

STATE OF NEVADA

BIENNIAL REPORT

OF THE

STATE DEPARTMENT OF  
AGRICULTURE

LEE M. BURGE, Director

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For the Fiscal Years Ending  
June 30, 1967 and 1968





## LETTER OF TRANSMITTAL

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THE HONORABLE PAUL LAXALT, *Governor of Nevada*  
THE STATE BOARD OF AGRICULTURE  
THE NEVADA STATE LEGISLATURE

The 27th Biennial Report for the period of July 1, 1966-June 30, 1968 of the State Department of Agriculture is herewith respectfully submitted.

On behalf of the staff I wish to express our grateful appreciation for the cooperation, understanding and assistance so graciously extended in the coordination and operation of the Department's many activities.



LEE M. BURGE  
*Executive Director*

## DIRECTOR'S COMMENTS

LEE M. BURGE

A price in line with production and marketing costs for agricultural crops and livestock is a primary concern of the Nevada producer today. How to be in a position to demand that return, how to remain in business without tapping inventory and previous gains—these are basic concerns of the producers, not only in Nevada but nationally, where the picture is no brighter.

To enlarge a ranching or farming operation has been one procedure used in an effort to remain in business. Expanding a production operation means more financing, a larger debt and possibly management needs beyond the ability for some to provide.

Marketing costs today are too high. Add to this increased taxes and grazing fees, equipment and supply costs, unrealistic import quotas on some products—all of this during a period of higher per unit production. Yet the American farmer has failed to maintain his position in the profit column.

The picture is not all gloom. The Nevada farmer-rancher is a tough breed and given the right kind of help he will continue his contribution to the solid economy of the State.

It is of great importance that the National Administration, working in harmony with the Congress and State governments, consider ways and means of aiding the American producers in improving marketing and promotion programs.

## LEGISLATION

Several amendments to existing laws have been discussed with and submitted to the Legislative Counsel Bureau.

The present Nevada Seed Act is strictly a labeling law and needs to be amended to provide for control of movement of crop seed containing weed seed. A proposed uniform seed law draft has been submitted for consideration.

Several minor amendments to the Weights and Measures Code are proposed. Of primary concern is an amendment to legalize containers for milk in more realistic sizes for use by the industry.

An amendment is proposed to the Estray Animal Code to provide a better control over maximum fees allowed an individual holding an estray animal.

A provision in the general authority act for the Department operation is suggested providing for collection of fees established by the Department.

## ACKNOWLEDGMENTS

The Department of Agriculture and its personnel sincerely express appreciation to Governor Paul Laxalt, the State Legislature and the State Board of Agriculture for their interest, counsel, and support of departmental activities and to the following agencies and individuals:

### Federal agencies and staffs—

Animal Health Division  
Bureau of Land Management  
Forest Service  
Indian Service  
Plant Pest Control Division  
Plant Quarantine Division

**State agencies and staffs—**

University of Nevada, Agricultural Experiment Station  
 University of Nevada, Cooperative Agricultural Extension Service  
 Nevada Health and Welfare Department  
 Nevada Highway Department  
 Nevada Sheep Commission  
 Cooperative Agricultural Extension Agents  
 Fish and Game Commission  
 Dairy Commission  
 Division of Forestry

**Organizations and individuals—**

Nevada State Cattle Association  
 Nevada State Farm Bureau  
 Practicing veterinarians  
 Law enforcement officials  
 Southern Pacific, Union Pacific and Western Pacific railroads

**PERSONNEL**

**State Board of Agriculture—**

	Appointment Expires
FRED H. DRESSLER, Chairman, Livestock.....	Gardnerville..... April 22, 1969
STANLEY C. ELLISON, Vice Chairman, Livestock.....	Elko..... April 22, 1969
CHARLES P. FREY, Dairying.....	Fallon..... April 22, 1970
RALPH HALL, Apiary.....	Yerington..... July 1, 1971
NEPHI JENSEN, General Farming.....	Mesquite..... April 22, 1971
THOMAS J. MARVEL, Livestock.....	Battle Mountain..... April 22, 1972

**Department of Agriculture—**

	Active Employees Date Employed
LEE M. BURGE, Executive Director..	Reno..... May 15, 1929
HARRY E. GALLAWAY, Deputy Director.....	Reno..... January 8, 1946
JOHN L. O'HARRA, D.V.M., Deputy Director.....	Reno..... April 16, 1957 <small>(Previously employed June 18, 1951-April 1, 1954)</small>
ALICE M. HANSEN, Program Specialist.....	Reno..... July 1, 1947

**Division of Plant Industry—**

HARRY E. GALLAWAY, Administrator.....	Reno..... January 8, 1946
RAYMOND REBUFFO, Deputy Administrator.....	Reno..... June 1, 1957
JACK E. HAMPTON, Agricultural District Coordinator for Eastern Nevada and Plant Pathologist.....	Reno..... July 1, 1959
PHILLIP C. MARTINELLI, Agricultural District Coordinator..	Reno..... August 16, 1959
DUDLEY F. ZOLLER, Agricultural District Coordinator..	Las Vegas..... September 16, 1957
ROBERT C. BECHTEL, Survey and Systematic Entomologist.....	Reno..... July 8, 1957
FLOYD HILBIG, Chief Apiary Inspector and Agricultural Supervisor.....	Reno..... February 1, 1953
SYLVAN D. PETERS, Agricultural Supervisor.....	Elko..... March 1, 1968
JACK R. ADAMS, Agriculturist.....	Reno..... May 25, 1964
WILLIAM J. LUNDAHL, Agriculturist.....	Winnemucca..... October 1, 1962

## PERSONNEL—Continued

		Active Employees Date Employed
HARLAN K. SPECHT, Chief Chemist.....	Reno.....	August 16, 1959
ELLA A. KNOLL, Chemist.....	Reno.....	May 12, 1965
JAMES L. TRIMBELL, Chemist.....	Reno.....	May 16, 1960
PETER A. FERRETTO, Weights and Measures Inspector II.....	Reno.....	
(Appointed 1950—Deceased March 18, 1968)		
WALTER F. HEADRICK, Weights and Measures Inspector II.....	Reno.....	January 8, 1960
KNUTE PENNINGTON, Weights and Measures Inspector II.....	Las Vegas.....	July 1, 1959
MERLE B. FORST, Weights and Measures Inspector I.....	Las Vegas.....	April 5, 1965
THOMAS A. MAURINE, Weights and Measures Inspector I.....	Las Vegas.....	May 25, 1964
THEODORE M. OLSON, JR., Weights and Measures Inspector I.....	Reno.....	July 1, 1965
MAURICE RICHESON, Weights and Measures Inspector I.....	Las Vegas.....	March 6, 1968
ELDYN L. SMITH, Weights and Measures Inspector I.....	Reno.....	May 6, 1968
GARY R. VAN NESS, Weights and Measures Inspector I.....	Reno.....	October 2, 1967
STANLEY ZUNINO, Weights and Measures Inspector I.....	Elko.....	September 1, 1961
REBA HAMPTON, Seed and Grain Analyst.....	Reno.....	November 1, 1960
JOHN M. ALDERDYCE, General Mechanic.....	Reno.....	December 5, 1960
JOE A. CAMPBELL, Spray Operator Foreman.....	Reno.....	April 16, 1962
DEBRA L. HORTON, Student— Part time.....	Reno.....	January 16, 1967
TIMOTHY LINSCOTT, Agricultural Inspector.....	Smith.....	October, 1951

**Clark County Department of Agriculture (Deputy Quarantine Officers)—**

ROBERT W. NICHOLS, Agricultural Supervisor.....	Las Vegas.....	Retired June 30, 1968
JAMES R. EARNIST, Agricultural Supervisor.....	Las Vegas.....	
HAROLD N. HANSON, JR., Junior Agricultural Inspector.....	Las Vegas.....	
DALE MILNER, Junior Agricultural Inspector.....	Las Vegas.....	

**Washoe County Department of Agriculture (Deputy Quarantine Officer)—**

RICHARD URIARTE, Agriculturist.....	Reno.....	
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**Division of Animal Industry—**

JOHN L. O'HARRA, D.V.M., Administrator.....	Reno.....	April 16, 1957
(Previously employed June 18, 1951—April 1, 1954)		
WILLIAM F. FISHER, D.V.M., Deputy Administrator.....	Reno.....	Retired December 31, 1966
CHARLES R. ADAMS, D.V.M., Deputy Administrator.....	Reno.....	October 16, 1959
DON E. LUNDHOLM, D.V.M., Supervisor, Animal Disease Laboratory.....	Reno.....	May 1, 1962
STANLEY F. ROUTSON, Supervisor, Livestock Identification.....	Reno.....	November 14, 1959
RICHARD V. CHANCE, D.V.M., Veterinary Diagnostician.....	Reno.....	Resigned April 20, 1968

PERSONNEL—Continued

		Active Employees Date Employed
PATRICIA K. EVANS, Serologist-Bacteriologist II.....	Reno.....	December 1, 1965
JOAN E. O'BRIEN, Microbiologist I.....	Reno.....	April 29, 1968
BEVETTE E. OREN, Veterinary Laboratory Technician.....	Reno.....	August 29, 1966
EDMUND GARAVENTA, District Brand Inspector.....	Fallon.....	November 21, 1957
THOMAS P. KANE, District Brand Inspector*.....	Elko.....	July 22, 1957
ARSHAL A. LEE, District Brand Inspector**.....	Las Vegas.....	November 20, 1957
SHIRLEY GEORGE ROBISON, District Brand Inspector.....	Ely.....	September 14, 1959
WILLIAM FRED WARREN, District Brand Inspector.....	Reno.....	October 7, 1964
GEORGE L. GIACOMETTO, Brand Inspector, Part time†.....	Yerington.....	September 1, 1966
FRANK SICKING, Contract Brand Inspector, Part time‡.....	Fallon.....	July 26, 1960
JOANN D. DUDLEY, Senior Clerk—Part time.....	Fallon.....	May 29, 1968
LEE GLEN ALLRED, Building Custodian, Part time.....	Reno.....	September 18, 1967

**Per Diem Veterinarians (Deputy Quarantine Officers)—**

RICHARD J. BERGIN, D.V.M.....	Elko
ROBERT H. CLARK, D.V.M.....	Las Vegas
A. A. CUTHBERTSON, D.V.M.....	Elko
NICK KLAICH, D.V.M.....	Reno
JOHN S. LEWIS, D.V.M.....	Fallon
M. H. PHILLIPSON, D.V.M.....	Las Vegas
PAUL S. SILVA, D.V.M.....	Reno
E. H. STODTMEISTER, D.V.M.....	Sparks
G. T. WOODWARD, D.V.M.....	Fallon

**Clerical Staff—**

BETTY J. BROWN, Senior Clerk-Stenographer.....	Reno.....	April 7, 1966
DORCAS J. CLUCK, Senior Clerk-Typist.....	Reno.....	July 1, 1965
ELIZABETH A. DEADY, Senior Clerk-Typist.....	Reno.....	August 16, 1965
DORATHY R. DUNGATE, Senior Clerk-Stenographer.....	Reno.....	February 1, 1962
ALICE M. GEDWILL, Senior Clerk-Typist.....	Las Vegas.....	September 16, 1963
LAVERNE A. HOWARD, Senior Clerk-Stenographer.....	Reno.....	March 7, 1966
HAZEL L. LUCAS, Senior Clerk-Stenographer.....	Reno.....	June 8, 1964
NANCY A. MILLARD, Senior Account Clerk.....	Reno.....	August 29, 1960
MARY M. RINKLE, Senior Clerk-Stenographer.....	Reno.....	October 6, 1967
BETTY M. WESLEY, Senior Clerk-Stenographer.....	Reno.....	August 2, 1963

\*Fee Brand Inspector October 1, 1955–July 21, 1957.

