



COOPERATIVE EXTENSION

Bringing the University to You

Fact Sheet-03-55

Humboldt County Needs Assessment: Crop Production

Brad Schultz, Extension Educator, Humboldt County

Introduction to Humboldt County

Humboldt County is located in north central Nevada, and covers 9,658 mi². The Federal Government administers about 81% of the county's land base, with the BLM being the largest agency. Winnemucca is the only incorporated city. Small outlying communities include Golconda, Paradise Valley, Orovada, McDermitt, Kings River, and Denio. Small acreage residential developments are located within 20 miles of Winnemucca at Grass Valley and Paradise Hill. The countywide population peaked in 1998 at 17,075. The 2000 census listed 16,106 residents. By 2002 the population had declined to about 15,004 residents, due to a downturn in the mining industry. The population in Winnemucca is about 7,000 and another 5,000 to 6,000 residents live in Grass Valley and other unincorporated areas within a 10 to 15 mile radius of Winnemucca. The remainder of the population occurs in widespread ranching and farming communities, or as isolated ranches and farms. The county has a definite socio-political divide along urban and rural lines.

The local economy is heavily dependent on mining and agricultural industries. Mining is the largest economic activity, but is substantially more volatile than agriculture across time.

Humboldt County is the largest agricultural producing county in Nevada. The 1997 census of agriculture (last published) listed 218 farms and ranches, with over 733,000 acres in production. The market value of agricultural products in 1997 was over \$57 million, with about \$38 million from crops. On a nationwide basis, Humboldt County is in the top 3% of producers for acres of production for hay crops, field seed crops and potatoes, and in the top 16% of producers for cattle and calves sold.

A previous economic analysis for Humboldt County found that for every dollar of increased sales from crop production *total economic activity* in Humboldt County increased from between \$1.78 to 2.08, depending on the specific crop. Of the 21 economic sectors measured (farm and non-farm), only one crop production sector (barley) was not in the top 10. Also, every increase in employment by one crop production employee resulted in an increase of 2.29 to 3.47 employees in other segments of the economy. Alfalfa seed has the highest *employment multiplier* and barley the lowest.

Needs Assessment

Faculty in the College of Cooperative Extension must conduct a formal needs assessment for their geographic area of responsibility. The Extension Educator housed in Winnemucca is responsible for conducting a needs assessment for Humboldt County. The assessment may include input from a variety of primary (surveys, focus groups, public meetings, etc.) and secondary sources (newspapers, minutes from meetings, etc.). These data are analyzed and the results used to define education and research program needs important to the residents of Humboldt County.

In June 2001, a new Extension Educator arrived in Humboldt County. His predecessor was in the position for less than 3 years, and prior to that the position was vacant for 3-4 years. A comprehensive needs assessment across all population segments of the community had not been completed for many years. During the summer and early fall of 2001 the Extension Educator attended numerous meetings in Humboldt County (e.g., county commission, Farm Bureau, weed management area, Humboldt River water issues), met with representatives from federal and state agencies (e.g., Bureau of Land Management, United States Forest Service, Department of Agriculture), and had discussions with local government officials and individuals from throughout the community to learn about general issues they were concerned about. These primary data were combined with secondary economic data to determine six general areas in which Cooperative Extension could develop education and research programming. These were:

- Community Development
- Crop Production
- Livestock Production
- Rangeland/Natural Resources
- Urban Horticulture
- Youth Development

To develop a better understanding about each general area, the Extension Educator developed a survey that asked specific questions about topics in each general area. Each recipient of the survey was asked to rate each issue's importance from low (1) to high (5), or don't know. The

survey was structured so respondents could be classified by employment type or all respondents combined. Respondents were also prompted to provide written comments for issues/concerns the survey did not address; however, almost no comments were received. The survey was mailed to 485 residences in Humboldt County. Approximately 180 were agricultural producers and the remaining 300 a random cross section of the county selected from the county tax roll. All names and addresses were cross-referenced to ensure no overlap occurred. Agricultural producers were targeted because: 1) Humboldt County is the number one agricultural producing county in Nevada; 2) agriculture has been the one steady economic theme in the county for over 100 years and is second only to mining; 3) county leadership felt the Extension Educator position should emphasize issues related to agriculture and natural resources. All survey responses were anonymous.

