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Nevada Ranchers Attitudes Towards the Trichomoniasis Vaccine

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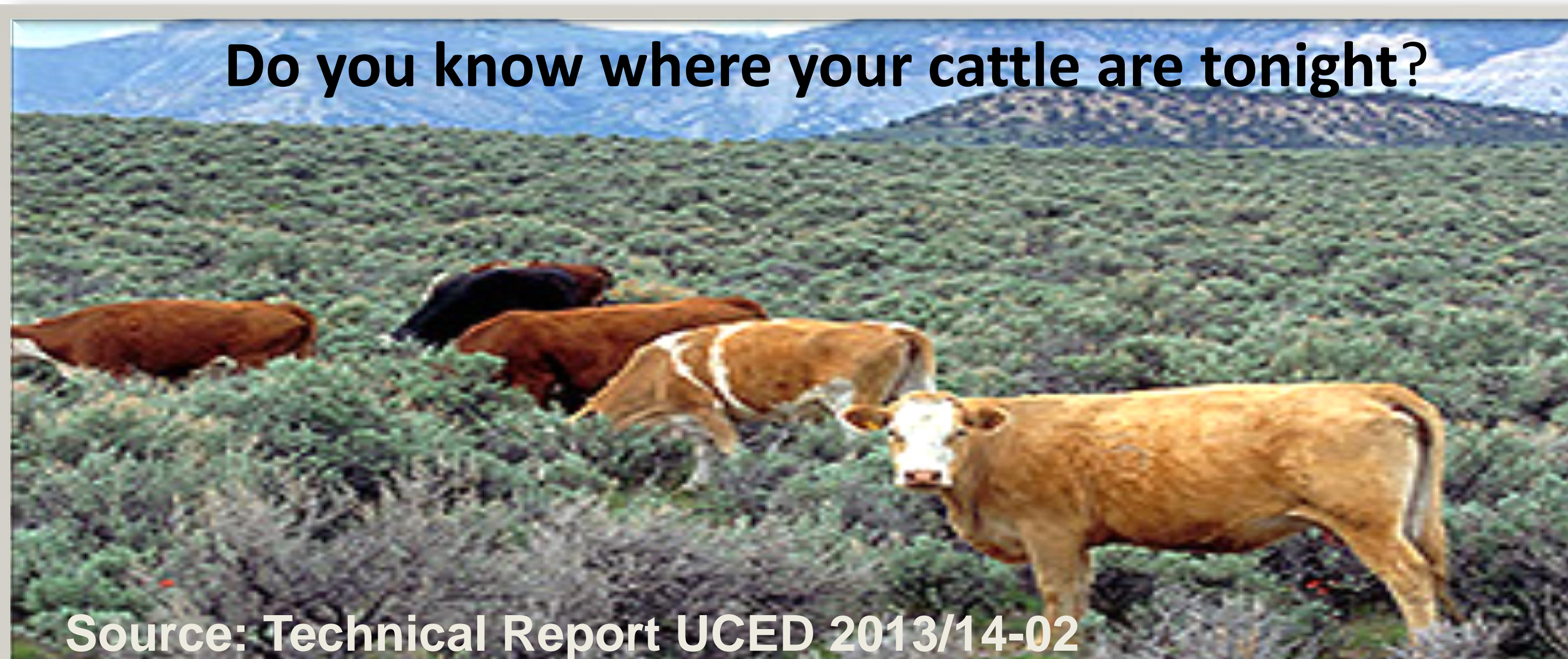
Nevada Ranchers Attitudes Toward the Trichomoniasis Vaccine

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Introduction & Motivation

- Trichomoniasis (Trich) is a "venereal disease of beef herds caused by the protozoan *Trichomoniasis Foetus*" (Bhattacharyya et al., 1997) common in the western United States and Florida because of free range commingling of herds on large tracks of public land.
- Despite the fact that the *Trichomonas Foetus* vaccine has been available for over 20 years, the rate of adoption is lagging while the disease incidence in the state of Nevada is increasing, raising concerns of industry leaders and local authorities.
- Thain et al. (2008) analyzes results from a survey carried out in 2006 and reveals that approximately 30% of cow-calf operators in Nevada did not test their bulls for Trich and only 37% used the vaccine for cows and heifers.
- The divergence between industry and individual interests might be the cause of low adoption rates since a free-rider problem might arise. Similar to the tragedy of the commons, a rancher's biosecurity actions might influence the behavior of other ranchers that use the same public land.
- The importance of the analysis conducted in the present study stems from the large economic impact the disease has on ranchers' profitability as it increases culling and reduces calf crops.



