

# Impact of Educational Workshops on the Adoption of Genomic Selection Tools within the Dairy Industry

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## Abstract

Genomic selection has been available and rapidly utilized within the dairy industry. However, it is not utilized to its maximum potential, especially within the commercial sector. Much of this is due to a lack of information on how to effectively use it while maximizing producers' returns on investment for genotyping. Educational workshops that outline how these tools work, options available, and various ways to implement the data have the potential to increase adoption of genomic selection throughout the dairy industry.

## Importance

Providing hands-on workshops about genomic selection to producers, veterinarians, and other industry personnel aids the adoption of genomic selection by establishing a more complete perspective on its uses. Knowledge gained on genomic selection provides the opportunity to improve genetic progress and sustainability, while reducing financial risk and the environmental footprint by reducing the number of non-productive cows while increasing milk production.



## Research Question

The aim of this project was to provide educational workshops for producers, veterinarians, and industry members on the uses of genomic selection as a tool to improve the profitability of the dairy and to assess changes of attendees perception of this tool.

## Survey Background

Attendees were asked to complete a pre- and post-workshop survey, both of which contained general information about genomic selection. The post-workshop survey also contained information regarding views on the use of genomic selection and evaluated skills gained by attending the workshop.

[Pre-Workshop Survey](#)

[Post-Workshop Survey](#)

[WSARE Survey](#)

## Workshop Details

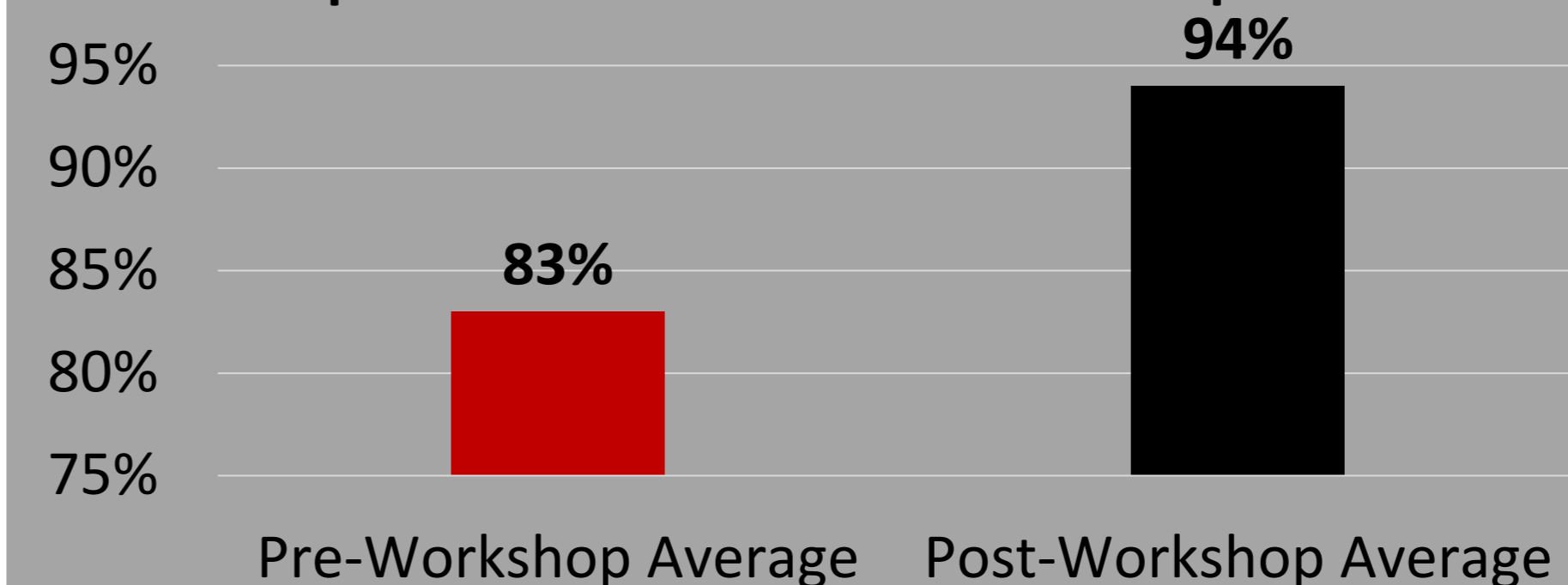
Two workshops were held in Washington and two workshops were held in Idaho. In total, thirty-six individuals completed the surveys. Producers and industry professionals participated in genomic selection workshops which focused on genetic principles and different ways genomic information can benefit the dairy. Finally, attendees were given a group of 20 heifers and two bulls to select and mate based on their appearance, their pedigree and their PTAs. The decisions made, and their predicted profitability differences were discussed in the workshop based on 1200 Holstein heifers genotyped in Washington and Idaho as part of the project.

## Results

*Pre-Workshop Results:* Prior to the start of the workshop, 59% of the attendees stated they had used genomic selection. Genomic selection was targeted for selecting replacement heifers (59%), and to make breeding decisions (73%).

*Post-Workshop Results:* When evaluating the success of the workshop, 87% found the workshop helpful and 80% stated they would like more information on genomic selection. Most (57%) of attendees planned to use genomic selection within their herd, and the remaining 43% were consider it.

Comparison of Pre and Post Workshop Scores



Average correct scores across each pre-workshop quiz ranged from 77-88% with an across-workshop average of 83%. Average correct scores on the post-workshop quiz across each workshop ranged from 93-95% with an across-workshop average of 94%. Correct responses increased in the post-workshop compared to number of correct responses in the pre-workshop quiz ( $p = 0.0027$ )

## Workshop Reach

Across all workshops, the attendees estimated that they would discuss the information with 240 others. Producers attending the workshops managed over 20,600 lactating cows and 6,600 heifers, and industry personnel consulted on over 56,000 cows and 30,800 heifers.

## Conclusion

The workshops and survey data provided evidence that the dairy industry benefited from interactive workshops on genomic selection and how they can improve their businesses. Continued educational resources on how to implement genomic selection and the benefits it offers, facilitates its use and increases the competitiveness and sustainability of US dairy herds.

## References

Dalton, J.C., D.A. Moore, T. Spencer, H. Neiberger, A. DeVries, P. Hansen, and J. Cole. 2014. Survey of genomic management practices of United States' dairy producers. In: Proc. New Science, New Practices International Cow Fertility Conference, Westport, Ireland, Cambridge University Press, Volume 5, Part 2, p. 260.

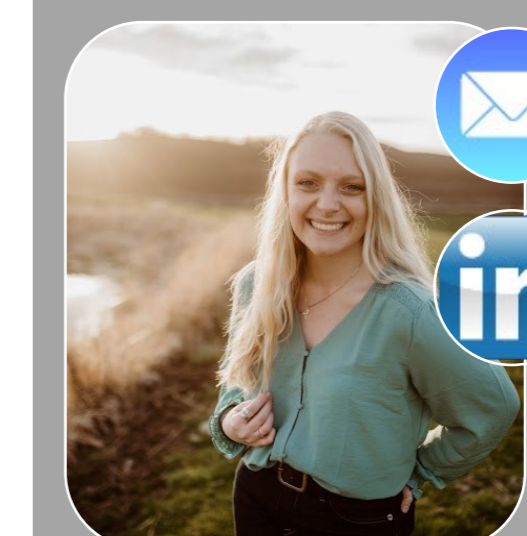
Carrillo, J., & Tokuhisa, K. (2021). The U.S. has recorded 5 million genotypes. *Hoard's Dairyman*. Retrieved February 27, 2022, from <https://hoards.com/article-29836-the-us-has-recorded-5-million-genotypes.html>.

## ACKNOWLEDGEMENTS



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## CONTACT ME



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Allison Herrick

# Pre-Workshop Survey

Main  
Poster

Post-  
Workshop  
Survey

WSARE  
Survey

## Questions Asked

1. What does PTA stand for?
  2. What does a PTA of +50 Milk mean?
  3. How much does genomic testing cost?
  4. How can genomic selection be used?
  5. What is genomic selection?
  6. Risk management includes?
1. Have you used genomic selection?
  2. Are you interested in using genomic selection on heifers?
  3. Are you interested in using genomic selection for breeding decisions?

# Post-Workshop Survey

Main  
Poster

Pre-  
Workshop  
Survey

WSARE  
Survey

## Questions Asked

1. What does PTA stand for?
  2. What does a PTA of +50 Milk mean?
  3. How much does genomic testing cost?
  4. How can genomic selection be used?
  5. What is genomic selection?
  6. Risk management includes?
1. Will you use genomic selection?
  2. Will you use genomics to make breeding decisions?
  3. Has this workshop been helpful?
  4. Would you be interested in more information?
  5. As a vet, how will you use the information learned?
  6. How many cows and replacements do you work with?

# WSARE Survey

Main  
Poster

Pre-  
Workshop  
Survey

Post-  
Workshop  
Survey

## Questions Asked

1. Did this workshop improve your awareness on this topic?
2. Were you provided with new knowledge?
3. Were you provided new skills?
4. Did it modify your opinions?
5. How many people will you share this information with?

### **Producers: In the next year I will use the information learned to...**

- Adopt a practice shown?
- Increase diversification of an operation?
- Reduce purchased off-farm inputs?
- Increase networking with other producers?
- Incorporate value-added methods into operation?

### **Professionals: In the next year I will use the information learned to...**

- In an educational program?
- As a resource for producers?
- Professional development for peers?
- To improve advice I give to producers?

# Pre-Workshop Survey: Responses

[Main Poster](#)

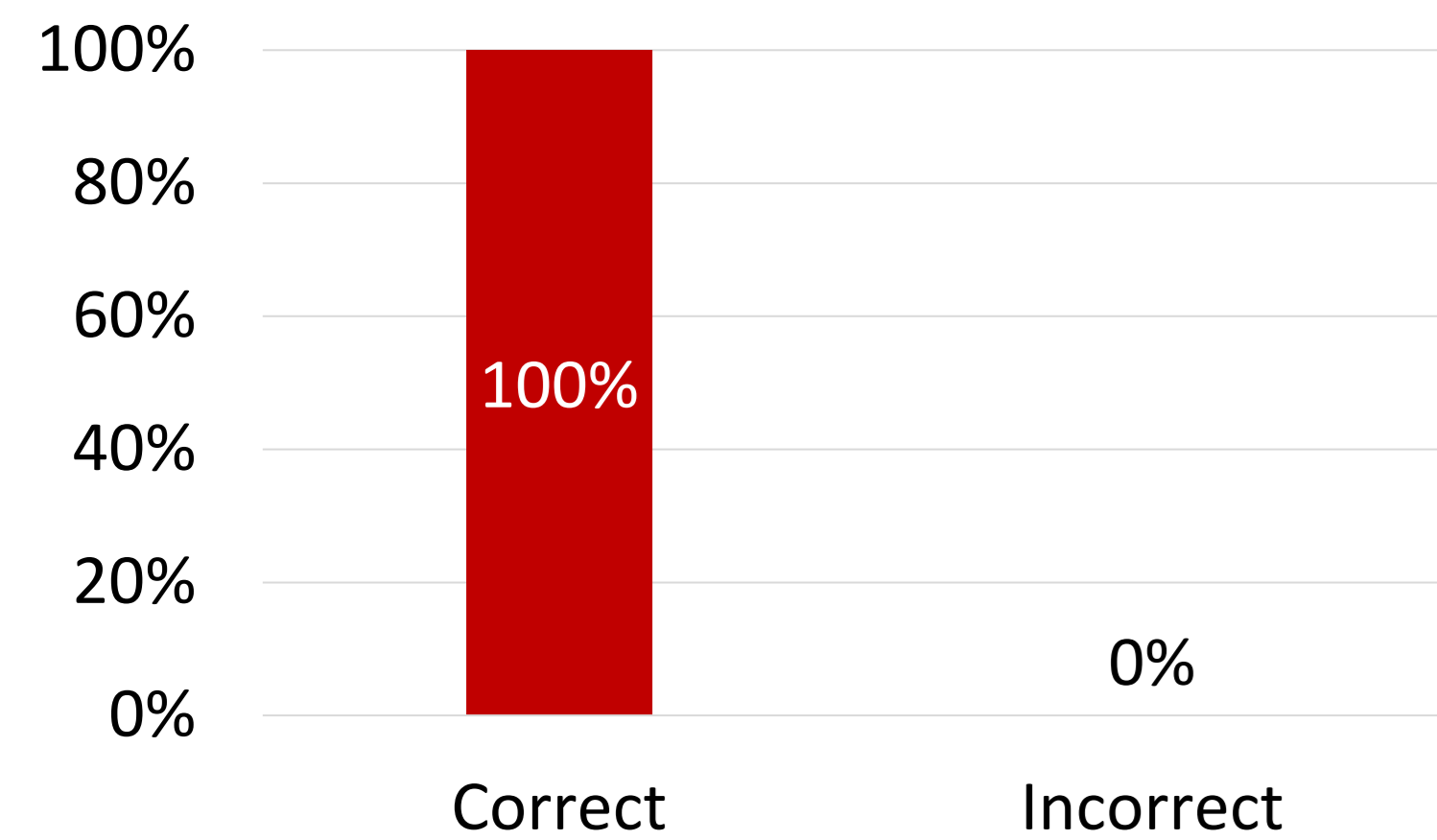
[Pre-Workshop Responses](#)

