct printing of sample tags and certificates;
- Multi-scan integration to the COC Application; and
- Increased support and database maintenance.

### Phase III Update

Phase III has begun, but is at a standstill until further operations are ready at the canner level to test, run, and implement. Due to the extra trouble shooting, support, and unforeseen enhancements with inspection services, much of this budget was used.

We are proposing the following budget for 2016:

Phase III	\$27,000
Optical sizer integration	\$5,200
Support	\$6,500
Travel	\$1,300
<u>Miscellaneous</u>	<u>\$10,000</u>
Total	\$50,000

**MOVED BY Cody MCCOY, duly seconded by Dennis BURRESON, and unanimously carried THAT the Committee adopt the Inspection Budget of \$50,000 for the 2017 FY. (Motion 11-10-16 #2)**

**MOVED BY Rick BENSON, duly seconded by Janet EDWARDS, and unanimously carried THAT the Committee grant authority to the Executive Director and Chairman for inter-item transfers of the Inspection Budget. (Motion 11.10-16 #3)**

**VI. ADJOURNMENT**

With no further business to discuss the meeting was adjourned at 10:22a.m.

I hereby certify that the above is full, true and correct copy of the minutes of the meeting held on November 10, 2016 in Modesto, California, by the Subcommittee.

November 15, 2016  
Date: November 15, 2016

Liza Ramon  
Liza Ramon, Programs Coordinator

**SUMMARY OF MOTIONS FOR NOVEMBER 10, 2016**

**Motion 11-10-16 #1**

**MOVED BY Scott PATTON, duly second by Rick BENSON, and unanimously carried THAT the minutes of the 11-5-15 Inspection Subcommittee be approved.**

**Motion 11-10-16 #2**

**MOVED BY Rick BENSON, duly seconded by Cody MCCOY, and unanimously carried THAT the Committee suspend the size grading on incoming inspection requirements within the marketing order giving USDA the authority to make conforming changes, and THAT the Industry directly contract with CDFA (California State Inspection Services) using current sizing chart standards and THAT the Committee move forward with 3<sup>rd</sup> party validation of the Multiscan I5.**

**Motion 11-10-16 #3**

**MOVED BY Cody MCCOY, duly seconded by Rick BENSON, and unanimously carried THAT the meeting be adjourned at 10:06 a.m.**

**\*\*\* FOR YOUR INFORMATION \*\*\***

**FROM:** INSPECTION SUBCOMMITTEE

**SUBJECT:** MULTISCAN VALIDATION REPORT

**BACKGROUND:** In 2015 the Committee decided to explore optical sizers and companies that could optically size all the varieties and sizes of olives. A working group was established to oversee this project in order to find a machine that can size provide local service support we are still looking for other companies to explore and get the best outcome for the industry.

Finally, in 2017, the Committee received official approval from USDA's Specialty Crops Inspection Division to allow the Multiscan I5 optical sizer to be used for the certification of incoming olives. With this approval, each handler will be required to create a manual of the documented system of operation and calibration to allow SCI to verify the accuracy of the Multiscan I5. Standards and Technology Program (S&T) is creating an implementation document which will be used as guidance for each handler moving forward. The approval of the Multiscan I5 was based on the findings and recommendations included in S&T's analysis (*Olive Instrument Trial Findings and Recommendations*) for incoming olive size grading.

A copy of the approval letter, and S&T's analysis are included in the following pages.



Agricultural Marketing Service

Specialty Crops Program

Specialty Crops Inspection Division

5635 Stratford Circle, Bldg. A., Ste. 11 Stockton, CA 95207-5055 PH: 209-477-0124 FAX: 209-476-8919 [www.ams.usda.gov](http://www.ams.usda.gov)

May 12, 2017

Alex Ott, Manager  
California Olive Committee  
2565 Alluvial Avenue # 182  
Clovis, California

Dear Mr. Ott

This letter is to advise you that the California Olive Committee's (COC) request to use the Multiscan I5 optical sizer for the certification of incoming olives has been approved. Provided, each handler creates a manual of the documented system of operation and calibration. This system approach will enable SCI to verify the accuracy of the Multiscan I5. The documented system will need to include procedures for annual certification, ongoing maintenance such as cleaning records, instrument operations and training among others. S&T is preparing an implementation document which can be used as guidance for each handler as we move forward. SCI's approval is based on the findings and recommendations of the analysis conducted by the Science and Technology Program (See *Olive Instrument Trial Findings and Recommendations*) for incoming olive size grading.

