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# Wisconsin Cattle Movement Survey

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2015

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**This work is supported by the Department of Homeland Security Science and Technology Directorate under contract number HSHQDC-13-C-B0028 and the United States Department of Agriculture under cooperative agreement 12-9208-0344-CA. We thank Dave Dargatz, Lori Gustafson, and Jason Lombard for invaluable feedback on the design and implementation of this survey.**

## Introduction

At the national scale there were 51 experts from 19 states and territories participating in the Cattle Movement Survey including Alaska, California, Colorado, Iowa, Idaho, Minnesota, Mississippi, Montana, North Carolina, Nebraska, Nevada, New York, Oklahoma, Pennsylvania, Tennessee, Texas, US Virgin Islands, Virginia and Wisconsin. At the final stage of the survey, there were 4 experts from Wisconsin participating. In general, the Wisconsin estimate for interstate shipments was lower than estimates at the Upper Midwest regional and national level. The estimated median number of shipments overall (questions 7–10c & 12–13c) in the beef section was 15 interstate shipments out of every 100 shipments. One question that had a large range of estimates at the state, regional and national levels asked for the number of interstate shipments moving to graze on public land (question 11). This type of movement may be less well understood by respondents than other movements included in the survey. For this reason, this question was left out of the overall beef shipment estimate. The estimated median number of shipments overall (questions 15–21) in the dairy section was also 15 interstate shipments out of every 100 shipments.

The national, Upper Midwest regional and Wisconsin level results for each survey question are presented below and in Appendix I. For each question the national, regional, and state results are presented in separate color-coded box plots. On the national box plot the state specific median is shown as a red X for comparison. Additionally, the median and weighted mean are presented for each question in the survey. Explanations of the box plots (Figure 1) and weighted means can be found below. The first question reported in the results is question 6 because the the first 5 questions dealt with participant information.

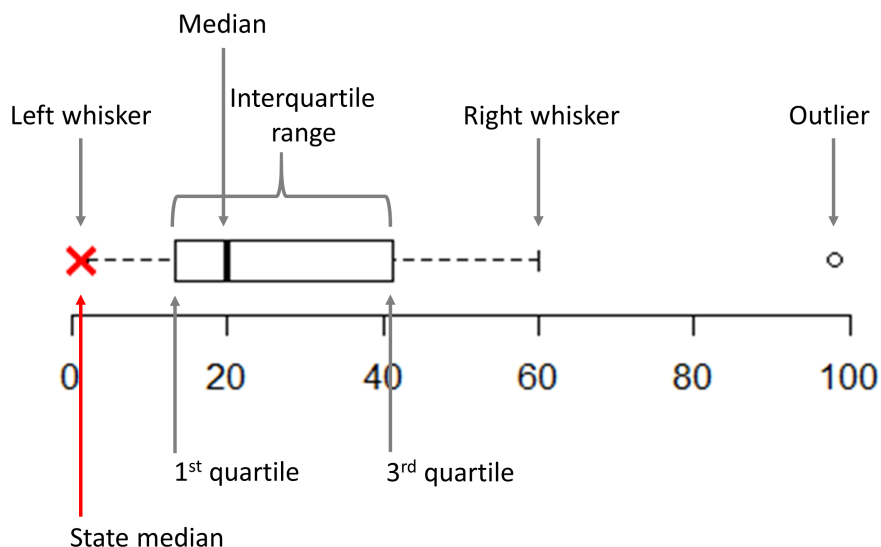


Figure 1: **Example box plot.** The box plots in this report are on a scale from 0 to 100. The national box plots are black, the Upper Midwest plots are in purple and the state plots are in red. The center bar of the box represents the median and the edges of the box show the 1st and 3rd quartiles. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are considered outliers and are shown on the plots as open circles. Box plots without whiskers do not have points that extend beyond the 1st and or 3rd quartiles. The red X on the national plots corresponds to the state median.

Weighted means: The national and regional means presented in this report have been weighted, meaning that some data points contribute more than others to the overall mean. This was done to allow data points from states with larger cattle populations to have greater weight. Specifically, states were weighted by the beef and dairy cattle inventory data from the 2015 National Agricultural Statistics Service annual report.

## Acknowledgements

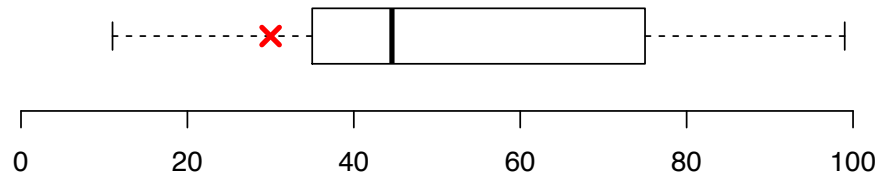
This work is supported by the Department of Homeland Security Science and Technology Directorate under contract number HSHQDC-13-C-B0028 and the United States Department of Agriculture under cooperative agreement 12-9208-0344-CA. We thank Dave Dargatz, Lori Gustafson, and Jason Lombard for invaluable feedback on the design and implementation of this survey.

We extend a particular thank you to the experts who participated in this survey. Without the support of the 51 experts who participated this survey would not have been a success.

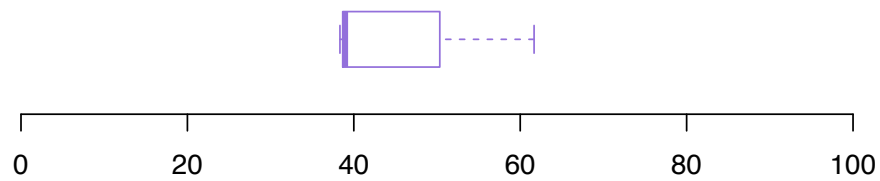
# Beef Shipments

6. Consider 100 farms or ranches that have beef cattle. How many of these farms will routinely send cattle out of the state?

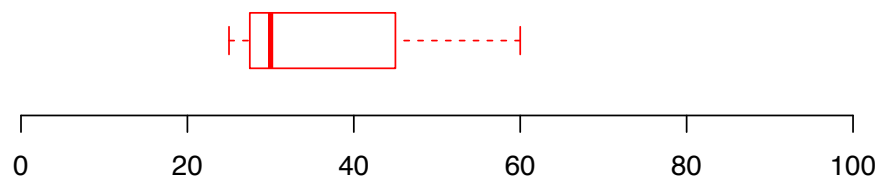
**National**, Median: 44.58; Weighted mean: 42.21



**Upper Midwest**, Median: 39; Weighted mean: 52.38



**Wisconsin**, Median: 30; Weighted mean: 38.33

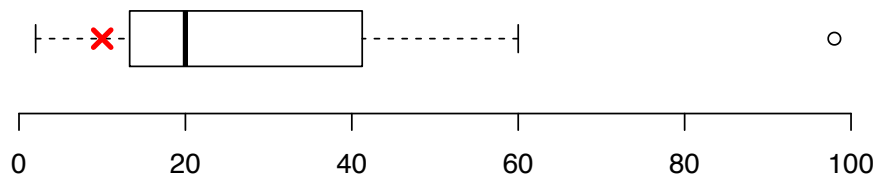


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

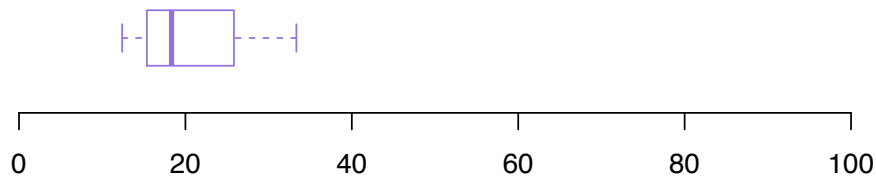
7. Consider 100 shipments of beef cattle and calves originating from operations that have herds of the following sizes. For each of the following, out of 100 shipments, how many will leave the state?

(a) Herds with 1-49 head

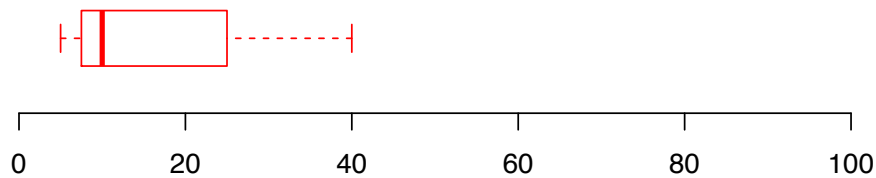
**National**, Median: 20; Weighted mean: 26.67



**Upper Midwest**, Median: 18.33; Weighted mean: 25.92



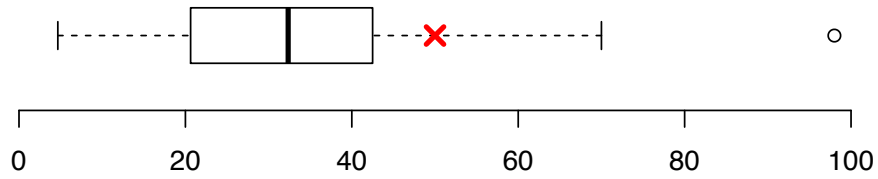
**Wisconsin**, Median: 10; Weighted mean: 18.33



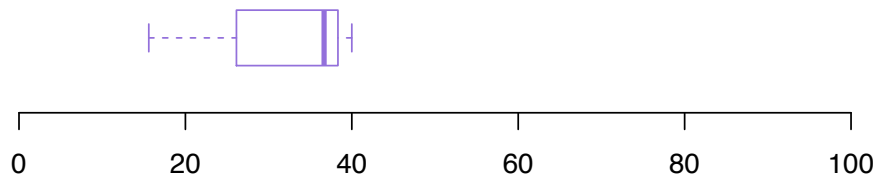
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(b) Herds with 50-99 head

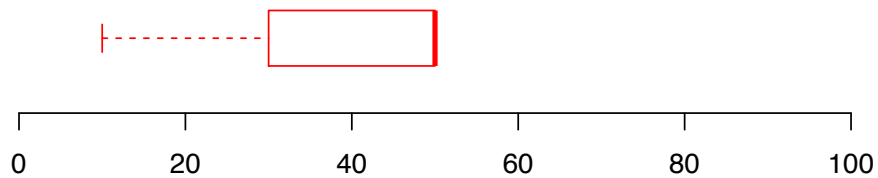
**National**, Median: 32.35; Weighted mean: 29.65



**Upper Midwest**, Median: 36.67; Weighted mean: 33.88



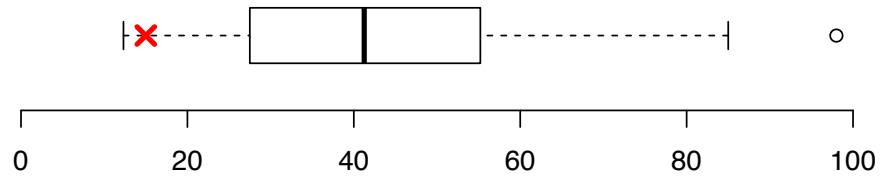
**Wisconsin**, Median: 50; Weighted mean: 36.67



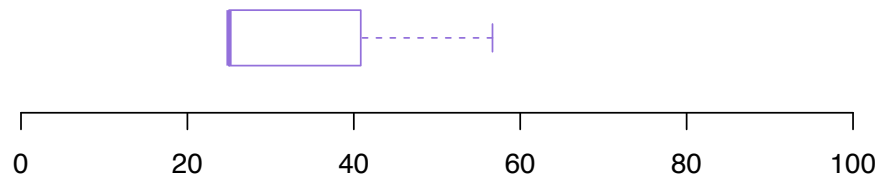
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(c) Herds with 100-199 head

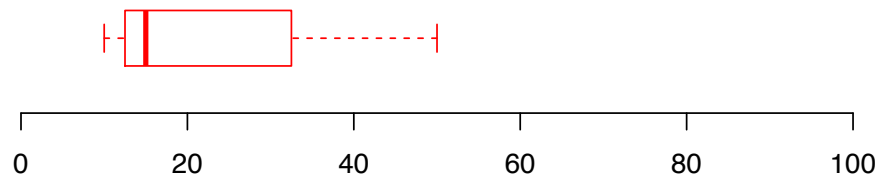
**National**, Median: 41.25; Weighted mean: 36.65



