STATE OF NEVADA

# BIENNIAL REPORT

OF THE

# STATE DEPARTMENT OF AGRICULTURE

LEE M. BURGE, Director

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For the Fiscal Years Ending
June 30, 1965 and 1966



SPO, CARSON CITY, NEVADA, 1966

## LETTER OF TRANSMITTAL

THE HONORABLE GRANT SAWYER, *Governor of Nevada*
THE STATE BOARD OF AGRICULTURE
THE NEVADA STATE LEGISLATURE

The 26th Biennial Report for the period of July 1, 1964–June 30, 1966 of the State Department of Agriculture is herewith respectfully submitted.

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

Lee M. Burge

LEE M. BURGE
*Executive Director*

# PERSONNEL

**State Board of Agriculture—**

| | | Expires Appointment |
|---|---|---|
| FRED H. DRESSLER, Chairman, Livestock | Gardnerville | April 22, 1969 |
| DELL H. ROBISON, Vice Chairman, General Farming | Logandale | April 22, 1967 |
| STANLEY C. ELLISON, Livestock | Elko | April 22, 1969 |
| CHARLES P. FREY, Dairying | Fallon | April 22, 1970 |
| RALPH HALL, Apiary | Yerington | July 1, 1967 |
| THOMAS J. MARVEL, Livestock | Battle Mountain | April 22, 1968 |

**Department of Agriculture—**

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

**Division of Plant Industry, Administrative Staff—**

LEE M. BURGE, Administrator....Reno
HARRY E. GALLAWAY, Deputy Administrator....Reno
RAYMOND REBUFFO, Assistant Administrator....Reno

**Division of Animal Industry, Administrative Staff—**

JOHN L. O'HARRA, Administrator....Reno
WILLIAM F. FISHER, Deputy Administrator....Reno
DON E. LUNDHOLM, Supervisor, Animal Disease Laboratory....Reno
STANLEY F. ROUTSON, Supervisor, Livestock Identification....Reno

**Division of Plant Industry, General Staff—**

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
J. R. EARNIST, Agricultural Supervisor....Elko
JACK R. ADAMS, Agriculturist....Reno
WILLIAM J. LUNDAHL, Agriculturist....Winnemucca
HARLAN K. SPECHT, Chief Chemist....Reno
JAMES L. TRIMBELL, Chemist....Reno
ELLA A. KNOLL, Chemist....Reno
P. A. FERRETTO, Weights and Measures Inspector II....Reno
WALTER F. HEADRICK, Weights and Measures Inspector II....Reno
KNUTE PENNINGTON, Weights and Measures Inspector II....Las Vegas
CLIFFORD D. ELMORE, Weights and Measures Inspector I....Las Vegas
MERLE B. FORST, Weights and Measures Inspector I....Las Vegas
CHARLES R. McNALLY, Weights and Measures Inspector I....Reno
THOMAS A. MAURINE, Weights and Measures Inspector I....Las Vegas
STANLEY ZUNINO, Weights and Measures Inspector I....Elko
REBA HAMPTON, Seed and Grain Analyst....Reno
JOHN M. ALDERDYCE, General Mechanic....Reno
JOE A. CAMPBELL, Spray Operator Foreman....Reno

**Contract Agricultural Inspectors—**

TIMOTHY LINSCOTT....Smith
ERIC SEBBAS....Lovelock

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

ROBERT W. NICHOLS, Agricultural Supervisor....Las Vegas
ARCHIE J. ADAMS, Junior Agricultural Inspector....Las Vegas
HAROLD N. HANSON, JR., Junior Agricultural Inspector....Las Vegas
DALE MILNER, Junior Agricultural Inspector....Las Vegas

Washoe County—

RICHARD URIARTE, Agriculturist.....Reno

**Division of Animal Industry, General Staff—**

CHARLES R. ADAMS, D.V.M., Veterinarian.....Reno
RICHARD V. CHANCE, D.V.M., Veterinary Diagnostician.....Reno
PATRICIA M. KROKO, Serologist-Bacteriologist II.....Reno
GLADYS CRAWFORD,* Veterinary Laboratory Technician.....Reno
EDMUND GARAVENTA, District Brand Inspector.....Fallon
THOMAS P. KANE, District Brand Inspector.....Elko
ARSHAL A. LEE, District Brand Inspector.....Las Vegas
SHIRLEY GEORGE ROBISON, District Brand Inspector.....Ely
WILLIAM FRED WARREN, District Brand Inspector.....Reno
GEORGE HENRICHS, Contract Brand Inspector.....Yerington
FRANK SICKING, Contract Brand Inspector.....Fallon
ISABELLE E. WINDER, Senior Clerk.....Fallon

**Contract Veterinarians (Deputy Quarantine Officers)—**

F. H. BAKER, D.V.M.....Gardnerville
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
FRANCIS N. NEVILLE, D.V.M.....Reno
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
DORCAS J. CLUCK, Senior Clerk-Typist.....Reno
ELIZABETH A. DEADY,** Senior Clerk-Typist.....Reno
DORATHY R. DUNGATE, Senior Clerk-Stenographer.....Reno
ALICE M. GEDWILL, Senior Clerk-Typist.....Las Vegas
LAVERNE A. HOWARD, Senior Clerk-Stenographer.....Reno
HAZEL L. LUCAS, Senior Clerk-Stenographer.....Reno
NANCY A. MILLARD, Senior Account Clerk.....Reno
PENNY RICK, Senior Clerk-Stenographer.....Reno
BETTY M. WESLEY, Senior Clerk-Stenographer.....Reno

*Replaced Ernest Sandry, retired.
**Replaced Winifred M. Moore, retired.

## STATEMENT OF EXPENDITURES AND RECEIPTS, JULY 1, 1964–JUNE 30, 1966

### EXPENDITURES

| *Funds* | *Non-reverting Balances* | *Salaries and Payroll Costs* | *Travel* | *Operation* | *Equipment* | *Transfers to Operating Funds* | *Total* |
|---|---|---|---|---|---|---|---|
| Livestock Inspection Fund[1] | $120,224.74 | $176,178.84 | $27,576.65 | $23,637.52 | $7,695.20 | ..... | $235,088.21 |
| Livestock Disease Control Fund[2] | ..... | 84,198.44 | 13,537.41 | 5,868.98 | 373.69 | ..... | 103,978.52 |
| Animal Disease Laboratory Fund[3] | ..... | 61,181.71 | 1,789.81 | 12,082.32 | 6,180.50 | ..... | 81,234.34 |
| Plant Industry Fund[4] | ..... | 425,769.88 | 50,306.08 | 36,122.43 | 28,714.70 | ..... | 540,913.09 |
| Plant Industry Receipt Fund[5] | 1,907.71 | ..... | ..... | ..... | ..... | $44,879.41 | 44,879.41 |
| Noxious Weed & Insect Pest Control Fund[6] | ..... | 55,876.14 | 13,055.88 | 36,638.73 | 7,292.42 | ..... | 112,863.17 |
| Weed & Insect Receipt Fund[7] | 3,037.98 | ..... | ..... | ..... | ..... | 6,214.66 | 6,214.66 |
| Agricultural Registration & Enforcement Fund[8] | 26,938.28 | 29,524.71 | 2,399.74 | 12,652.13 | 8,886.59 | ..... | 53,463.17 |
| Apiary Inspection Fund[9] | 3,723.92 | 6,510.70 | 2,920.62 | 439.94 | ..... | ..... | 9,871.26 |
| Rural Rehabilitation Trust Fund[10] | 12,186.19 | ..... | ..... | 38,000.00 | ..... | ..... | 38,000.00 |
| County Reimbursement Fund[11] | ..... | ..... | ..... | 1,038.39 | ..... | ..... | 1,038.39 |
| Total | $168,018.82 | $839,240.42 | $111,586.19 | $166,480.44 | $59,143.10 | $51,094.07 | $1,227,544.22 |

## RECEIPTS

| *Funds* | *Appropriations* | *Receipts from Taxes, Bees, Sales, Refunds, etc.* | *Transfers from Receipt Funds* | *Total* | *Reversions 6/30/65 and 6/30/66* | *Non-reverting Balances* |
|---|---|---|---|---|---|---|
| Livestock Inspection Fund[1] | ..... | $268,447.16 | ..... | $268,447.16 | ..... | $153,583.69 |
| Livestock Disease Control Fund[2] | $121,931.00 | 268.78 | ..... | 122,199.78 | $18,221.26 | ..... |
| Animal Disease Laboratory Fund[3] | 84,280.00 | 42.00 | ..... | 84,322.00 | 3,087.66 | ..... |
| Plant Industry Fund[4] | 503,881.00 | ..... | $44,879.41 | 548,760.41 | 7,847.32 | ..... |
| Plant Industry Receipt Fund[5] | ..... | 43,464.34 | ..... | 43,464.34 | ..... | 492.64 |
| Noxious Weed & Insect Pest Control Fund[6] | 109,189.00 | ..... | 6,214.66 | 115,403.66 | 2,540.89 | ..... |
| Weed & Insect Receipt Fund[7] | ..... | 8,408.17 | ..... | 8,408.17 | ..... | 5,231.49 |
| Agricultural Registration & Enforcement Fund[8] | ..... | 47,023.84 | ..... | 47,023.84 | ..... | 20,498.95 |
| Apiary Inspection Fund[9] | ..... | 13,119.29 | ..... | 13,119.29 | ..... | 6,971.95 |
| Rural Rehabilitation Trust Fund[10] | ..... | 45,885.35 | ..... | 45,885.35 | ..... | 20,071.54 |
| County Reimbursement Fund[11] | ..... | 1,038.39 | ..... | 1,038.39 | ..... | ..... |
| Total | $819,281.00 | $427,697.32 | $51,094.07 | $1,298,072.39 | $31,696.73 | $206,850.26 |

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

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

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

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

[5]A receiving fund for income derived from agricultural inspections, nursery licensing, seed certification, plant certification, pest control operator's licensing, etc.

[6]An appropriation from the General Fund. Used by the Division of Plant Industry for the control of noxious weeds and of major insect pests.

[7]A receiving fund for income derived from contributions to weed control and insect control program.

[8]A non-reverting special fund derived from economic poison registrations fees, fertilizer registration and tonnage fees, and antifreeze registration fees.

[9]A non-reverting fund derived from a special tax on stands of bees and from registration fees. Used by the Division of Plant Industry for the support of apiary inspection.

[10]A special fund derived from the trust funds of the now defunct Nevada Rural Rehabilitation Corporation. This fund, plus repayment of present outstanding loans, is used by the Department to finance loans to Nevada farmers and ranchers.

[11]A special fund set up for clearing county receipts only.

# REPORT OF STATE DEPARTMENT OF AGRICULTURE

## TAX LEVIES

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

At the February 10, 1965 meeting, the Board set the tax rates for tax year 1965–66 as follows:

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

At the February 15, 1966 meeting, the Board set the tax rates the same as above for tax year 1966–67.

**ASSESSED VALUATION OF LIVESTOCK UNDER THE JURISDICTION OF THIS BOARD FOR THE FISCAL YEARS 1964–65 AND 1965–66**

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

| Class | 1964–65 | 1965–66 |
|---|---|---|
| Stock cattle | $13,302,120 | $12,841,132 |
| Calves | 1,598,780 | 1,778,013 |
| Bulls | 1,342,500 | 1,328,200 |
| Milch cows | 678,155 | 717,070 |
| Work horses and mules | 54,100 | 50,140 |
| Fancy pleasure horses | 18,600 | 20,500 |
| Saddle horses | 358,650 | 379,175 |
| Stock horses | 84,315 | 89,208 |
| Stallions | 32,525 | 33,155 |
| Jacks | 400 | 500 |
| Burros | 2,310 | 2,190 |
| Hogs (over 8 months) | 9,660 | 7,130 |
| Pigs (under 8 months) | 6,040 | 5,120 |
| Poultry | 7,723 | 11,489 |
| Goats | 672 | 575 |
| Totals | $17,496,550 | $17,263,597 |

**STANDS OF BEES AND ASSESSED VALUATION FOR THE FISCAL YEARS 1964–65 AND 1965–66**
**(Figures from the Report of the Nevada Tax Commission)**

| County | Year | Number | Value Per Stand | Assessed Valuation |
|---|---|---|---|---|
| Churchill | 1964–65 | 1,874 | $2.00 | $3,748 |
| | 1965–66 | 1,877 | 2.00 | 3,754 |
| Clark | 1964–65 | 222 | 2.49 | 553 |
| | 1965–66 | 199 | 2.00 | 399 |
| Douglas | 1964–65 | 455 | 2.00 | 910 |
| | 1965–66 | 460 | 2.00 | 920 |
| Elko | 1964–65 | 549 | 2.00 | 1,098 |
| | 1965–66 | 453 | 2.00 | 906 |
| Esmeralda | 1964–65 | 111 | 2.00 | 222 |
| | 1965–66 | 0 | 0 | 0 |
| Humboldt | 1964–65 | 3,909 | 2.00 | 7,818 |
| | 1965–66 | 4,507 | 2.00 | 9,014 |
| Lander | 1964–64 | 338 | 2.00 | 676 |
| | 1965–66 | 233 | 2.00 | 466 |
| Lincoln | 1964–65 | 21 | 2.00 | 42 |
| | 1965–66 | 207 | 2.00 | 414 |
| Lyon | 1964–65 | 2,454 | 2.00 | 4,908 |
| | 1965–66 | 2,659 | 2.00 | 5,318 |
| Nye | 1964–65 | 125 | 2.00 | 250 |
| | 1965–66 | 0 | 0 | 0 |
| Ormsby | 1964–65 | 2 | 2.00 | 4 |
| | 1965–66 | 10 | 2.00 | 20 |
| Pershing | 1964–65 | 660 | 2.00 | 1,320 |
| | 1965–66 | 600 | 2.00 | 1,200 |
| Washoe | 1964–65 | 229 | 2.66 | 610 |
| | 1965–66 | 550 | 2.01 | 1,105 |
| White Pine | 1964–65 | 170 | 2.00 | 340 |
| | 1965–66 | 190 | 2.00 | 380 |
| Totals | 1964–65 | 11,119 | $2.02 | $22,499 |
| | 1965–66 | 11,945 | $2.00 | $23,896 |

## DIRECTOR'S COMMENTS

By Lee M. Burge
*Nevada State Department of Agriculture*

American agriculture in the immediate years ahead faces the challenge of feeding and clothing an unbelievable domestic population increase. Add this to the commitments made and being made to foreign countries and we immediately visualize the need for still greater production and marketing knowledge.