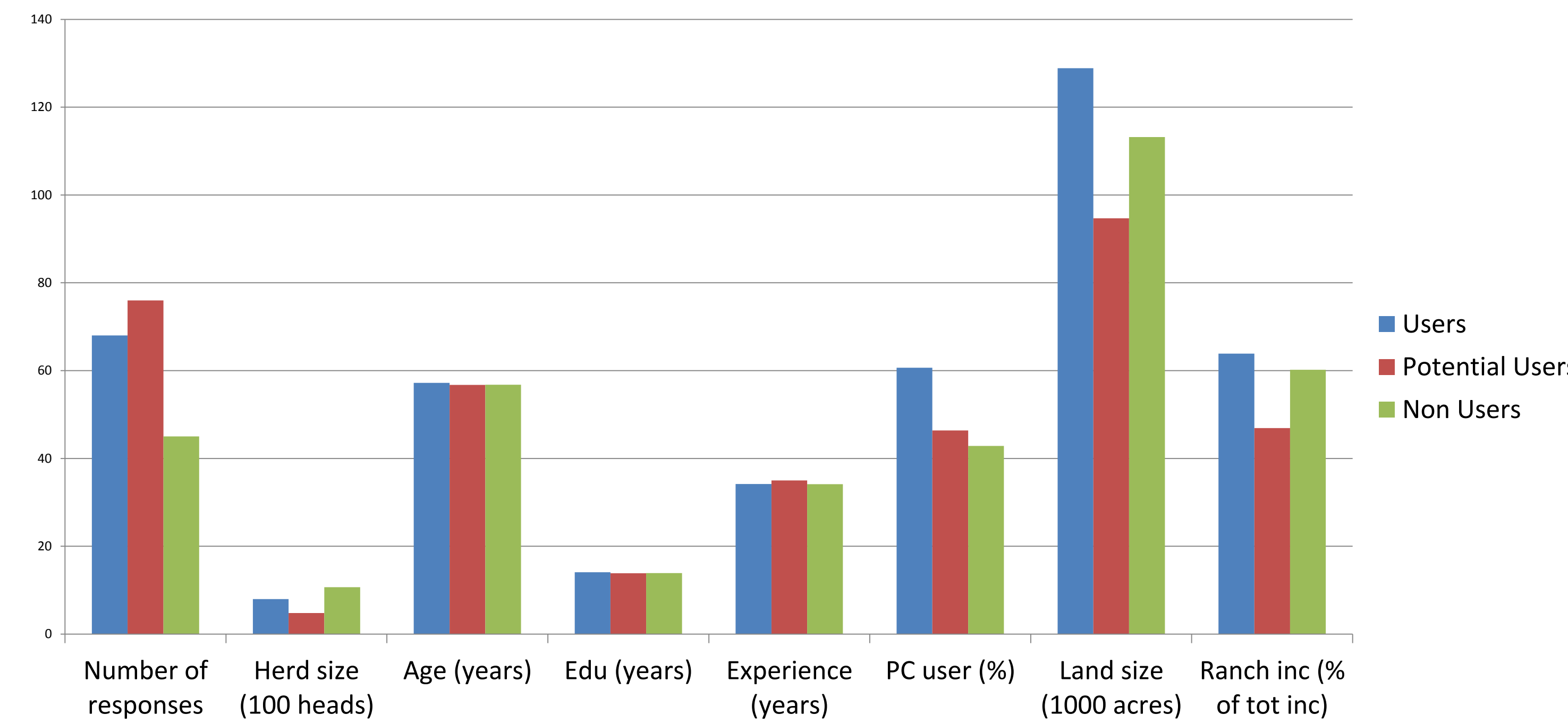
Do you know where your cattle are tonight?

Source: Technical Report UCED 2013/14-02

Data and Methodology

- In an effort to better understand ranchers' decision making process when choosing disease management practices, a survey of Nevada Ranchers was conducted by the University of Nevada Center for Economic Development during 2012 and 2013.
- The current study analyses the data collected in an attempt to find what are the factors that influence ranchers when deciding whether to adopt the vaccine or not and what are the policy issues that need to be addressed in order to enhance its adoption or the adoption of alternative public land management practices.
- Respondents were divided into three categories: Users, Potential Users and Non-Users.
- Results were compared using three estimation procedures: an ordered logit, a generalized ordered logit (gologit2) and a multinomial logit model. The parallel line assumption was tested.

