STATE OF NEVADA

BIENNIAL REPORT

OF THE

STATE DEPARTMENT OF AGRICULTURE

LEE M. BURGE, Executive Director

For the Fiscal Years Ending
June 30, 1969–June 30, 1970

1[32]

SPO, CARSON CITY, NEVADA, 1970

LETTER OF TRANSMITTAL

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

The 28th Biennial Report for the period of July 1, 1968–June 30, 1970 of the State Department of Agriculture is herewith respectfully submitted.

This report of activities of the Department was prepared by the division directors and by supervisory personnel.

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

Lee M. Burge

LEE M. BURGE
Executive Director

DIRECTOR'S COMMENTS

LEE M. BURGE

Agriculture today, the only non-depleting user of natural resources—the only industry which continues to supply our booming population with the needs in every day living at a stable production cost—must make several important decisions.

Expansion of operations for purposes of utilizing modern and larger equipment has resulted in a production sufficient to supply present needs.

In Nevada the gross per farm increase has maintained a high comparative level with other states.

For the year 1969 gross farm income was up approximately 30 percent. This apparent gain is offset by a 10 percent increase in operating costs. The net result being that the Nevada operator who keeps good records will be considering a cutback not only in total production but in equipment purchases and borrowing of operation money. He must determine should the operation become larger or should he protect his financial position by a process of curtailment until such time as interest rates and other fixed costs level off.

A major consideration for the Nevada producer will be the report of the "Public Land Law Review Commission" on uses of public lands.

The Commission has taken a realistic look at all uses including present day recreational needs and older historical uses. There is a need for the State to develop a land use plan for future sound development of public lands and to insure protection of tenure for historical livestock uses.

We can reasonably expect that controls on registration and use of pesticides at all levels of city and rural life will be a major legislative consideration.

To maintain adequate production of high quality farm products, pesticides are a needed tool. Reasonable controls through regulations are desirable to protect all segments of our society, our environment, and to insure the continued high standard of American living.

Consumer protection through regulations and legislative action is continually becoming a greater responsibility of the Departments of Agriculture in all states. Whether it be control of animal disease, pesticides, grading of products or weights and measures activities, the general public is served and served well by the State Departments of Agriculture.

ACKNOWLEDGMENTS

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

Federal agencies and staffs—

Animal Health Division
Bureau of Land Management
Bureau of Sport Fisheries and Wildlife Services, Predatory Animal Control
Forest Service
Indian Service
Plant Protection Division
Plant Quarantine Division

Nevada State agencies and staffs—

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

Organizations and individuals—

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

PERSONNEL

State Board of Agriculture—

		Appointment Expires
FRED H. DRESSLER, Chairman, Livestock	Gardnerville	April 22, 1973
STANLEY C. ELLISON, Vice Chairman, Livestock	Elko	April 22, 1973
CHARLES P. FREY, Dairying	Fallon	April 22, 1974
RALPH HALL, Apiary	Yerington	July 1, 1971
NEPHI JENSEN, General Farming	Mesquite	April 22, 1971
THOMAS, J. MARVEL, Livestock	Battle Mountain	April 22, 1972

Department of Agriculture—

LEE M. BURGE, Executive Director....Reno
HARRY E. GALLAWAY, Deputy Director....Reno
JOHN L. O'HARRA, D.V.M., Deputy Director....Reno
ALICE M. HANSSEN, Program Specialist....Reno

Division of Plant Industry—

HARRY E. GALLAWAY, Administrator....Reno
RAYMOND REBUFFO, Deputy Administrator....Reno
JACK E. HAMPTON, Agricultural District Coordinator for Eastern Nevada and Plant Pathologist....Reno
PHILLIP C. MARTINELLI, Agricultural District Coordinator....Reno
DUDLEY F. ZOLLER, Agricultural District Coordinator....Las Vegas
ROBERT C. BECHTEL, Survey and Systematic Entomologist....Reno
FLOYD HILBIG, Chief Apiary Inspector and Agricultural Supervisor....Reno
SYLVAN D. PETERS, Agricultural Supervisor....Elko
JACK R. ADAMS, Agriculturist....Reno
WILLIAM J. LUNDAHL, Agriculturist....Winnemucca
LLOYD J. MUNSON, JR., Agriculturist....Las Vegas
HARLAN K. SPECHT, Chief Chemist....Reno
ELLA A. KNOLL, Chemist....Reno
JAMES L. TRIMBELL, Chemist....Reno
WALTER F. HEADRICK, Weights and Measures Inspector II....Reno
KNUTE PENNINGTON, Weights and Measures Inspector II....Las Vegas
MERLE B. FORST, Weights and Measures Inspector I....Las Vegas
THOMAS A. MAURINE, Weights and Measures Inspector I[1]....Las Vegas
THEODORE M. OLSEN, JR., Weights and Measures Inspector I....Reno
MAURICE RICHESON, Weights and Measures Inspector I....Las Vegas
ELDYN L. SMITH, Weights and Measures Inspector I....Reno
GARY R. VAN NESS, Weights and Measures Inspector I....Reno
STANLEY ZUNINO, Weights and Measures Inspector I....Elko
REBA HAMPTON, Seed and Grain Analyst....Reno
JOHN M. ALDERDYCE, General Building Tradesman....Reno

Division of Animal Industry—

JOHN L. O'HARRA, D.V.M., Administrator....Reno
CHARLES R. ADAMS, D.V.M., Deputy Administrator....Reno
DON E. LUNDHOLM, D.V.M., Supervisor, Animal Disease Laboratory[2]....Reno
JACK W. HITCHMAN, D.V.M., Supervisor, Animal Disease Laboratory....Reno
STANLEY F. ROUTSON, Supervisor, Livestock Identification....Reno
JOAN E. O'BRIEN, Microbiologist....Reno
AGNES C. LAPHAM, Serologist-Bacteriologist....Reno
BEVETTE E. OREN, Veterinary Laboratory Technician....Reno
GEORGE L. GIACOMETTO, District Brand Inspector....Fallon
THOMAS P. KANE, District Brand Inspector....Elko
ARSHAL A. LEE, District Brand Inspector....At Large
SHIRLEY GEORGE ROBISON, District Brand Inspector....Ely
WILLIAM FRED WARREN, District Brand Inspector....Reno
EDWARD J. GIACOMETTO, Brand Inspector....Yerington
FRANK SICKING, Contract Brand Inspector....Fallon

HARRY STICKLER, Contract Brand Inspector.....Las Vegas
ISABELLE E. WINDER, Senior Clerk, Part Time.....Fallon
GERALD RAY HAYES, Building Custodian, Part Time.....Reno

Per Diem Veterinarians (Deputy Quarantine Officers)—

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

Clerical Staff—

BETTY J. BROWN, Senior Clerk-Stenographer.....Reno
ELIZABETH A. DEADY, Senior Clerk-Typist.....Reno
ALICE M. GEDWILL, Senior Clerk-Typist.....Las Vegas
DORATHY R. HILBIG, Senior Clerk-Stenographer.....Reno
LAVERNE A. HOWARD, Senior Clerk-Stenographer.....Reno
HAZEL L. LUCAS, Senior Clerk-Stenographer.....Reno
NANCY A. MILLARD, Senior Account Clerk.....Reno
PAULINE POLLMAN, Senior Clerk-Typist.....Reno
MILDRED WALLACE, Senior Clerk-Typist[3].....Reno
BETTY M. WESLEY, Senior Clerk-Stenographer.....Reno
SHARON K. WILLIAMS, Senior Clerk-Typist.....Reno

[1]Resigned May 8, 1970.
[2]Resigned February 27, 1970.
[3]Resigned June 19, 1970.

STATEMENT OF EXPENDITURES, JULY 1, 1968–JUNE 30, 1969

Funds	*Salaries and Payroll Costs*	*Travel*	*Operation*	*Equipment*	*Statistical Reporting Service*	*Total Expenditures*
Livestock Inspection Fund	$112,205.55	$14,824.09	$57,288.79	$4,941.58	.....	$189,260.01
Livestock Disease Control Fund	42,666.24	6,493.01	11,672.30	100.00	.....	60,931.55
Animal Disease Laboratory Fund	34,406.48	670.00	13,682.47	5,490.27	.....	54,249.22
Plant Industry Fund	260,119.35	29,847.41	49,663.51	4,338.13	$6,500.00	350,468.40
Noxious Weed and Insect Control Fund	30,549.55	6,424.26	20,490.05	3,646.47	.....	61,110.33
Agricultural Registration and Enforcement Fund	17,670.29	874.00	6,758.45	.....	.....	25,302.74
Apiary Inspection Fund	4,239.78	2,559.19	379.84	.....	.....	7,178.81
Totals	$501,857.24	$61,691.96	$159,935.41	$18,516.45	$6,500.00	$748,501.06

STATEMENT OF EXPENDITURES, JULY 1, 1969–JUNE 30, 1970

Funds	*Salaries and Payroll Costs*	*Travel*	*Operation*	*Equipment*	*Statistical Reporting Service*	*Livestock Theft Investigations*	*Total Expenditures*
Livestock Inspection Fund	$120,759.42	$17,000.33	$21,979.62	$1,397.11	.....	$2,684.58	$163,821.06
Livestock Disease Control Fund	46,270.08	6,670.58	8,862.30	94.44	.....	.....	61,897.40
Animal Disease Laboratory Fund	40,178.82	838.50	19,602.88	2,515.19	.....	.....	63,135.39
Plant Industry Fund	295,546.28	26,172.81	43,627.99	2,740.00	$6,500.00	.....	374,587.08
Agricultural Registration and Enforcement Fund	20,431.52	324.00	7,361.02	756.07	.....	.....	28,872.61
Apiary Inspection Fund	4,077.67	2,649.48	451.34	.....	.....	.....	7,178.49
Totals	$527,263.79	$53,655.70	$101,885.15	$7,502.81	$6,500.00	$2,684.58	$699,492.03

REPORT OF STATE DEPARTMENT OF AGRICULTURE

TAX LEVIES

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

At the February 18, 1969 meeting the Board set the tax rates for the tax year 1969–70 as follows:

Class	Tax Rate Per Head
Bees (per stand)	$0.25
Stock cattle	.28
Milk cows	.53
Bulls	.75
Horses	.36
Mules	.36
Burros or asses	.07
Stallions	.75
Jacks	.75
Hogs	.07
Pigs	.035
Goats	.06
Poultry	.003

At the February 10, 1970 meeting the Board set the tax rates the same as above for tax year 1970–71.