It is reasonable to expect that an acceptable population control program may develop. Even so, under present inflationary trends, American agriculture could be strained considerably. It will be a challenge to maintain production at a cost that will permit something near our present standard of living.

Today, less than 9 percent of our population is engaged in the actual production of agricultural crops.

By utilizing the best scientific knowledge and by greatly increasing capital investment, the American farmer has already, in many instances, doubled his per-acre production. To do this, he has found it necessary to increase investment in both land and equipment. The production of agricultural products has become big business, except in the area of marketing.

To meet the forthcoming challenge, farm operators who hope to gain a fair profit for their production ability are faced with many factors and needs to consider. A few of these are:

1. A stable tax structure on productive lands.
2. Long-range financing and budgeting.
3. In public-land states, a long-range tenure with fixed standards and costs.
4. New methods of pest control in some areas and a reasonable tolerance for approved materials now in use.
5. Marketing methods designed to improve their bargaining position.
6. A new image in the eye of the general public. The producer and the consuming public can be the greatest partnership on earth.

We in agriculture approach the next few years with optimism and enthusiasm. Needed production can be realized, but it can only be attained with the help of the general public and the understanding of a not 'too paternal' government.

## LEGISLATION

Several legislative amendments have been presented to the Legislative Counsel Bureau.

Proposed amendments include provision to allow Department personnel authority in making arrests in livestock theft, requiring holding of all hides for inspection, and minor changes in the livestock brand recording code.

General Department authority to subpoena witnesses and records relative to hearing procedures is considered a need.

A broadening of the authority to investigate pest conditions not truly insects, such as nematode and growth conditions not related to a specific disease, is worthy of legislative consideration.

In the area of weights and measures, several problem areas are called to the attention of the Legislature, including public weighmaster seals and certain needs in the petroleum advertising section.

As we progress, many minor needed legislative changes appear that will improve our approach to a reasonable policy in enforcement of the many activities of the Department.

## ACKNOWLEDGMENTS

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

**Federal agencies and staffs—**

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

**State agencies and staffs—**

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

**Organizations and individuals—**

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

# DIVISION OF ANIMAL INDUSTRY

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

## ADMINISTRATIVE COMMENTS

Nevada's continuing population increase is accelerating consumer demands for meat and animal products. Economic and technical changes evolving from greater knowledge and changing times require the services provided by this Division to be constantly updated. The livestock industry must maintain its position and meet its obligation to furnish an abundant and wholesome supply of animal products for the needs of our citizens and visitors.

Individual livestock operations continue to become fewer in numbers each year. As smaller ranches are being absorbed into larger operations, technical knowledge is being utilized to a greater extent. Nevada will continue to utilize its range areas to produce beef and will no doubt develop additional feedlot and slaughtering operations in the cultivated areas where concentrated feed is available.

During the biennium, the livestock industry has experienced adverse economic conditions and drought. Neverthless, the industry is maintaining itself in a sound, productive manner. Livestock is our most precious source of food and fiber. The responsibility of this Division to guard the livestock health and productivity is increasing yearly. In the near future the industry will be under pressure to produce adequate amounts to feed and clothe our rapidly swelling population.

## ANIMAL HEALTH PROGRAMS

This biennium is noteworthy in the achievement of three distinct accomplishments in livestock disease eradication in Nevada. On September 24, 1965, Nevada was declared **"Hog Cholera Free."** On February 24, 1966, Nevada was declared a "Validated Swine Brucellosis-Free State." On June 10, 1966, the State of Nevada was "Certified Brucellosis Free." These declarations were the climax of many years of disease eradication activities. The livestock industry and the citizens of the State will greatly benefit by the efforts expended in achieving the disease-free status in these areas. We hope there will be a continuing philosophy to eradicate diseases wherever possible, rather than live with them.

During this past biennium, livestock in the State of Nevada have continued to remain relatively free from signifcant disease outbreaks. We must continue and increase our efforts in disease control and eradication activities so Nevada livestock may be protected from introduction of new diseases into the State and retain the status of being rated among the healthiest livestock in the nation.

An adequate veterinary service is a 'must' in the control and eradication of contagious and infectious diseases of livestock. The cooperation of the private veterinary practitioner is essential in the defense against all animal diseases. Diseases of animals, in many instances, constitute a significant human health hazard, as well as being a major threat to the livestock industry of this State and the nation. The disease threat of

today demands highly trained veterinary medical scientists with specialized skills to attack and successfully meet these threats. At this time, there is an overall shortage of veterinary personnel in the United States and it appears the shortage will increase each year. This Division is vitally concerned in the competition for this personnel with similar agencies in other states, the Federal government, private enterprises, and other employers requiring top-grade veterinary scientists.

**Nevada feedlots continue to produce healthy beef in a productive environment.**

The general activities and significant progress made by the Division of Animal Industry during this biennium have, in great measure, been due to the assistance and cooperation of many groups and individuals. The practicing veterinarians, Agricultural Extension Agents, livestock owners, educators, Animal Health Division of the United States Department of Agriculture, Nevada State Cattle Association, Nevada Farm Bureau, other State and Federal agencies, and agencies of county and local political subdivisions have all extended a helping hand. To all of these, the Division of Animal Industry extends its thanks and appreciation.

In this report, there will be made mention of certain specific diseases that have caused concern to the livestock industry and the public of the State during the biennium.

**Animal Diseases and Pathological Conditions Reported**

Acute bloat
Anaplasmosis
Bacillary hemoglobinuria
Calf scours
Cardiac failure
Chorioptic scabies
Chronic erysipelas
Coccidia
Congenital heart defect
Crooked calf syndrome
Dermatitis
Dermatitis (chemical)
Distemper (strangles)
Enterotoxemia
Eperythrozoonosis
Epizootic bovine abortion
Feed allergy
Gangrenous Colitis
Gangrenous pneumonia
Grass tetany
Gut edema
Hydrocephalus
Hypomagnesemia
Infectious atrophic rhinitis
Infectious bovine rhinotracheitis
Intestinal obstruction
Keds infestation
Leptospirosis
Malnutrition
Metastatic carcinoma
Oxalate poisioning and uremia
Parasitic hepatitis
Pediculosis
Peritonitis from perforated intestine
Petroleum toxicity
Photosensitization
Poisonous plants
Pulmonary emphysema
Pullorum—Himalayan snow partridges
Ruptured bladder
Salt poisoning
Strongyles
Toxic enteritis
Traumatic injury
Vaginitis

## LIVESTOCK IMPORTS AND EXPORTS

In order to protect the livestock of the State of Nevada it is the responsibility of this Division to conduct an inspection and regulatory control service, designed to prevent the introduction of livestock diseases into the State of Nevada. It may be necessary on occasion to quarantine local livestock for testing or inspection, or to place a hold order 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 | 44,898 |
| Swine | 5,112 |
| Horses | 1,702 |
| Dogs and cats | 1,295 |
| Goats | 3 |
| Total | 53,010 |

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 exported to other states and nations are listed as follows:

| | |
|---|---|
| Cattle | 56,777 |
| Swine | 274 |
| Horses | 651 |
| Dogs and cats | 1,505 |
| Goats | 7 |
| Total | 59,214 |

**Anaplasmosis**

Anaplasmosis is considered to be statewide in occurrence, with the greater endemic areas being the northern counties of the State. The economic significance of this disease to the livestock industry is considerable, particularly the danger and losses involved in introduction of herd replacements from areas where the disease is not prevalent. During the biennium, a commercial anaplasmosis vaccine has been developed and released for field use. This vaccine will not prevent the animal from becoming infected or from becoming a carrier; however, it is hoped its use will reduce or eliminate death losses. Field trials were conducted during the past year with inconclusive results as to the efficacy of this vaccine at this time.

Extensive research geared toward an acceptable vaccine is now being conducted at numerous places in the United States. It appears an efficient vaccine that will not transmit the disease will be essential before regulatory and eradication procedures can be promulgated to rid our State of this malady.

**Anthrax**

No cases of anthrax were reported during the biennium. The endemic anthrax areas are well known by the Division staff and by livestock operators throughout the State. A concentrated vaccination program is conducted each spring in these areas. Timely warnings by the Division with cooperation of the industry in achieving a high rate of vaccination and the control methods used in the past, has been highly responsible for nonrecurrence of this disease during the biennium.

**Bacillary Hemoglobinuria**

Few cases of bacillary hemoglobinuria were reported during the biennium. A highly efficient bacterin is available for the prevention of red water. Use of this bacterin in the areas where the disease is endemic has greatly eliminated losses.

**Brucellosis**

On June 10, 1966, officials of the United States Department of Agriculture, Washington, D.C., paid an official visit to Nevada to declare this State **"Certified Brucellosis Free."** Nevada is the second western state to successfully eradicate this disease and receive the brucellosis-free status. As recently as 10 years ago, 14 percent of the herds tested in Nevada were infected. During the biennium, only one infected herd was found and promptly cleared of the disease. At the close of the biennium, there are no known brucella infected herds in the State.

Market cattle testing was effectively used in the closing eradication efforts. This procedure involves identifying by brand or backtag all cattle over 30 months of age going to market. A blood sample for the brucellosis test is taken during the marketing-slaughtering process. Market cattle testing will play a major role in maintaining Nevada's current bovine brucellosis-free status, along with the Milk Ring Test to screen dairy herds for the presence of brucellosis. In order to eliminate the inconvenience of "on-the-ranch" testing, market cattle testing procedures will be increased and used insofar as feasible. The Market Cattle Testing Program will keep a constant surveillance on brucellosis in the State and in addition will also reveal tuberculosis or many other infectious diseases that may be prevalent.

Upon achieving the free status, we are informed that Federal funds will not be available to continue the Calfhood Vaccination Program. It is anticipated State funds will be made available to furnish the vaccine without cost to the livestock owner, with the owner and his veterinarian administering the vaccine on private treaty. All calves vaccinated must be tattooed and reported to the Division as official vaccinates, in order to comply with the program. Vaccinated calves will retain a vaccine titer up to various ages of maturity, making it necessary that the vaccination be official so the titer may be properly interpreted, to eliminate the possibility of infection. Much of the costly vaccination procedure can now be safely done away with, due to the fact that the State is free from disease. However, without vaccination our cattle will become susceptible as years go by, making it mandatory that all herd replacements be carefully screened to prevent the reintroduction of the disease. The nation, as a whole, is rapidly moving toward a certified-free status, thereby making it less possible for disease to appear.

In addition to the economic sgnificance benefiting the livestock industry by the eradication of brucellosis, the public health benefits are probably as great or greater. Brucellosis is one of the diseases that is transmitted only from animals to man. Brucella infection in the human may be acute, chronic, or debilitating over a long period of time. Brucellosis has long been an occupational disease of packing house workers, dairy employees, veterinarians, and others who work in contact with live animals or raw animal products.

Public Health statistics show a rapid decline in human infection in all areas where the disease is being brought strictly under control or eradicated.

Following is a list of Certified Brucellosis-Free expiration dates for all counties in Nevada:

| | |
|---|---|
| Churchill | December 5, 1969 |
| Clark | February 19, 1969 |
| Douglas | June 30, 1968 |
| Elko | December 5, 1971 |
| Esmeralda | December 13, 1968 |
| Eureka | March 31, 1970 |
| Humboldt | February 14, 1971 |
| Lander | March 2, 1970 |
| Lincoln | October 8, 1968 |
| Lyon | May 20, 1970 |
| Mineral | April 30, 1969 |
| Nye | December 8, 1969 |
| Ormsby | June 30, 1970 |
| Pershing | October 20, 1971 |
| Storey | April 30, 1970 |
| Washoe | September 14, 1970 |
| White Pine | July 28, 1969 |

**Equine Infectious Anemia**

Equine Infectious Anemia or swamp fever has been endemic in Nevada for more than 50 years, and is one of the most serious maladies of horses. Because of its widespread distribution, its insidious nature and its difficulty of diagnosis, it is of grave concern to owners of horses and mules. With the increase in numbers of valuable pleasure horses in the State, this disease is of serious significance.

