WATER EROSION PREDICTION PROJECT -- RANGELAND FIELD EXPERIMENTS

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WATER EROSION PREDICTION PROJECT
Rangeland Field Experiments

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INTRODUCTION

A new technology is being developed by the United States Department of Agriculture's Agricultural Research Service (ARS) to predict and assess erosion and sedimentation rates on rangelands. The Water Erosion Prediction Project (WEPP) was initiated in 1985 and was designed to collect experimental field data from both crop and rangeland soil and vegetation associations. WEPP is to provide technology for crop and rangeland erosion prediction and is intended to replace the Universal Soil Loss Equation. This project represents the first national research effort to incorporate rangeland erosion data into a National erosion model.

RANGELAND EROSION

The objective of WEPP was to develop erosion prediction technology for use by USDA-Soil Conservation Service (SCS), USDA-Forest Service (FS), USDI-Bureau of Land Management (BLM), and other agencies and organizations involved in soil and water conservation and environmental planning and assessment. The rangeland field program was conducted to understand how inherent soil properties and those affected by climate, vegetation, and land use affect infiltration, soil erodibility and soil loss. The WEPP User Requirements state that WEPP will consider grasslands; brushlands; savanna; tundra; sagebrush lands; salt-desert shrublands; Southwest semidesert grasslands, brushlands, desert; pinyon-juniper woodlands; chaparral; and badlands. Rangeland soils selected for evaluation were to have a range of properties thought to affect erodibility by both raindrop impact and surface flow. They were also to be soils for which users would most want soil erodibility values; and soils from a wide range of geographic location, geomorphic situation, climate condition, management, and rock fragment content.

WEPP rangeland site selections were based on requirements set forth in the User Requirements document, recommendations from SCS National Range Conservationist, and ARS experimental design requirements. ARS and SCS personnel selected 20 rangeland sites during the summers of 1986, 1987 and 1988, at 14 locations in the West and Great Plains. Rangeland field data collection for WEPP was a two year project which began in the spring of 1987. An 8-10 person team of ARS personnel were assisted at each site by local SCS, BLM, and ARS personnel in conducting the experiments.

RANGELAND SITES

Though most sites were visited only one time, the sites at Susanville, CA; Chickasha, Ft. Supply, and Woodward OK; and Cottonwood, SD were revisited in the summer of 1988. The plots used at the Nevada Test Site in Nevada and those at Walnut Gulch, Arizona were established in 1983 and 1985, respectively, and represent long term study plots.

Criteria for site selection included:

1-meet the needs of SCS in gathering data from as wide a range of vegetation/soil complexes as possible; including:
   a. Problem soils and vegetation types.
   b. Range condition effects on runoff and erosion.

2-meet the needs of WEPP model parameterization, including standard treatments that could be easily repeated to:
   a. Develop soil erodibility/soil property relationships.
   b. Determine effects of vegetation density, type and distribution on erosion, infiltration and rill spacing.

3-meet needs of field crew and equipment, including:
   a. Adequate clean water supply within 15 km of the site.
   b. At least 50 m by 50 m accessible land of uniform slope, soil, and vegetation type.
   c. No well defined concentrated flow patterns on the upland slope.

Soils at the selected sites are in the orders of Mollisols, Altisols, Entisols and Inceptisols. Moisture regimes are ustic, xeric, and aridic. Surface textures range from loamy sand to clay and many of the soils have appreciable amounts of coarse fragments. Vegetation types include arid and semiarid shrub and grasslands; Great Basin shrubsteepes; pinyon-juniper interspace; short, tall and mixed grass prairie; oak savanna; salt desert shrub; annual grassland and shortgrass desert. Two of the sites have paired plots with rainfall simulation experiments run on the same soil type on both rangeland (not tilled) and cropland conditions (tilled). Cooperative work at other locations involves other ARS facilities, BLM, U.S. Dept. of Energy, U.S. Forest Service, Univ. of California, South Dakota State Univ., and Texas A & M Univ.

FIELD PROCEDURES

Rotating-boom Rainfall Simulator

The simulator used in the WEPP rangeland field experiments was developed in 1965 by Swanson. The rotating boom rainfall simulator is trailer mounted and has 10- 7.6 m booms radiating from a central stem. The booms support 30 V-Jet 80100 nozzles positioned at various distances from the stem. The nozzles spray continuously downward from an average height of about 3 m, move in a circular path over the plots, apply rainfall intensities of approximately 60 or 120 mm/hr and produce drop-size distributions similar to natural rainfall. Simulator rainfall energies are 77% of those of natural rainfall and intermittent rainfall impulses are produced at the plot surface as the booms pass over the plot. Rainfall spatial distribution over each plot has a coefficient of variation of less than 10%. Changes in rainfall intensities are produced by increasing or decreasing the number of open nozzles; 15 nozzles for 60 mm/hr and 30 nozzles for 120 mm/hr. Electric solenoid valves have been added to the 120 mm/hr nozzles so that rainfall intensity can be changed instantaneously between 60 and 120 mm/hr. This change in rainfall intensity was needed for a more accurate description of the infiltration parameters proposed for the WEPP model. The simple design, portability of the simulator and because two plots are covered during one run, allows six plots to be evaluated in two days.

Plot Treatments

Plot treatments consisted of natural, clipped (canopy clipped to 20 mm height and clippings removed), and bare (canopy clipped to ground surface with clippings and all soil surface cover removed with minimum disturbance to the soil surface). The natural or undisturbed plots were intended to show hydrologic and erosional responses of each soil/vegetation association evaluated. Data from these plots will be used to develop erosion and infiltration relationships to evaluate the interactions among types and degrees of vegetation and ground surface covers. The clipped treatment will be used to separate canopy from ground surface effects on runoff and erosion. This treatment was not intended to simulate grazing effects. The bare treatment was designed to be the uniform treatment needed at all sites to determine soil erodibility values for a wide range of soil types and conditions. Relationsips among soil erodibility and easily measured soil properties need to be developed if the WEPP model is to be widely applicable and successful.

Large Plots (3.05 x 10.7 m)

There were 2 plots of each treatment for a total of 6 large plots planned for each rangeland site. However, some sites were grazed to the extent that the canopy height was less than 20 mm and the clipped treatment was not practical. Each large plot was 3.05 by 10.7 m in size with the long axis parallel to the slope. The plots were arranged in pairs so that two plots were evaluated with the simulator simutaneously. Pairing of treatments consisted of bare:natural, clipped:natural and bare:clipped. If the clipped treatment was not used, the natural:bare pairing was used. Metal sheets, 15 cm wide, were used to form the sides and upper end of each plot. These sheets were inserted 3 cm into the soil so that a 12 cm high border delineated each plot. The downslope end of the plot had a 20 cm wide metal sheet, with a sill plate formed on the upper edge, inserted into the soil so that the sill plate was flush with the soil surface. Runoff and sediment from the plot were diverted into a runoff measuring flume by troughs mounted below the sill plate.

A buffer strip, 2 m wide x 8 m long, along the outside edge of each large plot was marked with stakes and flagging and treated in the same manner as its companion large plot. These buffer strips were access limited and used for soil and belowground biomass sampling so that the large plots would not be disturbed except for their original treatment.

Small Plots (0.6 x 1.2 m)

Two 0.6 x 1.2 m metal bordered plots were installed in the buffer strip next to each of the bare-treatment large plots. The small plots had the same treatment as the large bare plot except that one of the small plots was covered with window screen to dissipate raindrop impact to prevent soil surface crusting. These small plots were used to determine interrill erosion rates as well as effects of raindrop impact on soil crusting and infiltration.

Rainfall Simulation Run Sequence

Three rainfall simulation runs, dry, wet and very wet, were made on each plot. Soil water content for the 0-5 cm and 5-20 cm soil layer was determined before the dry run (60 min at 60 mm/hr rainfall rate). Approximately 24 hours later soil water content was again determined from the 0-5 cm and 5-wetting front or 20 cm depth, which ever was greatest, just prior to the wet run (30 min at 60 mm/hr rainfall rate). The very wet run was made approximately 30 min later and included variable rainfall intensity (60 and 120 mm/hr) and addition of overland flow. This sequence provided soil infiltration and erosion data for unsaturated, field capacity and saturated soil moisture conditions.

The usual weekly schedule was:

- Mon. Arrive at site, select plots, install plot borders, set-up simulator equipment, haul water.
- Tue. Characterize and treat plots, sample soil and vegetation, prepare for dry runs.
- Wed. Make dry runs on all plots.
- Thu. Make wet and very wet runs on all plots.
- Fri. Finish site sampling and pack equipment.

Rainfall

Six non-recording raingages on each plot were used to measure rainfall amounts and distribution and a recording raingage was placed between paired plots to measure rainfall intensity. Rainfall temperature was recorded and a rainfall water quality sample was collected.

Overland Flow Application

Overland flow applications were used to simulate runoff additions from longer slope lengths and to increase the probability of rill erosion. Four overland flow rates, using clear water, were applied at the upper end of the bare plots during the final 60 mm/hr rainfall application of the very wet run. Flow rates ranged from 45 to 200 mm/hr with the duration of application dependent on time to reach runoff equilibrium at each overland flow rate.

Runoff

Runoff from each large plot was measured with a precalibrated runoff measuring flume that was set at the plot trough exit. Flow depths in each flume were continuously recorded using a pressure transducer bubble gage. Time to ponding, initial and ending runoff times and sediment sampling times were noted on field data sheets. Hydrographs and sedigraphs were produced using the flumes' depth/discharge rating tables and sediment sample concentrations. These graphs were later integrated to determine plot runoff volumes and rates and total sediment yields and rates. Small plot runoff hydrographs and sediment yields were determined from periodic (every 2 min. during rising part of the hydrograph and 10 min. intervals during runoff equilibrium) volumetric samples manually collected during the rainfall simulations.

Sediment

During runoff, periodic water/sediment samples (1l in volume) were manually collected from the exit of the runoff measuring flumes of the large plots. Sampling intervals were dependent on hydrograph shape, with 1-2 min intervals between samples on the rising and falling portions of the hydrograph and longer intervals during runoff equilibrium. Sediment concentrations (percent by weight) were determined at the site.

Site Characteristics

After consultation with the land owner and/or operator, prior and current land use (ie. grazed, non-grazed, and type of grazing animal) were recorded for each WEPP site. SCS personnel provided range site descriptions and range condition classification each year at the time rainfall simulations were made.

Canopy and Soil Surface Cover

Vegetation composition by life-form, foliar cover, and ground surface cover were characterized for each rainfall simulation plot by using a vertical 49 pin-point frame before and after treating each plot. Ten permanent transects were established on each plot for a total of 490 points. Percent cover by class was calculated as the number of observations per class divided by the total observations. Foliar cover was determined as the aerial contact of vegetation as the pin was lowered to the soil surface. Ground surface cover characteristics included: bare soil, gravel (5-20 mm), rocks (>20 mm), litter, cryptogams and plant basal cover. Cryptogams were placed into three classes; club moss (> 5 cm tall), tall moss (1-5 cm tall) and other moss (< 1 cm tall). Litter was divided into 2 categories: non-persistent (water transportable organic matter) and persistent litter (non-water transportable organic material). During characterization, a metal walkway was placed across the plot to prevent soil and plant disturbance.

Random Roughness

Before the dry run and after the very wet run, microtopography (random roughness) of each plot was determined using a 21 pin-point frame. A graduated scale attached to the back of the frame was used to determine the variation in pin heights. Ten transects were taken horizontally across the plots from the same transects used in determining cover for a total of 210 topograhic readings. The standard deviation of pin height (mm) was reported as the measure of random roughness. Photogrammetric methods were also used to determine plot topographic characteristics. Stereographic photo pairs were taken from 18 m above each plot before the dry and after the very wet run. Digital representation and contour mapping from these photos will be used to estimate surface roughness, rill spacing, and surface and canopy cover.

Above Ground Biomass

Before treatment standing herbaceous biomass was estimated by clipping 6 randomly located 0.5 m**2 microplots within the buffer strips located near the clipped and bare plots. Foliar and ground surface cover were determined for each microplot with a 20-pin point frame in a similar manner as for the large plots. Three transects were read for a total of 60 points on each microplot. After cover was determined for the microplots the plots were clipped by life-form to a 20 mm stubble height. Litter was removed by hand and all samples were dried at 60 C for 3 days.

Standing shrub biomass for the large plots was estimated using dimensional analysis techniques. The height (H), largest canopy diameter (LD), and canopy diameter at right angle to the first (SD) were measured to the nearest cm for every shrub on the rainfall simulation plots. Ten shrubs for each specie from the bare and clipped plots were randomly selected and cut to ground height and dried for 3 days at 60 C. These sample shrubs were used to develop linear regression relationships to estimate shrub biomass from canopy volume, plant height, and canopy diameter.

Leaf Area

Grass biomass from the 0.5 m**2 microplots was used to develop leaf area coefficients for the dominate grass species. Plants were clipped to a 20 mm stubble height, then separated by species into live or dead leaves and live or dead clums. Leaves were separated from clums for all species and leaf area was determined with an automatic leaf area meter. The samples were then oven dried at 60 C for 3 days and then weighed to determine biomass. An open-ended cube (250 mm on a side) was used to sample shrub leaf biomass. The cube was placed in an area representative of the entire shrub canopy and the leaves within the cube collected. The leaf sample was then subdivided into 2 equal fractions and leaf area relationships were determined in the same manner as for grasses. Linear regression relationships between leaf biomass and leaf area were determined for each grass and shrub specie.

Below Ground Biomass

Soil cores were collected from beneath 3 shrub canopies and within interspace areas. Soil cores collected beneath shrub canopies were located 15 cm from the shrub base. Six samples from the interspace were collected, 3 from bare areas and 3 from the center of the dominate grass species (based on foliar cover). The 7 cm diameter soil cores were taken in 10 cm increments to a 50 cm depth. Root biomass was determined by washing the soil cores through a 0.5 mm mesh sieve. All roots, root crowns, and rhizomes remaining on the sieve were collected and dried for 3 days at 60 C. The root samples were placed in a muffled furnace for 4 hours at 500 C. Ash weight was subtracted from the dry matter weight to give organic matter weight. Total estimated root mass was then calculated by multiplying the average organic matter weight for the shrub, grass and bare soil cores times their respective percent foliar cover on the simulation plots.

Soil Sampling

Complete soil pedon description, sampling, and analysis were made by the SCS at each of the rangeland sites. Pedon analysis included particle-size distribution, soil moisture release curves, organic carbon, cation exchange capacity, clay mineralogy, and other physical and chemical properties. The WEPP rangeland field crew determined, using the compliant cavity method, surface horizon (0-5 cm) soil bulk density before the dry and after the very wet runs. Samples were taken from both the small plots, under canopy and interspace areas, large bare plots and, if formed, in rills of the large bare plots. The field crew also determined soil moisture contents before the dry and wet runs and after the dry and very wet runs. Samples were taken in representative natural areas before the dry run and then from each of the treated buffer areas after the runs. A 50 kg soil sample of the surface 5 cm was collected from the bare buffer areas prior to the dry run and sent to various USDA laboratories for storage and testing. An undisturbed 30 cm diameter soil core sample of the surface 10 cm was taken from the bare buffer area after the very wet run and shipped to the SCS National Soils Laboratory for morphological descriptions of the soil surface horizon and surface crust characteristics.

DATA ANALYSIS

Field data were analyzed using both commercial and specially prepared computer programs. Large and small plot rainfall, runoff and sediment field data were entered in spreadsheet templates and then reduced to hyetegraph, hydrograph, sedigraph, yields and rates through special computer programs developed by the rangeland team. Plot cover and vegetation data analysis were made with computer programs designed especially for the WEPP rangeland data.

DATA SUMMARIES

The large plot data summaries that are included herein represent over 200 simulator runs (400 plot runs). Also included are summaries of soil descriptions, soil moisture and bulk density, plot vegetation canopy and soil surface characteristics, and plot slope.