[Post-Workshop Responses](#)

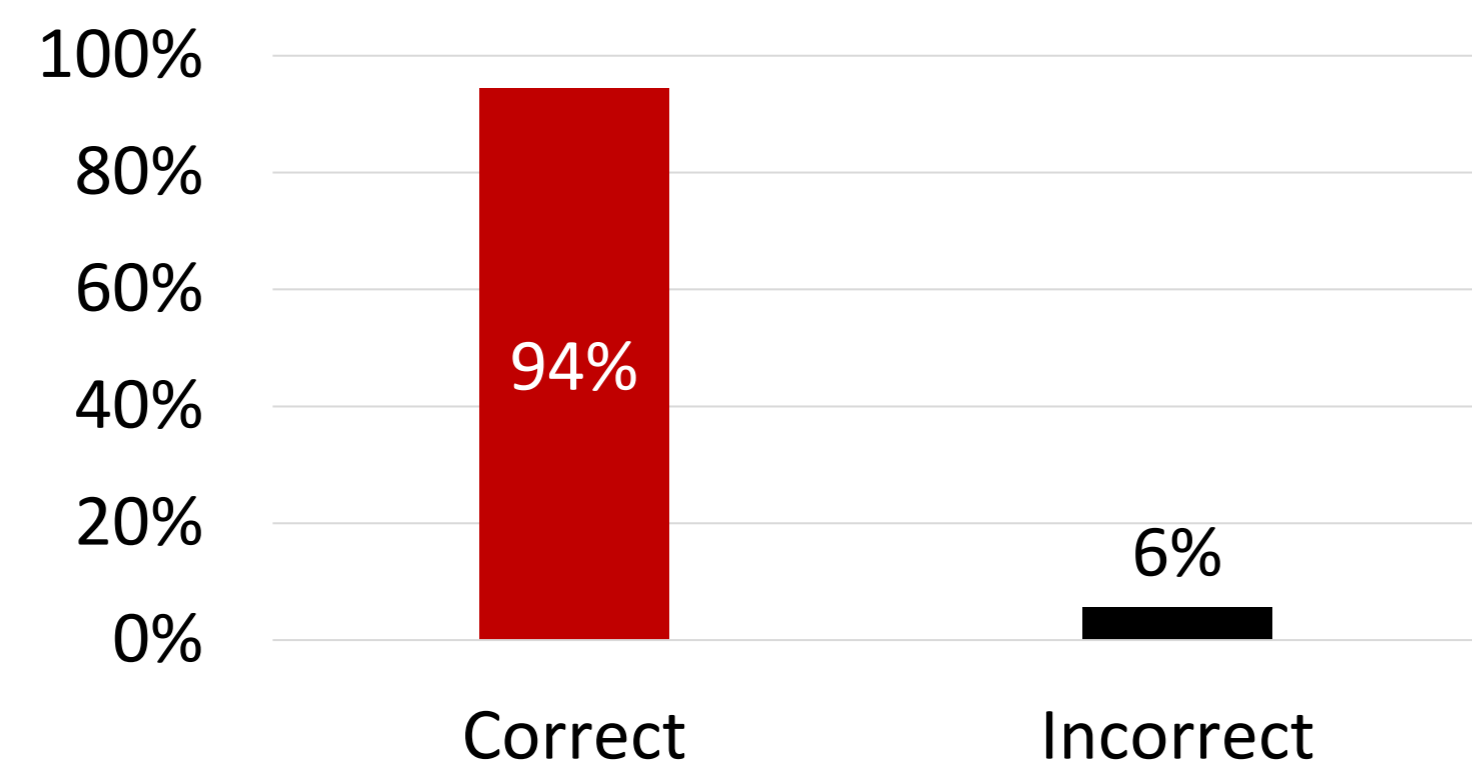
[WSARE Responses](#)

## Knowledge Questions

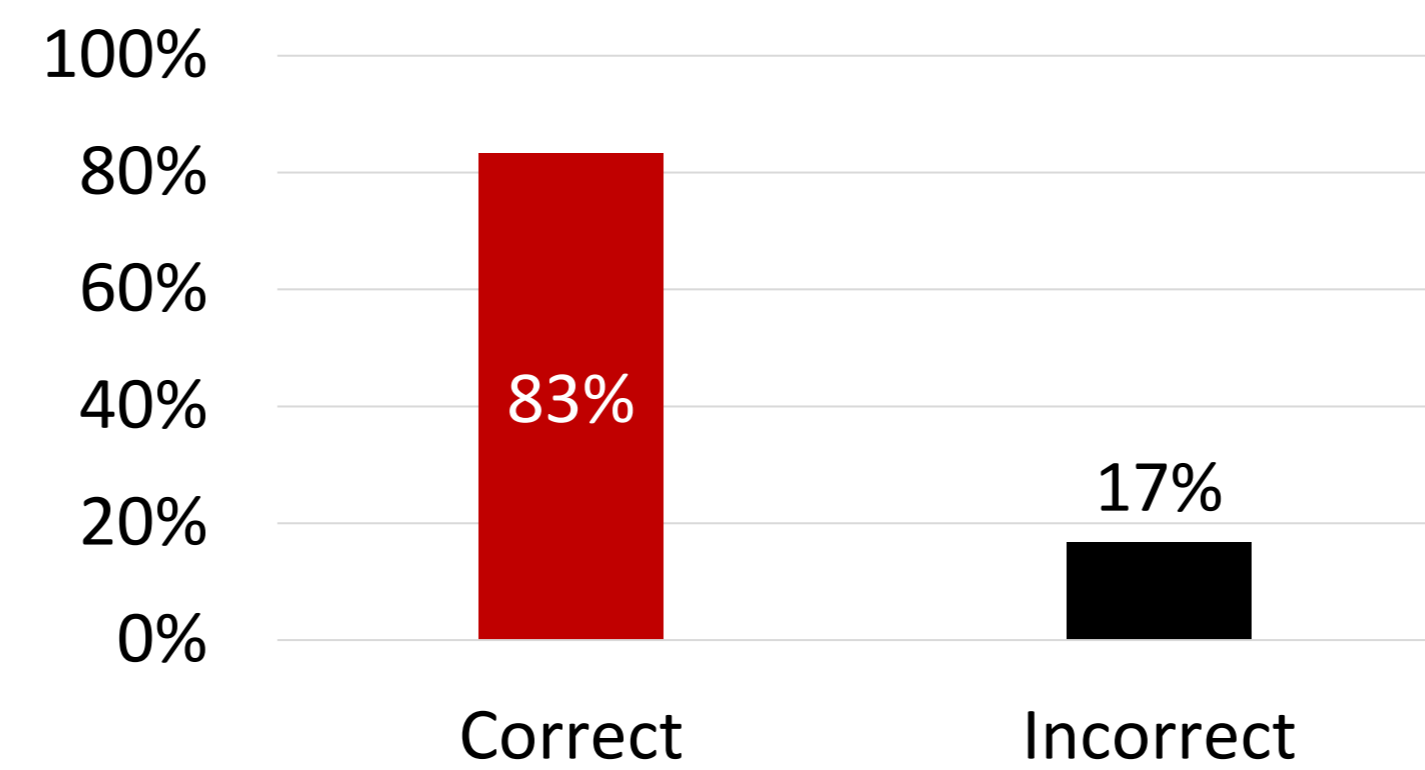
What is genomic selection?



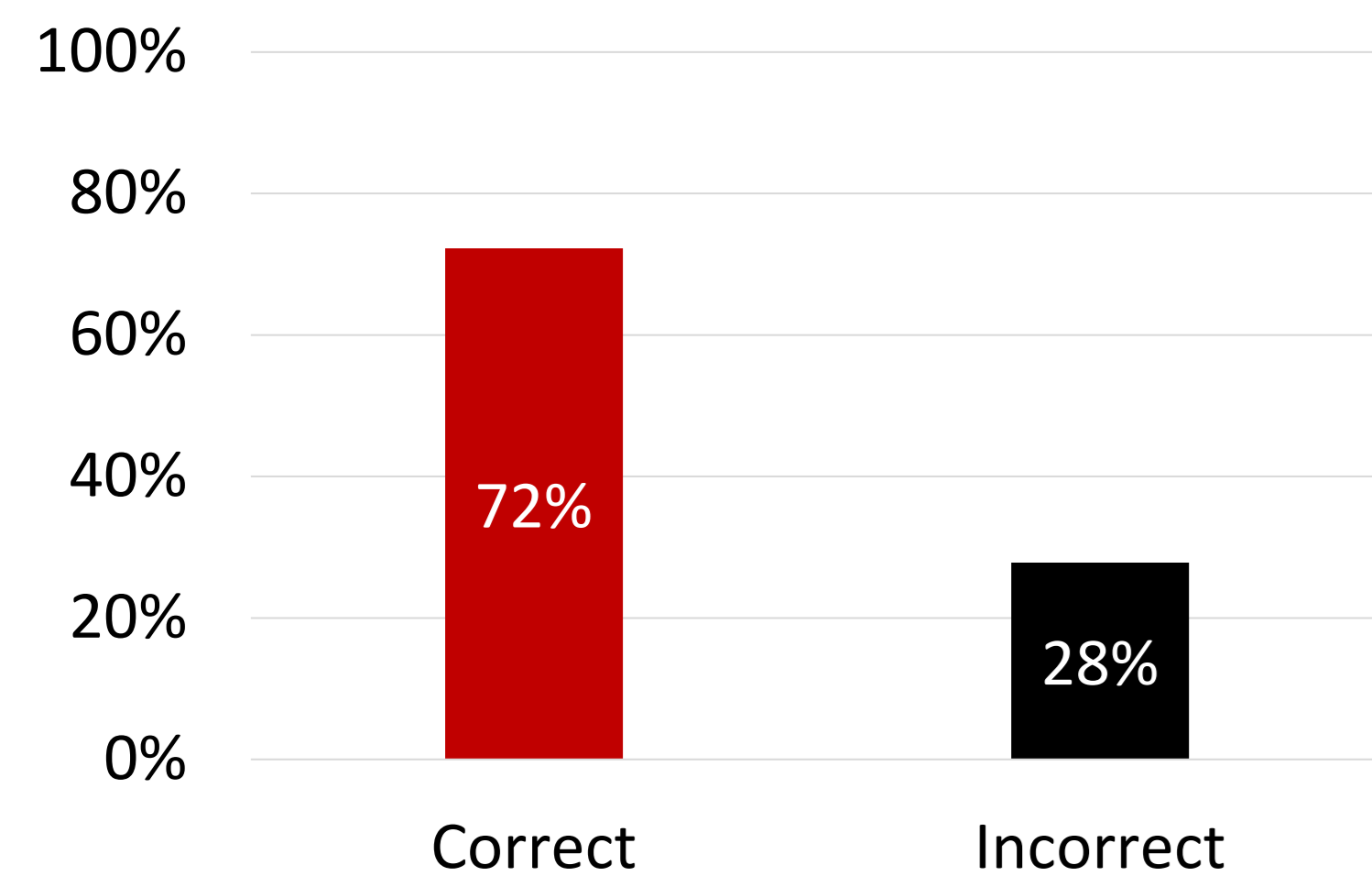
How can genomic selection be used?



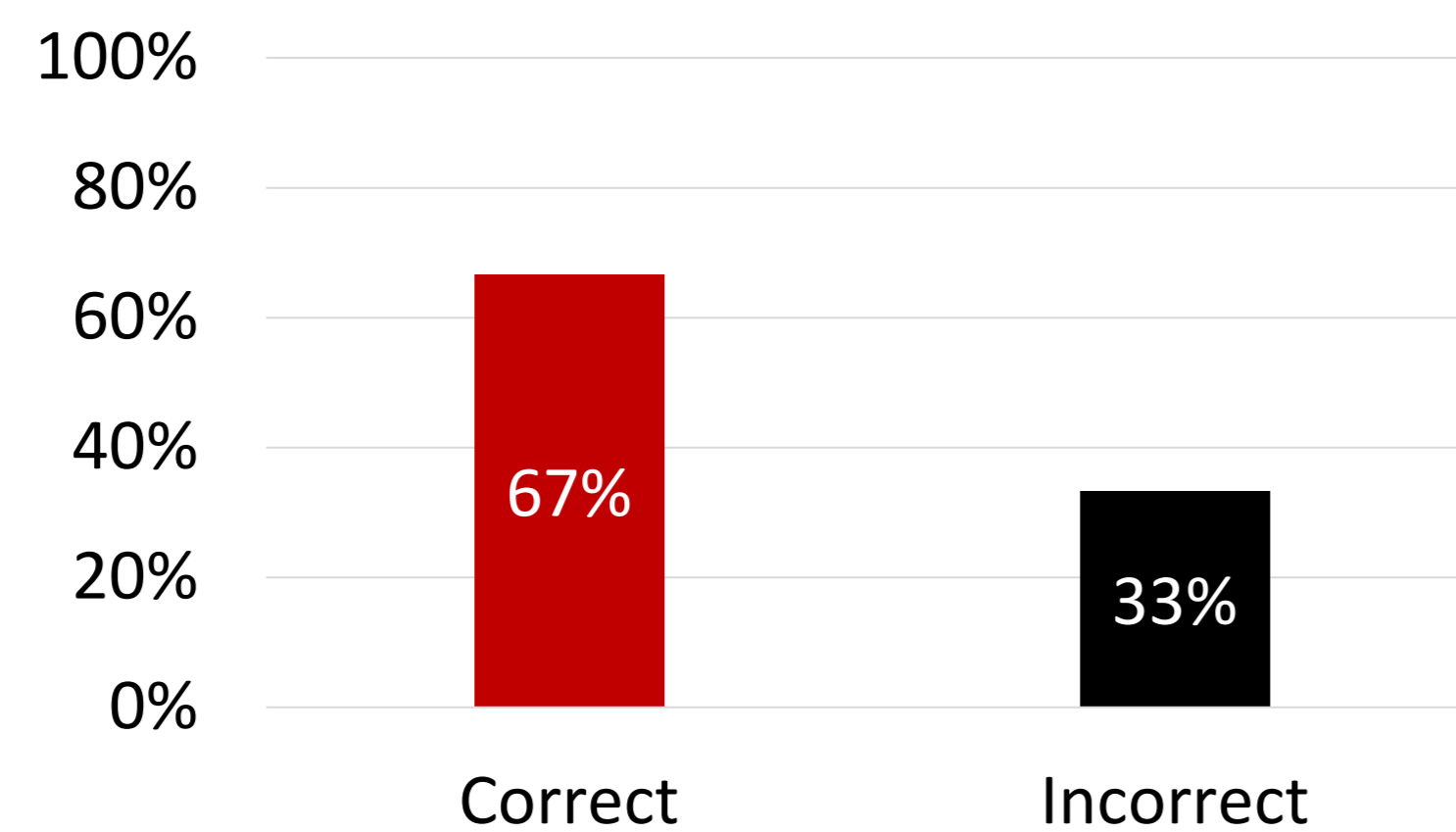
What does a PTA of +50 Milk mean?