Infectious anemia is an acute or chronic infectious disease of equines, characterized principally by intermittent fever, marked depression, progressive weakness, loss of weight, edema, congestion, and icterus of the visible mucous membranes with anemia of a transitory, progressive type. The causative agent of this disease is a virus that may persist in the host for years. It is present in the blood and body tissues of affected animals at all times and may be eliminated through the secretions or excretions. The exact nature of the virus remains a matter of discussion. Its virulence is variable and it shows considerable resistance against disinfectants, heating, freezing, and drying. Experimental evidence indicates, (1) that the disease is readily transmitted by the injection of blood or tissue emulsions from affected animals into susceptible ones; (2) that minute doses of the virus are infective for susceptible animals; (3) that the body secretions or excretions may contain the virus; (4) that infected mares may transmit the disease to their offspring; (5) that infected mares may abort during or following febrile attacks, characteristic of the disease; (6) that the disease may be transmitted by external parasites, including biting flies, mosquitoes, and biting lice; (7) that it may spread slowly by long continuous intimate contact; (8) that carriers probably constitute one of the most common sources of the virus in nature and is our chief concern in the perpetuation of the disease.

The clinical symptoms are variable and depend to a great extent on the form of the disease. Infectious anemia may occur as an acute, rapidly fatal disease or more commonly as chronic infection, characterized by

intermittent attacks of fever, loss of weight, marked depression, and dropsical swellings on the lower portion of the body and on the legs. The disease may also exist in a form in which no clinical symptoms are apparent though the affected animal carries virulent virus in the blood stream.

The greatest obstacles in the diagnosis, study, and control of infectious anemia are the lack of a fully reliable laboratory test and a suitable laboratory animal for detection of infected animals. Diagnosis of the disease is usually difficult, the only definite means being the horse inoculation test. In active cases, a tentative diagnosis based on history, clinical symptoms, blood examinations, and autopsy, can be made with a reasonable degree of certainty.

There are no effective treatments that will exert any appreciable influence on the course of the disease, nor will free the infected animals of the virus. At this time there are no preventive vaccinations.

While no systematic control program can be undertaken until a definite means of diagnosis of chronic carriers is developed, the following measures constitute the most effective means of control.

1. Flies and mosquitoes should be controlled.
2. Care should always be taken to prevent transmission of the disease by unsterilized instruments, particularly hypodermic, tattooing, and bleeding needles.
3. The common practice of interchanging equipment such as bridles, saddles, etc., that may produce skin abrasions on both infected and healthy horses, should be avoided.
4. Only horses known to be free from the disease should be used as donors for blood transfusions.
5. Horses known to be infected with the disease should be isolated from healthy animals or, preferably, destroyed.
6. Horses from areas where the disease exists should be isolated, have their temperatures taken and recorded daily, and be kept under observation after being brought on premises where susceptible horses are kept.

**Grass Tetany**

Numerous cattle were lost from the condition known as grass tetany during the biennium. A high percentage of these losses was reported while grazing on crested wheat grass developments in the range areas. It is hoped that research findings and management practices may be developed soon to prevent these losses and allow safe use of our crested wheat areas offering additional forage on the range.

**Hog Cholera**

On September 24, 1965, the State of Nevada was declared Hog Cholera Free. Many years ago, the use, sale, distribution, or possession of live hog cholera virus was outlawed in this State. Prior to the promulgation of the virus regulation, hog cholera epidemics were prevalent. With the discontinuation of the live virus vaccination procedures, quarantines of outbreaks, enforcement of the garbage cooking regulation, and development and use of new and safe vaccines, hog cholera rapidly disappeared.

This disease, for many years, was the greatest plague of the swine

industry in Nevada. The expense of constant vaccination with the danger of vaccine break and entrance of the disease with subsequent heavy losses was prevalent.

State-federal regulation of swine garbage-feeding establishments has been maintained with routine inspection insuring proper cooking and sanitation. The cooking of garbage insures freedom from transmission of infectious diseases to swine through the media of meat products in the feed. The public health importance of enforcement of this regulation is also significant in the rapid drop in trichinae infected pork produced in these establishments.

**Forage Poisoning**

Death losses from poisonous plants and other toxic factors are constantly being reported to this Division. Nevada range lands are infested with halogeton, greasewood, chokecherry, loco weed, lupine and numerous other poisonous plants, as well as high molybdenum areas in certain cultivated valleys. Cattle losses may be numerous at various times of the year, depending on range feed, water, and other conditions. Management procedures often must be changed and redeveloped on range areas in order to eliminate or lower the death losses from toxic materials.

**Leptospirosis**

Leptospirosis became prevalent during the biennium with heavy losses in abortions and newborn calves in certain areas. Prompt diagnosis of this disease with recommendations of sanitary procedures and use of efficient vaccine has brought this condition promptly under control.

**Pulmonary Emphysema**

This seasonal condition of cattle is reported each fall and accounts for a sizeable death loss each year. A great deal of research is being conducted for the control of this condition. It is hoped that research findings and good management will reduce the losses.

**Virus Diseases**

There are five viruses now known that can cause abortion in cattle. Investigations in recent years indicate that all five of these viruses are present in Nevada. Abortions and stillbirths during the last calving period were responsible for a high percentage of calf losses on certain ranches. Epizootic Bovine Abortion (California Foothill Abortion) and Infectious Bovine Rhinotracheitis were apparently responsible for the greater portion of the problem. EBA virus in susceptible herds can account for extremely high abortion rates. IBR, in addition to causing abortions, may be responsible for pustular vaginitis and rhinotracheitis in the adult.

In addition to abortions and calf losses, some of these viruses are responsible for high morbidity and mortality rates in adults in feedlot and pasture operations. In face of this virus threat, it is mandatory the Division delegate trained personnel to investigation and control of this condition, and step up tissue culture work and virology in our Diagnostic Laboratory.

### Scabies

Cattle scabies was reported in a neighboring state during the biennium with reported movements from the infested herds into Nevada. This prompted immediate trace-back activities and numerous inspections of thousands of head of cattle in search of possible scabies. We were extremely fortunate in remaining free of the psoroptic scabies, with repeated inspections failing to reveal this mite. Chorioptic mange mites were found on a limited number of cattle moving from a purebred herd in an adjoining state. These were promptly quarantined and treated for eradication of the mite. Chorioptic mange is one of the more common mange mites found in cattle.

### Tuberculosis

Continuing surveillance shows Nevada remains free of tuberculosis. All dairy cattle imported into Nevada from states having a tuberculosis problem are retested upon arrival. State-federal cooperative efforts will no doubt lead to the declaration of Nevada as a tuberculosis free area during the next biennium.

### Vibriosis

During the biennium, vibriosis has been diagnosed in an increasing number of cattle herds. Abortion rates in vibriosis herds may range from 1 to 5 percent. The biggest loss from vibriosis is caused by infertility or delayed breeding.

Vibrio fetus is not readily diagnosed by simple laboratory methods. Research workers are developing a bacterin from field strains of this organism that appears to have strong possibilities as an aid in the prevention and control of vibriosis.

## ANIMAL DISEASE LABORATORY

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

The Laboratory continues to provide technical diagnostic services in the interest of public health and safety as well as protection to the livestock industry. We routinely work with animal diseases transmissible to man, such as rabies, tularemia, leptospirosis, anthrax, brucellosis, and tuberculosis. We made the initial diagnosis of bubonic plague in the Lake Tahoe area in 1965. Our Laboratory plays a vital role in the protection of Nevada's citizens against diseases from animal origin.

The Laboratory workload has increased this last biennium even though the total number of samples processed is less. This is explained by a reduction in the number of brucellosis blood samples submitted, due to the State entering into the final stages, and at last achieving, brucellosis-free status.

This decrease has been more than compensated by the increased number of animal cases, particularly those concerned with cattle abortions. One person can handle several hundred brucella samples a day, but it may take several people a week or more to process a single aborted fetus.

During this past biennium, we have seen a definite change in the disease pattern affecting livestock. The "old reliable diseases" such as

anthrax, blackleg, red water, etc., have been well contained by vaccines and are not the problem they used to be.

The problems now being encountered are not strictly bacterial, but are also viral in nature. The main virus diseases thus far encountered are: Infectious Bovine Rhinotracheitis (IBR), Epizootic Bovine Abortion (EBA), Epizootic Abortion of Ewes (EAE), Bovine Virus Diarrhea (BVD), and Bovine Parainfluenza (BPI). These viruses are not particularly killers of adult animals, but mainly affect young feedlot animals, or cause infertility, abortion, and early postnatal death. The economic loss due to these diseases is considerable.

In order to work with these agents, a completely different system is used—tissue culture. Special knowledge and techniques are required for this work It demands considerably more time and money than bacteriological methods. We plan to greatly expand this program during the next biennium.

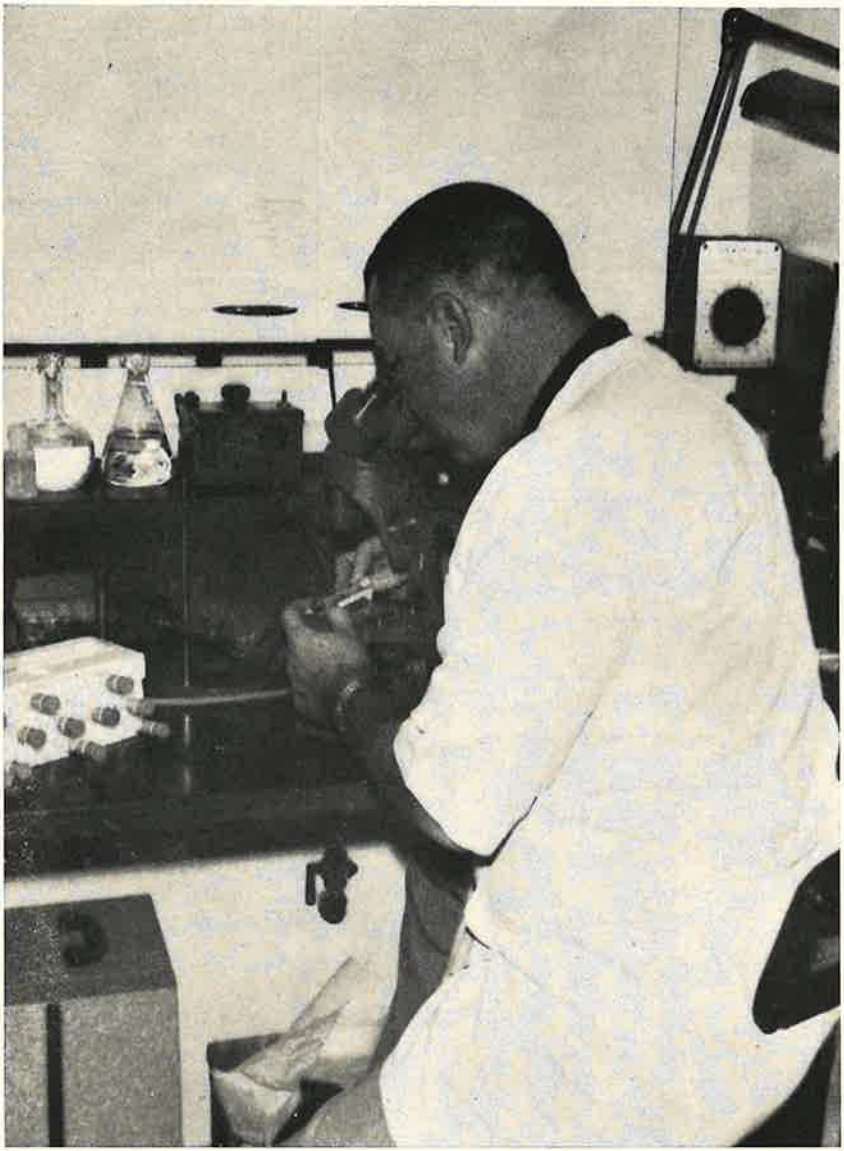
The Laboratory cooperates closely with the State Fish and Game Commission on their disease problems. Quite a bit of work has been done on diseases of fish and exotic game birds. Recently, we began a project on examination of deer. We are particularly interested in determining if they might be infected with any of the abortion-producing viruses affecting livestock.

We continue our policy of going into the field and directly investigating death losses or disease outbreaks. During the past biennium, personnel from the Laboratory made numerous trips. These trips have accounted for nearly 5 months' time in the field. During the next biennium, we plan to expand our field programs and services.