Individual plot hydrograph and sedigraph data, detailed site descriptions, and complete soil information may be obtained by contacting:

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WEPP RANGELAND SITES

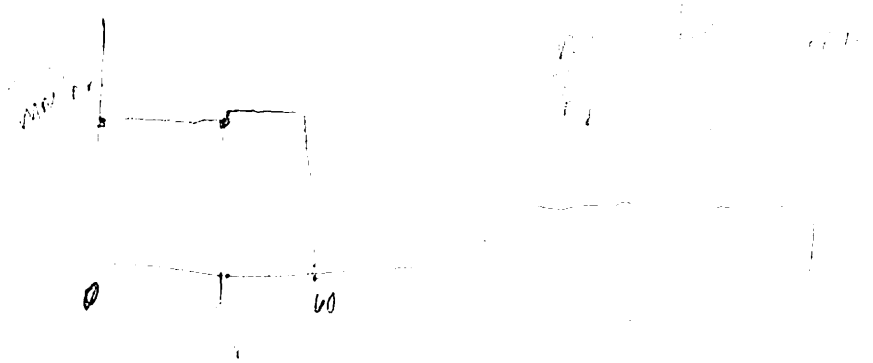
CODE	LOCATION	SITE	# PLOTS
A1	Arizona	Chihuahuan Desert Shrub, gravelly sandy loam	8
A2	Arizona	Chihuahuan Desert Grass, sandy clay loam	6
B1	Nevada	Great Basin Shrub, gravelly fine sandy loam	6
B2	Nevada	Mohave Desert Shrub, fine sandy loam	6
C1	Texas	Oak Savanna, Grass, interspace cobbly clay	4
D1	Oklahoma	Tallgrass Prairie (native), loam	6
D2	Oklahoma	Mixedgrass Prairie (reverted), vf. sandy loam	4
E1	Oklahoma	Mixedgrass Prairie, loamy fine sand	4
E2	Oklahoma	Mixedgrass Prairie, (cont. graze), loam	4
E3	Oklahoma	Mixedgrass Prairie, loamy fine sand	6
E4	Oklahoma	Tallgrass Prairie, (non-grazed), loam	4
E5	Oklahoma	Mixedgrass Prairie, (heavy graze), loam	4
F1	Montana	Mixedgrass Prairie, (club moss), loam	6
G1	Colorado	Salt Desert Shrub Steepe, silty clay	6
H1	S. Dakota	Shortgrass Prairie, (heavy graze),silty clay	4
H2	S. Dakota	Mixedgrass Prairie, (light graze), clay	6
I1	New Mexico	Pinyon-Juniper Interspace, fine sandy loam	4
J1	New Mexico	Shortgrass Desert Grassland, fine sandy loam	4
K1	California	Sagebrush Shrub Steppe, gravelly sandy loam	4
L1	California	Annual Grassland, clay loam	6
		TOTAL	102

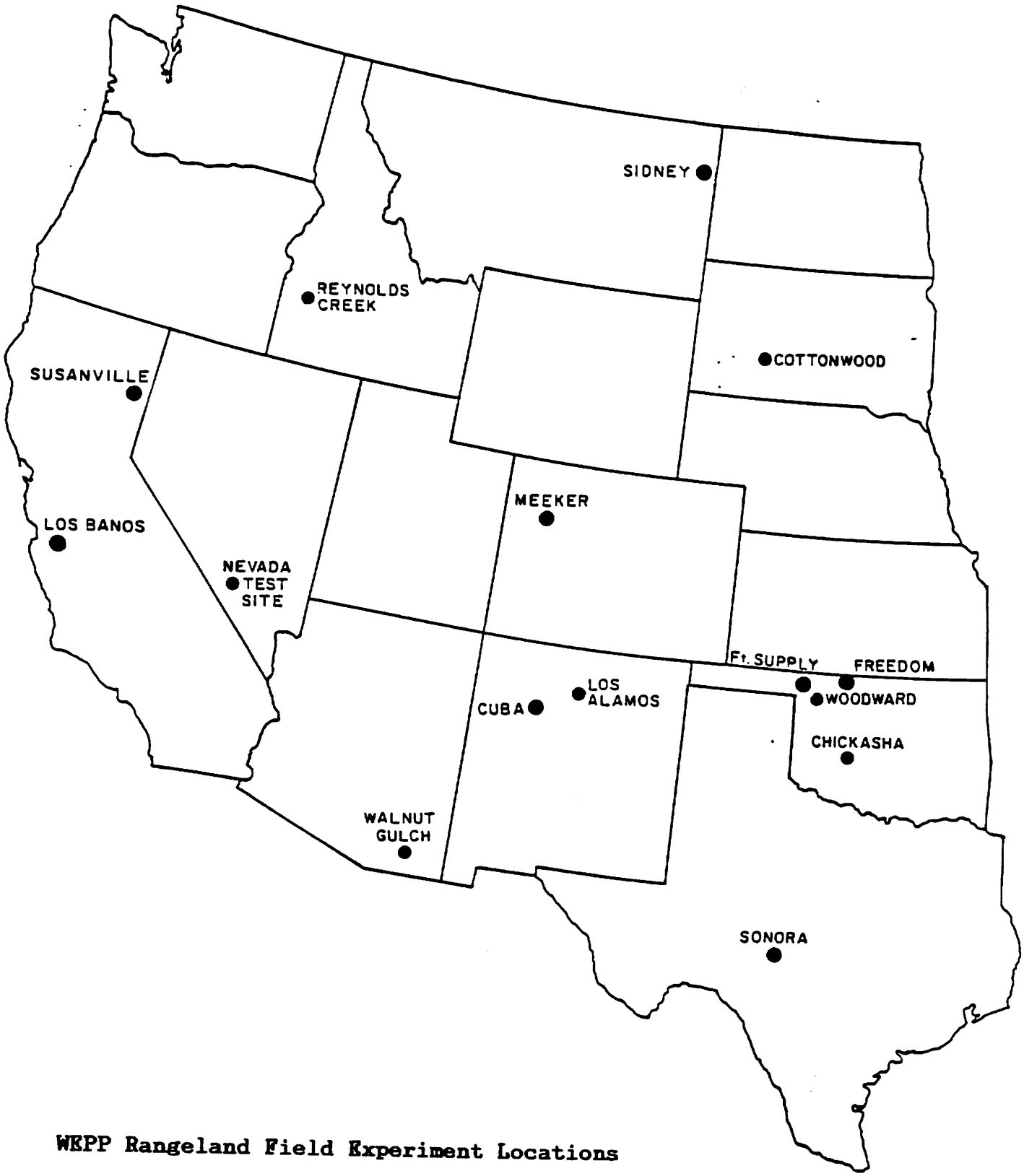
In addition to the Tucson based field experiments, 3 rangeland sites (6 plots each) near Boise ID were evaluated by ARS (Mr. C. Johnson and Dr. W. Blackburn of the Northwest Watershed Research Center)

TOTAL 18

Rangeland plots ARS evaluated in 1987 and 1988 TOTAL 120

621 7261





WEPP Rangeland Field Experiment Locations

WEPP Rangeland 1987 and 1988 field experiment site characteristics.

SITE	MLRA[1]	COMMUNITY	RANGE SITE	RANGE COND.	SOIL SURFACE TEXTURE	COMMON NAME	GENUS	SPECIE
			[2]	[3]				
A1	41	Chihuahuan Desert Shrub Steppe	NA	P	Gravelly sandy loam		Coldenia	Canescens
						Tar bush	Flourensia	Cernua
						Creosote bush	Larrea	Divaricata
A2	41	Chihuahuan Desert Grass Steppe	NA	NA	Sandy clay loam	Tobosa	Hilaria	Mutica
						Burro-weed	Aplopappus	Tenuisectus
						Blue grama	Bouteloua	Gracilis
B1	29	Great Basin Shrub	Loamy	E	Gravelly fine sandy loam	Shadscale saltbush	Atriplex	Confertifolia
						Winterfat	Ceratodies	Lanata
						Green rabbitbrush	Chrysothamnus	Viscidiflorus
						Red brome	Bromus	Rubens
B2	29	Mohave Desert Shrub	Shallow Limey	E	Fine sandy loam	Shadscale saltbush	Atriplex	Confertifolia
							Menodora	Spineslens
						Morman tea	Ephedra	Nevadensis
						Indian ricegrass	Oryzopsis	Hymenoides
C1	81	Oak Savanna	Shallow	F	Interspace cobbly clay	Buffalograss	Buchloe	Dactyloides
						Curly mesquite	Hilaria	Belangeri
						Prairie cone flower	Ratibida	Columnaris
						Hairy tridens	Erioneuron	Pilosum
D1	80A	Tallgrass Prairie (Native)	Loamy Prairie	G	Loam	Little bluestem	Schizachyrium	Scoparium
						Indiangrass	Sorghastrum	Nutans
						Switchgrass	Panicum	Virgatum
						Sideoats grama	Bouteloua	Curtipendula
D2	80A	Mixedgrass Prairie (Reverted)	Eroded Prairie	F	V F Sandy loam	Scribners dichant.	Dichanthelium	Scribnerianum
						Oldfield threeawn	Aristida	Oligantha
						Little bluestem	Schizachyrium	Scoparium
						Sand paspalum	Paspalum	Stramineum
E1	78	Mixedgrass Prairie	Dune	G	Loamy fine sand	Sand lovegrass	Eragrostis	Trichodes
						Sand paspalum	Paspalum	Stramineum
						Blue grama	Bouteloua	Gracilis
						Sand sage	Artemisia	Filifolia
E2	78	Mixedgrass Prairie	Shallow prairie	F	Loam	Sideoats grama	Bouteloua	Curtipendula
						Hairy grama	Bouteloua	Hirsuta
						Western ragweed	Ambrosia	Psilostachya
						Hairy goldaster	Chryopsis	Villosa
E3		Mixedgrass Prairie	Dune	E	Loamy fine sand	Sand lovegrass	Eragrostis	Trichodes
						Sand paspalum	Paspalum	Stramineum
						Blue grama	Bouteloua	Gracilis
						Camphor weed	Heterotheca	Subaxillaris
						Prairie spiderwort	Tradescantia	Occicentalias
						Switchgrass	Panicum	Virgatum
						Sand sage	Artemisia	Filifolia

WEPP Rangeland 1987 and 1988 field experiment site characteristics. (cont.)

SITE	MLRA	COMMUNITY	RANGE SITE	RANGE COND.	SOIL SURFACE TEXTURE	COMMON NAME	GENUS	SPECIE
E4		Tallgrass Prairie	Loamy prairie	E	Loam	Little bluestem Sand bluestem Indiangrass	Schizachyrium Andropogon Sorghastrum	Scoparium Hallii Nutans
E5		Mixedgrass Prairie	Loamy prairie	F	Loam	Sideoats grama Hairy grama Silver bluestem Perrenial forbs	Bouteloua Bouteloua Bothriochloa	Curtipendula Hirsuta Saccharoides
F1	54	Mixedgrass Prairie	Silty	G	Loam	Dense clubmoss Blue grama Western wheatgrass Needle & thread grass	Selginella Bouteloua Agropyron Stipa	Densa Gracilis Smithii Comata
G1	34	Salt Desert Shrub-steppe	Clayey slopes	G	Silty clay	Western wheatgrass Salina wildrye Wyoming big sagebrush Shadscale saltbush	Agropyron Elymus Artemisia Atriplex	Smithii Salinus Tridentata Confertifolia
H1	63A	Shortgrass Prairie	Clayey West central	E	Silty clay	Western wheatgrass Green needle grass Scarlet globemallow	Agropyron Stipa Sphaeralcea	Smithii Viridula Coccinea
H2	63A	Mixedgrass Prairie	Clayey West central	F	Clay	Blue grama Buffalograss	Bouteloua Buchloe	Gracilis Dactyloides
I1	36	Pinyon-Juniper Interspace	Woodland community type	F	Fine sandy loam	Blue grama Broom snakeweed Colorado rubberweed Sagebrush	Bouteloua Gutierrezia Hymenoxys Artemisia	Gracilis Sarothrae Richardsoni Carruthii
J1	36	Shortgrass Desert Grassland	Loamy	F	Fine sandy loam	Blue grama Galleta Broom snakeweed	Bouteloua Hilaria Gutierrezia	Gracilis Jamesii Sarothrae
K1	21	Sagebrush Shrub-steppe	Loamy	G	Gravelly sandy loam	Idaho fescue Squirreltail Wooly mulesears Wyoming big sagebrush Green rabbitbrush	Festuca Sitanion Wyethia Artemisia Chrysothamnus	Idahoensis Hystrix Mollis Tridentata Viscidiflorus
K2		Burned (plots were next to the K1 plots)						
L1	15	Annual Grassland	Fine loamy	N/A	Clay loam	Soft chess Wild oats Foxtail fescue Filaree Burclover	Bromus Avena Vulpia Erodium Medicago	Mollis Fatua Megalura Hispida

1
Major Land Resource Area
2
NA is data not available.
3
Range conditions P=Poor, F=Fair, G=Good, and E=Excellent.

1987 Rangeland large plot surface and vegetation cover (after treatment).

			FOLIAR COVER (%)				GROUND SURFACE COVER (%)						
SITE	PLOT	TREAT.	GRASS	FORB	SHRUB	TOTAL	SOIL	ROCK & GRAVEL	MOSS	BASAL	LITTER	RANDOM ROUGH. (mm)	SLOPE (%)
A1	31	BARE	0.0	0.0	0.0	0.0	73.1	25.7	0.0	0.0	1.2	N/A	10.20
A1	34	BARE	0.0	0.0	0.0	0.0	75.3	23.5	0.0	0.4	0.8	N/A	10.00
A1	30	CLIPPED	0.0	0.0	0.0	0.0	26.1	66.9	0.0	0.6	6.3	N/A	12.40
A1	35	CLIPPED	0.0	0.0	0.0	0.0	21.0	71.8	0.0	0.0	7.1	N/A	10.20
A1	33	NATURAL	0.0	26.7	5.1	31.8	19.0	62.0	0.0	2.4	16.5	N/A	11.30
A1	36	NATURAL	0.0	28.4	4.3	32.7	15.7	61.2	0.0	2.2	20.8	N/A	9.30
A2	50	BARE	0.0	0.0	0.0	0.0	93.3	2.4	0.0	3.1	1.2	N/A	2.90
A2	51	BARE	0.0	0.0	0.0	0.0	95.7	1.0	0.0	1.6	1.6	N/A	3.90
A2	49	CLIPPED	0.0	0.0	0.0	0.0	72.7	3.5	0.0	16.7	7.1	N/A	3.90
A2	53	CLIPPED	0.0	0.0	0.0	0.0	75.1	7.1	0.0	11.0	0.7	N/A	4.30
A2	52	NATURAL	16.7	13.1	0.0	29.8	64.1	3.5	0.0	15.7	16.7	N/A	4.10
A2	54	NATURAL	20.2	11.0	0.0	31.2	57.3	3.3	0.0	21.8	17.6	N/A	4.30
B1	56	BARE	0.0	0.0	0.0	0.0	36.7	61.6	0.0	0.0	1.6	N/A	8.50
B1	59	BARE	0.0	0.0	0.0	0.0	42.9	55.3	0.0	0.0	1.8	N/A	7.10
B1	57	CLIPPED	0.0	0.0	0.0	0.0	16.9	82.7	0.0	0.0	0.4	N/A	5.90
B1	60	CLIPPED	0.0	0.0	0.0	0.0	13.3	83.5	0.0	0.0	3.3	N/A	7.00
B1	55	NATURAL	2.0	0.0	16.0	18.0	28.7	57.4	0.0	5.0	6.9	N/A	7.70
B1	58	NATURAL	0.6	0.0	14.7	15.3	15.5	58.3	0.0	5.0	21.2	N/A	6.70
B2	63	BARE	0.0	0.0	0.0	0.0	38.2	61.2	0.0	0.0	0.6	N/A	8.60
B2	66	BARE	0.0	0.0	0.0	0.0	59.6	40.2	0.0	0.0	0.2	N/A	8.80
B2	62	CLIPPED	0.0	0.0	0.0	0.0	26.1	73.3	0.0	0.0	0.6	N/A	9.00
B2	64	CLIPPED	0.0	0.0	0.0	0.0	8.4	91.2	0.0	0.0	0.4	N/A	8.20
B2	61	NATURAL	2.7	1.6	19.6	23.9	22.6	65.8	0.0	6.3	5.3	N/A	8.40
B2	65	NATURAL	6.9	1.2	20.4	28.6	24.2	60.1	0.0	7.4	8.6	N/A	9.30
C1	68	BARE	0.0	0.0	0.0	0.0	83.1	1.8	0.0	0.2	14.9	N/A	8.20
C1	69	BARE	0.0	0.0	0.0	0.0	80.0	1.2	0.2	0.0	18.6	N/A	8.70
C1	67	NATURAL	28.5	8.6	0.0	37.1	29.0	27.8	6.1	16.5	20.6	N/A	8.00
C1	70	NATURAL	29.3	34.5	0.2	64.0	34.1	3.3	3.9	16.3	42.4	N/A	8.10
D1	72	BARE	0.0	0.0	0.0	0.0	92.4	0.0	0.0	3.5	4.1	N/A	5.20
D1	74	BARE	0.0	0.0	0.0	0.0	85.9	0.0	0.0	10.0	4.1	N/A	4.90
D1	71	NATURAL	54.9	6.9	0.2	62.0	17.3	0.0	0.0	17.1	65.5	N/A	5.00
D1	76	NATURAL	63.6	3.3	0.0	66.9	2.4	0.4	0.0	17.8	79.4	N/A	5.10
D2	78	BARE	0.0	0.0	0.0	0.0	91.8	0.0	0.0	6.3	1.8	N/A	4.50
D2	79	BARE	0.0	0.0	0.0	0.0	95.9	0.0	0.0	2.2	1.8	N/A	4.40
D2	77	NATURAL	25.1	6.5	0.0	31.6	40.8	0.0	4.7	15.7	38.6	N/A	4.50
D2	80	NATURAL	28.3	7.6	0.0	35.9	46.3	0.0	1.6	18.3	33.7	N/A	4.40
E1	85	BARE	0.0	0.0	0.0	0.0	91.8	0.0	0.0	5.7	2.4	N/A	12.50
E1	89	BARE	0.0	0.0	0.0	0.0	92.9	0.0	0.0	4.5	2.7	N/A	12.40
E1	87	CLIPPED	0.0	0.0	0.0	0.0	61.4	0.0	0.2	9.0	29.4	N/A	10.00
E1	90	CLIPPED	0.0	0.0	0.0	0.0	47.6	0.0	0.0	8.8	43.7	N/A	12.70
E1	86	NATURAL	19.5	7.8	0.8	28.1	51.4	0.0	0.0	13.7	34.9	N/A	14.30
E1	88	NATURAL	17.7	16.9	0.0	34.6	51.0	0.0	0.0	12.0	36.9	N/A	12.30
E2	92	BARE	0.0	0.0	0.0	0.0	90.6	0.0	0.0	0.0	9.4	N/A	5.90
E2	93	BARE	0.0	0.0	0.0	0.0	93.1	0.0	0.0	2.4	4.5	N/A	5.90
E2	91	NATURAL	27.1	20.0	0.0	47.1	55.3	0.4	2.0	6.9	35.3	N/A	5.80
E2	94	NATURAL	15.8	21.8	0.0	37.6	52.0	0.0	5.3	7.1	35.5	N/A	6.50
F1	102	BARE	0.0	0.0	0.0	0.0	89.6	1.4	0.2	3.7	5.1	N/A	11.20
F1	105	BARE	0.0	0.0	0.0	0.0	94.7	0.4	0.0	2.2	2.7	N/A	9.80
F1	101	CLIPPED	0.0	0.0	0.0	0.0	20.8	0.8	31.2	14.5	32.7	N/A	11.20
F1	104	CLIPPED	0.0	0.0	0.0	0.0	28.2	0.0	19.2	16.9	35.7	N/A	10.00
F1	103	NATURAL	21.1	2.0	1.8	24.9	21.2	0.0	29.0	19.6	30.2	N/A	10.00
F1	106	NATURAL	14.9	2.9	3.5	21.3	16.3	0.6	44.3	13.1	25.5	N/A	9.80