\*\*Fee Brand Inspector June 12, 1957–November 19, 1957.

†Fee Brand Inspector July 17, 1963–August 31, 1966.

‡Fee Brand Inspector since January 1, 1956.

# STATEMENT OF EXPENDITURES AND RECEIPTS, JULY 1, 1966-JUNE 30, 1968

## EXPENDITURES

Funds	Non-reverting Balances July 1, 1966	Salaries and Payroll Costs	Travel	Operation	Equipment	Statistical Reporting Service	Transfers to Operating Funds	Total Expenditures
Livestock Inspection Fund <sup>1</sup> .....		\$212,834.42	\$34,374.86	\$38,272.84	\$8,681.94			\$394,164.06
Livestock Disease Control Fund <sup>2</sup> .....	\$153,583.69	88,176.84	13,239.94	13,027.29	352.90			114,796.97
Livestock Disease Laboratory Fund <sup>3</sup> .....		64,928.61	1,540.00	19,755.09	630.56			86,854.26
Animal Disease Fund <sup>4</sup> .....		482,292.41	53,667.55	65,281.26	25,640.75	\$6,500.00		633,381.97
Plant Industry Fund <sup>5</sup> .....	492.64						\$43,092.63	43,092.63
Plant Industry Receipt Fund <sup>6</sup> .....								
Noxious Weed & Insect Pest Control Fund <sup>7</sup> .....		62,785.95	10,887.85	35,388.73	3,178.68			112,241.21
Weed & Insect Receipt Fund <sup>8</sup> .....	5,231.49						2,741.00	2,741.00
Agricultural Registration & Enforcement Fund <sup>9</sup> .....	20,499.13	34,126.11	1,617.74	12,796.91	4,428.51			52,969.27
Apiary Inspection Fund <sup>10</sup> .....	6,971.95	8,036.30	4,119.48	41,040.00				12,895.41
Rural Rehabilitation Trust Fund <sup>10</sup> .....	20,256.70			2,692.52				41,040.00
County Reimbursement Fund <sup>11</sup> .....			\$119,447.42	\$228,994.27	\$42,913.34	\$6,500.00	\$45,833.63	\$1,396,869.30
<b>Totals</b> .....	\$207,035.60	\$953,180.64	\$119,447.42	\$228,994.27	\$42,913.34	\$6,500.00	\$45,833.63	\$1,396,869.30

## RECEIPTS

Funds	Appropriations	Receipts from Taxes, Bees, Sales, Refunds, etc.	Transfers from Receipt Funds	Total	Reversions 6/30/67 and 6/30/68	Non-reverting Balances 6/30/68
Livestock Inspection Fund <sup>1</sup> .....	\$130,053.00	\$256,057.16		\$256,057.16	\$15,326.03	\$115,476.79
Livestock Disease Control Fund <sup>2</sup> .....	89,276.00	70.00		89,276.00	2,421.74	
Animal Disease Laboratory Fund <sup>3</sup> .....	594,657.00		\$43,092.63	637,749.63	4,367.66	
Plant Industry Fund <sup>4</sup> .....	111,765.00	46,117.58		46,117.58		3,517.59
Noxious Weed & Insect Pest Control Fund <sup>5</sup> .....		7,114.27	2,741.00	114,506.00	2,264.79	
Weed & Insect Receipt Fund <sup>6</sup> .....		48,866.47		7,114.27		9,604.76
Agricultural Registration & Enforcement Fund <sup>7</sup> .....		12,199.75		48,866.47		16,396.33
Apiary Inspection Fund <sup>8</sup> .....		37,372.01		12,199.75		6,276.29
Rural Rehabilitation Trust Fund <sup>10</sup> .....		2,692.52		37,372.01		16,588.71
County Reimbursement Fund <sup>11</sup> .....				2,692.52		
<b>Totals</b> .....	\$925,751.00	\$410,489.76	\$45,833.63	\$1,382,074.39	\$24,380.22	\$167,860.47

1A. non-reverting fund derived from a special tax on all livestock except sheep. Used for the general support of the Division of Animal Industry and its varied activities.

2. An appropriation from the General Fund. Used by the Division of Animal Industry for the partial support of the Livestock Disease Control work.

3. An appropriation from the General Fund. Used by the Division of Animal Industry for the general support of the Animal Disease Laboratory.

4. An appropriation from the General Fund. Used for the general support of the Division of Plant Industry and its work in quarantine enforcement, grading agricultural products, seed law enforcement, weights and measures activities, the enforcement of petroleum advertising, etc.

- <sup>5</sup>A receiving fund for income derived from agricultural inspections, nursery licensing, seed certification, plant certification, pest control operators' licensing, etc.
- <sup>6</sup>An appropriation from the General Fund. Used by the Division of Plant Industry for the control of noxious weeds and of major insect pests.
- <sup>7</sup>A receiving fund for income derived from contributions to weed control and insect control program.
- <sup>8</sup>A non-reverting special fund derived from economic poison registration fees, fertilizer registration and tonnage fees, and antifreeze registration fees.
- <sup>9</sup>A non-reverting fund derived from a special tax on stands of bees and from registration fees. Used by the Division of Plant Industry for the support of apiary inspection.
- <sup>10</sup>A special fund derived from the trust funds of the now defunct Nevada Rural Rehabilitation Corporation. This fund, plus repayment of present outstanding loans, is used by the Department to finance loans to Nevada farmers and ranchers.
- <sup>11</sup>A special fund set up for clearing county receipts only.



# REPORT OF STATE DEPARTMENT OF AGRICULTURE

## TAX LEVIES

Each year the Board at its first regular meeting sets the special tax rate on livestock and bees for the new tax year.

At the February 14, 1967 meeting the Board set the tax rates for tax year 1967-1968 as follows:

Class	Tax Rate
Bees (per stand).....	\$0.25
Stock cattle (per head).....	.25
Milk cows.....	.50
Bulls.....	.75
Horses.....	.36
Mules.....	.36
Burros or asses.....	.07
Stallions.....	.75
Jacks.....	.75
Hogs.....	.07
Pigs.....	.035
Goats.....	.06
Poultry.....	.003

At the February 13, 1968 meeting the Board set the tax rates the same as above for tax year 1968-1969.

## ASSESSED VALUATION OF LIVESTOCK UNDER THE JURISDICTION OF THIS BOARD FOR THE FISCAL YEARS

1966-67 AND 1967-68

(Figures from the Report of the Nevada Tax Commission)

Class	1966-67	1967-68
Stock Cattle and Dairy Heifers.....	\$13,006,240	\$13,015,045
Weaned Calves.....	1,670,585	1,594,925
Bulls.....	1,346,500	1,365,100
Milk Cows.....	742,950	734,400
Work Horses and Mules.....	44,950	48,070
Fancy Pleasure Horses.....	28,450	31,900
Saddle Horses.....	351,650	362,100
Stock Horses.....	100,780	98,220
Stallions.....	32,900	34,550
Jacks.....	500	700
Burros.....	2,370	2,400
Goats.....	614	539
Hogs.....	6,810	8,040
Pigs.....	5,830	5,465
Poultry.....	8,533	4,539
Totals.....	\$17,349,662	\$17,305,993

**STANDS OF BEES AND ASSESSED VALUATION FOR THE  
FISCAL YEARS 1966-67 AND 1967-68**

**(Figures from the Report of the Nevada Tax Commission)**

County	Year	Number	Value Per Stand	Assessed Valuation
Churchill.....	1966-67	1,896	\$2.00	\$3,792
	1967-68	2,001	2.00	4,002
Clark.....	1966-67	184	2.00	368
	1967-68	248	2.00	496
Douglas.....	1966-67	694	2.00	1,388
	1967-68	690	2.00	1,380
Elko.....	1966-67	452	2.00	904
	1967-68	586	2.00	1,172
Humboldt.....	1966-67	2,202	2.00	4,404
	1967-68	2,272	2.00	4,544
Lander.....	1966-67	383	2.00	766
	1967-68	1,149	2.00	2,298
Lincoln.....	1966-67	149	2.00	298
	1967-68	150	2.00	300
Lyon.....	1966-67	2,324	2.00	4,648
	1967-68	2,046	2.00	4,092
Nye.....	1966-67	252	2.00	504
	1967-68	252	2.00	504
Ormsby.....	1966-67	0	.00	0
	1967-68	25	2.00	50
Pershing.....	1966-67	1,000	2.00	2,000
	1967-68	1,123	2.00	2,246
Washoe.....	1966-67	665	2.00	1,330
	1967-68	515	2.00	1,030
White Pine.....	1966-67	246	2.00	492
	1967-68	200	2.00	400
Totals.....	1966-67	10,447	\$2.00	\$20,894
	1967-68	11,257	\$2.00	\$22,514

## DIVISION OF PLANT INDUSTRY

HARRY E. GALLAWAY, *Administrator*

The Division of Plant Industry has been delegated administrative responsibilities for many of the programs assigned to the Department by Nevada legislation. The following list is the major subject designation for these programs; however, within each program there are a number of sub-programs, i.e., Agricultural Seed, consisting of regulatory inspections, seed certification and operation of a seed testing laboratory.

### PROGRAM SUBJECT

1. Agricultural Produce Buyers-Licensing
2. Agricultural Seed
3. Grain Testing and Grading
4. Antifreeze Registration and Analysis
5. Apiary Inspection
6. Economic Poisons
7. Entomology
8. Farm Labor Contractors-Licensing
9. Fertilizer and Agricultural Minerals
10. Nursery Services
11. Pest Control Operators-Licensing
12. Petroleum Products Testing
13. Petroleum Products Price Advertising
14. Plant Pathology
15. Plant Quarantine
16. Public Weighmasters-Licensing
17. Standardization and Grading of Agricultural Produce
18. Weed Control
19. Weights and Measures

While there is a certain degree of interrelationship between major programs each is a separate identity. Good administration and program operations require that staff personnel have at least a minimum of contact with and have a good working relationship with knowledgeable personnel in program subject areas both within and outside the State.

The Division holds membership in fourteen national or regional organizations dealing in program subject areas; however, due to budgetary limitations for out-of-state travel participation by attendance in many subject areas is not possible. In order for the Division staff to provide better service and administer these programs greater participation in regional and national organizations is a must. We cannot keep up-to-date with modern technology in isolation.

