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AGRONOMIC PRACTICES OF THE NEVADA TEST SITE EXPERIMENTAL DAIRY FARM DURING 1971, 1972, AND 1973

by
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Las Vegas, NV 89114

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ABSTRACT

This report is one of a succession of reports on the agronomic practices of the experimental dairy farm at the Nevada Test Site. It summarizes the agronomic practices at the farm for the calendar years 1971, 1972, and 1973. The topics covered include land preparation and seeding, irrigation, fertilization, weed and insect control, and forage production. The research conducted at the microplot area at the farm is also cited. Descriptive tabular data are enclosed as appendices.

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INTRODUCTION

The Environmental Monitoring and Support Laboratory-Las Vegas (EMSL-LV) of the U.S. Environmental Protection Agency (EPA) maintains and operates an experimental dairy farm on the U.S. Energy Research and Development Administration's (ERDA) Nevada Test Site (NTS). The Farm and Animal Investigation Branch (MSF) of the Monitoring Systems Research and Development Division is responsible for the operation of the farm and for assisting in or carrying out the related research activities.

This farm is located approximately 110 miles north of Las Vegas in Area 15 of the NTS and is situated in a high desert valley at an elevation of about 4,500 feet (see Figure 1). The history and physical description of the farm were reported previously.[1, 2, 3, 4] As depicted in Figure 2, the experimental farm consists of 16 acres of irrigated cropland divided into 17 plots or lands by the irrigation laterals. Each of the end lands has an area of approximately ½ acre, while the remaining 15 lands each contain 1 acre. The soil is typed as coarse, gravelly, sandy loam with cobbles intermixed, low in organic matter, nitrogen, and phosphorus, and moderately high in potassium. It has a pH of 8.3.[5]

Adjacent to the northeast corner of the farm is approximately 2½ acres of small irrigated crop areas called "microplots." These microplots are used to study the behavior of pollutants in soils and the uptake, retention, and residence time of these pollutants in various crops.

This report, covering calendar years 1971, 1972, and 1973, is one of a series that describes the agronomic practices at the experimental farm. It was prepared from records maintained by MSF farm personnel to document those practices and to supply information for planned experiments and special ad hoc studies.