ASSESSED VALUATION OF LIVESTOCK UNDER THE JURISDICTION OF THIS BOARD FOR THE FISCAL YEARS 1968–69 AND 1969–70

(Figures from the Report of the Nevada Tax Commission)

Class	1968–69	1969–70
Cattle—		
Stock Cattle—Bulls	$1,490,800	$1,511,525
Stock Cattle—Cows	12,025,513	12,109,002
Stock Cattle—Heifers	1,269,340	1,432,880
Stock Cattle—Steers	679,020	965,360
Stock Cattle—Weaned Calves	1,532,575	1,522,247
Dairy Cattle—Bulls	.....	17,700
Dairy Cattle—Cows	743,725	708,475
Dairy Cattle—Heifers	.....	53,520
Dairy Cattle—Weaned Calves	.....	14,225
Horses—		
Stallions	55,900	40,315
Mares	48,335	51,040
Young Stock	80,175	56,460
Work Horses	1,400	41,050
Fancy Pleasure Horses	11,600	15,500
Saddle Horses	410,080	357,085
Swine—		
Boars	1,130	1,400
Sows	5,840	14,810
Pigs	7,475	18,420
Miscellaneous Livestock—		
Poultry	3,492	3,280
Burros	2,640	2,110
Jacks	1,700	1,250
Goats	768	813
Mules	300	1,370
Other Miscellaneous Livestock	1,705	1,575
Totals	$18,373,513	$18,941,412

STANDS OF BEES AND ASSESSED VALUATION FOR THE FISCAL YEARS 1968–69 AND 1969–70

(Figures from the Report of the Nevada Tax Commission)

County	Year	Number	Average Value Per Stand	Valuation
Carson City	1969–70	.....	.....	.....
	1968–69	36	$2.00	$72
Churchill	1969–70	2,391	2.00	4,782
	1968–69	2,058	2.00	4,116
Clark	1969–70	1,224	2.00	2,448
	1968–69	145	2.00	290
Douglas	1969–70	415	2.00	830
	1968–69	545	2.00	1,090
Elko	1969–70	5	2.00	10
	1968–69	.....	.....	.....
Esmeralda	1969–70	.....	.....	.....
	1968–69	.....	.....	.....
Eureka	1969–70	.....	.....	.....
	1968–69	.....	.....	.....
Humboldt	1969–70	4,122	2.00	8,244
	1968–69	2,272	2.00	4,544
Lander	1969–70	2,641	2.00	5,282
	1968–69	2,693	2.00	5,386
Lincoln	1969–70	.....	.....	.....
	1968–69	90	2.00	180
Lyon	1969–70	2,217	2.00	4,434
	1968–69	2,366	2.00	4,732
Mineral	1969–70	.....	.....	.....
	1968–69	.....	.....	.....
Nye	1969–70	123	2.00	246
	1968–69	39	2.00	78
Pershing	1969–70	.....	.....	.....
	1968–69	.....	.....	.....
Storey	1969–70	2	2.00	4
	1968–69	.....	.....	.....
Washoe	1969–70	595	2.00	1,190
	1968–69	740	2.00	1,480
White Pine	1969–70	180	2.00	360
	1968–69	200	2.00	400
Totals	1969–70	13,915	$2.00	$27,830
	1968–69	11,184	$2.00	$22,368

DIVISION OF ANIMAL INDUSTRY

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

ADMINISTRATIVE COMMENTS

At the close of the biennium, we are launched into a new decade in which ecology, the totality or pattern of relations between organisms and their environment, appears to be of prime importance and interest. The most serious problem confronting animal agriculture today could well be the emotional and economic encumbrances which are being deliberately and often irresponsibly thrust into its path. The livestock industry today must turn increasingly to technology to meet its production quota. Yet, it is just such technology as the application of chemicals to promote growth efficiency and to suppress disease depredation in our livestock and to employ mechanized housing, feeding and cleaning facilities which has become the target for much unreasonable criticism. If the critics of prophylactic antibiotics and medicaments in livestock feeds, or of organo chlorine pesticides, or of inorganic fertilizers, or of food additives, or of farm and processing machinery are partially in error; then all industry, and all education, and all research, should so tell the public. However, where the objective evidence supports the criticisms, then we must all face up to it and either find a way to correct the hazard or simply abandon the product or function.

As the population continues to increase and higher standards of living are achieved, the importance of animal agriculture will continue to increase because livestock products are essential in a well balanced diet. The high productivity of animal agriculture will continue to be the major source of esssential food items for many decades. Science has provided many chemical and therapeutic agents which have assisted tremendously in the control and eradication of livestock diseases and pests. Many animal diseases and pests can now be eliminated. In the decade of the 1970s, this Division must meet the challenge of providing proper protection and guidance to the livestock industry. Livestock is our most precious source of food and fiber and is the stabilizing force in Nevada's agricultural economy.

ANIMAL HEALTH PROGRAMS

At the close of the biennium, it is again our pleasure to report the maintenance of Nevada as a Hog Cholera Free State since September 1965, a Validated Swine Brucellosis Free State since February 1966 and a Certified Brucellosis Free State since June 1966. The livestock industry and the citizens of Nevada continue to receive the benefits of the efforts expended in achieving this disease free status. The continuing philosophy of eradication of diseases wherever possible, rather than continuation of the expense and potential danger of living with them, proves to be the most advantageous course to follow.

Adequate veterinary service is a must in the control and eradication of contagious and infectious diseases of livestock. The private veterinary practitioner is the first line of defense against all animal diseases. The close contact maintained by the Nevada veterinary practitioners and the

staff of the Division of Animal Industry, insures a constant surveillance of disease conditions, statewide, through reporting, consultation and otherwise.

The high level of productivity of our livestock populations today is attributable in large part to the achievements in animal disease control and eradication programs. The veterinary profession continues to accept the challenge to solve the many unknowns still existing in animal diseases and to gain complete eradication of those diseases for which we have the necessary techniques and tools. The Division, insofar as possible, continues to offer prompt diagnostic and regulatory action along with all assistance possible to the owners to quickly control disease problems as they become apparent. Again, we are happy to report that the livestock of Nevada continue to remain among the healthiest livestock in the nation.

In addition to receiving excellent cooperation from the practicing veterinarians in the State in the conduct of the general activities of the Division of Animal Industry, significant progress would not have been possible without the assistance and cooperation of many additional groups and individuals. The agricultural extension agents, livestock owners, educators, Animal Health Division of the U.S.D.A., Nevada State Cattle Association, Nevada Farm Bureau, other state and federal agencies and agencies of county and local political subdivisions have all extended a cooperative hand. To all of these, the Division of Animal Industry extends its thanks and appreciation.

Thanks and appreciation are also due the loyal and dedicated career staff members who continue to do their best under both pleasant and adverse conditions. Special recognition is due all the individuals and the group as a whole upon shouldering additional duties and responsibilities to insure the availability of a continuing high quality service during the periods of the biennium when our staff was decimated due to resignations in response to more lucrative positions.

STATE–FEDERAL COOPERATIVE DISEASE ERADICATION PROGRAMS

BRUCELLOSIS

Nevada has been Certified Brucellosis Free since June 10, 1966. In addition to the direct economic benefits derived from Brucellosis Free herds, this certification allows Nevada cattle to move interstate to most areas without any additional testing required. Cattle are imported into Nevada from a number of states that have not reached an equal Brucellosis Free Status; therefore, constant surveillance of all imports and routine screening of all cattle in the State must be maintained. This surveillance is accomplished by requiring health clearance on all cattle imports; milk ring tests on all dairy animals; market cattle tests on beef cattle going to slaughter; and on-the-ranch testing when necessary.

Two areas in the State had outbreaks of Brucellosis during the biennium and a considerable number of animals involved were quarantined and periodically tested with all reactors going directly to slaughter. At the close of the biennium, the situation appears under control and our Certified Free Status is not in jeopardy.

Excellent surveillance is maintained on the dairy herds by ring tests run on milk samples obtained on a quarterly basis.

The Nevada market cattle testing program has not, to date, come up to our hopes. Tagging of animals going to slaughter has not been in adequate numbers to offer the surveillance necessary. Tracing to the herd of origin of any cattle suspicious to the market cattle test has been very successful. Practically all herds checked following market cattle test positives, have proved to be negative. One herd of 66 head was depopulated during the biennium due to a Brucellosis condition that could not be resolved.

During the biennium the state-federal programs included the use of bangle tags. These tags are a great aid in the identification of cattle, particularly where retesting in infected herds is necessary. The large plastic bangle tags are furnished without cost to the owner under our state-federal program. These tags have value for herd management, other than disease control.

Complete epidemiological studies are now a routine practice on all infected herds.

The greatest significant result of the Certified Brucellosis Free Status is the freedom from this debilitating disease in humans. Public Health reports show Brucellosis practically non-existent in the people of Nevada today.

SWINE BRUCELLOSIS

Nevada was established as a Validated Swine Brucellosis Free State in 1966. This certification is maintained by testing all breeding swine 6 months of age or over on a 3 year basis. The card test for swine is a most useful tool in simplifying the testing procedure.

TUBERCULOSIS

Nevada maintains its Modified-Accredited Tuberculosis Free Status by periodic testing of all Grade A dairy cows and beef purebred herds and by post mortem inspections on slaughter cattle originating from Nevada. Dairy cattle from Tuberculosis problem states are retested upon arrival in Nevada.

Nevada maintains its eligibility for Tuberculosis Free Status, but waits until surrounding states reach equal status to prevent complications in free movement of known clean cattle.

HOG CHOLERA

Nevada has maintained its status as a Hog Cholera Free State since September 1965. All precautions are continuously maintained to protect the swine industry of Nevada from this disease. In all but one instance, strict surveillance, including a permit in advance of movement on all swine entering the State, has protected our free status. During the biennium extremely close surveillance of all swine markets and garbage feeding establishments, health certification of all imports and other procedures have served to protect the industry from serious swine diseases, including Hog Cholera and Trichinosis.

The one exception—in February 1969, Hog Cholera appeared on a large garbage feeding premise in the southern part of the State. Four thousand three hundred head of swine were located on the premise at the outbreak. Prompt quarantine, diagnosis and the entire depopulation of the herd resulted in the disease being contained to the initial outbreak. State-federal indemnities in the approximate amount of $130,000 were involved in this outbreak.

The Hog Cholera eradication program on a nationwide basis is moving rapidly forward. Strict surveillance and quarantine measures will be necessary for an extended period of time; however, each day the possible incidence of this disease decreases.

It is now possible to safely and successfully raise swine in Nevada without the expensive, continuous process of vaccination.

SCABIES

Throughout the biennium, continuous inspections with particular emphasis on winter inspections, were made on farms, ranches and in commercial feedlots throughout the State. Outbreaks of cattle scabies continued to occur sporadically in our neighboring western states. Nevada continues to remain free of this serious infestation in its native cattle.

Chorioptic scabies was found on show cattle at a large cattle show and sale in Southern Nevada in December 1969. Prompt quarantine and treatment prevented spread of the infestation. Epidemiological investigation revealed the source of mites originated in Texas and moved to the Nevada show by way of Colorado.

Psoroptic scabies was again found on Desert Big Horn Sheep in Southern Nevada. This is a continuing finding with no evidence that the mite infestation has spread to other livestock within the State.

In the past biennium, 171 lots of cattle were inspected for scabies, involving 100,254 head.