Additionally, within the evaluation of data S&T looked at how the approval may affect returns paid to the growers. In an effort to be transparent, we are including their findings in this letter. This past olive season the United States Department of Agriculture, (USDA) Specialty Crop Inspection Division (SCI) in conjunction with California Department of Food and Agriculture (CDFA) gathered data on incoming olives. The collected data from the Multiscan I5 instrument systems at your two Handler facilities was submitted to USDA Science and Technology (S&T) and determined to have statistical equivalency with the inspector-derived size grading.

**Estimated Average Grower Prices (\$) Per Ton by Size Grading Method.**

Size Grading Method	Canning Size	Limited Size
Inspector	1207	419
Multiscan	1198	435

The grower price estimates for the Size Grading Method of Inspector were obtained directly from the entry for the crop year of 2014 - 2015 in the table showing the grower prices and tonnage by the crop years of 1995 - 1996 to 2014 - 2015 and olive classification on page 117 of the 2014-2015 Annual Report of the California Olive Committee. The grower price estimates for the Size Grading Method of Multiscan I5 were derived from the grower price estimates for the Size Grading Method of Inspector. The canning size grower price estimates for the Size Grading Method of Multiscan I5 do not include the olive sizes of Jumbo, Colossal, and Super Colossal. It is assumed that the entry in the table from the 2014-2015 Annual Report does include the price data for these sizes in reporting the average price per ton.



United States Department of Agriculture

Sincerely;

A handwritten signature in blue ink, appearing to read "Nate O'Connor".

Nathan O'Connor  
Western Territory Federal Program Manager  
Federal-State Inspection Management Branch

Attachment enclosed

cc: Nathaniel Taylor  
Nate Tickner  
Jeff Smutny  
Steve Patton



**Agricultural  
Marketing Service**

**Science & Technology  
Program**

**Laboratory Approval &  
Testing Division**

**Laboratory  
Approval Service**

1400 Independence Ave, SW.  
Room 3533-S  
Washington DC, 20250-0272

T: 202-690-0621  
F: 202-720-4631

DATE: April 4, 2017

TO: Erin Morris, Acting Deputy Administrator  
Specialty Crops Program

FROM: Kerry Smith, Director  
Science and Technology Program, Laboratory Approval Service

Michael Feil, Chief Statistician  
Agricultural Analytics Division

RE: Demonstration of Repeatability and Agreement (Equivalence):  
Multiscan I5 Olive Sizing Instrument

The Science and Technology Program (S&T) along with Michael Feil, AMS' Chief Statistician, analyzed and reviewed the data from the Phase I and Phase II trials of the Multiscan I5 instrument (MS I5).

Below is a summary of our findings and recommendations based on the analysis of the results.

## **BACKGROUND**

The Department of Agriculture (USDA), Agricultural Marketing Service (AMS), Specialty Crops Program (SCP), Specialty Crops Inspection Division (SCID) will use size designation scores made by approved instruments to assist in determining the official size of incoming olives inspected under Marketing Order 932. The SCID will authorize use of an approved instrument systems that meet specific performance requirements for repeatability, accuracy, precision, and agreement (equivalency) in the size grading of olives at the recommendation of the S&T. Per the requirements defined in the document titled *Instrument Systems for Size Grading of Ripe Olives*, an instrument must be tested and must meet the performance requirements to gain authorization for use from the SCID.

The ripe olive industry, through the California Olive Committee, sought approval of the Multiscan I5 instrument (MS I5) for use in in the size grading of incoming olives. The MS I5 is a vision-based automatic instrument for the sizing and sorting of olives.



## TRIALS

The MS I5 is used by two handlers, Bell-Carter and Musco. The MS I5 was tested at both locations for both phases (I and II) of the trial. Phase I (repeatability) was conducted on October 21, 2016. Phase II (accuracy, precision, and agreement) was conducted with three trials to represent the beginning, middle, and end of the season as follows:

Table 1. Trial Dates

Trial	Season Segment	Timeframe (2016)*
1	Early (Day 1-19)	9/7 – 9/25
2	Middle (Day 20-38)	9/26 – 10/14
3	Late (Day 39-57)	10/15 – 11/2

\*Specific sampling dates in trial records

At the conclusion of the trials, the data was submitted to the S&T and AMS’ Chief Statistician for analysis and review.

## FINDINGS

### Phase I

A variance components approach was used to evaluate the repeatability of the MS I5 rather than the method of demonstration in the requirements document. The rationale was that the original data show five categories for certified verification olives (CVO) whereas the counts actually run through the MS I5 are for six categories and the sum of CVO for each run do not equal 1300. For Musco, the mean count per run is 794 and the mean difference per run is 506. For Bell-Carter, the same values are 790 and 510, respectively.