Every new business and resident increases the workload and responsibilities of the Division. New lands in our desert valleys are coming into agricultural production, new industries and new recreational facilities are being built daily—each making new tasks and increased workload for the Division. The Division's staff must keep pace with these additional responsibilities.

## AGRICULTURAL PRODUCE BUYERS

A 1967 legislative amendment to this Act (Chapter 576, NRS) authorizes the Department to issue an exempt license to out-of-state consumers making cash purchases of agricultural produce for their own consumption. Two licenses have been issued under this exemption.

Seventy-five individuals or businesses, employing thirty-four agents in addition to the owners, were licensed during the biennium. These licenses were for the purchase of agricultural produce other than livestock and animal products.

Twenty-six complaints were filed for non-payment, contract failure, buying without a license, etc. Investigation of complaints resulted in ten warrants being issued with six arrests and convictions for buying without a license.

The remaining four warrants were not served due to inability to contact or locate the individuals concerned (out-of-state).

The depressed hay market in the Spring of 1968 caused a number of producer complaints on contract forfeiture. Investigations showed that in most cases inadequate contract stipulations and understanding were not sufficiently clear for the Department to take preventive action against the licensee. Civil suits in district courts are pending in two instances.

Bankruptcy by one licensed dealer has resulted in monetary loss to two producers. Other known losses have resulted when sales have been made to unlicensed buyers.

A marketing educational program for producers stressing financial and contractual stipulations for the type of commodity being sold would be of great benefit to Nevada producers.

## AGRICULTURAL SEED

Program activities on agricultural seeds consist of the analytical laboratory, regulatory inspection and seed certification.

1. **Seed Analytical Laboratory.** The Division's Laboratory, the only Seed Laboratory within the State, provides service information for the other seed programs (inspection and certification) and to the agricultural, commercial, industrial and general public. In addition to the official seed samples drawn by Division personnel in the course of regulatory inspections and seed certification, the Laboratory performs purity, germination and noxious weed tests on samples submitted by individuals and commercial interests.

The Seed Laboratory made analyses on 746\* samples submitted detailed as follows:

Alfalfa.....	352
Clover.....	75
Grass.....	206
Grain.....	55
Miscellaneous.....	58
<b>Total.....</b>	<b>746</b>

\*Each sample represents one or more separate laboratory tests. The average sample has a purity test, germination test and noxious weed test.

2. **Seed Inspection.** Nevada's Agricultural Seed Act is basically for consumer information and protection. All seed offered for sale must be labeled with certain basic information: kind, purity, including weed seed, other crop seed, inert matter, names and amount of weed seed in excess of tolerances, the germination percentage and date of test. The date of test must be within a prescribed period of time.

Inspections are made of the label and seed to determine if the seed is correctly labeled. Seed in violation is placed under hold and removed from sale until brought into compliance. Inspectors drew samples of 247 lots for analyses to check for label compliance. Only questionable lots are sampled.

3. **Seed Certification.** Nevada's production of forage legume crop seeds, primarily alfalfa, continued a steady increase during the biennium. The anticipated 1968 crop will move Nevada into fifth place in production of alfalfa seed.

While the production of certified seed varieties has continued at a steady yearly increase and will continue to do so for the next few years the production of noncertifiable varieties has increased at a rapid pace the past two years.

The noncertifiable alfalfa seed produced is from fields that have been rejected for certification and from fields planted with private varieties that are not eligible or have not been entered into the certification program. A variety to be eligible for certification must meet certain basic requirements of breeding, variety characteristics and testing to be accepted by the Alfalfa Variety Review Board.

The following table lists production of certified and noncertified alfalfa seeds during the past ten years:

1958-1967 ALFALFA SEED PRODUCTION—(Pounds)

Year	Certified	Non-Certified	Total
1958.....	59,767	(1)	
1959.....	95,758	(1)	
1960*.....	129,351	(1)	
1961.....	574,790	(1)	
1962.....	585,840	(1)	
1963.....	1,711,426	937,615	2,649,041
1964.....	1,950,387	1,013,426	2,963,813
1965*.....	1,214,106	908,816	2,122,922
1966.....	2,432,013	1,684,505	4,116,518
1967.....	2,333,113	2,593,537	4,926,650

\*Weather conditions reduced yields.

(1) Noncertified production figures not available.

Other crop seeds being produced are red clover, small grains (wheat and barley) potatoes and grasses. Interest in grass seeds is increasing as new lands at some of our higher elevations are developed.

### GRAIN LABORATORY

An inspection service for grain under the U.S. Grain Standards Act is available in conjunction with the Seed Laboratory. Due to marketing practices for local consumption (without grade) and the availability of grading services at destination markets, Nevada producers have not utilized this service other than for moisture content for storage purposes.

## ANTIFREEZE REGISTRATION AND ANALYSIS

The Nevada Antifreeze Law requires every brand of antifreeze to be licensed before being sold in the State. Before a permit is issued a one-gallon sample of the material to be sold in Nevada must be submitted by the manufacturer to the Department's Laboratory for testing. Laboratory test results are compared with the manufacturer's specifications for that particular brand. These specifications are considered to be the standard of quality for the antifreeze being sold. If the Laboratory tests show the formulation to be below these standards, a permit is not issued for the brand.

One of the tests performed, and a practical one, is making up a solution according to the dilution rate on the container of antifreeze and subjecting it to a freezing test for 24 hours. If no ice crystals are formed, it is considered that the dilution chart is accurate. Antifreeze is subjected to six additional quality tests.

During the biennium 127 brands were tested and approved for sale.

Permits were withheld for the sale of 14 brands of antifreeze for failure to meet quality specifications. Products eventually cleared for sale after corrections by manufacturers.

## APIARY INSPECTION

There has been a steady increase in alfalfa seed acreage in several northern Nevada counties. This expanding seed acreage has required additional colonies of honeybees for pollination. A total of 41,868 colonies of bees were trucked into Nevada from other states during the biennium for pollination services.

The Department granted 32 special pollination permits and one "holding permit" to apiarists from three states to furnish colonies for alfalfa seed pollination. A new section of law enacted by the 1967 Legislature allows beekeepers to apply for a "holding permit" which may permit applicants to hold colonies of bees and equipment beyond the six months permit.

Expanded seed acreage in the Reese River District required an additional 6000 colonies in 1968 over the 1967 requirements.

Special pollination districts, as established by the Department, are in Humboldt, Lander, Washoe and Churchill Counties. In 1968 a new district was established in Ralston Valley, Nye County.

Out-of-state beekeepers may participate in pollination services to our seed growers after meeting requirements of freedom from bee diseases and certifying to grower contracts. Rental fees for pollination services ranged from \$6.00 to \$7.00 per colony. The higher costs for rental are in areas of unimproved roads.

Inspection of special permit bees requires the stationing of inspectors in the seed producing areas. After arrival in Nevada colonies are inspected for the presence of bee diseases. During the biennium 9687 colonies were inspected for disease. Upon inspection *Bacillus larvae* (American Foulbrood) disease was found to be less than one percent in permit colonies. A total of 79 colonies were found infected with this disease and were treated by burning.

Alfalfa seed producers have increased their numbers of the pollinating

"alfalfa leafcutting bee", *Megachile rotundata*, thereby reducing the need for honeybees, *Apis mellifera*, from two colonies to one per acre.

In 1968 Nevada's beekeepers participated in pollination service in alfalfa areas not established as pollination districts. Hay growers in Pershing County set aside part of their acreage for alfalfa seed production due to a severe shortage of irrigation water. Nevada beekeepers placed over 2000 colonies for pollination.

There has been an increase of colonies registered by Nevada beekeepers over the last biennium with 7600 registered during 1965-1966 and 8000 colonies registered in 1967-1968. Apiary inspectors checked 195 apiaries and inspected 7617 colonies for brood diseases during the biennium. Their job is to locate and eliminate disease sources whenever found. Upon inspection inspectors found a steady rise in the incidence of *Bacillus larvae* disease in Nevada bees. This has necessitated repeated inspections of apiaries under quarantine. Three percent of the colonies inspected were found diseased. A total of 234 colonies were found diseased and treated by burning.

A reduction in the 1968 Spring nectar flow due to late frosts caused considerable robbing which contributed to the disease becoming epidemic in some areas. Generally the disease has been found to be endemic only in a very small portion of Nevada's apiaries. In the final analysis responsibility for disease control remains with the beekeeper who should routinely examine colonies for disease as a regular part of his management program.

Death loss of field bees and queens through the use of insecticides for alfalfa weevil control has been of economic importance to the beekeeping industry. Colonies located adjacent to sprayed areas have suffered a continual loss to their working force during spring buildup causing a weakening of the colony. Better cooperation between the spray applicator and beekeeper has decreased the number of colonies killed during the biennium.

Queen loss, as a result of insecticide use, has increased to a point of great concern to all beekeepers. Normal colony supersedure from queen loss is retarded and colonies so affected become a loss during the prime honey flow. Estimated losses to queens has been approximately ten percent.

Surplus honey yields have been good with yields up to 100 pounds per colony. Average honey yields were 70 pounds during the biennium. Surplus honey for bees in pollination has been very low with yields ranging from 0 to 25 pounds per colony.

## ECONOMIC POISONS

Economic poisons, commonly known as pesticides, are substances which are recommended and sold for the purpose of controlling pests. Pests may include any form of plant or animal life which may be destructive, noxious or a nuisance in its existing environment. A substance does not have to be toxic when used as intended to be considered an economic poison.

A pesticide must first be registered with the Department before it can legally be offered for sale in Nevada. Registrations are issued on a calendar year basis and must be renewed annually as long as the product is

being offered for sale. Evidence of satisfactory labeling must be submitted with the application to obtain registration. The basic information required in labeling economic poisons is as follows:

1. Name and address of the manufacturer or distributor.
2. The name, brand or trademark under which the article is sold.
3. The net weight or measure of the content subject.
4. Directions for pesticide use adequate for the control of the pest or pests and protection of the public.
5. A warning or caution statement adequate to prevent injury to living man, animal and/or vegetation.
6. An ingredient statement giving the name and percentage of each active ingredient together with the percentage of the inert material or a statement of the name of each and total percentage of the active ingredients together with the name of each and total percentage of the inert ingredients.

There has been a steady increase of registered brands since registration requirements became effective in 1956. During the biennium 4496 brands were registered; 647 of these were new products never before sold in Nevada.

In addition to registration, the Nevada Economic Poisons Act provides for the sampling and analysis of any pesticide offered for sale. The Department operates a well equipped Chemical Laboratory which is capable of making an assay on any pesticide being sold. Tests are made to check conformity of composition of the guaranteed analysis as stated on the label. Samples are taken at random from dealers' stocks and brought to the Laboratory for testing. If analysis shows the material to be below guarantee, the entire lot represented by the sample is ordered off sale.

The following is a summary of pesticide analyses for the biennium:

Lots sampled.....	45
Lots passed.....	41
Lots violative.....	4

The violative material consisted of two lots of home garden insecticide, one lot of fly bait and one lot of an unlabeled commercial weed killer. All were ordered off sale. The manufacturer of the weed killer was required to attach a label to the container before being released.

In addition to the official samples, 21 information samples were examined by the Laboratory for members of the departmental staff in connection with their various official duties or for other state agencies.

