STATE OF NEVADA

BIENNIAL REPORT

OF THE

State Department of Agriculture

For the Period
July 1, 1938, to June 30, 1940, Inclusive

CARSON CITY, NEVADA
STATE PRINTING OFFICE - - JOE FARNSWORTH, SUPERINTENDENT
1940

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REPORT OF STATE DEPARTMENT OF AGRICULTURE

To His Excellency, HONORABLE E. P. CARVILLE, *Governor of Nevada.*

SIR: In accordance with the provisions of chapter 172, Statutes of Nevada 1931, we herewith submit the third report of the State Department of Agriculture, same being the thirteenth report of the State Board of Stock Commissioners, for the period from July 1, 1938, to June 30, 1940.

PERSONNEL

Administrative—

FRANK CALLAWAY, President	Currant, Nye County
H. F. DANGBERG, Vice President	Minden, Douglas County
H. H. CAZIER, Commissioner	Wells, Elko County
EDWARD RECORDS, Secretary and Executive Officer	Reno
LOUISE LEWERS, Associate Secretary	Reno
ARMENA F. SCRUGGS, Clerk	Reno

Division of Animal Industry—

WARREN B. EARL, Director	Reno
F. E. HENDERSON,* District Veterinarian	Elko
T. H. LEENERTS, District Veterinarian	Elko
F. H. BAKER,† Veterinarian	Gardnerville
W. H. HILTS,† Veterinarian	Reno
WM. R. SMITH,† Veterinarian	Las Vegas
H. U. WILLIAMS,† Veterinarian	Yerington
D. E. HUDGINS,† Supervising Brand Inspector	Reno
JOE F. PERKINS,† District Brand Inspector	Overton
JOHN G. SILVEIRA,† District Brand Inspector	Searchlight
WM. R. SMITH,† District Brand Inspector	Las Vegas
JOHN W. COLE,† District Brand Inspector	Pioche
JOHN W. RICHARD,† District Brand Inspector	Alamo
J. W. SIMKINS,† District Brand Inspector	Caliente

Division of Plant Industry—

GEORGE G. SCHWEIS, Director	Reno
LEE M. BURGE, Supervising Inspector	Reno
GEORGE M. SHOGREN, Field Supervisor	Reno
P. A. LEHENBAUER, Seed Analyst and Botanist	Reno
C. H. BURKE,‡ Deputy Quarantine Officer	Reno

TAX LEVIES

At a regular meeting held on October 11, 1938, the board set the special tax for the Stock Inspection Fund, in accord with chapter 37,

*Deceased, March 14, 1940. †On per diem basis. ‡Employed by Washoe County.

Statutes of Nevada 1935, at three mills on the dollar for the year 1939. At a regular meeting held on October 16, 1939, the tax was set at four mills on the dollar for the year 1940.

ASSESSED VALUATION OF LIVESTOCK UNDER THE JURISDICTION OF THIS BOARD FOR THE YEARS 1938–1939

(Figures from the Report of the Nevada Tax Commission. Figures for the year 1940 not available at this date.)

	1938	1939
Stock cattle	$4,124,382.00	$3,703,665.00
Bulls	273,435.00	282,955.00
Milch cows	363,445.00	369,388.00
Horses (1,100 pounds and up)	443,170.00	417,520.00
Work horses (under 1,100 pounds)	87,430.00	111,335.00
Driving horses	12,950.00	12,870.00
Saddle horses	160,430.00	161,980.00
Stock horses	177,279.00	181,704.00
Stallions	16,085.00	20,845.00
Brood mares	12,050.00	13,350.00
Work mules	25,815.00	22,440.00
Stock mules	8,265.00	8,710.00
Jacks	1,690.00	1,815.00
Burros	3,160.00	3,080.00
Hogs (over 8 months)	16,343.00	19,088.00
Pigs (under 8 months)	9,721.00	10,997.00
Poultry	23,000.00	23,407.00
Foxes	1,285.00	1,900.00
Totals	$5,759,935.00	$5,367,049.00

STATEMENT OF DISBURSEMENTS FROM THE STOCK INSPECTION FUND

July 1, 1938, to June 30, 1940

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries and wages	$6,789.12	$10,673.43
Railroad transportation	147.20	225.90
Automobile transportation	2,896.34	4,730.41
Subsistence	273.95	423.05
Office rent	900.00	900.00
Post office box rent	6.00	6.00
Telephone and telegraph	195.91	174.70
Postage and printing	250.02	399.96
Freight and express	8.46	30.81
Industrial insurance	85.82	131.20
Fire and burglary insurance	89.30	
Bond premiums	65.76	89.37
Dues, U. S. Livestock Sanitary Association	25.00	25.00
Advertising	34.09	22.59
Equipment and supplies	267.75	386.72
Totals	$12,034.72	$18,219.14
Grand total		$30,253.86

Net Receipts from All Sources Other Than Tax Levies
July 1, 1938, to June 30, 1940

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
New brand recordings	$288.00	$234.00
Brand transfers	57.00	61.00
Milk inspection, city of Elko*	240.00	100.00
Inspection of brands—Brand inspection districts	258.75	494.75
Livestock shipment inspections	20.00	112.74
Sales—Brand book	104.50	47.12
Estray funds held in escrow for one year	11.80	149.40
Repair of safes, etc. (insurance paid account burglary)	63.25	
Totals	$1,043.30	$1,199.01
Grand total		$2,242.31
Net expenditures from Stock Inspection Fund		$28,011.55

Held in Bank in Escrow

Balance in Estray Fund	$0.00
Deposits for hide and carcass stamping outfits	192.00
Total	$192.00

EXPENDITURES FROM UNEXPENDED BALANCE OF THE STOCK COMMISSION SPECIAL FUND (Chapter 183, Statutes of Nevada 1937) APPROPRIATION OF $10,000 FROM GENERAL FUND FOR PERIOD FROM JULY 1, 1937, TO JUNE 30, 1939, AND FROM STOCK COMMISSION SPECIAL FUND (Chapter 101, Statutes of Nevada 1939) APPROPRIATION OF $10,000 FROM GENERAL FUND FOR PERIOD FROM JULY 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries and wages	$4,024.25	$3,030.00
Railroad transportation	.....	4.80
Automobile transportation	239.59	155.04
Subsistence	27.55	16.70
Telephone and telegraph	1.00	.60
Freight and express	36.28	3.00
Postage and printing	211.24	
Industrial insurance	42.53	32.14
Tuberculosis indemnities	145.58	542.01
Equipment and supplies	574.76	8.71
Totals	$5,302.78	$3,793.00
Unexpended balance reverted June 30, 1939	$81.19	

*Milk inspection discontinued October 31, 1939.

EXPENDITURES FOR SUPPORT OF INSECT AND PLANT PEST QUARANTINE AND CONTROL (Chapter 280, Statutes of Nevada 1913; Chapter 134, Statutes of Nevada 1927; Sections 426–448 Nevada Compiled Laws 1929) FROM BALANCE OF APPROPRIATION OF $8,400 FROM GENERAL FUNDS COVERING PERIOD FROM JULY 1, 1937, TO JUNE 30, 1939, AND $8,400 APPROPRIATION FROM GENERAL FUND COVERING PERIOD FROM JULY 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries	$2,765.00	$2,825.00
Railroad transportation	143.15	250.16
Automobile transportation	346.96	154.28
Subsistence	195.98	241.59
Telephone and telegraph	78.30	63.49
Postage and printing	60.00	
Industrial insurance	33.14	33.41
Rent	150.00	450.00
Freight and express	3.55	1.43
Equipment and supplies	426.14	73.42
Dues in Western Plant Quarantine Board; National Association of Secretaries, Commissioners and Directors of Agriculture; and American Association of Economic Entomologists	70.00	20.00
Totals	$4,272.22	$4,112.78

No reversion June 30, 1939.

EXPENDITURES FOR NOXIOUS WEED CONTROL (Chapter 174, Statutes of Nevada 1929, Sections 414–435, Nevada Compiled Laws 1929) FROM BALANCE OF APPROPRIATION OF $8,000 FROM THE GENERAL FUND FOR PERIOD JULY 1, 1937, TO JUNE 30, 1939, AND $4,000 APPROPRIATION FROM GENERAL FUND COVERING PERIOD FROM JULY 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries and wages	$2,530.00	$636.00
Automobile transportation	246.76	166.58
Subsistence	1.10	96.55
Postage and printing	33.78	
Industrial insurance	28.31	8.59
Rent	375.00	150.00
Freight and express	8.76	.30
Equipment and supplies	797.95	
Totals	$4,021.66	$1,058.02

No reversion June 30, 1939.

EXPENDITURES FOR AGRICULTURAL SEED CONTROL (Chapter 203, Statutes of Nevada 1929, Sections 398–413, Nevada Compiled Laws 1929) FROM BALANCE OF APPROPRIATION OF $4,000 FROM THE GENERAL FUND FOR PERIOD JULY 1, 1937, TO JUNE 30, 1939, AND $4,000 APPROPRIATION FROM GENERAL FUND COVERING PERIOD FROM JULY 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries and wages	$1,543.34	$1,475.00
Automobile transportation	155.10	
Subsistence	15.50	
Telegraph and telephone	.45	
Postage and printing	17.35	
Industrial insurance	18.58	16.99
Rent	225.00	150.00
Equipment and supplies	84.22	21.75
Freight and express	.16	
Dues — Association of Official Seed Analysts of North America	.....	10.00
Totals	$2,059.70	$1,673.74

Net Receipts from All Sources Other Than Appropriation

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Fees for certification of seed	$14.00	$8.00
Fee for seed analysis	.....	.50
Sale of tags	.....	6.60
Totals	$14.00	$15.10

No reversion June 30, 1939.

EXPENDITURES FOR GRADING AND STANDARDIZATION OF EGGS (Chapter 220, Statutes of Nevada 1931) FROM BALANCE OF APPROPRIATION OF $1,200 FROM THE GENERAL FUND FOR PERIOD JULY 1, 1937, TO JUNE 30, 1939. NO APPROPRIATION FOR PERIOD July 1, 1939, to June 30, 1941.

	July 1, 1938, to June 30, 1939
Salaries	$160.00
Automobile transportation	59.93
Subsistence	25.10
Supplies	24.12
Total	$269.15
Unexpended balance reverted June 30, 1939	$866.13

EXPENDITURES FOR GRADING AND STANDARDIZATION OF AGRICULTURAL PRODUCTS (Chapter 225, Statutes of Nevada 1931) FROM BALANCE OF APPROPRIATION OF $4,000 FROM THE GENERAL FUND FOR PERIOD JULY 1, 1937, TO JUNE 30, 1939, AND $4,000 APPROPRIATION FROM THE GENERAL FUND COVERING PERIOD FROM JULY 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries	$1,830.20	$1,419.78
Railroad transportation	21.70	
Automobile transportation	93.15	142.16
Subsistence	38.40	23.55
Telephone and telegraph	12.02	44.54
Rent	150.00	150.00
Supplies and equipment	96.72	14.37
Industrial insurance	16.12	15.53
Totals	$2,258.31	$1,809.93

Net Receipts from All Sources Other Than Appropriation

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Grading Fees—		
Onions and potatoes	$219.75	$51.95
Turkeys	47.03	65.94
Sale of tags	5.00	5.95
Sale of scales	.....	5.50
Totals	$271.78	$129.34

No reversion June 30, 1939.