Veterinary personnel of the Animal Disease Laboratory work closely with the University of Nevada and the Cooperative Agricultural Extension Service in all phases of activities relating to animal health. Staff veterinarians have appeared as speakers on numerous education programs and have written articles which have been published in livestock journals and industry newsletters.

Staff veterinarians are active in local, state, and national veterinary and livestock associations. Several are president or past president of some of the largest veterinary organizations in the country. Associations with groups such as the American Veterinary Medical Association, Intermountain Veterinary Medical Association, Western States Veterinary Medical Association, United States Livestock Sanitary Association, Veterinary Laboratory Diagnosticians Association, and others, provide a direct benefit to the State of Nevada in the form of recent information and newer techniques which enable us to do an even better job in our diagnostic work.

A summary of the Laboratory examinations and procedures for the past biennium follows. For the sake of brevity, the individual diagnoses are not listed, but grouped into procedures.



**Encroachment of virus disease has required emphasis on tissue culture determinations.**

## ANIMAL DISEASE LABORATORY EXAMINATIONS
**July 1, 1964, through June 30, 1966**

| | Number Made |
|---|---|
| CHEMISTRY AND TOXICOLOGY— | |
| Arsenic, Calcium, Phosphorous, Botulism, Heavy Metals, Nitrite, Organic Phosphates, Oxalates | 31 |
| Blood, Urea, Nitrogen | 23 |
| Blood sugar | 3 |
| Strychnine | 35 |
| HEMATOLOGY— | |
| Blood Examinations—Bovine, Canine, Equine, Feline | 407 |
| HISTOPATHOLOGY | 146 |
| MICROBIAL CULTURES | 696 |
| MICROBIAL ANTIBIOTIC SENSITIVITY TESTS | 549 |
| PARASITOLOGY— | |
| Endoparasitism, Negative | 613 |
| Endoparasitism, Positive | 376 |
| Ectoparasitism, Positive | 17 |
| POST MORTEM EXAMINATIONS | 335 |
| FLUORESCENT ANTIBODY EXAMINATIONS— | |
| Rabies, Negative | 427 |
| Rabies, Positive (Bats) | 15 |
| SEROLOGY— | |
| Brucellosis Agglutination Tests— | |
| Negative | 23,290 |
| Suspect | 115 |
| Reactor | 9 |
| Anaplasmosis | 49 |
| Leptospirosis Agglutination Tests— | |
| Negative | 319 |
| Suspect | 21 |
| Reactor | 2 |
| Brucellosis Ring Tests, Negative | 1,368 |
| SPECIAL STAINS AND TECHNIQUES— Acridine Orange, Fluorescent antibody, Giemsa stain, Erlich, Dark field, Macchiavello, Pullorum, Foulbrood, Wright's, Woods lamp, May-Grunwald. | |
| URINALYSIS | 63 |
| VIROLOGY— | |
| Epizootic Bovine Abortion, Infectious Bovine Rhinotracheitis, Parainfluenza $SF_3$ & $SF_4$, Bovine Virus Diarrhea, Unclassified virus | 114 |
| UNSUITABLE FOR TESTING | 72 |
| Total | 29,095 |

## BUREAU OF LIVESTOCK IDENTIFICATION

S. F. ROUTSON, *Supervisor*

### Estray Livestock

During the biennium, 182 head of estray livestock were reported. Of this number, 166 head were returned to the owners. Sixteen head were advertised and sold by the Department. Money, less expenses, received from sale of estrays is held for 1 year for owners if found or placed in the Livestock Inspection Fund.

**Hide and Carcass Inspections**

Eighty-six inspections were made. The purpose of this activity is to establish proof of ownership of a carcass or part of a carcass when warranted, thereby preventing illegal possession of meat.

**Livestock Killed On Railroad Right-Of-Ways**

There were 442 head of livestock that were reported killed by trains operating in Nevada. Of this number, 300 head were identified as to ownership and claims were made to the railroads for remunerating the owners for this loss.

**Public Livestock Auction Markets**

Only two markets were in operation during the biennium; however, one market, Elko Livestock Sales Company, Incorporated, terminated its operation as of June 30, 1965, leaving only one market, Gallagher Livestock Commission Company in Fallon, Nevada, operating during the entire 2-year period. A $100,000 bond is required of this operator.

**Licensing and Bonding**

At the close of the last biennium, 69 livestock brokers, dealers, and commission merchants were on record as being properly licensed and bonded, plus a total of 53 agents.

**Brand Inspection**

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

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

Department personnel assigned to Livestock Identification activities on a full-time basis are a supervisor located in Reno, and five district brand inspectors located at Elko, Ely, Fallon, Las Vegas, and Reno; one senior clerk-typist and one senior clerk-stenographer. One part-time brand inspector is stationed at Yerington, employed under contractural agreement.

A total of 115 fee brand inspectors are available throughout the State to serve the livestock industry in making brand inspections or other assigned duties. Their remuneration for service is paid by the livestock owner on a per head basis of ten cents for each animal inspected, or by the Department for other designated duties.

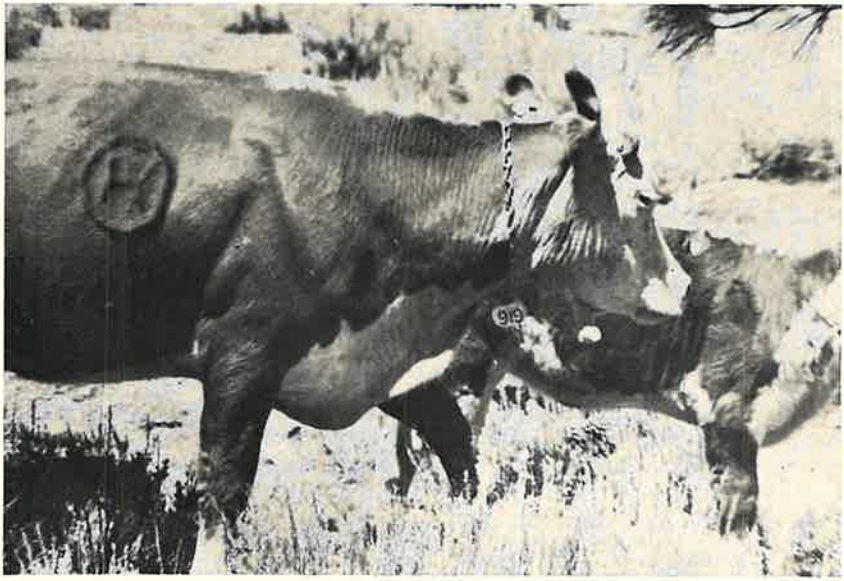
The number of brand inspections made during this past biennium was as follows:

| | |
|---|---|
| By Fee Brand Inspectors | 513,374 |
| By salaried personnel | 248,123 |
| Total inspections made | 761,497 |

**Livestock Brands**

By statute, the Department of Agriculture is responsible for the recording, rerecording and transferring of all brands, except for sheep and goats, which transactions are handled by the Nevada State Sheep Commission and the County Recorders. The fee for recording a new brand is $10; for rerecording a brand, $5; and for transferring a brand, $5.

Brands are rerecorded at 5-year intervals, with the last rerecording period ending December 31, 1965. The next rerecording period will be the last 60 days of 1970. Prior to that time, notices and necessary forms will be mailed to each brand owner.



**Hot iron brand is a permanent stamp of ownership.**

A new brand book is compiled every 5 years, following the close of the rerecording period. The first looseleaf book was issued in 1961. The 1966 looseleaf brand book can be purchased with the same special cover as the 1961 book for $5. Anyone who purchased the 1961 book and who so desires, can purchase the 1966 book without a cover for $3 and use the 1961 cover.

Semiannual brand book supplements are issued and inserted in the books when they are sold, so they are always current within a few months. The supplements are offered to purchasers of brand books on a subscription basis for $1 per year.

During the biennium, 423 brands were recorded, 3,172 brands were rerecorded, and 266 brands were transferred.

# DIVISION OF PLANT INDUSTRY

LEE M. BURGE, *Administrator*

## ADMINISTRATION

Expanded activity and requests for service dictate a need to consider broadening the organization of the Division.

Plant Industry personnel have been used to cover many activities assigned to the Division with specialization only in a few areas.

Our needs are becoming so complex that attention is called to the possibility of separation of the Bureau of Weights and Measures from the Division of Plant Industry. At such time as the proposed laboratory for this activity is provided, we would propose that Weights and Measures become a separate Division.

With population increase, more attention is needed in the area of consumer protection, as well as in the increasing development of agricultural areas.

Of major concern to our agricultural producers is the need for reasonable application of pesticide regulations. To produce the crops needed, acceptable chemicals are a necessity, and when applied properly authorized chemicals are not dangerous to either the product or to people who consume the product.

Division personnel have each year increased inspection of licensed pest control operators and their equipment. This means that in future operations, without additional personnel, some of the major responsibilities of the Division will be curtailed.

New land development continues, production of older desert land projects have been fruitful, and we anticipate that this development will expand further.

Nevada's desert areas can bloom, as has been demonstrated in the certified seed areas which we estimate will produce 4¼ million pounds of seed in 1966.

The following brief report of each Division activity reflects the broad scope of responsibility delegated to the various bureaus.

## AGRICULTURAL PRODUCE BUYERS

Persons doing business as a broker, dealer, commission merchant, or cash buyer and their authorized agents are required to be licensed with the Department. This act applies only to those persons making purchases from the producers.

The 1965 Legislature made rather extensive amendments to the act in administrative authority, information required of applicants, records maintained by licensee, payment for produce received, and cause for refusal or revocation of a license.

Effective July 1, 1965, the amended act required licensing of persons employed as agent for the licensee.

During the biennium, 74 individuals or businesses employing 56 agents were licensed to purchase agricultural produce other than livestock and animal products. (Licensing for purchase of livestock and animal products other than poultry and dairy is handled by the Division of Animal Industry.)

Three convictions were made against individuals for purchasing without a license. The number of complaints for nonpayment for produce received have increased each year. While these complaints have been settled without proceeding against the bond, the basic cause in most cases is lack of adequate sale contract and reluctance of the seller to inquire as to license status of the purchaser.

There is a need for a marketing educational program to assist Nevada producers in good techniques of sales management.

## AGRICULTURAL SEED

Agricultural Seed Program consists of three separate but interrelated activities:

1. **Seed Inspection.** The inspection of seed being offered for sale for compliance with label requirement and the examination of the seed to ensure that the contents agree with the label information. A sample is drawn from the questionable lots and submitted to the Laboratory for complete analysis. Lots in violation are removed from sale and placed under hold orders until the violation is corrected. Official samples were drawn on 362 lots during the biennium.

2. **Seed Analytical Laboratory.** The Seed Laboratory does analysis for purity, test of germination, and noxious weed examination on samples submitted by individuals, industry, official samples drawn in enforcement, and official samples drawn by Department personnel under the certification program.

Seed analysis requires a high degree of technical skill and the knowledge and ability to identify and recognize many crop and vegetable seeds as well as the weed seed contaminants.

The Seed Laboratory made analysis of 922 samples submitted, detailed as follows:

| | |
|---|---|
| Alfalfa | 438 |
| Clover | 147 |
| Grasses | 183 |
| Vegetables | 50 |
| Small grains | 44 |
| Miscellaneous crops | 40 |
| Identification only | 10 |
| Noxious weed test only | 10 |
| Total | 922 |

Fewer samples were submitted under the certification program due to improved methods and better equipment used in cleaning, thus eliminating the necessity for retest on the same seed lot.

3. **Seed Certification.** Nevada's production of forage legume crop seeds reduced in volume during the second year of the biennium due to adverse weather conditions in the late summer. The acreages planted to certified crops continued to increase. For the past few years, the principal area of seed production has been the Orovada and Kings River valleys of Humboldt County. Considerable acreage in the Antelope and Reese River areas of Lander County will be in production in 1966 with extensive planting planned for the next few years, as well as new land being

developed in Churchill and Nye counties. We anticipate the acreage of seed crops under certification to continue to increase for the next few years.

Private varieties of forage crop seeds not under the certification program are being produced in our established seed areas and in some of our other agricultural valleys under contract agreements with growers. Approximately one-third of Nevada's total alfalfa seed production is private varieties or common seed varieties not under the certification program.

**CERTIFIED SEED ACREAGES**

| | 1964 | | 1965 | |
|---|---|---|---|---|
| Crop | Acres Registered | Acres Producing | Acres Registered | Acres Producing |
| Alfalfa | 8,309* | 7,130 | 9,781* | 8,179 |
| Red Clover | 591 | 574 | 377 | 377 |
| Grasses | 90 | 60 | 120* | 0 |
| Small Grain | 0 | 0 | 219 | 154 |
| Potato | 12 | 6 | 2.5 | 2.5 |
| Misc. Crop | 25 | 0 | 0 | 0 |
| Totals | 9,027 | 7,770 | 10,599.5 | 8,712.5 |

*Includes seedling acreage not producing first year.