Two nonofficial samples were tested for individuals on a fee basis. Because of a lack of commercial laboratory facilities in Northern Nevada, our Laboratory accepts a limited number of samples for testing from individuals. The tests performed are those ordinarily done in the Laboratory and the sample must have no connection with official samples taken by the inspectors.

In order to check our Laboratory performance in the analyses of pesticides and to help develop new methods, we subscribe to the collaborative program of the Association of American Pesticide Control Officials. Most state pesticide control laboratories and some commercial laboratories take part in the program. During the biennium 18 such samples, consisting of various formulations, were tested.

**VEICH, ALFAIFA, CLOVER, WHEAT, OATS, BARLEY, Greenbug (Aphids), Armyworms, Grasshoppers**—2 to 1 1/2 pint per acre in water to cover by ground or air application. **Alfaifa Weevil Larvae**—Use 1/2 pt. per acre. Apply when alfalfa is 12 to 14 inches high. For severe infestation repeat application to stubble after first cutting. Do not apply within 15 days of harvest. Do not graze animals on treated pasture or cut for hay within 15 days of application.

**PRE-PLANTING SOIL TREATMENT:** Lettuce, Cabbage, Cauliflower, Carrots, Corn, Beans—Symphilitids, Springtails, Centipedes—5 pts. in sufficient water to cover an acre, working into top 3 to 6 inches of soil. Keep all persons and animals out of treated area for 48 hours. Do not contaminate ponds or streams.

**[INSECTICIDE]**



By Wt.  
Parathion\* 78%  
Inert Ingredients 22%  
\*O,O-diethyl O-p-nitrophenyl thiophosphate



**POISON**  
Contains 8 lbs. Parathion per gal.

**Parathion 8  
Flow Concentrate**

**POISON**



**ANTIDOTE:** If Swallowed, Give a tablespoonful of salt in a glass of warm water and repeat until vomit fluid is clear. Have victim lie down and keep quiet. CALL A PHYSICIAN IMMEDIATELY! Note to Physicians: Atropine is Antidotal. If On Skin, In case of contact, remove contaminated clothing and immediately wash skin with soap and water.

**WARNING:**

Poisonous if Swallowed, Inhaled, or Absorbed Through Skin! Wear a mask or respirator of a type posed by the U. S. Department of Agriculture for parathion protection. Rapidly Absorbed Through Skin! Do not get in eyes, on skin or on clothing. Wear natural rubber gloves, protective clothing and goggles. In case of contact, wash immediately with soap and water. Wash hands, arms and face thoroughly with soap and water before eating or smoking. Wash all contaminated clothing with soap and hot water before re-use. Keep all unprotected persons out of operating areas or vicinity where there may be danger of drift. Vacated areas should not be re-entered until drifting insecticide and volatile residues have dissipated. Do not store or transport with feed or food. DO NOT USE, POUR, SPILL OR STORE NEAR HEAT OR OPEN FLAME. Avoid use during flowering and pollination periods. Do not apply under conditions involving possible drift to food, forage or other plantings that might be damaged or the crops thereof rendered unfit for sale, use or consumption.

Toxic to fish and wildlife. Keep out of lakes, streams and ponds. Fish will be killed if their waters are contaminated with this product. Wildlife in contact with treated areas may be harmed.

**DANGER: KEEP OUT OF REACH OF CHILDREN  
DO NOT INHALE—DO NOT GET ON SKIN  
DO NOT TAKE INTERNALLY—SEE WARNING  
AND ANTIDOTE STATEMENTS—BACK PANEL**

WASH EMPTY CONTAINER WITH ALKALI AND DESTROY BY BURYING IN A SAFE PLACE AWAY FROM WATER SUPPLIES AND RUN-OFF. NEVER RE-USE.

**NET CONTENTS  
1 GALLON LIQUID**

Due to the high toxicity of this chemical the label is required to show skull and crossbones and the word "POISON" in red, an antidote statement, and the word "WARNING" and instructions for handling to reduce chances of injury in use.



# MALATHION

## 57% EMULSIFIABLE LIQUID PREMIUM GRADE INSECTICIDE

### CAUTION HARMFUL IF SWALLOWED

AVOID PROLONGED BREATHING OF  
SPRAY MIST.

AVOID PROLONGED OR REPEATED  
CONTACT WITH SKIN. WASH  
THOROUGHLY.

AVOID CONTAMINATION OF FEED  
AND FOODSTUFFS.

KEEP CONTAINER CLOSED AND  
AWAY FROM HEAT, SPARKS AND  
OPEN FLAME.

KEEP OUT OF REACH OF CHILDREN.

- Active Ingredients:
- Malathion\* ..... 57%
  - Aromatic Petroleum Solvent ..... 30%
  - Inert Ingredients: ..... 13%
- \*O,O-dimethyl dithiophosphate of diethyl mercaptosuccinate  
(1 gallon contains 5 pounds of malathion)

**SELLER** makes no warranty of any kind, express or implied, concerning the use of this product.

**BUYER** assumes all risk of use or handling whether in accordance with directions or not.

only carry the word **"Caution"** and statements indicating the principal hazards of use.

### For the Protection of Stored Grains and Seeds against Insects

Because of a lesser toxicity the label for this chemical is required to only carry the word **"Caution"** and statements indicating the principal hazards of use.

# 1% rotenone garden dust for vegetables

**HAND DUSTER APPLICATION:**  
It is not necessary to perforate holes in top of package. Simply remove plug in top of can and empty desired amount into your duster. Replace plug for continued storage. This container sold by weight and not by volume. It does not appear full when opened, it is because contents have settled during shipping and handling.

protects your tomatoes

controls  
many insects

<b>ACTIVE INGREDIENTS:</b>	
Rotenone .....	1%
Other cube resins .....	2%
<b>INERT INGREDIENTS</b> .....	<b>97%</b>
<b>Total</b> .....	<b>100%</b>



**PROTECTS**  
*beans, tomatoes  
and  
other vegetables.*

**CAUTION:**  
KEEP OUT OF  
REACH OF CHILDREN.

**SELF-APPLICATOR PACK:** Perforate or punch holes in top of package making sure that plug in top of can is firmly in place. Shake out dust in package through scientifically measured holes for even application.

USDA REG. NO. 5887-1

Since the toxicity of this chemical is very low only the phrase "KEEP OUT OF THE REACH OF CHILDREN" is required.

## PESTICIDE TOXICITY LABEL REQUIREMENTS

There are four general categories of toxicity of economic poisons which are recognized. The first is the highly toxic class which is defined as a substance which has a single dose LD<sub>50</sub> of 50 milligrams or less per kilogram of body weight when administered orally to male and female rats.

The second is the class immediately below the highly toxic and in general includes formulations having toxicities down to one-tenth those of the highly toxic class. The third group embraces products having hazards below the class two but to a degree which requires some cautions and usually includes toxicities down to about one-tenth of those in class two. The fourth class is comparatively free from danger. All pesticide labels are required to bear the statement "Keep out of the reach of children".

## ENTOMOLOGY

### Insect Pest Detection and Survey

Special detection surveys to determine the occurrence of the alfalfa plant bug, clover seed weevil, Egyptian alfalfa weevil, meadow spittlebug, mimosa webworm, old-house borer, pea leaf weevil and southwestern corn borer in the State were conducted at the request of the USDA, Plant Pest Control Division. All surveys were negative.

Other detection surveys for pest species not known to occur in Nevada were continued for the boll weevil, cereal leaf beetle, Colorado potato beetle, European corn borer, European pine shoot moth, Japanese beetle, khapra beetle, pink bollworm, sorghum midge and tomato russet mite. All surveys were negative except for the pink bollworm.

The pink bollworm, *Pectinophora gossypiella* (Saunders), which can cause severe damage to cotton, was first collected as adults in sex lure traps in the cotton growing areas of Clark and Nye Counties in late September 1966. Field infestations in the two areas were verified by the collection of larvae from gin trash material in November 1966. Twenty-four adults and 18 larvae were collected during surveys in 1966; ten of the adults and two of the larvae were from Nye County. In 1967, 352 adults, 219 larvae and one pupa were collected in Nye County indicating a substantial increase in the population. No cotton was grown in Clark County in 1967 but the potential for severe infestations and damage is greater in this area than in Nye County because of the longer growing season and more favorable environmental conditions.

Nine species, in addition to the pink bollworm, were discovered in Nevada for the first time. Most important of these was the face fly, *Musca autumnalis* DeGeer, found in Elko County in January 1968. It is a serious livestock pest which markedly reduces meat and milk production because of the extreme annoyance to the host animal. In addition, this fly is suspected of transmitting pink eye and possible other diseases. A green June beetle, *Cotinis texana* Casey, was collected in Clark County. Adults of this beetle feed on the foliage and fruits of a number of trees, shrubs and small fruit crops. The larvae damage grasses,

legumes and vegetable gardens, particularly in soils very high in decaying organic matter. The southern house mosquito, *Culex pipiens quinquefasciatus* Say, found in Clark County is a troublesome domesticated species that commonly infests houses and bites at night. Two wood infesting beetles, *Ips woodi* Thatcher and *Neoclytus caprea* (Say), two kissing bugs, *Reduvius sonorans* Usinger and *R. vanduzeei* Wygodzinsky and Usinger and three species of bumble bees, *Bombus appositus* Cresson, *B. centralis* Cresson and *B. occidentalis occidentalis* Greene, complete the list of new discoveries.

Surveys for the intrastate spread of insects recorded the extension of 15 species into counties in which they were not known to occur. Most significant was the spread of the smaller European elm bark beetle, *Scolytus multistriatus* (Marsham), into Elko, Humboldt and Lincoln Counties. This beetle has now been found in nine counties. Several other pests extending their distribution were the lesser clover leaf weevil, *Hypera nigrirostris* (Fabricius), into Churchill County, a fleahopper, *Spanogonicus albofasciatus* (Reuter), into Lyon County, the brown-banded cockroach, *Supella supellectilium* (Serville) and the "garden bagworm", *Apterona crenulella* Bruand, into Humboldt County and four species of billbugs, *Sphenophorus*, into four different counties.

The alfalfa weevil was our major crop pest. Larval infestations and damage to alfalfa were extremely heavy as during the previous biennium, and in addition, adult damage was severe on second crop hay in three northwestern counties.

Losses in alfalfa seed production from infestations of the alfalfa seed chalcid, *Bruchophagus roddi* Gussakovskii, have become of concern to seed producers in Humboldt, Lander and Pershing Counties. The amount of damage to alfalfa seed caused by this pest is currently surpassed only by *Lygus*. At the present time there is no recommended chemical control and cultural practices are the only means of combating it.

Infestations and damage to alfalfa by the western yellow-striped armyworm, *Prodenia praefica* Grote, were heavy in Churchill, Lyon, Pershing and Washoe Counties in 1967 for the first time since 1962.

Since 1961 populations of the army cutworm, *Chorizagrotis auxiliaris* (Grote), remained low except for isolated infestations. In the spring of 1968, however, severe outbreaks occurred on alfalfa, lawns and vegetable gardens in several counties with heavy damage resulting.