### Phase II

The Phase II demonstration of accuracy and precision was supplemented with the Wilcoxon signed-rank tests for statistical equality and two one-sided tests for statistical equivalency. Statistical equality looks at differences between methods. Statistical equivalency focuses on the similarity of the methods. Another way to look at the difference between the two concepts is that statistical equality focuses on mean values, whereas statistical equivalence looks at intervals of values. In other words, if the intervals of counts for inspectors and the MS I5 overlap, then the two methods are equivalent.

### Summary of Analysis

Phase I: The repeatability coefficient for the Multiscan is 0.9969 or 99.69 percent.



Phase II:

1. The mean residual is not zero. It is 14.
2. The slope of the regression model is statistically different from the slope of  $0.000 \pm 0.075$ .

Supplemental to Phase II:

1. The inspectors had larger variances across all olive sizes in comparison to the variances computed from the results of the MS I5. The differences between the coefficients of variation are statistically significant.
2. The inspectors had a lower mean count than the MS I5 for smaller than sub-petite, sub-petite, and petite olives. Both had approximately equal mean counts for small and medium olives. The MS I5 had a lower mean count than the inspectors for large and extra-large olives.
3. The results from the inspectors and the MS I5 are not statistically equal across all olive sizes using the Wilcoxon signed-rank test.
4. The results from the inspectors and the MS I5 are statistically equivalent using the two one-sided test.

Table 2. Descriptive Statistics of Olive Size by Size Grading Method

Olive Size	Size Grading Method					
	Inspector			Multiscan I5		
	Mean	Standard Deviation	Coefficient of Variation	Mean	Standard Deviation	Coefficient of Variation
< Sub-Petite	258	25	9.86	268	14	5.04
Sub-Petite	192	11	5.65	199	3	1.75
Petite	159	12	7.61	161	2	1.19
Small	135	11	8.41	136	1	0.90
Medium	117	9	7.88	116	1	1.10
Large	101	7	6.72	98	1	1.07
Extra Large	84	8	9.26	80	3	3.82



Table 3. 95 % Confidence Limits for Olive Size according to Size Grading Method and Equivalence Test Results

Olive Size	Size Grading Method	95% Confidence Limits		Equivalent
		Lower	Upper	
< Sub-Petite	Inspector	208	308	Yes
	Multiscan	242	295	
Sub-Petite	Inspector	170	213	Yes
	Multiscan	192	206	
Petite	Inspector	135	182	Yes
	Multiscan	157	165	
Small	Inspector	113	157	Yes
	Multiscan	134	138	
Medium	Inspector	99	135	Yes
	Multiscan	113	118	
Large	Inspector	87	114	Yes
	Multiscan	96	100	
Extra-Large	Inspector	69	99	Yes
	Multiscan	74	86	

**RECOMMENDATIONS**

The methods (inspectors and MS I5) are not statistically equal, but they are statistically equivalent. Using the MS I5 to size olives is recommended since sizing results are more consistent than inspectors. In addition, the MS I5 has a much smaller variation in its size counts.

Also, due to the discoveries in how to better analyze the data, the requirements document titled *Instrument Systems for Size Grading of Ripe Olives* was updated to include the additional statistical parameters for determining approval. A copy of the revised document is provided along with this report.