**Upper Midwest**, Median: 25; Weighted mean: 43.86



**Wisconsin**, Median: 15; Weighted mean: 25

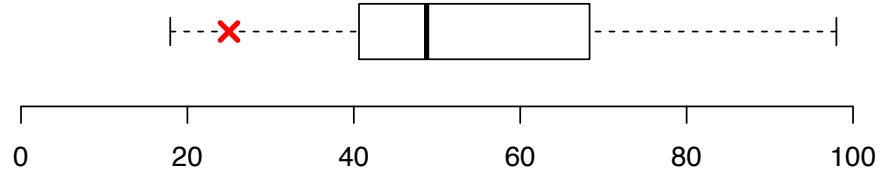


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

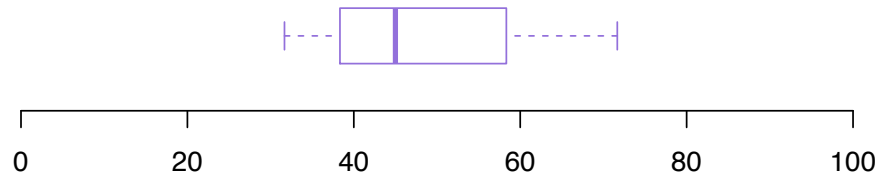


(d) Herds with 200 or more head

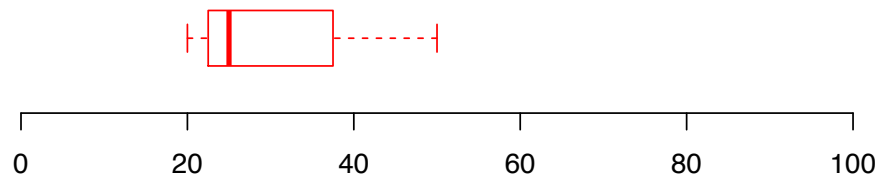
**National**, Median: 48.75; Weighted mean: 45.19



**Upper Midwest**, Median: 45; Weighted mean: 58.51



**Wisconsin**, Median: 25; Weighted mean: 31.67

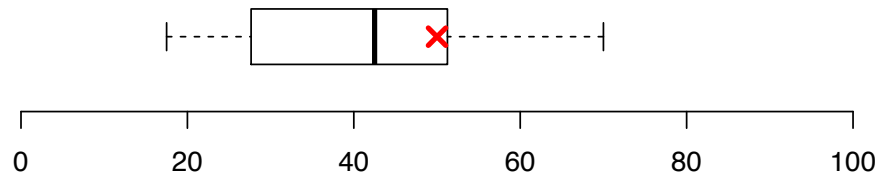


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

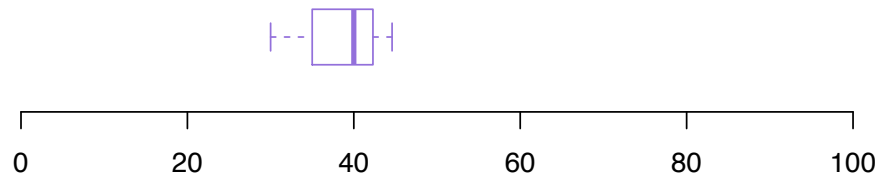
8. Consider 100 shipments of beef cattle and calves originating at the following types of operations. For each of the following, out of 100 shipments, out of 100 shipments, how many will leave the state?

(a) Seedstock operation

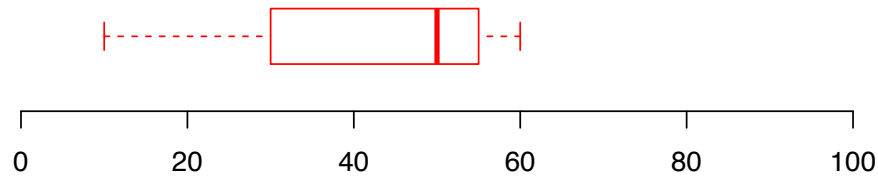
**National**, Median: 42.5; Weighted mean: 41.33



**Upper Midwest**, Median: 40; Weighted mean: 35.09



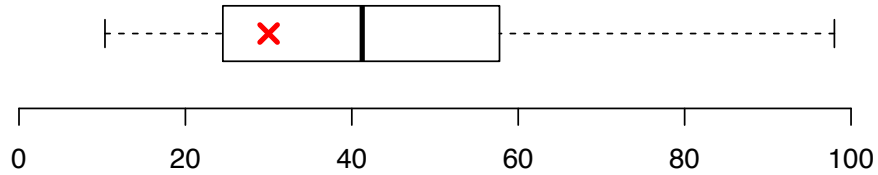
**Wisconsin**, Median: 50; Weighted mean: 40



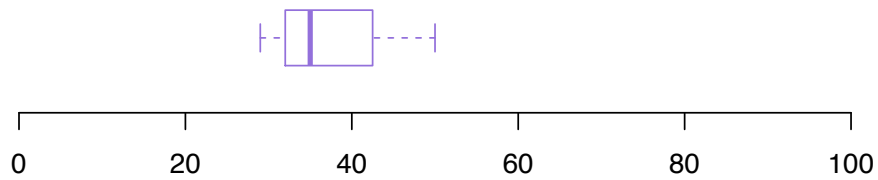
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

## (b) Cow-calf operation

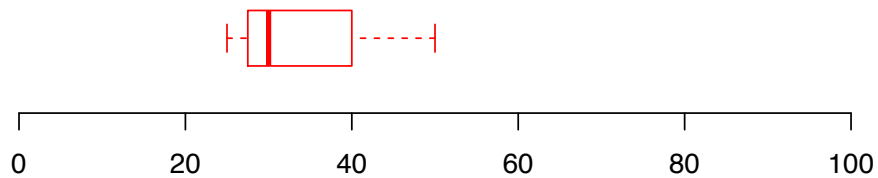
**National**, Median: 41.25; Weighted mean: 39.19



**Upper Midwest**, Median: 35; Weighted mean: 42.57



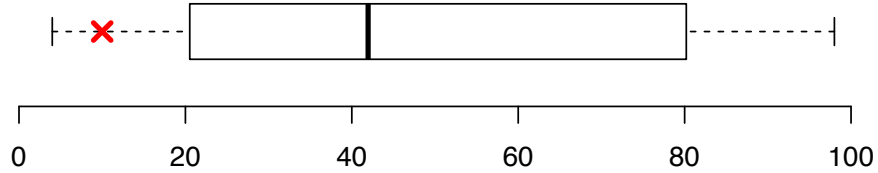
**Wisconsin**, Median: 30; Weighted mean: 35



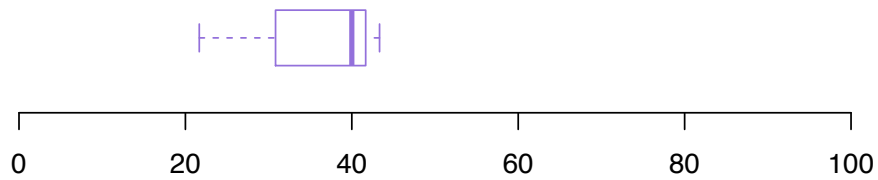
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## (c) Backgrounder operation

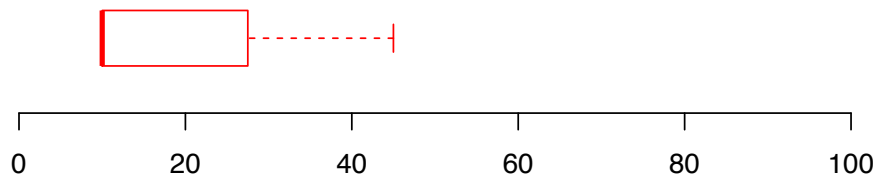
**National**, Median: 41.96; Weighted mean: 41.1



**Upper Midwest**, Median: 40; Weighted mean: 38.72



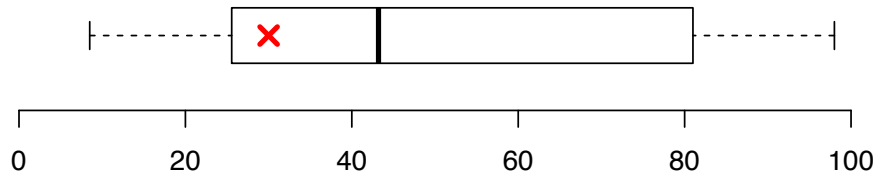
**Wisconsin**, Median: 10; Weighted mean: 21.67



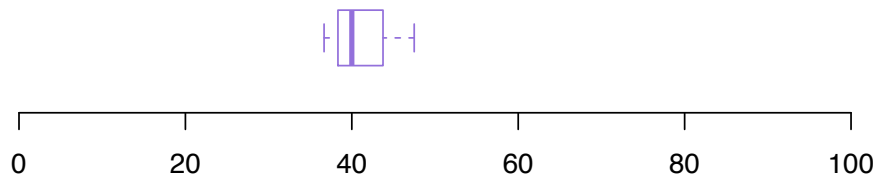
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(d) Stocker operation

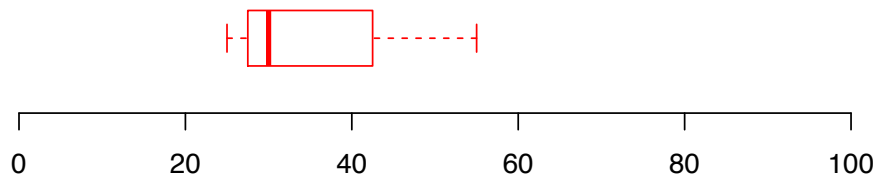
**National**, Median: 43.21; Weighted mean: 41.11



**Upper Midwest**, Median: 40; Weighted mean: 41.11



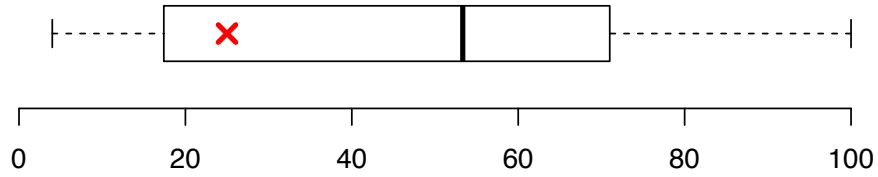
**Wisconsin**, Median: 30; Weighted mean: 36.67



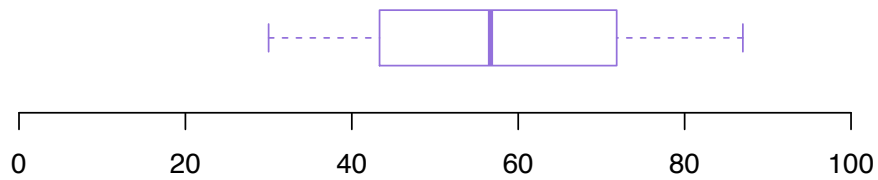
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(e) Feedlot

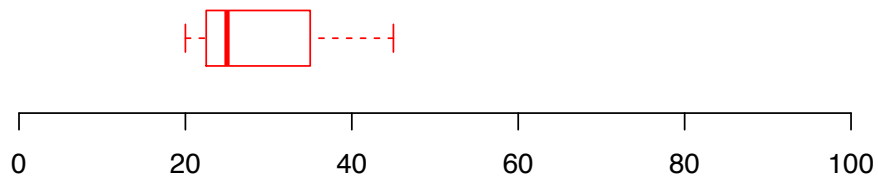
**National**, Median: 53.33; Weighted mean: 40.17



**Upper Midwest**, Median: 56.67; Weighted mean: 58.79



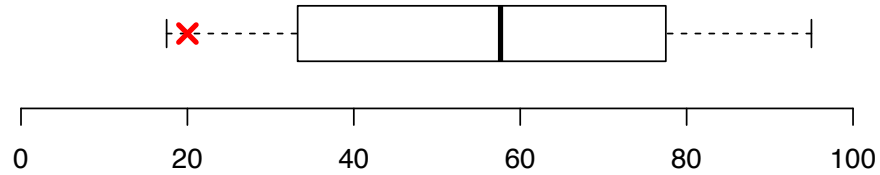
**Wisconsin**, Median: 25; Weighted mean: 30



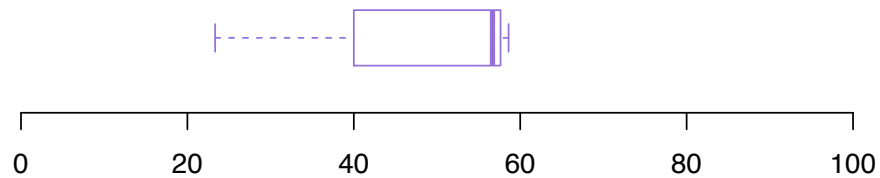
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(f) Market or Salebarn

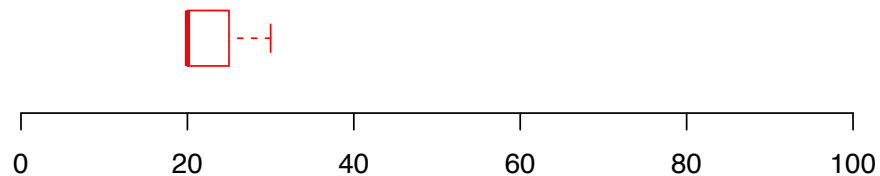
**National**, Median: 57.63; Weighted mean: 46.33



**Upper Midwest**, Median: 56.67; Weighted mean: 51.17



**Wisconsin**, Median: 20; Weighted mean: 23.33

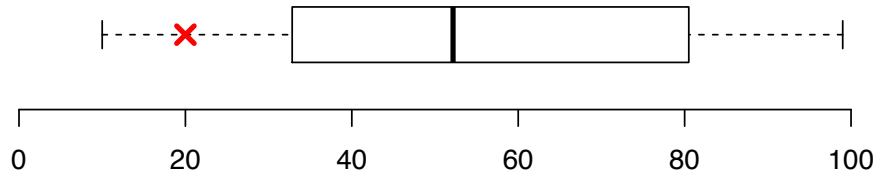


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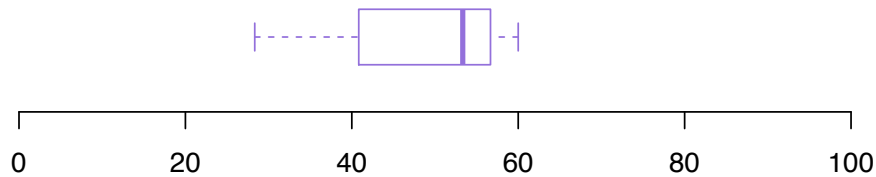
9. Consider 100 shipments of beef cattle and calves from anywhere in your state traveling to the following types of operations. For each of the following, out of 100 shipments, how many will leave the state?