A severe outbreak of Say stink bug, *Pitedia sayi* (Stal), on wheat in Diamond Valley, Eureka County, in 1966 caused up to 85 percent yield loss.

In 1967, cicadas, predominately *Diceropracta apache* (Davis) in the south and *Okanagana* spp. and *Platypedia* spp. in other areas were the heaviest in several years with most damage occurring to native shrubs and small trees by adult oviposition.

Mosquito populations were very low in 1966 and 1968 due to drought conditions but in 1967 they were extremely high statewide as excellent moisture conditions were present.

## INSECT CONTROL PROGRAMS

### Grasshopper Programs

The 1966 adult grasshopper survey indicated potential infestations on 19,700 acres (1400 cropland and 18,300 rangeland) for the 1967

season and the 1967 survey indicated infestations on 49,730 acres (850 cropland and 48,880 rangeland) for 1968. These infestations were lower than in the previous biennium which also recorded low populations in comparison to other recent years and no control programs were undertaken as only small, localized acreages were treated.

### **Mormon Cricket Program**

Mormon cricket populations remained light and scattered with no indication of banding or buildup until June of 1968 when increases occurred on small isolated acreages in the Davis Canyon area, Eureka County and the Rosebud Canyon and Star Peak areas, Pershing County.

### **Systematic Entomology**

The number of specimens submitted for identification and, consequently, the number of identifications made by the systematic entomologist continued to increase. Much of this increase resulted from specimens collected during pink bollworm surveys but more material was also received from pest control operators and individuals.

Additions to the pinned specimen collection continued with the largest number of species added belonging to the Coleoptera, Hymenoptera and Lepidoptera. More emphasis was given to the alcohol and slide reference material, however, since more specimens requiring this method of preservation are being received for identification and incorporation in the permanent collection.

At the end of the biennium the permanent reference collection consisted of 14 orders, 62 families, 126 genera, 144 species and 212 vials in the alcohol material; nine orders, 71 families, 262 genera, 521 species and 5179 specimens in the pinned material and three orders, 12 families, 37 genera, 56 species and 156 slides in the slide collection. These totals include only specimens from which the data have been recorded. Numerous additional species have also been identified and they will be deposited in the reference collection as the data is recorded. Also, over 8000 specimens are on loan to specialists and several thousand others are available to individuals specializing in various taxa.

## **FARM LABOR CONTRACTORS**

The administration of laws governing farm labor contractors was delegated to the Division by new legislation passed by the 1960 Legislature.

The law requires that any person who supplies farm laborers and is responsible for their wages must be licensed to operate as a farm labor contractor. Conditions of licensing are: proof of character, operational insurance coverage, posting of a bond and license fee payment. The bond requirement is for a surety in the event the contractor fails to pay wages. His employees can proceed against the bond to collect any wages due.

Enforcement has been difficult due to exemptions in the law and in attempting to determine if the suppliers of farm labor actually pay the laborers and would therefore require licensing.

Since 1964 farm labor contractors must be federally licensed if they operate in interstate commerce. The Federal licensing requirement could fulfill the protection needed for employees of farm labor contractors

operating in Nevada because past experience indicates that such contractors operate in interstate commerce.

## FERTILIZERS AND AGRICULTURAL MINERALS

The Nevada Fertilizers and Agricultural Minerals Act requires any substance which changes the soil chemically to be registered with this Department before being offered for sale in the State. The only exceptions are excreta from domestic animals and organic matter with less than five percent nitrogen, available phosphoric acid or soluble potash, singularly or collectively. Small packages of fertilizer of less than one pound are also exempt from the regulations.

The Act requires certain information to be on the package or invoice in the case of bulk shipments. This includes the brand and grade, net weight or volume, guaranteed analysis and name and address of manufacturer or distributor. A specimen of the label must be submitted with the application for approval before the registration of a fertilizer or agricultural mineral can be completed.

During the 1966-1967 fiscal year 502 grades were registered compared to 577 for the 1967-1968 fiscal year. This is a 34 percent increase of grade registration over the previous biennium.

Reports from registrants show a continued increase in the use of fertilizers and agricultural minerals in the State. A consolidation of reports shows that a record 29,262 tons were consumed during the biennium. This is an increase of 24 percent over the 1964-1966 period.

In addition to registration, samples are taken of fertilizer and agricultural minerals offered for sale or sold and brought to the Laboratory for testing. Laboratory results are compared with the guaranteed analysis on the label. If the material is found deficient, a penalty to the extent of three times the value of the deficiency is assessed against the registrant and paid to the consumer.

The following is a summary of Laboratory analyses:

Lots sampled.....	55
Lots passed.....	33
Lots violative.....	22

Total penalties assessed due to deficient fertilizer amounted to \$1604.72. Lots of fertilizer in the hands of dealers found short in plant food were ordered off sale. It was allowed to be sold only after labels were changed to show the correct guaranteed analysis.

The Laboratory has recently acquired an atomic absorption spectrophotometer primarily for use in testing fertilizers to which have been added secondary plant food elements. This instrument greatly speeds up the analyses of these minerals with greater ease and accuracy. Detection limits may be as low as 0.0005 parts per million. Once the material is in solution only seconds are required for a determination.

## NURSERY SERVICES

Persons selling nursery stock in Nevada, with exceptions as permitted by law, are licensed on a fiscal year basis with the Department. Businesses licensed include nurseries, nursery stock dealers (retail stores

handling plants as a seasonal or incidental business), nursery stock growers and landscapers.

Inspection of nursery stock offered for sale by licensees is made by Division personnel as a regulatory function and upon request. The Department is continuing the inspection of nursery stock and issuing certificates of viability and freedom from insects and diseases when required in contracts by various governmental agencies, e.g., highway beautification projects.

The number of nursery licensees during the biennium was as follows:

Nursery Licensees, 1966-1968 Biennium..... 299

#### INSPECTION OF NURSERY ORNAMENTALS



**Inspection of nursery stock insures healthy and pest-free ornamentals for beautification planting.**

## PEST CONTROL OPERATORS

Persons desiring to perform pest control work for hire must first pass a comprehensive written examination to demonstrate their knowledge of pests, control recommendations and safety in the application of pesticides. Also, proof of valid insurance coverage must be filed and the licensing fee paid before licenses are issued. A total of 70 pest control operators were licensed at the close of the past fiscal period; this is an increase of ten licensees since the 1965-1966 fiscal period.

The war against pests continues at an accelerated pace to protect livestock, forests, range forage, food crops, ornamental yards, homes and commercial businesses from invasion by insects, plant diseases, rodents and weeds.

Under increasing pesticide uses it is the Division's responsibility to police pest control operators to determine that proper pesticides are applied under judicious use with emphasis on protection to livestock, crops, wildlife, pets and humans.

Pesticide applications by 48 ground pest control operators increased tenfold since 1960. The following is a summary of the types and numbers of pesticide applications made: ornamental gardens, 8956; dwellings, 272,272; commercial businesses, 62,315; rodent control, 4860 and termite control, 4862. These figures were compiled on a basis of ten separate treatments of one property as ten separate applications.

A total of 337,431 acres were treated with pesticides by 22 airplane pest control operators for the control of various crop pests, weeds and brush. Fifty percent of the acreage was sprayed for alfalfa hay and alfalfa seed pests and 25 percent for brush control on Federal lands. The total acreage treated was four times the acreage sprayed by 11 airplane operators since 1960.

## PETROLEUM PRODUCTS

The motoring public and other users of petroleum products are protected from inferior products by quality standards to which gasoline, motor oil, heating oil and diesel fuel must conform.

Storage tanks, containers, dispensers and trucks used for delivering petroleum products are checked for proper product labeling as to brand, grade and type of product.

Samples of gasoline, heating oil, motor oil and diesel fuel are periodically taken by field personnel for laboratory analysis to determine if these products meet quality specification requirements. A sample of gasoline, heating oil or diesel fuel is subjected to approximately 15 quality tests and motor oil up to ten quality tests depending upon the type, grade and specification.

The following is a summary of laboratory quality test results:

	<i>Samples Tested</i>	<i>Passed</i>	<i>Violative</i>
Gasoline.....	545	522	22
Motor Oil.....	185	168	17
Heating Fuel.....	93	73	20
Diesel Fuel.....	59	50	9
Totals.....	882	813	68

**VIOLATIVE FINDINGS OF LABORATORY TESTS**

<i>Product</i>	<i>No. Samples</i>	<i>Violation</i>
Gasoline.....	2	Rust contamination.
	1	Water contamination.
	19	High distillation and points indicating possible fuel oil contamination.
Motor Oil.....	17	Mislabeled as to SAE grade number.
Heating Oil.....	20	Not properly labeled as to ASTM grade number.
Diesel Fuel.....	9	Low flash points indicating possible gasoline contamination.

Corrective compliance requested on all violations.

**PETROLEUM PRODUCTS PRICE ADVERTISING**

The purpose of the petroleum products price advertising law is to prevent the use of fraudulent or misleading price signs intended to lure the motoring public into purchasing such products.

The law requires that whenever the price of a product is advertised or signs using wording indicating "save", "for less", etc., then such signs must also state the brand of the product, product identity such as gasoline, diesel or motor oil, the words "tax included" and the product price per gallon. The words "tax included" are applicable only to gasoline price signs.

Violative petroleum price advertising signs totaled 96 out of 592 inspected, or 16 percent, during the biennium. Nearly all violations were not in the area of misleading signs but mostly for lacking the words "tax included" or "gasoline".

Vigilant enforcement plus good communication in advising the petroleum industry of the legal requirements resulted in basically good voluntary corrective action on violations. Two cases required considerable time in legal discussion prior to their resolvment.

**PLANT PATHOLOGY**

Plants or parts of plants showing obvious disease symptoms or deviations from normal growth are submitted to the Laboratory for disease determination. Where possible a diagnosis and appropriate recommendation to correct the disorder is made.

Specimens for diagnosis submitted by private individuals and Departmental personnel were collected from nursery stock, certified seed fields, residential ornamental plantings, ranch and farm fields and forest and range lands.

Plant specimens submitted for diagnosis included the following:

Forest and Range.....	10
Grain.....	1
Legumes.....	1
Nursery.....	32
Onion and Garlic.....	1
Ornamentals.....	43
Potato.....	5
Turf.....	12
Vegetables.....	1

Total..... 106

## PLANT QUARANTINE

The insect detection program discovered the pink bollworm in both the Moapa and Pahrump valleys in September 1966. Detailed survey determined that reproduction had occurred and both valleys were classified as infested.

In order to protect our cotton industry and to control movement of host materials in and out of both valleys, an intrastate quarantine was established November 1, 1966. In 1967 the Federal government extended its domestic quarantine to include the infested valleys of Pahrump and Moapa.

Effective September 1, 1967 a host-free period requiring certain cultural practices and prohibiting the existence of host plants during the period January 15 to April 5 was promulgated. It was necessary to delay the starting date for 1968 due to adverse weather conditions. A satisfactory host-free period is basic to a control program.

There were no other revisions to Nevada's interstate quarantine regulations.