Each anonymous response was assigned a unique identification number upon receipt, and the data entered into a spreadsheet. The 14 types of employment were reclassified into 6 categories to obtain sufficient samples for analyses. These categories are farmers, ranchers, business owners or managers, workers in government or education, employees in industry or retail, and other (e.g. retired). The results are reported two ways: 1) the percent of all respondents that rated an issue high/very high (4 or 5), very low/low (1 or 2), neutral (3), or don't know; and 2) the average importance rating for each topic based on type of employment. Of the 485 surveys mailed, 161 were returned, resulting in a response rate of 33%. This is well above average for a mail survey.

The length and detail of the mail survey required that results be reported in multiple fact sheets. This fact sheet reports results for crop production. Other fact sheets report issues related to: 1) livestock production; 2) community development and urban horticulture; 3) rangeland resources; and 4) youth development.

Results

Importance ratings from all respondents are shown in Figure 1. Over 70% of respondents ranked groundwater levels, water requirements for crops (i.e., irrigation efficiency), and weed control as the most important issues. At least 60% of respondents indicated profitability and plant pests were important issues. At least 51% of respondents thought understanding the regulatory environment, cost containment, budgeting and record keeping, and plant disease were important issues. Fifty percent or less of the respondents viewed reducing inputs (chemical, water, etc.), understanding the factors that limit production, financing, improving fertilization, farming sodic soils, and developing alternative crops as important issues. None of the issues were ranked low/very low, neutral, or don't know by a majority of respondents. The percent of respondents who indicated more knowledge about changes in groundwater level, water requirements, and weed control to have a low/very low priority was between 9% and 12%. Issues that were rated a low/very low priority by at least 25% of the respondents were developing alternative crops and farming sodic soils. At least 30% of respondents had no knowledge or no opinion (neutral) about developing alternative crops, farming sodic and/or salty

soils, improving fertilization, plant disease, and reducing inputs. The four issues with the largest difference between a rating of high/very high and low/very low were identical to the four issues with the highest importance ratings.

Figure 2 shows that farmers ranked 11 of the 15 issues as important/very important (>4 on a scale of 1 to 5). From most important to least important these were improving profitability > weed control > reducing inputs > groundwater levels > controlling plant pests > controlling plant diseases > understanding the changing regulatory environment > understanding factors that limit production = water requirements > developing alternative crops = cost containment. Farming sodic soils was the issue farmers considered least important, with their opinion approaching neutral (3.6 on a scale of 1 to 5).

When responses are classified by type of employment, the results indicate farmers often view the important issues for crop production much different than other population segments (Figure 2). Farmers' strong concerns about profitability and reducing inputs were rated much less important by most population segments. Ranchers were an exception for profitability, ranking it nearly as high as farmers. Most population segments ranked weed control as an important issue. The significant exception was business owners and managers, who were neutral. Most population segments also indicated groundwater levels were an important/very important issue. Other issues farmers ranked important/very important, but two or more population segments ranked substantially less important, were controlling plant pests, understanding factors that limit production, understanding the changing regulatory environment, plant disease, fertilization, and developing alternative crops.

Discussion

The results show the hazard of using input from a broad spectrum of the population to address discipline specific needs. Farmers considered profitability their most important issue, while the broader population ranked profitability the fourth most important issue. The general population indicated groundwater levels are the highest priority while farmers ranked groundwater levels their fourth most important issue. The general public thought water use/requirements by crops was an important issue (ranked third) while farmers ranked it much lower (seventh). Several factors probably account for the difference. First, discussion with several producers throughout Humboldt County indicates groundwater depletion is a concern in some basins but not others. Some basins have many wells, but others only a few. Second, water issues are routinely mentioned by local, regional, and national news media, which increases the general awareness that water issues are prevalent. The details for specific areas are largely unreported (or unknown) creating a broad awareness that water is an issue, but little or no knowledge about specific local or regional conditions. The causal reasons for those conditions also are uncommunicated.

Broad awareness of a general issue without specific knowledge about local conditions can create perceptions of problems when problems do not exist or only exist in specific settings. Farmers and the broader population also have substantial disagreement about the need to reduce inputs.