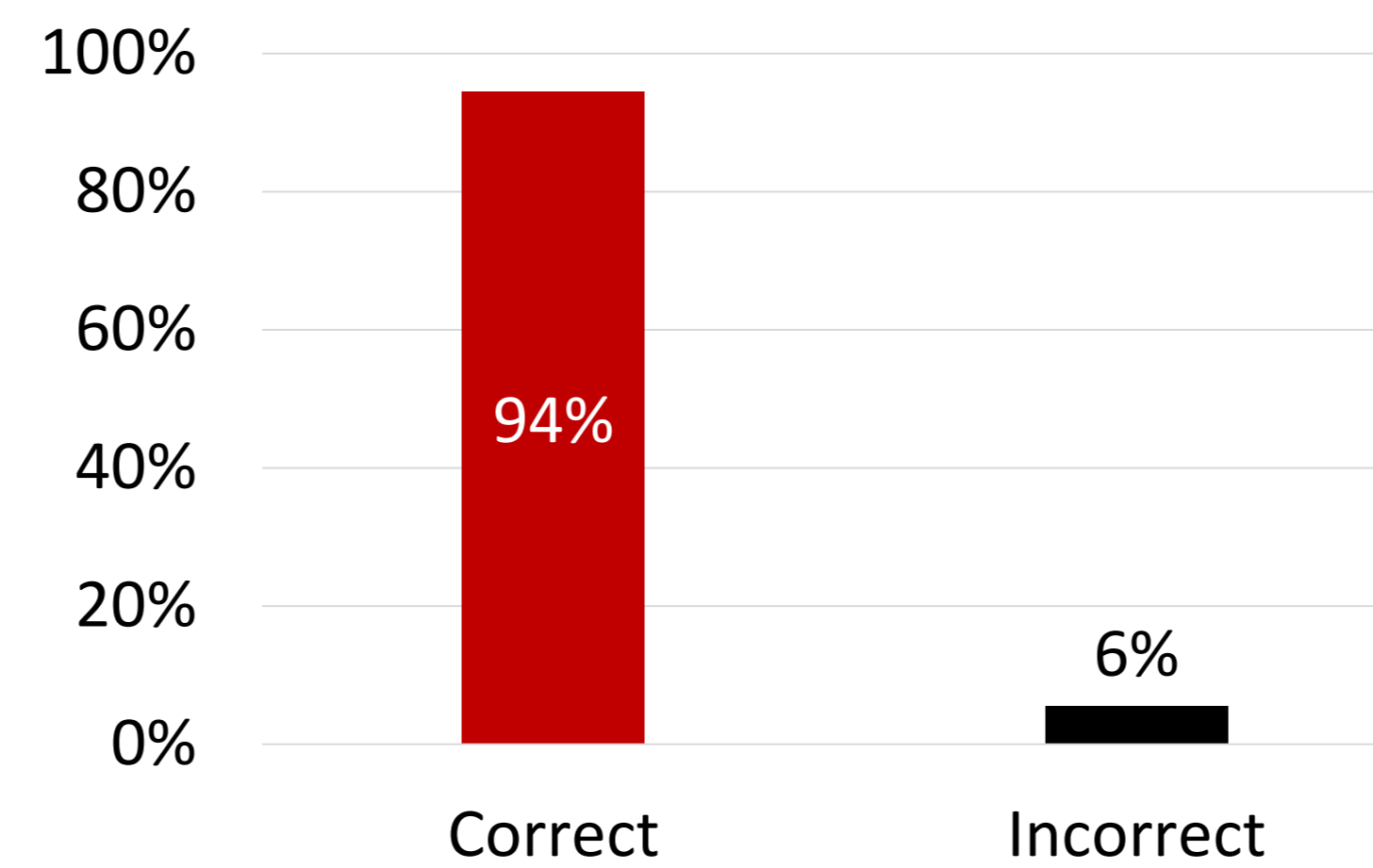
What does PTA stand for?



How much does genomic testing cost?

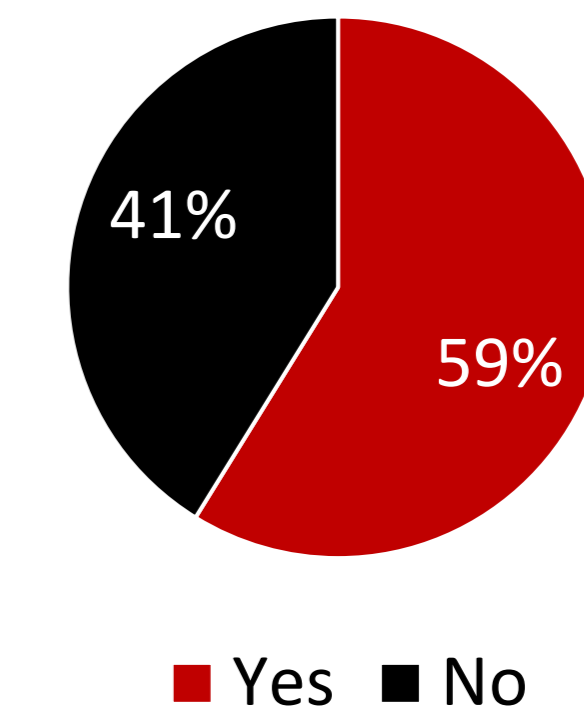


Risk management includes?

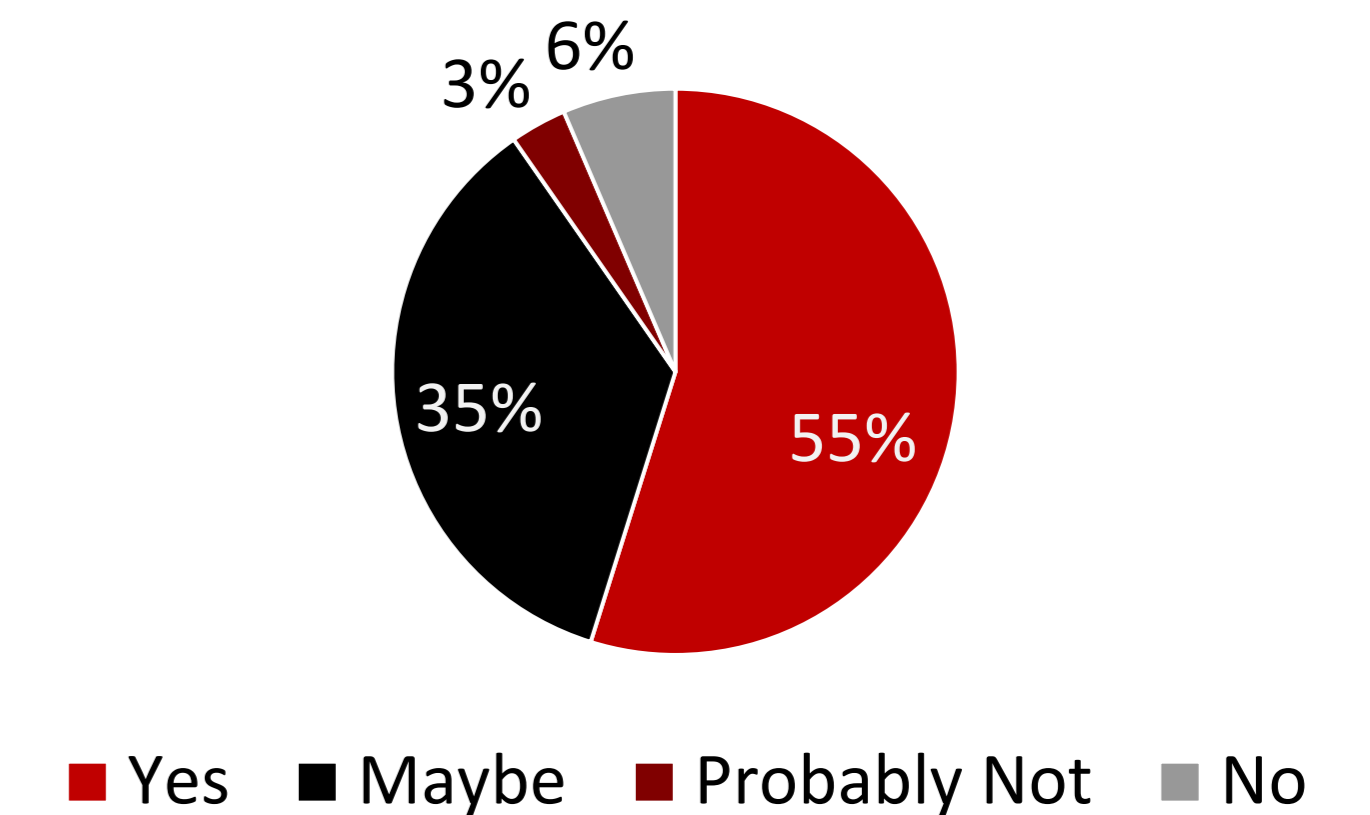


## Genomic Selection Usage

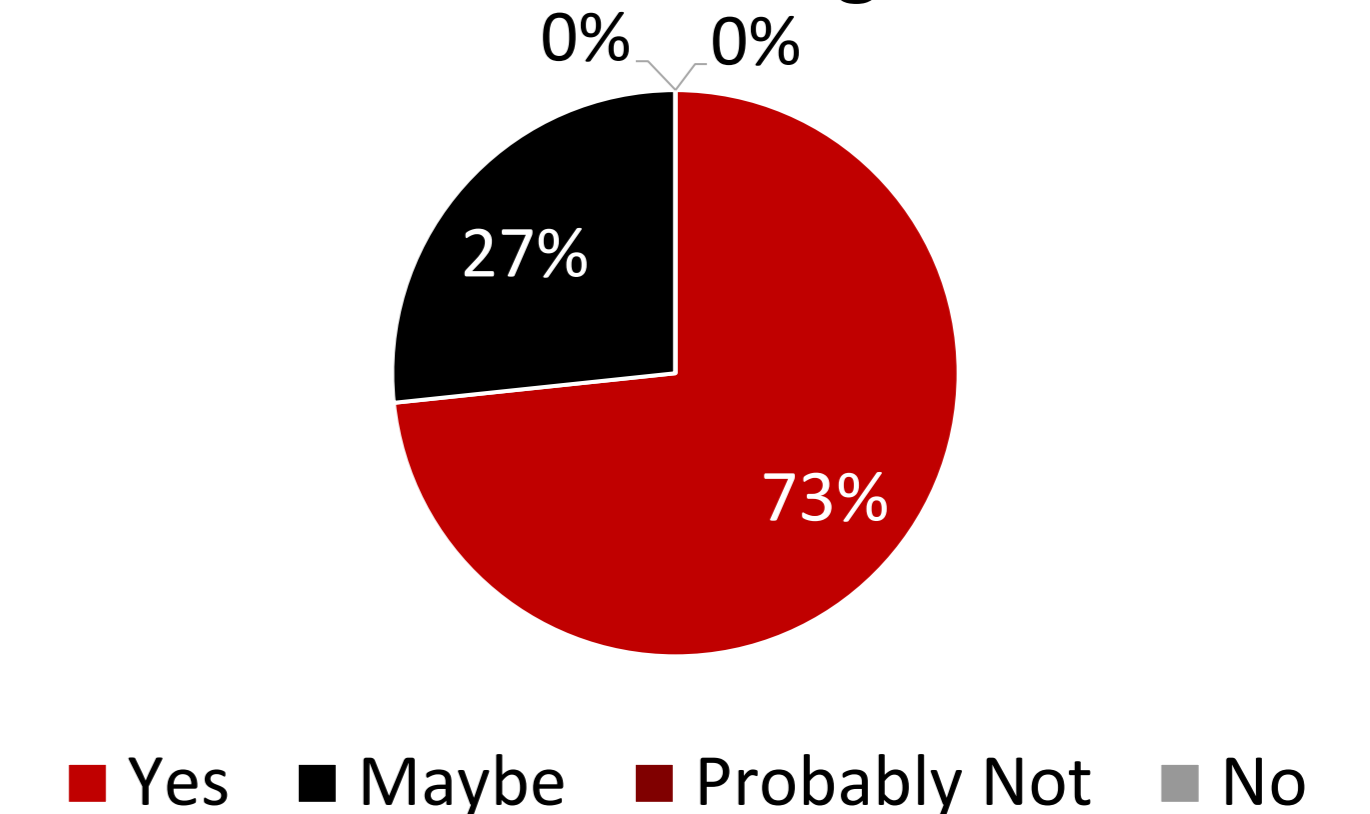
Have you used genomic selection?