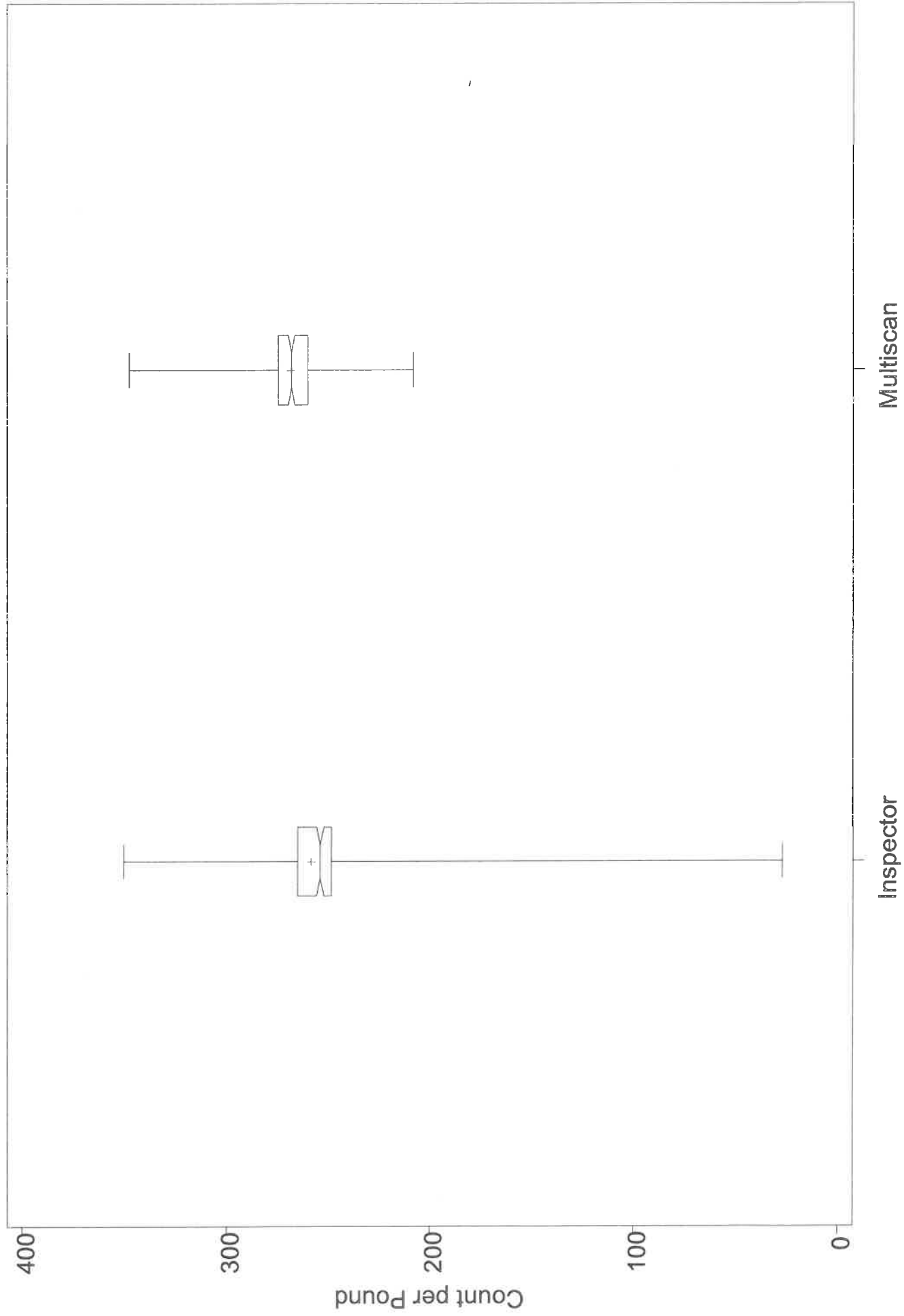
ADDENDUM

Table 4. Summary of the Statistical Analysis Comparing the Size Grading Methods of Inspectors and MS I5