1987 Rangeland large plot surface and vegetation cover(after treatment). cont.

			FOLIAR COVER (%)				GROUND SURFACE COVER (%)						
SITE	PLOT	TREAT.	GRASS	FORB	SHRUB	TOTAL	SOIL	ROCK & GRAVEL	MOSS	BASAL	LITTER	RANDOM ROUGH. (mm)	SLOPE (%)
G1	108	BARE	0.2	0.0	0.0	0.2	86.3	0.0	0.0	2.2	11.4	N/A	11.1
G1	110	BARE	0.6	0.0	0.0	0.6	87.6	0.0	0.0	1.4	11.0	N/A	9.10
G1	109	CLIPPED	0.0	0.0	0.0	0.0	43.3	0.0	0.0	13.1	43.7	N/A	11.40
G1	111	CLIPPED	0.0	0.0	0.0	0.0	53.1	0.4	2.4	15.1	29.0	N/A	9.30
G1	107	NATURAL	1.6	1.4	8.2	11.2	57.6	0.0	0.0	11.0	31.4	N/A	10.20
G1	112	NATURAL	2.2	0.4	7.3	10.0	58.2	0.0	1.2	12.0	28.6	N/A	10.60
H1	114	BARE	0.0	0.0	0.0	0.0	72.7	1.2	0.0	12.7	13.5	N/A	7.80
H1	116	BARE	0.0	0.0	0.0	0.0	70.2	8.2	0.4	9.0	12.2	N/A	8.60
H1	115	CLIPPED	0.0	0.0	0.0	0.0	35.1	6.9	1.2	16.7	40.0	N/A	8.10
H1	117	CLIPPED	0.0	0.0	0.0	0.0	46.1	3.3	4.5	24.1	33.9	N/A	7.70
H1	113	NATURAL	29.6	0.8	0.0	30.4	39.2	2.4	0.4	14.7	43.3	N/A	8.00
H1	118	NATURAL	28.0	2.0	2.0	32.0	34.7	2.4	1.6	11.4	49.8	N/A	8.10
H2	120	BARE	0.0	0.0	0.0	0.0	92.0	0.8	0.0	2.0	4.9	N/A	11.20
H2	121	BARE	0.0	0.0	0.0	0.0	88.2	2.4	0.0	6.5	2.9	N/A	11.60
H2	119	NATURAL	38.9	0.0	0.0	38.9	18.0	2.4	2.0	27.8	49.8	N/A	11.40
H2	122	NATURAL	33.6	0.4	0.0	34.0	24.9	1.6	0.8	21.6	51.0	N/A	12.70
I1	127	BARE	0.0	0.0	0.0	0.0	96.4	0.0	0.0	0.9	2.7	0.[illegible]3	6.00
I1	130	BARE	0.0	0.0	0.0	0.0	84.5	0.0	0.0	0.9	14.5	0.3[illegible]	7.00
I1	128	NATURAL	14.3	12.2	1.6	28.1	26.3	0.6	38.0	15.9	19.2	0.4[illegible]	6.00
I1	129	NATURAL	16.7	7.6	2.4	26.7	30.4	0.4	29.4	17.1	22.7	0.5[illegible]	7.00
J1	131	BARE	0.0	0.0	0.0	0.0	73.6	0.0	0.0	3.6	22.7	0.5[illegible]	6.60
J1	134	BARE	0.0	0.0	0.0	0.0	68.2	0.0	0.0	3.6	28.2	0.6[illegible]	6.60
J1	132	NATURAL	27.3	0.0	0.0	27.3	36.7	0.0	19.6	20.8	22.9	0.6[illegible]	6.60
J1	133	NATURAL	23.8	4.9	0.0	28.7	40.0	0.0	14.3	23.7	22.0	0.6[illegible]	6.60
K1	138	BARE	0.0	0.0	0.0	0.0	52.7	6.4	0.0	10.0	30.9	0.5[illegible]	12.70
K1	139	CLIPPED	0.0	0.0	0.0	0.0	7.3	9.1	0.0	11.8	71.8	0.8[illegible]	12.50
K1	137	NATURAL	4.9	3.3	21.2	29.4	14.7	9.0	0.0	12.2	64.1	0.6[illegible]	13.10
K1	140	NATURAL	4.5	1.6	18.4	24.5	16.7	16.3	0.0	13.5	53.5	0.6[illegible]	12.70

1988 Rangeland large plot surface and vegetation cover (after treatment).

			FOLIAR COVER (%)				GROUND SURFACE COVER (%)						
SITE	PLOT	TREAT.	GRASS	FORB	SHRUB	TOTAL	SOIL	ROCK & GRAVEL	MOSS	BASAL	LITTER	RANDOM ROUGH. (mm)	SLOPE (%)
D1	72	BARE	0.0	0.0	0.0	0.0	85.2	0.0	0.0	7.1	7.6	0.[illegible]3	5.20
D1	74	BARE	0.0	0.0	0.0	0.0	86.2	0.0	0.0	3.3	10.5	0.[illegible]	4.90
D1	73	CLIPPED	18.1	1.4	0.0	19.5	11.4	0.0	0.0	18.1	70.5	0.[illegible]	5.10
D1	75	CLIPPED	16.7	4.3	0.0	21.0	5.2	0.0	0.0	18.6	76.2	0.[illegible]	5.10
D1	71	NATURAL	38.6	0.5	0.0	39.1	1.4	0.0	0.0	27.1	71.4	0.[illegible]	5.00
D1	76	NATURAL	37.1	2.4	0.0	39.5	0.5	0.0	0.0	22.4	77.1	0.[illegible]	5.10
D2	78	BARE	0.0	0.0	0.0	0.0	78.1	0.0	0.0	21.9	0.0	0.[illegible]	4.50
D2	79	BARE	0.0	0.0	0.0	0.0	84.8	0.0	0.0	14.8	0.5	N/[illegible]	4.40
D2	77	NATURAL	5.7	3.3	0.0	9.0	22.9	0.5	4.8	14.3	57.6	0.[illegible]6	4.50
D2	80	NATURAL	4.3	1.0	0.0	5.3	9.5	0.0	3.8	21.0	65.7	0.[illegible]1	4.40
E1	85	BARE	0.0	0.0	0.0	0.0	88.6	0.0	0.0	6.3	5.1	0.[illegible]5	12.50
E1	89	BARE	0.0	0.0	0.0	0.0	86.9	0.0	0.0	6.3	6.7	N/[illegible]	12.40
E1	87	CLIPPED	30.6	13.5	0.0	44.1	58.0	0.0	0.0	12.0	30.0	0.[illegible]5	10.00
E1	90	CLIPPED	21.0	14.7	4.9	40.6	66.3	0.0	0.0	8.0	25.7	0.[illegible]	12.70
E1	86	NATURAL	25.9	15.1	1.0	42.0	54.3	0.0	0.0	11.0	34.7	N/[illegible]	14.30
E1	88	NATURAL	28.2	14.9	0.0	43.1	52.7	0.0	0.6	10.6	36.1	N/[illegible]	12.30
E2	92	BARE	0.0	0.0	0.0	0.0	85.7	0.0	0.0	0.0	14.3	0.[illegible]7	5.90
E2	93	BARE	0.0	0.0	0.0	0.0	81.0	0.0	0.0	7.1	11.9	0.[illegible]1	5.90
E2	91	NATURAL	39.5	12.9	0.0	52.4	30.5	0.5	2.4	24.8	41.9	0.[illegible]	5.80
E2	94	NATURAL	41.4	10.5	0.0	51.9	13.3	0.0	15.2	21.4	50.0	0.[illegible]	6.50
E3	95	BARE	0.6	0.2	0.0	0.8	80.0	0.0	0.0	5.5	14.5	0.[illegible]0	17.00
E3	98	CLIPPED	2.0	1.4	0.0	3.4	32.7	0.0	0.2	16.1	51.0	N/[illegible]	16.40
E3	96	NATURAL	29.8	5.9	2.2	37.9	57.1	0.0	0.0	9.2	33.7	N/[illegible]	16.30
E3	97	NATURAL	19.8	13.5	6.7	40.0	44.9	0.0	0.0	9.2	45.9	N/[illegible]	16.00
E4	153	BARE	0.0	0.0	0.0	0.0	81.9	0.0	0.0	5.2	12.9	0.[illegible]1	7.50
E4	150	CLIPPED	1.0	0.0	0.0	1.0	3.8	0.0	0.0	25.2	71.0	0.[illegible]5	7.30
E4	151	NATURAL	93.3	1.4	1.4	98.1	0.0	0.0	0.0	31.9	68.1	0.[illegible]3	7.70
E4	152	NATURAL	77.6	0.5	1.9	80.0	3.3	0.0	0.5	23.3	72.9	0.[illegible]0	7.30
E5	159	BARE	0.0	0.0	0.0	0.0	85.7	0.0	0.0	4.3	10.0	0.[illegible]5	5.60
E5	157	CLIPPED	10.0	0.0	0.0	10.0	42.9	0.0	1.0	18.1	38.1	0.[illegible]6	5.20
E5	156	NATURAL	32.4	3.3	2.4	38.1	23.3	0.5	8.6	16.7	51.0	0.[illegible]0	5.60
E5	158	NATURAL	25.2	14.3	0.0	39.5	34.8	0.0	2.9	14.8	47.6	0.[illegible]3	5.40
H1	114	BARE	1.0	0.0	0.0	1.0	91.4	0.0	0.0	3.8	4.8	0.[illegible]	7.80
H1	116	BARE	0.0	0.0	0.0	0.0	83.8	9.5	0.0	6.7	0.0	0.[illegible]	8.60
H1	115	CLIPPED	5.2	0.5	0.5	6.2	30.0	2.9	0.5	20.0	46.7	0.[illegible]	8.10
H1	117	CLIPPED	2.4	1.0	0.0	3.4	37.6	1.0	2.4	13.8	45.2	0.[illegible]	7.70
H1	113	NATURAL	45.7	1.0	0.0	46.7	36.7	0.5	0.0	20.5	42.4	0.[illegible]	8.00
H1	118	NATURAL	36.2	2.9	6.2	45.3	26.7	1.4	3.3	17.6	51.0	0.[illegible]	8.10
H2	120	BARE	0.0	0.0	0.0	0.0	87.1	1.4	0.0	9.0	2.4	0.[illegible]	11.20
H2	121	BARE	0.0	0.0	0.0	0.0	88.6	0.5	0.0	7.6	3.3	0.[illegible]	11.60
H2	119	NATURAL	51.0	2.4	1.0	54.4	15.2	2.4	4.8	43.8	33.8	0.[illegible]	11.40
H2	122	NATURAL	42.4	0.5	0.0	42.9	20.0	0.5	1.9	42.9	34.8	0.[illegible]	12.70
K1	138	BARE	0.5	1.4	0.0	1.9	66.8	13.6	0.0	9.5	10.0	0.[illegible]	12.70
K1	139	CLIPPED	5.9	0.5	0.0	6.4	13.2	9.5	0.0	6.8	70.5	0.[illegible]	12.50
K1	137	NATURAL	13.2	3.6	15.0	31.8	16.4	14.5	0.0	11.4	57.7	0.[illegible]	13.10
K1	140	NATURAL	9.5	1.8	17.3	28.6	16.4	17.7	0.0	10.0	55.9	1.[illegible]	12.70
L1	146	BARE	0.0	0.0	0.0	0.0	50.9	3.2	0.0	2.3	43.6	0.[illegible]	7.00
L1	145	NATURAL	1.4	7.7	0.0	9.1	0.5	0.5	0.0	10.0	89.1	0.[illegible]	7.20

Above and below ground biomass from 1987 and 1988 rangeland field experiments.

1987

SITE	ABOVE GROUND BIOMASS (Kg/Ha)				MEAN ROOTMASS[1] (0-10 Cm.)(Kg/Ha)	
	HERBACEOUS	SHRUB	LITTER	MOSS	NATURAL	BARE
A1	0.00	774.90	10.00	0.00	1164.60	N/A[2]
A2	514.00	238.09	456.00	0.00	N/A	N/A
B1	653.40	111.35	173.60	0.00	189.00	90.00
B2	N/A	490.80	N/A	0.00	189.00	90.00
C1	2461.20	0.00	1455.00	0.00	8644.90	N/A
D1	2562.80	0.00	1524.70	0.00	9899.00	N/A
D2	422.40	0.00	348.40	0.00	7345.90	N/A
E1	2350.00	137.20	1602.80	0.00	17446.50	N/A
E2	1764.10	0.00	747.90	0.00	6674.00	N/A
F1	2023.98	116.66	688.42	2114	18208.00	N/A
G1	525.10	1058.00	2002.70	0.00	3695.30	N/A
H1	2388.90	0.00	1031.10	0.00	43073.00	N/A
H2	498.30	0.00	345.10	0.00	19538.20	N/A
I1	1381.70	0.00	417.90	0.00	N/A	N/A
J1	816.60	0.00	206.40	0.00	9160.00	N/A
K1	868.00	5064.80	1440.60	0.00	5232.00	N/A
L1	387.80	0.00	6114.67	0.00	5531.80	N/A

1988

SITE	ABOVE GROUND BIOMASS (Kg/Ha)				MEAN ROOTMASS (0-10 Cm.(Kg/Ha)	
	HERBACEOUS	SHRUB	LITTER	MOSS	NATURAL	BARE
D1	1455.71	0.00	3566.74	0.00	14390.00	4649.00
D2	370.00	0.00	1034.00	0.00	1928.00	2412.00
E1	2285.00	0.00	1213.33	0.00	4255.00	2544.00
E2	1246.00	0.00	1843.33	0.00	4278.00	2564.00
E3	2631.60	191.70	1974.13	0.00	9767.00	N/A
E4	5219.90	0.00	3299.87	0.00	19136.00	N/A
E5	1222.90	0.00	1480.93	0.00	5773.00	N/A
H1	1708.40	0.00	862.20	0.00	2858.00	1425.00
H2	559.00	0.00	282.00	0.00	3735.00	2127.00
K1	489.10	5064.84	4270.70	0.00	8525.00	15197.00

1 Root biomass was sampled by vegetation component (shrub, grass, and bare interspace).
Mean rootmass was estimated as:
Rootmass= (shrub rootmass*shrub canopy cover/total cover)+(grass rootmass*grass canopy cover/total cover)+ (bare rootmass*bare soil cover/total cover)

2 NA is data not available.

208 334 1502

WEPP RANGELANDS SOIL DATA

LOCATION: A1
STATE: AZ
COUNTY: COCHISE
GRAZED:
SERIES: STRONGHOLD 1
DESCRIPTION: COARSE-LOAMY, MIXED, THERMIC USTOCHREPTIC CALCIORTHID
SURFACE TEXTURE: GRAVELLY SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 9	16.7	14.2	69.1	43.0	1.04	13.0	1.57	10.9	0.0	7.9
9 - 30	23.7	20.0	56.3	47.0	0.99	16.6	1.29	21.6	13.7	10.2
30 - 40	27.8	27.6	44.6	53.0	0.72	18.5	1.36	20.3	16.4	12.0

LOCATION: A2
STATE: AZ
COUNTY: COCHISE
GRAZED:
SERIES: FORREST 1
DESCRIPTION: FINE, MIXED, THERMIC USTOLLIC HAPLARGID
SURFACE TEXTURE: SANDY CLAY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 5	11.2	18.5	70.3	7.0	0.85	9.8	1.58	11.6	8.3	5.7
5 - 13	16.6	20.1	63.3	7.0	0.70	11.5	1.68	12.9	9.3	6.6
13 - 29	22.1	21.6	56.3	5.0	0.67	13.6	1.57	16.2	11.0	7.7
29 - 43	27.9	29.2	42.9	5.0	0.40	16.0	1.71	19.6	15.5	10.9
43 - 59	36.7	22.8	40.5	7.0	0.29	23.4	1.67	23.7	0.0	15.1
59 - 71	41.0	20.1	38.9	8.0	0.28	28.2	1.66	24.6	20.8	18.8
71 - 88	35.4	23.3	41.3	10.0	0.23	24.4	1.40	34.7	26.7	16.8
88 - 105	20.8	29.3	49.9	6.0	0.24	15.4	1.40	24.9	24.1	14.2
105 - 150	8.8	24.9	66.3	--	0.06	10.1	1.30	28.8	21.1	9.0

LOCATION: B1
STATE: NV
COUNTY: NYE
GRAZED:
SERIES: DUROR THID 1
DESCRIPTION:
SURFACE TEXTURE: VERY GRAVELLY FINE SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 4	5.0	25.5	69.5	25.0	0.63	13.1	1.37	19.8	8.6	5.6
4 - 10	9.7	27.1	63.2	24.0	0.18	16.0	1.32	16.6	10.9	7.1
10 - 28	10.3	23.9	65.8	33.0	0.19	16.2	1.36	28.3	10.7	7.2
28 - 38	6.9	28.3	64.8	33.0	0.25	16.7	1.36	28.7	11.0	6.9
38 - 54	9.6	34.3	56.1	19.0	0.16	19.5	1.58	17.3	12.0	7.5
38 - 54	7.0	25.8	67.2	32.0	0.15	17.9	0.00	0.0	10.9	7.2

WEPP RANGELANDS SOIL DATA

LOCATION: B2
STATE: NV
COUNTY: NYE
GRAZED: NOT GRAZED
SERIES: NOT DESIGNATED
DESCRIPTION: COARSE-LOAMY, MIXED TYPIC FRAGIOCHREPT
SURFACE TEXTURE: FINE SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 3	7.8	28.7	63.5	45	0.27	9.3	1.39	---	11.6	6.4
3 - 10	9.6	27.9	62.5	42	0.30	9.8	1.25	24.5	12.0	11.4
10 - 23	17.8	30.4	51.8	40	0.31	8.7	----	22.1	16.3	----
23 - 53	17.8	29.9	52.3	75	0.27	5.7	----	---	20.8	13.3
53 - 82	13.0	23.0	64.0	82	0.16	8.4	----	---	----	----
82 - 92	15.8	35.1	49.1	72P	0.09	6.0	----	---	18.0	14.1
92 -152	8.7	14.1	77.2	78	0.05	7.6	----	---	9.0	7.4

LOCATION: C1
STATE: TX
COUNTY: SUTTON
GRAZED:
SERIES: PURVES
DESCRIPTION: CLAYEY, MONTMORILLINITIC, THERMIC; CALCIUSTOLL
SURFACE TEXTURE: COBBLY CLAY