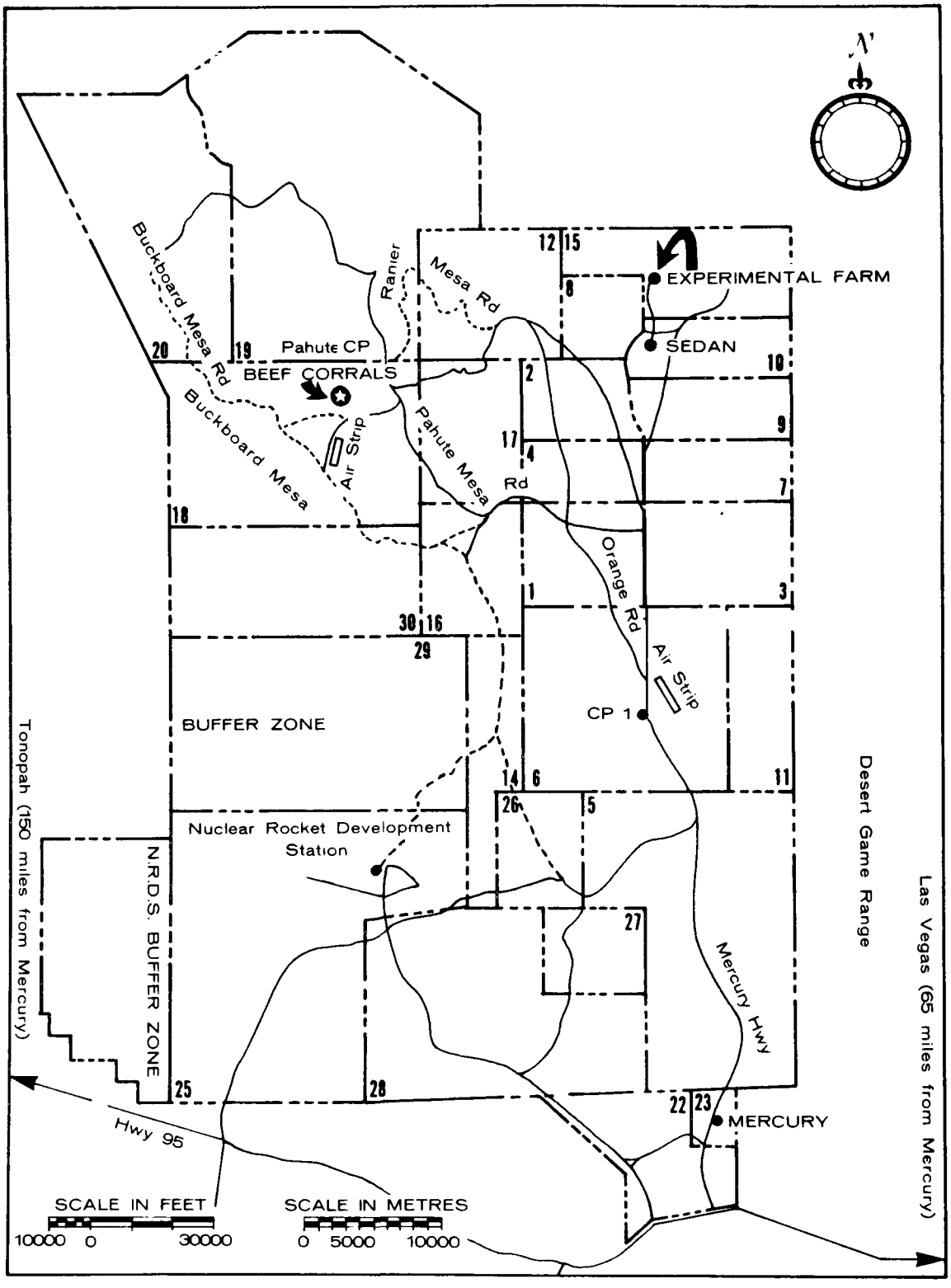

Figure 1. Map of the Nevada Test Site showing approximate location of the Environmental Protection Agency Facilities.

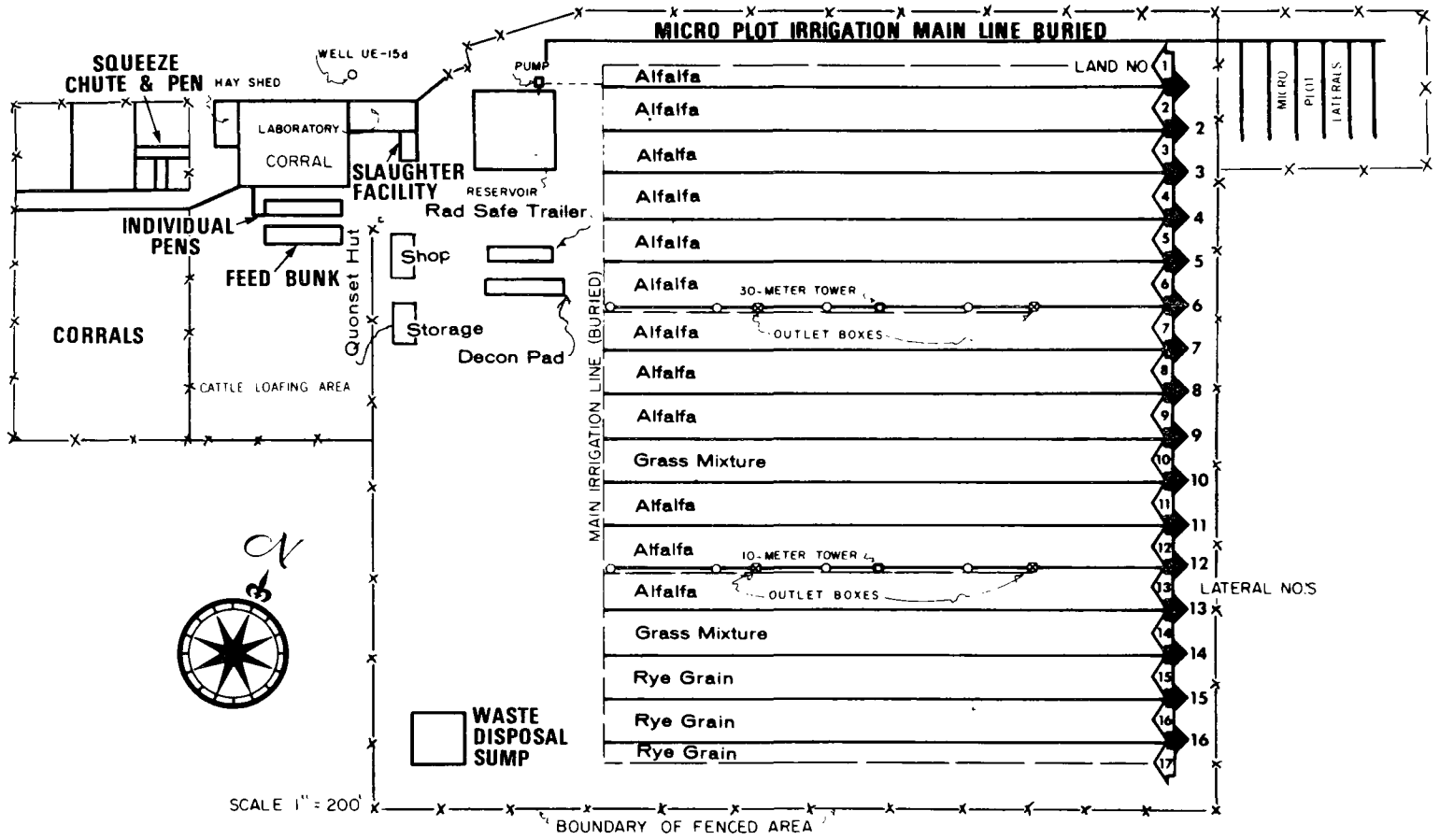

Figure 2. Layout of the Experimental Dairy Farm.