## GRAIN LABORATORY

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

## ANTIFREEZE REGISTRATION AND ANALYSIS

Brands of antifreeze must be registered with the Department and each brand must pass eight specification test requirements before it may be sold in this State. This laboratory testing is to insure the product's satisfactory performance as a freezing inhibitor and freedom from materials that would cause detrimental effects to engines and cooling systems.

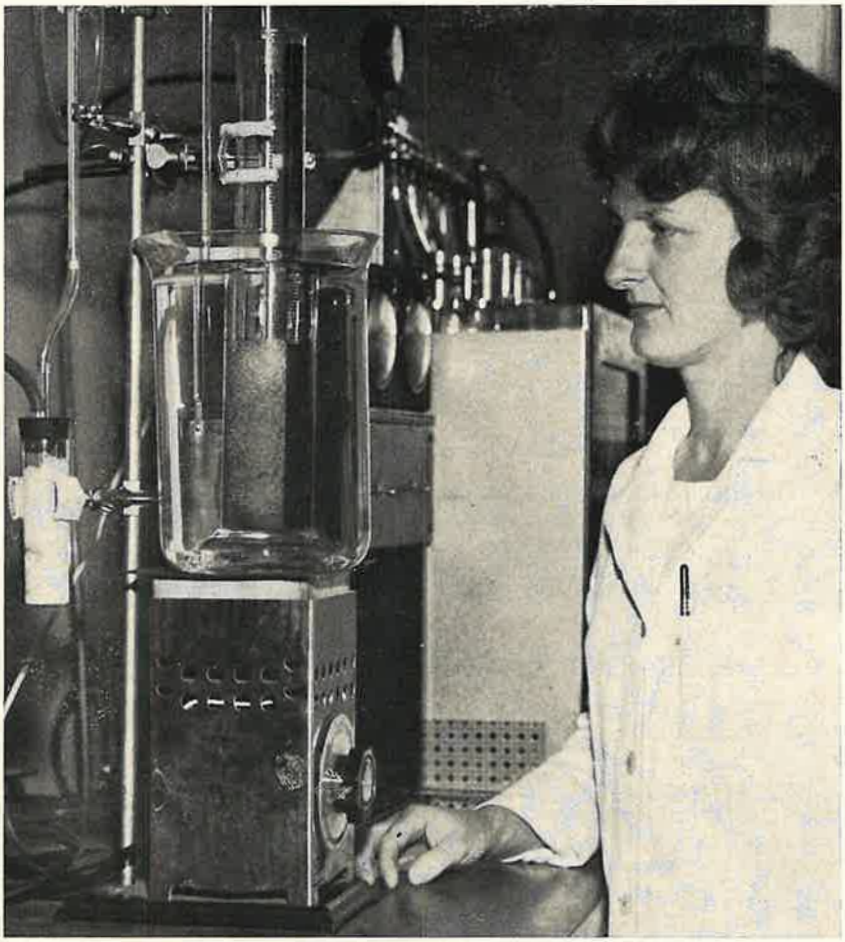
During the biennium, applications were received for permits to sell 136 brands of antifreeze; 135 permits were issued. One brand was ordered off-sale for failure to meet cold-test requirements.

## APIARY INSPECTION SERVICE

Honeybee colonies are subject to a variety of disorders which must be accurately diagnosed. The diseases of honeybees are classed in two groupings: those that affect the adult bees and those that affect the brood of the honeybee. None of the diseases of the honeybee affects man or other animals. The most serious of the bee diseases is *Bacillus larvae* (American Foulbrood) disease. This disease is endemic in some apiaries and must be closely controlled to prevent a serious outbreak.

For the protection of the Nevada beekeeping industry, Nevada has laws providing for an apiary inspection service to periodically inspect

honeybee colonies and requires the destruction of all colonies found infected with *Bacillus larvae* disease. Our diagnostic laboratory has facilities for diagnosing smears for disease determination. This has been a very important service to beekeepers desiring identification of a disease.



**Antifreeze-Chemist Ella Knoll testing antifreeze for foaming properties. Product must conform to manufacturer's claims.**

During the biennium, 204 Nevada apiaries with 5,292 colonies were inspected. Inspectors found and burned 110 colonies infected with *Bacillus larvae* disease. Carelessness on the part of some beekeepers to remove dead colonies from their apiaries resulted in a spread of this disease. The incidence of *Bacillus larvae* disease in colonies inspected reached 2 percent during the biennium. Other brood diseases were not of economic importance and there were no reports of adult bee diseases.

Colonies lost from the use of insecticides have been somewhat less than reported in the last biennium. There has been substantial reduction

in the use of Sevin for alfalfa weevil control. Colonies exposed to Sevin lose bees over an extended period of time after application. There have been death losses to field bees in apiaries located adjacent to alfalfa fields sprayed with other insecticides during second bloom. However, there were no reports of colonies lost as when Sevin was used.

An unusually high build-up of aphids occurred in second crop alfalfa in 1966, necessitating spraying later than usual. Field bees working sweetclover adjacent to alfalfa fields were killed.

**Inspection of bee colonies used to pollinate alfalfa seed field.**

A new revolution in beekeeping techniques is beginning to take shape in the field of pollination service. An expanding seed industry opens a greater opportunity to bee specialists to furnish colonies of honeybees to pollinate Nevada's seed crops. Many apiarists who have developed their operations for pollination service, now palletize their colonies for easy truck hauling and hive manipulation. New skills had to be learned to develop the colony in order to reach maximum strength at bloom time.

During the biennium, 35,772 colonies of bees were trucked into Nevada to pollinate Nevada's seed crops. The Department issued 36 pollination permits to beekeepers in four states to furnish colonies of bees in the following pollination districts: Orovada, Reese River, Grass Valley, Dixie Valley, Baker, and Gerlach. Rental fees for this service ranged from $6 to $9 per colony. Colonies have generally been placed in seed fields at the rate of two colonies per acre with a few exceptions where growers requested three colonies per acre.

Twenty-five percent of the colonies registered for pollination service were inspected for disease. *Bacillus larvae* disease was found to be less than one-half of one percent upon inspection.

Surplus honey yields for bees on pollination service have been somewhat lower than colonies located in alfalfa hay fields. Average production has been approximately 35 pounds per colony. Yields were low in 1965 due to unusually damp weather in July and August. Hot, dry weather in 1966 was conducive to a good nectar flow in most seed areas.

Average surplus honey production for Nevada beekeepers was 68.8 pounds per colony during the biennium. Quality and color was excellent for all honey produced.

Our rapidly expanding seed industry offers a bright future to apiarists in the field of pollination service. Additional colonies, developed for this service, will be needed in the future to keep pace with our expanding agriculture.

## BEE COLONY REGISTRATION AND INSPECTIONS, 1965–1966

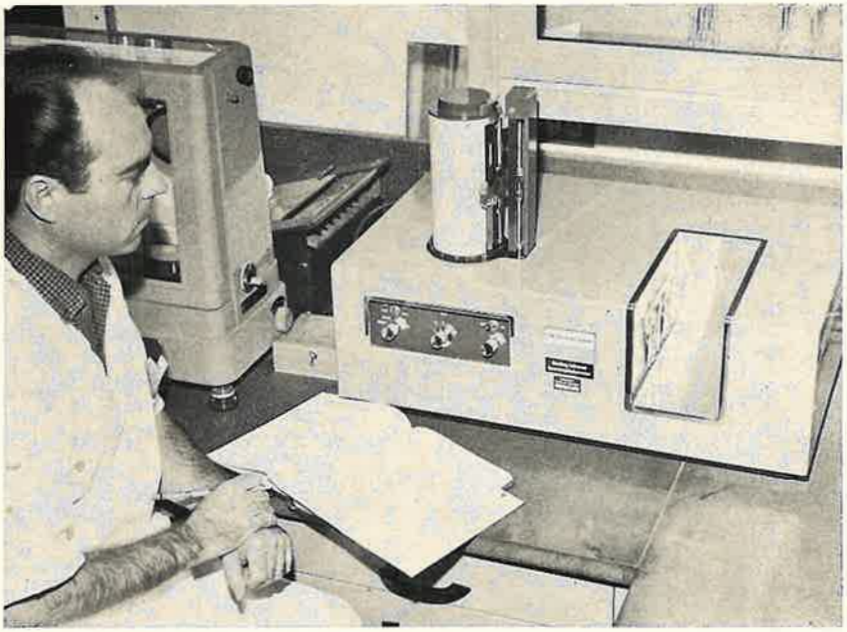
| County | 1965 Resident Colonies: Number Colonies regis. | 1965 Resident Colonies: Number Colonies insp. | 1965 Resident Colonies: Colonies "Bacillus larvae" disease | 1965 Pollination Permit: Number Colonies regis. | 1965 Pollination Permit: Number Colonies insp. | 1965 Pollination Permit: Colonies "Bacillus larvae" disease | 1966 Resident Colonies: Number Colonies regis. | 1966 Resident Colonies: Number Colonies insp. | 1966 Resident Colonies: Colonies "Bacillus larvae" disease | 1966 Pollination Permit: Number Colonies regis. | 1966 Pollination Permit: Number Colonies insp. | 1966 Pollination Permit: Colonies "Bacillus larvae" disease |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Churchill | 1,659 | 484 | 13 | ..... | ..... | ..... | 1,753 | 458 | 20 | 180 | 80 | ..... |
| Clark | 674 | 110 | ..... | ..... | ..... | ..... | 1,090 | 260 | 1 | ..... | ..... | ..... |
| Douglas | 452 | 353 | 16 | ..... | ..... | ..... | 1,443 | 425 | ..... | ..... | ..... | ..... |
| Elko | 462 | 93 | ..... | ..... | ..... | ..... | 470 | 70 | ..... | ..... | ..... | ..... |
| Esmeralda | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Eureka | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Humboldt | 7 | ..... | ..... | 17,558 | 3,000 | 42 | 6 | 6 | ..... | 11,798 | 3,959 | 13 |
| Lander | ..... | ..... | ..... | 1,766 | 261 | ..... | ..... | ..... | ..... | 4,220 | 632 | 2 |
| Lincoln | 208 | ..... | ..... | ..... | ..... | ..... | 161 | ..... | ..... | ..... | ..... | ..... |
| Lyon | 2,508 | 731 | 11 | ..... | ..... | ..... | 982 | 296 | 3 | ..... | ..... | ..... |
| Mineral | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Nye | 25 | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Ormsby | 25 | 72 | ..... | ..... | ..... | ..... | 103 | 164 | ..... | ..... | ..... | ..... |
| Pershing | 408 | 184 | 10 | ..... | ..... | ..... | ..... | 457 | 20 | ..... | ..... | ..... |
| Storey | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... |
| Washoe | 921 | 332 | 3 | ..... | ..... | ..... | 1,588 | 868 | 13 | 200 | 100 | ..... |
| White Pine | 192 | ..... | ..... | 50 | ..... | ..... | 120 | ..... | ..... | ..... | ..... | ..... |
| Totals | 7,541 | 2,359 | 53 | 19,374 | 3,261 | 42 | 7,716 | 3,004 | 57 | 16,398 | 4,771 | 15 |

## ECONOMIC POISONS (PESTICIDES)

The registration of pesticides is on the increase with a total of 4,474 products registered during the biennium.

The use of pesticides is becoming more complicated. This is a result of the continued introduction of new and highly toxic organic insecticides. The use of these materials is then limited or prohibited by regulation for the purpose of safeguarding foods, water supplies, wildlife, and health and welfare of the general public.

The judicious use of pesticides by all concerned is the key to the better acceptance of pesticide uses by all parties concerned.



**Infrared spectrophotometer addition to Chemistry Laboratory.**

The increasing kinds of pesticides sold, coupled with their complex chemical makeup, has resulted in the need for speeded-up chemical analysis procedures. This capability allows for the checking of more materials for label guarantee claims.

The addition of an infrared spectrophotometer pesticide analysis machine to our laboratory has accelerated the chemical analysis of pesticides. This instrument will give a specific chemical analysis by kind of chemical within a few minutes after injection of the prepared pesticide solution. It is also capable of deciphering several different chemicals in a pesticide formula. Its accuracy is to .01 percent.

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

| | |
|---|---|
| Lots sampled | 51 |
| Lots passed | 43 |
| Lots violative | 8 |

Violative materials were comprised of six lots of home garden type insecticides and two lots of fly control chemicals. All were found short of guaranteed label claims and were ordered off-sale.

A considerable amount of time was expended studying pesticide residues and pesticide dispersment on forage crops.

Collaborative analysis work was also carried out with the Division of Animal Industry to determine the toxicity of Sudan grass and probable causes of pet deaths and livestock problems.

Not many new insecticides will be unveiled for use until pesticide residue tolerances are amended with a more realistic approach toward their uses within practical safety residue tolerance limits.

## ENTOMOLOGY

### Insect Pest Detection and Survey

Special detection surveys for pest species not known to be present in Nevada were conducted for the boll weevil, cereal leaf beetle, Colorado potato beetle, European corn borer, European pine shoot moth, Japanese beetle, khapra beetle, pink bollworm, sorghum midge, spruce needle miner, and tomato russet mite. All surveys were negative except for the spruce needle miner which was found in six counties.