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 6	41.6	46.1	12.3	23.0	5.02	44.5	1.20	39.4		23.4
6 - 32	47.6	37.9	14.5	31.0	2.87	34.3	1.36	34.0		19.5
32 - 50	48.0	37.2	14.8	31.0	2.13	26.1	1.20	40.2		17.3
50 - 60	45.9	35.5	18.6	---	1.90	20.1	1.25	32.1		15.7
60 - 79	29.8	43.0	27.2	---	.55	3.4	1.02	47.6		11.8

LOCATION: D1
STATE: OK
COUNTY: GRADY
GRAZED:
SERIES: GRANT 1
DESCRIPTION: FINE-SILTY, MIXED, THERMIC UDIC ARGIUSTOLL
SURFACE TEXTURE: LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 13	14.4	31.8	53.8	--	2.28	13.0	1.49	15.1	10.6	7.6
13 - 30	16.4	27.8	55.8	--	1.19	10.3	1.48	19.5	9.2	6.8
30 - 47	21.0	27.0	52.0	--	0.86	11.3	1.61	22.8	10.9	8.3
47 - 68	23.4	26.6	50.0	--	0.64	12.0	1.60	16.9	12.1	9.0
68 - 113	23.5	25.2	51.3	--	0.40	12.0	1.62	17.5	17.1	9.2
113 - 150	21.4	23.8	54.8	--	0.21	11.2	1.70	14.9	13.0	8.8
150 - 162	33.1	45.3	21.6	--	0.15	15.6	0.00	0.0	13.0	11.7

WEPP RANGELANDS SOIL DATA

LOCATION: D2
STATE: OK
COUNTY: GRADY
GRAZED:
SERIES: GRANT ERODED 1
DESCRIPTION: FINE-SILTY, MIXED, THERMIC UDIC ARGIUSTOLL
SURFACE TEXTURE: VERY FINE SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 10	10.5	32.9	56.6	0.0	1.27	8.3	1.53	16.7	7.2	5.1
10 - 20	14.6	34.5	50.9	0.0	0.94	8.8	1.49	15.3	8.4	5.9
20 - 33	18.8	32.9	48.3	0.0	0.83	9.9	1.53	15.1	9.7	7.0
33 - 52	21.9	31.8	46.3	0.0	0.67	10.9	1.61	16.9	11.3	8.0
52 - 70	22.6	34.1	43.3	0.0	0.50	11.8	1.63	16.0	12.3	8.7
70 - 92	26.2	33.5	40.3	0.0	0.40	13.8	1.70	16.4	14.3	10.2
92 - 116	28.7	25.9	45.4	0.0	0.29	14.7	1.82	17.8	14.8	11.0
116 - 140	23.4	25.6	51.0	0.0	0.16	12.1	1.83	15.7	13.0	9.1
140 - 163	27.8	45.7	26.5	0.0	0.12	15.2	0.00	0.0	15.5	11.1

LOCATION: E1
STATE: OK
COUNTY: HARPER
GRAZED: RANGELAND GRAZED
SERIES: PRATT
DESCRIPTION: SANDY, MIXED, THERMIC PSAMMENTIC HAPUSTALF
SURFACE TEXTURE: LOAMY FINE SAND

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 23	3.3	8.7	88.0	--	0.55	3.4	1.53	3.8	3.0	2.2
23 - 40	2.9	4.8	92.3	--	0.19	2.8	1.57	3.4	2.2	1.8
40 - 82	2.9	2.4	94.7	--	0.11	2.8	1.57	3.5	2.2	1.8
82 - 200	2.9	0.6	96.5	--	0.09	2.8	1.64	4.2	2.2	1.6
0 - 20	3.1	5.5	91.4	--	0.98	4.1	1.49	4.2	3.8	3.0
0 - 20	2.7	4.7	92.6	--	0.52	2.6	1.56	3.6	2.4	2.1

LOCATION: E2
STATE: OK
COUNTY: WOODWARD
GRAZED:
SERIES: QUINLAN
DESCRIPTION: LOAMY, MIXED, THERMIC, SHALLOW TYPIC USTOCHREPT
SURFACE TEXTURE: LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 10	13.9	42.4	43.7	TR	1.29	11.6	1.45	15.9	10.5	7.1
10 - 19	15.8	42.1	42.1	TR	1.04	10.9	1.48	16.6	10.8	7.6
19 - 45	17.9	43.7	38.4	TR	0.77	9.6	1.47	17.0	12.5	8.4
45 - 89	13.3	48.6	38.1	--	0.13	8.6	0.00	0.0	11.5	7.2
0 - 15	13.5	41.8	44.7	TR	1.10	11.1	1.43	16.9	9.6	6.8
15 - 23	16.8	41.6	41.6	TR	0.87	10.9	1.44	17.2	10.3	7.6

WEPP RANGELANDS SOIL DATA

LOCATION: E3
STATE: OK
COUNTY: HARPER
GRAZED:
SERIES: TIVOLI
DESCRIPTION: MIXED, THERMIC TYPIC USTIPSAMMENT
SURFACE TEXTURE: FINE SAND

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 18	3.1	4.2	92.7	---	.30	2.7				1.6
18 - 40	3.0	3.3	93.7	---	.19	2.3				1.4
40 - 80	4.1	9.4	86.5	---	.08	3.3				1.9
80 - 103	4.2	5.4	90.4	---	.08	3.7				2.0
103 - 150	3.1	2.8	94.1	---	.05	2.6				6.0
150 - 200	3.5	4.9	91.6	---	.05	3.0				1.9

LOCATION: E4 & E5
STATE: OK
COUNTY: WOODS
GRAZED: YES
SERIES: WOODWARD
DESCRIPTION: COARSE-SILTY, MIXED, THERMIC TYPIC USTOCHREPT
SURFACE TEXTURE: VERY FINE SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 10	12.5	36.8	50.7	TR	1.73	12.2				7.3
10 - 20	13.5	34.8	51.7	1	0.99	10.6				6.1
20 - 45	14.0	32.4	53.6	TR	0.77	10.2				6.3
45 - 70	12.5	35.5	52.0	5	0.45	7.20				5.6
70 - 98	11.2	32.4	56.4	2	0.22	6.00				4.9
98 - 135	11.4	37.7	50.9	3	0.09	6.30				4.9
135 - 170	9.1	28.4	62.5	TR	0.08	5.30				4.3

LOCATION: F1
STATE: MT
COUNTY: RICHLAND
GRAZED:
SERIES: VIDA 2
DESCRIPTION: FINE-LOAMY, MIXED TYPIC ARGIBOROLL
SURFACE TEXTURE: LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 4	15.1	36.0	48.9	3.0	3.57	18.5	0.00	0.0	14.9	10.1
4 - 10	17.3	30.9	51.8	16.0	2.14	16.4	1.42	21.6	12.5	8.8
10 - 25	22.7	30.9	46.4	8.0	1.59	19.0	1.42	20.4	14.5	10.8
25 - 38	18.6	33.8	47.6	8.0	0.85	11.0	1.43	18.1	11.8	7.6
38 - 48	26.4	37.8	35.8	9.0	0.61	13.1	1.60	18.5	15.1	9.2

WEPP RANGELANDS SOIL DATA

LOCATION: G1
STATE: CO
COUNTY: MOFFAT
GRAZED: RANGELAND GRAZED
SERIES: DEGATER 3
DESCRIPTION: FINE, MONTMORILLONITIC, MESIC USTOLLIC CAMBORTHID
SURFACE TEXTURE: SILTY CLAY

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 9	42.3	53.1	4.6	TR	1.48	19.2	1.58	21.6	0.0	15.2
9 - 28	48.3	49.4	2.3	--	0.74	21.2	1.76	22.8	0.0	15.6
28 - 48	49.9	48.9	1.2	--	0.67	22.4	1.79	24.8	0.0	17.2
48 - 76	49.3	49.1	1.6	--	0.52	22.7	1.83	22.4	0.0	16.2
76 - 102	46.6	52.8	0.6	--	0.36	20.2	0.00	0.0	0.0	14.0
102 - 140	45.8	53.8	0.4	--	0.25	18.3	0.00	0.0	0.0	12.8

LOCATION: H1
STATE: SD
COUNTY: JACKSON
GRAZED: RANGELAND GRAZED
SERIES: PIERRE 2
DESCRIPTION: VERY-FINE, MONTMORILLONITIC, MESIC TYPIC TORRERT
SURFACE TEXTURE: CLAY

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 6	49.6	37.3	13.1	1.0	1.83	36.1	1.44	25.0	25.8	19.3
6 - 15	50.8	38.3	10.9	TR	1.30	35.0	1.66	28.4	25.0	18.9
15 - 41	53.3	39.2	7.5	--	0.82	35.5	1.79	28.3	25.7	19.4
41 - 62	51.3	40.7	8.0	--	0.63	35.3	1.74	29.5	27.2	20.4
62 - 86	50.8	42.2	7.0	TR	0.39	34.3	1.72	27.1	27.1	20.6
86 - 108	52.1	45.7	2.2	--	0.32	33.3	1.66	27.3	0.0	21.3
108 - 150	54.6	43.5	1.9	--	0.37	34.0	0.00	0.0	30.0	21.9

LOCATION: H2
STATE: SD
COUNTY: JACKSON
GRAZED: RANGELAND GRAZED
SERIES: PIERRE 1
DESCRIPTION: VERY-FINE, MONTMORILLONITIC, MESIC TYPIC TORRERT
SURFACE TEXTURE: CLAY

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 9	44.2	33.4	22.4	1.0	2.06	31.6	1.51	23.4	23.3	18.3
9 - 16	54.3	32.2	13.5	--	1.45	40.3	1.55	26.6	26.8	20.6
16 - 34	52.9	36.9	10.2	--	1.17	36.8	1.65	29.3	26.1	20.0
34 - 56	54.0	37.3	8.7	--	0.78	37.2	1.82	29.7	27.2	20.5
56 - 81	50.2	41.4	8.4	TR	0.54	36.4	1.79	28.2	27.7	20.5
81 - 100	51.0	44.0	5.0	1.0	0.30	38.6	1.69	29.8	27.5	20.8
100 - 130	53.9	42.6	3.5	--	0.15	39.4	1.59	31.5	31.9	23.3
130 - 150	50.8	43.0	6.2	--	0.31	36.3	0.00	0.0	30.7	21.0

WEPP RANGELANDS SOIL DATA

LOCATION: I1
STATE: NM
COUNTY: LUNA
GRAZED: FOREST LAND NOT GRAZED
SERIES: HACKROY 2
DESCRIPTION: LOAMY, MIXED, MESIC, SHALLOW ARIDIC HAPLUSTALF
SURFACE TEXTURE: FINE SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 2	6.4	45.0	48.6	1.0	1.15	7.9	0.00	0.0	7.2	5.2
2 - 4	7.9	49.8	42.3	1.0	0.65	8.8	0.00	0.0	7.0	4.8
4 - 10	12.2	49.2	38.6	1.0	0.68	8.7	1.45	13.6	8.0	6.1
10 - 23	14.6	49.6	35.8	1.0	0.58	9.3	1.39	14.1	8.7	6.4
23 - 33	21.1	48.8	30.1	1.0	0.44	13.3	1.41	16.7	12.9	10.2
33 - 48	22.0	44.7	33.3	2.0	0.28	14.8	1.36	21.8	14.3	10.9
48 - 61	11.9	35.7	52.4	--P	0.15	10.2	1.62	15.6	11.0	7.5
0 - 2	0.0	0.0	0.0	TR	1.17	7.7	0.00	0.0	0.0	0.0
2 - 4	0.0	0.0	0.0	--	0.00	0.0	0.00	0.0	0.0	0.0

LOCATION: J1
STATE: NM
COUNTY: SANDOVAL
GRAZED: RANGELAND NOT GRAZED
SERIES: QUERENCIA 1
DESCRIPTION: COARSE-SILTY, MIXED, MESIC USTOLLIC CAMBORTHID
SURFACE TEXTURE: FINE SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 5	9.2	24.3	66.5	--	0.84	9.0	0.00	0.0	6.6	5.5
5 - 18	16.6	26.3	57.1	--	0.58	10.0	1.44	11.7	9.2	7.5
18 - 30	20.5	32.8	46.7	--	0.61	10.1	1.38	14.7	10.8	8.6
30 - 53	20.5	35.3	44.2	--	0.44	9.8	1.60	15.6	10.9	8.6
53 - 89	21.1	37.8	41.1	--	0.38	10.5	1.56	15.5	11.5	9.0
89 - 112	20.3	36.8	42.9	--	0.28	10.7	1.39	14.0	11.6	8.8
112 - 127	25.5	41.4	33.1	--	0.34	12.6	1.50	18.3	15.4	11.3
127 - 150	25.2	39.9	34.9	--	0.39	12.6	0.00	0.0	0.0	11.4
0 - 3	0.0	0.0	0.0	--	0.72	8.6	0.00	0.0	0.0	5.1
0 - 1	0.0	0.0	0.0	--	0.00	0.0	0.00	0.0	0.0	0.0

WEPP RANGELANDS SOIL DATA

LOCATION: K1
STATE: CA
COUNTY: LASSEN
GRAZED:
SERIES: JAURIGA 1
DESCRIPTION: FINE-LOAMY, MIXED, MESIC TYPIC ARGIXEROLL
SURFACE TEXTURE: GRAVELLY SANDY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
0 - 8	18.0	33.3	48.8	35.0	3.61	26.6	1.00	46.0	0.0	15.8
8 - 30	17.7	35.0	47.3	17.0	1.42	22.3	1.16	37.0	0.0	15.5
30 - 43	18.0	35.3	46.7	17.0	1.13	21.3	1.16	30.0	0.0	15.9
43 - 65	18.3	31.8	49.9	19.0	0.87	21.0	1.18	30.1	0.0	18.1
65 - 118	15.6	29.6	54.8	36.0	0.48	18.9	1.18	31.3	0.0	16.3
118 - 150	14.7	27.7	57.6	40.0	0.24	19.1	1.08	44.6	0.0	16.6

LOCATION: L1
STATE: CA
COUNTY: MERCED
GRAZED:
SERIES: APOLLO
DESCRIPTION: FINE-LOAMY, MIXED, THERMIC CLACIC HAPLOXEROLL
SURFACE TEXTURE: CLAY LOAM

DEPTH (cm)	% OF WHOLE SOIL: CLAY	SILT	SAND	>2MM	ORGANIC CARBON %	CEC	OVEN DRY B.DENSITY (g/cc)	WATER CONTENT: (NEGATIVE BARS) 1/3	2	15
1 - 0					9.39	38.5				19.0
0 - 4	26.2	42.7	31.1	---	1.62	30.4	1.63	23.0		13.9
4 -17	21.5	47.9	30.6	1.0	0.81	28.8	1.51	23.5		14.3
17 -37	27.9	42.7	29.4	1.0	0.52	28.5	1.49	22.6		13.4
37 -62	31.0	42.1	26.9	2.0	0.26	25.7	1.49	29.1		16.5
62 -75	29.3	42.1	28.6	0.1	0.14	26.2	1.48	25.8		16.6
75 -109	24.2	35.3	40.5	---	0.05	27.4	1.37	31.2		15.0
109 -130	25.5	34.2	40.3	---	0.62	29.1	1.44	29.4		15.8

WEPP RANGELANDS WATER QUALITY DATA

LOC	pH	EC (mmhos/cm)	% TOT SALTS	SAR (5E)	EXCHANGEABLE CATIONS CA (meq)	MG (meq/L)	NA (meq/L)	K (meq/L)	HCO3 (meq/L)	CL (meq/L)	NO3 (meq/L)	SO4 (meq/L)
A1	8.3	0.58	TR	1.0	3.5	1.4	1.2		3.4	0.8	0.5	1.0
A2	8.0	0.57	TR	1.0	3.3	1.4	1.1		3.1	0.8	0.5	1.1
C1	8.7	0.49	TR	TR	3.2	1.7	0.5		4.9	0.5	0.1	0.5
D1	8.5	0.48	TR	TR	2.9	1.2	0.7	0.1	2.2	0.4		2.1
D2	8.4	0.47	TR	TR	2.9	1.2	0.7	0.1	2.3	0.4		2.1
E1	8.2	0.72	TR	3.0	1.7	1.1	3.7	0.1	1.2	3.1		2.0
E2	8.6	0.40	TR	1.0	3.0	0.6	0.7		3.6	0.3	0.1	0.6
F1	8.3	0.77	TR	9.0	13.0	54.2	53.1	0.4	8.8	0.3		108.0
G1	8.1	0.82	0.1	2.0	3.5	2.2	2.8	0.1	0.7	0.4		7.3
H1	8.2	1.67	0.1	43.0	0.2	0.1	16.5		11.0	0.7		5.9
H2	8.2	1.67	0.1	43.0	0.2	0.1	16.5		11.0	0.7		5.9
I1	8.4	0.16	TR	1.0	0.6	0.3	0.7		1.3	0.1		0.2
J1	8.7	0.46	TR	15.0	0.1	0.1	4.7		4.1	0.2		0.7
K1	8.2	0.15	TR	1.0	0.6	0.4	0.4	0.1	1.0	0.2		0.2

Data not available for B1, B2, E3, E4, E5 and L1.

Average soil moisture and bulk density of WEPP rangeland sites.