(a) Feedlot

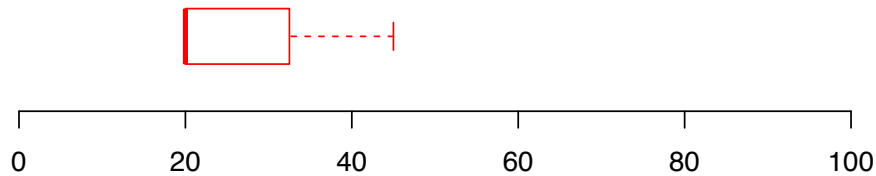
**National**, Median: 52.17; Weighted mean: 42.49



**Upper Midwest**, Median: 53.33; Weighted mean: 50.39



**Wisconsin**, Median: 20; Weighted mean: 28.33

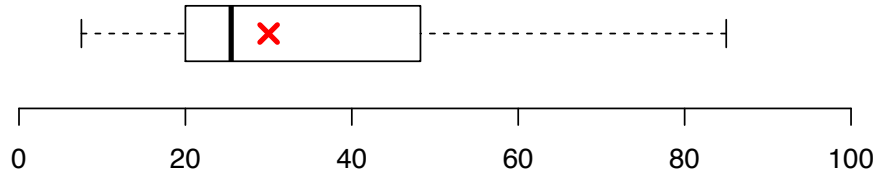


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

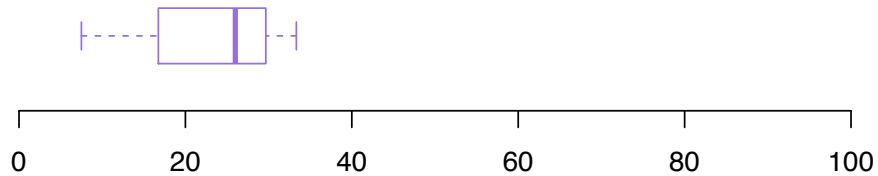


## (b) Market or Salebarn

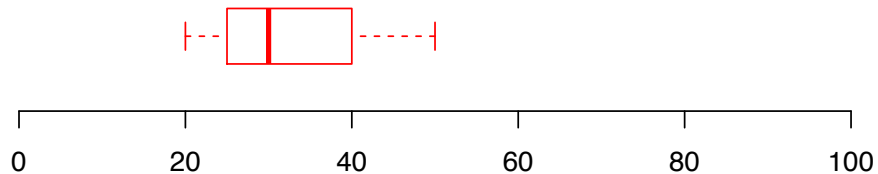
**National**, Median: 25.5; Weighted mean: 28.65



**Upper Midwest**, Median: 26; Weighted mean: 16.29



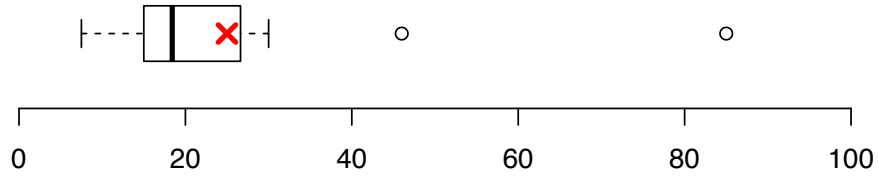
**Wisconsin**, Median: 30; Weighted mean: 33.33



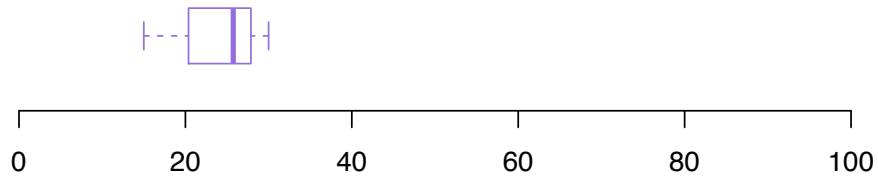
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(c) Another beef operation

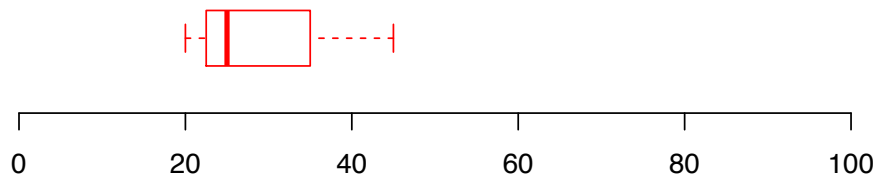
**National**, Median: 18.42; Weighted mean: 19.37



**Upper Midwest**, Median: 25.75; Weighted mean: 20.11



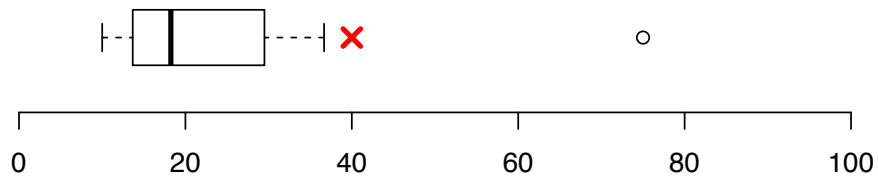
**Wisconsin**, Median: 25; Weighted mean: 30



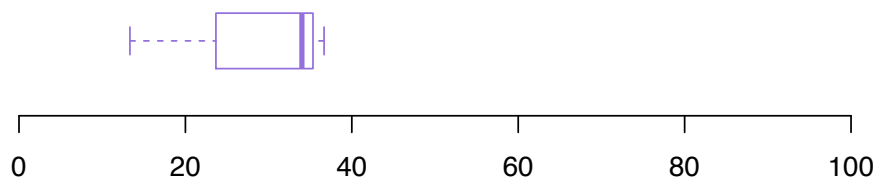
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(d) Another beef operation for breeding purposes

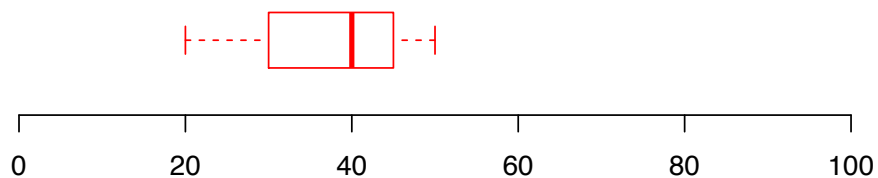
**National**, Median: 18.25; Weighted mean: 18.53



**Upper Midwest**, Median: 34; Weighted mean: 22.17



**Wisconsin**, Median: 40; Weighted mean: 36.67

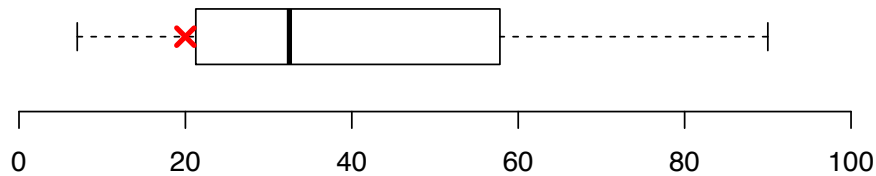


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

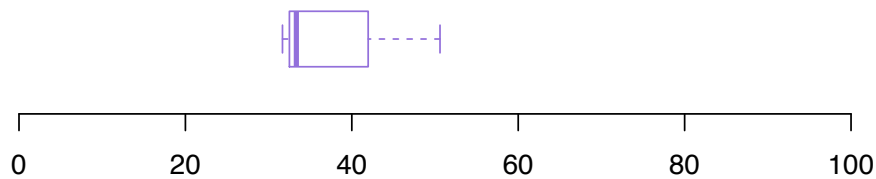
10. Consider 100 shipments of weaned calves from anywhere in your state that are moving to the following destinations. For each of the following, out of 100 shipments, how many will leave the state?

(a) Backgrounder operation

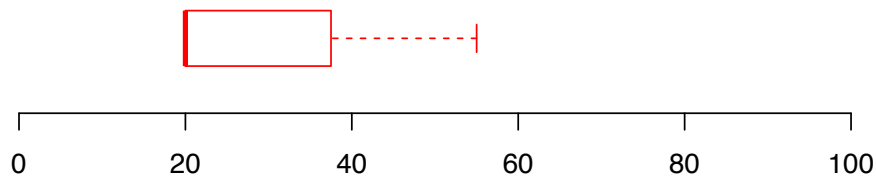
**National**, Median: 32.5; Weighted mean: 30.82



**Upper Midwest**, Median: 33.33; Weighted mean: 36.95



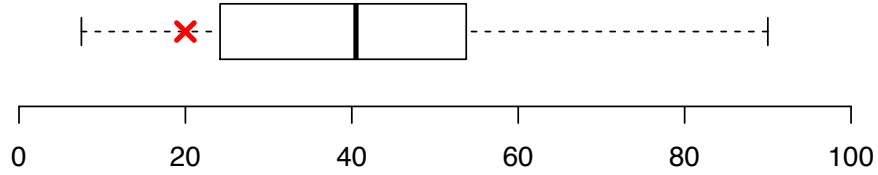
**Wisconsin**, Median: 20; Weighted mean: 31.67



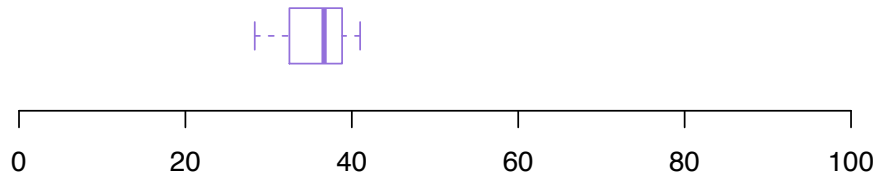
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## (b) Stocker operation

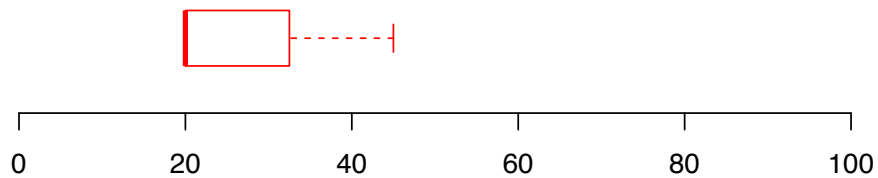
**National**, Median: 40.5; Weighted mean: 31.61



**Upper Midwest**, Median: 36.67; Weighted mean: 36.17



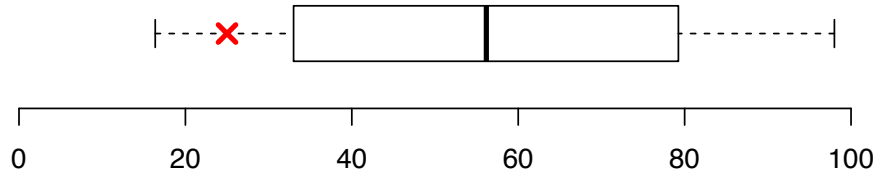
**Wisconsin**, Median: 20; Weighted mean: 28.33