MISCELLANEOUS DISEASES

In this report we make mention of a number of certain, specific diseases that have caused concern to the livestock industry and the public of the State of Nevada during the biennium. Field investigations have made note of the following animal diseases and pathological conditions during the period of this report:

Abscess
Acute bloat
Air sacculitis
Anaplasmosis
Anemia, emaciation/parasitic
Anthrax
Aspergillosis
Atrophy, cerebral/cortical
Bacillary hemoglobinuria
Bacterial septicemia
Barbiturate poisoning
Bilateral osteoarthritis
Black head
Blackleg
Broken neck
Calf scours
Cancer, lung
Cardiac failure
Carbon monoxide poisoning
Cerebral hemorrhage
Chorioptic scabies
Chronic erysipelas
Chronic interstitial nephritis
Clostridial infections
Clostridium, bifermantans/sordellii/tetani
Coccidia
Congenital esophageal dilation
Congenital heart defect, malformation
Corynebacterium sp.
Crooked calf syndrome
Cryptococcis
Cystitis
Dermatitis (chemical)
Diaphragmatic hernia
Displasia
Distemper (strangles)
Dystocia
Egg bound
Encephalitis
Encephalomalacia
Enteritis, bacterial/infectious/mucoid/gastro
Enterotoxemia
Eperythrozoonosis
Epizootic bovine abortion
Equine viral encephalitis
Equine viral rhinopnemonitis
Escherichia coli
Fungus
Gangrenous colitis/pneumonia/mastitis
Grass tetany
Gun shot
Gut edema

Heart failure
Heat prostration
Hydrocephalus
Hypoglycemia
Hypomagnesemia
Idiopathic abortion
Impaction, intestinal
Infectious atrophic rhinitis
Infectious bovine rhinotracheitis
Inhalation, placental fluid
Internal hemorrhage
Intestinal obstruction
Intestinal strangulation
Intussusception
Isohemolytic disease
Keds infestation
Leptospirosis
Leucosis
Leukemia
Lymphomatosis
Lymphosarcoma, diffuse/infiltrative
Malignant lymphoma, diffuse infiltration
Malnutrition
Meningitis, acute
Metastic carcinoma
Metritis
Molybdenosis
Mucosal complexes
Navel ill
Necrotic laryngitis
Neoplasm
Osteodystrophy
Oxalate poisoning and uremia
Pancreatitis, acute hemorrhagic/acute necrotic
Panleukopenia
Parasitic hepatitis
Parasitism
Pediculosis
Peritonitis, acute
Peritonitis from perforated intestine
Petroleum toxicity
Photosensitization
Pneumonia
Poisonous plants
Proteus vulgaris, P. morganii
Pseudomonas sp.
Psittacoid agent
Pullorum-Himalayan snow partridges
Pulmonary emphysema, edema
Pyometra
Pyothorax
Ruptured pulmonary artery/bladder
Salmonella
Salt poisoning
Septicemia, coli
Sinusitis
Staphylococcus
Streptococcal menigitis
Strongiyes
Suffocation
Torsion of abomasum, intestine
Toxic enteritis
Toxicosis
Traumatic reticulitis/injury
Trichomonas
Tumor
Twinning
Uremia
Uremic poisoning
Vaginitis
Vibrio
Viral abortion
Water hemlock poisoning
White muscle disease

ANAPLASMOSIS

Anaplasmosis continues to be one of our most persistent and troublesome endemic diseases, particularly in the northern part of the State. A high percentage of our native cattle are resistant to this disease; however, susceptible imports and herd replacements are under a constant threat of exposure with resultant losses. A killed vaccine is available at this time for use, particularly on selected herd replacements, offering them protection until they develop a natural resistance.

Continuing extensive research on a nationwide basis is being conducted, primarily toward the development of a suitable vaccine to control the infection. Much is being learned in regard to the life cycle of the etiological factor of the disease and additional study on ticks and other means of transmission is being carried out over a long term program. It is hoped that within the near future, better tools and techniques will be available for combatting this disease of cattle.

ANTHRAX

Through a continuing warning and education program spearheaded by the practicing veterinarians, a very high percentage of cattle in the endemic Anthrax areas are vaccinated each year. As a result of this highly productive vaccination program, we have had no serious outbreak of

Anthrax during the biennium. A few sporadic, single cases have been reported, usually due to lack of vaccination and soil disturbance in the area. Soil and water conditions in certain areas of the State are highly favorable to the existence of the Anthrax organism. These areas are well outlined and will probably be a source of infection for many years to come.

BACILLARY HEMOGLOBINURIA

This disease, commonly called Red Water in Nevada, is also endemic in certain reasonably well outlined areas. Knowledge of the existence of the condition results in a high percentage of annual vaccinations with losses from the Clostridium causing this disease to be unusual rather than expected.

BLACKLEG

We are diagnosing more than a limited number of cases of Blackleg each year. With the bacterin that has been available against this disease for many years, it is somewhat disturbing and discouraging to see a single case that results from lack of prophylactic vaccination.

COCCIDIOSIS

A somewhat higher incidence than usual of this condition has been appearing in the late fall and early winter, affecting calves primarily at or after weaning time. Good management is the vital factor in controlling and eliminating this parasitic condition.

EXOTIC DISEASES

The constant threat of exotic diseases, particularly viruses from foreign countries, finding their way into Nevada and striking our highly susceptible livestock populations with catastrophic effects, is a continuing nightmare of veterinary personnel in the Division. Staff members are constantly alert for the possible introduction of foot and mouth disease, African Horse Sickness, African Swine Fever, rinderpest and other diseases that are endemic in foreign countries. The exceedingly rapid modern methods of livestock transportation that are accepted for livestock movement today, make it possible for these dreaded epizootics to enter this country at any time. Extreme surveillance of certain imported animals, constant inspection at market agencies, staging areas and other points of concentration are continuous. Proper disposal of all garbage that has had contact with animals or animal products is a must procedure. We urge that a high level of inspection and quarantine be made on all aircraft and vessels arriving at the numerous ports and international airports located coastal, inland, and otherwise. International airline flights are now arriving in both Northern and Southern Nevada with increasing frequency, with modest inspection services available.

LEPTOSPIROSIS

During the biennium the incidence of Leptospirosis has been very low. The heavy outbreaks of recent years have resulted in a good vaccination program on a statewide basis, better sanitation procedures, particularly during spring calving, and other activities have lowered the incidence of this disease to an acceptable level.

VIRUS DISEASES

Epizootic Bovine Abortion (EBA), Infectious Bovine Rhinotracheitis (IBR) and the mucosal complexes have all established a firm foothold in Nevada and are gaining widespread existence. IBR can now be controlled by judicious use of a quality vaccine.

Equine Viral Encephalitis remains endemic in the State but is being controlled successfully in our increasing horse population by the proper use of proven vaccines.

LIVESTOCK IMPORTS AND EXPORTS

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

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

Cattle	32,847
Swine	4,869
Horses	1,130
Dogs and Cats	1,563
Goats	1
Total	40,410

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

Cattle	25,959
Swine	177
Horses	799
Dogs and Cats	3,360
Goats	25
Total	30,320

Further noting of animal diseases that have significance will be referred to under the report of the Animal Disease Laboratory.

ANIMAL DISEASE LABORATORY

JACK W. HITCHMAN, D.V.M., *Supervisor*

The Animal Disease Laboratory is established by statute for the purpose of diagnosing infectious, contagious and parasitic diseases of livestock for the citizens of Nevada. The law further states that "Any citizen shall have the privilege of submitting samples to the Department for examination, diagnosis, analysis or testing, subject to such rules and regulations as may be promulgated by the Executive Director." Many of the

Laboratory determinations have high public health significance. The ever increasing incidence of rabies in bats with the potential of infection of wildlife and all other animals, as well as humans, places a high responsibility on the Laboratory in the determination of rabies diagnosis. In addition, many of the diseases routinely diagnosed in the Laboratory, are diseases of animals that are transmitted to man. Close cooperation and reporting to the Public Health Department is carried on continuously.

One of the major problems in the Laboratory during the biennium has been the retention of a Laboratory staff, both in the professional and technical categories. Extreme competition for capable, professional and technically trained individuals has resulted in our staff personnel being constantly attracted to other more lucrative areas. We hope this condition will be corrected in the near future, because dedicated career staff members are of vital necessity to a professional and technical organization as the Diagnostic Laboratory.

Perhaps somewhat unique to Nevada is our method of operation. Staff veterinarians make numerous field trips and investigations to coordinate the diagnostic efforts in the Laboratory with the problems involved in the field. This procedure has been most rewarding with the final benefit being given to the livestock industry which it so richly deserves.

The Laboratory continues to serve a greater number of people and provides a wider range of services with accessions up each year. Some old standby diseases continue to plague the livestock industry at the same time that the recently recognized diseases appear more frequently.

Clostridial diseases continue to account for considerable losses in spite of the availability of effective bacterins for immunization. *Clostridium sordellii* has been recovered with increasing frequency, leading to the recommendation that a bacterin which includes a *Clostridium sordellii* component be used. Blackleg and Bacillary hemoglobinuria are still diagnosed in cattle which have not been properly "vaccinated."

Vibriosis and *Trichomoniasis* were both diagnosed frequently during the reporting period. All cattle raising areas of the State appear to have infected herds. It is believed that these diseases, especially Vibriosis, are prevalent in Nevada herds extensively enough to constitute a major cause of infertility. Diagnosis on a herd basis has been developed in this Laboratory over a period of years. We now consider the results highly reliable when the sample collections are done properly and at the right time.

Virus infections have taken a prominent position as a cause of loss in adult animals and as a cause of abortions. It is essential that this Laboratory be proficient in the diagnosis of the various virus diseases known to be present within the livestock producing areas of the State. Virology is an extremely exacting and time consuming technique and requires the use of some expensive specialized equipment. Because of the importance of this area, we have initiated a program which should provide competence in the diagnosis of viral diseases common to this area by the end of 1970. *Epizootic Bovine Abortion* (EBA/Foothill Abortion) has been recognized in Nevada for a good many years. The loss varies from herd to herd and year to year, but the overall cost to the producer is great. In one herd alone, the first 15 calves dropped in the 1970 calving season were dead due to EBA. This represents only 2 percent of the cow herd, but 100 percent of the calf crop as of this writing. Our early diagnosis of the cause of losses is of value, but of course, no vaccine or treatment is available at this time.

Infectious Bovine Rhinotracheitis (IBR) virus is known to cause abortion and has been implicated serologically in a number of losses in the State. We are now applying the fluorescent antibody technique for the identification of this virus in fetal tissues. This should result in more rapid diagnosis of IBR caused abortions.

It has become necessary for the Laboratory to give increased attention to several specific areas and techniques. These have been neglected by necessity as a result of reduced staff. *Virology* is an essential tool in the identification and diagnosis of the increasing number of virus diseases. Increased attention to this area is obviously required and is planned for the future.