WEPP Code	Soil Moisture (% by weight) Before Dry	Before Wet	After V.Wet	Bulk Density (gms/cc) Before Dry
A1	10.9	13.8	14.3	1.40
A2	11.3	15.6	19.2	1.35
B1	1.9	----	18.4	1.12
B2	9.1	----	16.3	1.59
C1	LD*	LD	LD	LD
D187	20.4	24.7	25.5	1.33
D188	5.6	20.9	27.5	1.24
D287	17.5	20.6	21.6	1.41
D288	13.0	18.0	23.2	1.25
E187	----	7.9	12.4	1.39
E188	5.5	7.4	11.6	1.29
E287	19.0	21.1	25.6	1.33
E288	10.4	17.6	24.8	1.14
E3	3.8	7.7	13.9	1.50
E4	11.0	18.9	27.4	1.06
E5	7.2	15.4	26.2	1.18
F1	9.1	20.3	25.6	1.30
G1	LD	LD	LD	LD
H187	13.0	19.7	28.9	1.28
H188	14.2	30.4	38.4	1.03
H287	15.0	18.4	25.8	1.37
H288	14.6	22.5	29.8	1.01
I1	10.9	19.0	24.4	1.42
J1	4.0	13.4	20.9	1.55
K187	5.4	30.1	38.5	1.18
K188	21.3	29.8	38.2	0.81
L1	14.6	20.4	27.2	1.40

*LD = Lost Data
87 = 1987 Data
88 = 1988 Data

LEGEND FOR LARGE PLOT SUMMARIES

ITEM	DEFINITION
LOC	LOCATION
PLT	PLOT NUMBER
AMC	MOISTURE CONDITION (D2 = dry, M2 = wet, V2-V7 = very wet
PDUR	PRECIP DURATION
PINT	PRECIP INTENSITY
PVOL	PRECIP VOLUME
QVOL	RUNOFF VOLUME
OFV	OVERLAND FLOW RATE
OFV	OVERLAND FLOW VOLUME
Qe	RUNOFF EQUILIBRIUM RATE
QDUR	RUNOFF DURATION
TB	TIME TO RUNOFF BEGINS
SED	SEDIMENT YIELD
Kf	FINAL INFILTRATION RATE (PINT-Qe)

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT & INFILTRATION SUMMARY
1987 NATURAL PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
A1	33	D2	60.0	56.9	56.9	2.6	3.9	53.3	7.5	22.4	53.0
A1	36	D2	50.0	58.4	48.7	1.0	1.7	45.6	6.0	9.4	56.8
A1	AVE	D2	55.0	57.7	52.8	1.8	2.8	49.4	6.8	15.9	54.9
A1	33	M2	23.4	52.8	20.6	1.5	6.1	19.9	5.5	5.5	46.7
A1	36	M2	30.0	62.2	31.1	2.5	6.5	29.1	3.7	13.1	55.7
A1	AVE	M2	26.7	57.5	25.8	2.0	6.3	24.5	4.6	9.3	51.2
A1	33	V1	7.5	56.6	7.1	0.3	12.5		3.1	1.3	44.2
A1	36	V1	10.0	59.3	9.9	1.0	17.5		2.9	4.4	41.8
A1	AVE	V1	8.8	57.9	8.5	0.7	15.0		3.0	2.9	43.0
A1	33	V2	4.1	113.0	7.7	2.2	47.9			33.6	65.1
A1	36	V2	5.2	116.0	10.0	3.7	57.5			15.6	58.6
A1	AVE	V2	4.6	114.5	8.9	3.0	52.7			24.6	61.8
A1	33	V3	11.4	56.9	10.8	2.5	8.0	21.9		47.5	48.9
A1	36	V3	11.3	59.1	11.1	4.8	17.5	27.5		9.0	41.6
A1	AVE	V3	11.4	58.0	11.0	3.7	12.7	24.7		28.2	45.2
A2	52	D2	60.0	57.1	57.1	14.4	20.1	61.3	8.5	61.4	37.0
A2	54	D2	30.0	51.6	25.8	11.7	46.0	31.5	7.3	95.6	5.5
A2	AVE	D2	45.0	54.3	41.4	13.0	33.1	46.4	7.9	78.5	21.3
A2	52	M2	30.0	58.1	29.1	12.8	38.9	44.5	4.5	72.0	19.2
A2	54	M2	26.0	53.3	23.1	16.2	49.9	32.5	4.5	94.2	3.4
A2	AVE	M2	28.0	55.7	26.1	14.5	44.4	38.5	4.5	83.1	11.3
A2	52	V1	15.0	51.1	12.8	4.0	39.9		1.3	47.8	11.2
A2	54	V1	14.0	51.6	12.0	3.8	37.0		3.0	34.6	14.7
A2	AVE	V1	14.5	51.4	12.4	3.9	38.4		2.1	41.2	13.0
A2	52	V2	10.0	88.1	14.7	10.1	64.0			44.3	24.1
A2	54	V2	8.0	91.5	12.2	9.8	86.3			63.3	5.1
A2	AVE	V2	9.0	89.8	13.4	9.9	75.2			53.8	14.6
A2	52	V3	17.5	51.1	14.9	14.9	35.1	64.1		41.4	16.1
A2	54	V3	12.0	51.8	10.4	14.2	47.9	41.0		48.7	3.9
A2	AVE	V3	14.8	51.5	12.6	14.6	41.5	52.5		45.1	10.0
B1	55	D2	45.0	54.7	41.0	2.9	7.5	32.8	15.0	62.6	47.2
B1	58	D2	45.0	52.1	39.1	0.0	0.0	0.0	0.0	0.0	52.1
B1	AVE	D2	45.0	53.4	40.1	1.5	3.8	16.4	7.5	31.3	49.7
B1	55	V1	11.0	52.3	9.6	0.3	6.1		6.8	5.0	46.2
B1	58	V1	18.5	53.4	16.5	0.0	0.5		13.0	2.8	52.9
B1	AVE	V1	14.8	52.8	13.0	0.2	3.3		9.9	3.9	49.6
B1	55	V2	5.0	99.8	8.3	1.4	23.2			31.3	76.6
B1	58	V2	6.5	112.6	12.2	0.2	1.0			7.6	111.6
B1	AVE	V2	5.8	106.2	10.3	0.8	12.1			19.4	94.1
B1	55	V3	14.0	51.9	12.1	2.8	7.5	26.3		51.0	44.4
B1	58	V3	6.0	53.0	5.3	0.1	0.7	17.8		0.8	52.4
B1	AVE	V3	10.0	52.4	8.7	1.4	4.1	22.0		25.9	48.4
B2	61	D2	45.3	55.2	41.7	18.5	28.0	46.8	4.3	102.6	27.3
B2	65	D2	42.0	46.8	32.7	5.5	10.1	38.9	6.3	37.7	36.7
B2	AVE	D2	43.7	51.0	37.2	12.0	19.0	42.8	5.3	70.1	32.0
B2	61	V1	8.0	50.3	6.7	1.7	33.0		3.0	15.1	17.3
B2	65	V1	6.0	56.4	5.6	0.5	15.5		1.8	4.2	40.9
B2	AVE	V1	7.0	53.4	6.2	1.1	24.3		2.4	9.6	29.1
B2	61	V2	7.0	94.4	11.0	8.1	65.2			103.0	29.1
B2	65	V2	5.0	99.9	8.3	3.9	60.7	17.0		45.8	39.2
B2	AVE	V2	6.0	97.1	9.7	6.0	63.0	29.3		74.4	34.1

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT & INFILTRATION SUMMARY
1987 NATURAL PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
B2	65	V3	14.0	56.4	13.2	10.0	19.6	23.1		100.4	36.8
C1	67	D2	45.0	60.2	45.2	17.6	46.9	57.7	7.7	0.0	13.3
C1	70	D2	35.0	59.9	34.9	5.7	21.0	34.7	13.5	12.4	38.9
C1	AVE	D2	40.0	60.1	40.1	11.6	34.0	46.2	10.6	6.2	26.1
C1	67	M2	25.0	59.6	24.9	16.5	52.6	52.0	4.4	0.0	7.0
C1	70	M2	25.0	60.2	25.1	6.9	29.6	22.2	8.5	9.1	30.6
C1	AVE	M2	25.0	59.9	25.0	11.7	41.1	37.1	6.4	4.6	18.8
C1	67	V1	10.0	57.5	9.6	3.2	46.9		1.3	0.0	10.5
C1	70	V1	9.5	58.1	9.2	1.2	27.2		4.0	3.0	31.0
C1	AVE	V1	9.8	57.8	9.4	2.2	37.0		2.6	1.5	20.8
C1	67	V2	6.0	117.1	11.7	8.3	98.4			0.0	18.7
C1	70	V2	5.5	109.1	10.0	5.4	73.3			14.0	35.8
C1	AVE	V2	5.8	113.1	10.9	6.8	85.8			7.0	27.3
C1	67	V3	20.0	55.9	18.6	20.7	50.3	55.8		0.0	5.6
C1	70	V3	19.0	58.4	18.5	7.6	35.7	48.6		1.3	22.7
C1	AVE	V3	19.5	57.1	18.6	14.2	43.0	52.2		0.7	14.1
D1	71	D2	45.0	61.1	45.8	20.7	40.3	52.3	5.8	111.7	20.8
D1	76	D2	45.0	56.2	42.2	16.2	39.3	48.5	10.0	4.0	16.9
D1	AVE	D2	45.0	58.6	44.0	18.5	39.8	50.4	7.9	57.8	18.8
D1	71	M2	30.0	59.2	29.6	17.0	53.8	40.3	3.7	61.1	5.5
D1	76	M2	25.0	56.2	23.4	11.5	42.2	41.0	7.0	0.1	14.0
D1	AVE	M2	27.5	57.7	26.5	14.2	48.0	40.6	5.3	30.6	9.8
D1	71	V1	7.0	62.0	7.2	0.3	13.6		2.1	2.2	48.4
D1	76	V1	16.0	54.0	14.4	5.8	48.1		3.3	16.1	6.0
D1	AVE	V1	11.5	58.0	10.8	3.0	30.8		2.7	9.1	27.2
D1	71	V2	5.0	119.3	9.9	4.9	92.3			18.4	27.0
D1	76	V2	5.3	85.9	7.6	9.0	56.4	48.4		3.2	29.5
D1	AVE	V2	5.2	102.6	8.8	6.9	74.4	48.2		10.8	28.2
D1	71	V3	18.0	61.3	18.4	21.6	53.8	48.3		33.3	7.5
D2	77	D2	45.0	49.4	37.0	18.0	35.1	48.0	8.2	16.1	14.3
D2	80	D2	45.0	63.6	47.7	24.0	44.8	51.3	6.7	29.8	18.8
D2	AVE	D2	45.0	56.5	42.4	21.0	39.9	49.7	7.4	23.0	16.6
D2	77	M2	23.1	62.1	23.9	11.6	42.9	34.5	4.2	16.1	19.2
D2	80	M2	23.0	59.3	22.7	10.7	40.5	34.3	6.1	11.3	18.8
D2	AVE	M2	23.1	60.7	23.3	11.1	41.7	34.4	5.1	13.7	19.0
D2	77	V1	7.0	58.7	6.8	0.7	31.5		2.5	1.2	27.3
D2	80	V1	8.0	56.7	7.6	1.1	29.0		2.5	3.2	27.8
D2	AVE	V1	7.5	57.7	7.2	0.9	30.2		2.5	2.2	27.5
D2	77	V2	7.1	110.1	13.0	7.9	82.0			19.4	28.1
D2	80	V2	5.0	119.4	9.9	6.1	99.9			6.3	19.5
D2	AVE	V2	6.0	114.7	11.5	7.0	90.9			12.9	23.8
D2	77	V3	21.0	58.7	20.5	18.9	43.9	49.5		18.2	14.8
D2	80	V3	15.0	57.7	14.4	16.1	46.9	37.7		17.2	10.8
D2	AVE	V3	18.0	58.2	17.5	17.5	45.4	43.6		17.7	12.8
E1	86	M2	25.0	62.7	26.1	0.0	0.0	0.0	0.0	0.0	62.7
E1	88	M2	25.0	63.1	26.3	0.0	0.0	0.0	0.0	0.0	63.1
E1	AVE	M2	25.0	62.9	26.2	0.0	0.0	0.0	0.0	0.0	62.9
E1	86	V1	17.0	55.5	15.7	0.0	0.0		17.0	0.0	55.5
E1	88	V1	10.0	65.0	10.8	0.0	0.0		11.0	0.0	65.0
E1	AVE	V1	13.5	60.2	13.3	0.0	0.0		14.0	0.0	60.2
E1	86	V2	6.0	101.9	10.2	0.2	2.7			6.5	99.1

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT & INFILTRATION SUMMARY
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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
E1	88	V2	10.0	112.8	18.8	0.3	2.8	28.1		66.8	110.0
E1	AVE	V2	8.0	107.3	14.5	0.2	2.7	9.1		36.6	104.6
E1	86	V3	22.0	54.2	19.9	0.3	0.9	18.6		2.2	53.3
E2	91	D2	45.0	53.9	40.4	0.0	0.0	0.0	0.0	0.0	53.9
E2	94	D2	45.0	47.7	35.8	0.5	1.7	23.6	25.0	2.9	46.1
E2	AVE	D2	45.0	50.8	38.1	0.2	0.8	11.8	12.5	1.5	50.0
E2	91	M2	25.0	62.5	26.0	0.2	1.1	16.5	9.5	0.0	61.4
E2	94	M2	25.0	55.7	23.2	3.3	18.0	24.0	9.5	5.7	37.7
E2	AVE	M2	25.0	59.1	24.6	1.8	9.5	20.3	9.5	2.9	49.6
E2	91	V1	5.5	61.6	5.6	0.0	2.7		4.5	0.2	58.8
E2	94	V1	6.5	59.7	6.5	0.0	0.0		6.0	0.0	59.7
E2	AVE	V1	6.0	60.6	6.1	0.0	1.4		5.3	0.1	59.3
E2	91	V2	4.5	105.3	7.9	1.3	36.0			39.2	69.3
E2	94	V2	4.0	119.1	7.9	1.4	20.9			2.7	98.1
E2	AVE	V2	4.3	112.2	7.9	1.4	28.5			21.0	83.7
E2	91	V3	20.0	60.9	20.3	4.3	8.8	28.7		80.2	52.2
E2	94	V3	24.5	58.8	24.0	10.3	18.1	41.1		14.4	40.7
E2	AVE	V3	22.3	59.9	22.2	7.3	13.4	34.9		47.3	46.5
F1	103	D2	45.0	54.9	41.2	0.0	0.0	0.0	0.0	0.0	54.9
F1	106	D2	49.0	49.6	40.5	0.0	0.0	0.0	0.0	0.0	49.6
F1	AVE	D2	47.0	52.2	40.8	0.0	0.0	0.0	0.0	0.0	52.2
F1	103	M2	25.0	54.8	22.8	1.0	9.0	16.6	12.0	43.9	45.7
F1	106	M2	25.0	49.3	20.6	0.3	3.0	12.4	16.0	21.2	46.3
F1	AVE	M2	25.0	52.0	21.7	0.6	6.0	14.5	14.0	32.5	46.0
F1	103	V1	17.0	52.4	14.8	1.6	15.0		4.8	81.4	37.4
F1	106	V1	8.0	53.0	7.1	0.0	0.0		2.7	0.0	53.0
F1	AVE	V1	12.5	52.7	11.0	0.8	7.5		3.7	40.7	45.2
F1	103	V2	4.0	90.3	6.0	1.4	23.4			74.9	66.9
F1	106	V2	5.0	91.7	7.6	0.5	15.5			31.0	76.2
F1	AVE	V2	4.5	91.0	6.8	0.9	19.4			52.9	71.6
F1	103	V3	5.0	52.0	4.3	1.9	15.6	26.3		77.5	36.4
F1	106	V3	22.0	48.0	17.6	6.7	14.9	37.6		139.1	33.1
F1	AVE	V3	13.5	50.0	11.0	4.3	15.2	31.9		108.3	34.8
G1	107	D2	45.0	52.5	39.4	0.1	0.5	22.8	23.0	0.0	51.9
G1	112	D2	45.0	50.5	37.9	3.1	12.2	37.2	13.7	370.1	38.3
G1	AVE	D2	45.0	51.5	38.6	1.6	6.4	30.0	18.3	185.0	45.1
G1	107	M2	25.0	60.6	25.3	1.5	4.8	21.9	4.6	208.8	55.9
G1	112	M2	25.0	52.4	21.9	4.6	24.7	20.7	7.3	738.2	27.7
G1	AVE	M2	25.0	56.5	23.6	3.0	14.7	21.3	5.9	473.5	41.8
G1	107	V1	12.0	50.6	10.1	2.2	33.9		2.0	1056.7	16.7
G1	112	V1	12.7	52.6	11.1	4.4	40.9		1.2	768.5	11.7
G1	AVE	V1	12.3	51.6	10.6	3.3	37.4		1.6	912.6	14.2
G1	107	V2	6.0	94.0	9.4	5.0	72.2			1762.3	21.8
G1	112	V2	4.6	101.9	7.8	5.2	77.9			1304.7	23.9
G1	AVE	V2	5.3	97.9	8.6	5.1	75.0			1533.5	22.9
G1	107	V3	19.0	50.0	15.8	16.5	44.1	42.0		7694.6	5.9
G1	112	V3	5.8	53.6	5.1	5.9	41.9	27.8		1316.7	11.7
G1	AVE	V3	12.4	51.8	10.5	11.2	43.0	34.9		4505.6	8.8
H1	113	D2	50.0	53.9	44.9	0.0	0.0	0.0	0.0	0.0	53.9
H1	118	D2	50.0	50.9	42.4	0.0	0.0	0.0	0.0	0.0	50.9
H1	AVE	D2	50.0	52.4	43.6	0.0	0.0	0.0	0.0	0.0	52.4