Figure 1. Countywide (i.e., all respondents) importance ratings for crop production issues in Humboldt County.

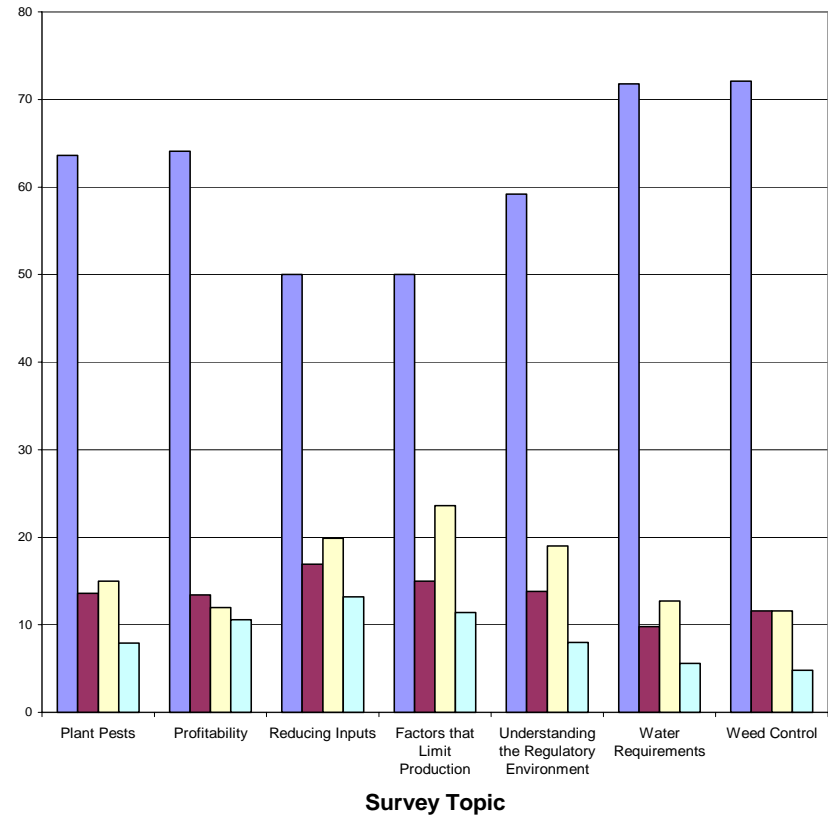
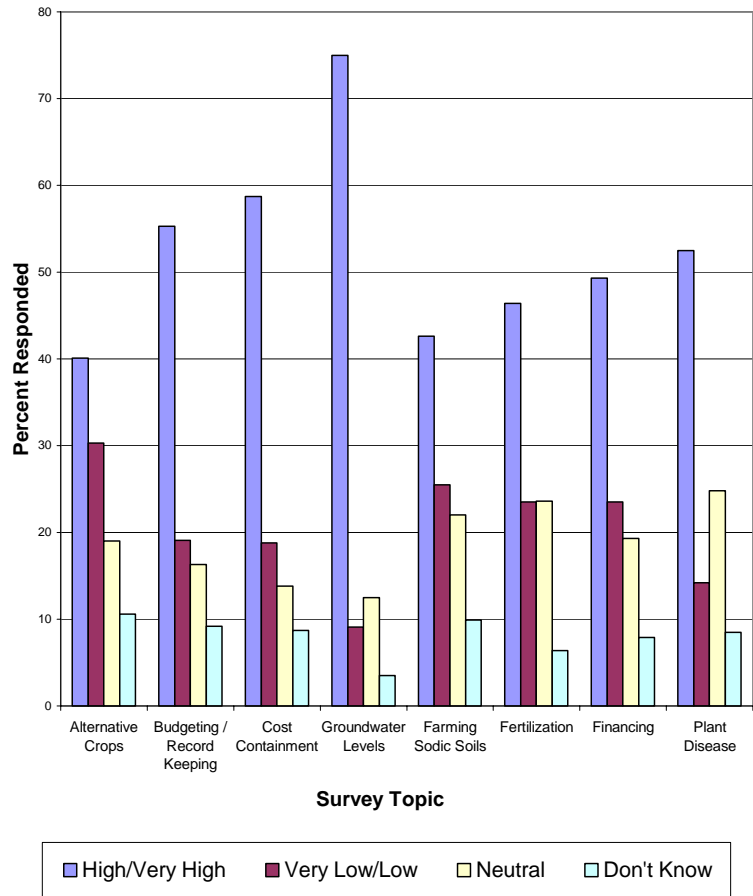