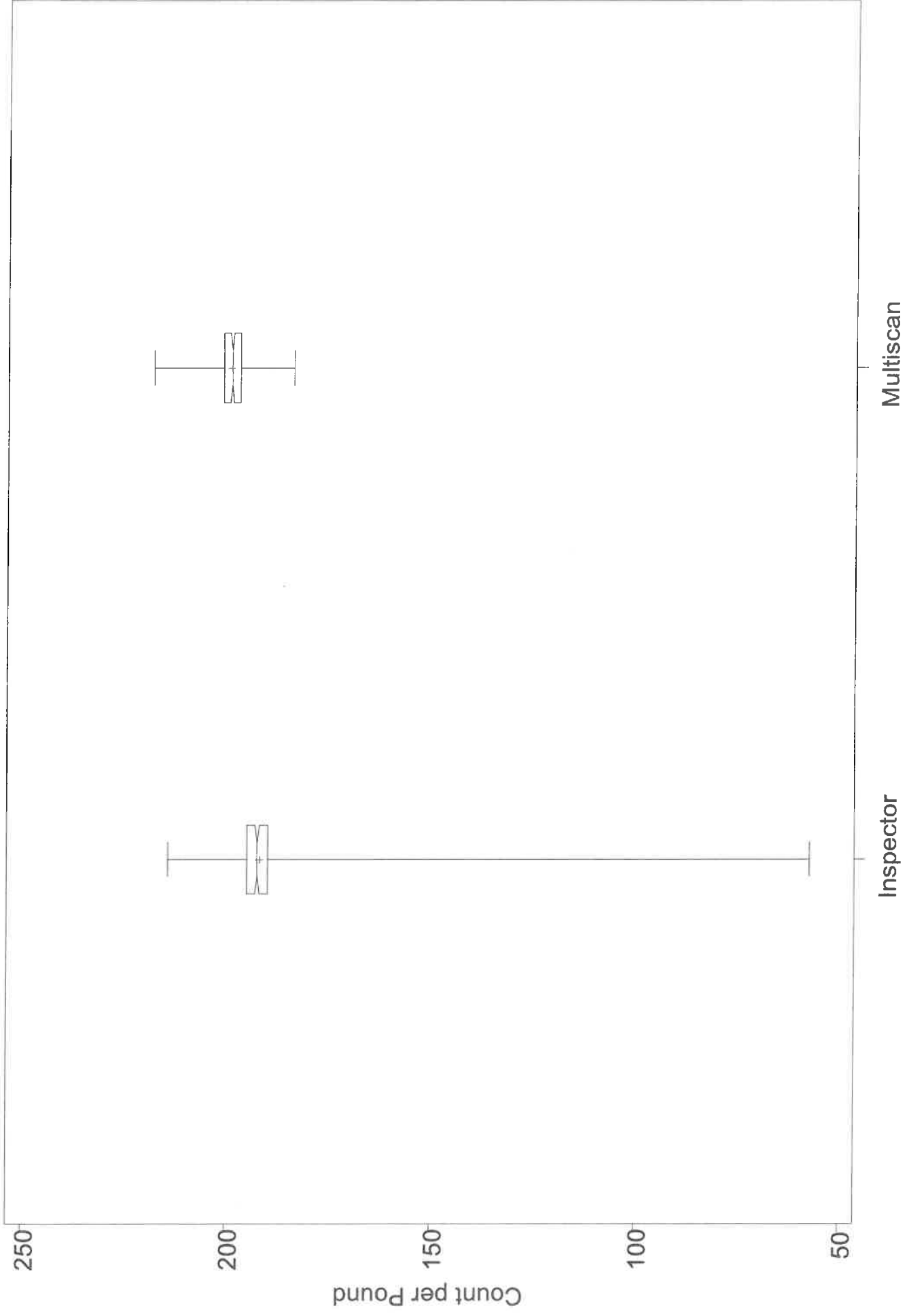
Olive Size	Phase II Performance Requirements		Method Comparison Analysis: p-values					
	Average Residual=0	Slope of 0.000 ± 0.075	Paired t-test	Wilcoxon Signed-rank Test	Correlation	Linear Relationship	Slope=1	Equivalence Test
Less than Sub-Petite	No	No	<0.0001	<0.0001	<0.0001	<0.0001	0.1210	0.0003
Sub-Petite	No	No	<0.0001	<0.0001	0.0554	0.0554	0.0068	<0.0001
Petite	No	No	0.0014	<0.0001	0.0802	0.0802	0.5860	<0.0001
Small	No	No	0.2756	0.2154	0.0313	0.0313	0.5410	0.0032
Medium	No	No	0.1403	<0.0001	0.1543	0.1543	0.5742	0.0013
Large	No	No	<0.0001	<0.0001	0.0009	0.0009	0.2816	0.0001
Extra Large	No	No	<0.0001	<0.0001	0.0001	0.0001	0.0001	0.0004

Box Plots 1 – 7 are on pages 6 – 12 of this report. There is a box plot for each olive size class. Box plots are a graphical way to depict statistical data. It is a standardized way to display the distribution of data. It shows the median, while the "whiskers" above and below the box display the minimum and maximum, presenting the full range of variation.