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
H1	113	M2	25.0	56.5	23.6	0.1	0.2	20.0	5.0	4.8	56.3
H1	118	M2	25.0	54.2	22.6	0.0	0.0	0.0	0.0	0.0	54.2
H1	AVE	M2	25.0	55.4	23.1	0.0	0.1	10.0	2.5	2.4	55.3
H1	113	V1	5.0	52.3	4.4	0.1	4.3		1.3	27.1	48.0
H1	118	V1	10.0	55.1	9.2	0.0	1.5		6.7	4.1	53.6
H1	AVE	V1	7.5	53.7	6.8	0.1	2.9		4.0	15.6	50.8
H1	113	V2	15.0	85.2	21.3	5.7	36.9			514.0	48.3
H1	118	V2	12.0	86.5	17.3	0.2	23.4			8.8	63.1
H1	AVE	V2	13.5	85.8	19.3	2.9	30.1			261.4	55.7
H1	113	V3	33.0	50.8	28.0	5.4	6.6	55.7		174.1	44.3
H1	118	V3	8.0	54.7	7.3	0.0	8.1	25.9		0.1	46.6
H1	AVE	V3	20.5	52.8	17.6	2.7	7.3	40.8		87.1	45.4
H2	119	D2	45.0	52.6	39.4	3.5	8.9	43.0	7.9	28.7	43.7
H2	122	D2	45.0	56.6	42.5	9.3	24.9	42.7	7.8	76.5	31.7
H2	AVE	D2	45.0	54.6	40.9	6.4	16.9	42.9	7.8	52.6	37.7
H2	119	M2	25.0	56.2	23.4	5.0	22.2	23.9	8.4	40.4	34.0
H2	122	M2	25.0	55.5	23.1	7.6	32.7	26.3	7.8	55.7	22.8
H2	AVE	M2	25.0	55.8	23.3	6.3	27.4	25.1	8.1	48.0	28.4
H2	119	V1	11.0	54.4	10.0	1.4	31.7		6.1	10.4	22.7
H2	122	V1	12.0	56.9	11.4	3.0	50.7		4.4	17.9	6.1
H2	AVE	V1	11.5	55.6	10.7	2.2	41.2		5.3	14.1	14.4
H2	119	V2	8.8	97.0	14.1	10.4	87.9			71.2	9.1
H2	122	V2	5.0	102.2	8.5	6.1	90.1			38.9	12.1
H2	AVE	V2	6.9	99.6	11.3	8.2	89.0			55.0	10.6
H2	119	V3	19.3	54.4	17.5	15.9	37.5	43.8		76.2	17.0
H2	122	V3	24.5	54.6	22.3	24.1	49.7	47.2		92.5	4.9
H2	AVE	V3	21.9	54.5	19.9	20.0	43.6	45.5		84.4	10.9
I1	128	D2	45.0	55.8	41.8	16.4	26.4	50.8	2.5	420.4	29.4
I1	129	D2	45.0	53.3	40.0	14.6	24.9	48.1	3.3	238.9	28.3
I1	AVE	D2	45.0	54.5	40.9	15.5	25.6	49.5	2.9	329.7	28.9
I1	128	M2	25.0	52.0	21.7	8.1	31.3	35.8	2.0	142.7	20.7
I1	129	M2	25.0	54.8	22.9	8.9	29.5	32.8	1.9	149.5	25.4
I1	AVE	M2	25.0	53.4	22.3	8.5	30.4	34.3	2.0	146.1	23.0
I1	128	V1	9.3	55.1	8.5	0.9	15.5		2.5	21.5	39.6
I1	129	V1	10.0	52.9	8.8	2.2	26.4		0.8	56.3	26.4
I1	AVE	V1	9.6	54.0	8.6	1.6	21.0		1.6	85.6	33.0
I1	128	V2	3.8	112.5	7.0	2.7	73.3			56.9	39.2
I1	129	V2	3.0	105.7	5.3	2.7	75.5			85.6	30.2
I1	AVE	V2	3.4	109.1	6.2	2.7	74.4			71.3	34.7
I1	128	V3	26.0	52.2	22.6	20.4	37.5	49.0		230.5	14.7
I1	129	V3	19.5	52.9	17.2	12.6	35.2	40.8		219.4	17.7
I1	AVE	V3	22.8	52.5	19.9	16.5	36.3	44.9		225.0	16.2
J1	132	D2	50.0	54.7	45.6	5.1	12.1	52.8	3.3	162.4	42.6
J1	133	D2	45.0	54.1	40.5	4.8	8.5	45.6	3.0	217.4	45.6
J1	AVE	D2	47.5	54.4	43.1	4.9	10.3	49.2	3.1	189.9	44.1
J1	132	M2	25.0	55.1	23.0	4.5	24.8	34.3	2.3	102.9	30.3
J1	133	M2	25.5	49.5	21.0	1.3	5.2	28.3	3.3	48.5	44.3
J1	AVE	M2	25.3	52.3	22.0	2.9	15.0	31.3	2.8	75.7	37.3
J1	132	V1	15.5	54.6	14.1	1.8	24.8		1.3	39.1	29.8
J1	133	V1	12.0	47.9	9.6	0.5	5.2		1.5	22.5	42.7
J1	AVE	V1	13.8	51.2	11.8	1.1	15.0		1.4	30.8	36.2

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
J1	132	V2	3.5	119.6	7.0	2.7	64.2			56.6	55.4
J1	133	V2	5.0	99.3	8.3	2.0	44.1			70.3	55.2
J1	AVE	V2	4.3	109.5	7.6	2.3	54.2			63.4	55.3
J1	132	V3	14.3	55.5	13.2	9.9	30.0	44.3		108.3	25.5
J1	133	V3	14.5	46.0	11.1	5.5	16.1	37.0		90.1	29.8
J1	AVE	V3	14.4	50.7	12.1	7.7	23.1	40.6		99.2	27.7
K1	137	D2	60.0	56.1	56.1	0.0	0.0	0.0	0.0	0.0	56.1
K1	140	D2	60.0	57.3	57.3	0.2	0.6	25.0	35.0	11.6	56.7
K1	AVE	D2	60.0	56.7	56.7	0.1	0.3	12.5	17.5	5.8	56.4
K1	137	M2	25.0	57.6	24.0	0.4	1.7	18.2	8.5	11.4	55.9
K1	140	M2	25.0	56.1	23.4	0.2	0.6	22.5	4.0	17.1	55.5
K1	AVE	M2	25.0	56.8	23.7	0.3	1.1	20.3	6.3	14.2	55.7
K1	137	V1	14.0	50.8	11.8	0.3	7.2		5.5	11.9	43.6
K1	140	V1	10.0	55.0	9.2	0.1	0.4		2.3	4.5	54.6
K1	AVE	V1	12.0	52.9	10.5	0.2	3.8		3.9	8.2	49.1
K1	137	V2	6.0	107.9	10.8	1.0	11.3			52.3	96.6
K1	140	V2	10.0	100.7	16.8	0.7	5.0	20.2		94.5	95.7
K1	AVE	V2	8.0	104.3	13.8	0.8	8.2			73.4	96.2
K1	137	V3	13.5	53.7	12.1	0.5	2.0	29.5		16.9	51.7

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
A1	30	D2	60.0	54.4	54.4	9.3	12.8	60.0	2.8	310.9	41.6
A1	35	D2	50.0	55.4	46.2	8.0	18.0	49.5	3.5	107.2	37.5
A1	AVE	D2	55.0	54.9	50.3	8.6	15.4	54.7	3.1	209.1	39.5
A1	30	M2	30.3	59.2	29.9	12.0	27.2	31.2	2.3	266.5	32.0
A1	35	M2	30.0	56.8	28.4	16.5	37.0	31.2	2.8	157.6	19.9
A1	AVE	M2	30.2	58.0	29.2	14.3	32.1	31.2	2.6	212.0	25.9
A1	30	V1	10.0	57.3	9.6	3.5	38.9		1.4	171.4	18.4
A1	35	V1	10.0	56.0	9.3	4.0	39.9		1.7	41.7	16.1
A1	AVE	V1	10.0	56.6	9.4	3.8	39.4		1.5	106.6	17.3
A1	30	V2	5.0	111.3	9.3	6.6	88.8			515.3	22.5
A1	35	V2	5.2	109.6	9.5	7.0	86.0			134.3	23.6
A1	AVE	V2	5.1	110.4	9.4	6.8	87.4			324.8	23.0
A1	30	V3	5.0	59.0	4.9	4.9	33.2	22.0		221.1	25.8
A1	35	V3	11.3	55.8	10.5	9.7	40.9	29.1		102.6	14.9
A1	AVE	V3	8.2	57.4	7.7	7.3	37.1	25.5		161.9	20.3
A2	49	D2	60.0	49.4	49.4	30.0	39.6	59.3	7.5	971.6	9.8
A2	53	D2	30.0	53.5	26.8	6.4	29.6	25.3	10.8	258.5	23.9
A2	AVE	D2	45.0	51.5	38.1	18.2	34.6	42.3	9.1	615.1	16.8
A2	49	M2	23.0	52.4	20.1	9.4	41.2	27.6	4.4	300.1	11.1
A2	53	M2	26.0	51.3	22.2	13.1	41.2	32.0	3.5	386.5	10.1
A2	AVE	M2	24.5	51.8	21.1	11.3	41.2	29.8	3.9	343.3	10.6
A2	49	V1	14.0	51.6	12.0	5.4	38.4		1.4	169.3	13.2
A2	53	V1	14.0	50.4	11.8	5.0	41.2		2.3	172.8	9.1
A2	AVE	V1	14.0	51.0	11.9	5.2	39.8		1.9	171.1	11.2
A2	49	V2	4.5	95.0	7.1	5.2	88.1			157.5	6.9
A2	53	V2	8.0	89.2	11.9	9.4	84.3			374.1	4.9
A2	AVE	V2	6.3	92.1	9.5	7.3	86.2			265.8	5.9
A2	49	V3	16.8	51.9	14.5	17.8	47.1	42.6		450.4	4.9
A2	53	V3	12.0	50.5	10.1	11.8	41.2	39.0		319.5	9.3
A2	AVE	V3	14.4	51.2	12.3	14.8	44.1	40.8		385.0	7.1
B1	57	D2	45.0	56.3	42.3	9.0	24.0	36.3	12.0	226.9	32.3
B1	60	D2	46.0	51.8	39.8	2.0	11.1	28.7	21.0	34.6	40.8
B1	AVE	D2	45.5	54.1	41.0	5.5	17.5	32.5	16.5	130.8	36.6
B1	57	V1	18.5	52.0	16.0	3.4	27.2		6.3	65.9	24.8
B1	60	V1	15.0	55.4	13.8	0.7	7.9		3.0	14.3	47.4
B1	AVE	V1	16.8	53.7	14.9	2.0	17.5		4.6	40.1	36.1
B1	57	V2	5.5	109.6	10.0	5.8	79.4			194.8	30.3
B1	60	V2	9.0	97.4	14.6	10.0	97.4			500.2	0.0
B1	AVE	V2	7.3	103.5	12.3	7.9	88.4			347.5	15.2
B1	57	V3	6.0	51.6	5.2	5.3	32.2	28.0		128.5	19.4
B1	60	V3	19.0	55.1	17.5	17.8	42.9	44.3		535.5	12.2
B1	AVE	V3	12.5	53.4	11.3	11.5	37.5	36.1		332.0	15.8
B2	62	D2	45.3	53.1	40.1	32.7	52.6	46.3	4.5	773.0	0.5
B2	64	D2	45.0	51.3	38.4	30.8	50.8	47.3	4.8	709.8	0.5
B2	AVE	D2	45.2	52.2	39.3	31.8	51.7	46.8	4.6	741.4	0.5
B2	62	V1	8.0	55.0	19.4	3.7	51.4		1.8	52.9	3.6
B2	64	V1	5.5	55.9	5.1	1.9	41.9		1.5	35.7	14.1
B2	AVE	V1	6.8	55.5	12.2	2.8	46.6		1.6	44.3	8.8
B2	62	V2	7.0	103.1	12.0	11.2	85.0			360.1	18.1
B2	64	V2	6.6	99.2	10.9	8.1	79.3	19.8		188.4	19.9
B2	AVE	V2	6.8	101.1	11.5	9.7	82.1	37.3		274.2	19.0

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
B2	64	V3	16.9	55.9	15.8	14.9	38.9	28.5		219.6	17.0
D1	73	D2	45.0	59.6	44.7	12.9	39.9	46.7	8.0	70.1	19.8
D1	75	D2	45.0	60.9	45.7	11.4	36.5	49.5	9.8	23.5	24.4
D1	AVE	D2	45.0	60.2	45.2	12.2	38.2	48.1	8.9	46.8	22.1
D1	73	M2	25.0	63.2	26.3	13.8	54.7	38.5	5.3	59.6	8.5
D1	75	M2	25.0	60.9	25.4	16.8	60.9	58.0	4.8	5.2	0.0
D1	AVE	M2	25.0	62.0	25.8	15.3	57.8	48.3	5.0	32.4	4.3
D1	73	V1	13.0	63.1	13.7	3.6	53.6		2.8	10.6	9.6
D1	75	V1	16.0	57.6	15.4	5.2	54.0		0.5	1.7	3.6
D1	AVE	V1	14.5	60.4	14.5	4.4	53.8		1.7	6.1	6.6
D1	73	V2	4.0	111.5	7.4	5.0	88.8			16.8	22.6
D1	75	V2	5.3	91.6	8.1	12.8	64.7	52.2		0.0	26.8
D1	AVE	V2	4.7	101.5	7.8	8.9	76.8	58.8		8.4	24.7
D1	73	V3	18.0	63.4	19.0	26.6	61.6	55.5		27.1	1.8
E1	87	M2	25.0	61.2	25.5	0.0	0.0	0.0	0.0	0.0	61.2
E1	90	M2	25.0	59.4	24.8	0.0	0.0	0.0	0.0	0.0	59.4
E1	AVE	M2	25.0	60.3	25.1	0.0	0.0	0.0	0.0	0.0	60.3
E1	87	V1	10.0	61.3	10.2	0.0	0.0		10.7	0.0	61.3
E1	90	V1	18.5	59.3	18.3	0.0	0.0		19.0	0.0	59.3
E1	AVE	V1	14.3	60.3	14.3	0.0	0.0		14.9	0.0	60.3
E1	87	V2	10.0	106.4	17.7	0.2	1.5			14.5	104.9
E1	90	V2	10.5	108.0	18.9	0.3	2.9	9.4		31.2	105.1
E1	AVE	V2	10.3	107.2	18.3	0.2	2.2			22.8	105.0
E1	90	V3	23.8	62.4	24.7	0.0	0.0	4.7		0.0	62.4
F1	101	D2	55.0	45.2	41.4	0.0	0.0	0.0	0.0	0.0	45.2
F1	104	D2	45.0	49.1	36.8	0.0	0.0	0.0	0.0	0.0	49.1
F1	AVE	D2	50.0	47.1	39.1	0.0	0.0	0.0	0.0	0.0	47.1
F1	101	M2	25.0	53.4	22.2	0.6	3.0	19.0	10.0	17.4	50.3
F1	104	M2	25.0	54.5	22.7	0.2	1.5	19.6	9.0	8.8	53.0
F1	AVE	M2	25.0	53.9	22.5	0.4	2.3	19.3	9.5	13.1	51.7
F1	101	V1	9.5	49.0	7.8	0.0	0.7		4.2	1.6	48.3
F1	104	V1	17.0	51.3	14.5	0.5	6.0		2.3	13.2	45.3
F1	AVE	V1	13.3	50.1	11.1	0.3	3.4		3.2	7.4	46.8
F1	101	V2	6.0	89.5	9.0	1.6	36.9			71.3	52.6
F1	104	V2	4.0	88.4	5.9	0.8	13.0			29.4	75.4
F1	AVE	V2	5.0	89.0	7.4	1.2	24.9			50.3	64.0
F1	101	V3	24.8	48.6	20.1	6.7	12.3	39.8		46.8	36.3
F1	104	V3	5.0	50.9	4.2	1.2	10.6	29.4		25.9	40.3
F1	AVE	V3	14.9	49.7	12.2	3.9	11.5	34.6		36.3	38.3
G1	109	D2	45.0	57.5	43.1	0.2	0.7	35.1	11.9	18.5	56.8
G1	111	D2	45.0	65.7	49.3	11.4	28.8	41.5	8.9	1558.0	36.9
G1	AVE	D2	45.0	61.6	46.2	5.8	14.8	38.3	10.4	788.3	46.8
G1	109	M2	25.0	52.0	21.7	0.6	3.0	23.2	5.8	73.1	48.9
G1	111	M2	25.0	51.0	21.3	8.3	34.8	20.2	9.9	1035.5	16.2
G1	AVE	M2	25.0	51.5	21.5	4.4	18.9	21.7	7.8	554.3	32.6
G1	109	V1	6.5	59.5	6.4	0.0	1.1		3.1	4.3	58.4
G1	111	V1	12.7	51.8	10.9	5.2	45.1		2.6	706.8	6.7
G1	AVE	V1	9.6	55.6	8.7	2.6	23.1		2.8	355.5	32.6
G1	109	V2	5.0	124.2	10.3	1.0	24.2			160.0	100.0
G1	111	V2	4.6	100.3	7.7	4.0	51.1			767.1	49.1
G1	AVE	V2	4.8	112.2	9.0	2.5	37.7			463.6	74.5

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
G1	109	V3	16.5	60.9	16.8	3.2	9.2	28.0		462.1	51.7
G1	111	V3	5.8	52.8	5.1	6.0	43.1	25.6		1147.8	9.6
G1	AVE	V3	11.1	56.9	10.9	4.6	26.2	26.8		804.9	30.7
H1	115	D2	50.0	55.5	46.2	0.0	0.6	0.0	0.0	0.0	54.9
H1	117	D2	50.0	54.6	45.5	0.4	1.1	41.0	10.0	34.2	53.5
H1	AVE	D2	50.0	55.0	45.9	0.2	0.8	20.5	5.0	17.1	54.2
H1	115	M2	25.0	54.1	22.6	0.0	0.0	0.0	0.0	0.0	54.1
H1	117	M2	25.0	54.3	22.6	0.1	0.9	18.1	8.7	16.1	53.4
H1	AVE	M2	25.0	54.2	22.6	0.1	0.5	9.1	4.3	8.1	53.8
H1	115	V1	6.5	53.7	5.8	0.0	0.0		9.0	0.0	53.7
H1	117	V1	8.0	55.6	7.4	0.2	1.7		2.0	14.7	53.9
H1	AVE	V1	7.3	54.7	6.6	0.1	0.9		5.5	7.4	53.8
H1	115	V2	6.0	104.2	10.4	0.2	2.3			30.0	101.9
H1	117	V2	12.0	87.3	17.5	3.7	27.2			321.3	60.1
H1	AVE	V2	9.0	95.8	13.9	1.9	14.7			175.7	81.0
H1	115	V3	17.5	52.9	15.4	0.3	0.0	33.5		15.4	52.9
H1	117	V3	8.0	55.2	7.4	2.0	9.2	32.8		109.2	46.0
H1	AVE	V3	12.8	54.1	11.4	1.1	4.6	33.2		62.3	49.5
K1	139	D2	60.0	55.1	55.1	0.0	0.0	0.0	0.0	0.0	55.1
K1	139	M2	25.0	62.9	26.2	0.4	1.1	23.0	3.8	17.9	61.8
K1	139	V1	10.0	58.7	9.8	0.1	0.7		3.8	3.4	58.1
K1	139	V2	10.0	107.6	17.9	0.9	5.5	18.6		83.5	102.1