EXPENDITURES FROM BALANCE OF RODENT CONTROL FUND (Chapter 148, Statutes of Nevada 1937) APPROPRIATION OF $10,000 FROM GENERAL FUND FOR PERIOD FROM JULY 1, 1937, TO JUNE 30, 1939, AND FROM RODENT AND PREDATORY ANIMAL CONTROL FUND (Chapter 131, Statutes of Nevada 1939) APPROPRIATION OF $10,000 FROM GENERAL FUND FOR PERIOD FROM JULY 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Rodent Control—		
Salaries and wages	$3,824.72	$1,827.60
Automobile transportation	73.10	96.70
Subsistence	31.15	16.63
Supplies	2,356.12	98.34
Industrial insurance	51.64	23.08
Freight and express	2.04	
Storage charges	5.00	
Postage	.....	3.00
Totals	$6,343.77	$2,065.35
Predatory Animal Control—		
Salaries and wages	.....	$2,812.92
Automobile transportation	.....	701.60
Subsistence	.....	30.95
Horse and dog hire	.....	70.00
Supplies	.....	146.40
Industrial insurance	.....	37.59
Total	.....	$3,799.46
Grand total	$6,343.77	$5,864.81

Net Receipts from All Sources Other Than Appropriation

	July 1, 1938, to June 30,1939	July 1, 1939, to June 30,1940
Sale of furs	.....	$878.74
Total	.....	$878.74
Unexpended balance reverted June 30, 1939	$15.10	

EXPENDITURE FOR INSECT PEST CONTROL (Chapter 182, Statutes of Nevada 1937; Chapter 102, Statutes of Nevada 1939) FROM BALANCE OF BIENNIAL APPROPRIATION OF $10,000 FROM THE GENERAL FUND COVERING PERIOD FROM APRIL 1, 1937, TO JUNE 30, 1939, AND $24,000 BIENNIAL APPROPRIATION FROM THE GENERAL FUND COVERING PERIOD FROM APRIL 1, 1939, TO JUNE 30, 1941.

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Salaries and wages	$1,935.31	$3,808.62
Railroad transportation	5.97	71.20
Automobile transportation	598.01	492.14
Subsistence	601.10	837.48
Telephone and telegraph	250.26	185.69
Postage and printing	88.80	3.77
Industrial insurance	23.25	46.88
Airplane dusting experiment	1,124.34	
Equipment and supplies	5,386.70	2,933.91
Freight and express	658.70	65.69
Rent—Warehouse	45.33	
Insurance on equipment	.....	40.40
Totals	$10,717.77	$8,485.78

Net Receipts from All Sources Other Than Appropriation

	July 1, 1938, to June 30, 1939	July 1, 1939, to June 30, 1940
Sale of sacks	$6.67	
Sale of bran	278.50	
Refund on diesel oil	.....	$50.00
Refund on freight charges	.....	2.16
Totals	$285.17	$52.16

RECOMMENDATIONS

We would again urge the financing of the Division of Plant Industry by a single lump sum appropriation from the General Fund.

The activities of this division are governed largely by natural and economic conditions, available Federal cooperating set-ups, and other constantly changing factors which cannot be foreseen or controlled by anyone. The system in vogue to date of financing the division by numerous small appropriations further broken down into specific items is poorly adapted to meet such conditions. A single appropriation which could be apportioned and expended by the board between sessions of the Legislature to meet new and changing conditions would overcome these difficulties. This change would involve no increase in expenditure, but would greatly increase efficiency and probably result in some financial savings.

We would also recommend that the system of financing at least an

equitable proportion of the work of controlling livestock diseases communicable to human beings from the General Fund and not exclusively from the Stock Inspection Fund be continued.

CONCLUSION

Appended hereto are the reports of the Divisions of Animal Industry and Plant Industry prepared by the respective Directors of same. Also attached is a brief résumé of the work done for rodent and predatory animal control in cooperation with the United States Department of the Interior, Fish and Wildlife Service, prepared by the District Agent, Mr. G. H. Hansen. It is believed that these cover in sufficient detail the work of the past biennium.

In conclusion we wish to extend our thanks to our own personnel, the cooperating organizations and individuals, and the public at large, whose assistance and cooperation have made these results possible.

Respectfully submitted,

FRANK CALLAWAY,
H. F. DANGBERG,
H. H. CAZIER,
Commissioners.

EDWARD RECORDS, *Executive Officer.*

DIVISION OF ANIMAL INDUSTRY

WARREN B. EARL, *Director*

A brief review of the more important activities of the division for the period from July 1, 1938, to June 30, 1940, follows:

BRAND RECORDINGS

The recording of brands has continued in a routine manner during the past biennium. Brands now of record will so remain, unless transferred or abandoned, until the end of the next rerecording period, which closes December 31, 1940. The brand recording figures are as follows:

Total number of brands of legal record June 30, 1938	2,588
New brands recorded July 1, 1938, to June 30, 1940	261
	2,849
Brands abandoned during period	5
Total brands of legal record June 30, 1940	2,844
Brands transferred during period July 1, 1938, to June 30, 1940	118

BRAND BOOK

A supplement to the 1936 official brand book was issued during the biennium, bringing the records up to date as of September 15, 1938. Following the next rerecording period which closes December 31, 1940, the brand records will be revised and steps begun for the publication of a new official brand book. It is hoped that this brand book will be ready for distribution early in 1941.

STOCK KILLED ON RAILROAD RIGHTS OF WAY

Reports received during the period July 1, 1938, to June 30, 1940, under the provisions of sections 6345–6355 Nevada Compiled Laws 1929, show the following livestock killed on railroad rights of way:

	Cattle	Horses	Sheep	Totals
Western Pacific—				
Brands or owners reported	71	1	31	103
Brands or owners not reported	31	2	5	38
Union Pacific—				
Brands or owners reported	91	17	....	108
Brands or owners not reported	25	10	....	35
Southern Pacific—				
Brands or owners reported	50	7	....	57
Brands or owners not reported	30	....	....	30
Nevada Northern—				
Brands or owners reported	9	1	....	10
Brands or owners not reported	2	....	1	3
Tonopah and Goldfield—				
Brands or owners reported	2	....	....	2
Totals	311	38	37	386

ESTRAYS

The handling of estrays has continued in the usual manner, and the following table shows the number of animals taken up and the disposition of same:

Cattle—		
Taken up as estrays		14
Returned to owners	6	
Sold	8	
Horses—		
Taken up as estrays		2
Returned to owners	2	
Total animals handled for period July 1, 1938, to June 30, 1940		16
Last Biennium—		
Cattle		12
Horses		3
Increase in cattle as compared with last biennium		2
Decrease in horses as compared with last biennium		1

HIDE AND CARCASS INSPECTION

This activity has been continued, under the provisions of an Act approved March 9, 1931, and in line with the policy of this department of participating more actively in livestock theft control, various means have been found of stimulating activity leading to a stricter enforcement of the Act.

A stamp bearing the letters SBSC was designed for the purpose of stamping carcasses, following the passage of the first Hide and Carcass Inspection Act in 1929, and stamps of this design were used continuously from that time until about the middle of the biennium covered by this report. During this long period, a small number of stamps were unavoidably lost and a few are unaccounted for, and may have fallen into unauthorized hands. Complaints were received from some sources that the impression of the stamp was too large and disfigured the carcasses of beef on which it was used.

For the above reasons and in order to stimulate interest in the

inspection and stamping service, a new stamp as shown herewith, was designed in 1939. The letters SDA also called attention to a change in the name of this department, the State Board of Stock Commissioners having been authorized to function as a State Department of Agriculture by Act of the Legislature in 1935.

During the latter half of the year 1939 the new stamps were placed in the hands of all inspectors, and the old stamps were taken up, condemned and destroyed. With the exception of a limited number in remote districts, a personal contact with all inspectors was made by some member of the staff of this division in connection with the above exchange of stamps, and the records of inspectors were examined at that time.

It is the policy of this department to appoint only peace officers as hide and carcass inspectors insofar as possible, and stamps have been placed in the hands of other persons only where the services of peace officers are not available. On account of frequent changes, it is difficult to report an up-to-date list of hide and carcass inspectors, but the following were acting in that capacity at the close of the biennium on June 30, 1940:

	Stamp No.
Churchill County	
R. J. Vannoy, Fallon	10
George R. Boulding, Hazen	28
Clark County	
M. E. Ward, Las Vegas	49
W. R. Smith, Las Vegas	61
John Silveira, Searchlight	60
Joe F. Perkins, Overton	69
Heber V. Hardy, Mesquite	68
Guy Doty, Glendale	67
Lem Leavitt, Bunkerville	70
Douglas County	
F. H. Baker, Gardnerville	15
Elko County	
C. A. Harper, Elko	8
W. L. Hargrave, Montello	59
Del Hardy, Contact	58
Dick Morse, Mountain City	25
Chauncey Olson, Rowland	24
Ray King, Wells	18
R. H. Gilmore, Tuscarora	19
E. B. Kelso, Tuscarora	21
Angus Maxwell, North Fork	23
Mrs. Lena Dougherty, Jarbidge	27
Lance E. Clawson, Midas	76
A. H. Berning, Carlin	26
C. S. Spencer, Owyhee	22
E. A. Kendricks, Elko	8
S. O. Guidici, Elko	8
Esmeralda County	
W. D. Howard, Goldfield	39
W. H. Barlow, Silverpeak	41
Dave Patterson, Dyer	42
J. A. Molini, Dyer	43
Eureka County	
Stanley Fine, Eureka	32
Nat Hawkins, Palisade	20
Humboldt County	
Erling Prout, Winnemucca	47
George A. Bain, Golconda	46
Mary Evans, Jungo	73
Albert Wearing, Happy Creek via Winnemucca	77
Clay Mills, Ashdown Mine, Denio	74
Frank Mendiola, Paradise	45
Henry M. Angus, McDermitt	9
C. A. Wilkinson, McDermitt	48
Lander County	
James F. Moore, Austin	29
Lawrence Schmidlein, Austin	30
J. R. Langford, Battle Mountain	51
John Boitano, Cortez	31
Lincoln County	
Bill Ronnow, Pioche	65
Ed Dula, Caliente	63
Lafe Mathews, Panaca	64
J. W. Simkins, Barkley (Joseco)	71
John Richard, Alamo	62
George E. Nesbitt, Hiko	66
Lyon County	
M. R. Penrose, Yerington	2
Jack McGowan, Yerington	2
H. U. Williams, Yerington	1
W. E. Warren, Fernley	56
G. C. Barton, Dayton	3
Mineral County	
Lloyd Wilson, Hawthorne	12
Tom Allen, Schurz	16
Nye County	
W. H. Thomas, Tonopah	38
John Vignolo, Beatty	44
Fred Linsea, Round Mountain	53
John A. Roberts, Manhattan	40
J. R. Bell, Pahrump (Johnnie Mine)	72
Claire Whipple, Sunnyside	55
Jean L. Daniels, Northumberland	57
Joseph J. Dieringer, Ione	54
Frank A. Buol, Pahrump	72
Ormsby County	
W. H. Austin, Carson City	14
Pershing County	
C. A. Chapman, Lovelock	50
Storey County	
David W. Elkins, Virginia City	13