## PUBLIC WEIGHMASTERS

Public weighmasters serve an important role by acting as a disinterested third party in certifying as to the correct net weight of economic goods sold in daily commerce. Both the buyer and the seller accept a weighmaster's weight certificate as an accurate basis for payment of commodities purchased or sold.

The licensing requirements to become a public weighmaster are: the filing of a \$1000 faithful performance bond, the payment of a \$15 initial licensing fee and a \$10 annual renewal fee, the use of an approved weighmaster certificate form and the use of an approved and accurate scale.

There were 53 licensed public weighmasters at the close of the biennium. This was an increase of only one over the past biennium.

Legislation will be introduced to update the weighmaster certificate for more meaningful information and to allow the use of other certificate forms as modern business practices dictate.

## STANDARDIZATION AND GRADING AGRICULTURAL PRODUCTS

### Shipping Point Inspection

Nevada acreage of potatoes and onions remains at a low level with few requests for grade certification. With present market and farm labor conditions it is not anticipated that there will be a rapid recovery to pre-1964 acreages.

### Shell Eggs

Inspection of shell eggs for label and grade compliance at the consumer or retail level is a consumer protection and orderly marketing program.

The shell egg industry, producers, distributors and retailers have accomplished a magnificent job of compliance. During the period 1959-1960 rejections for noncompliance were 21 percent of lots inspected. In

1965-1966 rejections reduced to five percent of lots inspected. In the 1966-1968 biennium 876 lots containing 8562 cases of shell eggs were inspected. Rejection for noncompliance with grade and label regulations was less than one percent.

### WEED CONTROL

Weed control presents a never ending problem in that it appears weeds are forever prevailing. Estimates by the U.S. Department of Agriculture puts a price tag on control and losses due to weeds in excess of five billion dollars a year.

In Nevada we feel some progress is being made in an attempt to control the spread of noxious weeds. The following chart lists the cost and the total volume of spray materials applied by Department crews in our cooperative weed control program during the past 12 years:

Years	Gallons Solution Sprayed	Total Cost
1957-1958.....	393,763	\$60,000.00
1959-1960.....	228,480	\$60,344.20
1961-1962.....	228,824	\$52,217.12
1963-1964.....	186,242	\$63,046.49
1965-1966.....	185,836	\$64,751.99
1967-1968.....	138,407	\$64,020.77

The above chart shows a decrease in the gallonage of spray material applied while the cost of applying the material has increased every year except for the 1961-1962 period.

It must be kept in mind the above cost figures are for actual application and materials. It does not reflect equipment depreciation or replacement, equipment repair, supervision and general overhead cost of administering the program. As weed infestations are controlled the cost of control work increases as more time and travel are required to locate and treat spot or scattered infestations.

We feel the continued interest in weed districts plus their expanded control programs are a contributing factor to the success of our own programs. Another factor to consider is the increased use of chemical sprays for the control of common weed infestations on highway rights-of-way by the Nevada State Highway Department.

Evidence of the spread of noxious weeds by vehicular movement is found every year with new incipient infestations along major highway rights-of-way. This past biennium spotted knapweed, *Centura malculosa* Lam, was found on Interstate 80 west of Battle Mountain, Nevada. Yellow star thistle, *Centura solstitialis* L., is continually being found along our major routes throughout the State.

Scattered plants were found during the biennium from the California state line to Battle Mountain, Nevada.

To date we have completed the noxious weed surveys in four of our seventeen counties and approximately one-fourth of the fifth county is completed. These surveys are confined to the actual areas under cultivation and do not include the entire area of the county.

During the past two years the spread of two thistles have been of grave concern: musk (*Carduus nutans* L.) and Scotch (*Onopordum acanthium*). New areas of spotted infestations of these thistles are being found with alarming regularity.

Both thistles have been found on open range land and along highway rights-of-ways. As in the previous years our control programs have been in cooperation with various Federal and State agencies throughout the State as well as with local cities and counties who have a noxious weed problem.

The following is a summary of herbicides used during the past biennium:

Amitrole	11 lbs.	LV-4 (various 2,4-D formulations)	195 gals.
Amitrole-T	444 gals.	Simazine 80-W	1,301 lbs.
Atrazine 80-W	608 lbs.	Telvar	30 lbs.
Banvel-D	6 gals.	Tordon 22-K	59 gals.
Dowpon	25 lbs.	X-77	37 gals.
Dow General	164 gals.	Weed Oils	12,995 gals.
Fenac	3 gals.		

### WEIGHTS AND MEASURES

Weights and measures enters into the life of every human being from the day of birth when one is weighed on a scale and measured for vital statistics.

This important function of government continues to play a role in everyone's daily economy because nearly everything bought or sold is by weight, measure or count; therefore, there is no other service more fundamental to our society which daily affects every citizen than weights and measures.

The importance of a climate of trust and confidence surrounding all business dealings with measurable commodities can hardly be overestimated. Without such a climate the everyday transactions upon which our whole economy is predicated would become infinitely more difficult and many of the material advantages which modern technology makes possible would be lost. It has been the historic purpose of weights and measures laws to protect and foster this climate in a free and competitive society by insuring that "equity prevails" through the use of accurate weighing and measuring devices.

Accurate weighing and measuring are two of the most vital factors that affect our economy in every phase of marketing including the manufacturer, distributor, retailer and the ultimate consumer.

Today's marketing trend is toward selling greater volumes of goods on smaller per individual unit profits; therefore, accurate weighing and measuring devices are imperative because small errors in weighing or measuring on a unit basis can total to a staggering dollar value on a volume basis. A weighing error of five cents on a package of meat does not sound very significant but this amount times 40,000 packages of meat sold per month in a supermarket totals \$2000 for or against the store depending on the over or under error of the scale.

Nevada law requires all commercially used weighing and measuring devices be checked annually for accuracy. With the exception of motor truck scales and liquefied petroleum gas meter testing all work is performed on a district basis with headquarters offices located at Reno, Las Vegas and Elko.

The inspection and testing of weighing and measuring devices is performed in every conceivable avenue of commerce. The equivalent of four man years of travel time was required to cover Nevada's vast geographic

area in the testing of weighing and measuring devices throughout the State.

Weights and measures inspectors must have a thorough understanding of technical testing procedures plus a working knowledge of applicable legal requirements with respect to tolerances, regulations and specifications governing weighing and measuring devices.

Two technical training schools were held in order to keep personnel better informed on new technology, testing procedures and enforcement. Good training results in better employee performance without undue supervision plus statewide uniformity of enforcement.

Approximately 1100 additional weighing and measuring devices were put into commercial use in various phases of Nevada's expanding economy during the biennium.

### PREPACKAGED COMMODITIES

There is an imperative need for more manpower assigned to checking packaged commodities for net quantity contents. Limited work done in this area revealed considerable short weight and short measure findings. On meat alone 3077 packages averaged 4.4 cents short weight against the buying public during 1967.

A total of only 25 types of commodities were checked for net quantity compliance as compared to over 8000 different types of items stocked by today's supermarket. Of the 25 types of items checked seven were non-food items. The package checking program is basically limited to such food items as bread, meats, poultry, produce, etc.

The following are percentages of short weight or measure packages found for the following years:

1959.....	62%	1964.....	29%
1960.....	17%	1965.....	8%
1961.....	30%	1966.....	35%
1962.....	12%	1967.....	27%

Results of the package inspection program for the biennium are as follows:

Total lots sampled.....	1,648
Total packages in lots.....	66,994
Packages inspected*.....	12,379
Packages in violation.....	19,997
Total lots in violation.....	437
Percentage of packages in violation.....	29%

\*Packages inspected represent a sampling of total packages in lots. Sampling inspection varies from ten percent to 100 percent depending on the total packages in each lot.

Violative products were ordered corrected to comply. One case required correspondence from a District Attorney's Office before the violator complied.

**CONSUMER PROTECTION—A BIG JOB**

**Check weighing bread for correct weight. Over 8000 kinds of packaged items in today's supermarket require checking to determine compliance with correct weight or measure as claimed by package quality statements.**

**METROLOGY LABORATORY**

Precision measurement of weight, length and volume keynotes the operation of the Metrology Laboratory within the limits of equipment capabilities.

The Laboratory houses the official State avoirdupois weight standards, volumetric measures and one length bar. These official standards are used to certify the accuracy of office standards which in turn are utilized to check the accuracy of field standards.

All types of commercial weighing and measuring devices are tested for accuracy with field standards. These standards range from weights weighing .1 grain to 1000 pounds and measures of capacities from a half pint to 500 gallons.

The accuracy error allowed for a one pound weight is one grain and

## WEIGHTS AND MEASURES DEVICES TESTED JULY 1, 1966-June 30, 1968

	Total Initially Tested	Initially Tested and Passed	Adjusted and Passed	Out-of- Order	Total Out-of- Order Rechecked	Rechecked and Passed	Rechecked Adjusted and Passed	Rechecked and Failed to Pass
<b>Scales—</b>								
Balances.....	289	238	36	15	21	11	7	3
Pharmacy.....	106	104		2	3	3		16
Spring.....	791	576	187	28	50	33	1	92
Computing.....	2,174	1,420	696	358	402	251	59	1
Postal.....	170	120	23	17	2	1		18
Prepackage scales.....	225	120	36	58	58	31	9	15
Overhead track and beam.....	217	162	25	42	50	28	7	22
Small capacity.....	362	242	42	64	68	38	8	32
Large capacity.....	852	590	145	103	107	54	21	30
Livestock.....	357	96	96	99	134	74	30	5
Motor truck.....	233	144	56	33	36	18	13	12
Hopper.....	152	98	40	44	44	14	14	3
Contractor motor truck.....	81	24	46	11	28	12	13	4
Contractor hopper.....	89	42	29	18	24	5	15	
Miscellaneous.....	21	19	1	1	1	1		
<b>Meters—</b>								
Gas pumps.....	8,104	7,080	298	796	1,053	807	99	147
Oil.....	21	16	1	4	6	3		7
Truck.....	495	311	117	67	97	64	26	9
Split compartment.....	393	336	14	43	47	35	3	6
Rack.....	224	139	44	41	20	9	5	1
Liquid petroleum gas.....	147	93	44	10	110	48	61	
Temperature compensators.....	85	28	52	5	92	41	51	
<b>Liquid Measures—</b>								
Tank compartments.....	21	9	12		3	3		1
Milk tanks.....	5		2	3	1		1	
Linear and Dry Measures.....	148	146		2	2	1		
<b>Commercial Devices</b>								
Initially Tested.....	16,375	12,624	1,979	1,782	*2,459	1,589	443	427
Devices rechecked.....	2,459							
<b>Grand Total Tested.....</b>	<b>18,834</b>							
<b>Weights—</b>								
Apothecary.....	2,133	2,116	15	2				
Metric.....	917	908	9					
Avoirdupois.....	3,737	3,640	10	87	70	61	1	8
<b>Weights Initially Tested.....</b>	<b>6,787</b>	6,664	34	89				
<b>Weights rechecked.....</b>	<b>70</b>				70	61	1	8
<b>Grand Total Tested.....</b>	<b>6,857</b>							
Measures.....	51	20	30	1				
State Standards.....	2,604	2,204	396	4	5	3	2	

\*Total out-of-order rechecks also includes devices rechecked upon complaint or suspected of being in error. Devices initially tested and passed are sealed. Minor adjustments are made in instances where this will correct errors and equipment is then sealed. Noncomplying equipment is marked "out-of-order" and required to be repaired. A recheck test is made after notification has been received that out-of-order devices have been corrected.

one ounce for a 1000 pound weight. A five gallon test measure is accurate to within one teaspoonful. A total of 2604 state standards of weights and measures were calibrated for accuracy during the biennium.