AGRONOMIC PRACTICES

LAND PREPARATION SEEDING

Lands 1 through 9, 11, 12, and 13 are maintained as permanent alfalfa plots; lands 10 and 14 are planted to alfalfa and grass; and lands 15, 16, and 17 are used for small grain crops for early spring green feed production. Every year in late summer these latter three lands are chiseled to a depth of about 12 inches, disced, and harrowed to prepare a seed bed for rye grain. A preplant fertilizer of nitrogen and phosphorus is applied. The fertilizer application rates are described in another section. Secale cereale, "Elbon" cultivar rye seeds were planted at the seeding rate of 120 pounds per acre on September 23, 1971, September 27, 1972, and October 2, 1973.

IRRIGATION

Annual rainfalls for the years 1971, 1972, and 1973 were 6.79, 6.34, and 8.69 inches, respectively (see Appendix A-1). As this natural precipitation was not sufficient for crop production, irrigation water was supplied by a sprinkler irrigation system. Irrigation water was pumped from a 1-million gallon capacity reservoir which is supplied by a 5,400-foot deep well. The well pump was set at 1,700 feet and pumps at the rate of 200 gallons per minute. The monthly irrigation rates for each land are listed in Appendix B. Total annual precipitation and irrigation are summarized in Table 1. Monthly temperature ranges for these years are shown in Appendix A-2.

Table 1. Irrigation Summary

Year	Rainfall	Irrigation Water Applied		
	(in)	(acre-ft)	(gal)	(acre-ft/acre)
1971	6.79	69.3	22,587,922	4.3
1972	6.34	86.8	28,272,004	5.4
1973	8.69	78.2	25,481,470	4.9
Average	7.27	78.1	25,447,132	4.9

FERTILIZATION

The Area 15 farm soil is characteristic of soils of arid regions of the southwest in that it is deficient in nitrogen and is low in phosphorus.[6] These two nutrients are supplied to the crops in the form of the commercial fertilizers; i.e., ammonium sulfate (21-0-0) which contains 21 percent nitrogen and double super phosphate (0-45-0) which contains 45 percent phosphoric oxide.

Phosphorus was applied during the winter months as a top dressing for the crops and was also applied to small grains as a fertilizer prior to planting to aid in root development. Small grains and grasses required nitrogen for plant growth. This was applied as a top dressing during the growing season and as a fertilizer prior to planting on small grains. No additional nitrogen fertilizer was applied to the alfalfa. Alfalfa, a member of the Leguminosae family, has the characteristic of forming nitrogen-fixing nodules on its roots enabling the use of atmospheric nitrogen. Table 2 lists the nutrients applied to each land, and the year and month of the applications.

HARVESTING

Nearly all the forage produced during the growing season is used as green feed. When the growth exceeds the demand for green feed, the forage is cut and baled as hay. The details of the feeding procedures are presented in another report.[7] A summary of the feed production for the 3 years is given in Table 3. Forage production for each land by monthly and yearly totals is shown in Appendix C. Figure 3 depicts the annual production of green feed on an air-dried basis and hay from 1966 through 1973.

WEED CONTROL

Mechanical and chemical means were both employed to control weeds. In order to prevent reseeding, weeds in the non-crop areas were uprooted with a rear-mounted tractor blade when they were 2 to 6 inches high. This was repeated when necessary. After the spring harvest of the small grains, the lands were left fallow until the fall reseeding. Weed control of the lands consisted of two to three discings during the summer months.

Table 2. Nutrient Application Rate/Land for Years 1971, 1972, and 1973

Month	Year	Nutrient		
		Nitrogen (lbs/acre)	Phosphorus (lbs/acre)	Phosphoric Oxide 45% (lbs/acre)
	1971			
March				
Lands	1-9, 11, 12, and 13	NA	62	144
	10 and 14	48	16	36
	15, 16, and 17	64	16	36
September				
Lands	14	32	NA	NA
	15, 16, and 17	48	16	36
	1972			
February				
Lands	1-13	NA	62	144
	14	32	NA	NA
	14-17	NA	32	72
	15-17	48	NA	NA
September				
Lands	15-17	32	16	32
	1973			
March				
Lands	1-8	NA	59	135
	10-13	NA	59	135
	9 and 14	31	29	67
	15-17	63	NA	NA
October				
Lands	15-17	32	16	36

NA = Not applied

Table 3. Feed Production

Year	Harvest Season		Green Feed Production				Hay Production
			Total Production		Total/Area	Av. Daily	Total
	Dates (mo/day)	Length (days)	Wet wt. (tons)	Dry wt. (tons)	Wet wt. (tons/acre)	Wet wt. (pounds)	(tons)
1971	4/2-10/11	192	296	89	18.5	3,083	7.5
1972	3/10-11/6	241	397	119	24.2	3,211	3.0
1973	4/5-10/28	206	409	123	25.6	3,978	7.6

The commercial herbicides used for weed control along the fences and irrigation laterals were Rad-E-Cate (cacodylic acid), Paraquat (dimethyl-bipyridyliumion), 2-4 D (2-4 dichlorophenoxy-acetic acid), and diesel oil. The herbicides were applied at the manufacturer's recommended rates.