Washsoe County	Stamp No.
G. C. Hard, Wadsworth	17
W. D. Billingsley, Sparks	4
Wm. W. Parker, Gerlach	11
W. H. Hilts, Reno	5
W. F. Fisher, Reno	52
F. E. Durham, Verdi	6

White Pine County	Stamp No.
J. E. Orrock, Ely	7
J. A. Rosevear, Ely	34
John Carlson, Cherry Creek	35
Cliff Dreitzler, McGill	36
James Whalen, Ruth	37
E. A. Hendrix, Lund	33
Phil W. Baker, Baker	75
Phil Aljets, Ely	7

BRAND INSPECTION AND STOCK THEFT CONTROL

Brand inspection of outgoing livestock has continued in Clark and Lincoln Counties, which are the only brand inspection districts so far created by this department under the Brand Inspection District Act.

The Act relating to transportation of livestock has taken care of brand inspection to a certain extent throughout the State, but has led to considerable confusion and misunderstanding concerning its provisions and those of the Brand Inspection District Act, both within and without the State. The transportation Act is administered by the Sheriffs of the various counties, and is in no way under the supervision of this department. Such cooperation as has been possible, however, has been extended to peace officers by members of the staff of the Division of Animal Industry. Assistance has also been given by the Nevada State Police.

During the past biennium a supervising brand inspector was appointed and has been engaged in supervision of the activities of hide and carcass inspectors, brand inspectors, and in general work leading to the prevention of livestock theft. He has made contacts in an advisory capacity with county peace officers and has made an effort to coordinate their efforts in a manner leading to uniformity in enforcement of the transportation Act and other activities in the line of brand inspection and stock theft control.

It is anticipated that new legislation pertaining to matters outlined above may be proposed during the next session of the Legislature.

The number of animals inspected for shipment out of brand inspection districts is shown in tables elsewhere in this report.

DISEASES OF LIVESTOCK

No epidemics of diseases of livestock, involving large areas, have occurred during this biennium, but considerable losses from anthrax have been suffered in certain districts, and lesser losses from equine encephalomyelitis (brain fever), hemoglobinuria (red water of cattle), blackleg, hog cholera, and diseases of the respiratory tract of horses have been experienced throughout the State.

Nevada has remained free of cattle scabies, but the appearance of this infestation outside of the State across the Clark County border has made it necessary to dip cattle in that county, which may have been exposed through grazing in the vicinity of the State line.

The control of brain fever of horses has been gradually becoming a matter of routine. Vaccination against this disease has been generally followed with good results. Improvements have been made in vaccine used, which has probably been brought to its maximum efficiency, insofar as the development of immunity is concerned, but refinements in the methods of production may be expected to reduce the danger

of local and systemic reaction following its use. Curative serum is still used in treating animals sick with this disease with encouraging results. The freedom of large numbers of unvaccinated horses from this disease may be explained by the reasonable assumption that a certain degree of immunity has been established in these animals by previous exposure.

The group of respiratory diseases of horses, including conditions referred to as distemper, strangles, influenza, etc., is of increasing economic importance, because of the higher value of the horses, and these diseases are receiving the attention of research workers at the University of Nevada and elsewhere. It is believed that new curative and preventive biologics for combating diseases of this nature will be developed.

Anaplasmosis of cattle has been known to exist in certain areas of Nevada for some time, and it appears to be spreading to new districts, or at least opportunities for investigation have recently demonstrated its presence in other sections of the State.

Notwithstanding the fact that rabies is prevalent in many sections of the United States, this State has continued to remain free of the disease throughout another biennium.

Tuberculosis has not been a matter of concern during the period covered by this report, but routine testing in cooperation with the Bureau of Animal Industry, United States Department of Agriculture, has been carried on for the purpose of reaccrediting the various counties as their accreditation expires and maintaining the entire State as a Modified Tuberculosis Free Accredited Area. A limited amount of tuberculin testing in the interest of the public health has also been done.

Bang's disease testing on a voluntary basis has been followed, and comparatively small numbers of cattle have been tested, but no definite policy for the eradication of this disease has as yet been adopted.

Certain diseases are referred to more in detail, and information in the form of tabulated statistics given elsewhere in this report.

BACILLARY HEMOGLOBINURIA

This disease, also known as red water, has been more or less successfully controlled during the past years by the use of preventive vaccines. The immunity created by available vaccines, however, while of a high order, was of comparatively short duration. In some areas this resulted in unexpected losses relatively soon after vaccination or rather heavy overhead expense for frequent revaccination to maintain immunity.

During the past biennium, new processes have made it possible for laboratories to produce vaccine for use against this disease, possessing all of the good qualities of the old type but conferring on animals an immunity for a much longer period. Our present knowledge leads us to believe that immunity for a year may now be possible in sections where the disease appears irregularly, or at least for the so-called red water season, where this period is well defined. Livestock owners should satisfy themselves that they are obtaining the best available type of red water vaccine before vaccinating cattle against the disease.

Curative serum is being used in some sections of the State, mostly in dairies where cases may be observed early in the development of the

disease and results are good, if the serum is administered promptly. Red water serum not being available at present from commercial laboratories on account of the limited demand, the Department of Veterinary Science of the University of Nevada produces limited quantities of this serum, and veterinarians may obtain it from that source for caring for the needs of Nevada stockmen.

HOG CHOLERA

Only comparatively small losses of swine from cholera have occurred during the past two years, and control measures have been continued as described in previous reports.

During the past biennium, however, new immunizing agents against this disease have been perfected, and a limited number of hogs were vaccinated with these agents during the closing weeks of this period. The use of these new biological products has the advantage over the simultaneous inoculation with serum and virus, long used in immunization against hog cholera, of not causing immunized hogs to temporarily become spreaders of the disease to susceptible hogs in the vicinity. The new vaccines may be used without danger of starting an outbreak of this disease in cases where the necessity of immunization is questionable, but where it is desired to vaccinate as a precaution.

With our present knowledge of the new vaccines, their use cannot be recommended in garbage feeding plants where the greater part of routine immunization against cholera in Nevada is done. These vaccines are also unsuitable on premises where the disease is present or has recently occurred.

The use of serum and virus will be continued in garbage feeding plants and elsewhere in case of outbreaks of the disease, but it appears likely that the new vaccine will serve a useful purpose on ranches where hogs are raised on feed other than garbage and where only average possibilities of exposure exist.

Necessary quarantine and sanitary measures will be continued in the control of this disease.

ANTHRAX

After a long period in which only minor losses in somewhat widely separated areas of the State occurred, a severe epidemic of anthrax broke out in Lyon County in the summer of 1939, with heavy losses of livestock in Mason Valley and in the vicinity of Dayton and lesser losses in Smith Valley.

These areas have long been regarded as anthrax districts, in which the soil remains permanently infected with anthrax microorganisms, but due to their comparative freedom from the disease during the past decade, vaccination has not been widely followed, and in the spring of 1939 a large percentage of the cattle were left unvaccinated, and therefore susceptible to the disease, which for some unknown reason appeared that season in virulent form.

This disease has not appeared in any new districts during the past biennium, although one herd was infected on the western shore of Walker Lake, a little farther south than it has previously been diagnosed.

A reliable single dose immunizing agent, developed during recent years and referred to in our last biennial report, has been used extensively in combating anthrax during the past biennium. It was successfully used in a herd of over two thousand head in the pasture of the Truckee-Carson Irrigation District on Carson Lake in Churchill County, a grazing area of long known virulent infection. A survey of results leads to the belief that it will protect cattle under nearly all Nevada conditions, unless they are exposed to fly-borne infection.

Infection through biting flies has added to the difficulties of controlling anthrax in recent years to a greater extent than formerly. This problem exists in individual herds because of the fact that a few animals may be missed in the gathering of a large herd for vaccination, and in communities where vaccination is not universally followed.

Unvaccinated cattle may die of anthrax contracted from the soil in grazing, and carcasses of animals dead of anthrax, unless promptly disposed of, provide a source of infection from which flies may carry the disease in a much more virulent form to other cattle or to horses and other species.

While some of the immunizing agents of lesser potency may protect against infection through the mouth in grazing, only the living-spore vaccine used alone or with serum, according to circumstances, will protect against the more virulent infections such as those spread by insects, and even these may not give universal protection.

Anthrax conditions in Nevada are such that only vaccines suitable to local conditions in the various sections should be used, and livestock owners should consult their local veterinarians or the State livestock sanitary officials before selecting an immunizing agent to be used against the disease. It should be taken into consideration in this connection that agents of biological laboratories, while familiar with diseases and preventive agents, may not be familiar with local conditions.

It is believed that the experience of the past biennium will lead to more nearly universal immunization in so-called anthrax districts and to prompt and efficient disposal of carcasses of animals, which have died of anthrax, thereby avoiding the danger of future major losses from this disease.

TUBERCULOSIS

The State of Nevada was declared a modified tuberculosis free accredited area on March 1, 1933, and has remained in this status continuously since that time.

Only such tuberculin testing as is necessary to maintain accreditation, together with some additional testing, in the interest of the public health, has been done during the past biennium.