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
A1	31	D2	38.0	58.5	37.0	32.6		0.0	55.7	39.0	2.9	12888.6	2.8
A1	34	D2	60.0	57.5	57.5	50.2		0.0	56.1	59.4	3.2	17987.3	1.4
A1	AVE	D2	49.0	58.0	47.3	41.4		0.0	55.9	49.2	3.0	15438.0	2.1
A1	31	M2	30.0	62.2	31.1	27.2		0.0	55.8	32.1	1.2	6804.9	6.4
A1	34	M2	23.4	61.0	23.8	18.8		0.0	56.1	24.1	1.9	5224.0	4.9
A1	AVE	M2	26.7	61.6	27.4	23.0		0.0	55.9	28.1	1.5	6014.4	5.6
A1	31	V1	4.5	61.2	4.6	2.9		0.0	56.8		0.9	625.7	4.4
A1	34	V1	7.5	63.3	7.9	5.8		0.0	59.8		0.8	2098.7	3.5
A1	AVE	V1	6.0	62.2	6.2	4.4		0.0	58.3		0.9	1362.2	4.0
A1	31	V2	5.5	126.8	11.6	9.6		0.0	113.4			3184.4	13.4
A1	34	V2	4.1	126.2	8.6	8.0		0.0	125.8			3047.3	0.4
A1	AVE	V2	4.8	126.5	10.1	8.8		0.0	119.6			3115.9	6.9
A1	31	V3	4.5	59.1	4.4	4.8		0.0	55.8			1455.9	3.3
A1	34	V3	3.6	63.6	3.8	3.7		0.0	54.9			412.4	8.6
A1	AVE	V3	4.0	61.3	4.1	4.2		0.0	55.4			934.1	6.0
A1	31	V4	3.3	56.7	3.1	4.8	47.6	2.6	95.9			1253.0	8.4
A1	34	V4	2.6	63.6	2.8	4.03	47.6	2.1	104.5			588.2	6.7
A1	AVE	V4	2.9	60.1	2.9	4.4	47.6	2.3	100.2			920.6	7.6
A1	31	V5	9.9	56.7	9.4	16.8	80.8	13.4	103.3			5627.0	34.2
A1	34	V5	2.4	63.6	2.6	6.7	80.8	3.3	136.2			719.7	8.1
A1	AVE	V5	6.2	60.1	6.2	11.8	80.8	8.3	119.7			3173.4	21.2
A1	31	V6	2.6	56.7	2.4	7.2	99.9	4.3	130.6	33.8		2890.7	26.0
A1	34	V6	2.8	63.6	3.0	6.1	99.9	4.7	141.6	25.4		9188.3	21.9
A1	AVE	V6	2.7	60.1	2.7	6.7	99.9	4.5	136.1	29.6		6039.5	23.9
A2	50	D2	60.0	53.8	53.8	43.6		0.0	44.1	56.5	7.0	1584.4	9.7
A2	51	D2	60.0	53.8	53.8	38.5		0.0	49.2	53.9	8.1	2003.5	4.6
A2	AVE	D2	60.0	53.8	53.8	41.0		0.0	46.6	55.2	7.6	1794.0	7.1
A2	50	M2	23.0	56.0	21.5	15.7		0.0	55.8	24.0	3.8	373.4	0.2
A2	51	M2	30.0	54.6	27.3	23.0		0.0	52.6	30.4	3.1	1265.9	2.0
A2	AVE	M2	26.5	55.3	24.4	19.3		0.0	54.2	27.2	3.5	819.7	1.1
A2	50	V1	14.0	57.1	13.3	10.8		0.0	56.8		1.8	254.0	0.4
A2	51	V1	15.0	53.4	13.4	7.8		0.0	44.8		1.2	558.8	8.7
A2	AVE	V1	14.5	55.3	13.3	9.3		0.0	50.8		1.5	406.4	4.5
A2	50	V2	4.5	105.2	7.9	6.2		0.0	93.5			231.6	11.8
A2	51	V2	10.0	92.1	15.3	15.1		0.0	85.0			1308.1	7.1
A2	AVE	V2	7.3	98.6	11.6	10.6		0.0	89.2			769.9	9.4
A2	50	V3	2.3	57.5	2.2	3.5		0.0	56.8			117.4	0.7
A2	51	V3	5.9	53.4	5.3	5.6		0.0	48.0			393.5	5.4
A2	AVE	V3	4.1	55.5	3.7	4.6		0.0	52.4			255.5	3.0
A2	50	V4	3.4	57.5	3.3	4.3	47.6	2.7	99.5			108.9	5.6
A2	51	V4	3.3	53.4	2.9	38.5	47.6	2.6	96.8			283.7	4.2
A2	AVE	V4	3.3	55.5	3.1	21.4	47.6	2.6	98.2			196.3	4.9
A2	50	V5	3.3	57.5	3.2	24.5	80.8	4.5	134.7			718.6	3.6
A2	51	V5	4.1	53.4	3.6	8.5	80.8	5.5	131.0			633.6	3.2
A2	AVE	V5	3.7	55.5	3.4	16.5	80.8	5.0	132.8			676.1	3.4
A2	50	V6	7.1	57.5	6.8	3.3	99.9	11.8	149.5	39.5		68.0	7.9
A2	51	V6	4.3	53.4	3.8	13.5	99.9	7.1	151.9	45.8		1057.9	1.4
A2	AVE	V6	5.7	55.5	5.2	8.4	99.9	9.4	150.7	42.7		562.9	4.6
B1	56	D2	45.0	51.5	38.6	13.7		0.0	27.2	45.0	4.0	2401.9	24.3
B1	59	D2	46.0	56.1	43.0	27.4		0.0	53.8	42.0	7.3	3172.8	2.3
B1	AVE	D2	45.5	53.8	40.8	20.5		0.0	40.5	43.5	5.6	2787.3	13.3

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
B1	56	V1	11.0	54.3	10.0	3.8		0.0	33.2		2.3	786.5	21.1
B1	59	V1	15.0	53.2	13.3	6.3		0.0	36.1		2.8	935.3	17.1
B1	AVE	V1	13.0	53.8	11.6	5.1		0.0	34.7		2.5	860.9	19.1
B1	56	V2	5.0	103.8	8.7	6.2		0.0	80.6			2755.0	23.2
B1	59	V2	9.0	93.6	14.0	10.8		0.0	74.9			3397.4	18.8
B1	AVE	V2	7.0	98.7	11.3	8.5		0.0	77.7			3076.2	21.0
B1	56	V3	3.7	53.9	3.3	3.1		0.0	41.9			1218.3	12.1
B1	59	V3	7.3	53.0	6.4	5.4		0.0	39.6			1145.2	13.4
B1	AVE	V3	5.5	53.4	4.8	4.2		0.0	40.7			1181.8	12.7
B1	56	V4	3.4	53.9	3.1	4.5	47.6	2.7	95.2			2866.8	6.4
B1	59	V4	2.8	53.0	2.4	3.5	47.6	2.2	83.4			1397.6	17.2
B1	AVE	V4	3.1	53.4	2.7	4.0	47.6	2.4	89.3			2132.2	11.8
B1	56	V5	3.1	53.9	2.8	6.3	80.8	4.2	126.7			5565.7	8.0
B1	59	V5	4.0	53.0	3.5	6.1	80.8	5.4	99.5			3012.8	34.2
B1	AVE	V5	3.5	53.4	3.2	6.2	80.8	4.8	113.1			4289.3	21.1
B1	56	V6	3.8	53.9	3.4	12.0	99.9	6.4	153.8	31.8		10980.0	0.0
B1	59	V6	5.0	53.0	4.4	11.5	99.9	8.3	126.5	43.0		6100.4	26.3
B1	AVE	V6	4.4	53.4	3.9	11.8	99.9	7.4	140.2	37.4		8540.2	13.2
B2	63	D2	45.0	53.7	40.3	38.2		0.0	53.7	47.0	3.0	4029.4	0.0
B2	66	D2	42.0	47.5	33.3	25.3		0.0	41.6	43.5	3.5	2075.7	5.9
B2	AVE	D2	43.5	50.6	36.8	31.8		0.0	47.6	45.3	3.3	3052.5	3.0
B2	63	V1	5.5	52.6	4.8	3.4		0.0	52.6		0.8	308.0	0.0
B2	66	V1	6.0	56.4	5.6	3.1		0.0	46.9		0.8	328.5	9.5
B2	AVE	V1	5.8	54.5	5.2	3.2		0.0	49.8		0.8	318.3	4.8
B2	63	V2	6.6	93.2	10.2	9.9		0.0	93.2			1560.1	0.0
B2	66	V2	5.0	100.0	8.3	7.6		0.0	99.9			1657.8	0.1
B2	AVE	V2	5.8	96.6	9.3	8.7		0.0	96.5			1609.0	0.0
B2	63	V3	4.4	52.6	3.9	6.1		0.0	42.3			940.2	10.2
B2	66	V3	4.7	56.4	4.4	4.6		0.0	44.8			710.2	11.7
B2	AVE	V3	4.5	54.5	4.1	5.4		0.0	43.5			825.2	11.0
B2	63	V4	3.6	52.6	3.1	4.6	47.6	2.8	98.3			554.3	1.8
B2	66	V4	3.0	56.4	2.8	4.1	47.6	2.4	104.0			871.7	0.0
B2	AVE	V4	3.3	54.5	3.0	4.3	47.6	2.6	101.2			713.0	0.9
B2	63	V5	2.9	52.6	2.6	5.6	80.8	3.9	121.2			783.8	12.1
B2	66	V5	2.8	56.4	2.7	5.7	80.8	3.8	136.2			1410.7	1.0
B2	AVE	V5	2.9	54.5	2.6	5.7	80.8	3.9	128.7			1097.3	6.6
B2	63	V6	5.0	52.6	4.4	13.0	99.9	8.3	126.5	33.2		1927.0	25.9
B2	66	V6	3.5	56.4	3.3	11.2	99.9	5.8	148.8	28.3		3721.8	7.5
B2	AVE	V6	4.3	54.5	3.9	12.1	99.9	7.1	137.7	30.7		2824.4	16.7
C1	68	D2	45.0	57.8	43.3	36.8		0.0	55.8	47.6	4.9	0.0	1.9
C1	69	D2	35.0	52.1	30.4	21.6		0.0	51.7	35.5	6.0	1991.1	0.4
C1	AVE	D2	40.0	54.9	36.9	29.2		0.0	53.8	41.6	5.4	995.5	1.2
C1	68	M2	25.0	64.3	26.8	21.1		0.0	57.0	31.8	1.0	1558.3	7.4
C1	69	M2	25.0	65.9	27.4	21.6		0.0	53.6	29.6	1.9	1322.1	12.3
C1	AVE	M2	25.0	65.1	27.1	21.4		0.0	55.3	30.7	1.5	1440.2	9.8
C1	68	V1	10.0	62.6	10.4	6.4		0.0	54.7		1.3	6.4	7.9
C1	69	V1	9.5	59.9	9.5	6.2		0.0	59.9		1.7	571.5	0.0
C1	AVE	V1	9.8	61.2	10.0	6.3		0.0	57.3		1.5	288.9	3.9
C1	68	V2	6.0	127.5	12.7	9.6		0.0	106.3			85.9	21.2
C1	69	V2	5.5	112.2	10.3	9.1		0.0	107.2			689.5	5.0
C1	AVE	V2	5.8	119.9	11.5	9.4		0.0	106.7			387.7	13.1

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
C1	68	V3	5.3	60.8	5.4	6.3		0.0	59.3			232.9	1.6
C1	69	V3	6.0	60.1	6.0	6.8		0.0	57.8			469.0	2.3
C1	AVE	V3	5.7	60.5	5.7	6.6		0.0	58.6			351.0	1.9
C1	68	V4	4.7	60.8	4.7	6.8	47.6	3.7	108.4			442.0	0.1
C1	69	V4	5.0	60.1	5.0	7.6	47.6	4.0	99.2			488.4	8.6
C1	AVE	V4	4.8	60.5	4.9	7.2	47.6	3.8	103.8			465.2	4.3
C1	68	V5	5.1	60.8	5.2	12.0	80.8	6.9	138.3			543.0	3.3
C1	69	V5	4.3	60.1	4.3	9.5	80.8	5.8	138.9			410.6	2.0
C1	AVE	V5	4.7	60.5	4.8	10.7	80.8	6.3	138.6			476.8	2.7
C1	68	V6	4.9	60.8	5.0	17.7	99.9	8.2	156.6	45.2		528.6	4.1
C1	69	V6	3.7	58.9	3.6	13.5	99.9	6.1	155.2	41.6		453.1	3.6
C1	AVE	V6	4.3	59.9	4.3	15.6	99.9	7.1	155.9	43.4		490.9	3.8
D1	72	D2	45.0	58.3	43.7	31.4		0.0	48.8	46.3	4.3	3588.6	9.6
D1	74	D2	45.0	56.2	42.2	28.5		0.0	48.8	44.9	5.1	1293.6	7.5
D1	AVE	D2	45.0	57.3	43.0	30.0		0.0	48.8	45.6	4.7	2441.1	8.5
D1	72	M2	30.0	56.7	28.4	25.7		0.0	56.7	35.8	2.0	2461.7	0.0
D1	74	M2	25.0	56.9	23.7	19.4		0.0	51.7	34.2	1.8	1336.0	5.2
D1	AVE	M2	27.5	56.8	26.0	22.6		0.0	54.2	35.0	1.9	1898.8	2.6
D1	72	V1	7.0	55.9	6.5	3.7		0.0	52.2		1.1	351.3	3.8
D1	74	V1	13.0	51.9	11.2	7.0		0.0	48.8		1.2	532.5	3.1
D1	AVE	V1	10.0	53.9	8.9	5.3		0.0	50.5		1.2	441.9	3.5
D1	72	V2	5.0	107.7	9.0	6.7		0.0	88.1			696.2	19.5
D1	74	V2	4.0	91.7	6.1	4.9		0.0	80.3			398.2	11.4
D1	AVE	V2	4.5	99.7	7.5	5.8		0.0	84.2			547.2	15.5
D1	72	V3	5.2	55.3	4.7	5.2		0.0	51.1			429.6	4.1
D1	74	V3	5.4	52.2	4.7	4.9		0.0	45.9			222.0	6.3
D1	AVE	V3	5.3	53.7	4.7	5.0		0.0	48.5			325.8	5.2
D1	72	V4	5.4	55.3	5.0	7.3	47.6	4.3	89.4			558.4	13.5
D1	74	V4	4.0	52.2	3.4	4.7	47.6	3.1	80.3			227.4	19.5
D1	AVE	V4	4.7	53.7	4.2	6.0	47.6	3.7	84.9			392.9	16.5
D1	72	V5	3.8	55.3	3.5	7.1	80.8	5.2	119.3			460.0	16.8
D1	74	V5	3.9	52.2	3.4	7.1	80.8	5.2	119.7			237.0	13.2
D1	AVE	V5	3.9	53.7	3.4	7.1	80.8	5.2	119.5			348.5	15.0
D1	72	V6	3.6	55.3	3.3	13.5	99.9	6.0	133.9	38.0		579.4	21.2
D1	74	V6	4.8	52.2	4.1	14.1	99.9	7.9	140.4	42.8		340.7	11.7
D1	AVE	V6	4.2	53.7	3.7	13.8	99.9	7.0	137.2	40.4		460.1	16.4
D2	78	D2	45.0	63.2	47.4	37.1		0.0	59.9	49.5	3.5	2820.0	3.2
D2	79	D2	45.0	54.8	41.1	36.1		0.0	54.3	45.6	5.6	2333.3	0.5
D2	AVE	D2	45.0	59.0	44.2	36.6		0.0	57.1	47.6	4.6	2576.6	1.9
D2	78	M2	23.1	61.5	23.7	20.1		0.0	54.7	28.1	1.7	912.1	6.8
D2	79	M2	23.0	62.8	24.1	20.1		0.0	57.5	28.1	1.8	1195.0	5.3
D2	AVE	M2	23.1	62.1	23.9	20.1		0.0	56.1	28.1	1.7	1053.5	6.0
D2	78	V1	7.0	58.4	6.8	4.5		0.0	53.7		1.4	240.4	4.7
D2	79	V1	8.0	56.2	7.5	4.7		0.0	52.2		1.2	268.3	4.0
D2	AVE	V1	7.5	57.3	7.1	4.6		0.0	52.9		1.3	254.3	4.3
D2	78	V2	7.0	109.5	12.8	10.3		0.0	94.0			508.1	15.5
D2	79	V2	5.0	118.1	9.8	7.5		0.0	103.9			506.3	14.2
D2	AVE	V2	6.0	113.8	11.3	8.9		0.0	98.9			507.2	14.9
D2	78	V3	6.3	58.4	6.2	6.6		0.0	56.8			345.1	1.6
D2	79	V3	4.4	57.1	4.2	4.8		0.0	54.3			272.8	2.9
D2	AVE	V3	5.4	57.8	5.2	5.7		0.0	55.5			309.0	2.2