Are you interested in using genomic selection on heifers?



Are you interested in using genomic selection for breeding decisions?



# Post-Workshop Survey: Responses

Main  
Poster

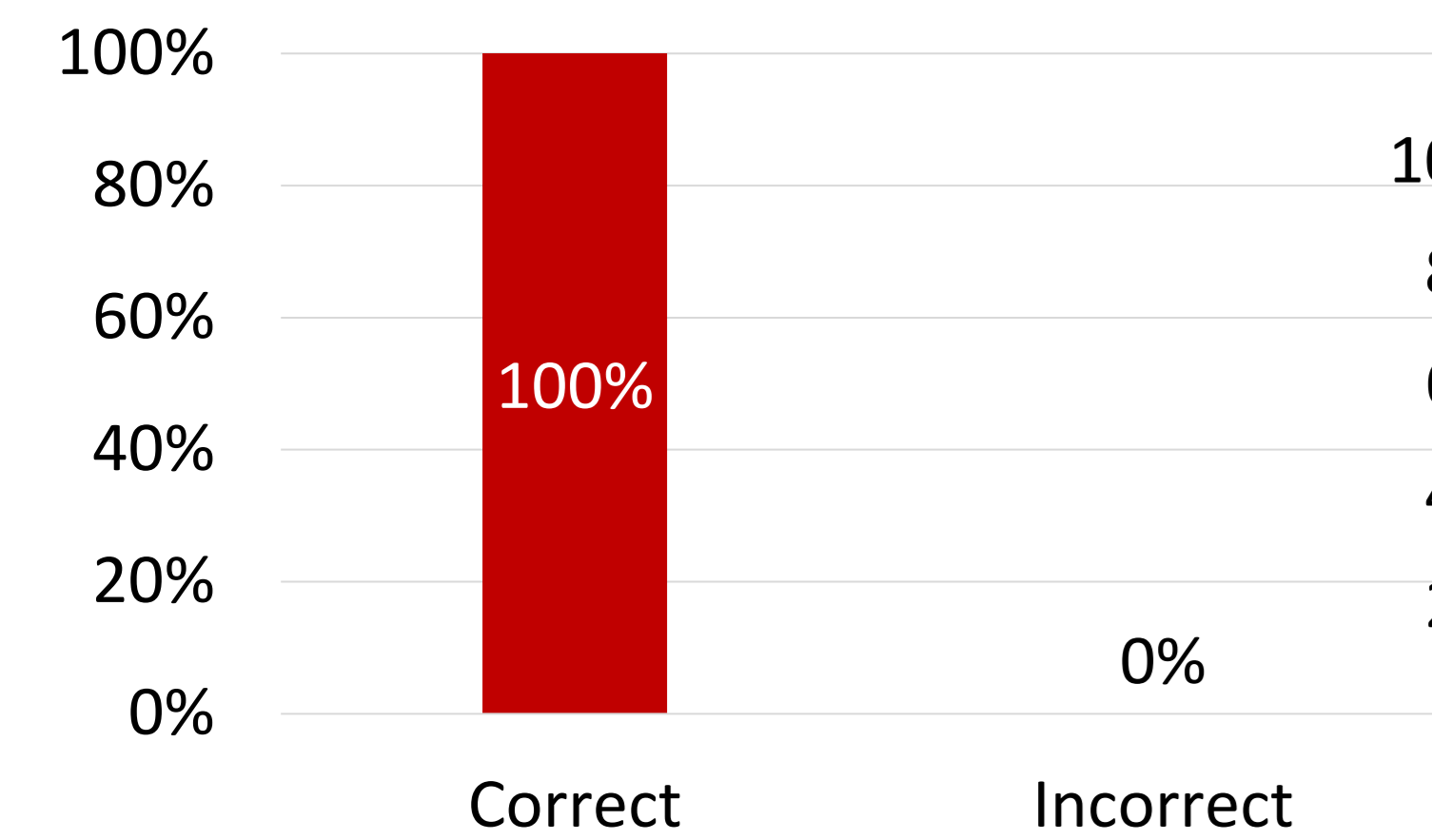
Pre-  
Workshop  
Responses

Post-  
Workshop  
Responses

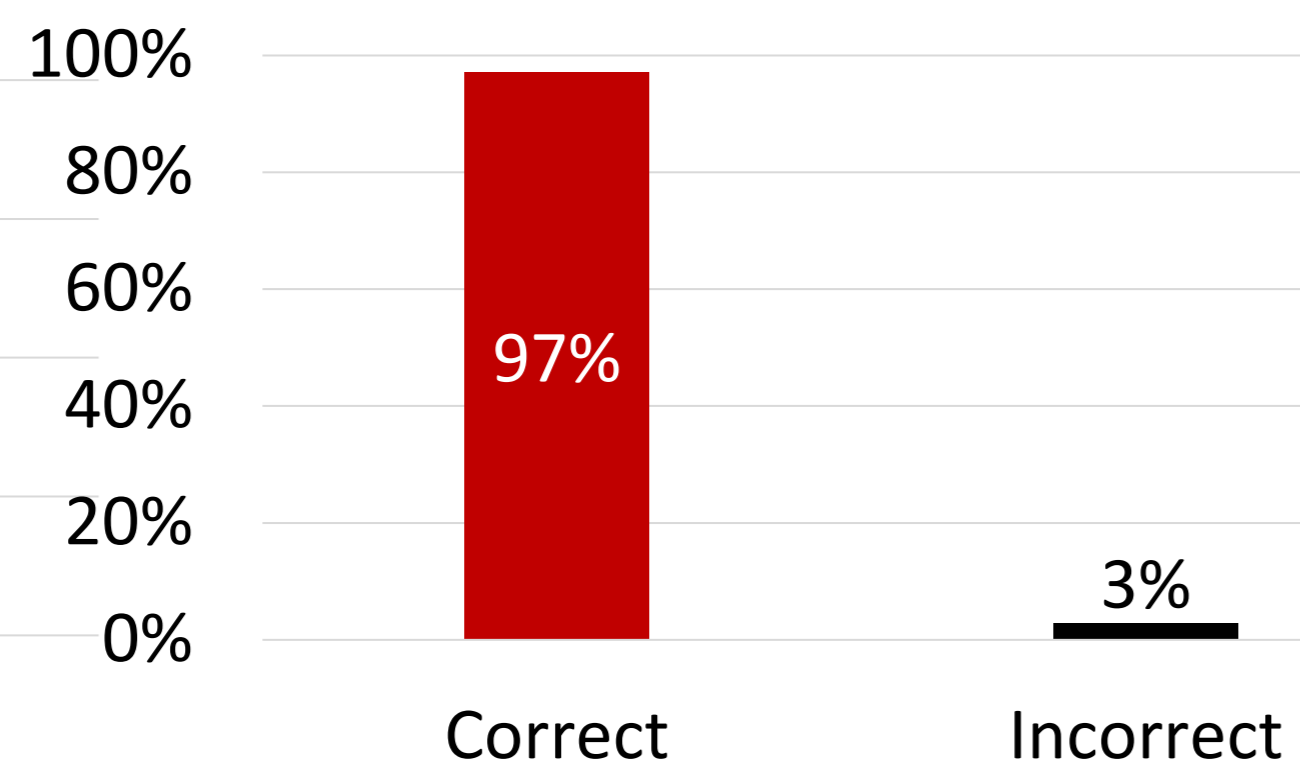
WSARE  
Responses

## Knowledge Questions

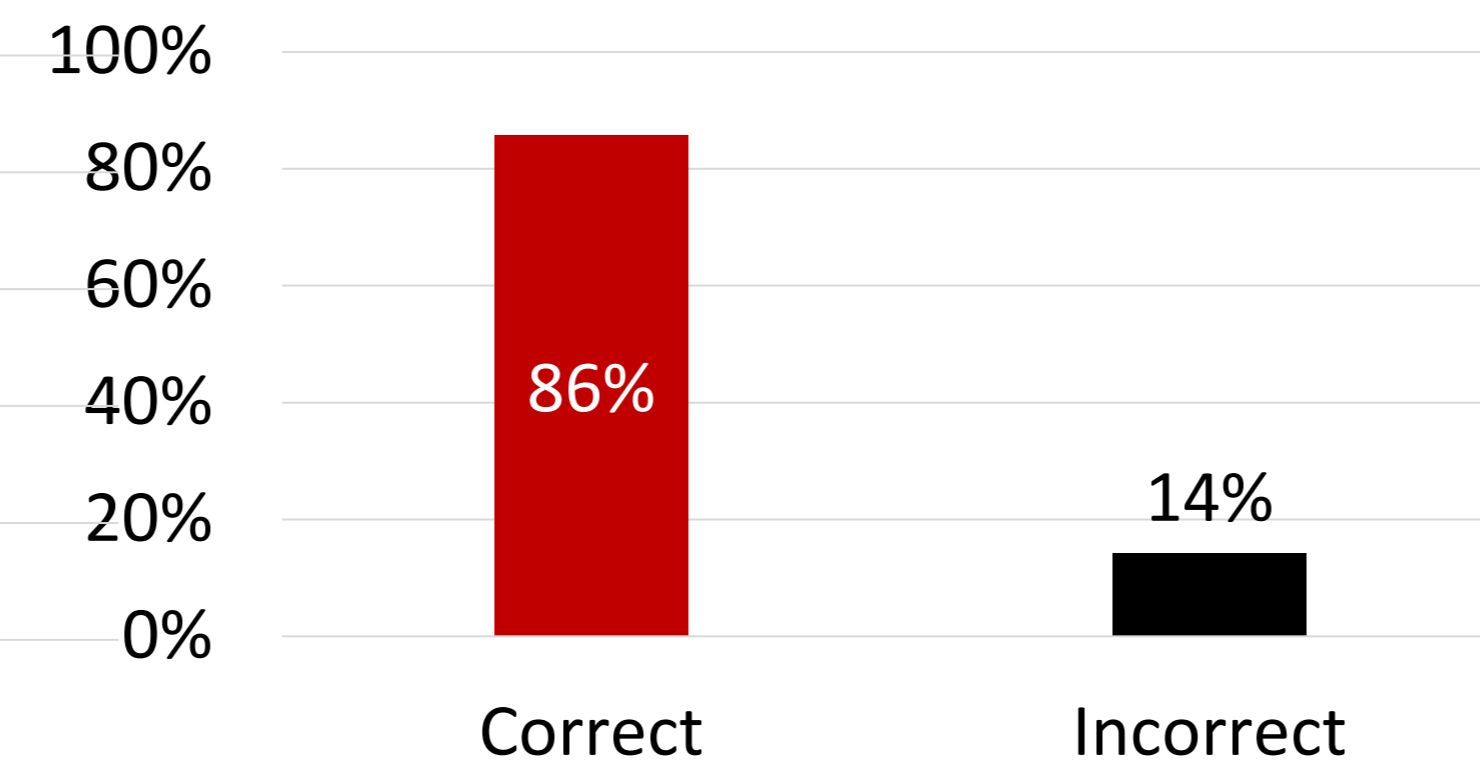
What is genomic selection?