During 1973, the soil sterilant Ureabor (sodium metaborate tetrahydrate, sodium chlorate, and bromacil) was applied around the sprinkler heads where it is difficult or impossible to clip.

Only certified weed-free seed was planted to prevent the introduction of noxious weeds.

INSECT CONTROL

No infestation of insects occurred during 1971; therefore, no control methods were necessary.

During March 1972, a heavy infestation of pea aphids occurred in the alfalfa in lands 1 through 14. Complete control was achieved after two sprayings of Malathion E56 at 6-day intervals (1 pint of Malathion in 20 gallons of water was applied to each acre).

During March 1973, a heavy infestation of pea aphids occurred again in the alfalfa in lands 1 through 14. Complete control was achieved after sprayings of Diazinon AG500 at 7-day intervals (1 pint of Diazinon in 20 gallons of water was applied to each acre).

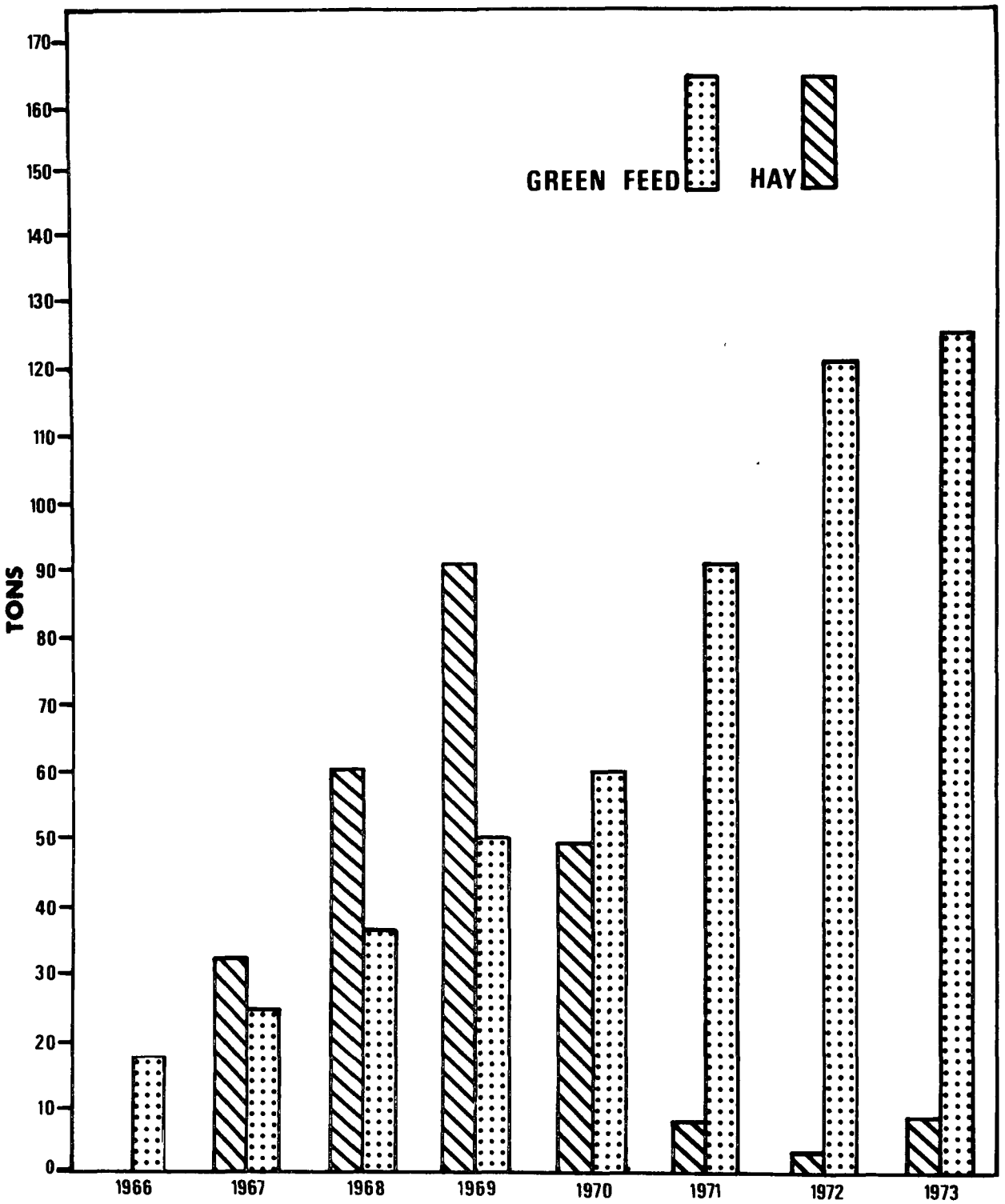

Figure 3. Forage Production (air-dried) from 1966 through 1973.