The numbers tested, reactors found, and other data are shown in the following tables:

Year	Cattle tested	Reactors	Percentage of reactors
1919	5,520	467	8.45
1920	12,475	427	3.42
1921	10,420	313	3.00
1922	11.127	287	2.56
1923	15,419	183	1.18
1924	16,812	103	.61
1925	11,441	149	1.30
1926	12,853	96	.74
1927	17,532	117	.60
1928	20,435	224	1.70
1929	30,425	97	.31
1930	33,950	95	.28
1931	13,099	21	.16
1932	23,825	32	.13
1933	23,179	55	.24
1934	6,915	37	.52
1935	34,603	80	.23
1936	31,957	38	.12
1937	14,640	12	.09
1938	10,363	10	.10
1939	8,659	37	.43
1940—January 1 to June 30	5,553	14	.24

County	Declared modified, tuberculosis-free area	Reaccreditation	Expiration date
Churchill	February 1, 1931	August 1, 1938	August 1, 1941
Clark	March 1, 1932	July 1, 1939	July 1, 1942
Douglas	March 1, 1930	April 1, 1940	April 1, 1943
Elko	March 1, 1933	July 1, 1936	January 2, 1941
Esmeralda	May 2, 1932	March 1, 1939	March 1, 1942
Eureka	March 1, 1933	March 1, 1940	March 1, 1943
Humboldt	February 1, 1932	July 1, 1939	July 1, 1942
Lander	May 2, 1932	December 1, 1939	December 1, 1942
Lincoln	May 2, 1932	May 1, 1940	May 1, 1943
Lyon	March 1, 1930	July 1, 1937	January 2, 1941
Mineral	February 1, 1931	July 1, 1937	January 2, 1941
Nye	May 2, 1932	March 1, 1939	March 1, 1942
Ormsby	March 1, 1930	May 1, 1940	May 1, 1943
Pershing	May 1,1931	August 1, 1938	August 1, 1941
Storey	February 1, 1931	July 1, 1940	July 1, 1943
Washoe	May 1, 1931	March 1, 1940	March 1, 1943
White Pine	May 2, 1932	March 1, 1936	January 2, 1941

BANG'S DISEASE

Activities leading to the control of Bang's disease have been held in abeyance pending the adoption of a definite policy, both in Nevada and elsewhere, for handling the situation.

Cattle have been tested in smaller numbers than in the last preceding biennium because, in part, of the fact that no funds have been appropriated by the State for paying indemnities for cattle slaughtered on account of infection with this disease, and since May 1, 1939, no Federal funds have been available for this purpose, except where matching State funds are provided.

Considerable testing on a voluntary basis on the part of owners of herds, particularly dairy herds, has been done, however, and nearly all of the State institutional herds and the larger herds from which milk is sold in cities of the State are free of the disease. Many of these herds are officially accredited by the State as Bang's Disease Free Accredited Herds. Others have been tested under the somewhat less restrictive Federal-State cooperative plan temporarily in operation in Nevada under which positive reactors are removed without indemnity, and a few herds are tested under private test, in order that the requirements of city sanitary ordinances may be met.

During the coming biennium it is anticipated that some definite policy leading to the comprehensive control of this disease may be adopted. A careful study of the results of vaccination of young cattle against this disease is being made, and it is possible that it will be found feasible to combine vaccination with testing of cattle and slaughter of infected animals in the eradication of Bang's disease.

Statistical data follows:

BANG'S DISEASE TESTS

	Herds	Animals
Federal-State Plan—		
Douglas County	7	153
Elko County	7	5,884
Lincoln County	1	31
Lyon County	3	81
Ormsby County	3	111
Washoe County	48	1,848
White Pine County	1	431
Totals	70	8,539
State Plan—		
Accredited Herds—		
Churchill County	4	316
Clark County	24	576
Douglas County	2	55
Lyon County	1	28
Esmeralda County	1	16
Ormsby County	3	321
Washoe County	7	572
Totals	42	1,884
In Process of Accreditation—		
Clark County	2	24
Douglas County	3	91
Washoe County	4	144
White Pine County	1	235
Totals	10	494

SUMMARY OF LIVESTOCK DISEASE CONTROL WORK PERFORMED IN THE STATE BY THE UNITED STATES BUREAU OF ANIMAL INDUSTRY, STATE DEPARTMENT OF AGRICULTURE, AND ACCREDITED VETERINARIANS COOPERATING FOR THE PERIOD JULY 1, 1938, TO JUNE 30, 1940.

Miscellaneous field investigations	360
Autopsies, including reactors to tuberculin tests	148 head
Scabies control work—	
Routine cattle inspections	17,883 head
First dippings	339 head
Second dippings	326 head
Dipping of cattle for—	
Ticks and lice (supervised)	3,625 head
Flies and mosquitoes in connection with anthrax control	1,525 head

Immunization and Treatment by the Use of Biologic and Chemical Products

Actinomycosis, cattle	7 head
Anthrax, cattle	758 head
Bacillary hemoglobinuria, cattle	71 head
Encephalomyelitis, horses	577 head
Influenza, horses	105 head
Hog cholera, 192 herds	5,269 head
Rabies, dog	1 head

Biologic Tests Applied in the Field

Tuberculin tests of cattle—	
Total animals tested	17,052 head
Total herds involved	1,011
Total reactors found	57 head
Total herds showing reactors	18
Tuberculin tests of swine—	
Total animals tested	6 head
Total reactors found	2 head
Total herds involved	1

Blood Specimens Collected for Laboratory Examination

Bang's disease, cattle—	
First tests	8,776 head
Retests	28,042 head
Special tests	3,665 head
Total animals tested	40,483 head
Total reactors found	2,932 head
Brucellosis—	
Goats	33 head
Hogs	12 head
Dourine, horses—	
Negative	978 head
Positive	5 head
Glanders, horses—	
Negative	45 head

INTERSTATE MOVEMENTS OF LIVESTOCK

July 1, 1938, to June 30, 1940

Shipments OUT of Nevada, including only movements covered by official health certificates, and do not include cattle feeding in transit:

Cattle	3,913 head
Horses shipped for immediate slaughter	520 head
Horses shipped for purposes other than slaughter	1,715 head
Hogs	190 head
Mixed lots of cattle, sheep and hogs	450 head
Shipments from Brand Inspection Districts of Clark and Lincoln Counties—As shown on inspector's reports—	
Cattle	6,390 head
Horses, mules, etc.	187 head
Total animals outbound	13,365 head
Inspected by Department on behalf of Sheep Commission—	
Sheep outbound	628 head

QUARANTINE REGULATIONS

The provisions of Livestock Quarantine No. 14, adopted many years ago, are still in effect and have been found adequate to control the importation of livestock into Nevada.

Certain modifications necessary to meet changes in the animal disease situation throughout the United States are, however, contemplated during the coming biennium. Regulations intended to protect the livestock of the State against tuberculosis will possibly be made less restrictive, as it is anticipated that the entire country will become a modified tuberculosis free accredited area within the next two years.

Regulations regarding Bang's disease, with reference to which no restrictions on the movement of cattle into the State have as yet been adopted, will probably be placed in effect within the near future, but

such action has heretofore been held in abeyance, pending the inauguration of a definite policy regarding the control of Bang's disease within this State.

Minor changes affecting the importation of horses, swine, dogs, and poultry may also be made.

For many years quarantine regulations of the State of California requiring that horses, other than geldings, pass a negative blood test for dourine in addition to the regular health certificate before shipment from Nevada into California, were in effect. These restrictions followed the discovery of the disease known as dourine in certain sections of northern Nevada in 1930, and as it was not known how much area was involved, the entire State of Nevada was included in this dourine quarantine.

Since that time, however, a survey of the situation including the testing of large numbers of horses, has established the fact that there has apparently been no spread of the disease outside the areas originally infected and accordingly, following negotiations between the livestock sanitary officials of the State of California and Nevada, the quarantine was modified so that only a small portion of the State is now included.

A copy of the Proclamation of the Governor of California, modifying the quarantine follows:

EXECUTIVE DEPARTMENT, STATE OF CALIFORNIA

PROCLAMATION

WHEREAS, The Director of Agriculture of the State of California has determined that the contagious disease in horses and asses known as dourine exists in certain areas in the State of Nevada; and

WHEREAS, Under and by virtue of the authority conferred on me by section 211 of the Agricultural Code, on and after May 1, 1940, movements of horses and asses from that part of the State of Nevada located within the following described area:

> All that part of Elko County north of the Southern Pacific Railway, running as far west as a point a few miles west of Wells, where the Southern Pacific Railway and Western Pacific Railway lines converge, and west of this point all of Elko County north of the Western Pacific Railway, all of Eureka and Lander Counties north of the Western Pacific Railway, and all of Humboldt County north of the Western Pacific Railway and as far west as a line drawn due north from the north and south Pershing-Humboldt County line, a few miles west of Sulphur.

shall be made into California only under the following conditions:

> Stallions, ridgelings, geldings, if castrated within 30 days, mares, jacks or jennets, over 6 months of age, shall be shipped, transported, or driven, or otherwise removed from the aforesaid described area only when accompanied by an official health certificate, including an official negative blood test for dourine, and certified to the effect that the animals have not been exposed to dourine within 18 months.

This will supersede all previous dourine notices and requirements relating to the movement of horses and asses from the States of Nevada to California.

Dated April 18, 1940.

CULBERT L. OLSEN,
Governor of the State of California.

ATTESTED—
PAUL PEEK, *Secretary of State.*

In order to prevent the movement of infected horses and asses and to guard against the spread of the disease within the State of Nevada, the area included in the new California quarantine has been quarantined by the State Board of Stock Commissioners and there follows a copy of this notice of dourine quarantine.

NOTICE OF DOURINE QUARANTINE

WHEREAS, There is reason to believe that the contagious disease of horses and asses known as dourine may still exist in certain areas of the State of Nevada, namely, all that part of Elko County north of the Southern Pacific Railway, running as far west as a point a few miles west of Wells, where the Southern Pacific Railway and Western Pacific Railway lines converge, and west of this point all of Elko County north of the Western Pacific Railway, all of Eureka and Lander Counties north of the Western Pacific Railway, and all of Humboldt County north of the Western Pacific Railway and as far west as a line drawn due north from the north and south Pershing-Humboldt County line, a few miles west of Sulphur; now, therefore, it is hereby

Ordered, That effective June 1, 1940, no stallions, ridgelings, geldings castrated within thirty days, mares, jacks or jennets over six months of age, shall be shipped, transported, driven, or otherwise removed from the above-described areas unless accompanied by an official health certificate including an official negative blood test for dourine.

This order is issued under the authority conveyed by chapter 268, Statutes of Nevada 1915, as amended by chapter 28, Statutes of Nevada 1919, and chapter 48, Statutes of Nevada 1929, and supersedes a Notice of Dourine Quarantine and Regulations adopted February 17, 1930, and effective March 10, 1930.

STATE BOARD OF STOCK COMMISSIONERS,
EDWARD RECORDS,
Executive Officer and *Ex Officio State Quarantine Officer.*

RENO, NEVADA, May 29, 1940.

No other quarantines have been placed within the State, except local quarantines of premises on account of hog cholera, and no legal proceedings have been followed in the enforcement of disease control, other than the assistance of peace officers in enforcing the laws requiring the destruction of the carcasses of animals which have died of infectious diseases.

ACKNOWLEDGMENTS

Various organizations and groups have cooperated with the Division of Animal Industry in carrying on its activities and appreciation is expressed for assistance received from all who participated.