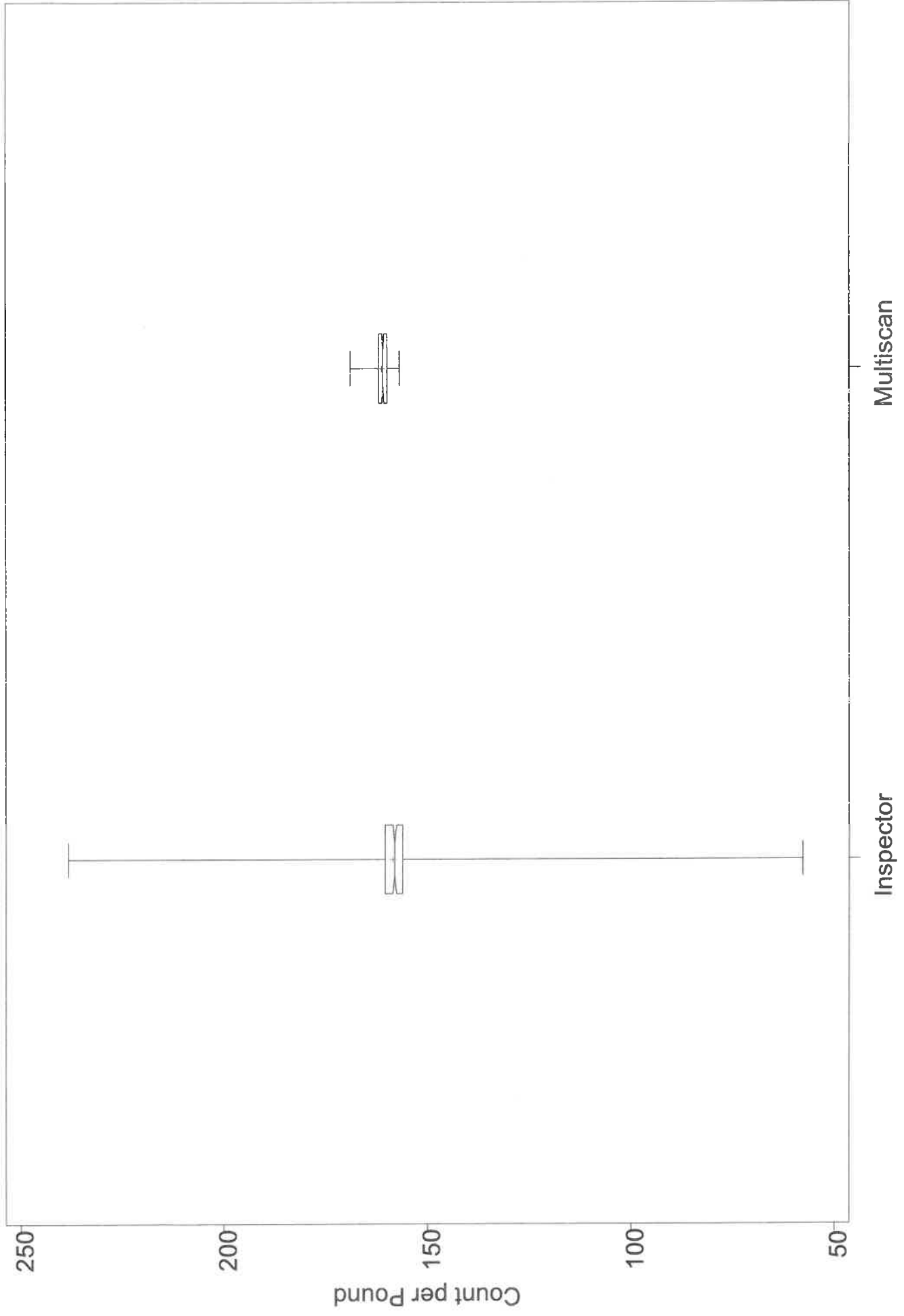
**Box Plot for Smaller than Sub-Petite Olives**