A proposed new Metrology Laboratory did not receive a priority consideration during the previous biennium. This Laboratory is again being proposed and we hope it will receive favorable consideration by the Legislature.

The National Bureau of Standards, through Congressional appropriation, has been supplying each state with new state standards of weight, volume and length provided each state has a qualified laboratory in which to house and use these precision standards. These new standards are currently valued at \$79,000.

A modern laboratory facility would provide the capability for precision weighing and measuring and testing and certification of accuracy for industry, business, government and educational institutions.

This program has been in operation for three years. Nevada will be one of the last ten states to be provided with weights and measures standards even if an appropriation is made to build the proposed laboratory and office building.

## DIVISION OF ANIMAL INDUSTRY

JOHN L. O'HARRA, D.V.M., *Administrator*

### ADMINISTRATIVE COMMENTS

Nevada's livestock is our most precious source of food and fiber. The responsibility of this division, as guardians of livestock health and productivity, is increasing yearly as we meet our responsibilities to keep animal agriculture abreast of the demands of a rapidly swelling population. Protein deficiency is one of the world's most serious health problems. In order to meet the needs of our population for foods of animal origin and to keep our livestock industry economically sound, we must use all means to increase our efficiency of livestock production. We can no longer tolerate any appreciable percentage of loss in this production due to diseases. Changing environmental methods of livestock production offer greater opportunity for disease transmission and stress and nutritional problems. Rapid and extensive livestock movements add to stress and exposure of our animals. Intercontinental and international air transport systems increase the hazard of introducing exotic diseases that could be catastrophic to our Nevada livestock population.

The demand of consumer protection is increasing daily. The consuming public has become acutely aware of possible health problems resulting from contamination of animal food products. Antibiotic and drug residues, pesticides used in the control of parasites and other tools to maintain animal health are under careful scrutiny. Higher standards of living and increased general knowledge of residue problems have caused the consuming public to demand protection of these products by regulatory agencies. Our division must meet the challenge of providing proper guidance to the industry.

### ANIMAL HEALTH PROGRAMS

At the close of the biennium, it is our pleasure to report the maintenance of Nevada as a Hog Cholera Free State since September, 1965; a validated Swine Brucellosis Free State since February, 1966 and a Certified Brucellosis Free State since June, 1966. The livestock industry and the citizens of Nevada are now receiving the benefits of the efforts expended in achieving this disease free status. We urge the continuing philosophy of eradication of diseases wherever possible, rather than continuation of the expense and potential danger of living with them.

During the biennium, new disease problems, particularly of a viral nature, have made their appearance. Prompt diagnostic and regulatory action, along with all assistance possible to the owners, have quickly controlled these problems and we are happy to report that the livestock of Nevada continue to remain among the healthiest livestock in the Nation.

An adequate statewide veterinary service is vitally necessary for continued surveillance and control of the contagious and infectious diseases of livestock. The division is fortunate in having full cooperation of the practicing veterinarians in Nevada. In turn, the staff veterinarians of this division assist the practitioners in all ways possible. In the conduct of

the general activities of the Division of Animal Industry, significant progress has been made due to the assistance and cooperation of many groups and individuals. The practicing veterinarians, agricultural extension agents, livestock owners, educators, Animal Health Division of the U.S.D.A., Nevada State Cattle Association, Nevada Farm Bureau, other State and Federal agencies and agencies of county and local political subdivisions have all extended a cooperative hand. To all of these, the Division of Animal Industry extends its thanks and appreciation.



**Figure 1.** Blood testing by collecting samples from the neck. This method requires squeeze chute for handling of livestock.

## **FEDERAL-STATE COOPERATIVE DISEASE ERADICATION PROGRAMS**

### **Brucellosis**

Nevada was awarded a Certified Brucellosis Free status on June 10, 1966. This status has been maintained throughout the State by market cattle testing (MCT) for beef cattle, the Milk Ring Test (BRT) for dairy

cattle and, when necessary, by "on-the-ranch" testing. Suspect results from the MCT and the BRT are noted, the individuals responsible for the herd are contacted, and the overall situation discussed. Under the general screening tests, reactions or suspect conditions may be possible due to vaccination titers or otherwise and the herd health is evaluated with a determination made for additional testing if necessary. The above noted screening procedures are highly satisfactory for a continuous evaluation of the herd health status of all herds that cooperate in this program.



**Figure 2. Tail bleeding for use with the card test. This method of testing requires less time and equipment.**

In instances where "on-the-ranch" testing is necessary, a new testing procedure has been developed that is a great improvement over former methods. The new method involves bleeding from the tail and using the Brucellosis Card Test to indicate presence of infection. The card test has been approved as an official test for Brucellosis in the State of Nevada when it is applied by authorized personnel under the direction of State and Federal regulatory officials.

The market cattle identification tag placed on animals going to slaughter furnishes information in regard to a number of disease conditions including tuberculosis as reported from the slaughterhouse. Field trials are now being run on a permanent type bangle tag for animal identification. This plastic tag with large readable numbers offers the owner identification of the animal for herd management, in addition to health survey purposes.



Figure 3. Market Cattle Testing Backtag applied to the animal for identification at the slaughterhouse.

### Swine Brucellosis

Nevada was established as a validated Brucellosis Free State for Swine in 1966, and qualifies every three years by testing all breeding swine six months of age and over. A Brucellosis card test for swine is also being used, simplifying the testing procedure.

### Tuberculosis

The State of Nevada has been eligible for accredited Tuberculosis Free Status for the past three years. Application for an official declaration has been delayed until our neighboring states reach a similar status, thus

avoiding problems involving movement of known clean animals into the State. All dairy cattle moving into Nevada from states that still have tuberculosis problems are promptly retested on arrival.

### Hog Cholera

At the close of the biennium, Nevada has passed its third year as Hog Cholera Free without an outbreak. Strict surveillance, including a permit in advance of movement on all swine entering the State, has protected our free status. In addition, extremely close surveillance of all swine markets and garbage feeding establishments, health certification of all imports and other procedures have prevented the outbreak of serious swine diseases, including hog cholera and trichinosis.

### Cattle Scabies

Outbreaks of Cattle Scabies continued to occur sporadically in western states. Nevada, by continuous routine inspections, quarantines and special inspections on all cattle moving from or near areas involved, has been fortunate in remaining free of this infestation. In the past biennium, 567 lots of cattle were inspected for scabies, involving 171,656 head.

### Livestock Imports and Exports

For the protection of the livestock within the State of Nevada, this division conducts an inspection and regulatory control service designed to prevent the introduction of livestock diseases into the State. In order to discharge its responsibility, division personnel may necessarily quarantine livestock for testing or inspection or place hold orders on imported livestock for additional surveillance, prior to allowing them to mingle with our native animals.

During this past biennium, livestock imported into Nevada on interstate certificates are listed as follows:

Cattle.....	46,970
Swine.....	4,128
Horses.....	1,045
Dogs and Cats.....	1,351
Goats.....	22
Total.....	53,516

In cooperation with the practicing veterinarians, the division certifies the health status of Nevada livestock shipments to other states. During the biennium, livestock certified as healthy by accredited veterinarians and division personnel for export to other states and nations are listed as follows:

Cattle.....	62,076
Swine.....	116
Horses.....	797
Dogs and Cats.....	2,014
Total.....	65,003

### Miscellaneous Diseases

In this report we make mention of certain specific diseases that have caused concern to the livestock industry and the public of the State during

the biennium. Field investigations have made note of the following animal diseases and pathological conditions:

Abscess	Intussusception
Acute bloat	Isohemolytic disease
Air sacculitis	Keds infestation
Anemia, emaciation/parasitic	Leptospirosis
Aspergillosis	Leucosis
Atrophy, cerebral/cortical	Leukemia
Bacillary hemoglobinuria	Lymphomatosis
Bacterial septicemia	Lymphosarcoma, diffuse/infiltrative
Barbiturate poisoning	Malignant lymphoma, diffuse infiltration
Bilateral osteoarthritis	Malnutrition
Black head	Meningitis, acute
Broken neck	Metastatic carcinoma
Calf scours	Metritis
Cancer, lung	Navel ill
Cardiac failure	Necrotic laryngitis
Carbon monoxide poisoning	Neoplasm
Cerebral hemorrhage	Osteodystrophy
Chorioptic scabies	Oxalate poisoning and uremia
Chronic erysipelas	Pancreatitis, acute hemorrhagic/acute necrotic
Chronic interstitial nephritis	Panleukopenia
Clostridial infections	Parasitic hepatitis
Clostridium, bifermantans/sordellii/ tetani	Parasitism
Coccidia	Pediculosis
Congenital esophageal dilation	Peritonitis, acute
Congenital heart defect, malformation	Peritonitis from perforated intestine
Corynebacterium sp.	Petroleum toxicity
Crooked calf syndrome	Photosensitization
Cryptococcus	Pneumonia
Cystitis	Poisonous plants
Dermatitis (chemical)	Proteus vulgaris, P. morganii
Diaphragmatic hernia	Pseudomonas sp.
Displasia	Psittacid agent
Distemper (strangles)	Pullorum-Himalayan snow partridges
Dystocia	Pulmonary emphysema, edema
Egg bound	Pyometra
Encephalitis	Pyothorax
Encephalomalacia	Ruptured pulmonary artery/bladder
Enteritis, bacterial/infectious/ mucoid/gastro	Salmonella
Enterotoxemia	Salt poisoning
Eperythrozoonosis	Septicemia, coli
Epizootic bovine abortion	Sinusitis
Equine viral rhinopneumonitis	Staphylococcus
Escherichia coli	Streptococcal meningitis
Fungus	Strongyles
Gangrenous colitis/pneumonia/mastitis	Suffocation
Grass tetany	Torsion of abomasum, intestine
Gun shot	Toxic enteritis
Gut edema	Toxicosis
Heart failure	Traumatic reticulitis/injury
Heat prostration	Trichomonas
Hydrocephalus	Tumor
Hypoglycemia	Twinning
Hypomagnesemia	Tyzzeria perniciosa
Idiopathic abortion	Uremia
Impaction, intestinal	Uremic poisoning
Infectious atrophic rhinitis	Vaginitis
Infectious bovine rhinotracheitis	Vibrio
Inhalation, placental fluid	Viral abortion
Internal hemorrhage	Water hemlock poisoning
Intestinal obstruction	White muscle disease
Intestinal strangulation	

### **Anaplasmosis**

Anaplasmosis has been endemic in the State of Nevada for a number of years. It is of particular significance in the northern counties of the State. It poses a constant threat of loss to imports and herd replacements that are susceptible to the disease. Losses during the biennium have not been outstanding due to the resistance of our native cattle and the intelligent management conducted in relationship to the constant threat of infection.