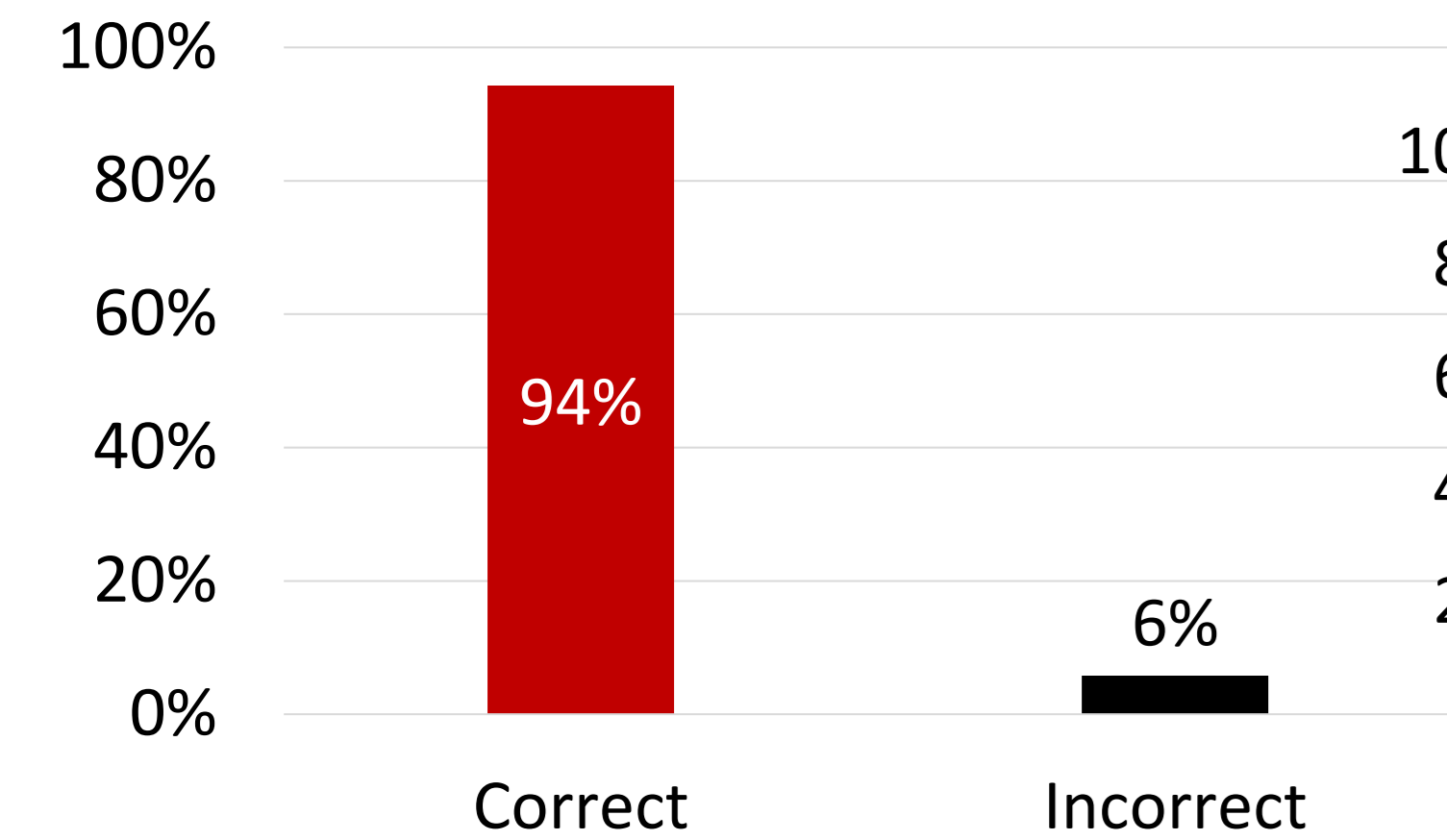
How can genomic selection be used?



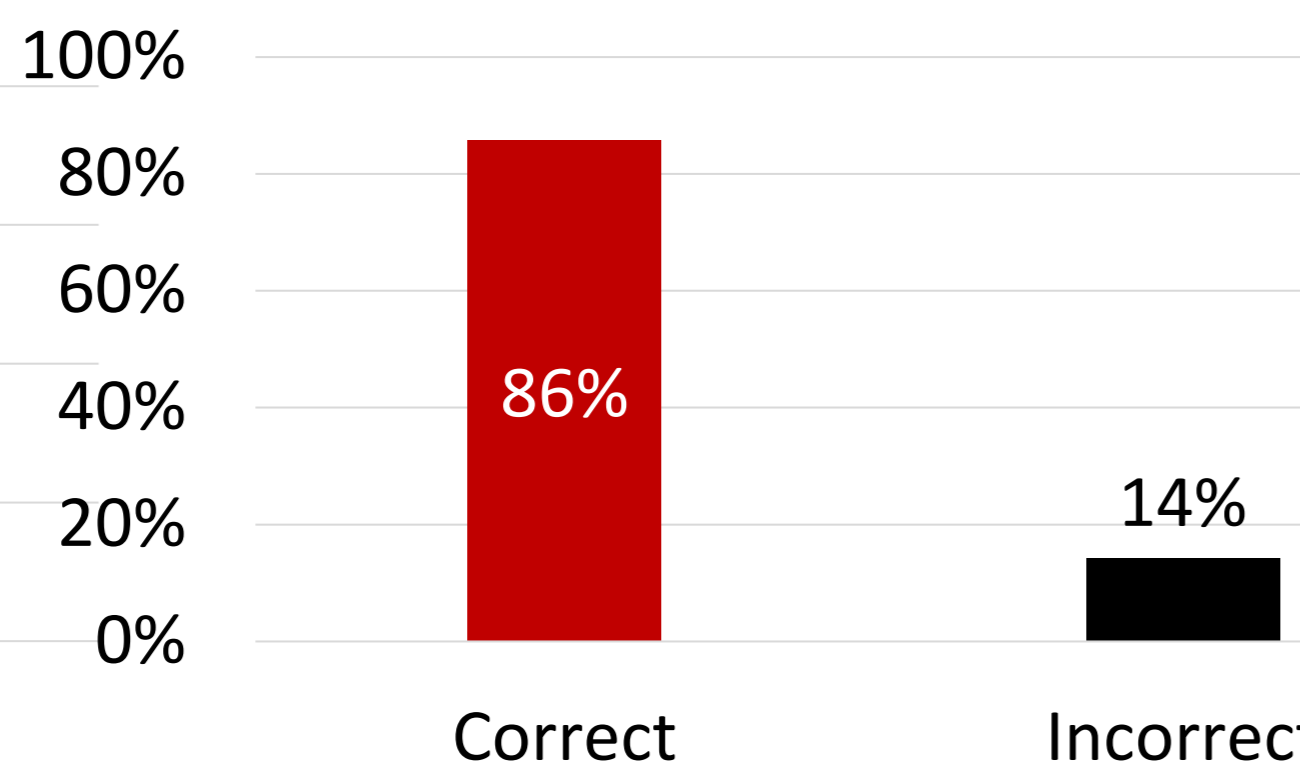
What does a PTA of +50 Milk mean?



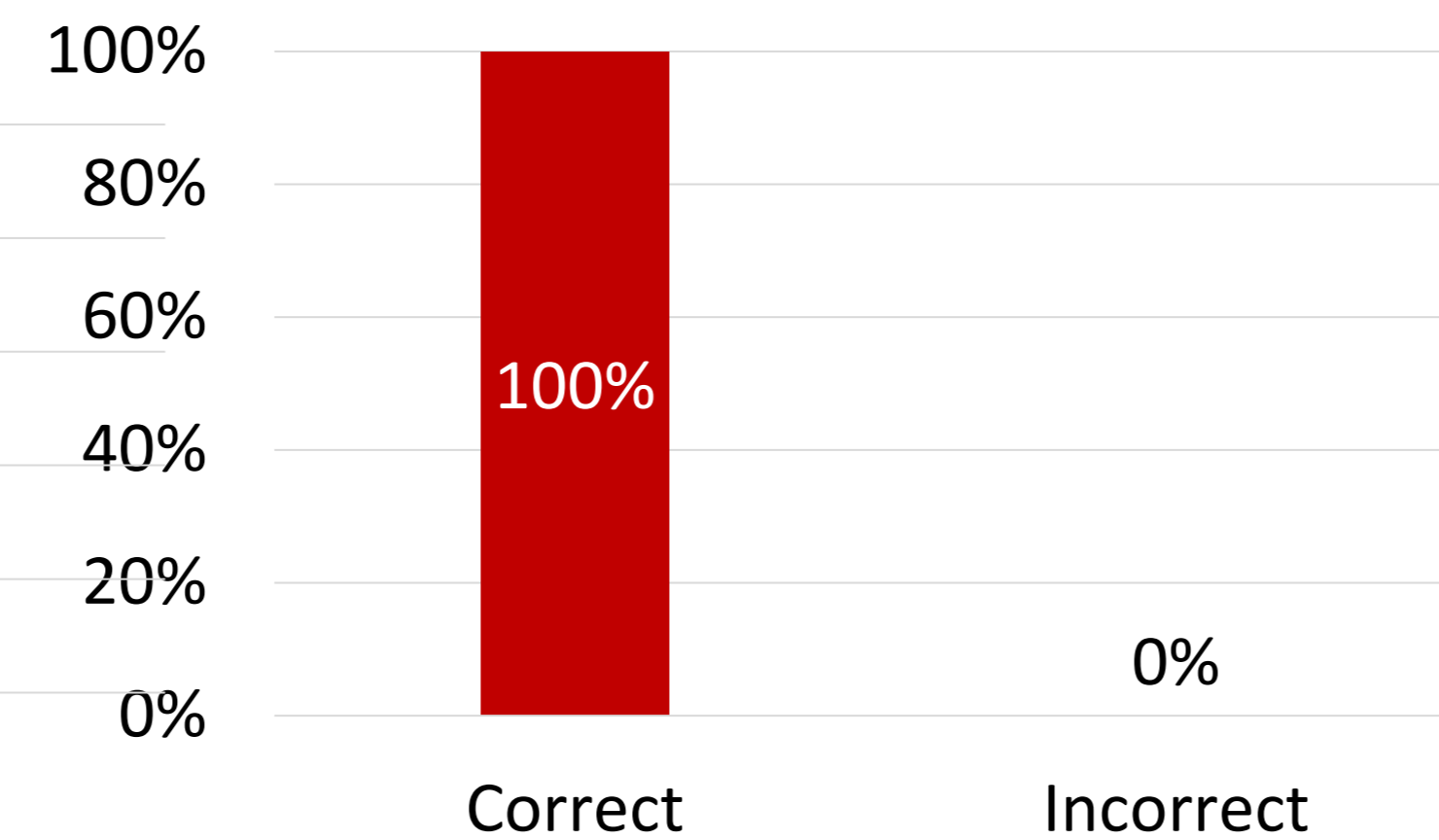
What does PTA stand for?



How much does genomic testing cost?

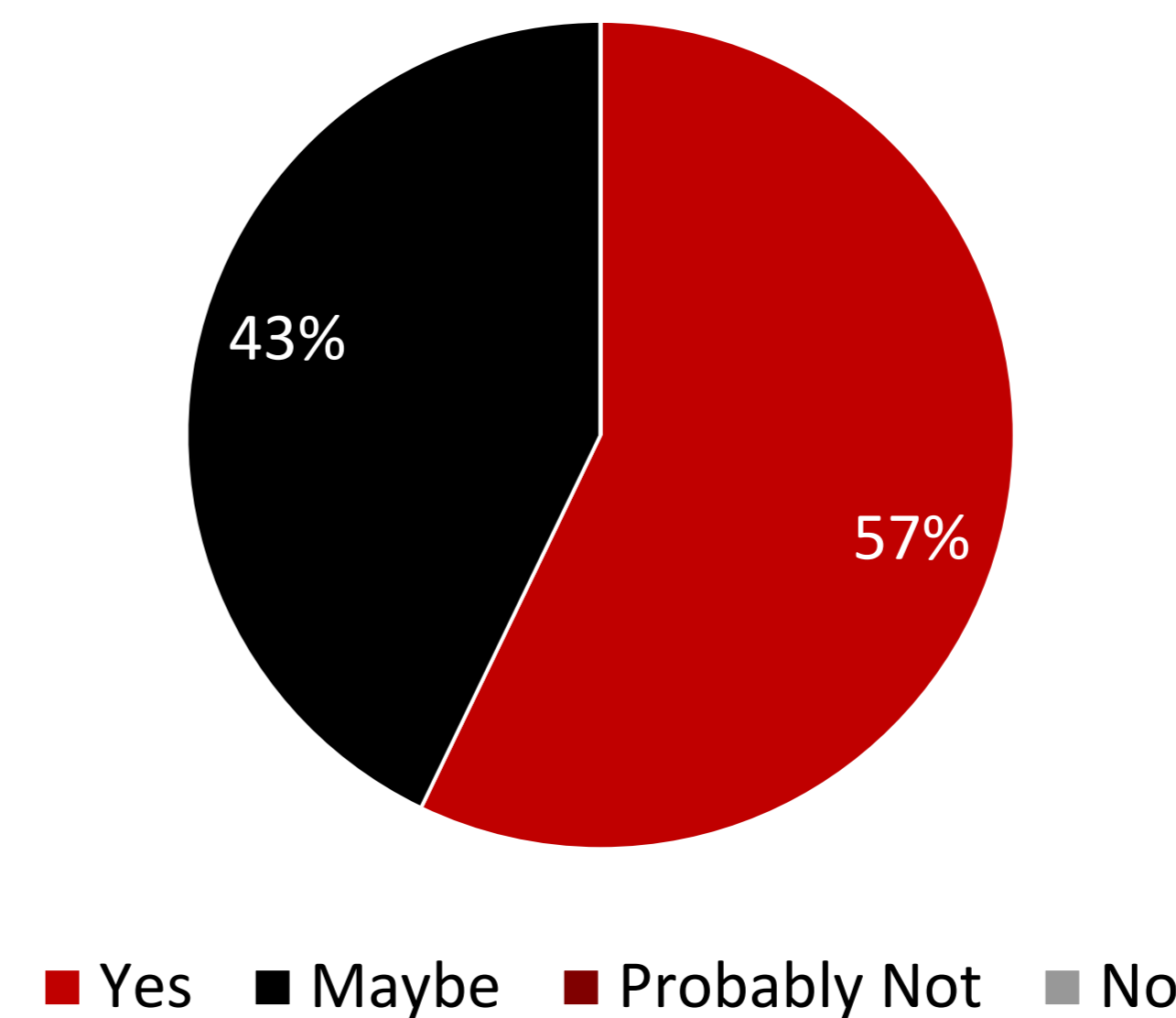


Risk management includes?