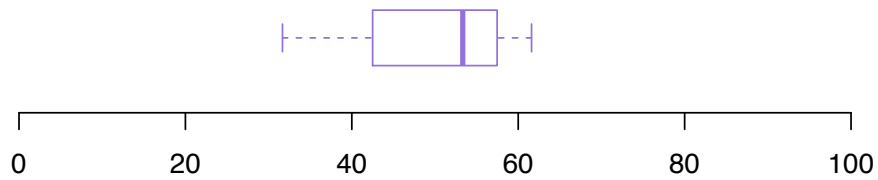
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(c) Feedlot

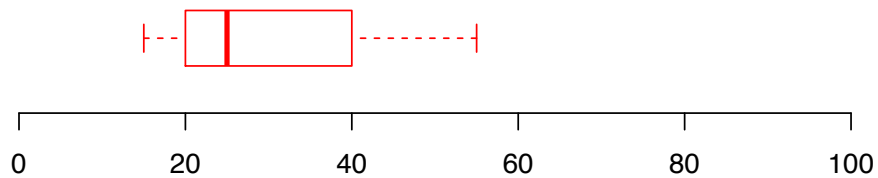
**National**, Median: 56.17; Weighted mean: 43.85



**Upper Midwest**, Median: 53.33; Weighted mean: 51.35



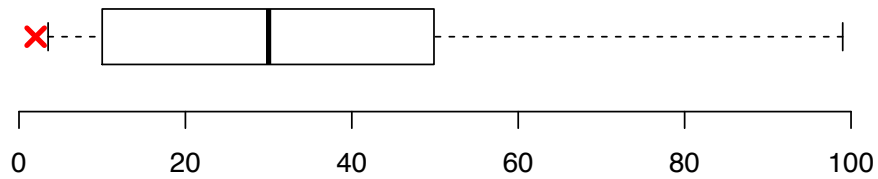
**Wisconsin**, Median: 25; Weighted mean: 31.67



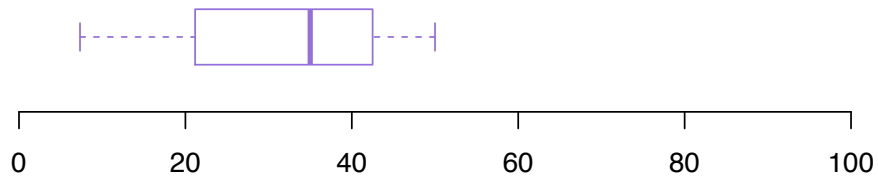
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

11. Consider 100 shipments of beef cattle and calves from anywhere in your state that are moving to graze on public lands. Of these 100 shipments, how many will leave the state?

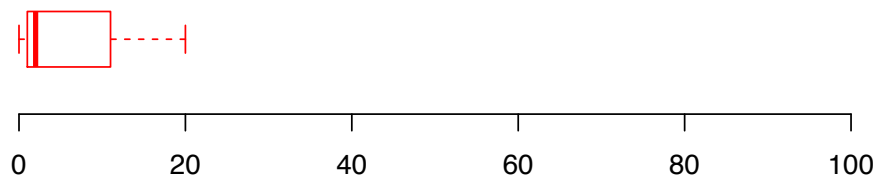
**National**, Median: 30; Weighted mean: 37.79



**Upper Midwest**, Median: 35; Weighted mean: 39.01



**Wisconsin**, Median: 2; Weighted mean: 7.33

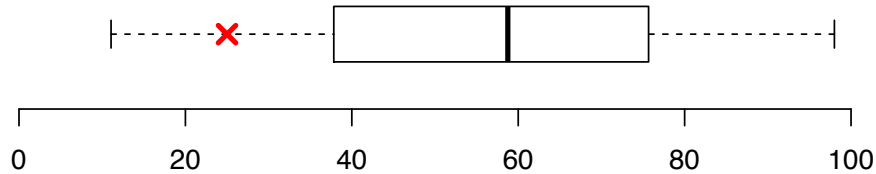


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

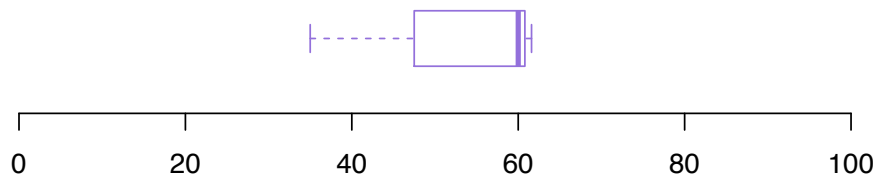
12. Consider 100 shipments of beef cattle of the following types originating at a market. For each of the following, out of 100 shipments, how many will leave the state?

(a) steers

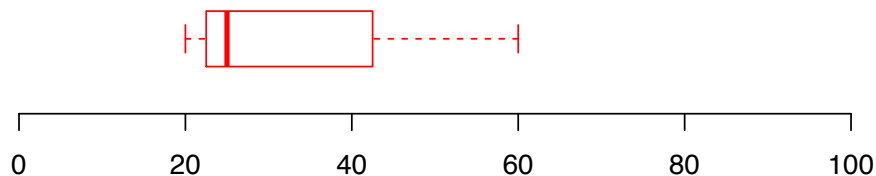
**National**, Median: 58.75; Weighted mean: 42.85



**Upper Midwest**, Median: 60; Weighted mean: 55.91



**Wisconsin**, Median: 25; Weighted mean: 35

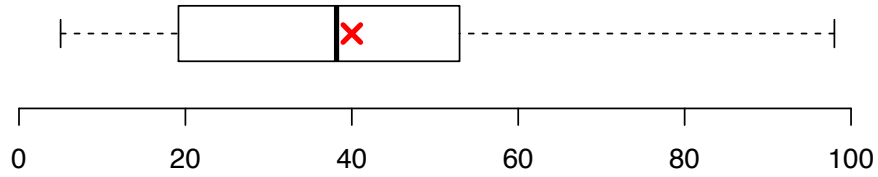


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

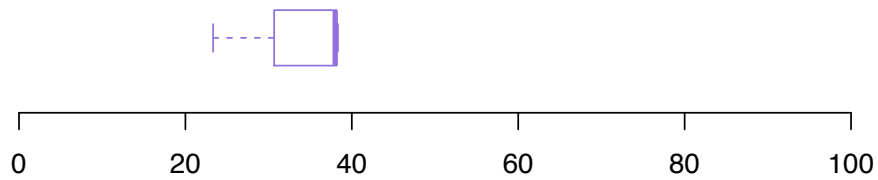


(b) bulls

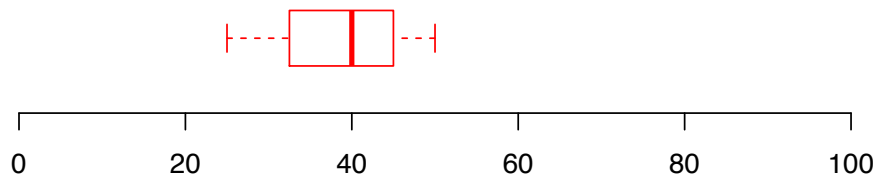
**National**, Median: 38.17; Weighted mean: 35.14



**Upper Midwest**, Median: 38; Weighted mean: 29.33



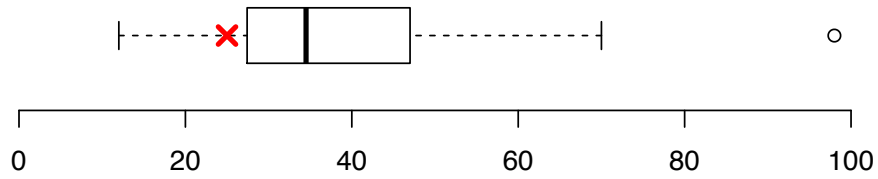
**Wisconsin**, Median: 40; Weighted mean: 38.33



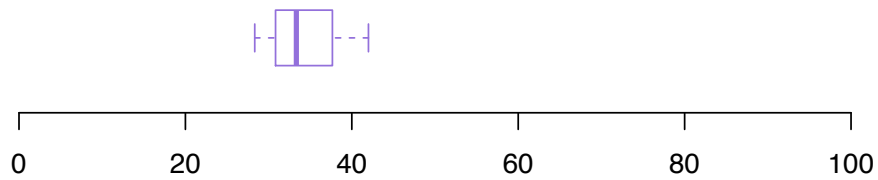
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(c) cows

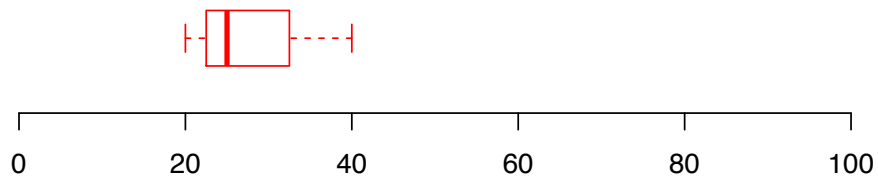
**National**, Median: 34.5; Weighted mean: 35.61



**Upper Midwest**, Median: 33.33; Weighted mean: 34.41



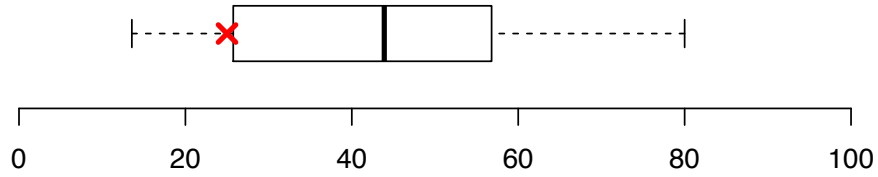
**Wisconsin**, Median: 25; Weighted mean: 28.33



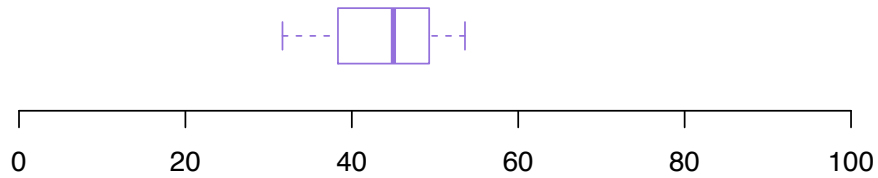
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(d) heifers

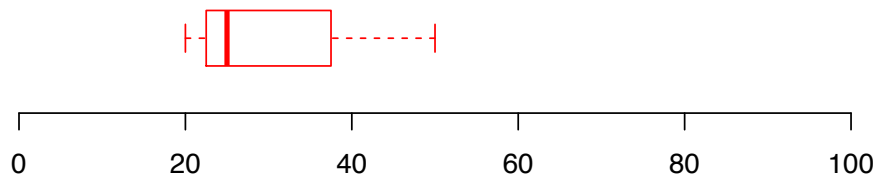
**National**, Median: 43.9; Weighted mean: 35.24



**Upper Midwest**, Median: 45; Weighted mean: 44.57



**Wisconsin**, Median: 25; Weighted mean: 31.67

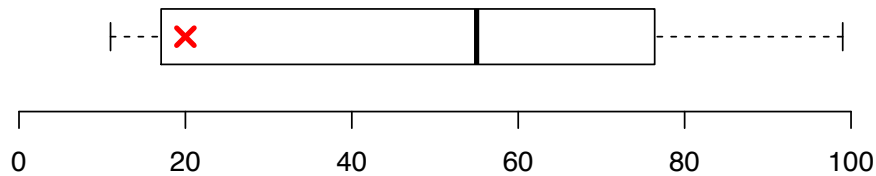


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

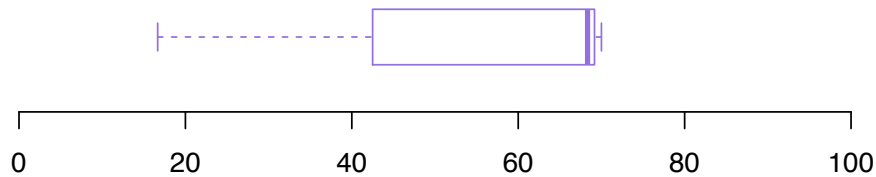
13. Consider 100 shipments of beef cattle originating from the following locations traveling directly to slaughter. For each of the following, out of 100 shipments, how many will leave the state?