The Bureau of Animal Industry, United States Department of Agriculture, has continued to cooperate by furnishing funds and personnel for the control of Bang's disease, tuberculosis, scabies, etc. To the late Dr. R. A. Given, who was for many years Inspector in Charge, Bureau of Animal Industry, United States Department of Agriculture in Nevada, and whose death occurred on May 8, 1940, this Department desires to pay final tribute for his long years of service, in cooperation with this Division, to the livestock industry of Nevada.

To Dr. W. K. Shidler, who is now Acting Inspector in Charge of all United States Bureau of Animal Industry activities in Nevada, and his staff consisting at the present time of Doctors W. R. Sheff, W. F. Fisher, A. J. Dickman and Thomas M. Thompson with Miss Josephine McCloskey as Secretary, this Division expresses thanks and appreciation for outstanding cooperation.

Special mention should be made of the assistance received from

State and county peace officers, particularly those who are acting as hide and carcass inspectors for this department. Pleasant contacts have also been made with a number of other organizations including the State Farm Bureau livestock and dairy groups, the Nevada State Board of Health, the Nevada State Cattle Association, the Nevada State Police, the United States Army Remount Service, and others, and their cooperation is gratefully acknowledged.

DIVISION OF PLANT INDUSTRY

GEORGE G. SCHWEIS, *Director*

The Division of Plant Industry is charged with a variety of duties designed to protect our agricultural crops against loss and damage and to facilitate their marketing to the best economic advantage. It is inevitable that fluctuations in natural and economic conditions produce marked variations in work of this sort, and often create major emergencies which have to be met. Every effort is made to meet such emergencies without, on the other hand, neglecting any routine work which over an extended period is of itself essential to the prosperity of our agricultural industry. A brief résumé of the more important activities along these lines for the past two years follows.

QUARANTINE ADMINISTRATION

It was not found necessary to issue any new quarantines or modify any of those previously in effect during the biennium. The quarantines against the Colorado potato beetle, Oriental fruit moth, European corn borer, and the alfalfa weevil previously issued in the form of proclamations have been maintained in effect without alteration. The statutory provisions prohibiting the importation of bees on comb and used apiary equipment into the State and governing the importation of nursery stock have also remained in effect unchanged.

Alfalfa weevil quarantines, which have been in effect for many years, have recently been given much study by members of the Western Plant Quarantine Board and other experts familiar with such matters. The general concensus of opinion seems to be that the alfalfa weevil has now extended to about the limits of the area to which it is reasonably adapted, and that quarantines can no longer be considered as biologically or economically sound. It is anticipated that in the near future concerted action will be taken by the entire group of western States to rescind their alfalfa weevil quarantines.

It was not necessary to prosecute any cases in the Nevada courts during the biennium for violations of the quarantines now in force in Nevada. Several minor violations occurred, but these were adjusted without the necessity of resorting to court action.

All nursery stock entering the State must be accompanied by a certificate stating that it was inspected immediately prior to shipment and found free of insect pests and plant diseases. During the biennium 140 shipments of nursery stock were checked for proper tags at Reno; ten of these shipments were rejected primarily because of violation of the quarantine on account of the Oriental fruit moth.

In addition to the enforcement of quarantines governing or prohibiting the importation of certain agricultural crops and products into the State, we are also charged with the duty of helping our producers and shippers meet the quarantine requirements of other States governing the entry of agricultural crops and products into same

where this is merely regulated and not prohibited by outright embargoes. This involves the inspection and certification of processing plants or individual shipments, or in some instances, merely assisting the prospective shipper in securing the necessary permits where such actual inspection and certification is not required.

Shipments of alfalfa hay and meal to other States continue to be of the utmost importance to our agricultural interests. During the past few years there has been a decided increase in the alfalfa acreage in the State, but during the same period there has been a decrease in the number of livestock fed in the areas producing most of this fodder, the result being a holdover of hay from year to year. This has had a tendency to lower the price of hay to a point where it can no longer be produced profitably on many ranches, and the shipment of this hay, either baled or milled, has been instrumental in preventing hay prices from dropping to a point so low that many producers would suffer severe financial losses. While the baled hay shipments have not been as large during the past two years as in the previous biennium, the alfalfa meal shipments increased, and a relatively even balance was obtained. The following table shows the tonnage of hay which moved to California points under permit and certification. A considerable tonnage also moves to counties in California adjacent to Nevada and for which no certification is required. Included also are figures showing tonnage of alfalfa meal moving under certification from accredited mills.

Hay	5,260 tons
Alfalfa meal	132,137 sacks

The department also inspects all nursery stock grown in Nevada and shipped to other States. Official certificates are issued showing the plants to be apparently free of insect pests and plant diseases. Fumigation service is also available for plant shipments when the laws of other States require such safeguards. Only when this type of service is provided can Nevada products move freely in interstate commerce.

SPECIALITY CROPS

The growing of speciality crops in southern Nevada continues to be profitable, and each year a considerable acreage is devoted to raising tomato and pepper plants, which are shipped to States where the climate is more rigorous for field planting. Also large quantities of sugar beet seed is grown in this same area for planting in the sugar-producing belt in the intermountain area.

Commercial sugar beet growing was resumed in Pershing County after a lapse of years, and in 1939 profitable crops were produced. However, in the spring of 1940 insect damage and curly top disease were so severe that much of the acreage planted was abandoned. The loss from curly top in future years can be largely avoided if only types of seed resistant to this disease are planted.

In 1940 an attempt to grow table peas in Churchill County on a commercial scale was made, but, owing to adverse soil and climatic conditions combined with the lack of knowledge on growing practices in this district, the venture was not successful.

INSECT PEST CONTROL

Mormon Cricket Infestation and Control

The control season of 1938, which was set up on a cooperative basis between the Bureau of Entomology and Plant Quarantine, the Nevada State Department of Agriculture and other local and Federal agencies, came to a successful close in August after approximately 40,587 acres had been dusted.

The control budget, which had been drawn earlier in the season, called for a ratio of one-third local and two-thirds Bureau of Entomology and Plant Quarantine funds. Counties were required to supply funds for transportation within the county, the Bureau of Entomology and Plant Quarantine agreeing to furnish labor and some materials. All other supplies were furnished by the State Department of Agriculture. In addition, individuals and Federal agencies such as the Division of Grazing, Forest Service, CCC camps, and the Indian Service gave all the assistance possible in the form of labor and transportation.

A State leader was selected to coordinate the work between the various agencies, and a State supervisor appointed, whose responsibility was the supervision of the field work with headquarters at Elko. In addition, the Bureau of Entomology and Plant Quarantine supplied three local supervisors who were stationed at Golconda, Elko, and Mountain City.

The general plan of operation was set up by the Bureau of Entomology and Plant Quarantine as a crop protection program, with all control efforts being directed within a five-mile radius of cultivated areas.

Bureau, CCC, county and volunteer labor totaled 121,188 man hours for the season. Sixteen complete camp units were set up, housing 120 to 160 men. Practically all of the dusting was done by hand, there not being sufficient State money to hire airplanes to carry on in a practical way the experimental work started in 1937. Approximately 38 miles of metal barrier were used and moved from place to place as needed for protection of crops and the water supply in towns in the infested areas. A power duster was supplied by the Bureau of Entomology and Plant Quarantine for trial. This machine was mounted on a truck and was powered by a small gas engine. The rough terrain proved too much for the machine, although it did show promise on level ground.

An adult and egg survey made at the end of the 1938 control season showed that approximately 2,278,328 acres remained infested throughout the State. The accompanying chart also shows heavy range damage, which was probably due to the fact that control efforts were confined to cultivated areas.

The program for 1939 was identical with that of the previous year except that it called for more acreage treated and a considerably larger pay roll. Labor was increased from 121,188 to 179,556 man hours, principally through the cooperation of the CCC camps of the Division of Grazing, the Forest Service, and the Indian Service.

In addition to the State Supervisor, the Bureau of Entomology and Plant Quarantine supplied five local supervisors in place of the three for 1938. This added help made for better efficiency in the general

set-up. Equipment was also increased so that the acreage treated by dust was increased to 77,298 acres.

Power dusters suitable for use in Nevada were also developed. These machines later proved a very satisfactory unit over level and fairly rough terrain. An airplane was rented by the State Department of Agriculture for use in dusting 5,000 acres near the towns of Metropolis and Midas in Elko County. This method of control was very satisfactory and was the basis for later developments of spreading bait by plane in 1940.

Range damage was quite severe in many sections; a total of 2,411,600 acres was heavily infested, and it was estimated that the forage on this area was damaged to the extent of 30 percent. Damage to the range is a very serious matter, as Nevada agricultural interests are primarily livestock, and a 30 percent loss in forage very often means the difference between a failure and a paying enterprise. Lambs have in a number of instances been reported 10 pounds light due to the lack of succulent feed on cricket infested acreages. Cattle, in addition to not weighing up to par, will often refuse to remain on a range that is heavily infested.

The annual adult and egg survey made late in the 1939 season showed approximately 3,490,175 acres infested. A great portion of this area, 2,620,080 acres, was classed as a light infestation. However, it has been found that under certain conditions where agricultural lands are isolated a light infestation on the egg bed can become a serious problem as, owing to the gregarious habits of crickets, they later form into large bands capable of doing immense damage.

The general organization for the 1940 campaign was much the same as in previous years except that the Elko office of the U. S. Bureau of Entomology and Plant Quarantine was made a regional office for Nevada, Idaho, Utah, and part of Oregon. This required additional clerical and supervisory personnel. The field supervisors in Nevada were increased to eight, with headquarters at Winnemucca, Elko, Mountain City, Wells, McDermitt, and Union.

On June 30, 1940, an estimated total of 71,000 acres had been treated with dust and bait in addition to many thousands of acres controlled by metal and oil barrier.

A plan of operation was adopted early in the 1940 season to increase the number of power units and thereby increase the acreage to be treated. Additional barrier and other equipment was also supplied, which increased the efficiency of the control program. Local, State, Federal (Bureau of Entomology and Plant Quarantine), and CCC money allotments were also increased. The 1940 budget was drawn on the basis of one-third local and two-thirds Bureau of Entomology and Plant Quarantine funds. County, State, and other local assistance pledged totaled approximately $44,000, making possible a $132,000 program for the year. The value of this additional equipment and funds was, however, offset somewhat by the provisions of the Wagner Labor Relations Act which was responsible for cutting the working time for laborers from fifty-six hours to forty hours per week per man.

Of primary interest in 1940 were several new developments in material and equipment used. The research division of the Bureau

of Entomology and Plant Quarantine developed a bran bait using sodium fluosilicate as a poison, which gave excellent results on nearly mature and adult crickets. This bait was later further improved from the standpoint of spreading by the use of a light oil instead of water as a moistener. One gallon of oil replaced ten gallons of water, thereby making it possible to cut mixing, hauling, and spreading costs.