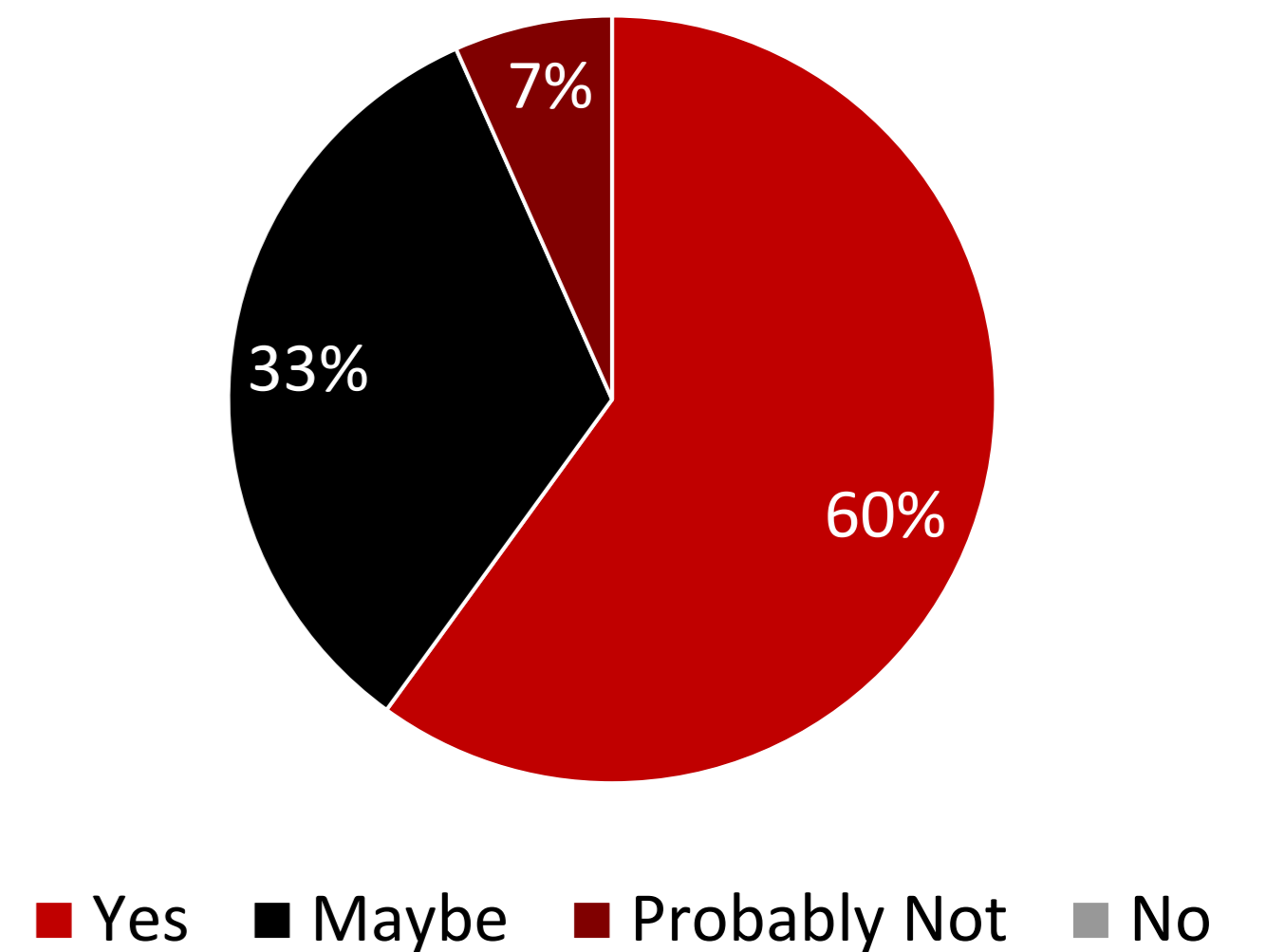


## Genomic Selection Usage

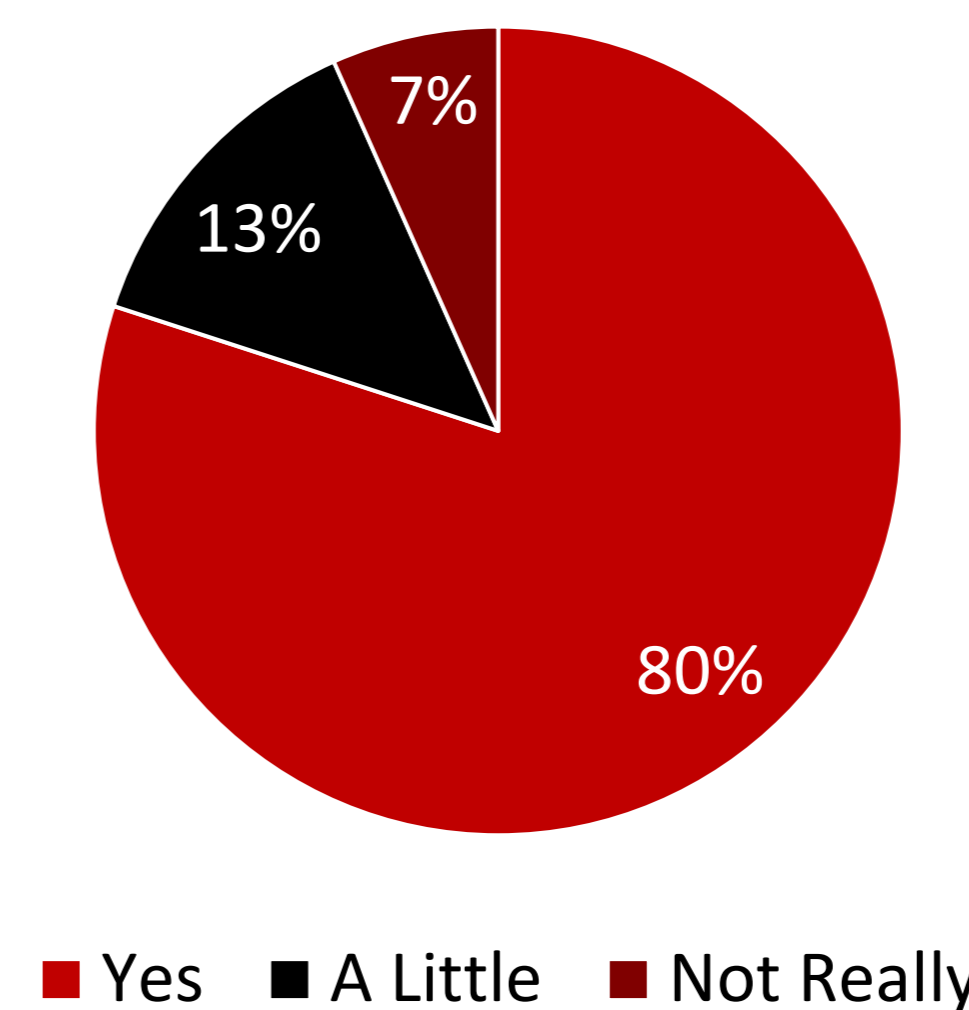
Will you use genomic selection?



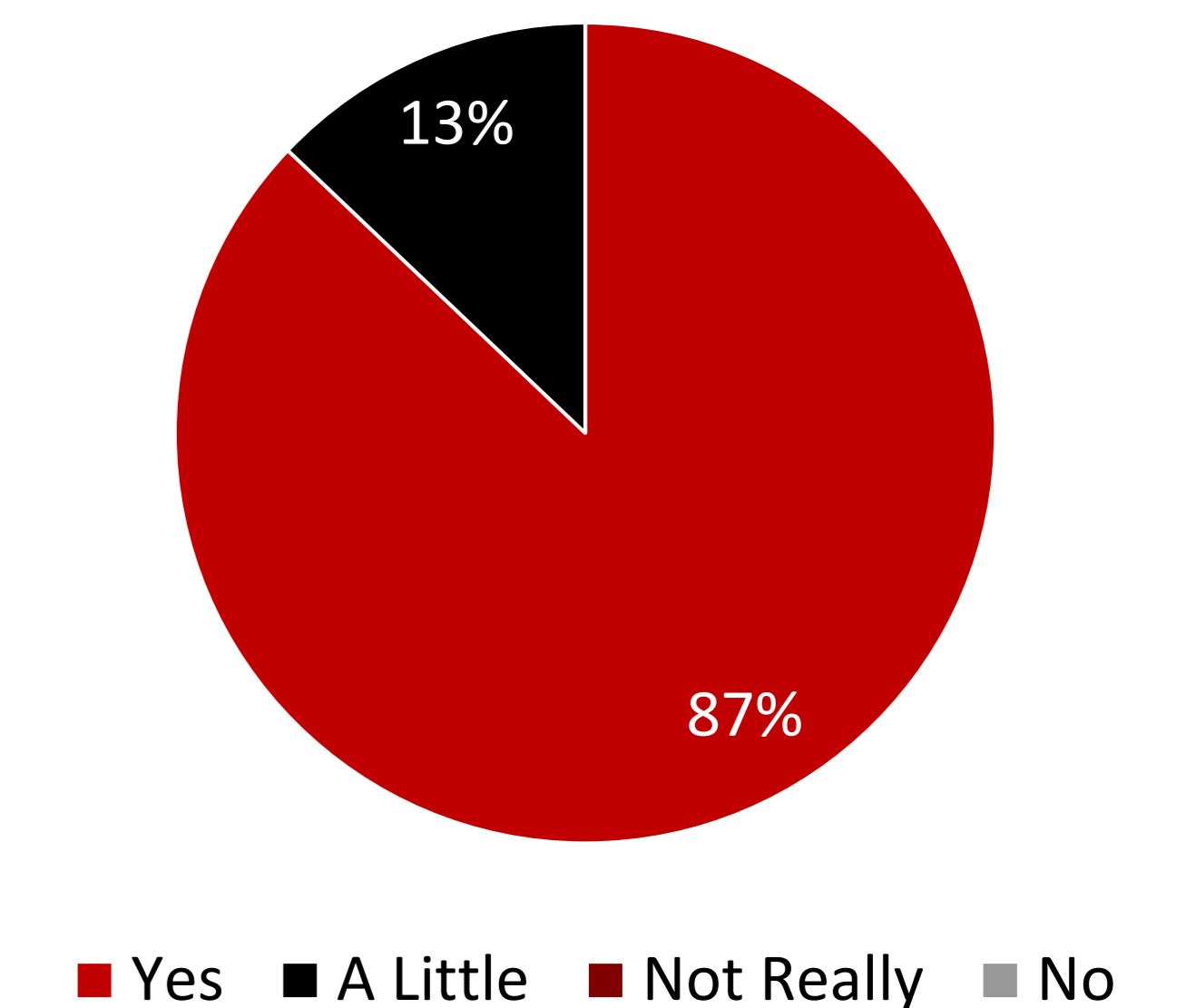
Will you use genomics to make breeding decisions?



Would you be interested in more info?



Has this workshop been helpful?