In June 1973, a heavy infestation of lygus bugs (a sucking insect) occurred in the alfalfa. Harvesting of the alfalfa and the presence of a large number of natural insect predators (ladybugs) resulted in control of this insect.

RESEARCH STUDIES AT THE MICROPLOT AREA

During the summer of 1971, selected vegetable crops were grown on the microplot area to determine the relationships between the concentration of tritium in the soil and the tritium concentration in the free water of the plants growing in this soil.[8]

Plant tissue tritium concentrations were generally higher than the soil tritium concentrations. In some instances, the concentrations in plant tissues were double those found in the soil samples. This may have resulted from foliar absorption of atmospheric tritium which probably originated from the Sedan Crater located about 2 miles south of the experimental farm.

During 1972, alfalfa was grown in the glasshouse located on the microplot area. Personnel from the MSF, under the direction of the Pollutant Pathways Branch (MSP), maintained the alfalfa growing in tritiated water at a specific activity of 100 nCi/ml of water. The alfalfa produced was used as rabbit feed for Project Triton. The results of this project were presented at the meeting of the Fifth International Congress of Radiation Research in 1974.[9]

During 1972, the microplot area was used by the MSP for an investigation entitled, "Mercury Behavior In An Agricultural Environment." Using mercury-203 as a tracer, measurements were made of the root uptake, retention, and translocation of this environmental pollutant by table beets, barley, green beans, and lettuce, and of foliar absorption and retention of mercury by alfalfa, barley, and lettuce. The behavior and migration of mercury in soils were also studied.

During the 1972 experiment, it was noted that approximately 75% of the applied mercury volatilized. An experiment was conducted in 1973 by the MSP on the microplot area to study the volatilization and to evaluate the potential use of plants as biological monitors of mercury. Reports concerning these two projects have been published.[10, 11, 12]

PUBLIC RELATIONS

Because of the uniqueness of an operating dairy farm located on the NTS, it is frequently visited by groups on orientation tours of the NTS. During the 3 years covered in this report, approximately 80 groups totalling 2,500 people visited the farm and were briefed on the activities of the farm and its role in the surveillance and research programs conducted by the Environmental Monitoring and Support Laboratory-Las Vegas.

SUMMARY

The procedures employed at the experimental farm either follow practices recommended by the University of Nevada Experiment Station and Cooperative Extension Service or duplicate actual practices used by commercial farmers of this general geographic area. Direct comparisons of yield, fertilization needs, and water requirements are difficult as the farm is isolated and not part of any specific farming area. Each area has its unique characteristics which influence the agronomic practices and determine, to a great extent, crop yields. Some of these characteristics are fertility, soil pH, soil type and depth, organic content, altitude, length of growing season, amount of precipitation, and quality of irrigation water. However, based on data available for the nearest farming areas, the experimental farm appears to correspond well with the yields and requirements of surrounding similar operations. For example, the average green feed production from small grains in the Moapa Valley (an agricultural area 100 miles southeast of the Area 15 farm) was 4.9 tons/acre (air-dry basis), while the 1971-1973 production from rye grain at the Area 15 farm was 5.1 tons/acre (air-dry basis).[12]

While application of irrigation waters has not changed significantly (1966 usage averaged 4.8 acre feet/acre vs. 4.9 acre feet/acre in 1973), production of green feed has increased markedly. During 1966, the average production was 3.7 tons/acre and, during 1973, it was 25.5 tons/acre. This increase is partially the result of plant maturity and increased soil fertility, and is partially because of changes in feeding procedures. During 1966, only enough green feed was harvested to feed the lactating cows, while in 1973, the entire herd (lactating and dry cows, replacement heifers, calves, and miscellaneous beef animals) was maintained on fresh harvested forage. Since 1967, excess forage has been harvested as hay; prior to that time, it was used as mulch.

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APPENDIX A. SUMMARY OF THE METEOROLOGICAL DATA FROM THE AREA 15 FARM

TABLE A-1. PRECIPITATION DATA

Month	1971 Total for month*	1972 Total for month*	1973 Total for month*
January	0.01	-	1.07
February	0.36	-	2.41
March	0.05	-	2.84
April	0.01	-	0.06
May	1.67	0.04	0.56
June	-	1.32	0.38
July	0.19	0.37	0.05
August	2.44	0.96	0.11
September	0.06	0.24	0.11
October	0.1	1.67	0.65
November	-	1.73	0.33
December	1.9	0.01	0.12
Total for year	6.79	6.34	8.69

*Precipitation is measured in inches.