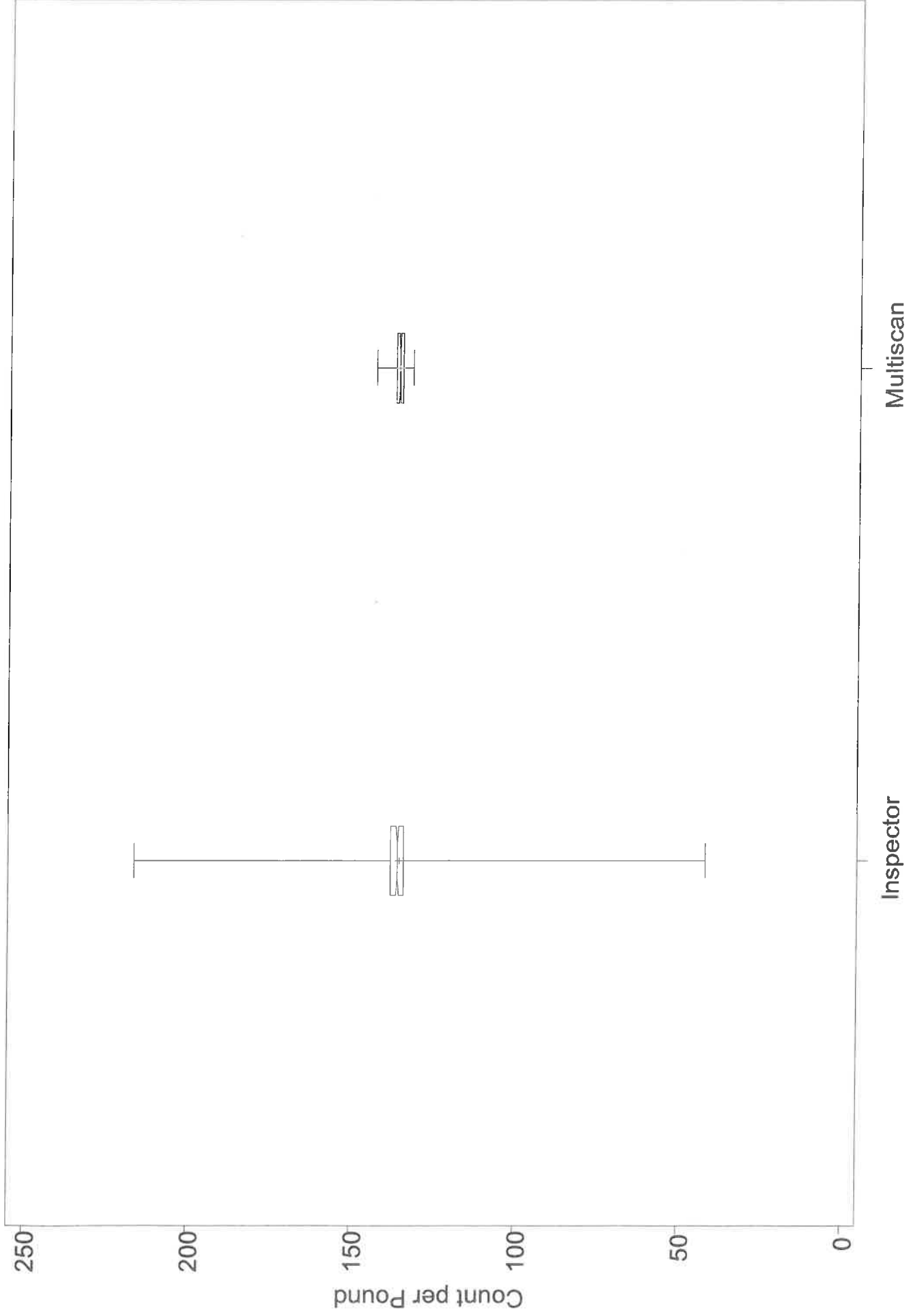
### Box Plot for Sub-Petite Olives



**Box Plot for Petite Olives**



**Box Plot for Small Olives**

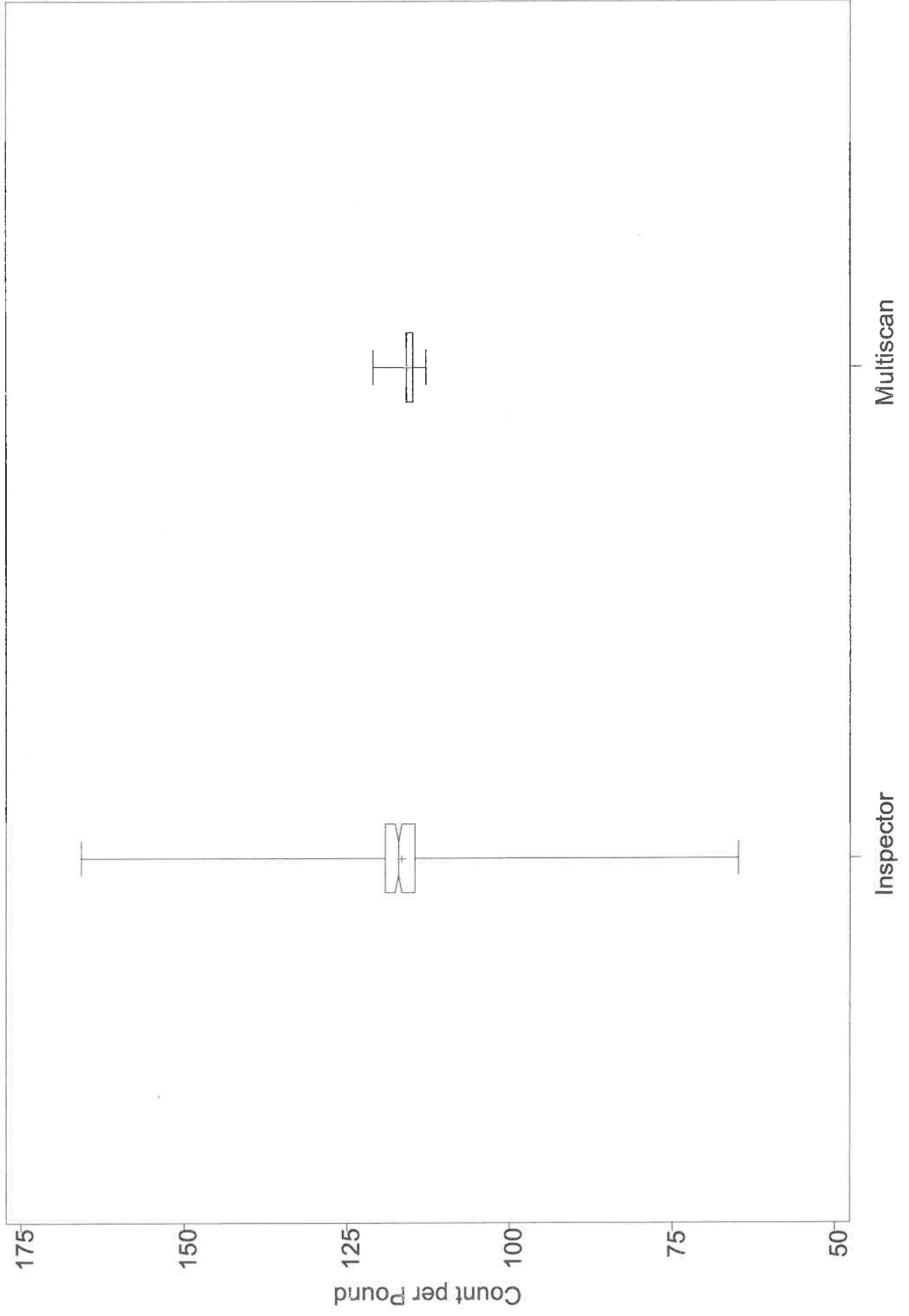