(a) Anywhere in the state

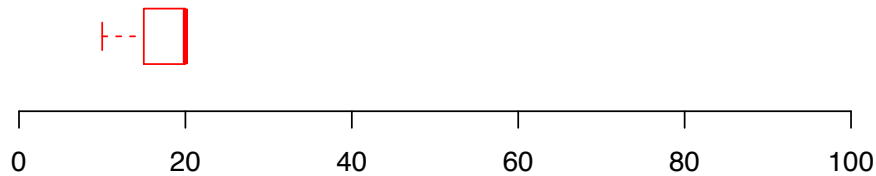
**National**, Median: 55; Weighted mean: 42.53



**Upper Midwest**, Median: 68.33; Weighted mean: 59.51



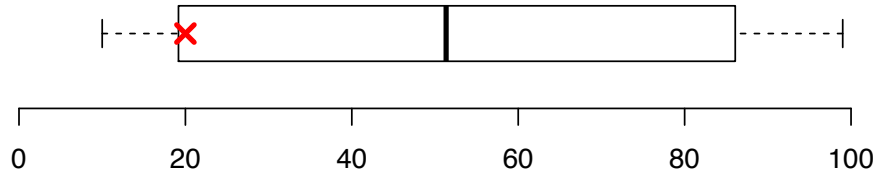
**Wisconsin**, Median: 20; Weighted mean: 16.67



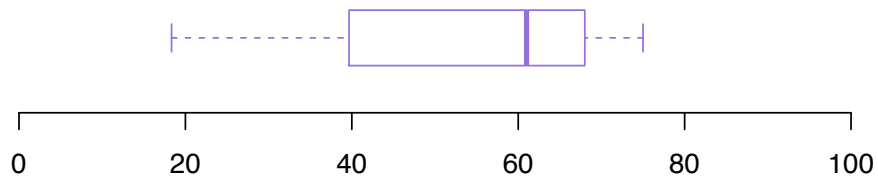
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

## (b) Cow-Calf operations

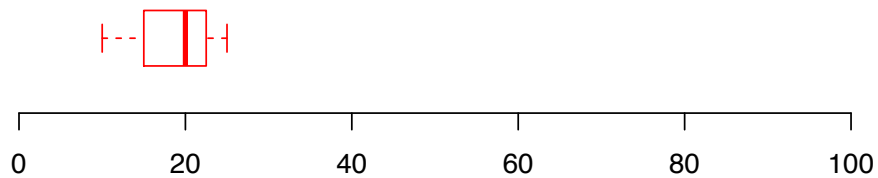
**National**, Median: 51.33; Weighted mean: 44.8



**Upper Midwest**, Median: 61; Weighted mean: 61.74



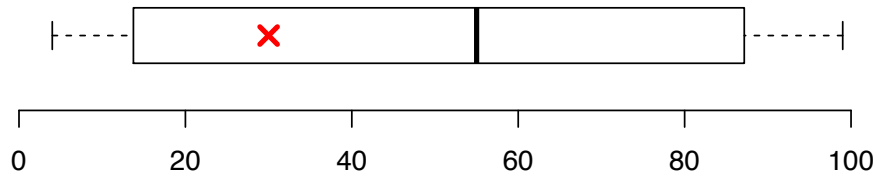
**Wisconsin**, Median: 20; Weighted mean: 18.33



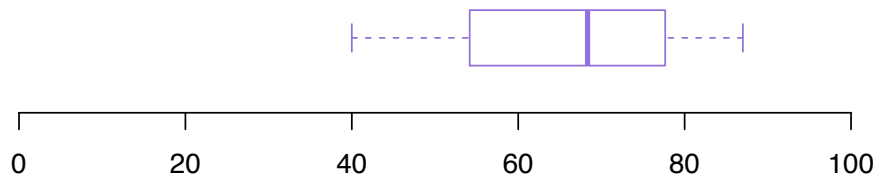
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(c) Feedlot

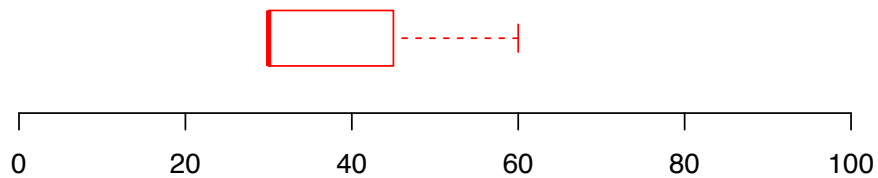
**National**, Median: 55; Weighted mean: 42.69



**Upper Midwest**, Median: 68.33; Weighted mean: 67.52



**Wisconsin**, Median: 30; Weighted mean: 40

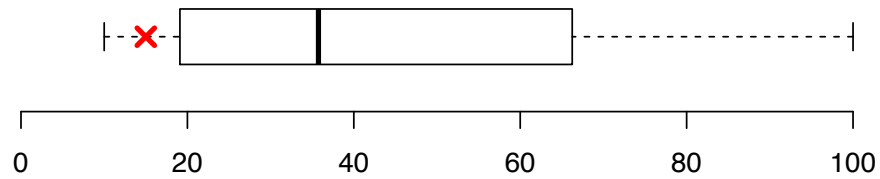


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

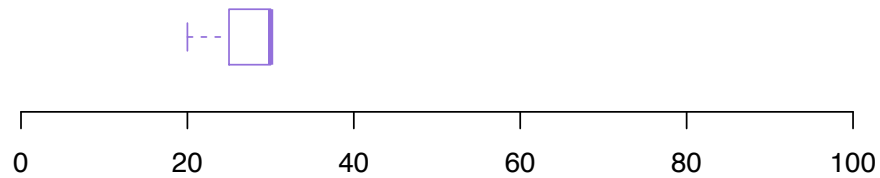
# Dairy Shipments

14. Consider 100 farms that have dairy cattle. How many of these farms will routinely send cattle out of state?

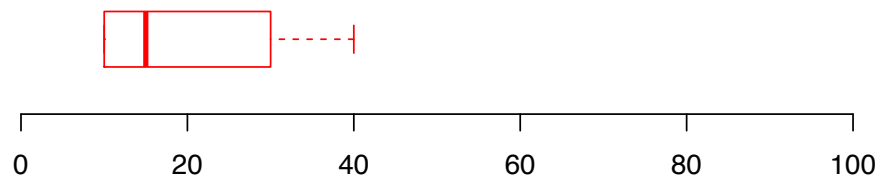
**National**, Median: 35.75; Weighted mean: 21.8



**Upper Midwest**, Median: 30; Weighted mean: 23.44



**Wisconsin**, Median: 15; Weighted mean: 20



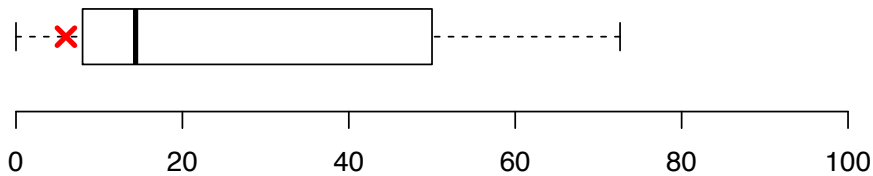
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.



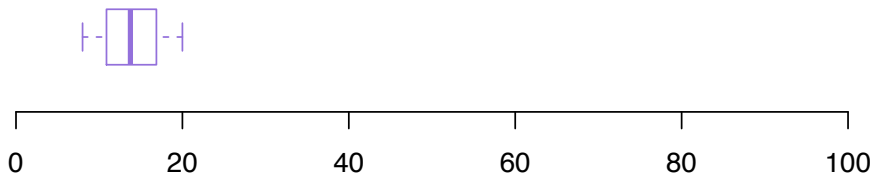
15. Consider 100 shipments of dairy cattle and calves originating from operations that have herds of the following sizes. For each of the following, out of 100 shipments, how many will leave the state?

(a) Herds with 1-99 head

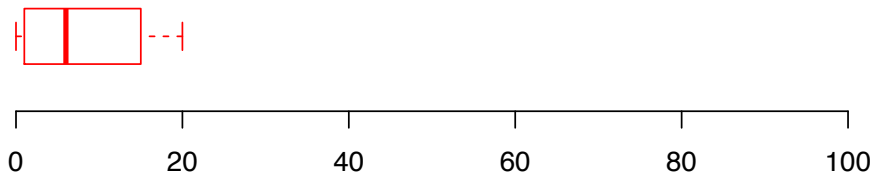
**National**, Median: 14.38; Weighted mean: 12.98



**Upper Midwest**, Median: 13.75; Weighted mean: 10.66



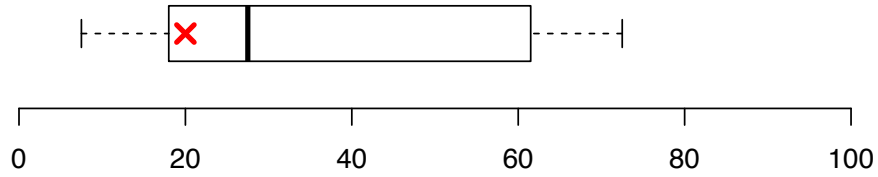
**Wisconsin**, Median: 6; Weighted mean: 8



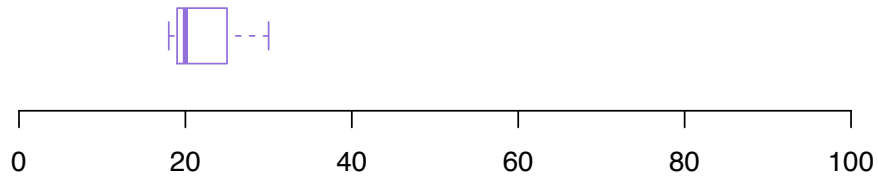
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(b) Herds with 100-499 head

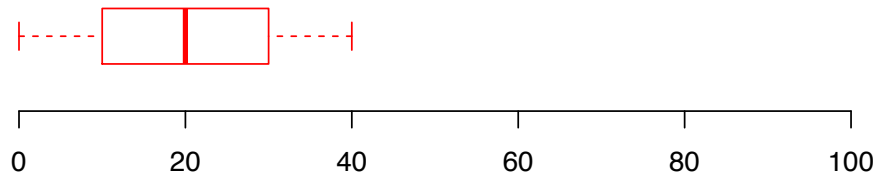
**National**, Median: 27.5; Weighted mean: 23.99



**Upper Midwest**, Median: 20; Weighted mean: 20.61



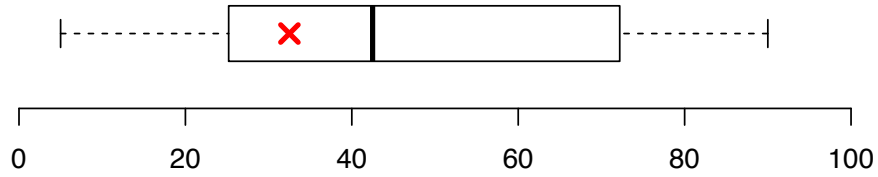
**Wisconsin**, Median: 20; Weighted mean: 20



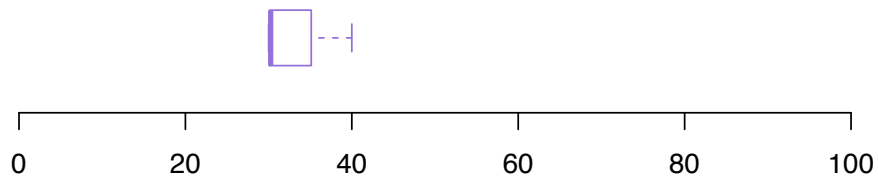
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(c) Herds with 500 or more head

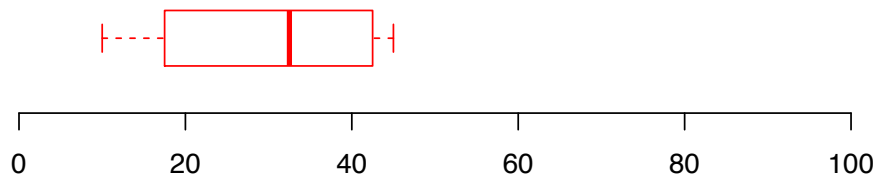
**National**, Median: 42.5; Weighted mean: 25.74



**Upper Midwest**, Median: 30.25; Weighted mean: 31.14



**Wisconsin**, Median: 32.5; Weighted mean: 30

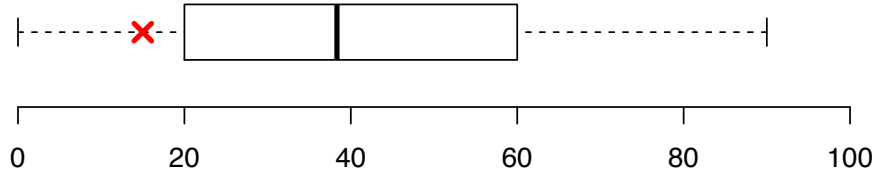


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

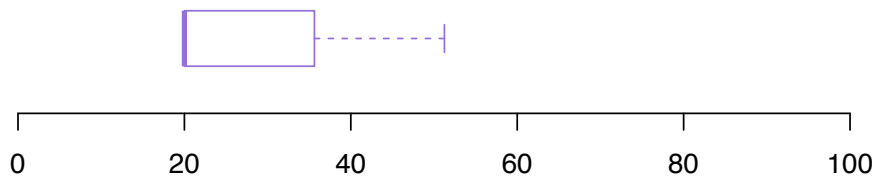
16. Consider 100 shipments of dairy cattle and calves originating at the following types of operations. For each of the following, how many will leave the state?