APPENDIX A. SUMMARY OF THE METEOROLOGICAL DATA FROM THE AREA 15 FARM

TABLE A-2. TEMPERATURE DATA

Month	Temperature Extremes* 1971 High	1971 Low	1972 High	1972 Low	1973 High	1973 Low
January	71	8	56	12	66	10
February	69	12	69	15	67	25
March	73	17	78	19	63	28
April	75	27	75	31	79	27
May	80	34	89	31	88	31
June	94	33	101	51	103	43
July	98	52	103	53	103	55
August	98	53	100	52	102	42
September	96	34	85	45	94	40
October	84	16	82	31	83	30
November	68	24	68	29	70	18
December	56	6	64	10	60	20

*Temperatures are expressed in degrees Fahrenheit.

APPENDIX B. IRRIGATION

TABLE B-1-1. GALLONS OF IRRIGATION WATER APPLIED TO EACH LAND DURING 1971
(Lands 1 through 8)

Land	1	2	3	4	5	6	7	8
Month								
January	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0
March	125,200	125,200	125,200	125,200	44,600	64,800	64,800	64,800
April	134,600	74,600	288,300	375,600	302,800	283,460	191,860	191,860
May	168,100	200,300	136,100	92,600	92,600	93,800	159,100	159,100
June	260,100	218,500	218,500	218,500	177,400	191,300	191,300	191,300
July	238,010	242,010	172,310	172,310	279,110	263,110	300,700	300,700
August	196,876	196,876	267,076	267,076	170,226	188,626	188,626	188,626
September	261,600	261,600	279,500	279,500	285,100	323,400	310,000	310,000
October	135,100	135,100	135,100	135,100	124,700	124,700	124,700	149,700
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
Total Gallons	1,519,586	1,454,186	1,622,086	1,665,886	1,476,536	1,533,196	1,531,086	1,556,086
Total Acre Feet*	4.66	4.46	4.97	5.11	4.53	4.70	4.69	4.77

*1 acre foot = 325,850 gallons

TABLE B-1-2. GALLONS OF IRRIGATION WATER APPLIED TO EACH LAND DURING 1971
(Lands 9 through 16)

Land	9	10	11	12	13	14	15	16
Month								
January	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0
March	64,800	64,800	64,800	90,500	90,500	90,500	90,500	90,500
April	191,860	191,860	191,860	252,583	265,383	265,383	265,383	265,383
May	223,300	223,300	235,600	164,600	164,600	164,600	164,600	96,700
June	191,300	191,300	145,900	145,900	145,900	145,900	0	0
July	298,600	208,000	170,410	187,210	191,510	142,110	0	0
August	126,126	322,452	271,326	271,326	201,126	201,126	150,000	0
September	310,000	372,100	121,300	202,700	202,700	202,700	98,300	98,300
October	149,700	126,900	47,600	101,900	143,900	143,900	42,000	42,000
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
Total Gallons	1,555,686	1,700,712	1,419,206	1,416,719	1,405,619	1,356,219	810,783	592,883
Total Acre Feet*	4.77	5.21	4.35	4.34	4.31	4.16	2.48	1.81

*1 acre foot = 325,850 gallons

APPENDIX B. IRRIGATION

TABLE B-2-1. GALLONS OF IRRIGATION WATER APPLIED TO EACH LAND DURING 1972
(Lands 1 through 8)

Land	1	2	3	4	5	6	7	8
Month								
January	0	0	0	0	0	0	0	0
February	49,800	49,800	49,800	49,800	49,800	49,800	49,800	49,800
March	11,000	127,030	127,030	127,030	127,030	145,230	145,230	145,230
April	170,600	237,000	237,000	237,000	237,000	240,000	148,800	148,800
May	270,400	270,400	270,400	256,600	256,600	298,200	312,700	300,700
June	258,800	258,800	258,800	258,800	258,800	237,000	265,300	258,000
July	378,700	378,700	378,700	377,200	384,600	405,500	397,400	397,400
August	345,000	280,600	280,600	222,740	170,740	233,540	315,040	330,540
September	379,700	369,700	350,200	350,200	210,000	287,000	251,400	251,400
October	50,000	28,500	28,500	28,500	122,500	94,200	94,200	94,200
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
Total Gallons	1,974,000	2,000,530	1,981,030	1,907,870	6,882,066	7,563,786	1,979,870	1,976,070
Total Acre Feet*	6.05	6.13	6.07	5.85	5.55	6.10	6.07	6.06

*1 acre foot = 325,850 gallons

TABLE B-2-2. GALLONS OF IRRIGATION WATER APPLIED TO EACH LAND DURING 1972
(Lands 9 through 16)