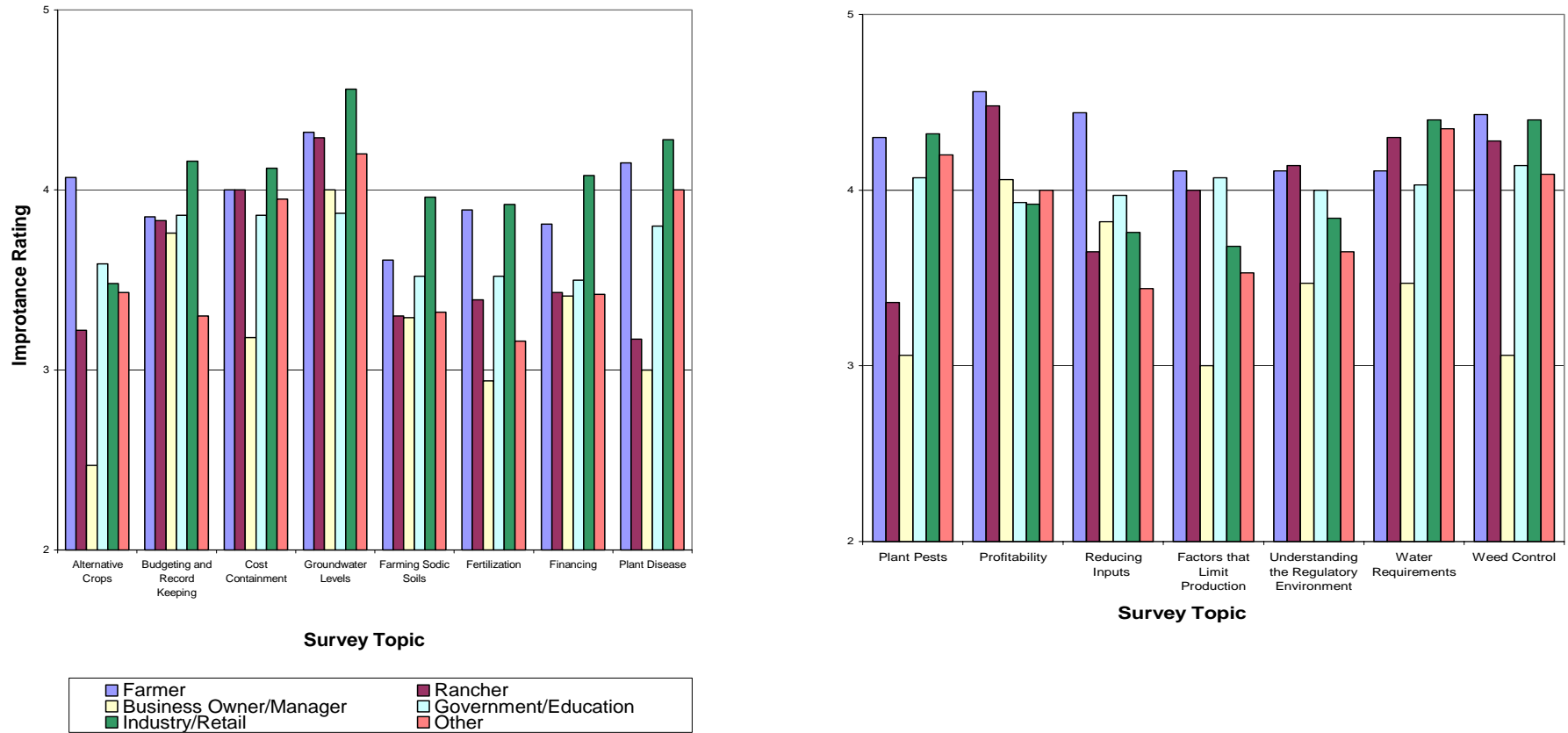


Figure 2. Importance ratings of crop production issues in Humboldt County by employment type of respondents.