(a) Feedlot or grazing operation

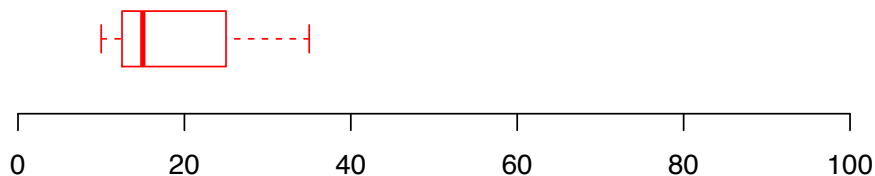
**National**, Median: 38.33; Weighted mean: 23.39



**Upper Midwest**, Median: 20; Weighted mean: 27.39



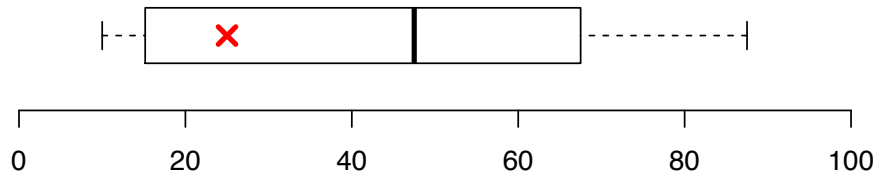
**Wisconsin**, Median: 15; Weighted mean: 20



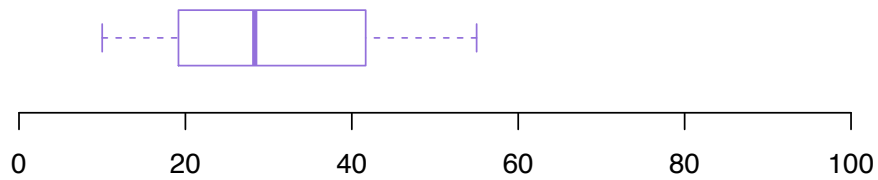
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

## (b) Market or Salebarn

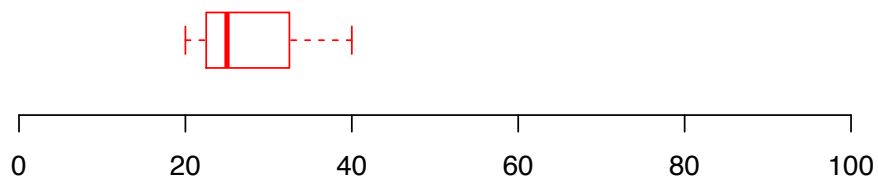
**National**, Median: 47.5; Weighted mean: 28.21



**Upper Midwest**, Median: 28.33; Weighted mean: 32.66



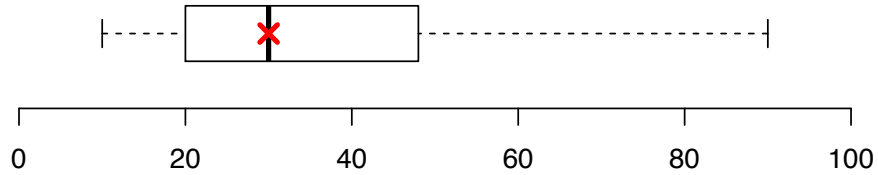
**Wisconsin**, Median: 25; Weighted mean: 28.33



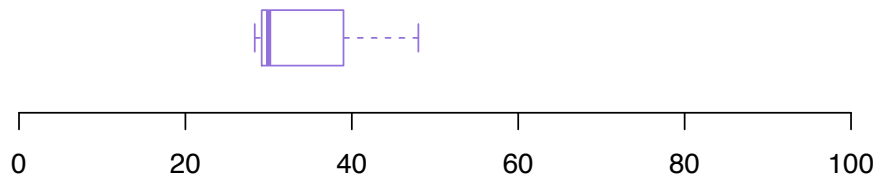
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(c) Heifer-raising facility (e.g. calf-ranch, calf-nursery, heifer-raiser, etc)

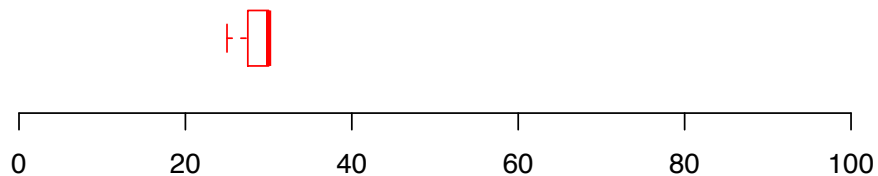
**National**, Median: 30; Weighted mean: 22.1



**Upper Midwest**, Median: 30; Weighted mean: 33.16



**Wisconsin**, Median: 30; Weighted mean: 28.33

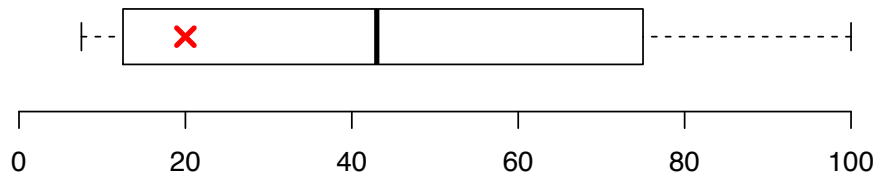


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

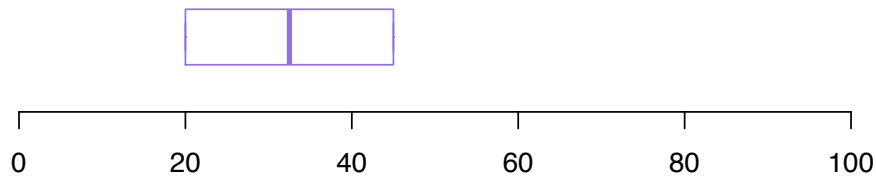
17. Consider 100 shipments of dairy cattle and calves from anywhere in your state traveling to the following destinations. For each of the following, out of 100 shipments, how many will leave the state?

(a) Feedlot or grazing operation

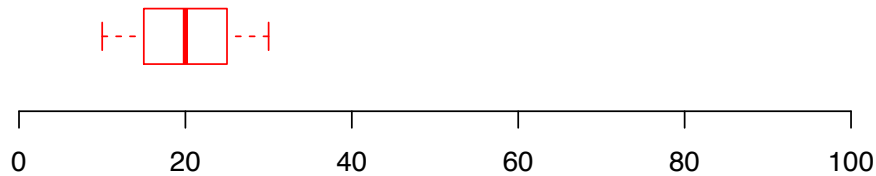
**National**, Median: 43; Weighted mean: 25.9



**Upper Midwest**, Median: 32.5; Weighted mean: 26.63



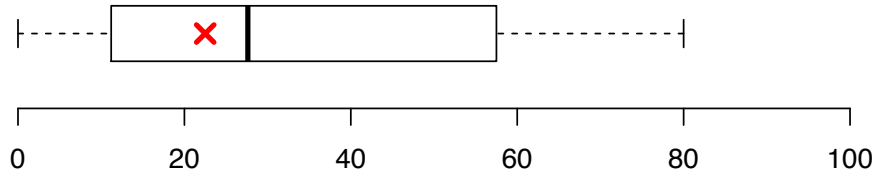
**Wisconsin**, Median: 20; Weighted mean: 20



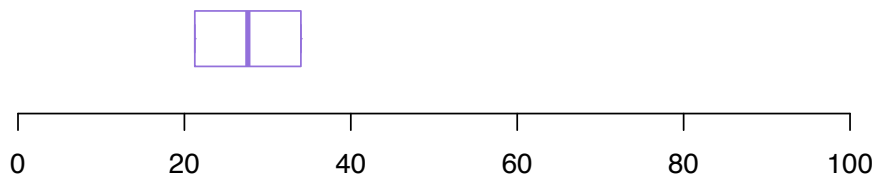
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

## (b) Market or salebarn

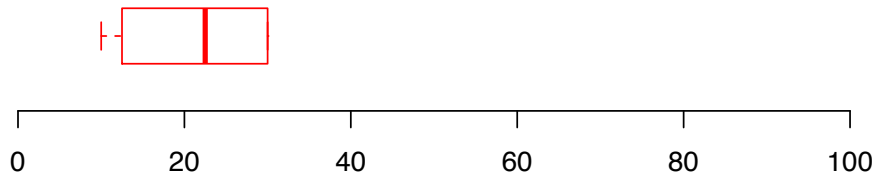
**National**, Median: 27.62; Weighted mean: 16.22



**Upper Midwest**, Median: 27.62; Weighted mean: 24.63



**Wisconsin**, Median: 22.5; Weighted mean: 21.25

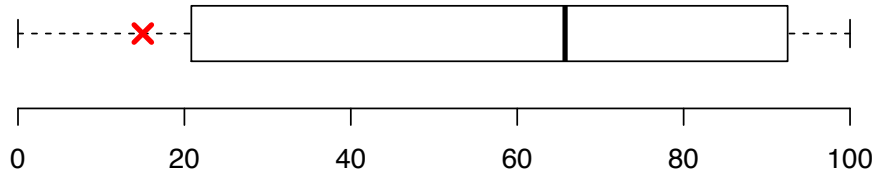


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

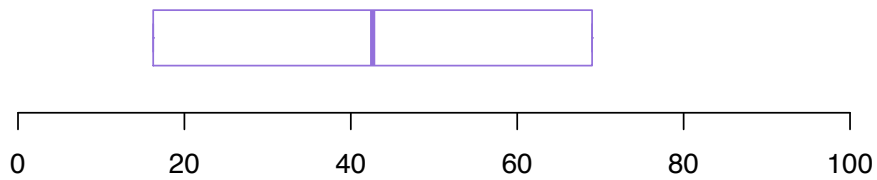


## (c) Slaughter

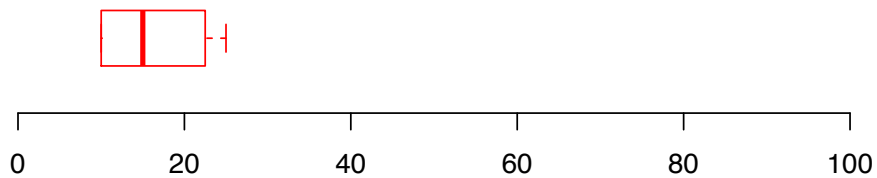
**National**, Median: 65.75; Weighted mean: 33.31



**Upper Midwest**, Median: 42.62; Weighted mean: 30.24



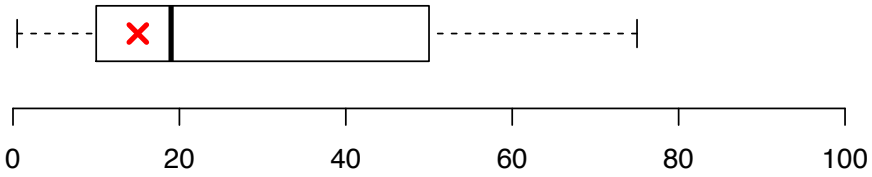
**Wisconsin**, Median: 15; Weighted mean: 16.25



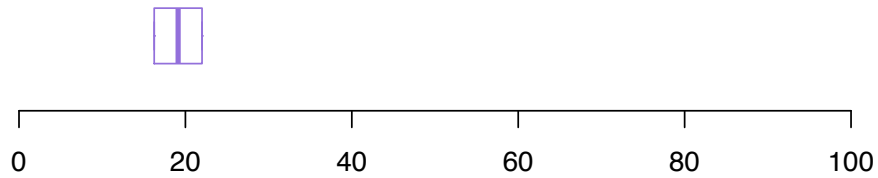
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(d) Show or exhibition

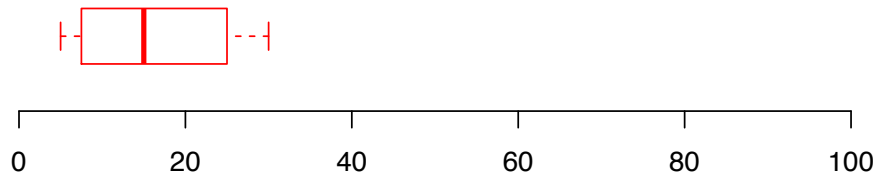
**National**, Median: 19; Weighted mean: 13.12