Land	9	10	11	12	13	14	15	16
Month								
January	0	0	0	0	11,100	11,100	11,100	11,100
February	49,800	43,300	43,300	43,300	43,300	43,300	43,300	43,300
March	145,230	145,230	97,230	87,230	128,230	128,230	128,230	128,230
April	148,800	148,800	63,500	225,500	237,600	237,600	237,600	237,600
May	302,700	250,600	303,600	303,600	303,600	255,800	111,500	60,500
June	253,300	253,300	264,500	183,700	183,700	183,700	0	0
July	398,300	427,500	332,300	332,300	329,900	263,500	62,000	58,400
August	302,500	395,425	392,925	445,825	348,000	120,400	0	0
September	251,400	251,400	243,000	286,600	286,600	286,600	226,100	226,100
October	94,200	50,000	0	0	0	50,000	50,000	50,000
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
Total Gallons	1,946,230	1,965,555	1,740,355	1,905,055	1,872,030	1,580,230	869,830	815,230
Total Acre Feet*	5.97	6.03	5.34	5.84	5.74	4.84	2.66	2.50

*1 acre foot = 325,850 gallons

TABLE B-3-1. GALLONS OF IRRIGATION WATER APPLIED TO EACH LAND DURING 1973
(Lands 1 through 8)

Land	1	2	3	4	5	6	7	8
Month								
January	0	0	0	0	0	0	0	0
February	0	0	0	0	0	0	0	0
March	155,400	155,400	155,400	155,400	125,200	65,000	65,000	65,000
April	157,100	76,200	289,100	376,200	302,800	283,500	201,600	201,600
May	169,200	200,500	136,100	93,500	93,500	93,600	160,200	160,200
June	259,600	219,700	219,700	219,700	219,700	178,500	224,500	224,500
July	238,000	238,000	172,400	172,400	278,900	264,100	300,900	301,700
August	196,875	196,875	268,100	268,100	170,200	187,300	187,300	188,500
September	262,500	262,500	280,600	280,600	285,100	324,100	310,400	310,400
October	136,000	136,000	136,000	136,000	136,000	125,400	125,400	125,400
November	0	0	0	0	0	0	0	0
December	0	0	0	0	0	0	0	0
Total Gallons	1,574,675	1,485,175	1,657,400	1,801,900	1,611,400	1,700,000	1,575,300	1,577,300
Total Acre Feet*	4.8	4.5	5.0	5.5	4.9	5.2	4.8	4.8

*1 acre foot = 325,850 gallons

TABLE B-3-2. GALLONS OF IRRIGATION WATER APPLIED TO EACH LAND DURING 1973
(Lands 9 through 16)

Land	9	10	11	12	13	14	15	16
Month								
January	0	0	0	0	0	0	0	0
February	0	0	43,300	49,800	49,800	49,800	49,800	49,800
March	65,000	65,000	65,000	93,000	93,000	93,000	93,000	93,000
April	201,600	201,600	123,400	111,500	111,500	111,500	109,000	109,000
May	160,200	228,800	138,000	138,000	132,000	132,000	122,000	122,000
June	224,500	224,500	393,400	393,400	393,400	393,400	156,400	156,400
July	300,900	275,800	191,000	342,000	342,000	300,900	219,800	---
August	125,200	320,900	439,800	439,800	357,800	357,800	83,240	83,240
September	310,400	371,800	132,000	226,000	226,000	226,000	94,000	94,000
October	150,100	150,100	88,000	104,000	104,000	104,000	104,000	104,000
November	0	0	66,200	66,200	66,200	66,200	66,200	66,200
December	0	0	0	0	0	0	0	0
Total Gallons	1,537,900	1,838,500	1,680,100	1,963,700	1,875,700	1,834,600	1,0974,440	877,640
Total Acre Feet*	4.7	5.6	5.1	6.0	5.7	5.6	3.4	2.6

*1 acre foot = 325,850 gallons

APPENDIX C. FORAGE

TABLE C-1-1. POUNDS OF FORAGE PRODUCED ON EACH LAND DURING 1971 (Lands 1 through 8)*

Land	1	2	3	4	5	6	7	8
Month								
April	0	9,600	0	0	3,200	0	0	
May	0	0	1½ T hay	1½ T hay	18,000	0	7,000	1½ T hay
June	3,000	5,000	0	0	4,000	8,000	4,000	6,000
July	6,000	6,000	6,000	6,000	6,000	4,000	10,000	0
August	6,000	18,000	25,000	30,000	9,000	12,000	12,000	15,000
September	0	5,800	4,000	12,000	18,000	12,000	12,000	6,000
October	0		3,000	3,000	9,000	0	6,000	6,000
Total pounds	15,000	44,400	38,000	51,000	67,200	36,000	51,000	33,000
Total tons	7½	22¼	19	25½	33½	18	25½	16½

*Unless otherwise noted, figures express production of green feed.

APPENDIX C. FORAGE

TABLE C-1-2. POUNDS OF FORAGE PRODUCED ON EACH LAND DURING 1971 (Lands 9 through 17)*

Land	9	10	11	12	13	14	15	16	17
Month									
April	0	0	0	0	0	0	9,200	11,600	4,000
May	1½ T hay	8,000	6,000	1½ T hay	0	6,000	10,500	9,000	2,000
June	4,000	8,000	6,000	0	5,000	5,000	0	0	0
July	0	0	18,000	10,000	6,000	0	0	0	0
August	12,000	15,000	15,000	12,000	0	6,000	0	0	0
September	8,000	8,000	20,000	8,000	8,000	4,000	0	0	0
October	6,000	0	0	6,000	0	0	0	0	0
Total pounds	30,000	39,000	65,000	36,000	19,000	21,000	19,700	20,600	6,000
Total tons	15	19½	32½	18	9½	10½	9 3/4	10¼	3

*Unless otherwise noted, figures express production of green feed.