Characteristics of respondents by category



Objective risk attitudes by category

	Users%	Potential Users%	Non Users%	Entire Sample%
Domain of losses				
Risk averse	82.76	79.03	70.27	78.34
Risk seeking	17.24	20.97	29.73	21.66
Domain of gains				
Risk averse-----1	32.26	46.88	43.59	40.61
"-----2"	45.16	21.88	30.77	32.73
"-----3"	11.29	14.06	5.13	10.91
Risk seeking---4	11.29	17.19	20.51	15.76

Estimated coefficients- Comparison between the three models

	Ologit	Gologit2	Mlogit
Nonusers			
income	0.457*	0.369	0.772
region	-0.698	-0.966*	-2.028**
animals	-0.047**	-0.040*	-0.098**
lease l	-0.704*	-0.585	-1.573*
familiar w/trich treat	0.562***	0.238	0.348
edu	3.214*	4.889**	6.182*
edu2	-0.107*	-0.164**	-0.216*
transport	0.446	0.582	2.035**
risk averse	0.391*	1.016***	1.707***
suspect neighbor	0.871*	0.587	0.895
Worry	-0.477*	-0.506*	0.154
Concern	0.032	0.094	0.210
profit outlook	-0.458*	-0.718**	-1.566***
likelihood of exposure	0.670**	0.121	-0.209
number of disease trt	0.109*	0.091	-0.005
Constant	-30.648**	-39.792***	-48.934*
Potential Users			
Income	0.457*	0.369	0.284
Region	-0.698	-0.966*	-0.641
Animals	-0.047**	-0.040*	-0.012
lease l	-0.704*	-0.585	-0.093
familiar w/trich treat	0.562***	1.531***	1.498***
Edu	3.214*	4.889**	5.200**
Edu2	-0.107*	-0.164**	-0.171*
Transport	0.447	0.582	-0.290
risk averse	0.391*	-0.045	-0.362
suspect neighbor	0.871*	0.587	-0.048
Worry	-0.477*	-0.506*	-0.897**
Concern	0.032	0.094	-0.106
profit outlook	-0.458*	-0.718**	-0.429
likelihood of exposure	0.670**	1.352***	1.535***
number of disease trt	0.109*	0.091	0.130
Constant	-33.064**	-47.880***	-50.295**
Users			
	base outcome	base outcome	base outcome

***p<0.01 **p<0.05 *p<0.10

Marginal Effects of the Estimated Probability

dY/dX	Nonusers	Potential Users	Users
income	-0.0521	-0.0208	0.0729
region	0.1200**	0.0850	-0.2050*
animals	0.0057*	0.0023	-0.0079*
lease	0.0842	0.0294	-0.1140
fam w/trich trtm	-0.0335	-0.2690***	0.3020***
edu	-0.6890**	-0.2760	0.9650**
edu2	0.0231**	0.0092	-0.0323**
transport	-0.0815	-0.0337	0.1150
risk averse	-0.1430***	0.1520***	-0.0089
suspect neighbor	-0.0828	-0.0329	0.1160
worry	0.0713*	0.0285	-0.0999*
concern	-0.0132	-0.0053	0.0185
profit outlook	0.1010**	0.0405	-0.1420**
likely exposure	-0.0171	-0.2500***	0.2670***
sum diseases treated	-0.0128	-0.0051	0.0180

***p<0.01 **p<0.05 *p<0.10

Concluding Remarks

- Higher income and education increase the likelihood of adopting the vaccine.
- Ranchers that have their operations located in the Northern counties are less likely to be Users or Potential Users.
- The bigger the size of the ranch, given by the number of animals, the more likely it is that the respondents are in the Nonuser category.
- The more optimistic people are about their profits, the less likely they are to vaccinate or to even consider it in the future.
- The more suspicious ranchers are of their neighbors' cattle being exposed to Trich, the more likely they are to at least consider vaccination.
- The more familiar people are with the technology, the more likely it is that they will be in the Users or Potential Users groups. The strongest effect of this variable is to move ranchers from Potential Users to Users (same for the likelihood of exposure to other ranchers' cattle).
- Risk averse people tend to be indecisive about vaccinating and have less extreme attitudes regarding the adoption. The biggest effect of risk aversion is to make Nonusers move into the Potential Users category.

Policy Implications

- Familiarity with the treatment is one of the most significant factors that could influence ranchers to move from potential users to adopters. Policy makers should focus their attention on the diffusion of information regarding the vaccine and increasing awareness about the risk of contracting the disease.
- The rates of adoption might be improved by making some of the management practices, such as testing of bulls, mandatory.
- Scientific work on improving the efficiency of the vaccine is needed to increase ranchers' confidence in the technology.

References:
 Bhattacharyya, A., Harris T. R., Kvasnicka, W. G., & Vesperat, G. M. (1997). Factors Influencing Rates of Adoption of Trichomoniasis Vaccine by Nevada Range Cattle Producers. *Journal of Agricultural and Resource Economics* 22(1), 174-190.
 Mahmudi, M., Landis, M., Fadali, R. E., & Harris, R. T. (2013). *Nevada Trich Survey Results*. Reno: University of Nevada, Reno; University Center for Economic Development.
 Williams, R. (2006). Generalized Ordered Logit/ Partial Proportional Odds Models for Ordinal Dependent Variables. *The Stata Journal*, Volume 6 Number 1: pp 58-82.
 Thain, D., Bruce, B., Torell, R., Riggs, W. (2008). *Trich in Nevada. Producer's concerns and the financial impact*. University of Nevada Cooperative Extension