**Upper Midwest**, Median: 19.12; Weighted mean: 17.77



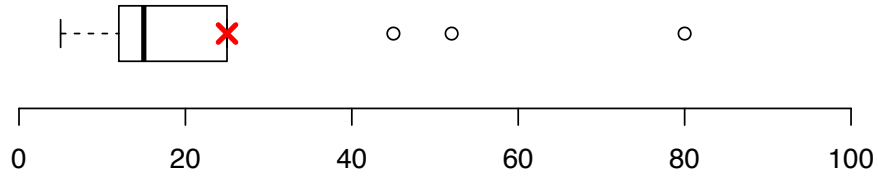
**Wisconsin**, Median: 15; Weighted mean: 16.25



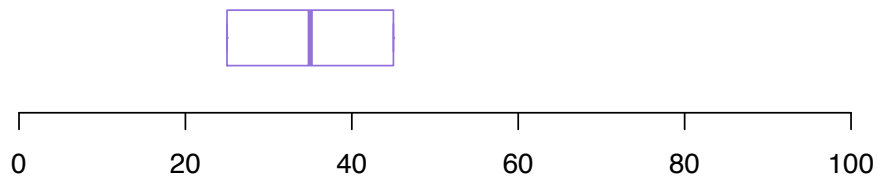
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(e) Another dairy operation

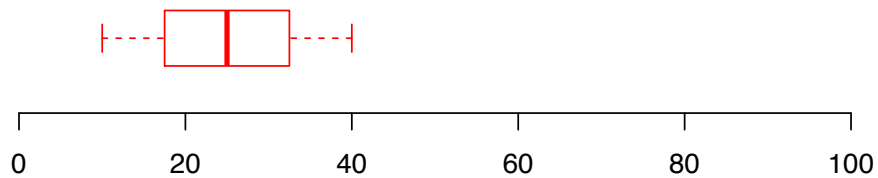
**National**, Median: 15; Weighted mean: 16.22



**Upper Midwest**, Median: 35; Weighted mean: 30.3



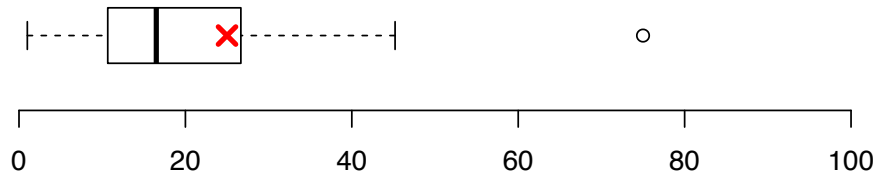
**Wisconsin**, Median: 25; Weighted mean: 25



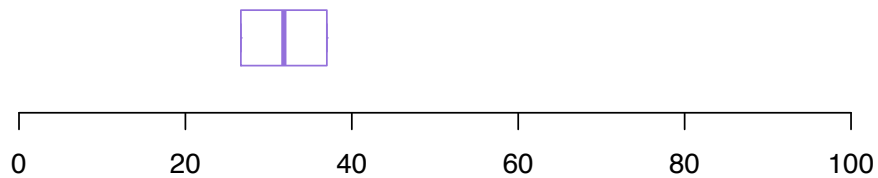
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(f) Another dairy operation for breeding purposes

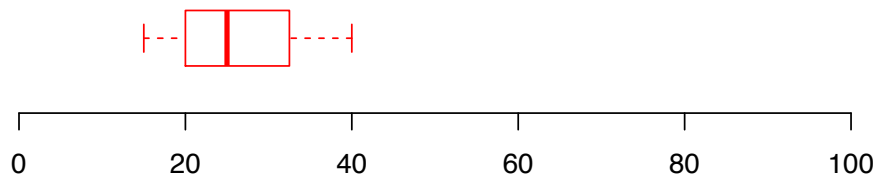
**National**, Median: 16.5; Weighted mean: 14.99



**Upper Midwest**, Median: 31.83; Weighted mean: 29.41



**Wisconsin**, Median: 25; Weighted mean: 26.67

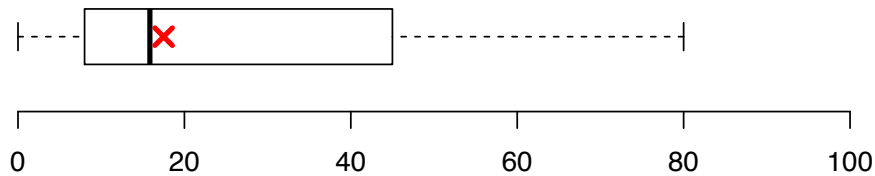


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

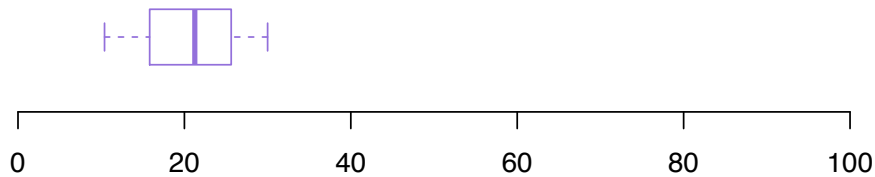
18. Consider 100 shipments of dairy heifer calves from anywhere in your state traveling to the following locations. For each of the following, out of 100 shipments, how many will leave the state?

(a) calf-ranch/nursery (pre-weaned)

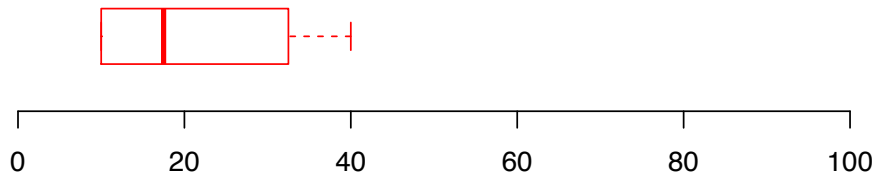
**National**, Median: 15.85; Weighted mean: 11.51



**Upper Midwest**, Median: 21.25; Weighted mean: 19.63



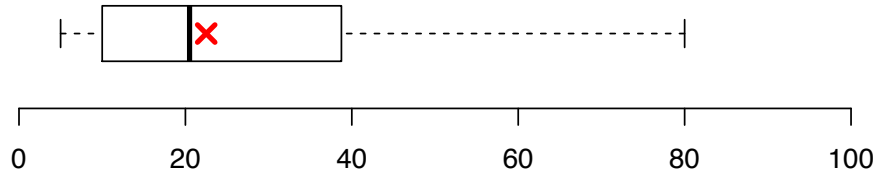
**Wisconsin**, Median: 17.5; Weighted mean: 21.25



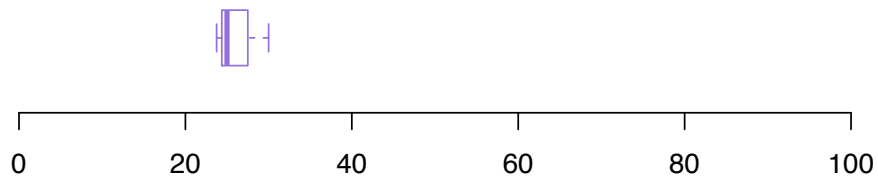
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

(b) heifer-raiser (weaned)

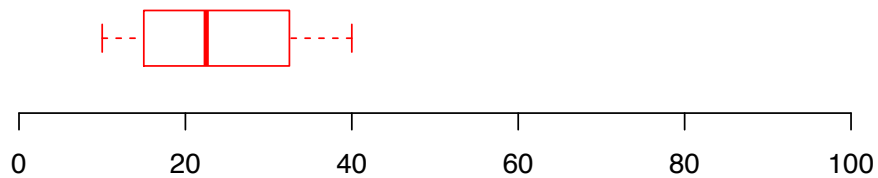
**National**, Median: 20.5; Weighted mean: 14.83



**Upper Midwest**, Median: 25; Weighted mean: 24.72



**Wisconsin**, Median: 22.5; Weighted mean: 23.75

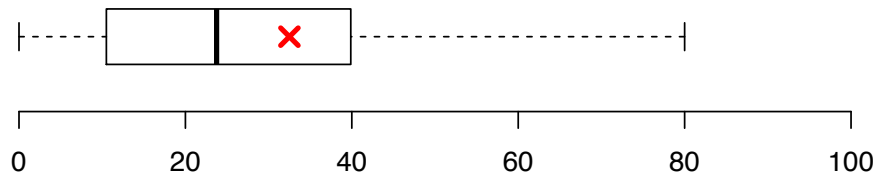


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

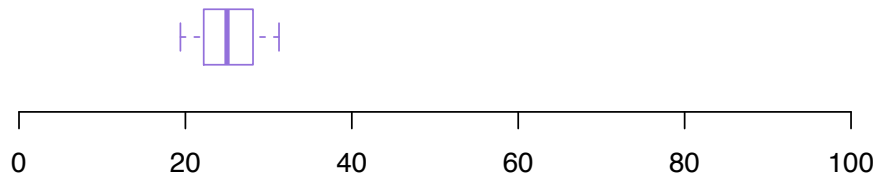
19. Consider 100 shipments of pre-weaned dairy steers or bulls from anywhere in your state traveling to the following locations. For each of the following, out of 100 shipments, how many will leave the state?

(a) Calf-ranch/nursery

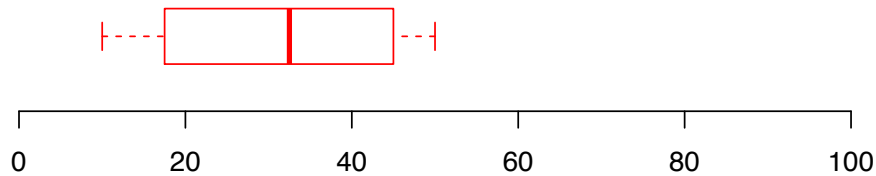
**National**, Median: 23.75; Weighted mean: 15.83



**Upper Midwest**, Median: 25; Weighted mean: 27.77



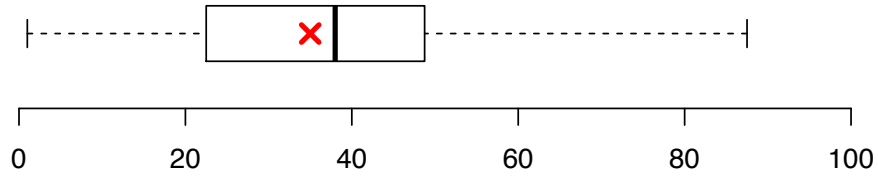
**Wisconsin**, Median: 32.5; Weighted mean: 31.25



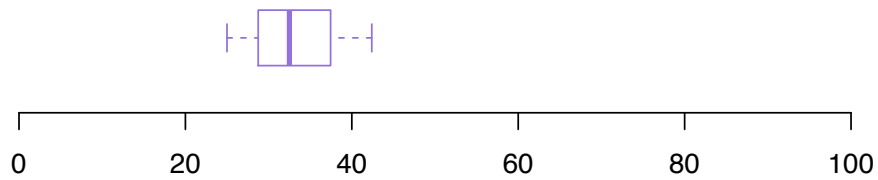
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

## (b) Feedlot

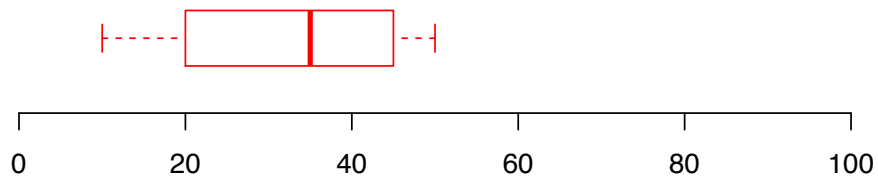
**National**, Median: 38; Weighted mean: 27.46