Histopathology is an extremely important tool in the diagnosis of many disease conditions and is often the only means of demonstrating pathological lesions. It is planned to greatly expand this important area of investigation when qualified staff can be recruited. A summary of the Laboratory work for the past biennium follows:

ANIMAL DISEASE LABORATORY EXAMINATIONS

July 1, 1968 through June 30, 1970

	Accessions	Total	Increase or Decrease (Percent)
CHEMISTRY AND TOXICOLOGY—			
Alkaline phosphatase, amylase, blood colorimeter, blood urea nitrogen, bromsulphalein, calcium, cholesterol, cholinesterase, creatinine, glucose, mare immunological pregnancy, organic phosphate, pancreatic enzyme, phosphorus, protein bound iodine, serum acetone, serum ketone, SGOT, SGPT, trypsin tests	758		
Barbiturate, cyanide, fuel oil, creosote, nitrate, nitrite, strychnine poisoning	58	816	+423
BLOOD EXAMINATIONS—			
Bovine, Canine, Deer, Equine, Feline, Ovine, Caprine		2,904	+153
HISTOPATHOLOGY		76	+15
MICROBIAL CULTURES (includes Vibriosis, Trichomoniasis, Salmonellosis)—			
Exudate, feces, fluid, blood, blood agar plate, milk, skin scraping, tissue, urine, eggs, mucous, paste		1,769	+48
MICROBIAL ANTIBIOTIC SENSITIVITY TESTS		783	+49
MYCOLOGY CULTURES		75	—0—
PARASITOLOGY—			
Endoparasitism—845 Negative; 793 Positive	1,638		+20
Ectoparasitism— 21 Negative; 20 Positive	41		—54
POST MORTEM EXAMINATIONS		1,679	+10
FLUORESCENT ANTIBODY EXAMINATIONS—		856	+74
Rabies, Negative	497		
Rabies, Positive (Bats)	20	517	+53
SEROLOGY—			
Brucellosis agglutination tests		9,055	—40
Leptospirosis agglutination tests		1,309	+55
Brucellosis ring tests		1,084	+42
Anaplasmosis CA tests		899	+72
URINALYSIS		230	+95
VIROLOGY		345	—40

LIVESTOCK IDENTIFICATION

S. F. ROUTSON, *Supervisor*

The Bureau of Livestock Identification is responsible for inspection of livestock at change of ownership for the purpose of insuring proper transfer of animals from one owner to another. At time of inspection, animals belonging to owners other than the person or persons disposing of the particular lot inspected are returned to the rightful owners if known or held until proper ownership can be determined.

The Bureau is partially financed by fees collected for inspections made by district inspectors, brand recordings and transfers and from license fees from buyers and sales yards. In addition, an animal head tax is collected by the county assessors and transferred to the Livestock Inspection Fund. These moneys are budgeted to cover administrative animal health activities and brand inspections.

District brand inspectors are assigned to five separate areas of the State. District inspectors are responsible for the livestock inspection program within their areas and in addition work closely with the county sheriffs on livestock theft problems. Other activities of the district inspectors include processing of estrays, licensing of livestock buyers and settling disputes between owners involving proper ownership.

To provide for faster service to the growers there are approximately 140 fee inspectors and several contract inspectors who are responsible to the district inspectors.

The main office for this agency is located in the Department of Agriculture Building, Reno, Nevada. There is one full-time senior clerk typist, plus one part-time senior clerk typist and the Bureau is administered overall by a full-time supervisor who reports directly to the Executive Director of the Department.

LIVESTOCK BRAND RECORDING, TRANSFERS AND RE–RECORDING

At the close of the 1970 fiscal year a total of 4,248 brands was of record and there were 166 transfers during the biennium.

On November 1, 1970, the regular 5-year re-recording of brands will begin and continue for a period of 60 days through December 31, 1970. From the information gathered during this re-recording period a new brand book will be published during the early spring of 1971, and supplements to the brand book will be prepared for distribution on a semi-annual basis until the next re-recording period, which will be 1975.

LIVESTOCK THEFT

The district inspectors and the supervisor have been given full police authority by the executive director in the enforcement of Title 50.

During the biennium this agency has given 20 warning citations, made 6 misdemeanor arrests and 3 felony arrests. The penalties derived from the foregoing are fines totaling $2,740, county jail 90 days, State Penitentiary 5 years, and a total of 7 years' probation.

REPORTED LIVESTOCK LOSSES

There was a total of 174 head of livestock reported lost and 17 head recovery made. A total of 117 vehicles was stopped and inspected in an attempt to slow down the rustling activities.

LIVESTOCK KILLED ON RAILROAD RIGHTS–OF–WAY

There was a total of 413 animals killed, of which 316 were identified as to ownership and the owners were reimbursed by the railroads involved.

ESTRAY LIVESTOCK

During the biennium there were 308 head of livestock returned to their proper owners for an estimated value of $74,490. Twenty-two head of estrays were sold by the Department as no owner could be determined and the net proceeds, after hauling, feed and advertising, were $2,048.49.

PUBLIC LIVESTOCK AUCTION MARKETS

At present there are two auctions, which market all types of livestock in the State of Nevada, both being in the City of Fallon. A bond in the amount of $100,000 is required of each of the two operators to insure the producer full payment for his product.

There is one public livestock market in Las Vegas for horses only. The operator carries a minimum bond of $10,000 for the protection of the consignors.

LICENSING AND BONDING

At the close of business June 30, 1970, there was a total of 78 Livestock Brokers, Dealers or Commission Merchants with a total of 60 agents properly licensed and bonded as prescribed by statute.

BRAND INSPECTIONS

There are three designated brand inspection districts in the State of Nevada. Two of these districts are "Point of Origin" districts: Clark County and Lincoln County. The remainder of the State is a district in itself.

During the biennium there was a total of 857,030 cattle inspected and 15,238 horses inspected. The fee for inspecting cattle is 10 cents per head; the fee for inspecting horses is 25 cents per head with a minimum of 50 cents.

RECOMMENDATIONS

It is recommended that:

1. Due to increased theft activity of livestock throughout the entire State, additional personnel be added to the staff as roving investigators. These men should have a knowledgeable background in law enforcement. Also, as it is the feeling of all law enforcement agencies in the State that those subjects involved in livestock theft are also engaged in other theft

and/or unlawful activities, the livestock industry should not be required to carry the entire burden of the expenses involved in theft investigations and a general fund appropriation should be made for the maintenance of the additional personnel.

2. Livestock identification performs a highly important function in the Department of Agriculture with full power of arrest in all areas pertaining to Title 50. Present policy of the Board of Agriculture provides that the activities of this Bureau are responsible, through a supervisor, directly to the Executive Director of the Department. Funds for this operation are limited and any expansion of activity or any change in organization would depend entirely on increased inspection fees paid by the applicant for inspection. An increase should be considered to maintain the present level of operation and any contemplated increase in service to the industry.

DIVISION OF PLANT INDUSTRY

HARRY E. GALLAWAY, *Administrator*

Section 561.194, sub-paragraph 3 Nevada Revised Statutes states that, "The division of plant industry shall manage activities of the department pertaining to the protection and promotion of the agricultural industry of the State of Nevada." In discharging this responsibility the Division has been assigned 17 major program areas, each of which could be subdivided into two or more program functions. For example the seed program could be divided into the certification, inspection and enforcement, and analytical laboratory functions.

While the Division is charged with the responsibility by law for agricultural industry programs it has been assigned programs not directly related to agriculture but which are closely related as to purpose and personnel requirements. Most Divisional programs are oriented toward consumer protection and truth-in-labeling whether the consumer be urban or rural in origin. Agriculture is the nation's number one consumer of petroleum products, rubber, and steel and the urban resident is the number one consumer of agricultural production of food and fiber. The agricultural industry and its associated agri-businesses, the processor and consumer, the manufacturer and the distributor, the wholesaler and the retailer, in fact every person who enters the State of Nevada, resident or visiting tourist, is touched directly or indirectly by one or more of the Division's programs.

The programs administered by the Division are:

1. Agricultural Produce Buyer; Licensing—Chapter 576 NRS—Producer protection.
2. Antifreeze Registration—Sections 590.340–590.450 NRS—Consumer protection; truth-in-labeling; product quality control.
3. Apiary Registration and Inspection—Chapter 552 NRS—Protection against spread of apiary diseases.
4. Economic Poison Registration—Chapter 586 NRS—Consumer protection; truth-in-labeling; protection of public health; product quality control.
5. Entomology and Plant Pathology—Sections 555.010–555.120 NRS—Insect pest and plant disease detection, survey and control.
6. Farm Labor Contractor; Licensing—Chapter 619 NRS—Protection to the employee and the agricultural producer employing farm labor contractors.
7. Fertilizer and Agricultural Minerals—Chapter 588 NRS—Consumer protection; Truth-in-labeling; Product quality control.
8. Nursery Services—Sections 555.235–555.250 NRS—Consumer protection; Truth-in-labeling; Protection against the introduction and spread of plant pests.
9. Pest Control Operator; Licensing—Sections 555.260–555.460 NRS—Consumer protection; Protection of public health.
10. Petroleum Products Testing—Sections 590.010–590.150 NRS—Consumer protection; Truth-in-labeling; Product quality control.
11. Petroleum Products Advertising—Sections 590.160–590.330 NRS—Consumer protection; Orderly marketing.

12. Plant Quarantines; Inter- and Intrastate—Chapter 554 NRS—Protection against the introduction and spread of serious plant pests.

13. Public Weighmasters; Licensing—Chapter 582 NRS—Regulatory control over third party weighing and certification.

14. Seed Inspection; Certification; Testing—Sections 587.015–587.-123 NRS—Consumer protection; Truth-in-labeling; Third party certification of genetic identity and quality of seed stocks; Analytical testing laboratory.

15. Standardization and Grading of Agricultural Produce—Sections 587.290–587.450 and 583.110–583.210 (Shell eggs)—Third party certification of quality and condition; Consumer protection; Truth-in-labeling; Orderly marketing; Product quality control.

16. Noxious Weeds—Sections 555.130–555.220 NRS—Noxious weed detection, survey and control.

17. Weights and Measures—Chapter 581 NRS—Custody of state weights and measures standards; Third party regulatory inspection of weighing and measuring devices for quality and accuracy; Pre-package weight control; Consumer and user protection; Truth-in-labeling; Certification of industry's standards of weights and measures.

Due to personnel and monetary limitations a cut-back in all work programs of the Division was experienced during fiscal year 1969–70. Authorized expenditures in in-state travel and operations were reduced approximately 30 percent from actual cost for fiscal year 1968–69 and the funds for state participation in cooperative noxious weed and insect pest control programs with federal agencies, other state agencies, counties, cities, school districts, etc., were discontinued.

The cut in travel allocation to work programs and the cancellation of cooperative agreements on insect pest and noxious weed control created a domino reaction. Counties withdrew their support, equivalent to three man years, from Divisional programs; operation and equipment inventories are being depleted especially as relates to vehicle operation maintenance and replacement; fee schedules and new fees in other program areas were necessary to meet fixed overhead costs for which funds were not appropriated.

During fiscal year 1970 the Division has been unable to provide the services and to perform the inspection work necessary to protect and promote the agricultural industry and to provide the consumer protection, truth-in-labeling and regulatory enforcement expected of a state agency in the interest of the public.

AGRICULTURAL PRODUCE BUYERS

The licensing of agricultural produce buyers, other than livestock and livestock products, is administered by the Division. Buyers are licensed as brokers, commission merchants, dealers, or cash buyers, and all persons negotiating or soliciting the sale of produce in behalf of a licensed person must be licensed as an agent.