Extensive research is still being conducted toward the development of a suitable vaccine. During the biennium, a killed-type product has been perfected and is of assistance in protecting replacement susceptible animals. It is hoped that within the next biennium a more efficient vaccine that will confer lasting immunity will be developed.

### **Anthrax**

Soil and water conditions in various areas of the State are highly favorable to the existence of the anthrax organism. These endemic areas are well outlined and extensive vaccination is conducted on all animals in these areas each spring. Due to the highly effective vaccines available and the extremely high vaccination rate, outbreaks of anthrax during the biennium have been limited to a few individual cases in outlying areas.

### **Bacillary Hemoglobinuria**

Extensive routine vaccinations have held losses from this condition to a minimum. The anaerobic organism causing Red Water is well established in many of the irrigated valleys of the State but poses a greater threat only to imported, unvaccinated cattle.

### **Exotic Diseases**

Division personnel are constantly alert for the possible introduction of foot and mouth disease, African Horse Sickness, African Swine Fever, rinderpest and other diseases that are endemic in foreign countries. Accepted livestock movement procedures and exceedingly rapid modern transportation make it possible each day for these dreaded epizootics to enter the country. The livestock of the State of Nevada and the entire United States are highly susceptible to the exotic diseases, entrance of which would be catastrophic.

Extreme surveillance of certain imported animals, constant inspection at market agencies, staging areas and other points of concentration are continuous. Proper disposal of all garbage that has contact with animal products is a must procedure.

Further noting of animal diseases that are of significance will be made under the report of the Animal Disease Laboratory.

## **ANIMAL DISEASE LABORATORY**

DON E. LUNDHOLM, *D.V.M.*, *Supervisor*

The Animal Disease Laboratory is established by statute for the purpose of diagnosing infectious, contagious and parasitic diseases of livestock for the citizens of Nevada.

Livestock is defined as: all members of the bovine, equine, porcine, and caprine species, plus all poultry or domesticated fowl or birds, and all dogs, cats or other animals domesticated or under the restraint or control of man.

The law further states that "any citizen shall have the privilege of submitting samples to the Department for examination, diagnosis, analysis, or testing, subject to such rules and regulations as may be promulgated by the Executive Director."

Being vested with such wide and diverse areas of responsibility poses challenging diagnostic problems. In meeting and solving these problems, the laboratory has developed into a complete unit. We have some of the finest scientific equipment available and a staff of well qualified technicians and veterinarians. The Nevada State Animal Disease Laboratory is recognized both regionally and nationally for the diversity and quality of its work.

This past biennium saw expansion of our virology, histopathology and toxicology facilities. The virology programs alone took a heavy toll of the supply budget, but savings realized by the livestock industry from this work was estimated to be in the millions of dollars. Facilities and skills must constantly be improved to meet the demands of a public who requires greater and more sophisticated services and to meet the challenges of new pathologic entities which occur in this constantly changing world of disease.

During the past biennium staff veterinarians made numerous field trips and investigations which proved extremely informative and diagnostically rewarding. This was particularly true regarding investigations of bovine vibriosis and trichomoniasis.

These diseases have been recognized for many years but probably are new to many areas in Nevada. In the past they were not a major problem in this State due to the relatively isolated herd conditions that prevailed. However, with the changes in management procedures, sale of ranches and introduction of new cattle into the State, vibriosis and trichomoniasis are now a definite, widespread problem.

Diagnosis of vibriosis requires very careful collection of samples and exacting laboratory methodology. Large numbers of samples are necessary and the whole process is quite tedious and time consuming. During this past biennium, the laboratory diagnosed vibriosis in every cattle producing area in Nevada.

During the past biennium a great interest in Salmonellosis has developed, not only on a local level, but on national and international levels as well. Public Health officials have become greatly concerned over salmonella contamination of animal products which may act as sources of human infection.

Salmonellosis is not an uncommon disease of livestock and has been diagnosed in the laboratory on a number of occasions. In addition to diagnosing this disease as a clinical entity, the laboratory has also the responsibility of screening certain feeds and animal by-products for the presence of salmonella organisms. It was our diagnosis of Salmonellosis in a family and their calves that significantly helped solidify and activate the salmonella investigational and surveillance program in northern Nevada.

As was noted in the 1965-1966 biennial report, the pattern of the

laboratory workload is changing. The number of blood samples to be tested for Brucellosis continues to decrease, while samples submitted for other diagnostic tests increase. Examples of the increases are: Chemistry and Toxicology—up 80 percent; Hematology—up 300 percent; Microbial cultures—up almost 100 percent; Parasitology—up 50 percent; Leptospirosis tests—up 100 percent; Virology—up 500 percent.

These figures are certainly indicative of a trend toward greater utilization of our facilities. We are most gratified by this trend and are happy to know that each year we render beneficial services to an ever increasing number of Nevada citizens, thus contributing significantly to the growing economy of our State and its people.

A summary of the Laboratory work for the past biennium follows:

### ANIMAL DISEASE LABORATORY EXAMINATIONS

July 1, 1966 through June 30, 1968

<b>CHEMISTRY AND TOXICOLOGY—</b>			
Arsenic, Calcium, Phosphorus, Botulism, Heavy Metals, Nitrite, Organic Phosphates, Oxalates.....			
			19
	Blood Urea Nitrogen.....		104
	Strychnine.....		33
<b>HEMATOLOGY—</b>			
	Blood Examinations.....		1,146
<b>HISTOPATHOLOGY.....</b>			
			66
<b>MICROBIAL CULTURES—</b>			
	Including Vibriosis, Trichomoniasis, Salmonellosis.....		1,192
<b>MICROBIAL ANTIBIOTIC SENSITIVITY TESTS.....</b>			
			524
<b>PARASITOLOGY—</b>			
	Endoparasitism—718 Negative	652 Positive.....	
	Ectoparasitism— 39 Negative	50 Positive.....	1,459
<b>POST MORTEM EXAMINATIONS.....</b>			
			492
<b>FLUORESCENT ANTIBODY EXAMINATIONS—</b>			
	Including Rabies, Negative.....		317
	Rabies, Postive (Bats 20, Fox 1).....		21
			338
<b>SEROLOGY</b>			
	Brucellosis Agglutination Tests.....	Negative	
		Bovine.....	10,572
		Caprine.....	61
		Deer.....	884
		Human.....	1
		Porcine.....	873
		Reindeer.....	6
	Suspect	Bovine.....	191
		Human.....	1
		Porcine.....	3
	Reactor	Bovine.....	89
		Deer.....	2
		Equine.....	1
		Porcine.....	5
	Anaplasmosis.....	Negative	
		Bovine.....	46
		Deer.....	435
		Bovine.....	43
		Bovine.....	380
		Canine.....	14
		Caprine.....	3
		Deer.....	435
		Equine.....	2
		Human.....	2
		Canine.....	2
		Deer.....	4
		Equine.....	3
			845
	Brucellosis Ring Tests.....	Negative	
		Bovine.....	765

SPECIAL STAINS AND  
TECHNIQUES—

Including Foulbrood	AFB	Positive	Bees.....	146	
	EFB	Positive	Bees.....	23	
Serum Protein determinations.....			Deer.....	540	709
URINALYSIS.....					118
VIROLOGY					
Epizootic Bovine Abortion, Infectious Bovine Rhinotracheitis, Parainfluenza SF <sub>3</sub> and SF <sub>4</sub> , Bovine Virus Diarrhea, Unclassified.....					577
UNSUITABLE FOR EXAMINATION.....					133

**LIVESTOCK IDENTIFICATION**S. F. ROUTSON, *Supervisor***Estray Livestock**

During the biennium, 103 head of estray livestock were reported. Of this number 98 head were returned to the owners. Five head were advertised and sold by the Department. Money, less expenses, received from the sale of estrays is held for one year for owners, if found, or placed in the Livestock Inspection Fund.

**Hide and Carcass Inspections**

Periodic inspections were made of all cold storage lockers and meat processing establishments under the Hide and Carcass Act for the purpose of preventing illegal possession of meat. The Hide and Carcass Act was amended by the 1967 Legislature and gives considerable more protection to the livestock industry.

**Livestock Theft**

The 1967 Legislature gave police authority in enforcement of Department responsibilities to Department inspectors designated by the Executive Director. There have been no theft convictions by Department personnel. This is due greatly to preventive action by the Department in the form of periodic road blocks and many man hours of patrolling the disturbed areas.

**Livestock Killed on Railroad Rights-of-Way**

There were 541 head of livestock reported killed by trains operated in Nevada. Of this number, 400 head were identified as to ownership and claims were made to the railroads for remuneration of the owners' losses.

**Public Livestock Auction Markets**

There are presently two markets in operation: Nevada Livestock Commission Company of Fallon, licensing on December 27, 1966, and Gallagher Livestock, Incorporated of Fallon, which has operated during the entire two year period. A bond in the amount of \$100,000 is required of each of these two operators.

**Licensing and Bonding**

At the close of the last biennium 77 livestock brokers, dealers and commission merchants were on record as being properly licensed and bonded, plus a total of 45 agents.

### Brand Inspection

The State of Nevada is divided into three livestock brand inspection districts; two point-of-origin districts located in Clark and Lincoln counties and the third district which is the remainder of the State.

The enforcement of laws, rules and regulations applying to Livestock Identification activities by Department employees, consumes considerable time and expenditure of funds.

Personnel assigned to Livestock Identification activities on a full-time basis are a supervisor, one Senior Clerk-Typist, and one Senior Clerk-Stenographer located in Reno, and five District Brand Inspectors located at Elko, Ely, Fallon, Las Vegas and Reno. One part-time Brand Inspector is stationed at Yerington and one part-time Brand Inspector is stationed at Fallon. One part-time Clerk-Typist is stationed at Fallon.

A total of 125 Fee Brand Inspectors are available throughout the State to serve the livestock industry in making brand inspections or other assigned duties. Their remuneration for service is paid by a fee on cattle of ten cents per animal and on horses, mules, burros and asses of fifty cents per one animal, twenty-five cents per head for two or more animals. The fee change on horses was effective July 15, 1967.

The number of brand inspections made during this past biennium was:

By Fee Brand Inspectors.....	553,790
By Salaried Personnel.....	263,097
Total.....	<u>816,887</u>

### Livestock Brands

During the biennium, 435 new brands were recorded, 118 brands were transferred and three brands were abandoned. At the end of the biennium, a total of 3,912 brands were of record in the State of Nevada.

By Statute, the Department of Agriculture is responsible for recording, re-recording and transferring all livestock brands, except for sheep and goats, with these transactions being handled by the Nevada State Sheep Commission and the county recorders. The fee for recording a new brand is ten dollars; the fee for re-recording a brand is five dollars; and the fee for transferring a brand is five dollars.

Brands are re-recorded at five-year intervals, with the next re-recording period being the last sixty days of 1970. At that time a new brand book will be compiled.