**Upper Midwest**, Median: 32.5; Weighted mean: 34.03



**Wisconsin**, Median: 35; Weighted mean: 32.5

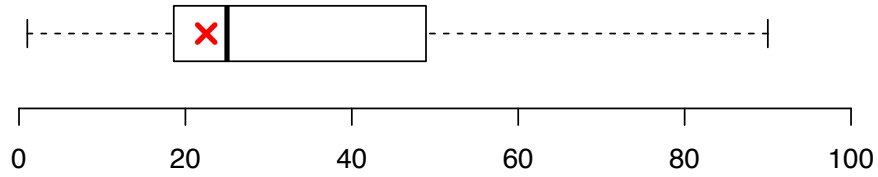


Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

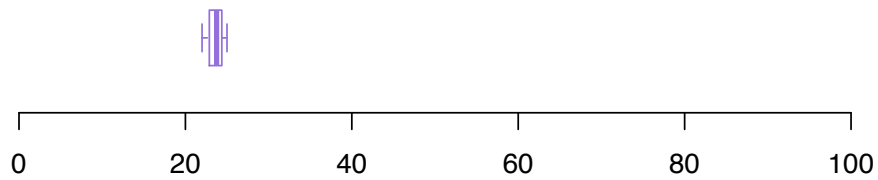


## (c) Market or Salebarn

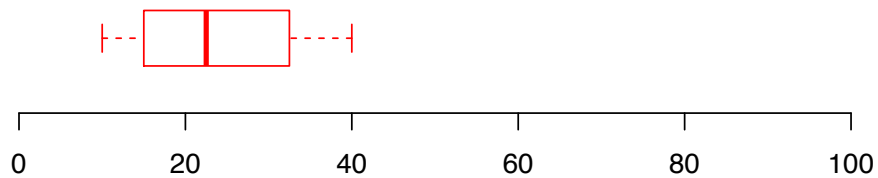
**National**, Median: 25; Weighted mean: 30.04



**Upper Midwest**, Median: 23.75; Weighted mean: 23.47



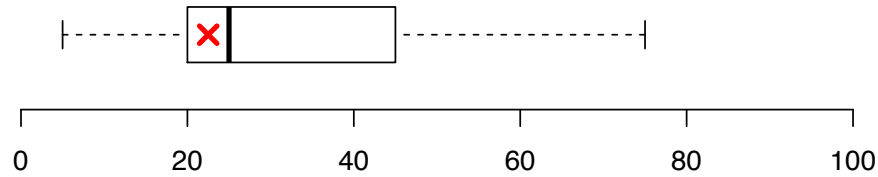
**Wisconsin**, Median: 22.5; Weighted mean: 23.75



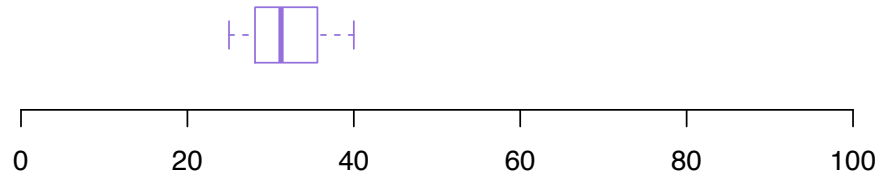
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

20. Consider 100 shipments of weaned heifers or pregnant heifers originating at a heifer-raising facility. Of these 100 shipments, how many will leave the state?

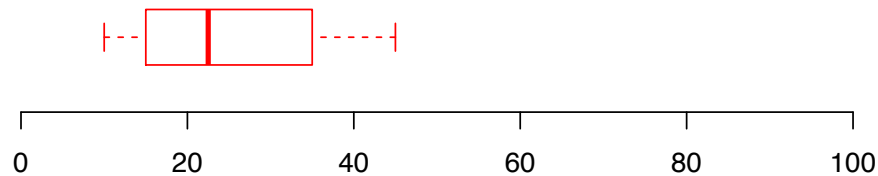
**National**, Median: 25; Weighted mean: 19.28



**Upper Midwest**, Median: 31.25; Weighted mean: 28.1



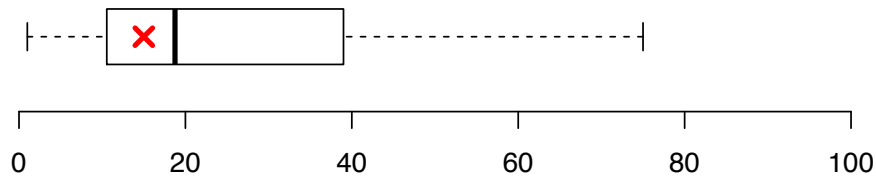
**Wisconsin**, Median: 22.5; Weighted mean: 25



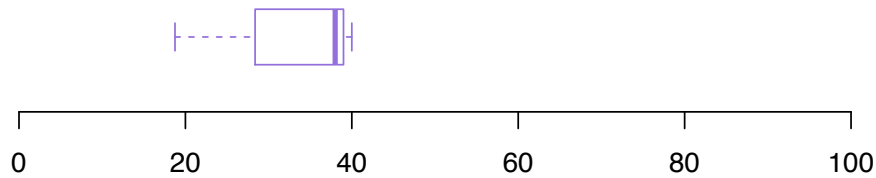
Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

21. Consider 100 shipments of dairy bulls from anywhere in your state that are moving for breeding purposes. Of these shipments, how many will leave the state?

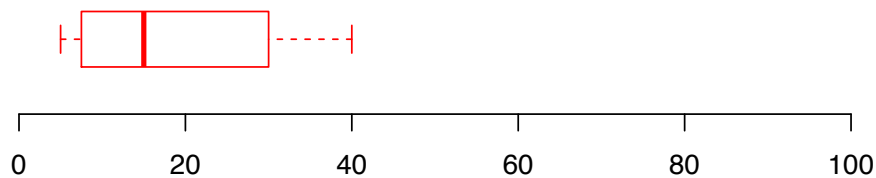
**National**, Median: 18.75; Weighted mean: 13.68



**Upper Midwest**, Median: 38; Weighted mean: 25.6



**Wisconsin**, Median: 15; Weighted mean: 18.75



Box Plots: The center bar and edges of the box show the median and 1st and 3rd quartiles, respectively. The whiskers extend to points that are no more than 1.5 times the interquartile range, points outside this range are outliers (open circles). The red X on the national plots corresponds to the state median.

# Appendix I:

## Table of cattle movement results by survey question

*Overview:* The results from the Wisconsin Cattle Movement Survey are presented below. Additionally, the results from the national level survey and the Upper Midwest regional survey (which includes Iowa, Minnesota, and Wisconsin) are presented. At the national level there were 51 experts from 19 states and territories participating in the Cattle Movement Survey including Alaska, California, Colorado, Iowa, Idaho, Minnesota, Mississippi, Montana, North Carolina, Nebraska, Nevada, New York, Oklahoma, Pennsylvania, Tennessee, Texas, US Virgin Islands, Virginia and Wisconsin. For each question the national, regional, and state results are presented in color-coded table cells. An explanation of the weighted means can be found below.

*Weighted means:* The national and regional means presented in this report have been weighted, meaning that some data points contribute more than others to the overall mean. This was done to allow data points from states with larger cattle populations to have greater weight. Specifically, states were weighted by the beef and dairy cattle inventory data from the 2015 National Agricultural Statistics Service annual report.

**Beef shipments**

	<b>National</b>	<b>Upper Midwest</b>	<b>Wisconsin</b>
Question 6			
<b>Median</b>	44.58	39	30
<b>Weighted mean</b>	42.21	52.38	38.33
Question 7a			
<b>Median</b>	20	18.33	10
<b>Weighted mean</b>	26.67	25.92	18.33
Question 7b			
<b>Median</b>	32.35	36.67	50
<b>Weighted mean</b>	29.65	33.88	36.67
Question 7c			
<b>Median</b>	41.25	25	15
<b>Weighted mean</b>	36.65	43.86	25
Question 7d			
<b>Median</b>	48.75	45	25
<b>Weighted mean</b>	45.19	58.51	31.67
Question 8a			
<b>Median</b>	42.5	40	50
<b>Weighted mean</b>	41.33	35.09	40
Question 8b			
<b>Median</b>	41.25	35	30
<b>Weighted mean</b>	39.19	42.57	35
Question 8c			
<b>Median</b>	41.96	40	10
<b>Weighted mean</b>	41.1	38.72	21.67
Question 8d			
<b>Median</b>	43.21	40	30
<b>Weighted mean</b>	41.11	41.11	36.67

	<b>National</b>	<b>Upper Midwest</b>	<b>Wisconsin</b>
Question 8e			
<b>Median</b>	53.33	56.67	25
<b>Weighted mean</b>	40.17	58.79	30
Question 8f			
<b>Median</b>	57.63	56.67	20
<b>Weighted mean</b>	46.33	51.17	23.33
Question 9a			
<b>Median</b>	52.17	53.33	20
<b>Weighted mean</b>	42.49	50.39	28.33
Question 9b			
<b>Median</b>	25.5	26	30
<b>Weighted mean</b>	28.65	16.29	33.33
Question 9c			
<b>Median</b>	18.42	25.75	25
<b>Weighted mean</b>	19.37	20.11	30
Question 9d			
<b>Median</b>	18.25	34	40
<b>Weighted mean</b>	18.53	22.17	36.67
Question 10a			
<b>Median</b>	32.5	33.33	20
<b>Weighted mean</b>	30.82	36.95	31.67
Question 10b			
<b>Median</b>	40.5	36.67	20
<b>Weighted mean</b>	31.61	36.17	28.33
Question 10c			
<b>Median</b>	56.17	53.33	25
<b>Weighted mean</b>	43.85	51.35	31.67
Question 11			
<b>Median</b>	30	35	2
<b>Weighted mean</b>	37.79	39.01	7.33

	<b>National</b>	<b>Upper Midwest</b>	<b>Wisconsin</b>
Question 12a			
<b>Median</b>	58.75	60	25
<b>Weighted mean</b>	42.85	55.91	35
Question 12b			
<b>Median</b>	38.17	38	40
<b>Weighted mean</b>	35.14	29.33	38.33
Question 12c			
<b>Median</b>	34.5	33.33	25
<b>Weighted mean</b>	35.61	34.41	28.33
Question 12d			
<b>Median</b>	43.9	45	25
<b>Weighted mean</b>	35.24	44.57	31.67
Question 13a			
<b>Median</b>	55	68.33	20
<b>Weighted mean</b>	42.53	59.51	16.67
Question 13b			
<b>Median</b>	51.33	61	20
<b>Weighted mean</b>	44.8	61.74	18.33
Question 13c			
<b>Median</b>	55	68.33	30
<b>Weighted mean</b>	42.69	67.52	40

#### Dairy shipments

	<b>National</b>	<b>Upper Midwest</b>	<b>Wisconsin</b>
Question 14			
<b>Median</b>	35.75	30	15
<b>Weighted mean</b>	21.8	23.44	20

	<b>National</b>	<b>Upper Midwest</b>	<b>Wisconsin</b>
Question 15a			
<b>Median</b>	14.38	13.75	6
<b>Weighted mean</b>	12.98	10.66	8
Question 15b			
<b>Median</b>	27.5	20	20
<b>Weighted mean</b>	23.99	20.61	20
Question 15c			
<b>Median</b>	42.5	30.25	32.5
<b>Weighted mean</b>	25.74	31.14	30
Question 16a			
<b>Median</b>	38.33	20	15
<b>Weighted mean</b>	23.39	27.39	20
Question 16b			
<b>Median</b>	47.5	28.33	25
<b>Weighted mean</b>	28.21	32.66	28.33
Question 16c			
<b>Median</b>	30	30	30
<b>Weighted mean</b>	22.1	33.16	28.33
Question 17a			
<b>Median</b>	43	32.5	20
<b>Weighted mean</b>	25.9	26.63	20
Question 17b			
<b>Median</b>	27.62	27.62	22.5
<b>Weighted mean</b>	16.22	24.63	21.25
Question 17c			
<b>Median</b>	65.75	42.62	15
<b>Weighted mean</b>	33.31	30.24	16.25
Question 17d			
<b>Median</b>	19	19.12	15
<b>Weighted mean</b>	13.12	17.77	16.25



	<b>National</b>	<b>Upper Midwest</b>	<b>Wisconsin</b>
Question 17e			
<b>Median</b>	15	35	25
<b>Weighted mean</b>	16.22	30.3	25
Question 17f			
<b>Median</b>	16.5	31.83	25
<b>Weighted mean</b>	14.99	29.41	26.67
Question 18a			
<b>Median</b>	15.85	21.25	17.5
<b>Weighted mean</b>	11.51	19.63	21.25
Question 18b			
<b>Median</b>	20.5	25	22.5
<b>Weighted mean</b>	14.83	24.72	23.75
Question 19a			
<b>Median</b>	23.75	25	32.5
<b>Weighted mean</b>	15.83	27.77	31.25
Question 19b			
<b>Median</b>	38	32.5	35
<b>Weighted mean</b>	27.46	34.03	32.5
Question 19c			
<b>Median</b>	25	23.75	22.5
<b>Weighted mean</b>	30.04	23.47	23.75
Question 20			
<b>Median</b>	25	31.25	22.5
<b>Weighted mean</b>	19.28	28.1	25
Question 21			
<b>Median</b>	18.75	38	15
<b>Weighted mean</b>	13.68	25.6	18.75