Farmers ranked this their third highest issue, while the general public ranked it tied for tenth. Farmers' high rating of both profitability and decreasing inputs suggests they understand linkage between these issues. The low ranking the general public placed on reducing inputs is somewhat unexpected because water issues were ranked so high. Water is the largest single input to crop production and possibly the most divisive issue between rural and urban Nevada. This further suggests the general public ranked issues based on insufficient information, and they have a limited understanding that reducing inputs is strongly tied to increased profitability.

One issue upon which farmers and the general public (except business owners and managers) largely agreed was weeds. Both groups ranked this issue as important or very important (Figures 1 and 2). This sentiment also prevails when respondents addressed noxious weeds on rangelands (unpublished needs assessment data for rangeland resources). Similar results were found when the general public was surveyed about the importance of noxious weeds in Lyon County, Nye County, and on rangelands in northeast Nevada (Elko, White Pine, Eureka, and Lander counties). Weeds are a

focal issue for all population segments in an area much broader than just Humboldt County.

Compared to other segments of the population farmers prefer to communicate their problems, concerns, and needs via on-site visits (Table 1). Their preferred approaches for receiving education programs are newsletters and fact sheets, followed by field tours and workshops (Table 2). They have an aversion to communicating via electronic media (Tables 1 and 2). Farmers have a very strong preference for receiving education programs from November through May, and many are unlikely to attend programs at other times of the year (Table 3). Like all population segments, they prefer programs be delivered on a Tuesday, Wednesday or Thursday. Also, they want to avoid weekends more than any other population segment. They prefer programs be delivered during the workday, not evening hours. This preference is stronger than for all other population segments. Farmers appear more likely to attend programs if they are held in either Winnemucca or Orovada (Table 4). This undoubtedly reflects the larger concentration of farm operations in these areas.

Table 1. Preferred methods for communicating problems, concerns, and needs with the Cooperative Extension office in Humboldt County. Values are percent within employment types who had a high or very high preference for the specific method.

| Method | Countywide | Farmer | Rancher | Business Owner/Manager | Government/Education | Industry/Retail | Other |
|----------------------------|------------|--------|---------|------------------------|----------------------|-----------------|-------|
| Regular Scheduled Meetings | 52 | 54 | 57 | 35 | 52 | 68 | 37 |
| Phone Conversations | 41 | 35 | 50 | 38 | 39 | 54 | 33 |
| Email | 40 | 33 | 21 | 27 | 44 | 63 | 42 |
| On-site Visits | 56 | 75 | 59 | 44 | 45 | 60 | 58 |
| Open Houses | 55 | 44 | 38 | 29 | 54 | 80 | 77 |

Table 2. Preference for delivery of education programs in Humboldt County by specific formats. Values are percent of respondents by employment type who wanted education programs delivered by specific format.

| Program Format | Countywide | Farmer | Rancher | Business Owner/Manager | Government/Education | Industry/Retail | Other |
|--------------------|------------|--------|---------|------------------------|----------------------|-----------------|-------|
| Seminar | 75 | 86 | 83 | 80 | 71 | 70 | 59 |
| Workshop | 90 | 91 | 90 | 100 | 82 | 91 | 90 |
| Field Day | 76 | 81 | 69 | 60 | 73 | 75 | 95 |
| Field Tour | 79 | 91 | 90 | 71 | 70 | 65 | 95 |
| Newsletter | 84 | 96 | 95 | 81 | 83 | 74 | 76 |
| Fact Sheet | 85 | 95 | 100 | 80 | 89 | 70 | 75 |
| Newspaper | 70 | 57 | 73 | 71 | 82 | 63 | 56 |
| Web Site | 69 | 57 | 53 | 60 | 81 | 83 | 63 |
| Demonstration Site | 83 | 80 | 90 | 63 | 93 | 78 | 84 |

Table 3. Preference for receiving education programs in Humboldt County at a specific time of year, day of the week, and time of day. First value is the percent of respondents that answered yes, and the second value (in parentheses) is the percent that responded no. The remaining balance is neutral responses.