# WSARE Survey: Outcomes/Impacts

[Main Poster](#)

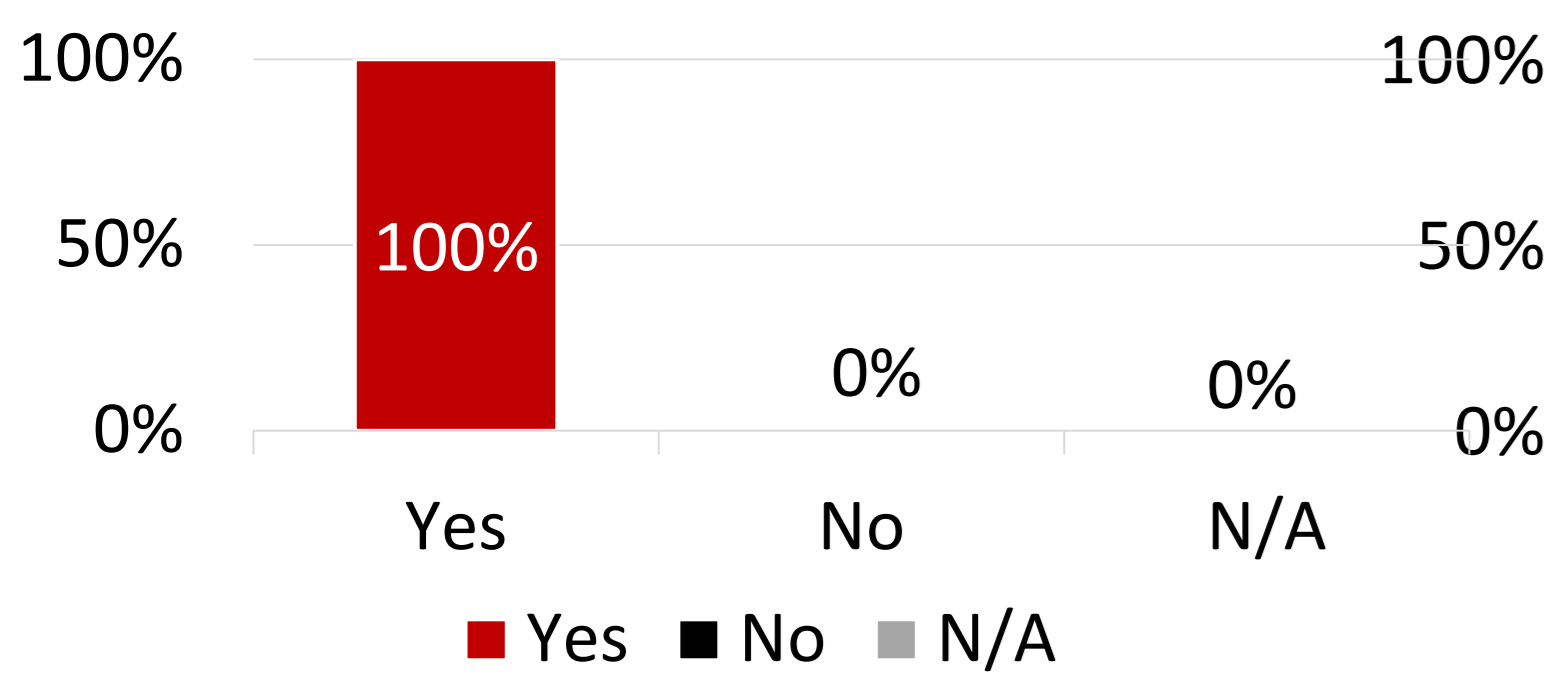
[Pre-Workshop Responses](#)

[Post-Workshop Responses](#)

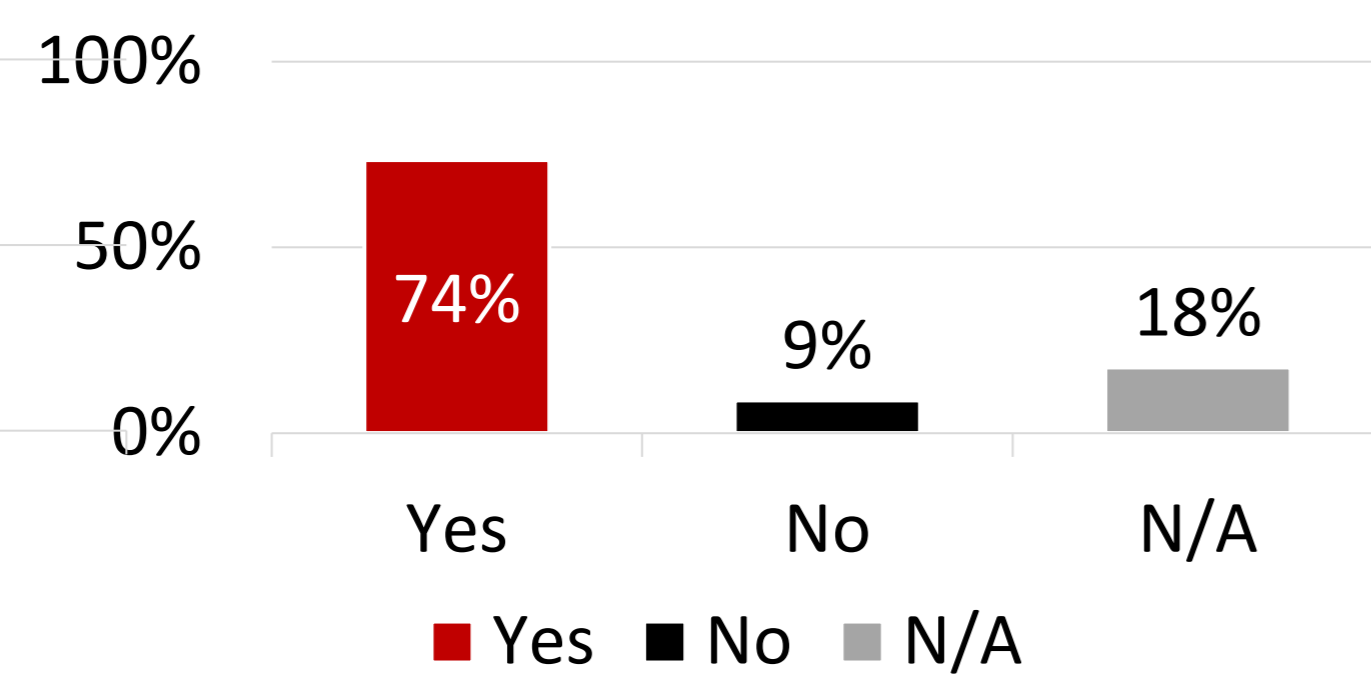
[WSARE Responses](#)

## OUTCOMES

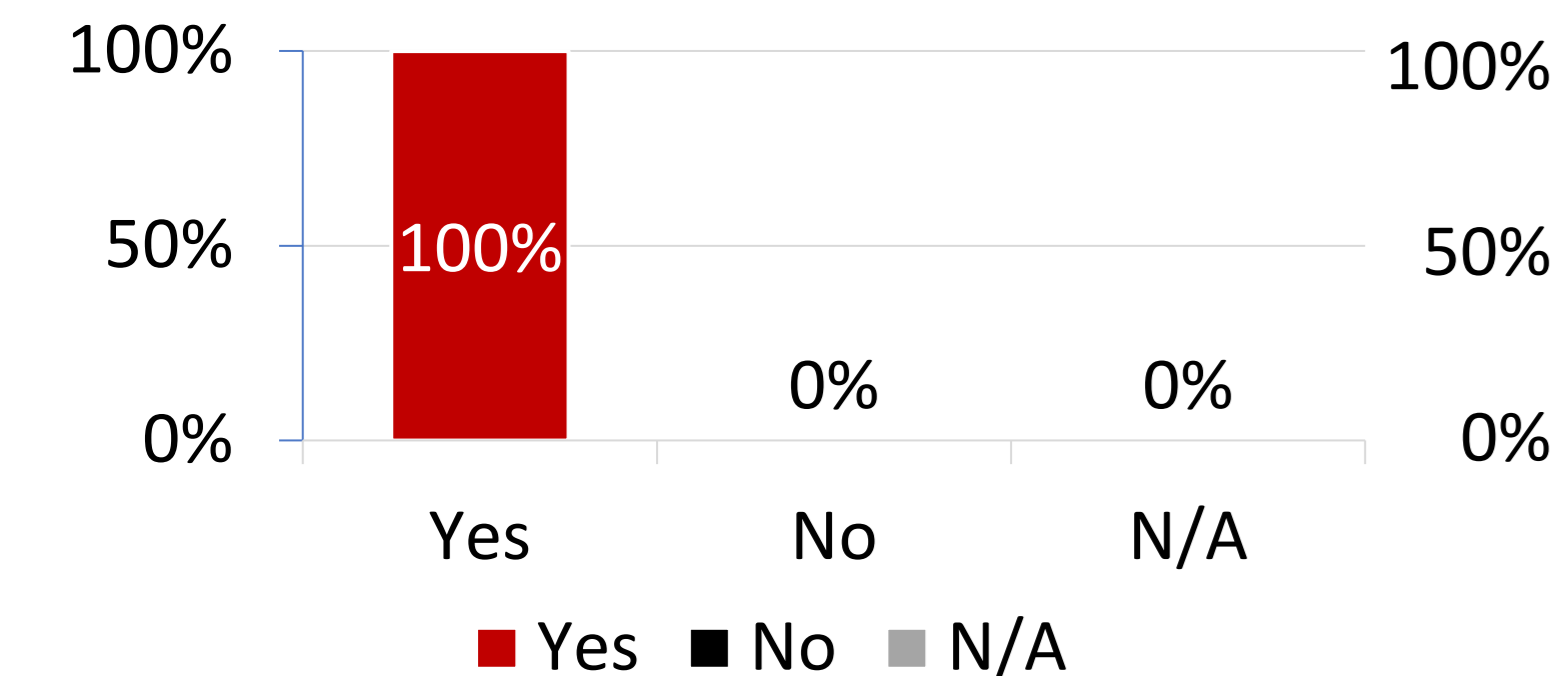
Improved awareness of topic?



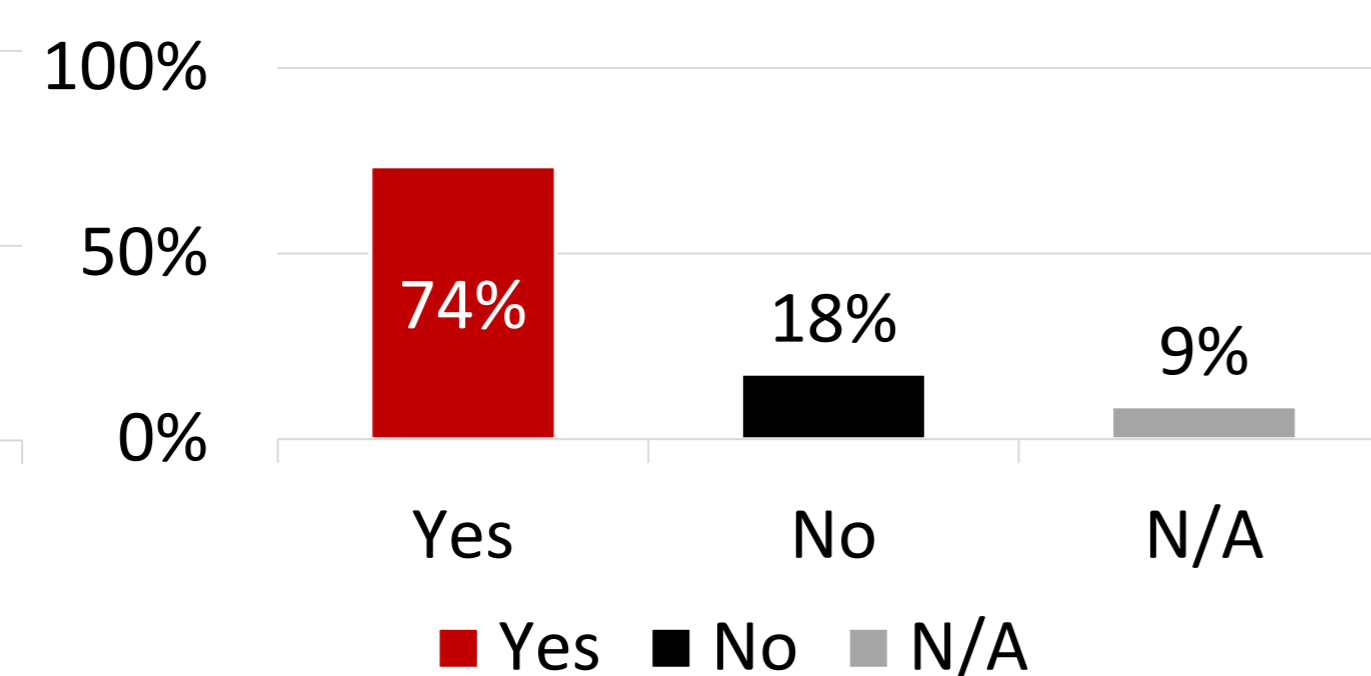
Provided new skills?



Provided new knowledge?