The spruce needle miner, *Taniva albolineana* (Kearfott), a serious pest of ornamental spruce, was first detected in Washoe County in 1965 and was subsequently discovered in Douglas, Elko, Humboldt, Ormsby, and White Pine counties.

The spotted cucumber beetle or southern corn rootworm, *Diabrotica undecimpunctata howardi* Barber, was first identified from Nye County and later from Clark and Lincoln counties. It is a general feeder and is recorded from over 200 common crops, grasses and weeds. Several other species, some of lesser economic importance and others of unknown importance, were recorded from the State for the first time and several undescribed species were discovered.

Several important pest species continued to extend their distribution within the State. Most significant was the spread of the western drywood termite, *Incisitermes minor* (Hagen), into Mineral County, the lesser grain borer, *Rhyzopertha dominica* (Fabricius), into Pershing County, the elm leaf beetle, *Pyrrhalta luteola* (Muller), into Clark and Nye counties, the smaller European elm bark beetle, *Scolytus multistriatus* (Marsham), into Lyon and Pershing counties, and the sweetclover weevil, *Sitona cylindricollis* Fohraeus, into Lincoln County.

The alfalfa weevil, aphids, cutworms, and other lepidopterous larvae, *Lygus* bugs, mosquitoes, and spider mites were the most important pests or pest groups statewide during this period.

Infestations and damage to alfalfa by the alfalfa weevil increased significantly during the biennium due to several factors. First, effective pesticides for adult control were withdrawn from use. Second, larval control with recommended insecticides was poor in many areas and in several instances no treatments were applied. Third, weather conditions were such that the hatch was spread over longer periods, prolonging the feeding interval and making proper control timing difficult. Fourth, an unusual situation occurred in areas of Lincoln and Lyon counties where adults, larvae, and pupae were present in the fall of the year. All of

these factors contributed to the increased overwintering adult populations and subsequent high larval infestations.

Pea aphid populations in alfalfa were heavier than normal during the past 2 years with severe damage occuring before insecticides, parasites and predators brought the infestations under control.

Sugar beet production was influenced by flea beetle damage to seedling beets each year and by curly top disease in the 1966 season.

Heavy infestations of a conifer sawfly, *Neodiprion edulicolus* Ross, infested several thousand acres of piñon pine in Lincoln County in 1965 and 1966 with defoliation varying from 0 to 100 percent.

Alfalfa seed producers experienced above normal losses of the pollinating "alfalfa leafcutting bee," *Megachile rotundata* (Fabricius), through heavy nest infestations by three dermestids, *Trogoderma glabrum* (Herbst), *T. parabile* Beal and *T. simplex* Jayne.

## INSECT CONTROL PROGRAMS

### MORMON CRICKET PROGRAMS

No control programs were necessary as Mormon cricket populations were light, scattered and noneconomic. A total of 8,500 infested acres in 1964 and 1965 decreased to 6,430 acres in 1966.

### GRASSHOPPER PROGRAMS

The 1964 adult grasshopper survey indicated potential infestations on 172,400 acres for the 1965 season and the 1965 survey indicated infestations on 52,640 acres, the lowest in several years. Adverse weather conditions reduced these potential threats with approximately 2,500 acres requiring control in Elko County in 1965 and 360 acres in Humboldt County in 1966.

### Systematic Entomology

The number of specimens submitted for identification increased during the biennium. This required the allotment of a greater percentage of time to their preparation, identification, and incorporation into the permanent reference collection and to work on the indexed filing system.

Identification services are available to all individuals in the State, including home owners, ranchers, nurserymen, pest control operators, and city, county, state and federal agencies or personnel. Specimens submitted for identification should have the following minimum information included with them in order to facilitate their determination: Collection locality (city and county), date collected, collector, and if possible, host or association.

We would like to encourage the submission of material since the more information we can develop on the occurrence of insects in the State, the greater our understanding of them will be.

## FARM LABOR CONTRACTORS

Chapter 619 NRS requires the licensing of all persons doing business as Farm Labor Contractors to be licensed with the Nevada Department of Agriculture. Due to the numerous exceptions and limited use of farm

labor contractors as defined by the Act, it is questionable whether the accomplishments justify the manpower expenditures in enforcement.

In 1964, Public Law 88–582 was enacted by Congress, requiring Federal licensing of farm labor contractors engaged in interstate commerce, thus most individuals that are under the jurisdiction of Nevada's Act are also under the Federal act and required to have both licenses.

For coordination purposes, the Department has been appointed as a licensing house for Federal license applications submitted to Nevada labor offices.

## FERTILIZERS AND AGRICULTURAL MINERALS

Totals of 416 and 388 grades of fertilizer and agricultural minerals were registered for the 1964–65 and 1965–66 fiscal periods, respectively. These totals reflect an increased registration over 356 grades registered for the 1963–64 fiscal period.

The following is a summary of laboratory analysis:

| | |
|---|---|
| Lots sampled | 60 |
| Lots passed | 41 |
| Lots violative | 19 |

All lots in violation were found to be short in actual fertilizer of the guaranteed analysis. Growers who purchased the violative fertilizers received penalty payments totaling $3,639.25 from the manufacturers on 13 lots comprising 348 tons of fertilizer. The other 6 lots of violative materials were comprised of small lots of garden type fertilizers. Violative products were ordered off-sale. In a few instances, lots were sold before official action could be taken.

Fertilizers and agricultural minerals totaling 23,610 tons were sold in Nevada during the biennium, as compared to 20,583 tons used during the 1962–64 period.

Fertilizer tonnage use has doubled since 1960, and its continued use increase is attributed to the following factors:

1. An increase in crop acreages due to good irrigation water reserves in areas served by water storage reservoirs.
2. An increase in desert entry lands converted to crop production.
3. A realization that fertilizer is an important part of farm operations for optimum crop production.

## NURSERY

Persons selling nursery stock in Nevada, with exceptions as permitted by law, are licensed on a fiscal year basis with the Department. Businesses licensed include nurseries, nursery stock dealers (retail stores handling plants as a seasonal or incidental business), nursery stock growers, and landscapers.

Inspection of nursery stock offered for sale by licensees is made by Division personnel as a regulatory function and upon request. Contracts made by governmental agencies are requiring an inspection be made by Departmental personnel and a certificate issued for viability and freedom from insects and diseases of plants before acceptance.

During the biennium, rating classification lists of plant pathogens and of plant-parasitic nematodes were promulgated. These pests are classed as serious pests, economic pests, and common pests. The lists are not all-inclusive nor static; plant pests may be added, reclassified, or removed from the lists by the Executive Director.

The number of nursery licensees has shown a slight increase during the biennium, as follows:

Nursery Licensees, 1962–1964 Biennium..... 281
Nursery Licensees, 1964–1966 Biennium..... 319

## PEST CONTROL OPERATORS

Commercial pest control operators are qualified by examination, insurance and equipment requirements before they are licensed to operate in this State. These people play an important part in the suppression of pests on ranches, in commercial business establishments, in homes and in gardens.

There has been an acceleration in termite inspection and control work by ground pest control operators. This increased activity is the result of new Federal Housing Administration requirements that: (1) New dwelling foundations must be treated for preventative termite control, and (2) Old homes must be inspected and certified termite-free or any infestation controlled before money loans will be made by the FHA.

This new FHA requirement has added an additional workload on the Department in policing termite control operations.

The prohibition of use of certain chemicals for the adult alfalfa weevil control has resulted in an increased acreage sprayed by airplane for alfalfa weevil larvae control.

A total of 192,454 acres was treated by air for various pests during the biennium, with 70 percent of the acreage composed of alfalfa hay and alfalfa seed crops.

There were 60 pest control operators licensed at the close of the past fiscal period. Of this total, 18 were airplane operators.

Two office hearings were held for license violations, and in one case, also for safety infractions of pesticide application. Five airplane operators were grounded for improper licensing, and one ground operator was prosecuted for operating without a license.

## PETROLEUM PRODUCTS

The sale of petroleum products in Nevada is on the increase due to the State's expanding economy. Over $85 million worth of petroleum products were sold during the past year.

Labeling requirements and quality standards for gasoline, diesel fuel, motor oil, and heating oil are governed by the petroleum products inspection law. Samples of these products are procured by Weights and Measures personnel for laboratory analysis to determine compliance with quality standards and labeling requirements.

A sample of gasoline, heating oil, or diesel fuel is subjected to approximately 15 quality tests, and motor oil up to 10 quality tests, depending upon type, grade and specifications.

## SUMMARY OF LABORATORY TEST RESULTS

| Product | Samples Tested | Passed | Violations |
|---|---|---|---|
| Gasoline | 296 | 283 | 13 |
| Motor Oil | 252 | 215 | 37 |
| Diesel Fuel | 22 | 22 | ..... |
| Heating Oil | 50 | 24 | 26 |
| Totals | 620 | 544 | 76 |

## VIOLATIVE FINDINGS OF LABORATORY TESTS

| Product | No. Samples | Violation |
|---|---|---|
| Gasoline | 4 | Dirt and water contamination. |
| | 5 | High distillation end points indicating possible fuel oil contamination. |
| | 4 | Labeling violations as to product brand. |
| Motor Oils | 1 | Water contamination. |
| | 36 | Mislabeled as to SAE grade number. |
| Heating Oils | 4 | Low flash point—gasoline contaminated. |
| | 1 | High viscosity for grade. |
| | 21 | Not properly labeled as to ASTM grade number. |

Heating oil labeling violations were due to conversion from old P.S. grade numbers to current ASTM grade numbers. This change was passed by the 1963 Legislature. Industry was not yet geared for label change requirements.

Corrective compliance was requested on all violations.

## PETROLEUM PRODUCTS PRICE ADVERTISING

The price-sign law governs price advertising for gasoline, diesel fuel and motor oil. It is required that whenever a product price is advertised, the sign must also state the product brand, product identity such as "gasoline," "diesel," or "motor oil," and the words "tax included" in the case of gasoline. The law also spells out the minimum size words and figures that may be used on such signs.

New oil companies, new gasoline stations, and ownership or lessee changes have resulted in the need for constant vigilance to insure price-sign compliance. The policing of petroleum products price advertising required six man-months during the biennium.

A total of 1,253 price signs were checked for compliance during the biennium and 280 were found violative. Voluntary corrective compliance was obtained in nearly all cases; however, only after the expenditure of considerable time and return trips to insure compliance. Some corrected signs were found to be in violation within a short period of time. Signs were repainted or replaced, and in many instances the words "gasoline" and/or "tax included" were omitted.

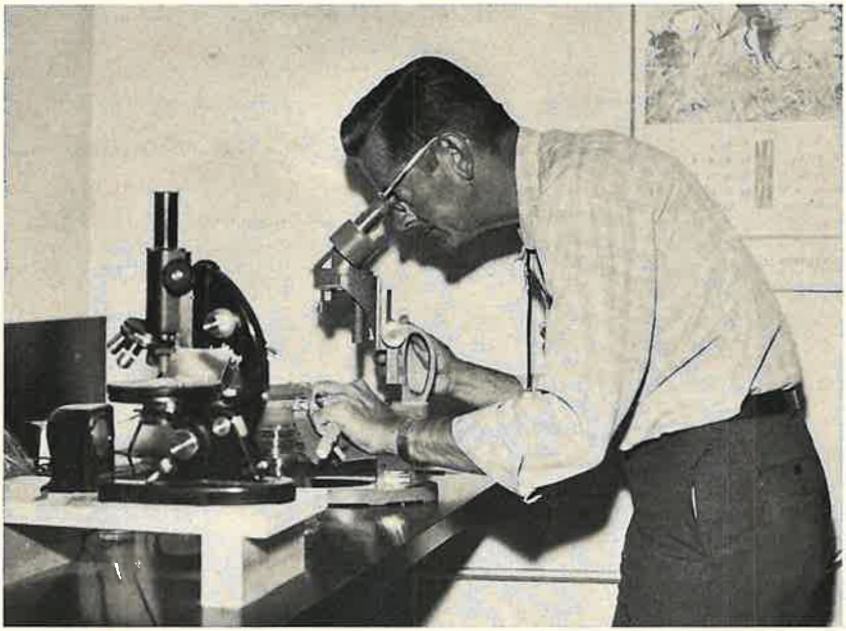
In a few cases, court action on applicable law wording interpretation may be needed to resolve pending violations dealing with the use of words to imply the sale of gasoline for less or at a reduced price.

It is our strong belief that the effort expended on petroleum products price-sign advertising enforcement could far better serve the public in other fields of Weights and Measures activities. We have recommended that the petroleum products price-sign advertising law be repealed or amended to make it more realistic.

## PLANT PATHOLOGY

During the biennium, plant pathological work first begun in September of 1961 was continued. Plants, or parts of plants, showing obvious disease symptoms or deviations from normal growth are sent into this laboratory by departmental personnel, home owners, ranchers, nurserymen, and pest control operators for diagnosis. Where possible, diagnosis is made and, where appropriate, recommendation to correct the disorder.