During the biennium licenses were issued to:

	1968–69	1969–70
Broker, dealer, cash buyer, commission merchant	51	57
Exempt cash buyer*	3	4
Agent	26	34
Total licenses	80	95

*An out-of-state person may become licensed as an exempt cash buyer when purchasing for his own use and consumption.

Nine complaints were filed with county district attorneys who issued warrants in all cases. However, to date only one individual has been apprehended due to the out-of-state residency of the persons buying without a license.

Complaints received regarding non-payment for produce received and from investigations by Divisional personnel represented $70,877 of produce. Of this amount, $32,382 was paid and claims against the bonds of licensees are pending for an additional $10,000.

Most complaints result from sales to unlicensed individuals and from extending credit to a person licensed as a cash buyer. We cannot over emphasize the importance of first determining if the individual soliciting the purchase is licensed; if so, what type of a license does he have and finally each seller should make satisfactory financial arrangements for payment.

Every person licensed as a broker, dealer, commission merchant, cash buyer or agent thereof is issued a personal identification which the seller should examine.

ANTIFREEZE REGISTRATION AND ANALYSIS

The Nevada Antifreeze Act requires all substances and preparations intended for use as the cooling medium or to be added to the cooling liquid of an internal combustion engine to prevent the freezing of the cooling liquid or to lower its freezing point to be licensed before being sold in Nevada. Permits are issued on a fiscal year basis expiring on June 30 following issue.

As part of the licensing procedure, a one gallon sample of the antifreeze to be sold in Nevada must be submitted to our laboratory for testing. Laboratory test results are compared with the manufacturer's specifications for that particular brand and if it is found that the product meets the standard of quality under which it is sold, a permit for its sale is issued.

Antifreeze is subjected to at least six quality tests, e.g., specific gravity, boiling point, foaming tendency, pH, reserve alkalinity and a 24-hour cold box test. When a formulation fails one or more of these tests the manufacturer usually corrects the situation and a permit is eventually issued.

During the biennium 113 brands were approved for sale in Nevada. Permits were withheld for the sale of 22 brands until necessary corrections were made by the manufacturers. One permit was never issued because the manufacturer failed to comply. Four lots were placed on the non-registered list since their quality fell below the standard under which they were sold.

APIARY INSPECTION SERVICE

There has been a steady decline in the number of commercial beekeepers in Nevada. The number of colonies of bees has remained rather constant with no appreciable increase. This situation is tragic at a time when colonies of bees are needed in abundance for pollination of alfalfa for Nevada's seed industry. The costs of operating a commercial beekeeping operation have steadily increased whereas the honey market remains constant. Increased honey yield per colony does not offset the tremendous costs of beekeeping equipment, labor and transportation. Unless this vital industry can operate at a profit it will not attract young men into a beekeeping vocation.

BEE COLONY REGISTRATION AND INSPECTIONS—1969–1970

County	Year	Resident Beekeepers			Permit Beekeepers		
		Number Colonies Regis.	Number Colonies Insp.	Colonies *Bacillus l.* Disease	Number Colonies Regis.	Number Colonies Insp.	Colonies *Bacillus l.* Disease
Carson City	1969	-------	13	3	-------	-------	-------
	1970	2	21	-------	-------	-------	-------
Churchill	1969	1,916	413	3	853	340	4
	1970	2,221	616	-------	800	175	-------
Clark	1969	1,241	579	-------	-------	-------	-------
	1970	1,103	224	-------	-------	-------	-------
Douglas	1969	426	628	17	-------	-------	-------
	1970	400	30	-------	-------	-------	-------
Elko	1969	5	-------	-------	-------	-------	-------
	1970	-------	-------	-------	-------	-------	-------
Esmeralda	1969	-------	-------	-------	-------	-------	-------
	1970	-------	-------	-------	-------	-------	-------
Eureka	1969	-------	-------	-------	-------	-------	-------
	1970	-------	-------	-------	15,249	3,261	55
Humboldt	1969	3	-------	-------	10,152	1,640	9
	1970	11	-------	-------	14,095	2,760	52
Lander	1969	-------	-------	-------	10,602	1,012	10
	1970	-------	-------	-------	-------	-------	-------
Lincoln	1969	81	-------	-------	-------	-------	-------
	1970	1	-------	-------	-------	-------	-------
Lyon	1969	2,174	396	1	-------	-------	-------
	1970	2,135	374	4	-------	-------	-------
Mineral	1969	-------	-------	-------	-------	-------	-------
	1970	-------	-------	-------	-------	-------	-------
Nye	1969	84	87	-------	-------	-------	-------
	1970	137	-------	-------	-------	-------	-------
Pershing	1969	50	207	4	-------	-------	-------
	1970	124	47	-------	-------	-------	-------
Storey	1969	-------	-------	-------	-------	-------	-------
	1970	-------	-------	-------	-------	-------	-------

Washoe	1969	582	1,024	2	500	280	2
	1970	824	737	14	.....	.....	.....
White Pine	1969	180	.....	.....	.....	.....	.....
	1970	200	.....	.....	.....	.....	.....
Totals	1969	6,742	3,347	30	30,697	6,641	113
	1970	7,158	2,049	18	21,554	2,827	19

Alfalfa seed acreage has continued to expand in several Northern Nevada counties. As a result of this expansion, our seed growers required the pollination services of 30,697 colonies of bees in 1969. In 1970 many of our seed growers in Humboldt County increased their supply of leaf cutters, *Megachile rotundata,* thereby reducing the needs for honeybee colonies from two colonies per acre to one colony per acre. Pollination permits were granted for 21,554 colonies of bees for pollination in 1970. Beekeepers from California, Utah, Oregon and Idaho were granted permits to transport colonies of bees into Nevada for pollination services.

Out-of-state colonies begin to arrive in Nevada about June 15 and remain through the blooming period up to September 1. Apiary inspectors stationed in Lander and Humboldt counties check by random sample inspection the colonies of each beekeeper for bee disease and colony strength requirements.

The apiary inspection service provides a service to the seed grower to assure him of receiving colonies which are of standard field colony strength. A certificate of average bee colony strength is issued upon request.

By careful screening of a beekeeper's application for pollination permit and prohibiting unqualified beekeepers with known disease problems from entering Nevada, the incidence of American foulbrood disease found has been less than ½ of 1 percent.

Excellent cooperation between beekeeper, seed grower and pest control operators has kept insecticide losses to a minimum. Pesticides applied to forage alfalfa for weevil control in May and June have caused light to heavy losses of field bees where colonies are located close to fields treated. Several beekeepers have avoided this by moving colonies to the Sierra Nevada Mountain Range during the spring spraying season.

Repeated inspection in apiaries of resident colonies having American foulbrood disease history has eliminated the disease entirely in many apiaries. A total of 212 apiaries and 5,396 colonies was inspected during the biennium for bee diseases. Inspectors found 48 colonies infected with *Bacillus larvae* disease and treated all infected colonies by burning. The incidence of this disease was less than 1 percent of inspected colonies. European foulbrood disease did not occur during the biennium. This disease has in the past been endemic in colonies located in Elko County. The apiary inspection service provides laboratory diagnostic service for beekeepers and constantly checks adult bees for mites and Nosema disease. Nosema disease has occurred only in colonies established from package bees.

The 1968 honey production from alfalfa and white sweet clover was down 28 percent from the 1967 production total. Average yield was 65 pounds per colony, down 15 pounds from 1967. The honey flow in 1968 was hampered by adverse weather at prime honey flow time. In 1969 the honey flow in all areas except Clark County was excellent and producers extracted a record crop averaging 105 pounds of extract honey per colony. Weather conditions were again exceptional during the honey flow in 1970. The yield per colony was expected to be near the 1969 average. Honey yield per colony in Mason and Smith Valleys from alfalfa was expected to be light in 1970. A long, continuous nectar flow from alfalfa seed fields in Pershing County may bring surplus yields of honey in this area up to 100 pounds per colony. Surplus honey from alfalfa pollination colonies in Humboldt and Lander counties varied from no surplus honey

to yields of 80 pounds per colony. Generally, colonies were in good condition with winter feed and young bees with normal cluster size at the end of pollination season.

ECONOMIC POISONS (PESTICIDES)

Economic poisons, commonly known as pesticides, cover a large number of materials or mixtures intended for destroying, controlling or repelling pests such as insects, weeds and other noxious plants, predatory animals and birds, soil infesting pests such as nematodes, algae, snails and bacteria. Other examples are disinfectants, antiseptics and fungicides for use other than the control of viruses on living man and animals, defoliants, various repellents, moth proofers, wood preservatives other than common paints, mildew controls and seed disinfectants and fumigants. A substance does not have to be toxic when used as intended to be considered an economic poison.

An adequate and reliable supply of these products is as indispensable as is fertilizer in the production of food and fiber crops. Weed killers and defoliants are important adjuncts. The preservation of many products in storage and the control of domestic and industrial pests which affect both the health and welfare of human beings and animals are likewise dependent on such materials.

While encouraging the development and distribution of reliable products to serve these needs and with due regard for public health and welfare it is the purpose of the Nevada Economic Poisons Act to protect the public from adulterated, misbranded, worthless and dangerous products.

Before any brand of pesticide can be legally offered for sale in the State it first must be registered with the Department of Agriculture. Registrations are issued on a calendar year basis and must be renewed annually as long as the product is being offered for sale. Evidence of satisfactory labeling must be submitted with the application to obtain registration. The basic information required in labeling economic poisons is as follows:

1. The name, brand or trademark under which the article is sold.
2. Name and address of the manufacturer or distributor.
3. An ingredient statement giving the name and percentage of each active ingredient together with the percentage of the inert material or a statement of the name and total percentage of the active ingredients together with the name of each and total percentage of the inert ingredients.
4. The net weight or measure of the contents.
5. Directions of use which if followed will give adequate control of the pest and protection of the public.
6. A warning or caution statement, if complied with, adequate to prevent injury to living man and other vertebrate animals.
7. For pesticides highly toxic to man:

(a) The skull and crossbones.
(b) The word "Poison" in red on distinctly contrasting background.
(c) An antidote for the poison.

There has been a steady increase of registered brands since registration requirements became effective in 1956. During the biennium 5,105 brands were registered. This is an increase of 709 brands or 15.8 percent over the last biennial period. Of the total number registered 616 were new products never before sold in Nevada.

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

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

Lots sampled	40
Lots passed	28
Lots violative	12

The violative material consisted of five lots of chlorine disinfecting compounds, two lots of fly bait, three lots of malathion dust and two lots of unlabeled methyl parathion. The manufacturer of the methyl parathion was fined $300 by the district judge for negligence and was required to affix labels to the drums.

In addition to the official samples, 29 information samples were examined by the Laboratory for members of the Departmental staff in connection with their various official duties.

One nonofficial sample was tested on a fee basis. Because of a lack of commercial laboratory facilities in Northern Nevada our Laboratory accepts a limited number of samples for testing from individuals. The tests performed are those ordinarily done in the Laboratory and the sample must have no connection with our regulatory function.