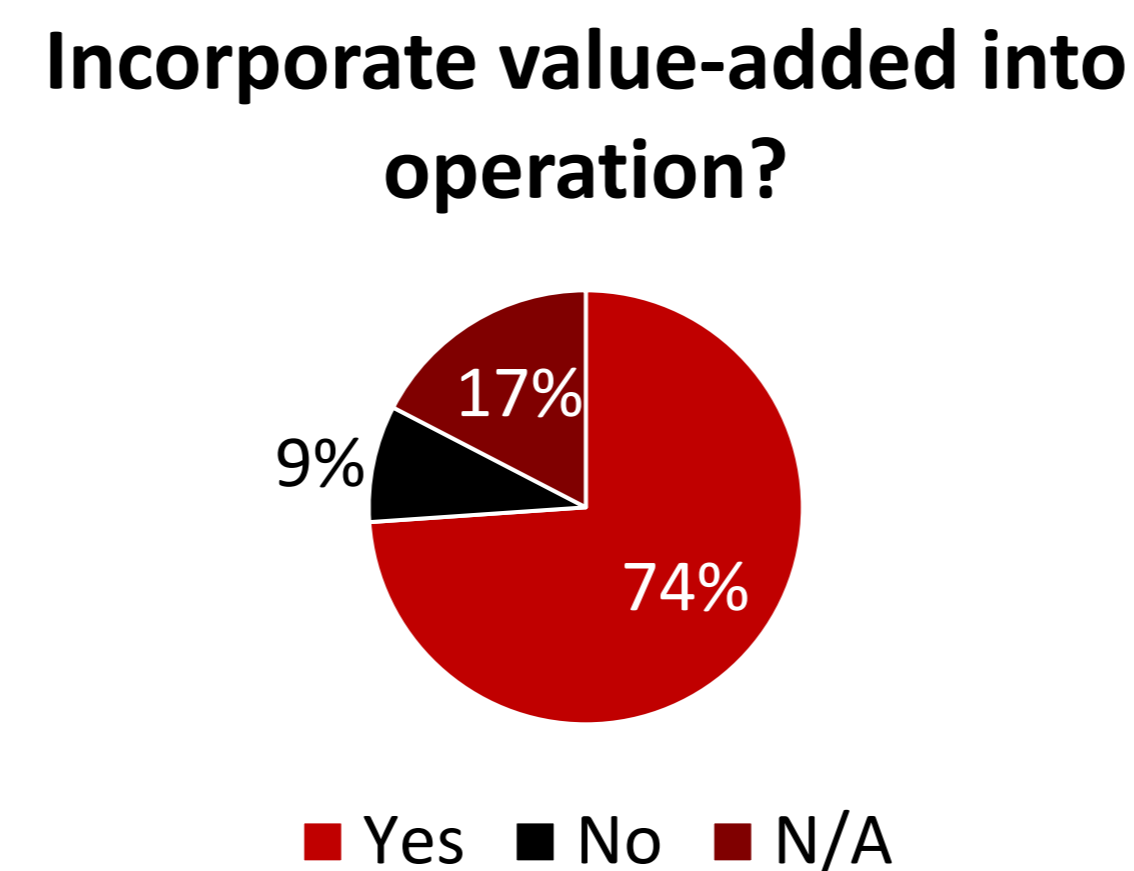
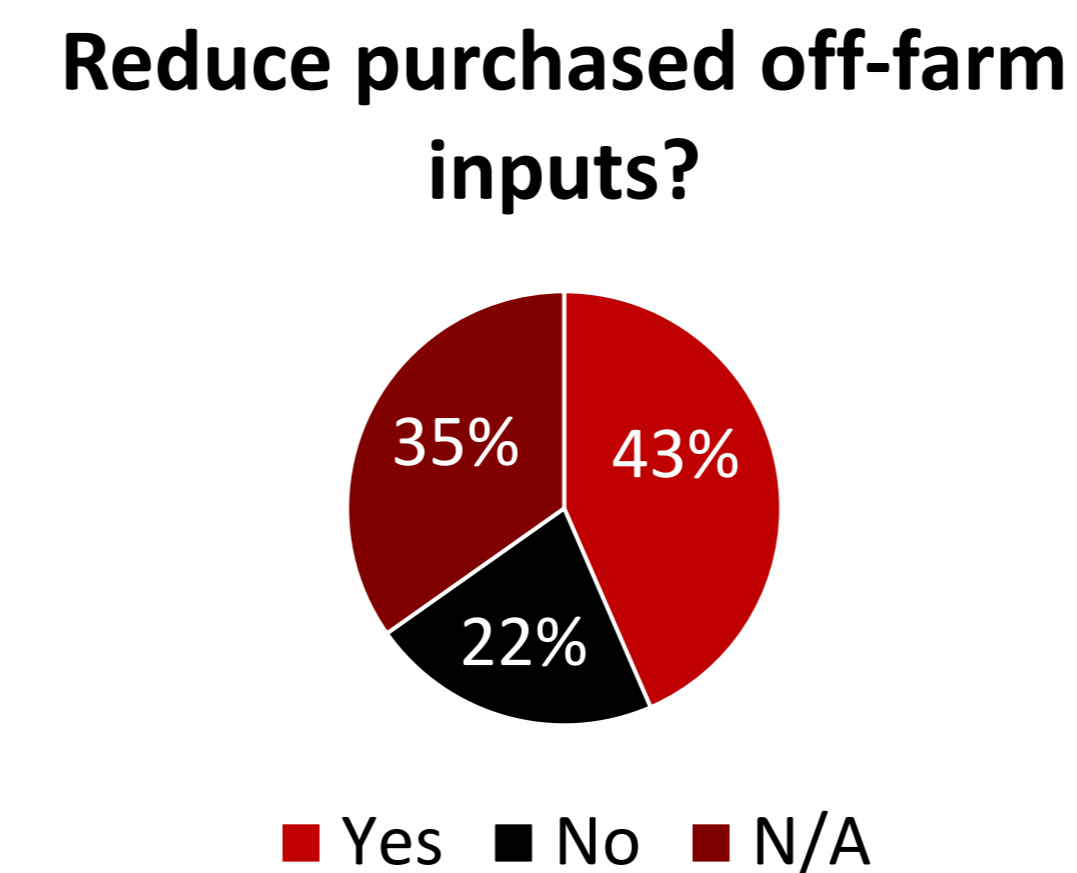
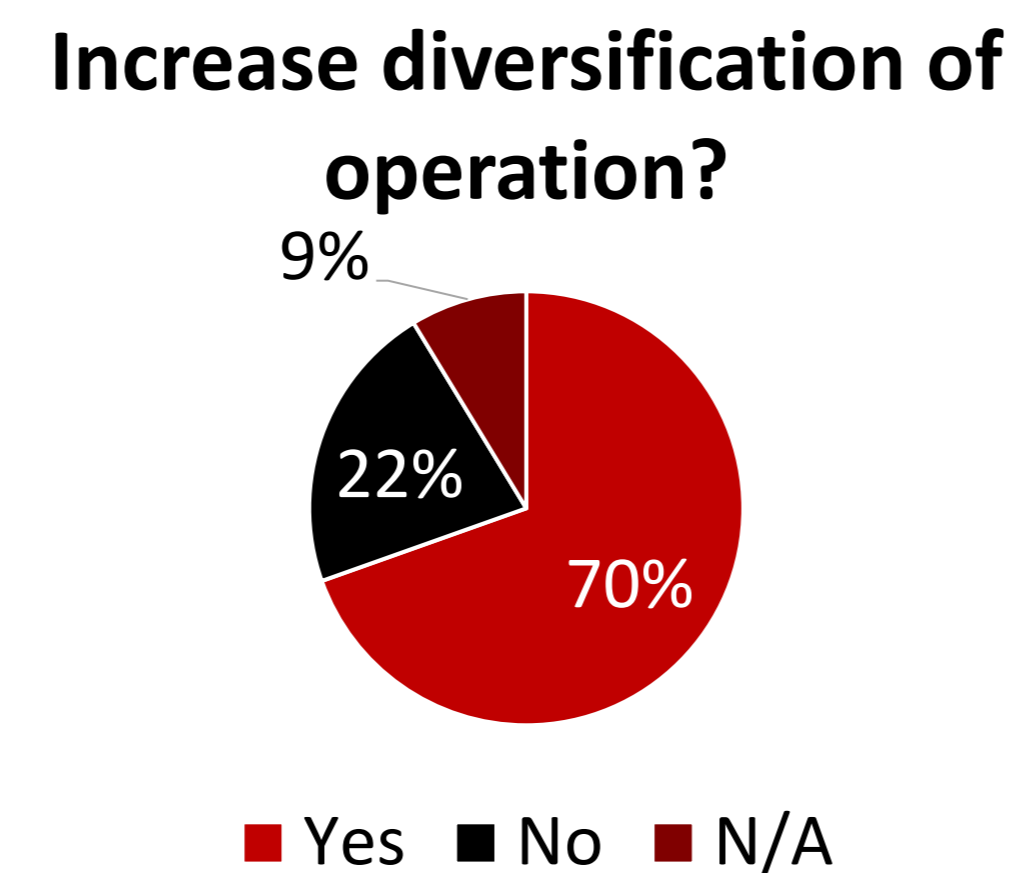
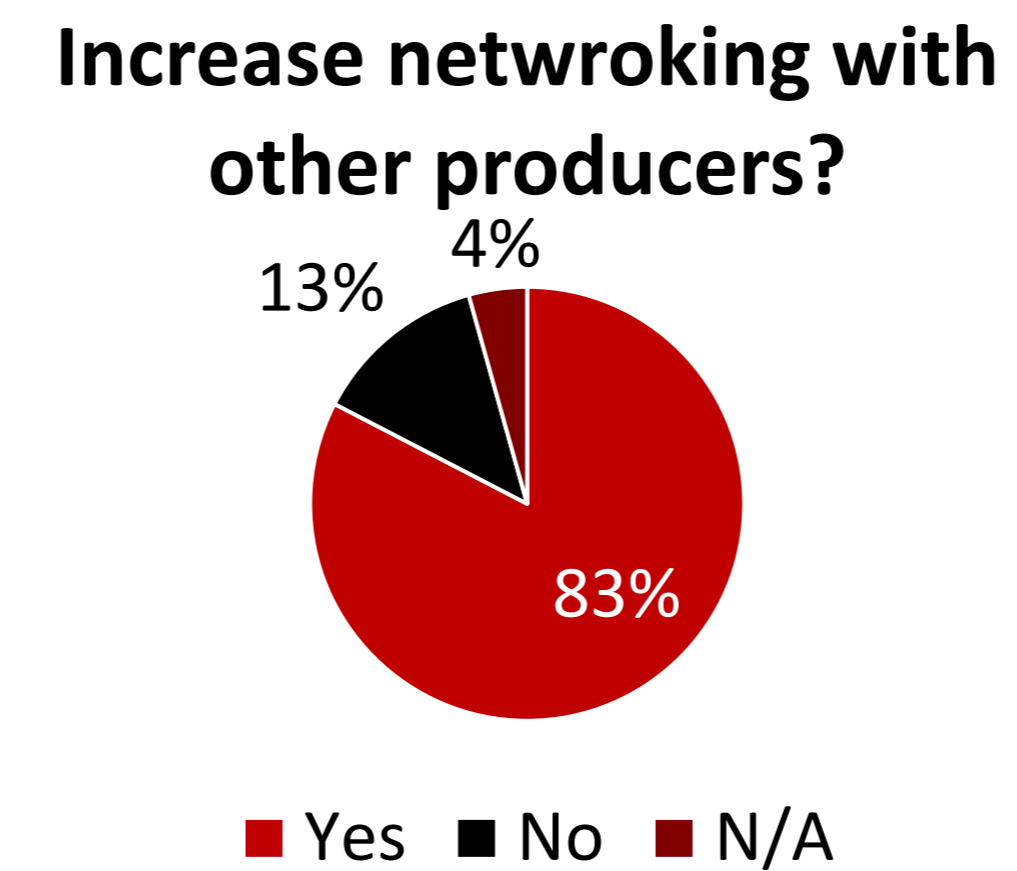
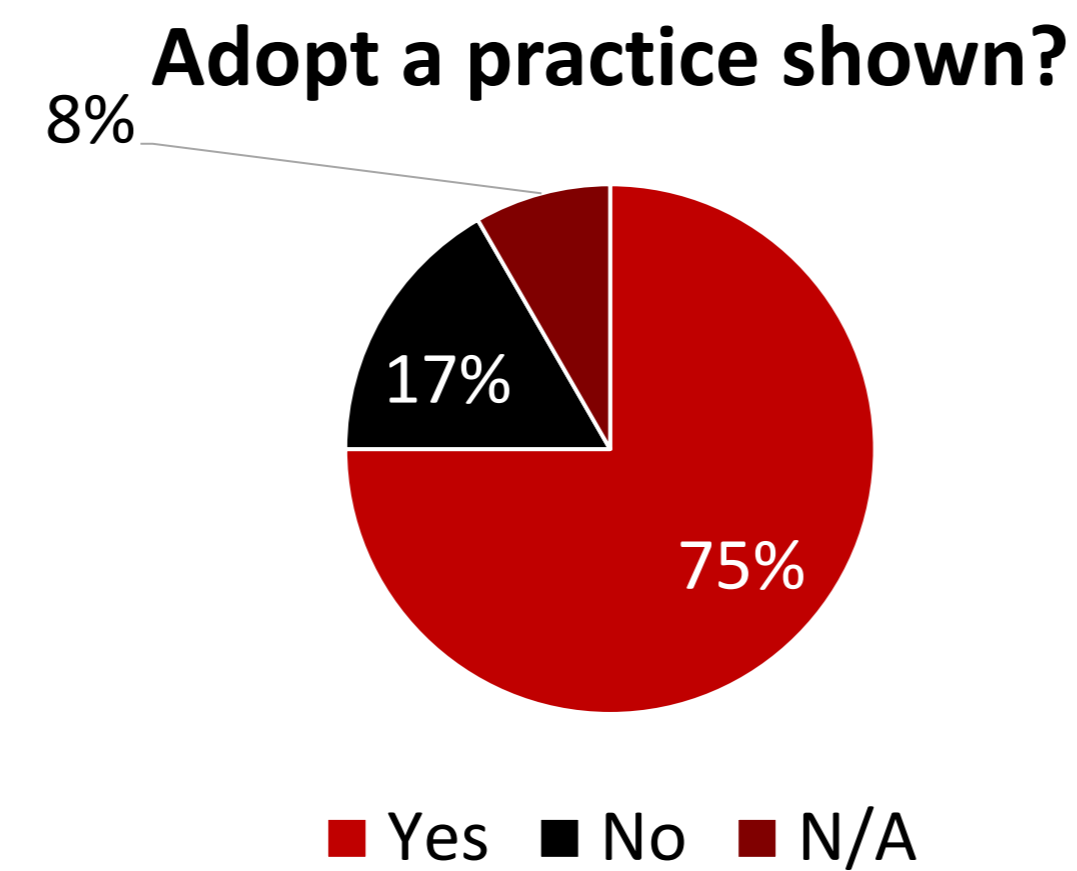


Modified my opinions?



## IMPACTS

Producer Uses within the Next Year



Professional Uses within the Next Year