Bait spreaders were also developed which were mounted on pickup trucks and tractors. These spreaders are power driven and have proved of particular value in rough or hilly country. A tractor purchased by the State Department of Agriculture has proved of exceptional value as it will negotiate areas that trucks are unable to reach, and it may be operated by one man instead of two.

A federally owned airplane was equipped with a specially designed hopper suitable for spreading wet bait. This new equipment was given a thorough test in Eureka and Elko Counties. It proved both economical and efficient in spreading bait working from a higher altitude than is possible with airplane dusters. Owing to the effectiveness of this new equipment, it was possible to control crickets on a greater acreage in 1940 than in 1939.

Range conditions in Nevada in 1940 have been the best in many years, yet in spite of this fact an estimated 2,139,085 acres of forage will be damaged by crickets. A few individual ranges will probably be damaged in excess of 50 to 60 percent.

It is indicated that a greater percentage of the infested area must be treated if ultimate control of crickets is to be expected in the near future. A proposed program for 1941 is being prepared embodying the use of poisoned bait in addition to poison dust and greater use of airplanes and other mechanical bait spreaders. It is planned to increase the amount of labor with the expected results that it will be possible to double the acreage treated. It is hoped that by increasing the scope of the project the cricket infestation may be materially reduced by 1942.

End of Season	Dusted acres	Estimated —Acreage Controlled— Metal barrier*	Oil barrier†	Total acres controlled	Total man hours labor
1938	40,587	235,200	.....	275,787	121,188
1939	77,298	408,000	60,000	485,298	179,556
Totals	117,885	643,200	60,000	761,085	300,744

End of season	Infestation adult and egg survey, acres	Range damaged, acres	Range damaged, percent
1938	2,278,328	5,438,460	27.51
1939	3,490,175	2,411,600	30.00

Figures for the 1940 season are not estimated until completion of project.

*Estimated on basis metal barrier operating in Nevada will control 320 acres per mile day.

†Estimated on basis oil barrier operating in Nevada will control 100 acres per mile day.

A mile day of barrier control is described as the length of time one mile of barrier operated during the season. Example: If a mile of barrier is placed and operates for five consecutive days, that mile is credited with five miles.

Grasshopper Infestation and Control

The 1938 grasshopper control campaign was the largest Nevada had experienced for several years, and had been indicated as such by observations in the fall of 1937. The 1938 infestation involved alfalfa

and mountain meadow areas in Humboldt, Eureka, and Lander Counties, and the more intensively cultivated valleys of Churchill, Douglas, Lyon, and Washoe Counties.

A cooperative control project in which the State Department of Agriculture, the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, and the counties concerned participated was inaugurated under the supervision of a Federally paid supervisor. All other supervision was either volunteer or county paid. Bait materials were furnished by the Federal Government, with the counties or individual farmers mixing the poisoned bait. Mixed bait for the most part was spread by hand, supplemented by the use of mechanical bait spreaders.

Grasshopper adult and egg surveys in the late summer and early fall of 1938 indicated that during 1939 a serious grasshopper condition could be expected in all or parts of eleven of Nevada's seventeen counties.

In mid April of 1939 the hatching of grasshoppers in the agricultural areas of infested counties took place and in all cases the infestations were as anticipated. A range species of grasshopper, *Melanoplus occidentalis* (Thos), appeared for the first time in Nye County in threatening numbers. In Washoe County, bordering the Truckee Valley, another range species, *Oedaleonotus enigma* (Scudd), hatched in such numbers that some control was necessary.

The species of grasshoppers infesting alfalfa and grain areas were principally *Melanoplus mexicanus* (Sauss), *Melanoplus bivittatus* (Say), and *Melanoplus differentialis* (Thos). Mountain meadow areas were infested principally by *Camnula pellucida* (Scudd). Other species of lesser importance were *Dissosteira carolina* (L.) and *Aulocara elliotti* (Thos).

Twelve educational and demonstrational meetings were held to stimulate community action in baiting grasshoppers on an area basis. In addition, sixteen community grasshopper control committees were organized. These community committees were instrumental in carrying out large-scale baiting programs. The active control campaign was carried on jointly by the State Department of Agriculture, the U. S. Bureau of Entomology and Plant Quarantine and cooperating counties.

State leader activities, whose part was to coordinate all work dealing with the campaign, were cleared through the State Department of Agriculture. Actual control work was in charge of a Federal supervisor assisted by two district supervisors paid by the State Department of Agriculture.

As in 1938, the Federal Government supplied bait materials to the nearest railhead free of charge. Interested counties transported bait materials and mixed the bait. In isolated districts, ranchers transported and mixed bait according to their needs.

A small amount of bait was spread to control the range grasshoppers in the Smoky Valley area, Nye County, and in the Truckee Valley area, Washoe County. Active baiting of grasshoppers began April 26 and lasted through August in Churchill, Douglas, Elko, Eureka, Humboldt, Lander, Lincoln, Lyon, Mineral, Nye, Pershing, Washoe, and White Pine Counties.

Mixing of bait in 1939–1940 was greatly facilitated by the use of two mechanical bait mixing machines built for the purpose in Lyon and Washoe Counties, and the use of concrete mixers in other counties.

The utilization of 25 vehicle-drawn bait spreading machines in 1939 was a vast improvement over the former hand method of spreading poisoned bait. The use of these new machines was responsible for fine control results and the larger acreages covered.

A total of 835 tons of mixed bait was spread by 483 farmers during the season over 41,325 acres of crop land, 13,200 acres of pasture land, and 6,900 acres of range land.

A memorandum of understanding between the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture, the State Department of Agriculture, and the Extension Service of the University of Nevada outlined the part each agency was to take in the control program of 1940.

The U. S. Bureau of Entomology and Plant Quarantine was to supply all bait materials as well as technical supervision; the State Department of Agriculture to act as coordinator of the program and to handle all administrative duties. The Agricultural Extension Service was to be in charge of all educational and organizational work.

Agreement among these three agencies and the various counties in which control work was to be carried out specified the responsibilities of the counties, which were the mixing of bait, providing adequate storage facilities, and the transportation of bait materials.

The infestation as it appeared in the spring of 1940 was not as severe as expected over Nevada generally. The great reduction in eggs deposited the previous fall was largely due to the practice of fall and early spring cultivation. Cultivation by disking or spring tooth harrowing as recommended and followed by many ranchers reduced the potential infestation to such a degree that approximately only one-third of the estimated poisoned bait was needed. Winter hatching, the winter being a very mild one, along with unfavorable weather conditions in the spring and egg parasitism further reduced the nymph population.

Grasshopper species of economic importance were the same as those noted for 1938 and 1939.

A project for the control of the range grasshopper, *Melanoplus occidentalis,* which threatened crop areas in the Smoky Valley area, Nye County, was started in early May. This project was solely under the supervision of the Federal Bureau of Entomology and Plant Quarantine, which supplied the poisoned bait materials. All other costs of the project were paid for by the State Department of Agriculture, the U. S. Forest Service, Nye County, and by contributions from local farmers. Though the program was limited, ample crop protection was given, and the program was generally considered successful.

Baiting in crop areas began early in May in the following counties: Churchill, Douglas, Esmeralda, Humboldt, Lyon, Pershing, Washoe, and White Pine. Successful baiting operations reduced crop losses to a great extent, and indications in late June pointed out that in most areas the grasshopper outbreak was well under control.

Adult and egg surveys during the late summer and fall of 1939

indicated that in 1940 the grasshopper situation over the State of Nevada as a whole would be much less severe than the previous year. Control of grasshoppers was highly successful, and a great part was due to other cooperating agencies as the Division of Grazing, Forest Service, Indian Service, Bureau of Reclamation, and Work Projects Administration.

Though the control program was still under way at the close of the biennium, it was evident that approximately only one-third of the poisoned bait used in 1939 would be needed for successful control in 1940. This condition was further borne out by the fact that less than one-third of the farmers who put out bait in 1939 were baiting in 1940.

It is indicated that the late summer and fall of 1940 will give further evidence of the decrease in the grasshopper condition over the State of Nevada generally.

Following are some pertinent figures for the years 1937, 1938, and 1939 showing the grasshopper conditions in Nevada.

Year	Acres baited and protected	Amount of mixed bait used (tons)	Number of farmers baiting	Losses	Savings by baiting
1937	3,250	27.85	19	$7,300	$96,500
1938	28,370	69.79	159	93,400	190,400
1939	71,425	835.42	483	260,911	785,000

Alfalfa Weevil

The alfalfa weevil, which had been of negligible economic importance for several years, again became numerous enough in several portions of the State to cause severe damage to first-crop alfalfa during 1940. Not all of the damage, however, was caused by the weevils, but a combination of factors which produced conditions unfavorable for the rapid growth of the plants, making it possible for a comparatively few weevils to do considerable damage.

Control measures were resorted to in some counties, and when dusting was carried on at the proper time, perfect control was obtained. This department would again like to emphasize the value of dusting over other methods of control, such as spraying and early cutting, particularly under conditions such as exist in Nevada.

Alfalfa Aphis

The spring of 1940 was particularly favorable for aphis development, being cool and moist. Early in the season it became apparent that an aphis outbreak would occur unless the weather turned unseasonably warm. This change of weather did not occur, and in practically every alfalfa-growing section of the State much damage occurred to the first crop. In some instances the injury was so severe as to practically ruin the entire growth. No economic methods of controlling this insect by applying poison materials have been perfected to date, as most of the insecticides useful for this purpose cost entirely too much when the value of the hay crop is taken into consideration. It is recommended that farmers watch their fields carefully during late March and early April and as soon as aphis make their appearance, pasture the fields heavily with sheep, which will serve to destroy these insects either through starvation or tramping.

Pests of Household and Gardens

Insects affecting households and gardens are apparently increasing in the State, and during the biennium several hundred calls were received asking for advice on the control of insects infesting houses or causing damage to gardens and orchards. Wherever possible these inquiries were answered by a personal call from some member of the department. Where this service was not practicable, the interested person was contacted either by telephone, or a letter was sent giving complete instructions as to the best possible control method.

Termites have been increasingly troublesome in some sections of western Nevada. Practical methods of control and prevention have been freely offered as a safeguard to the taxable property of the state.

Insects infesting fruit trees have caused considerable damage due primarily to the fact that home gardeners and the few commercial operators have not yet become spray conscious.

PLANT DISEASES AND IDENTIFICATION

The identification of plant diseases and advice as to the control of same is of much importance to the State. This type of service is increasing each year, as many diseases of plants that were unknown here a few years ago are now established in Nevada. This condition has been brought about largely by the rapid movement of all agricultural commodities from distant points, and as time goes on we can reasonably expect that most of the plant diseases that prevail in other sections of the world will become established within the borders of the United States. In this connection it is timely to state that the Nevada law requires each lot of nursery stock entering the State to be inspected before shipment can be made and a certificate stating that the plants are apparently free of insect pests and plant diseases must be issued by a competent official of the State of origin and must accompany each shipment.