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

ENTOMOLOGY

INSECT PEST DETECTION AND SURVEY

Special detection surveys for pest species not known to occur in Nevada were initiated for the greenbug and continued for the boll weevil, cereal leaf beetle, Colorado potato beetle, European corn borer, European pine shoot moth, Japanese beetle, khapra beetle, sorghum midge and tomato russet mite. All surveys were negative except for the greenbug which was found in two southern counties.

The greenbug, *Schizaphis graminum* (Rondani), a serious pest of corn, sorghum and small grains was first discovered in Nye County in 1968 and was subsequently found in Clark County in the same year. While feeding this aphid injects toxins which cause discoloration and tissue destruction. This injury is the main threat but the aphid also transmits the disease called maize dwarf mosaic which stunts plants and reduces head size and yield.

In addition to the greenbug, 16 species were recorded from Nevada for the first time. Potentially the most damaging of these is the "blue-grass

mealybug," *Heterococcus pulverarius* (Newstead), found on timothy in Lyon County in 1968. This species infests several other grasses besides timothy and at times is a serious pest of grasses grown for seed. Other new state records include the tawny garden slug, *Limax flavus* Linnaeus, the asparagus beetle, *Crioceris asparagi* (Linnaeus), the spotted asparagus beetle, *C. duodecimpunctata* (Linnaeus), a predaceous diving beetle, *Eretes sticticus* (Linnaeus), the hollyhock weevil, *Apion longirostre* Olivier, a predaceous earwig, *Labidura riparia* (Pallas), three deer flies, *Chrysops bishoppi* Brennan, *C. wileyae* Philip and *Silvius notatus* (Bigot), a noctuid moth, *Heliothis paradoxa* (Grote), and five grasshoppers, *Dissosteira pictipennis* Bruner, *Melanoplus yarrowii* (Thomas), *Opeia obscura* (Thomas), *Schistocerca vega vega* (Scudder) and *Spharagemon collare* (Scudder).

Intrastate spread of 1 species of aphid, 7 species of beetles, 2 species of true bugs, 2 species of flies, 19 species of grasshoppers, 2 species of mites, 1 species of moth and 1 species of sawfly into counties in which they were not known to occur was recorded during the biennium.

The alfalfa weevil continued as our major crop pest. In 1969 cold, damp weather retarded egg laying, hatch and larval development until mid-May when economic populations developed explosively with the return of favorable weather resulting in many fields not receiving treatments soon enough to prevent excess damage. In 1970 a staggered and prolonged period of egg hatching together with adverse weather conditions made timing and application of treatments difficult with many fields requiring a second treatment to achieve control.

Pacific spider mite, *Tetranychus pacificus* McGregor, populations, which reached treatment levels on seed alfalfa in Humboldt County in 1968, developed heavy infestations in 1969 with over 4,000 acres requiring control.

Banks grass mite, *Oligonychus pratensis* (Banks), has been a severe pest on corn and timothy in several counties in the past but under the drought conditions of the late spring and summer of 1970 it developed heavy, damaging infestations on crested wheat seedings on rangeland and on grasses grown for seed.

The Nevada sage grasshopper, *Melanoplus rugglesi* Gurney, suddenly appeared in large numbers in 1938 and caused extensive damage to various range plants over large areas of Central and Northwestern Nevada from 1939 to 1951. After 1951 the populations diminished rapidly to a point where it was last observed in 1953. During June and July of 1969 this species was again observed in small, localized populations in the Humboldt Canyon area, Humboldt Range, and near Rocky Canyon, Seven Troughs Range, in Pershing County and in the Soldier Meadows area, Humboldt County.

Green boll infestations by the pink bollworm, *Pectinophora gossypiella* (Saunders), in Moapa Valley, Clark County, reached 14 percent by September 1968 even though no cotton had been grown there in 1967. In 1969 the infestations surpassed those of 1968 in spite of the fact that an eradicative attempt utilizing sterile male moths was made in cooperation with the Plant Pest Control Division, U.S.D.A. This failure was apparently due to the fact that a heavy emergence of native moths preceded the sterile moth releases and the proper ratio of sterile males to native males was not achieved. As a result of these heavy populations, cotton was not

grown in Moapa Valley in 1970. In contrast, however, infestations in Pahrump Valley, Nye County, have remained far below the economic level, possibly due to the environmental conditions and sanitation practices.

Since 1966 the roundheaded pine beetle, *Dendroctonus adjunctus* Blandford, has caused widely scattered tree killing of ponderosa pine in the Spring Mountains, Clark County, but in 1968 the frequency and number of tree attacks increased. The 1968 fall and 1969 spring surveys indicated that over 1,400 trees were infested on 1,500 acres in the private home area in Kyle Canyon and in the high use recreation areas in Kyle and Lee Canyons. In order to protect other trees and prevent a population buildup in these areas, 650 trees (324,000 bd. ft.) were logged and 400 trees felled and treated on 1,000 acres of national forest land in Kyle, Lee and Wallace Canyons and 230 trees were removed from private land, mostly in Kyle Canyon, in 1969.

The frequency and number of termite infestations in buildings are increasing, especially in the southern, central and western areas of the State. Two species of subterranean termites, *Reticulitermes hesperus* Banks and *R. tibialis* Banks, occur throughout these areas and are responsible for most infestations and damage. The western drywood termite, *Incisitermes minor* (Hagen), has been found infesting permanent structures in Clark, Mineral and Nye counties and has been collected from mobile homes in Clark and Ormsby counties. A fourth species, the "desert dampwood termite," *Paraneotermes simplicicornis* (Banks), has been encountered less frequently and only in Clark County. The fact that certain species of termites are attacking and infesting structures in Nevada with increasing frequency should be brought to the attention of the building industry and members of the real estate profession.

Above normal numbers of the "Bodega black gnat," *Leptoconops kerteszi* Kieffer, a severe biting pest of humans, occurred in the Black Rock, Granite Creek and Smoke Creek Deserts of Humboldt, Pershing and Washoe counties with unusually heavy populations present in the spring of 1970.

GRASSHOPPER CONTROL PROGRAM

The 1968 adult grasshopper survey indicated potential infestations on 131,335 acres of rangeland for 1969, an increase of 81,605 acres over 1968. These potential rangeland populations did not develop in 1969 primarily due to adverse weather conditions; however, a severe infestation of 40 to 90+ migratory grasshoppers, *Melanoplus sanguinipes* (Fabricius), per square yard developed on over 4,000 acres of alfalfa and grain in Diamond Valley, Eureka County, and required treatment. The 1969 adult survey indicated potential infestations on 49,880 acres (12,370 cropland and 37,510 rangeland) for 1970 but the cool, damp spring which retarded grasshopper development in many areas in 1970 was followed by drought conditions to the end of the biennium and no control programs were necessary.

MORMON CRICKET CONTROL PROGRAMS

Adult surveys conducted during 1968 indicated a buildup of Mormon crickets in areas of Eureka and Pershing counties. In 1969 these populations reached economic levels in Pershing County where bait was applied

to 1,054 acres to protect 10,000 acres in the Humboldt Range. Adult surveys conducted later in 1969 indicated population increases on 2,700 acres in Eureka County, 4,000 acres in Lander County and 20,000 acres in Pershing County but this potential buildup did not occur in 1970 as only light, scattered infestations were found.

SYSTEMATIC ENTOMOLOGY

The number of specimens submitted for identification remained at approximately the 1966–1968 level. Material received from pest control operators and private individuals continued to increase as did that received from other state agencies. Approximately 30 percent of this material required routine identifications and consisted mainly of species previously identified and represented in the reference collection.

At the end of the biennium the permanent reference collection consisted of 17 orders, 83 families, 185 genera, 222 species and 386 vials in the alcohol material, 9 orders, 89 families, 337 genera, 668 species and 7,572 specimens in the pinned material and 4 orders, 16 families, 49 genera, 75 species and 382 slides in the slide material from which the data have been recorded.

FARM LABOR CONTRACTORS

Chapter 619 Nevada Revised Statutes requires the licensing of farm labor contractors. However, there are written into the law restrictions and limitations that virtually all persons are exempt.

Since the enactment of this law in 1960, 10 licenses have been issued. The Division expends an average of 72 man hours plus travel time each year in investigation of possible farm labor contractors. The benefit received from the expenditure of effort is questionable.

FERTILIZERS AND AGRICULTURAL MINERALS

The Nevada Fertilizers and Agricultural Minerals Act requires any substance which is claimed to supply plant nutrients or which will change the soil chemically to be registered with the Nevada State Department of Agriculture before being offered for sale or sold in this State. The only exceptions are excreta from domestic animals or fowls and organic material containing less than 5 percent nitrogen, available phosphoric acid and soluble potash, singularly or collectively. Small packages of fertilizers or agricultural minerals of less than one pound are also exempt.

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

During the 1968–1969 fiscal year 488 grades were registered compared to 626 for the 1969–1970 fiscal year. A total of 1,114 grades was registered for the biennium. This is a 3.2 percent increase of grade registration over the previous biennium.

Reports from registrants show a continued increase in the use of fertilizers and agricultural minerals in the State. A consolidation of reports shows that a record 33,028 tons were consumed during the biennium. This is an increase of 12.9 percent over the 1966–1968 period.

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

The following is a summary of Laboratory analyses:

Lots sampled	136
Lots passed	125
Lots violative	11

Total penalties assessed due to deficient fertilizer amounted to $1,083. Lots of fertilizer in the hands of dealers found short in plant food were ordered off sale and were released only after labels were changed to show the correct guaranteed analysis.

NURSERY SERVICES

Except for those exempted under law, all persons selling nursery stock to the ultimate consumer in Nevada are subject to licensing on a fiscal year basis with the Department. Businesses licensed include nurseries handling such stock the year round, retail stores handling nursery stock as a seasonal or incidental item, producers of nursery stock, landscapers and peddlers.

Under law, four types of licenses may be issued: registered-place-of-business license (annual fee $25), outlet licenses for each additional sales outlet of a registered-place-of-business license ($10 fee for each outlet), peddler licenses, and exempt licenses.

The nonresident who sells nursery stock at retail to Nevadans, and who does not have an established place of business in Nevada, is classed as a "peddler." In addition to the $25 annual nursery license fee people classed as "peddlers" pay an additional fee of $25.

During the first half of the biennium Clark County (4 men) and Washoe County (1 man) supported Division personnel in the inspection of nursery stock offered for sale by licensees as a regulatory function of the Department. This regulatory inspection is for compliance with labeling and grade regulations, for cleanliness (freedom from disease and insects), and for vitality and viability. Failure to meet "grade" is primarily found in bareroot rose nursery stock where "grade" is mandatory if the plant is enclosed in a box so the purchaser cannot see the plant. In the biennium, four lots consisting of 665 rosebushes were found not in grade. All but 31 were destroyed. Various stop-sale and hold-orders were issued because of insect infestations. For the most part, these are removed when the infestations have been satisfactorily controlled. However, in the matter of disease, 3,000 one gallon "tam junipers" *(Juniperus tamariscifolia)* in one lot were destroyed because of root rot disease for which no control measures were known. An additional 3,407 plants were destroyed or

returned to consignors along with 28 cartons of strawberry plants for loss of vitality, and 242 rose bushes for excessive green-colored wax.