Specimens for diagnosis are collected from nurseries, nursery stock dealers, certified seed fields, produce houses, forests, range, residential plantings, ranches, and farms.



**The determination of plant pathogens requires microscopic identification.**

Plant specimens submitted for diagnosis included the following:

| | |
|---|---|
| Cotton | 1 |
| Forest and range | 6 |
| Garden vegetables | 3 |
| Grain | 2 |
| Legumes | 5 |
| Nursery stock | 32 |
| Ornamentals | 69 |
| Potato | 8 |
| Onion and garlic | 1 |
| Turf | 6 |
| Miscellaneous | 5 |
| Total | 138 |

## PLANT QUARANTINES

Our new quarantine affecting interstate movement of commodities was promulgated. A quarantine against the sugar beet nematode *(Heterodera schachtii)* and possible host and carriers such as used equipment was adopted effective October 15, 1965.

Most of the sugar beets grown in Churchill, Pershing, and Washoe counties are dug and hauled by out-of-state equipment from areas in which sugar beet nematode is becoming more prevalent. The quarantine requires certain sanitation measures on equipment entering the State. This regulation was adopted under the new authority granted the Executive Director by Section 561.147 NRS by the 1965 Legislature.

Other interstate quarantines in effect are:

European corn borer *(Ostrinia nubilalis)*
Boll weevil *(Anthonomus grandis)*
Colorado potato beetle *(Leptinotarsa decemlineata)*
Tomato russet mite *(Vasates lycopersici)*
European pine shoot moth *(Rhyacionia buoliana)*
Elm tree diseases *(Morsus ulmi, Ceratostomella ulmi)*
Mint diseases *(Verticillium albo-atum; Longidorus sylphus)*

## PUBLIC WEIGHMASTER

Public weighmaster licensing requirements are: the filing of a $1,000 faithful performance bond; the payment of a $25 licensing fee; the use of an approved weight certificate form; and the approval of scale or scales of sufficient capacities for their intended weighing purposes.

Public weighmasters attest to the weight of any commodity upon request. Fees are charged for each official weight certificate issued. Weighmaster scales should be tested during each 6-month period, but are only tested annually for accuracy due to manpower limitations. Weighmaster records are also inspected for compliance.

There has been an increasing number of larger weighing capacity and longer scales installed to accommodate the weighing of larger truckloads of commodities. Many scales have weighing capacities of 100,000 to 120,000 pounds. These scales should be tested with a heavier weight test-load than is now available. Currently these scales are tested to 50 to 60 percent of their weighing capacities. The ability to test these scales at 75 to 80 percent of their capacities would insure accurate scales in the weighing ranges where much of today's commerce is weighed.

There were 52 licensed weighmasters at the close of the past biennium. This figure reflects an increase of seven public weighmasters over the previous biennium. This increase is attributed to the fact that more business transactions require a weight certificate of commodities bought and sold by a disinterested party, the public weighmaster.

A regulation was adopted to require that a weighmaster bond must be executed by a surety company rather than by any person executing a property bond. This requirement was necessitated because of the real estate status changes of persons who had executed property bonds for public weighmasters.

Legislation will be requested to place the licensing of public weighmasters on an annual fee basis rather than the present basis of only one fee charge at the time of initial licensing.

Also, a request will be made to repeal a section of the Weighmaster Act which requires a weighmaster to affix a seal press imprint to each weight certificate issued. We feel that this requirement is unnecessary and time-consuming.

## STANDARDIZATION AND GRADING OF AGRICULTURAL PRODUCE

### Shipping Point Inspection

Shipping point inspection services requests decreased, continuing the trend started in 1960.

Most SPI work is on onion and potato crops exported to West coast and Eastern markets. For many years, the largest consumer of Nevada onions has been dehydration processors. Due to market competition, Nevada growers cannot compete and have discontinued onion production from approximately 600 acres in 1960 to less than 100 acres in 1966.

Nevada's potato production in 1964 fell to its lowest since 1894. This drastic reduction was caused by the very unfavorable market for the 1963 crop. In 1965, potato acreage was about 50 percent of normal on 900 acres. It is not anticipated that there wlil be a dramatic recovery in potato production.

### Shell Eggs

This is a quality control program at the consumer or retail level, providing consumer protection and orderly marketing. The percentage of rejectors or lots in violation continued to decrease during the biennium. In 1959–60, rejections were made of 21 percent of lots inspected. In 1965–66, rejections reduced to 5 percent of lots inspected, reflecting very favorable response from the egg industry in its marketing policies.

**SUMMARY OF INSPECTION RESULTS**

| Year | Number of Lots Inspected | Number of Cases of Eggs | Number of Lots in Violation |
|---|---|---|---|
| 1964–65 | 776 | 5420 | 39 |
| 1965–66 | 684 | 6145 | 38 |

## WEED CONTROL

Interest in weed control has increased tremendously. The individual rancher and general public are becoming more aware of weed problems as it affects them.

A recent study conducted by the Federal Extension Service, the Agricultural Research Service of the U.S. Department of Agriculture and the State Cooperative Extension services jointly, has brought out some interesting facts when compared to a similar survey made in 1959.

In 1959, approximately 53 million acres of agricultural land was treated with herbicides at a cost of $128 million. In 1962, herbicides were used on about 70 million acres of agricultural land at a cost

of over $272 million. This was a 75 percent increase in the acreage treated during this 4-year period.

The above increase could have been due to many factors; an important one that surely has had an effect on this increase would be the number of various herbicides available for use. In 1940, there were 14 herbicides used in weed control. In 1962, over 100 herbicides were available, and the number is constantly increasing with emphasis on more specific or special-use herbicides.

A rapid development and improvement in equipment and technique of application has made possible, greater efficiency with improved control.

This Department has cooperative agreements with the following agencies in carrying out the noxious weed control program: Douglas County, Paradise Valley and Walker River Weed Control districts; Bureau of Land Management; Nevada State Highway Department; Lassen County Department of Agriculture, California; counties of Churchill, Clark, Elko, Humboldt, Lyon, Mineral, Pershing, and Washoe; the various school districts in the above counties; the cities of Boulder, Elko, Fallon, Las Vegas, North Las Vegas, Reno, Sparks, and Winnemucca; Pershing County Irrigation District; Truckee-Carson Irrigation District, and the Western Pacific and Southern Pacific railroads.

The following noxious weeds are under a comprehensive control program with the above cooperating agencies: camelthorn, Canada thistle, dalmation toad flax, halogeton, Johnson grass, Klamath weed, leafy spurge, musk thistle, Scotch thistle, puncture vine, yellow star thistle, whitetop, and white horse nettle.

During the biennium, 185,836 gallons of spray solution was applied by departmental and county crews for the control of noxious weeds at a combined cost of $64,751.99 to the participating agencies. Herbicides used were:

| | | |
|---|---|---|
| Amitrole | 833 | lbs. |
| Amitrole–T | 221½ | gals. |
| Atrazine 80–W | 1,352¾ | lbs. |
| Banvel–D | 25¼ | gals. |
| Dowpon | 36¾ | lbs. |
| Dow General | 150½ | gals. |
| LV–4 (various 2, 4–D formulations) | 157 | gals. |
| Poly Bor | 200 | lbs. |
| Richfield–A | 12,254¼ | gals. |
| Simazine 80–W | 1,177½ | lbs. |
| Telvar | 30 | lbs. |
| Tordon 22–K | 48¼ | gals. |
| Tordon Beads | 225 | lbs. |
| Urea Bor | 230 | lbs. |
| X–77 | 50¾ | gals. |

Evaluation of new chemicals is still being carried on with the assistance of county agents of the Agricultural Extension Service, University of Nevada and private landowners. This type of program has proven valuable in field-day types of demonstrations.

As in the past, the halogeton program has been confined to sterilizing

the road shoulders on roads leading from an infested area to an uninfested area. This work is in cooperation with the Bureau of Land Management and the Nevada State Highway Department.

This year, halogeton was found in the Glendale area of Clark County for the first time. Scattered infestations were also found on Interstate 15. Plans are to sterilize these areas to prevent further spread.

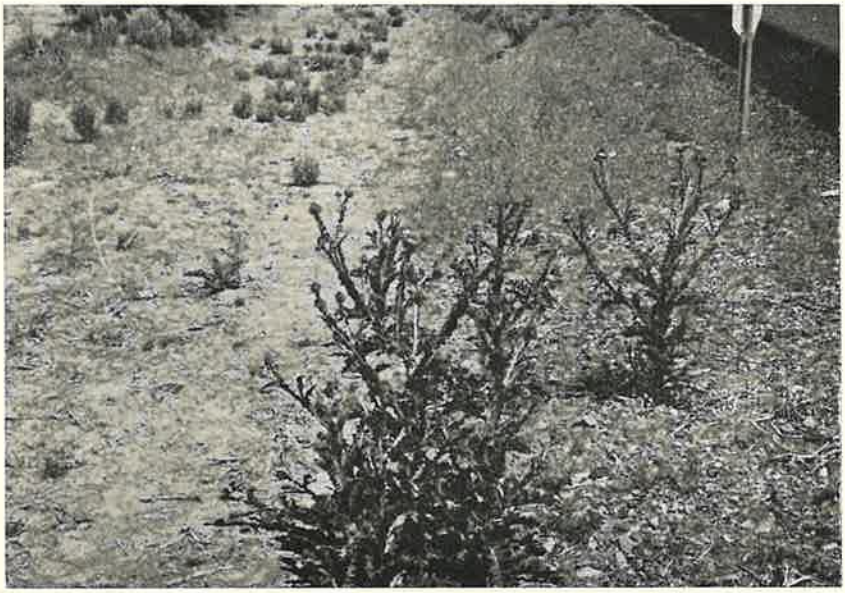
**Musk Thistle**

Medusa head, which was found in 1963, is still confined to Washoe County along the eastern slope of the Sierra Nevada. From the original 350-acre infestation, we now have approximately 1,200 acres. Test plots are being maintained and evaluated in cooperation with the Agricultural Research Service, U.S. Department of Agriculture. To date, chemical

control in the spring, followed by seeding in the fall, or spring discing and seeding in the fall has proven successful. At the present time all of the infestations found on the eastern slope are not conducive to seeding or chemical control.

Weed surveys located two additional musk thistle infestations, making a total of four known infestations. Three of the infestations are in Washoe County and one in Lyon County. Intensive control work aimed at complete eradication of this pest is one of our goals.

Scotch thistle was found in widely scattered areas of our State. Scotch thistle is a biennial native of Eurasia, forming a rosette from seed the first year. It is a coarse thistle, branching repeatedly above, bearing large purple flower heads at the end of the branches. It has a broadly winged stem and grows in height from 4 to 7 feet. The whole plant is covered with silver hairs.



**Scotch Thistle**

This past year a cooperative program was entered into with the State of California, the county of Lassen and this Department for a joint effort to control this pest along the California-Nevada border in the vicinity of Doyle, California.

Scattered infestations of this pest are being found along our highway road shoulders and railroad rights-of-way throughout the northern half of Nevada. Control measures are being applied wherever it is found.

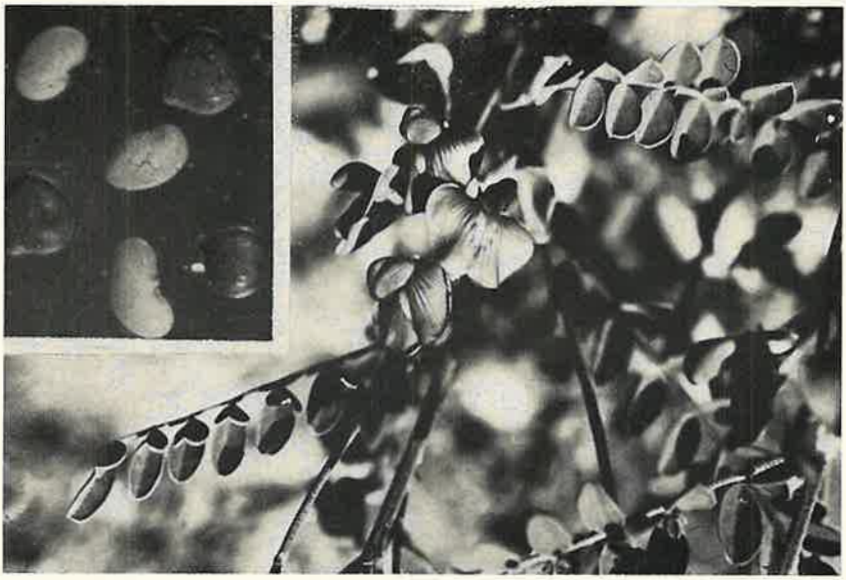
Austrian pea weed, known to be in the Fallon area since 1929 (from an herberium specimen in the California Academy of Sciences), has been found in the Lovelock area of Pershing County. This infestation is of limited distribution, but it could become a serious problem in the seed-growing areas of our State if allowed to spread, due to the fact that

the seed of Austrian pea weed is the same size, weight, and texture as alfalfa seed.