Farmers, orchardists, and gardeners have been making use of our facilities in the solving of problems caused by disease. Many diseased specimens of plants have been sent to our laboratories during the past two years. Observations and studies of plant diseases due to fungi, bacteria, and unfavorable environmental conditions were continued by the botanist.

The most frequent as well as the most perplexing problems are those of a physiological nature such as diseases due to faulty water relations, uncongenial soil, unfavorable temperatures, winter killing, etc. Root infections by fungi and bacteria of the soil have been of frequent occurrence. Alfalfa wilt, crown gall, and wilt of aster and other ornamental plants have been brought to us on numerous occasions. Rusts and mildews have been more than usually abundant. An interesting feature of the past two years has been the numerous requests for the identification of toadstools and mushrooms found growing wild in our State.

STANDARDIZATION AND GRADING OF AGRICULTURAL PRODUCTS

This service is rapidly increasing in popularity with producers and consumers alike. This division operates under a cooperative agreement with the Agriculture Marketing Service of the U. S. Department of Agriculture, inspectors being licensed by both the State and Federal

agencies and working under a State supervisor who is licensed by the Federal Marketing Service. Certificates are issued by these inspectors covering each lot of produce graded. These certificates carry a guarantee that the lot so graded is of a certain quality; further, these certificates are accepted as prima facie evidence in case any court action should be instituted.

The purpose of the agricultural marketing service is three-fold: First, it is designed to give the producer of quality products a means of marketing the product to the best advantage. Second, it guarantees the wholesale and retail purchaser at rail end the quality product he wants to purchase. Third, the service is designed to protect the housewife against unscrupulous merchants who have been known to sell various agricultural products for a higher price than their true value. In the State of Nevada the grading service is offered at a nominal fee to the producers of fruits and vegetables, poultry products, honey, and hay.

TURKEYS

The turkey grading service reached its peak in Nevada in 1937 when 33,126 birds were graded, which comprised 84.6 percent of the total production of that year. Since 1937, and during the past biennium, the number of birds and the percentage of production graded have decreased, due entirely to lower production by those growers who market their birds through agencies utilizing the grading service.

Of the 23,125 estimated birds marketed in 1939–1940, 9,250, or 40 percent, were graded. Both the production and percentage of the total production graded will no doubt increase with improved feed and marketing conditions.

Graded turkeys have increased the demand for the product both nationally and locally. During the past season practically the entire graded production of western Nevada has been consumed on the Reno and neighboring markets. This condition doubtless indicates that the consumer is demanding a better product, and the producer, realizing that quality products are in demand, is now taking advantage of the service offered. While prices generally have been low during the 1938–1939 season, graded turkeys have consistently brought better prices than those birds reaching the market without an official grade.

DISTRIBUTION OF GRADED TURKEYS BY SHIPPING POINTS

Shipping points	1938–1939		1939–1940	
	Birds	Pounds	Birds	Pounds
Fallon	3,017	47,367	4,963	75,613
Reno	265	3,041	669	9,348
Yerington	3,692	53,690	3,618	54,748
Totals	6,974	104,098	9,250	139,709

TURKEY PRODUCTION IN NEVADA SINCE 1933

Season	Estimated birds	Estimated pounds	Birds graded	Pounds graded	Percent graded by birds
1933–1934	42,936	571,879	25,036	344,226	58
1934–1935	34,683	469,787	26,183	360,787	75.5
1935–1936	35,597	482,416	23,731	316,292	66.6
1936–1937	39,126	547,750	33,126	486,166	84.6
1937–1938	27,000	380,000	18,555	281,912	68.7
1938–1939	30,000	450,000	6,974	104,098	23.2
1939–1940	23,125	350,000	9,250	139,709	40

POTATOES, ONIONS, AND HONEY

There has been some reduction in the number of lots of potatoes and onions offered for grading during the biennium. This was caused not by any reduction in the quantity grown but by a condition which was unusual and which may not occur again over a period of years. During the onion harvest of 1939, heavy rains occurred which served to stain the onions very badly and prevented their making a No. 1 quality. Consistent efforts were made to bring these onions within the grade tolerance, but after several trial cars were sent into trade channels, it was decided that it would be advisable to market these onions without attempting to give them an official grade. A total of 56 carloads of onions were graded during the biennium.

The number of lots of potatoes graded was also somewhat smaller than during preceding years. This was brought about largely because the bulk of potato shipments going into interstate traffic now move by truck rather than by rail. Recently the California State Department of Agriculture issued a ruling that all agricultural products entering that State must be accompanied by a certificate setting forth their true grade. This ruling will doubtless have the effect of greatly increasing the volume of potato inspection work. A total of three carloads and eight truck or trailer-loads of potatoes were graded during the biennium.

Grades for marketing honey have been devised which are based in part on color, and a color recording machine which is available to all honey producers in Nevada has been developed to record the exact color of any given lot of honey.

This service to producers has been in effect for a number of years and in all instances where it has been used complete satisfaction has been given to both the producer and the buyer. A total of 56 lots of honey have been graded and sold on their merits during the past biennium.

EGG GRADING

The enforcement of the egg grading law was discontinued during the biennium as the 1939 session of the Legislature did not provide funds for this work. For the protection of the poultry industry of the State, the Legislature should consider the desirability of restoring this appropriation at the 1941 session. During the years when this law was actively enforced it met with the general approval of dealers, producers, and consumers.

AGRICULTURAL SEED CONTROL

The State seed laboratory has continued to be popular with the seed dealers and farmers. Many shipments of seed into the State have been checked for purity and true labels, and in practically all cases the quality has held up well. Several cases of mislabeling have been found, and these were corrected immediately through the ready cooperation of the shipper.

The Soil Conservation Service, as well as dealers, has utilized this service extensively. By an agreement with the U. S. Soil Conservation Service, all seed to be planted on Nevada range lands is submitted for analysis. If such seed is found to be contaminated with noxious weed seed or if it is considered not of a desirable type for planting on Nevada ranges, it is rejected.

Some farmers still persist in buying their seed from out-of-State seed firms at so-called bargain rates. This has resulted in much poor seed entering the State, and it is emphasized that only seed bought from reputable seed houses and properly tagged should be considered by our growers when making their seed purchases.

During the biennium the United States Congress passed an Act regulating the sale of agricultural seed offered for interstate shipment. This law will be enforced through a cooperative agreement entered into between the Agricultural Marketing Service, U. S. Department of Agriculture, and the Nevada State Department of Agriculture. Through this agreement it is expected that much of the inferior seed that has been sold heretofore through the type of seed houses mentioned previously will be eliminated. At the coming session of the Nevada State Legislature it is the intent of this department to offer amendments to the Nevada Pure Seed Act which will make it conform more closely to the Federal Seed Act, thereby avoiding confusion in enforcement.

GERMINATION AND PURITY TESTS OF SEED SAMPLES

Samples	Number	Purity, percent			Germination, percent		
		High	Low	Avg.	High	Low	Avg.
Alfalfa	57	100	50	96	97.50	47	76.73
Barley	9	98.95	96.95	97.31	99	93	97.45
Clover	58	99.99	88.54	98.41	94	28.25	74.67
Corn	7	100	99.85	99.95	98.5	86	94.22
Grasses	145	99.99	2	92.01	99	23	75.52
Oats	13	98.93	87.96	93.32	99	90	95.33
Rye	6	97.8	88.60	93.04	99	87.50	91.10
Wheat	15	99.49	90.46	97.29	99.50	91.50	96.07
Miscellaneous forage seeds	22	99.99	23	95.24	100	28	70.70
	332						

Weed seeds found in the above samples were as follows: Barnyard grass, Bassia, bentweed, bouncing bet, brome grass, bull thistle, catchfly, cheff, chickweed, cinquefoil, cow cockle, dandelion, dock, dodder, foxtail, field sorrel, gumweed, horseweed, knapweed, lamb's quarters, mallow, morning glory, mustard, pennycress, peppergrass, pigweed, plantain, poverty weed, primrose, Russian thistle, sedge, shepherd's purse, sorrel, sour dock, sow thistle, sunflower, tumbleweed, white top, wild garlic, wild grasses, wild rye, wooly Indian wheat, yarrow, and yellow melilot.

AGRICULTURAL SEED CERTIFICATION

The farmers of the State are now generally realizing that better quality seed is necessary if maximum crops of good quality are to be produced. Therefore, an increasing number of them are taking advantage of the service offered in the certification of agricultural seed. Certified seed always finds a ready market at a fair price, and it is reasonable to presume that this type of service will increase greatly during the next few years.

This will hold particularly true of seed potatoes, as a disease recently introduced into the United States known as bacterial ring rot of potatoes is transmitted entirely by infected seed. Many of the seed producing districts in the West are now infected, and seed produced in areas where this disease does not occur will be in demand.

Insofar as our inspections reveal, bacterial ring rot has not been as yet introduced into Nevada, and it is to be hoped that the grower

of seed potatoes in eastern Nevada will use every precaution in preventing the introduction of this serious disease into their plantings. If this recommendation is followed out, it is logical to assume that the certification of seed potatoes in eastern and central Nevada will increase greatly, as the demand for disease-free seed potatoes will most certainly exceed the supply.

The various lots of farm seed certified during the biennium and now in process of certification are shown in the following table:

SEED CERTIFICATION (Russet Burbank Potatoes)

Year	Name of growers	Acreage entered for certification	Passed field inspection acres	Certified acres
1938	Cazier & Jones, Wells	30	30	30
	Reese River Indian Reservation, Austin	5	0	0
	McDermitt Indian Reservation, McDermitt	2	0	0
	Lee Indian Reservation, Lee	10	0	0
	Cecil Hutchins, Lund	2	2	2
	Future Farmers of America, Lund (Project)	2	2	2
	Burt Holbrook, Metropolis	9.5	9.5	9.5
	B. Jeanney, Deeth	10	10	10
	Total for 1938	70.5	53.5	33.5
1939	Cazier and Jones, Wells	30	30	30
	Future Farmers of America, Lund (Project)	2	2	2
	Burt Holbrook, Metropolis	5	5	5
	B. F. Roberts, Duckwater	2	2	2
	Total for 1939	39	39	39
1940	Cazier & Jones, Wells	40	(Not complete at this date)	
	Future Farmers of America, Lund (Project)	2		
	Burt Holbrook, Metropolis	9		
	B. F. Roberts	10		
	Reese River Indian Reservation, Austin	1.25		
	Total for 1940	62.25		

SEED CERTIFICATION

Wheat

Year	Name of growers	Kind of seed	Acreage entered for certification	Passed field inspection acres	Certified acres
1938	Nevada Ranch, Lovelock	W. Federation	450	160	0
1939	None				
1940	Cazier & Jones, Wells	Early Baart	28	(Not completed this date)	
	J. McGowan, Yerington	Early Baart	25		
	H. Pinger, Fallon	Early Baart	12		
	Total for 1940		65		

Alfalfa

1940	J. Borge, Yerington	Grimm	22	(Not completed this date)	

NOXIOUS WEED CONTROL

The control of noxious weeds continues to be one of the major problems affecting agriculture throughout the entire State, and much time is devoted to the enforcement of the noxious weed Act.