Nursery licenses issued during the biennium:

	1968–69	1969–70
Registered place of business	86	83
Outlets	56	70
Peddlers	6	9
Totals	148	162

PEST CONTROL OPERATORS

The great emphasis on the negative effect of pesticides on the environment places an ever greater responsibility on pest control operators to use pesticides properly in pest control operations. This emphasis will place a greater responsibility on a limited Divisional staff in accelerated surveillance of pesticide applications from the standpoint of protection to persons, livestock, pets, wildlife and the environment.

The professional status of pest control operators has been improved by upgrading the comprehensive written examinations that a person must pass in order to qualify for a license as a commercial pest control operator. In addition to passing written examinations and paying a licensing fee, an applicant must also file proof of valid public liability and property damage coverage before a license is issued. A total of 82 pest control firms and 125 employee operators were licensed at the close of the biennium.

Unfortunately insects, plant diseases, rodents and weeds continue their relentless destruction of man's total natural resources. Therefore, man must continue to use pesticides and develop better pesticides for the survival of the human race.

Pesticide applications by 57 ground pest control operators increased tenfold during this past decade. The following is a summary of the types and numbers of pesticide applications made: ornamental gardens, 10,969; dwellings, 236,812; commercial businesses, 45,029; rodent control, 2,129; and termite control, 4,438. These figures are based on each pesticide application to a property as one application even though a property was treated more than one time.

A total of 406,480 acres was treated with pesticides by 25 airplane pest control operators for various crop pests, mosquitoes, weeds and brush. Fifty percent of the acreage was treated for alfalfa hay and seed crop insect pests, 20 percent for mosquitoes, 20 percent for weed and brush control and 10 percent for other crop pests.

PETROLEUM PRODUCTS

Through the enforcement of the Nevada Petroleum Products Inspection Act, the public is provided a reasonable assurance that petroleum products sold in the State of Nevada conform to quality standards and labeling requirements designated for each specific petroleum product. The types of products governed by this Act include gasolines, diesel fuels, heating oils and motor oils.

Representative samples of the various petroleum products being sold in the State are collected by Weights and Measures personnel for laboratory

analysis in the State Petroleum Laboratory. These products are then analyzed in the laboratory to determine quality and labeling compliance with state law and product specifications. Petroleum products are subjected to numerous quality specification tests.

Product quality violations are generally found in the following type tests: gasoline—distillation requirements; motor oil—viscosity measurement (SAE grade number); heating and diesel oil—flash point minimum standards. In addition, improperly labeled heating oils as to brand name and/or ASTM grade number was one of the most frequent violations found.

SUMMARY OF LABORATORY TEST RESULTS

Product	Samples Tested	Passed	Violative
Gasoline	564	557	7
Diesel fuel	119	103	16
Heating fuel	130	96	34
Motor oil	161	142	19
Totals	974	898	76

VIOLATIVE FINDINGS OF LABORATORY TESTS

Product	No. Samples	Violation
Gasoline	1	Water contamination.
	3	High distillation end points indicating possible fuel oil contamination.
	3	Adulterated; regular gasoline placed in ethyl gasoline tank by service station personnel.
Diesel Fuel	13	Low flash point indicating gasoline contamination.
	2	Labeling violation as to product brand.
	1	Percentage sulfur present high.
	1	High viscosity for grade.
Heating Oil	23	ASTM grade number not indicated on label.
	10	Product brand name and ASTM grade number not indicated on label.
	2	Product brand name not indicated on label.
	5	Low flash point indicating gasoline contamination.
	2	Water and sediment percentage excessive for grade.
	2	Incorrect grade designation on label.
	1	Excessive carbon residue on 10 percent bottoms.
Motor Oil	19	Incorrect labeling as to SAE grade number.

Some samples were found to have more than one violative finding.

The adulterated gasoline samples were detected in the process of adulteration by Departmental personnel. The service station manager pleaded guilty and was fined $100.

Of the incorrect SAE grade number labelings of motor oils, six were found to occur due to incorrect labeling of lubrication lines connecting the oil supply tanks to the outlets in a lubrication service facility.

In addition to the 974 official samples, 22 unofficial petroleum samples were received for analysis. These unofficial samples included 3 diesel fuels, 4 gasolines, 11 heating oils, and 4 motor oils. Most of these samples were submitted by federal, state, or county agencies for clarification of problems incurred.

PETROLEUM PRODUCTS PRICE ADVERTISING

The petroleum products price advertising law prevents unfair competition in the sale of motor fuel and protects the motoring public from fraudulent advertising.

Whenever the price of a motor fuel is posted on a price sign, such sign must also state the brand name of the product, the product identity and the words "tax included" in the case of gasoline.

Considerable man hours were expended in policing price signs to insure their full technical compliance. Corrective action was ordered on a total of 166 violative price advertising signs during the biennium.

Legislation will be requested to change the price sign law to delete the requirement that the words "tax included" be on a gasoline price sign. The amendment will require in lieu of those words that when a price is posted, the price shall include all applicable taxes.

This legislative change would save considerable man hours now expended in the enforcement of adding the words "tax included" to many price signs that would otherwise be in compliance.

PLANT PATHOLOGY

Division work in plant pathology is a combination of field and laboratory activities for regulatory and service needs of the Department and community. It is primarily an adjunct or collaborating service rather than an individual or independent responsibility of the Division of Plant Industry. It is utilized in Departmental work of nursery inspection and service; plant quarantine disease determinations; seed certification and inspection; and agricultural produce quality determinations. In addition, field and laboratory services are rendered by Division personnel to commercial growers and homeowners having problems with their crops or yard and garden plantings.

A small laboratory facility and library are maintained to assist in the diagnosis of plant disorders found in the State. "Plant disorders" are plants that show abnormalities in growth or differences from what is considered normal in such plants to actual necrosis or death of parts of or entire trees and plants. These disorders may be bacterial in nature, environmental, fungal, nutritional, physiological, viral, or "animal."

All plant specimens are examined macroscopically and those suspected of being caused by bacteria or fungi may be cultured for agent determination. The facility is not equipped for greenhouse or serological diagnosis of virus diseased plants. Physiological disorders would include chemical causes such as fertilizer and herbicide applications. Soil may be collected from around plants suspected as damaged by the latter and seed sown and test-grown in this soil.

The category "animal," although mouse injury is occasionally found, refers primarily to microscopic roundworms known as eelworms or nematodes. Through dissection or simple laboratory procedure these may be recovered from infested plant parts for identification. Our staff does not include a trained nematologist so nematode samples may be sent to the Nematology Section, Bureau of Plant Pathology, California State Department of Agriculture, for confirmation or identification.

Nurserymen who have disease problems develop in their stock may

request assistance in the determination of cause and recommendation for control.

Plants for determination of disorders may be collected by Division personnel making regulatory inspections or by private individuals having plant problems, or personnel in other governmental agencies concerned with plants in their activities. Specimens range from native vegetation of forest and rangeland to commercial agricultural and seed crops to turf and ornamentals and other plants of the homeowner.

Plant specimens submitted for diagnosis were as follows:

Forest and range	6
Fruit trees	6
Grain	3
Ornamentals	80
Potato	7
Turf	5
Other	12
Total	119

PLANT QUARANTINE

Plant quarantines are inter- or intrastate depending upon the quarantined area. Quarantines are needed to regulate the movement of serious pest host materials into or within the State to prevent the introduction or spread of a specific plant pest.

The Division administers seven interstate and one intrastate quarantines to prevent the introduction or spread of the following plant pests:

1. Colorado Potato Beetle, Reg. 54.01.
2. European Corn Borer, Reg. 54.02.
3. Cotton Boll Weevil Complex, Reg. 54.04.
4. European Pine Shoot Moth, Reg. 54.05.
5. Elm Tree Diseases (Dutch Elm and Phloem necrosis), Reg. 54.06.
6. Mint Diseases (Verticillium wilt and a nematode), Reg. 54.07.
7. Sugar Beet Nematode, Reg. 54.08.
8. Pink Bollworm (Interstate), Reg. 54.50.

In addition to the state quarantines there are 12 federal domestic plant quarantines that regulate movement of host materials and possible carriers from infested areas into the State of Nevada and 1 that regulates the movement of host materials from the State (Pink Bollworm). Clark County is under quarantine by California because of Ozonium root rot disease.

The Division also cooperates with the Plant Quarantine Division, U.S.D.A. in the inspection and clearance of incoming shipments and passengers arriving in Nevada direct from overseas points. With the utilization of larger aircraft both as to cargo capability and distance of flight and Nevada's "Free Port" industry we anticipate that request for service in clearance of imported cargo and passengers will increase in future years. Until such time as the volume of clearance justifies the stationing of federal personnel at Nevada ports-of-entry the Division must be capable of servicing this activity for the benefit of Nevada's industries.

PUBLIC WEIGHMASTERS

Public weighmasters play an ever increasing role in Nevada's growing commerce by certifying to the correct weights of economic goods in sales transactions. All financially interested parties may receive copies of public weighmaster certificates issued.

Persons desiring to become public weighmasters must pay a $15 initial licensing fee, file a $1,000 faithful performance bond, use an accurate and approved weighing scale and use an approved weight certificate form. The license is renewable on a calendar year basis for a fee of $10.

There were 56 licensed public weighmasters at the close of the biennium.

SEED

The 1969 Nevada Legislature adopted a new seed act for agricultural, vegetable, flower, and tree and shrub seed. The new law is basically the "Recommended Uniform State Seed Law" for each of the types of seed. The Act authorizes and directs the Department to adopt rules and regulations to implement the law. The present timetable for public hearings on promulgated regulations is November 1970.

Seed program responsibilities are divided into three subject areas: seed laboratory, seed inspection, and seed certification.

SEED ANALYTICAL LABORATORY

The Division's seed analytical laboratory provides the information required for proper labeling of seeds as to purity, germination and weed seed content. This information is used by the seed dealer for compliance with the labeling requirements, by the seed inspector to determine the accuracy and correctness of labels, and to determine that the minimum quality standards are met for certification.

It was necessary to establish a nominal fee schedule for all non-regulatory samples submitted to the laboratory.

The seed laboratory made analyses on 857 samples with each sample representing an average of 3 separate testing procedures.

SEED INSPECTION

Seed legislation is basically truth in labeling and consumer protection. It also assists in orderly marketing by restricting the movement of low or poor quality seed.

Seed lots are examined for label compliance and samples drawn for analysis by the laboratory to determine the accuracy of the label. Only regulatory samples of questionable lots are drawn. Lots in label violation for such things as incomplete label, expired test date, etc., are placed under hold at time of inspection. It is the dealers' or retailers' responsibility to submit seed samples for labeling information.