Evaluation of various materials was started 2 years ago on this pest. To date, the use of Dicamba (Banvel–D) and Picolram (Tordon 22–K) have shown excellent results in the control of Austrian pea weed.

At the close of the biennium, a detailed survey of the agricultural areas of Lyon County was completed. Also completed during this period was a survey of the irrigation distribution system of Pershing County. Surveys are confined to the noxious weeds listed in our regulations.

Maps of the areas surveyed and a brief description of the infestation was then compiled and may be examined at the following offices: Weed Control Districts and County Agent Offices, and at the Nevada State Department of Agriculture.



**Austrian pea weed—flower and leaf.**

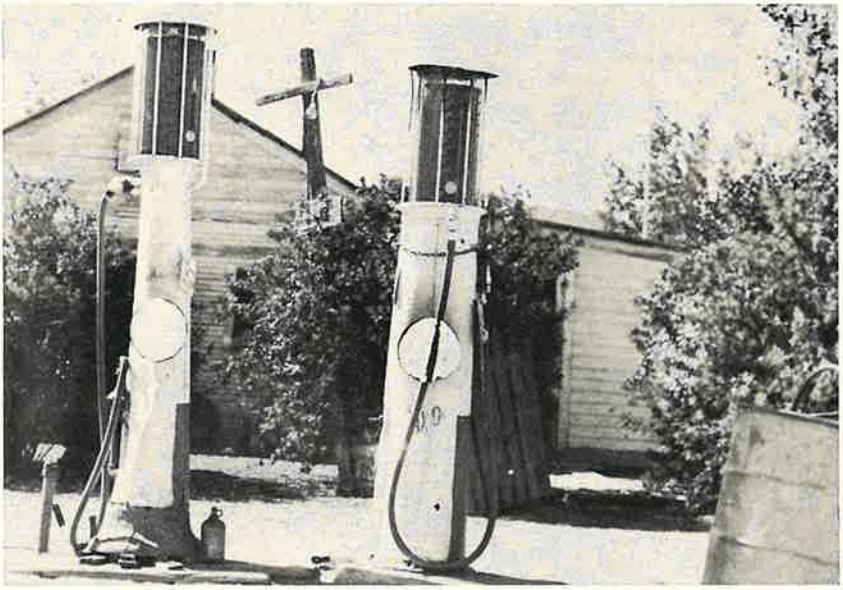
Several meetings have been held during the past 2 years with extension agents and interested parties in Eureka and Pershing counties with the intent being to form weed control districts in these areas. To date nothing has materialized, but it is hoped that something will develop in the near future from the interest shown at these meetings.

## WEIGHTS AND MEASURES

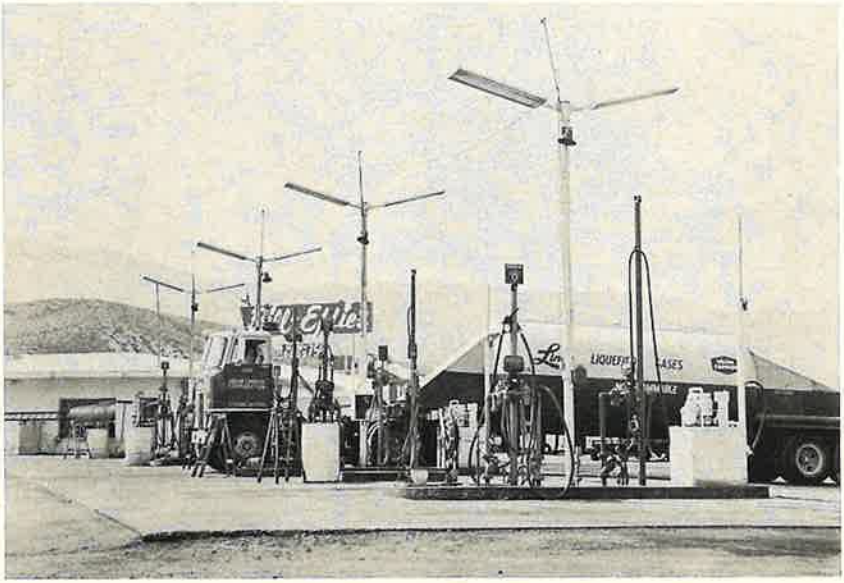
Over $700 million of Nevada's $1,135 million annual sales is governed by Weights and Measures.

Weights and Measures becomes a more fascinating and challenging science with each passing year. We have witnessed mechanical weighing and measures devices changed to more complicated electro-mechanical

## "PETROLEUM PRODUCT SALES IS BIG BUSINESS"

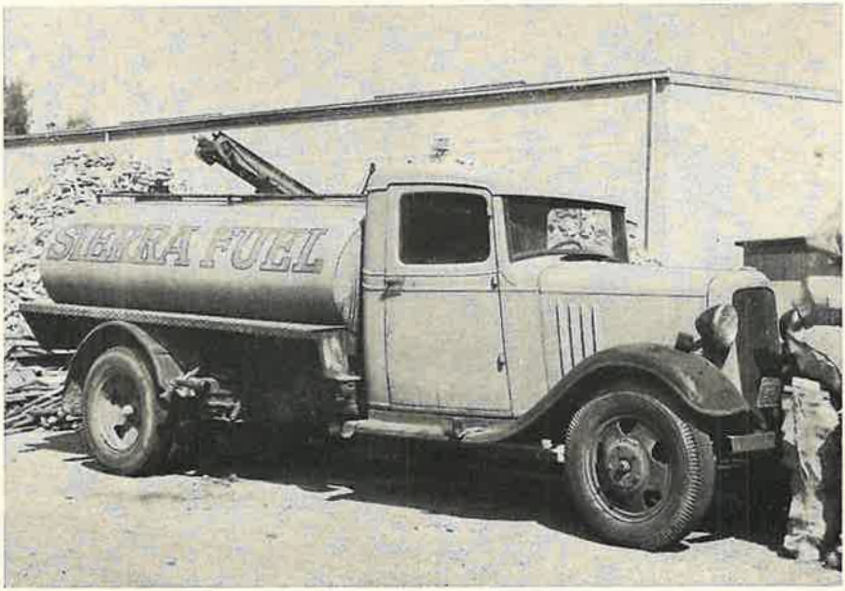


**An early day visible-bowl gasoline pump station at Brown's Station near Austin, Nevada. This type of dispenser has been obsolete for some time.**



**One of the most modern diesel truck fueling stations. High speed delivery pumps allow rapid fueling. Station equipped with 49 meters to dispense gasoline, diesel fuel, motor oil, and propane.**

## "PETROLEUM PRODUCT SALES $85,000,000 PAST YEAR"




**First meter measure heating oil truck in Reno, Nevada, during the early 1930's. This size truck was adequate for hauling petroleum products during that era.**

**Today's modern tankers haul 10,000 gallon loads to facilitate large volume, rapid transit of petroleum products. Truck tanks are being filled with a 550-gallon-a-minute-capacity meter.**

and electronic weighing and measuring systems. These changes are the result of industry dictates for larger and faster operating weighing and measuring devices.

These more complex systems have resulted in the need for a greater knowledge of device operations by enforcing officers, and have required more time expended on testing for accuracy.

The State's economic growth has resulted in 1,289 additional weighing and measuring devices placed into service. Over 50 percent of these additional units were retail gasoline pumps.

The sale of gasoline, jet fuel, diesel fuel, heating oil, motor oil, and proprane is big business. Over $85 million of these petroleum products were sold in the State during 1965. The accuracy of the retail and wholesale meters through which these products are measured is imperative. A total of 12,094 measuring devices used for the sale of petroleum products were initially tested during the biennium. Of this total, 1,717 units were condemned for repairs.

All weighing and measuring devices initially tested during the biennium totaled 19,579. The following is a summary of Weights and Measures equipment tested during this period.

Devices meeting initial test requirements are passed and sealed, as indicated in Column 2. Minor adjustments are made in instances where such adjustments would correct errors and equipment is then passed. These devices are reflected under the "adjusted and passed" column. Non-complying devices are ordered repaired and are indicated in the "out-of-order" column. A recheck test is made after notification is received that out-of-order devices have been corrected. Rechecked devices are listed under the "rechecks passed" column.

## WEIGHTS AND MEASURES DEVICES TESTED

### July 1, 1964–June 30, 1966

| | *Total Initially Tested* | *Initially Tested and Passed* | *Adjusted and Passed* | *Out-of-Order* | *Recheck Passed* |
|---|---|---|---|---|---|
| Scales— | | | | | |
| Balances | 284 | 231 | 40 | 13 | 7 |
| Pharmacy | 68 | 59 | 3 | 6 | ..... |
| Computing | 2,831 | 1,514 | 839 | 478 | 287 |
| Prepackage | 184 | 119 | 23 | 42 | 20 |
| Postal | 127 | 102 | 20 | 5 | ..... |
| Spring | 961 | 667 | 247 | 47 | 40 |
| Overhead track and beam | 242 | 147 | 45 | 50 | 29 |
| Small capacity | 409 | 237 | 77 | 95 | 52 |
| Large capacity | 795 | 525 | 168 | 102 | 48 |
| Livestock | 731 | 513 | 79 | 139 | 73 |
| Motor truck | 249 | 93 | 71 | 85 | 57 |
| Hopper | 197 | 66 | 96 | 35 | 21 |
| Contractor motor truck | 95 | 19 | 58 | 18 | 22 |
| Contractor hopper | 101 | 46 | 45 | 10 | 6 |
| Miscellaneous | 13 | 13 | ..... | ..... | ..... |
| Meters— | | | | | |
| Gas pumps | 10,212 | 7,932 | 857 | 1,423 | 1,294 |
| Oil | 29 | 28 | ..... | 1 | 1 |
| Truck | 719 | 442 | 154 | 123 | 136 |
| Split compartment | 508 | 392 | 17 | 99 | 75 |
| Rack | 203 | 105 | 50 | 48 | 16 |
| Liquefied petroleum gas | 265 | 164 | 82 | 19 | 156 |
| Temperature compensators | 132 | 50 | 79 | 3 | 6 |
| Liquid Measures— | | | | | |
| Tank truck compartments | 26 | 8 | 17 | 1 | 3 |
| Milk tanks | 10 | 6 | 2 | 2 | 2 |
| Miscellaneous | 38 | 14 | 20 | 4 | ..... |
| Linear and Dry Measures | 150 | 145 | ..... | 5 | 5 |
| **Commercial devices initially tested** | 19,579 | 13,637 | 3,089 | 2,853 | 2,356 |
| Devices rechecked | 2,356 | | | | |
| **Grand total tested** | 21,935 | | | | |
| Non-Commercial Devices* | 16 | 6 | 2 | 8 | ..... |
| Weights— | | | | | |
| Apothecary | 1,355 | 1,325 | 13 | 17 | ..... |
| Metric | 139 | 132 | 3 | 4 | ..... |
| Avoirdupois | 4,224 | 3,955 | 178 | 91 | 22 |
| **Weights initially tested** | 5,718 | 5,412 | 194 | 112 | 22 |
| Weights rechecked | 22 | | | | |
| **Grand total tested** | 5,740 | | | | |
| State Standards | 1,569 | 1,302 | 263 | 4 | 16 |

*Non-commercial devices are those not used for commercial sales, such as found in state institutions for inventory control, etc.

## PREPACKAGED COMMODITIES

Marketing trends are toward merchandising more commodities in ready-to-use packages. Some supermarkets now stock over 8,000 various items.

It is imperative that samples of these thousands of commodities offered for sale be checked to determine compliance with package label quantity claims. The prepackage inspection program must be one of constant vigilance in order to maintain adequate policing.

Packaged food items were the basic items checked for quantity compliance. Results of findings were as follows:

| | |
|---|---|
| Total lots sampled | 1,332 |
| Total packages in lots | 90,165 |
| Packages inspected* | 13,779 |
| Packages in violation | 19,300 |
| Total lots in violation | 461 |

*Packages inspected represents a sampling of total packages in lots. Sampling inspection varies from 10 percent to 100 percent, depending on the total packages in each lot.

Violative products were ordered corrected to comply, and some items were returned to out-of-state packers.

## WEIGHTS AND MEASURES EDUCATION

Weights and Measures activities were highlighted in a news tape shown on KCRL, Channel 4 in Reno. Both this station and KOLO, Channel 8, showed the film "A True Standard" to its viewing audiences.

In addition, the story of the importance of Weights and Measures was told via the press, by window displays and through the schools.

## METROLOGY LABORATORY

This facility offers the ability to attest to the accuracy, within equipment limitations, of all weights and measures standards used in the testing of weighing and measuring devices.

The accuracy of the field standards of weights and measures is checked against office standards which, in turn, have been compared to the state master standards. The accuracy of the master standards is checked every 10 years by the National Bureau of Standards.

Consideration has been given to a new metrology laboratory which would house new state standards of weights and measures, to be supplied by the National Bureau of Standards under Congressional authority. A state must have an approved laboratory before these new standards will be provided.

Such a laboratory facility would allow for precision weighing and measuring, testing, and certification for industry, business, government, and education institutions.