Puncture vine, a particularly noxious weed in many of the western States, is well established in Nevada, and only by constant inspection

is western Nevada kept free of this pest. While neighboring States have spent enormous sums of money in combating puncture vine, Nevada, through cooperative effort, has kept the cost of control to a minimum. Further effort will be made to enlist the personnel of CCC camps operating under the Division of Grazing to combat this weed in southern Nevada, where it has obtained a foothold on the public domain.

White top, *Lepidium draba,* is firmly established in most of the agricultural areas, and constant control measures are necessary to keep this noxious weed from spreading farther. A circular issued by the Nevada Agricultural Experiment Station gives information relative to the spread of this weed by cattle which have fed on white top plants containing mature seed. Farmers are cautioned not to allow livestock to feed on hay or pasture containing mature white top and then transfer them to clean fields.

The Bureau of Reclamation, U. S. Department of the Interior, is now taking an active interest in the control of noxious weeds on projects in which the Bureau has a financial interest, and much good will result if this cooperative spirit is maintained in the future, as a successful weed control program can only be instituted if complete accord is manifested by all State and Federal agencies. Weed control work was carried out in Washoe, Churchill, Lyon, Clark, Mineral, Douglas, Lander, Eureka, Pershing, Elko, and Storey Counties.

MEETINGS AND CONFERENCES ATTENDED

Owing to the several cooperative agreements between the Nevada State Department of Agriculture and the Federal Government which involve the use of Federal funds, it was necessary for a representative of the State Department of Agriculture to attend several meetings called by the Bureau of Entomology and Plant Quarantine to discuss matters of policy and procedure. It was also necessary to attend several other meetings where matters vitally affecting the welfare of the State were under consideration. Through the better understanding and mutual confidence arrived at during these conferences the agricultural welfare of the State is in a very favorable position. Following is a list of the conferences attended:

1938

August 20. Meeting of leaders in grasshopper control called by the U. S. Bureau of Entomology and Plant Quarantine at Boise, Idaho.

November 21–22. Conference of representatives from western States to consider ways and means of handling the 1939 grasshopper and Mormon cricket control campaign held at Omaha, Nebraska.

1939

June 5. Annual meeting of the Western Plant Board and affiliated organizations held at Berkeley, California.

July 19–20. Conference of Mormon cricket control workers held at Ogden, Utah.

August 9. Grasshopper survey conference called by Bureau of Entomology and Plant Quarantine at Boise, Idaho.

October 26–28. Meeting of the Council of State Governments held at Berkeley, California.

October 23–25. Turkey grading school held by the Agricultural Marketing Service at Sacramento, California.
December 4. Meeting of National Association of Commissioners, Secretaries, and Directors of Agriculture at Chicago, Illinois.
December 18–19. Meeting of the California State Association of County Agricultural Commissioners held at Sacramento, California.

1940

January 9–10. Conference to arrange for control of grasshoppers and Mormon crickets held at Denver, Colorado.
February 27. Conference of State leaders in grasshopper and Mormon cricket control at Denver, Colorado.
April 26. Conference of State leaders in grasshopper and Mormon cricket control held at Denver, Colorado.
June 16–23. Meeting of the Western Plant Board and affiliated organizations, the Western Standardization Conference and Western Weed Control Conference, held at Seattle, Washington.

ACKNOWLEDGMENTS

In concluding this report, the Division of Plant Industry wishes to express its appreciation to the many cooperators who actively participated in our various projects.

Among those Federal agencies particularly helpful in the insect pest control projects were the Bureau of Entomology and Plant Quarantine, Division of Grazing, Forest Service, Bureau of Indian Affairs, the Works Project Administration, the Bureau of Reclamation, and the Reemployment Service.

Several State departments were called upon for aid and response given was gratifying. Those agencies participating in the various programs to whom we are indebted are the Agricultural Experiment Station and Extension Service of the University of Nevada and the State Highway Department. The Boards of Commissioners of the various counties and also city officials were active cooperators and assisted materially.

PREDATORY ANIMAL AND RODENT CONTROL

G. HAMMOND HANSEN, *District Agent*
U. S. Fish and Wildlife Service

The work covered by this report was made possible only by the cooperation of the various Federal and State agencies, private groups and individuals as listed in the tables attached with the Fish and Wildlife Service, U. S. Department of the Interior.

These cooperators, as a whole, are very favorable toward the control of injurious predators and rodents in the interest of better conditions in Nevada. They also feel that present predator and rodent control activities in Nevada are not sufficiently intensive to bring about the conditions desired by the agricultural interests. It is their desire that activities be increased to the extent that maximum production can be realized on the farms and on the public domain.

Requests have been made by farmers and livestock men from various parts of the State for more adequate service but this has not been possible due to limited funds.

It can be noted from the tables showing expenditures of funds for both predatory and rodent control work, that it has been necessary for the District Agent to spend considerable time and travel in an effort to make proper contacts and raise necessary funds from various sources to do at least part of a control job in Nevada.

In that the people or the taxpayers of Nevada are the direct benefiters from these projects, it is felt that the State should give more consideration to this work in the way of increased appropriations. This would enable the State Department of Agriculture and the District Agent for the U. S. Fish and Wildlife Service to get together and formulate a well-rounded and constructive control program that would be of material assistance to the agricultural interests, as well as one the State of Nevada would be proud of.

Weather conditions have favored nearly all forms of control work, and we take pleasure in reporting very successful campaigns against principally ground squirrels, pocket gophers, coyotes, and bobcats on the areas that have been worked.

Extensive campaigns against jack rabbits have not been practical, due principally to open winters. We are in hopes that weather conditions this winter will be favorable to extensive jack rabbit control campaigns, in an effort to better conditions on the livestock range.

The control work in Nevada has been directly under the supervision of the District Agent of the Fish and Wildlife Service, with the personnel of the State Department of Agriculture acting in an advisory capacity. Mr. George E. Holman was District Agent in Nevada until April 1, 1939, at which time he was transferred to Idaho, and was succeeded by Mr. G. Hammond Hansen, who has been in charge since that date.

We are also desirous of reporting that through the efforts of the Forest Service Officials and County Commissioners in White Pine and Humboldt Counties, cooperating with the State Department of Agriculture and the Fish and Wildlife Service, beaver were purchased and

planted in these counties, with the result that additional stock water has been provided and rearing ponds and fish food provided in the dams constructed by the beaver in the various creeks in which they were planted.

A detailed report of funds made available for control measures, pounds of bait materials used, total acres treated for rodents, and predators taken are in the following charts:

RODENT CONTROL TABULATIONS

July 1, 1938, to June 30, 1940

1. *Employment and Expenditures*

Source of expenditures	Man days employment	Expenditures: Salaries	Other	Total
State Department of Agriculture	1,491	$5,652.32	$2,755.80	$8,408.12
Federal Project 13	1,307	7,382.81	3,473.02	10,855.83
Cooperating farmers	838	3,352.50	865.54	4,218.04
Grazing Service CCC camps	10,662	21,871.88	2,643.78	24,515.66
Forest Service CCC camp	288	432.00	13.35	445.35
Bureau of Reclamation Service CCC camp	1,822	3,806.50	1,256.06	5,062.56
Indian Service CCC	381	664.70	122.25	786.95
Work Projects Administration	741	2,341.81	.....	2,341.81
Totals	17,503	$45,504.52	$11,129.80	$56,634.32

2. *Total Acres Treated and Pounds Used*

Specie of rodent	Total acres treated	Total pounds used	Number of premises treated
Ground squirrels	218,620	64,535	
Pocket gophers	160,559	26,701	
Jack rabbits	7,460	536	
Field mice	1,085	1,555	
Woodchucks	150	40	
Rats and mice	.....	71	33
Totals	387,874	93,438	33

PREDATORY ANIMAL CONTROL TABULATIONS

July 1, 1938, to June 30, 1940

1. *Employment and Expenditures*

Source of expenditures	Man days employment	Expenditures: Salaries	Other	Total
State Department of Agriculture	818	$2,812.92	$986.54	*$3,799.46
Federal Project 14	4,659	19,450.71	8,098.80	27,549.51
Cooperating livestock men and farmers	1,523	4,097.00	6,589.66	10,686.66
State Advisory Grazing Boards 50% Funds	1,583	4,697.33	1,012.70	5,710.03
Grazing Service 25% Funds	1,079	2,954.34	802.24	3,756.58
State Board of Sheep Commissioners	708	2,185.00	762.52	2,947.52
Eastern Nevada Wool Growers Association	94	285.00	289.95	574.95
White Pine County Sportsmen's Association	30	135.00	.....	135.00
White Pine County Commissioners	51	270.00	.....	270.00
Work Projects Administration	91	238.55	.....	238.55
Lincoln County Commissioners	31	90.00	10.00	100.00
Totals	10,667	$37,215.85	$18,552.41	$55,768.26

*Includes proceeds from the sale of furs amounting to $878.74.

2. Total Predators Taken

By hunters paid from funds of	Bobcats	Coyotes	Mountain lions	Total
State Department of Agriculture	48	456	....	504
Federal Project 14	189	2,189	9	2,387
Cooperating livestock men and farmers	190	2,549	2	2,741
State Advisory Grazing Boards 50% Funds	108	579	3	690
Grazing Service 25% Funds	60	688	....	748
State Board of Sheep Commissioners	57	491	4	552
Eastern Nevada Wool Growers Association	2	15	....	17
White Pine County Sportsmen's Association	7	20	....	27
White Pine County Commissioners	10	35	....	45
Work Projects Administration	4	36	....	40
Lincoln County Commissioners	.....	4	2	6
Totals	675	7,062	20	7,757
Taken by hunters, no part saved	1	182	....	183
Animals stolen from hunters' lines	1	69	....	70
Sub-totals	2	251	....	253
Grand totals	677	7,313	20	8,010

3. Reported Losses Caused by Predators Personally Noted by Hunters

	Specie of Predator				
	Coyotes	Bobcats	Mountain lions	Foxes	Total
Sheep	1,675	164	20	5	1,864
Calves	11	.....	2	....	13
Deer	8	.....	54	....	62
Antelope	18	.....	....	....	18
Pigs	7	.....	....	....	7
Domestic turkeys	10	.....	....	....	10
Domestic chickens	832	9	....	....	841
Sage grouse	27	13	....	....	40
Chinese pheasants	4	16	....	....	20
Angora goats	30	15	....	....	45
Totals	2,622	217	76	5	
Grand total					2,920


TYPOGRAPHICAL
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