SEED CERTIFICATION

Nevada's 1968 alfalfa seed production ranked fifth nationally. The production of certified seed varieties has remained fairly constant for the past 4 years; however, the production of proprietary varieties not under

certification and the production of non-certified seed of public varieties have increased dramatically.

When one considers that our alfalfa seed industry is only 12 years old and that the biennial production of 14+ million pounds represented a gross in excess of $5.5 million its importance to the agricultural economy of the State must be recognized.

Nevada is in need of a good cash crop that could be produced in our high elevation, short growing season valleys and that would be compatible with our alfalfa seed industry. Attention directed toward grass seed production shows favorable consideration. The University of Nevada Agricultural Experiment Station through variety trials has determined half a dozen varieties that have production potential. For the 1969 and 1970 growing seasons field plantings up to 40 acres in size were in production providing beneficial information that will help guide this segment of the industry.

Industry's planned development starting in 1971 in potato seed, plus the programmed expansion of the alfalfa seed industry, plus the gradual interest and increase in small grain seed, plus the grass seed development will place a severe strain on the Division for services, both laboratory and field.

STANDARDIZATION AND GRADING AGRICULTURAL PRODUCTS

Inspection and grading programs are divided into three types of service:

SHIPPING POINT INSPECTION

This is third party determination of the quality and condition of produce at point of origin. Inspections are made upon request of a financially interested person and a federal-state certificate as to the grade and condition of the produce issued. Principal activity has been on potatoes, onions, garlic and alfalfa hay.

MARKET INSPECTION

Upon request inspection of produce to determine condition is made and a state certificate issued. This service is mostly requested by produce dealers at the wholesale level for lots received containing excessive decay or other condition factors. The certificate is helpful in determining adjustment with the supplier or to comply with law requirements for consignment produce.

SHELL EGG INSPECTION

This phase of standardization inspection is both regulatory and service. Nevada law requires grade and quality labeling for all shell eggs. Inspections are made to determine compliance with the inspection made at the retail level. Upon request inspection to determine quality, size, and condition is made and certificate issued either "state" or "federal-state" depending upon the need. Most of this type of inspection and certification is related to federal-state contract purchases.

Regulatory inspection at the retail level was made on 687 lots representing 8,832 cases of shell eggs.

NOXIOUS WEEDS

The 1969 Legislature eliminated the Department's Noxious Weed and Insect Control Budget; therefore, this report covers the 1968 spray program, including the month of June 1969.

With the elimination of this program our efforts have been directed toward interesting the farmers and ranchers who have noxious weed infestations on their property in controlling them at the proper time. This has proven very difficult. One of the first things they point out is that the government agencies are not doing control of noxious weeds on public lands.

We were fortunate in being able to work out a program with the Nevada State Highway Department to control noxious weeds along their rights-of-way in addition to their regular weed control program. In doing this we felt this type of program would give farmers and ranchers an incentive to work on their own property.

A similar type of program with counties and other local subdivisions was unsuccessful as they do not have trained personnel or the equipment to carry on this type of program. In many cases the workload would not keep a crew busy all the time in a particular area whereas our crews were not confined to a city or county but moved from area to area. Local personnel need to be trained to recognize the various types of noxious weeds that were under control and the material and methods of application to give the best results. At the present time with such a strong emphasis on the use of pesticides (herbicides included) personnel should be properly trained in their use to avoid damaging other vegetation and the environment.

The last year saw two new weed districts organized under the new weed law which was passed by the 1969 Legislature. These two districts brought the total number of weed districts operating in the State to five. The counties these districts are operating in are: Douglas, Eureka (Diamond Valley), Humboldt (Paradise Valley), Lyon and Pershing counties. The districts spray only on private property within their respective districts and do not spray any road rights-of-way.

In 1968 this Department sprayed 35,363 gallons of material on 12 species of noxious weeds. In 1969 for the one month the program was in operation a total of 5,415 gallons of material was sprayed on 2 species of noxious weeds.

During the past biennium two new infestations of spotted knapweed (*Centaurea maculosa* Lam.) were found: one on Interstate 80 approximately 80 miles west of the previously known infestations which were at Battle Mountain, and another on Highway 93 approximately 90 miles south of Wells, Nevada. These two infestations indicate the spread of this weed by motor vehicle travel.

Two new infestations of dalmation toadflax (*Linaria dalmatica*) were also found during the past year. One infestation was approximately 12 miles east of Lovelock, scattered over an area of about one-fourth mile. The other infestation was a single plant found on Highway 50, Cave Rock at Lake Tahoe, approximately 150 miles from the first infestation. Infestations are now located in Lincoln, Pershing and Douglas counties.

Leafy spurge (*Euphorbia esula*) was found for the first time in a native pasture in Washoe County. The only other known infestations in

the State are approximately 300 miles east of Washoe County in Elko County.

As previously reported, both musk thistle (*Carduus nutans* L.) and Scotch thistle (*Onopordum acanthium*) infestations are found in new areas along various highway and road rights-of-way. Scotch thistle is spreading into the rangeland areas of central Washoe County. Musk thistle is spreading in the area southwest of Reno and in the Verdi area. Puncture vine (*Tribulus terrestris* L.) is spreading into new areas and reinfesting other areas throughout much of the State.

The lack of control measures in 1969 and 1970 has definitely increased manifold the degree and area of noxious weed infestations. Because of seeding by these infestations three or more years of intensive control will be required to eliminate the viable seed from the soil.

WEIGHTS AND MEASURES

Weights and measures law enforcement activities are consumer and user protection and affect every segment of Nevada's commerce and all of its citizens. This activity is the most important service of government that influences every person's daily economic purchase or sale of measurable commodities.

Weights and measures personnel are impartial referees who reasonably insure that equity prevails between the buyer and the seller in the $500,000,000 worth of measurable commodities in annual commerce. This is accomplished by testing weighing and measuring devices used in commerce for accuracy and mechanical quality compliance. Also, packaged commodities are checked to determine if they contain the quantity claimed by the package label.

An additional affiliated function of weights and measures enforcement is the quality and labeling control of gasoline, motor oil, heating oil, diesel fuel and antifreeze.

Nevada's economic and population growth, changing methods of merchandising and revolutionary technical changes in weighing and measuring devices pose challenges to weights and measures administration to keep abreast of these constantly changing factors that affect program accomplishments.

Adequate staffing and support funds are essential to cope with these challenges. Public education of weights and measures functions, increased activity of package inspection for quantity compliance, ability to test all commercial weighing and measuring devices annually and improved personnel training schools are essential requirments for adequate weights and measures services.

PACKAGED COMMODITIES

Today's market place has an ever increasing number of appealing consumer goods in packaged form ready for purchase. This maze of countless thousands of different kinds of packaged items whose contents are expressed by weight, count, liquid measure, linear measure, etc., would require several man years of inspection time to audit all kinds of commodities sold for compliance with net quantity statement claims on package labels.

Manpower availability for package quantity control programs has been limited. This has resulted in checking a total of 20 commodities for net quantity compliance as compared to some 10,000 different items available in today's supermarket alone. Items checked include basic foods, livestock and pet foods, fertilizer, motor oil, etc.

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

1959	62%	1965	8%
1960	17%	1966	35%
1961	30%	1967	27%
1962	12%	1968	17%
1964	29%	1969	30%

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

Total lots sampled	2,220
Total packages in lots	80,980
Total lots in violation	496
Total packages in violation	18,347
Percentage of packages in violation	22%

Packages checked were on a representative sampling basis.

METROLOGY

The Nevada state standards of weight, volume and length measurement are the basis for accuracy which govern all commercial weighing and measuring equipment used in Nevada's commerce.

The state standards of weight, volume and length are used to certify weights and measures enforcement standards used in the testing of weighing and measuring equipment used commercially.

We are deeply grateful to the people of Nevada who through the 1969 Legislature did appropriate funds for the construction of a weights and measures facility to accommodate office needs and laboratories to house the new standards of weight, volume and length provided by the Congress of the United States.

This new laboratory facility will enable us to verify exact measurements of weight, volume and length for science, industry, business, educational institutions, other government agencies and to any citizen of this State.

This new facility should be operative by July 1, 1971.

WEIGHTS AND MEASURES DEVICES TESTED JULY 1, 1968–JUNE 30, 1970

	Total Initially Tested	*Initially Tested and Passed*	*Adjusted and Passed*	*Out-of-Order*	*Total Out-of-Orders Rechecked*	*Rechecked and Passed*	*Rechecked, Adjusted and Passed*	*Rechecked and Failed to Pass*
Scales—								
Spring	130	108	19	3	6	4	1	1
Computing	2,276	1,427	598	251	231	178	15	38
Prepackage	232	182	13	37	61	28	28	5
Balances	241	177	48	16	3	3	.....	.....
Pharmacy	7	6	1	.....	.....	.....	.....	.....
Postal	87	71	2	14	1	.....	.....	1
Overhead track and beam	247	161	42	44	44	21	10	13
Small capacity	325	230	54	41	51	25	4	22
Large capacity	768	557	134	77	72	59	5	8
Livestock	762	468	171	123	64	28	29	7
Motor truck	188	103	60	25	53	21	16	16
Hopper	126	71	47	8	16	7	6	3
Contractor motor truck	60	15	34	11	30	6	18	6
Contractor hopper	86	44	29	13	28	11	14	3
Miscellaneous	22	16	4	2	2	2	.....	.....
Meters—	8,519	7,300	390	829	950	749	106	95
Gas pumps	12	5	.....	7	11	8	1	2
Oil	643	377	206	60	73	28	32	13
Truck	363	323	1	39	27	13	2	12
Split compartment	133	83	43	7	2	.....	.....	2
Rack	286	145	125	16	31	14	11	6
Liquid petroleum gas	156	60	93	3	10	7	3	.....
Temperature compensators	.....	.....	.....	.....	.....	.....	.....	.....
Liquid Measures—	6	6	14	8	2	2	.....	1
Tank compartments	26	4	.....	5	5	4	.....	.....
Milk tanks	167	162	.....	.....	.....	.....	.....	254
Linear and dry measures	15,868	12,101	2,128	1,639	*1,773	1,218	301	.....
Commercial devices initially tested	1,773	.....	.....	.....	.....	.....	.....	.....
Devices rechecked	17,641	.....	.....	.....	.....	.....	.....	.....
Grand total tested								
Weights—	95	93	2	.....	.....	.....	.....	.....
Apothecary	3,778	3,750	11	17	25	24	1	.....
Avoirdupois	184	177	6	1	.....	.....	.....	.....
Metric	4,057	4,020	19	18	.....	24	1	.....
Weights initially tested	25	.....	.....	.....	*25	.....	.....	.....
Weights rechecked	4,082	.....	.....	.....	.....	3	1	.....
Grand total tested	41	11	30	.....	4	2	1	.....
Measures	1,864	1,613	246	5	3			
State standards								

*Total out-of-order rechecks also includes devices rechecked upon complaint or suspected of being in error.

Devices initially tested and passed are sealed. Minor adjustments are made in instances where this will correct errors and equipment is then sealed. Noncomplying equipment is marked "out-of-order" and required to be repaired. A recheck test is made after notification has been received that out-of-order devices have been corrected.