| | Countywide | Farmer | Rancher | Business Owner/Manager | Government/ Education | Industry/ Retail | Other |
|--------------------------|------------|---------|---------|------------------------|-----------------------|------------------|---------|
| Best time of year | | | | | | | |
| Sept.-Oct. | 26 (28) | 19 (57) | 35 (24) | 21 (14) | 25 (29) | 46 (9) | 6 (29) |
| Nov.-Feb. | 50 (13) | 91 (0) | 74 (0) | 43 (7) | 42 (21) | 19 (33) | 28 (6) |
| March-May | 39 (23) | 19 (48) | 12 (47) | 28 (27) | 58 (8) | 62 (10) | 47 (5) |
| June-August | 19 (45) | 10 (85) | 7 (60) | 14 (36) | 14 (46) | 32 (32) | 24 (12) |
| Best Time of Week | | | | | | | |
| Monday or Friday | 28 (25) | 29 (29) | 24 (24) | 27 (20) | 32 (36) | 37 (16) | 12 (18) |
| Tuesday-Thursday | 48 (11) | 76 (0) | 47 (16) | 33 (20) | 54 (12) | 29 (14) | 45 (0) |
| Weekend | 27 (36) | 11 (56) | 17 (39) | 27 (27) | 42 (25) | 40 (35) | 12 (41) |
| Best time of day | | | | | | | |
| Workday (8-5) | 40 (40) | 67 (10) | 56 (19) | 23 (39) | 35 (39) | 32 (32) | 29 (18) |
| Early Evening (5-7) | 51 (15) | 36 (32) | 59 (18) | 50 (19) | 68 (8) | 52 (14) | 33 (0) |
| Late Evening (7-10) | 25 (50) | 30 (65) | 27 (67) | 33 (42) | 26 (2) | 25 (35) | 6 (38) |

Table 4. Preference for having education programs in respective communities in Humboldt County. Values are percent of respondents who rated the location high/very high.

| Location | Countywide | Farmer | Rancher | Business Owner/Manager | Government/ Education | Industry/ Retail | Other |
|-----------------|------------|--------|---------|------------------------|-----------------------|------------------|-------|
| Winnemucca | 82 | 74 | 65 | 77 | 93 | 96 | 81 |
| Paradise Valley | 48 | 24 | 59 | 53 | 54 | 52 | 43 |
| Orovada | 51 | 73 | 57 | 29 | 40 | 38 | 45 |
| McDermitt | 41 | 24 | 40 | 29 | 61 | 48 | 38 |
| Kings River | 36 | 32 | 35 | 29 | 46 | 33 | 37 |
| Denio | 33 | 14 | 33 | 29 | 50 | 32 | 35 |

References

- Census of Agriculture. 1997. Humboldt County Profile. Web Address: http://www.nass.usda.gov/census/census97/profiles/nv/nv_pb008.pdf
- Harris, T. R., T. R. MacDiarmid, S. W. Stoddard, W. O. Champney, and D. J. Torrell. 1993. Economic Linkages in the Economy of Humboldt County. University Center for Economic Development. University of Nevada Reno. Department of Applied Statistics. Technical Report UCED 92-01. 67 pp.
- McAdoo, J. K. 2003. Public Opinions about Range Resources in Northeast Nevada. *Rangelands* 25:51-56.
- Nevada Agricultural Statistics Service. 2002. Nevada Agricultural Statistics 2002. United States Department of Agriculture, Reno, Nevada. 57 pp.
- Singletary, L. 2000. Lyon County Needs Assessment. University of Nevada Cooperative Extension Fact Sheet FS-00-33.
- Suvery, N. A. and L. Singletary. 2002. An Assessment of Educational Needs in Northern Nye County. University of Nevada Cooperative Extension Fact Sheet FS-02-60. 4 pp.
- United States Census. 2000. Web Address <http://factfinder.census.gov/>

The University of Nevada, Reno is an Equal Opportunity/Affirmative Action employer and does not discriminate on the basis of race, color, religion, sex, age, creed, national origin, veteran status, physical or mental disability, sexual orientation in any program or activity it operates. The University of Nevada employs only United States citizens and aliens lawfully authorized to work in the United States.