APPENDIX C. FORAGE

TABLE C-2-1. POUNDS OF FORAGE PRODUCED ON EACH LAND DURING 1972
(Lands 1 through 8)*

Land	1	2	3	4	5	6	7	8
Month								
March	0	3,200	2,400	1,600	4,800	0	0	0
April	1,600	1,600	0	2,400	1,600	1,600	3,200	3,200
May	4,000	4,500	3,000	4,500	21,500	0	0	0
June	4,000	10,000	10,000	12,000	12,000	0	0	12,000
July	4,000	8,000	8,000	8,000	11,500	33,500	19,000	12,000
August	7,000	14,000	14,000	21,000	21,000	14,000	7,000	35,000
September	9,000	12,000	12,000	9,000	0	0	0	0
October	6,000	3,000	0	0	15,000	18,000	3,000	12,000
November	0	0	9,000	9,000	0	0	0	0
Total pounds	35,600	56,300	58,400	67,500	83,400	67,100	32,200	72,000
Total tons	17.8	28	29.2	33.7	41.7	33.5	16.1	36

*Unless otherwise noted, figures express production of green feed.

APPENDIX C. FORAGE

TABLE C-2-2. POUNDS OF FORAGE PRODUCED ON EACH LAND DURING 1972
(Lands 9 through 17)*

Land	9	10	11	12	13	14	15	16	17
Month									
March	0	0	0	0	0	0	7,200	4,800	0
April	4,000	2,400	2,400	00	0	0	17,600	4,000	2,400
May	0	12,000	1,000	5,000	0	13,500	5,000	6,000	0
June	12,000	1½ T hay	10,000	10,000	8,000	4,000	0	0	0
July	8,000	14,000	1½ T hay	8,000	10,000	4,000	0	0	0
August	35,000	9,000	14,000	14,000	7,000	0	0	0	0
September	0	9,000	9,000	12,000	12,000	6,000	0	0	0
October	12,000	0	0	0	0	0	0	0	0
November	0	0	0	0	0	0	0	0	0
Total pounds	61,000	46,400	36,400	49,000	37,000	27,500	29,800	14,800	2,400
Total tons	30½	23¼	18	24½	18½	13 3/4	14 3/4	7½	2¼

*Unless otherwise noted, figures express production of green feed.

APPENDIX C. FORAGE

TABLE C-3-1. POUNDS OF FORAGE PRODUCED ON EACH LAND DURING 1973
(Lands 1 through 8)*

Land	1	2	3	4	5	6	7	8
Month								
April	1,600	2,400	2,800	3,000	8,000	0	0	0
May	4,500	5,000	4,500	6,000	9,000	12,000	8,000	12,000
June	5,000	10,800	10,000	12,000	10,000	10,000	12,000	8,000
July	6,000	9,000	8,000	9,000	14,000	9,000	10,000	9,000
August	7,000	14,500	15,000	18,000	9,000	12,000	12,000	12,000
September	9,500	12,000	13,000	12,000	12,000	8,000	8,000	10,000
October	4,000	3,000	7,000	4,000	3,000	6,000	4,000	4,000
Total pounds	37,600	56,700	60,300	64,000	65,000	57,000	54,000	55,000
Total tons	18.8	28.35	30.15	32.0	32.5	28.5	27.0	27.5
Hay pounds	1,300	2,145						
Hay tons	0.65	1.07						

*Unless otherwise noted, figures express production of green feed.

TABLE C-3-2. POUNDS OF FORAGE PRODUCED ON EACH LAND DURING 1973
(Lands 9 through 17)*

Land	9	10	11	12	13	14	15	16	17
Month									
April	0	0	0	0	0	0	8,000	6,000	3,600
May	8,000	4,000	4,000	9,000	12,000	11,000	17,000	7,500	1,500
June	12,000	14,000	12,000	8,000	8,000	10,000	6,000	3,000	1,200
July	16,000	12,000	8,000	8,000	12,000	12,000	0	0	0
August	8,000	8,000	10,000	12,000	4,000	6,000	0	0	0
September	10,000	10,000	9,000	14,000	10,000	8,000	0	0	0
October	6,000	4,000	4,000	4,000	6,000	4,000	0	0	0
Total pounds	60,000	52,000	46,000	55,000	52,000	51,000	31,000	16,500	6,300
Total tons	30.0	26.00	23.0	27.5	26.00	25.5	15.5	8.25	3.15
Hay pounds	2,405		2,730	3,120	3,510				
Hay tons	1.20		1.36	1.56	1.75				

*Unless otherwise noted, figures express production of green feed.

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