Size Grading Method

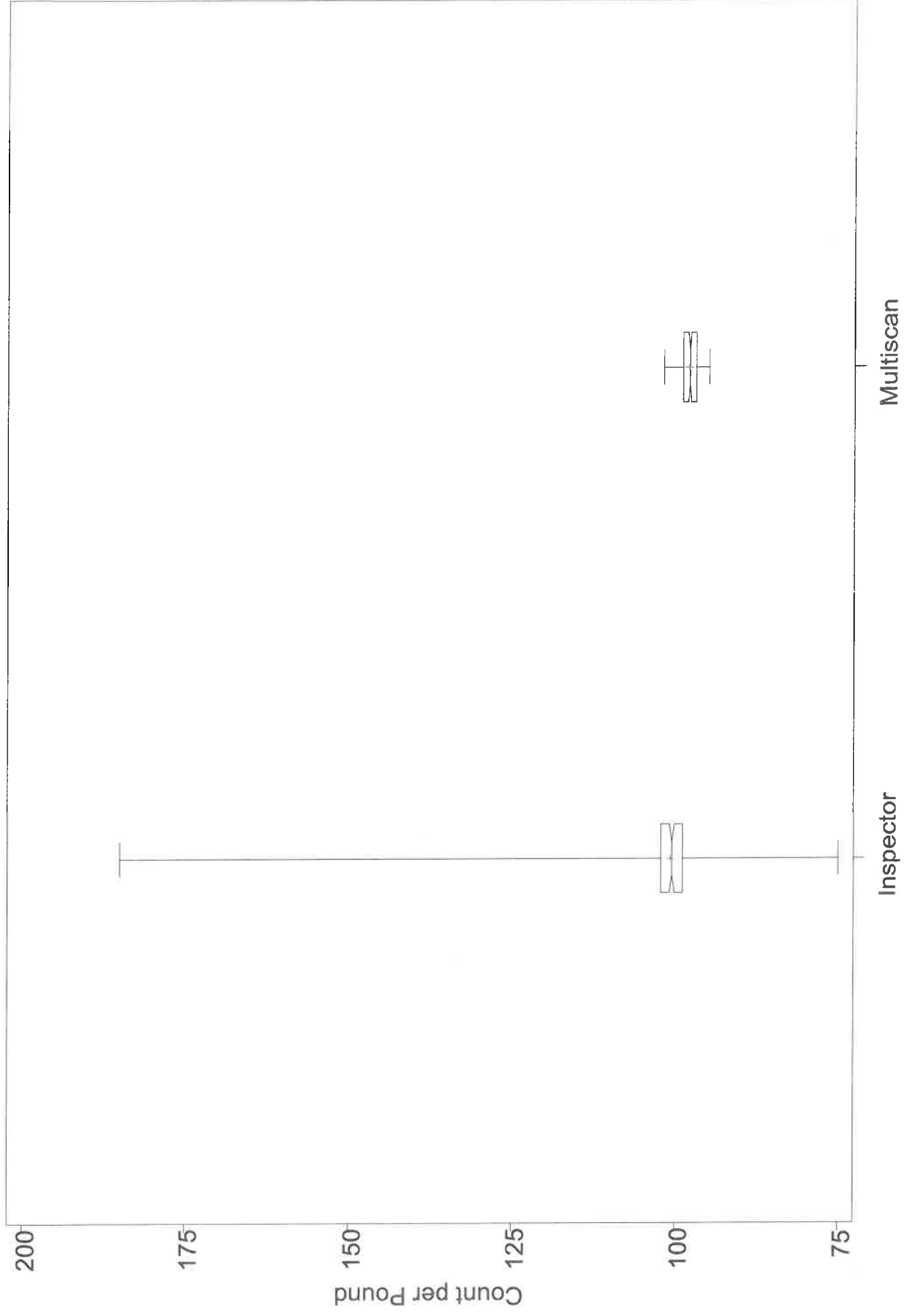
Inspector

Multiscan

**Box Plot for Medium Olives**



**Box Plot for Large Olives**



**Box Plot for Extra-Large Olives**