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
D2	78	V4	5.0	58.4	4.9	7.8	47.6	4.0	57.8			323.3	48.2
D2	79	V4	3.8	57.1	3.6	5.3	47.6	3.0	54.3			246.0	50.5
D2	AVE	V4	4.4	57.8	4.2	6.5	47.6	3.5	56.0			284.7	49.3
D2	78	V5	4.1	58.4	4.0	8.6	80.8	5.5	105.8			321.3	33.3
D2	79	V5	3.2	57.1	3.1	6.3	80.8	4.3	98.5			239.6	39.4
D2	AVE	V5	3.6	57.8	3.5	7.4	80.8	4.9	102.2			280.5	36.4
D2	78	V6	5.6	58.4	5.5	16.3	99.9	9.4	141.9	40.6		567.6	16.4
D2	79	V6	3.6	57.1	3.4	11.4	99.9	6.0	125.1	33.5		306.3	32.0
D2	AVE	V6	4.6	57.8	4.4	13.8	99.9	7.7	133.5	37.0		436.9	24.2
E1	85	M2	25.0	58.6	24.4	0.0		0.0	0.0	0.0	0.0	0.0	58.6
E1	89	M2	25.0	55.9	23.3	0.0		0.0	0.0	0.0	0.0	0.0	55.9
E1	AVE	M2	25.0	57.2	23.9	0.0		0.0	0.0	0.0	0.0	0.0	57.2
E1	85	V1	17.0	54.7	15.5	0.1		0.0	1.7		11.7	9.5	53.0
E1	89	V1	18.5	56.4	17.4	0.0		0.0	0.0		14.8	1.2	56.4
E1	AVE	V1	17.8	55.5	16.4	0.1		0.0	0.8		13.3	5.4	54.7
E1	85	V2	6.0	100.3	10.0	3.9		0.0	35.7			293.7	64.6
E1	89	V2	10.5	102.6	18.0	1.7		0.0	27.2			377.9	75.4
E1	AVE	V2	8.3	101.5	14.0	2.8		0.0	31.4			335.8	70.0
E1	85	V3	6.9	53.3	6.2	0.6		0.0	2.3			64.8	51.1
E1	89	V3	2.8	59.2	2.8	0.0		0.0	0.1			84.3	59.1
E1	AVE	V3	4.9	56.3	4.5	0.3		0.0	1.2			74.5	55.1
E1	85	V4	5.8	53.3	5.1	3.3	47.6	4.6	54.1			1865.0	46.9
E1	89	V4	7.2	59.2	7.1	0.5	47.6	5.7	31.9			796.6	75.0
E1	AVE	V4	6.5	56.3	6.1	1.9	47.6	5.1	43.0			1330.8	60.9
E1	85	V5	4.6	53.3	4.1	4.4	80.8	6.2	80.6			3751.8	53.5
E1	89	V5	4.6	59.2	4.6	1.1	80.8	6.2	61.3			889.9	78.7
E1	AVE	V5	4.6	56.3	4.3	2.7	80.8	6.2	70.9			2320.8	66.1
E1	85	V6	4.7	53.3	4.2	8.8	99.9	7.8	93.7	36.3		5635.2	59.5
E1	89	V6	7.2	59.2	7.1	0.1	99.9	11.9	66.1	39.9		1711.7	93.0
E1	AVE	V6	5.9	56.3	5.6	4.4	99.9	9.9	79.9	38.1		3673.5	76.3
E2	92	D2	45.0	53.8	40.4	33.3		0.0	53.2	45.4	3.4	5576.5	0.6
E2	93	D2	45.0	56.9	42.7	31.9		0.0	56.1	42.0	6.5	4063.9	0.7
E2	AVE	D2	45.0	55.3	41.5	32.6		0.0	54.7	43.7	4.9	4820.2	0.7
E2	92	M2	25.0	69.0	28.7	19.9		0.0	52.2	28.6	1.0	2749.1	16.8
E2	93	M2	25.0	54.0	22.5	15.8		0.0	54.0	29.7	1.1	1688.7	0.0
E2	AVE	M2	25.0	61.5	25.6	17.8		0.0	53.1	29.1	1.0	2218.9	8.4
E2	92	V1	5.5	63.4	5.8	3.9		0.0	58.6		0.6	608.0	4.8
E2	93	V1	6.5	63.3	6.9	4.3		0.0	54.9		1.1	442.6	8.3
E2	AVE	V1	6.0	63.3	6.3	4.1		0.0	56.7		0.9	525.3	6.6
E2	92	V2	4.5	108.5	8.1	6.7		0.0	98.5			1607.0	9.9
E2	93	V2	4.0	126.1	8.4	6.8		0.0	110.9			898.4	15.2
E2	AVE	V2	4.3	117.3	8.3	6.7		0.0	104.7			1252.7	12.6
E2	92	V3	3.9	62.7	4.1	4.1		0.0	58.6			626.9	4.2
E2	93	V3	7.4	62.3	7.7	7.9		0.0	54.9			731.3	7.4
E2	AVE	V3	5.7	62.5	5.9	6.0		0.0	56.7			679.1	5.8
E2	92	V4	4.1	62.7	4.3	6.4	47.6	3.2	107.3			960.6	3.0
E2	93	V4	6.8	62.4	7.1	11.4	47.6	5.4	110.0			1214.6	0.0
E2	AVE	V4	5.5	62.6	5.7	8.9	47.6	4.3	108.7			1087.6	1.5
E2	92	V5	3.9	62.7	4.1	6.7	80.8	5.2	98.5			990.6	45.0
E2	93	V5	5.8	62.3	6.0	14.5	80.8	7.8	143.1			1383.3	0.0
E2	AVE	V5	4.8	62.5	5.0	10.6	80.8	6.5	120.8			1186.9	22.5

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
E2	92	V6	8.1	62.7	8.4	21.1	99.9	13.4	143.8	34.4		2619.6	18.8
E2	93	V6	5.3	62.3	5.5	18.2	99.9	8.9	162.2	41.0		1947.2	0.0
E2	AVE	V6	6.7	62.5	7.0	19.6	99.9	11.2	153.0	37.7		2283.4	9.4
F1	102	D2	55.0	40.7	37.3	6.9		0.0	18.0	29.6	27.6	754.0	22.7
F1	105	D2	49.0	55.3	45.2	19.7		0.0	33.5	39.4	11.9	2560.7	21.8
F1	AVE	D2	52.0	48.0	41.3	13.3		0.0	25.8	34.5	19.8	1657.4	22.3
F1	102	M2	25.0	59.7	24.9	14.9		0.0	46.6	25.6	4.5	1771.8	13.1
F1	105	M2	25.0	50.8	21.2	9.7		0.0	39.5	21.7	7.1	1288.8	11.3
F1	AVE	M2	25.0	55.2	23.0	12.3		0.0	43.0	23.6	5.8	1530.3	12.2
F1	102	V1	9.5	51.6	8.2	3.8		0.0	41.2		2.1	546.4	10.3
F1	105	V1	8.0	52.8	7.0	2.5		0.0	36.0		2.4	320.4	16.8
F1	AVE	V1	8.8	52.2	7.6	3.2		0.0	38.6		2.2	433.4	13.6
F1	102	V2	6.0	94.2	9.4	7.1		0.0	82.3			1438.9	11.9
F1	105	V2	5.0	91.5	7.6	6.7		0.0	91.4			1354.1	0.1
F1	AVE	V2	5.5	92.8	8.5	6.9		0.0	86.8			1396.5	6.0
F1	102	V3	7.4	51.1	6.3	6.4		0.0	44.7			785.7	6.4
F1	105	V3	6.8	47.8	5.4	6.1		0.0	44.0			745.8	3.8
F1	AVE	V3	7.1	49.5	5.9	6.2		0.0	44.4			765.7	5.1
F1	102	V4	4.6	51.1	3.9	5.7	47.6	3.6	92.5			852.8	6.2
F1	105	V4	3.9	47.8	3.1	5.5	47.6	3.1	95.5			707.6	0.0
F1	AVE	V4	4.2	49.5	3.5	5.6	47.6	3.3	94.0			780.2	3.1
F1	102	V5	3.5	50.2	3.0	6.3	80.8	4.8	114.3			810.3	16.8
F1	105	V5	3.8	47.8	3.0	8.9	80.8	5.1	128.6			1016.7	0.0
F1	AVE	V5	3.7	49.0	3.0	7.6	80.8	4.9	121.4			913.5	8.4
F1	102	V6	4.2	50.5	3.5	8.8	99.9	7.0	128.3			1188.0	22.1
F1	105	V6	3.5	47.8	2.8	9.5	99.9	5.9	147.8			791.7	0.0
F1	AVE	V6	3.9	49.2	3.2	9.1	99.9	6.4	138.0			989.9	11.0
F1	102	V7	4.9	50.5	4.1	17.3	216.4	17.7	184.5	42.5		1868.9	82.4
F1	105	V7	4.2	47.8	3.3	18.8	216.4	15.1	207.0	38.8		1284.9	57.2
F1	AVE	V7	4.6	49.2	3.7	18.0	216.4	16.4	195.8	40.6		1576.9	69.8
G1	108	D2	45.0	58.5	43.8	1.4		0.0	3.4	36.6	10.3	223.5	55.1
G1	110	D2	45.0	58.2	43.6	29.8		0.0	52.6	41.6	7.3	3966.3	5.6
G1	AVE	D2	45.0	58.3	43.7	15.6		0.0	28.0	39.1	8.8	2094.9	30.3
G1	108	M2	25.0	61.2	25.5	2.0		0.0	6.5	25.4	2.4	428.7	54.7
G1	110	M2	25.0	59.3	24.7	17.6		0.0	46.9	25.9	3.3	3818.9	12.4
G1	AVE	M2	25.0	60.3	25.1	9.8		0.0	26.7	25.7	2.9	2123.8	33.5
G1	108	V1	12.0	59.2	11.8	2.6		0.0	31.5		0.8	442.1	27.7
G1	110	V1	6.5	64.0	6.9	2.9		0.0	50.3		1.2	600.0	13.7
G1	AVE	V1	9.3	61.6	9.4	2.7		0.0	40.9		1.0	521.1	20.7
G1	108	V2	6.0	108.9	10.9	5.6		0.0	67.7			1784.8	41.1
G1	110	V2	5.0	133.4	11.1	8.8		0.0	114.2			2386.0	19.3
G1	AVE	V2	5.5	121.1	11.0	7.2		0.0	90.9			2085.4	30.2
G1	108	V3	5.5	58.5	5.4	3.6		0.0	44.9			1220.1	13.5
G1	110	V3	4.5	65.5	4.9	5.7		0.0	50.3			1378.6	15.2
G1	AVE	V3	5.0	62.0	5.1	4.7		0.0	47.6			1299.4	14.4
G1	108	V4	3.5	58.5	3.4	3.6	47.6	2.8	69.6			1492.4	36.5
G1	110	V4	3.0	65.5	3.3	5.3	47.6	2.4	113.1			1426.6	0.0
G1	AVE	V4	3.2	62.0	3.3	4.5	47.6	2.6	91.3			1459.5	18.3
G1	108	V5	3.3	58.5	3.2	5.4	80.8	4.4	106.3			2415.4	33.0
G1	110	V5	2.6	65.5	2.8	6.3	80.8	3.5	146.3			1404.1	0.0
G1	AVE	V5	2.9	62.0	3.0	5.8	80.8	4.0	126.3			1909.7	16.5

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
G1	108	V6	4.3	58.0	4.2	12.9	99.9	7.2	155.7			8965.2	2.1
G1	110	V6	3.3	65.5	3.6	9.1	99.9	5.4	165.4			1857.0	0.0
G1	AVE	V6	3.8	61.7	3.9	11.0	99.9	6.3	160.5			5411.1	1.1
G1	108	V7	2.4	58.0	2.3	6.9	216.4	8.7	257.1	41.0		8832.2	17.3
G1	110	V7	2.2	65.5	2.3	13.8	216.4	7.8	272.6	30.5		2792.2	9.3
G1	AVE	V7	2.3	61.7	2.3	10.3	216.4	8.2	264.8	35.8		5812.2	13.3
H1	114	D2	50.0	53.2	44.3	24.9		0.0	49.5	42.5	12.3	4901.6	3.6
H1	116	D2	50.0	56.8	47.4	28.9		0.0	56.8	39.6	14.7	4143.0	0.0
H1	AVE	D2	50.0	55.0	45.8	26.9		0.0	53.2	41.0	13.5	4522.3	1.8
H1	114	M2	25.0	55.7	23.2	18.9		0.0	55.2	27.2	3.5	4373.7	0.4
H1	116	M2	25.0	56.0	23.3	16.4		0.0	55.8	26.1	4.1	3164.2	0.2
H1	AVE	M2	25.0	55.8	23.3	17.6		0.0	55.5	26.6	3.8	3769.0	0.3
H1	114	V1	5.0	53.6	4.5	2.6		0.0	49.5		0.9	684.6	4.1
H1	116	V1	6.5	53.3	5.8	3.6		0.0	50.2		1.3	594.6	3.0
H1	AVE	V1	5.8	53.4	5.1	3.1		0.0	49.9		1.1	639.6	3.6
H1	114	V2	15.0	87.4	21.8	20.9		0.0	86.0			5847.6	1.4
H1	116	V2	6.0	103.4	10.3	8.8		0.0	90.2			1690.9	13.1
H1	AVE	V2	10.5	95.4	16.1	14.9		0.0	88.1			3769.3	7.3
H1	114	V3	7.8	52.2	6.8	6.9		0.0	47.7			1613.9	4.5
H1	116	V3	7.4	52.5	6.5	6.6		0.0	50.2			885.6	2.2
H1	AVE	V3	7.6	52.3	6.6	6.7		0.0	49.0			1249.7	3.3
H1	114	V4	8.0	52.2	7.0	11.9	76.3	10.2	94.2			2235.8	34.3
H1	116	V4	5.7	52.5	4.9	9.7	47.6	4.5	100.1			1433.3	0.0
H1	AVE	V4	6.8	52.3	6.0	10.8	62.0	7.1	97.1			1834.6	17.2
H1	114	V5	12.1	52.2	10.5	25.4	99.9	20.2	129.6			12073.5	22.4
H1	116	V5	4.4	52.5	3.9	10.3	80.8	6.0	133.2			1478.9	0.0
H1	AVE	V5	8.3	52.3	7.2	17.9	90.3	12.5	131.4			6776.2	11.2
H1	114	V6	5.0	52.2	4.4	17.3	182.6	15.3	170.8	57.3		2345.4	64.0
H1	116	V6	7.4	52.5	6.5	19.1	99.9	12.4	146.9			2829.3	5.5
H1	AVE	V6	6.2	52.3	5.4	18.2	141.2	14.6	158.8			2587.4	34.7
H1	116	V7	5.1	52.5	4.4	23.1	216.4	18.3	232.0	45.4		3091.7	36.9
H2	120	D2	45.0	56.9	42.7	28.2		0.0	46.8	42.8	6.1	7863.2	10.1
H2	121	D2	45.0	54.6	41.0	34.8		0.0	54.6	43.5	5.5	11281.9	0.0
H2	AVE	D2	45.0	55.8	41.8	31.5		0.0	50.7	43.1	5.8	9572.5	5.1
H2	120	M2	25.0	53.6	22.3	17.0		0.0	50.5	27.5	3.4	3352.6	3.1
H2	121	M2	25.0	56.5	23.6	16.8		0.0	44.9	27.1	3.0	3604.3	11.6
H2	AVE	M2	25.0	55.1	22.9	16.9		0.0	47.7	27.3	3.2	3478.5	7.4
H2	120	V1	11.0	56.5	10.4	7.3		0.0	48.6		1.0	1300.7	7.9
H2	121	V1	12.0	57.8	11.6	8.2		0.0	51.3		0.8	1461.2	6.4
H2	AVE	V1	11.5	57.2	11.0	7.8		0.0	50.0		0.9	1380.9	7.2
H2	120	V2	8.8	100.9	14.7	12.7		0.0	94.2			2754.7	6.7
H2	121	V2	5.0	104.0	8.7	7.0		0.0	91.6			1440.9	12.4
H2	AVE	V2	6.9	102.4	11.7	9.8		0.0	92.9			2097.8	9.5
H2	120	V3	3.8	56.6	3.6	3.7		0.0	48.6			561.0	8.0
H2	121	V3	5.1	55.6	4.7	4.7		0.0	49.2			849.9	6.4
H2	AVE	V3	4.4	56.1	4.1	4.2		0.0	48.9			705.5	7.2
H2	120	V4	3.7	56.6	3.5	5.0	47.6	3.0	94.2			724.2	10.0
H2	121	V4	8.2	55.6	7.6	11.0	47.6	6.5	88.8			1610.6	14.4
H2	AVE	V4	6.0	56.1	5.6	8.0	47.6	4.7	91.5			1167.4	12.2
H2	120	V5	2.9	56.6	2.7	5.6	80.8	3.9	127.0			807.0	10.4
H2	121	V5	5.5	55.6	5.0	10.1	80.8	7.3	115.5			1069.0	20.9

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
H2	AVE	V5	4.2	56.1	3.9	7.8	80.8	5.6	121.2			938.0	15.6
H2	120	V6	3.6	56.6	3.4	8.3	99.9	6.0	141.9			964.7	14.5
H2	121	V6	5.8	55.6	5.4	15.2	99.9	9.6	131.6	46.6		1510.6	23.9
H2	AVE	V6	4.7	56.1	4.4	11.8	99.9	7.8	136.8			1237.6	19.2
H2	120	V7	5.2	56.6	4.9	22.4	216.4	18.8	224.3	44.1		1823.2	48.7
I1	127	D2	45.0	55.7	41.8	28.5		0.0	48.4	43.3	5.5	3047.0	7.3
I1	130	D2	45.0	54.3	40.7	13.9		0.0	29.2	43.0	6.0	1249.0	25.1
I1	AVE	D2	45.0	55.0	41.3	21.2		0.0	38.8	43.1	5.8	2148.0	16.2
I1	127	M2	25.0	50.6	21.1	15.4		0.0	49.4	27.5	2.3	1489.7	1.2
I1	130	M2	25.0	54.9	22.9	15.9		0.0	44.1	28.3	1.8	1520.4	10.8
I1	AVE	M2	25.0	52.8	22.0	15.7		0.0	46.7	27.9	2.0	1505.0	6.0
I1	127	V1	9.3	52.6	8.1	5.0		0.0	46.6		1.4	538.8	6.0
I1	130	V1	10.0	53.9	9.0	5.7		0.0	45.0		0.7	801.7	8.9
I1	AVE	V1	9.6	53.3	8.5	5.3		0.0	45.8		1.0	670.3	7.5
I1	127	V2	3.8	107.5	6.7	5.2		0.0	92.5			808.8	15.0
I1	130	V2	3.0	107.8	7.2	4.1		0.0	89.5			946.6	18.3
I1	AVE	V2	3.4	107.7	7.0	4.6		0.0	91.0			877.7	16.7
I1	127	V3	7.6	49.9	6.3	8.0		0.0	46.6			847.3	3.3
I1	130	V3	4.0	53.9	3.6	3.9		0.0	47.7			714.3	6.2
I1	AVE	V3	5.8	51.9	5.0	6.0		0.0	47.1			780.8	4.8
I1	127	V4	3.4	49.9	2.8	4.7	47.6	2.7	97.5			602.6	0.0
I1	130	V4	6.8	53.9	6.1	8.3	47.6	5.4	94.2			1500.6	7.3
I1	AVE	V4	5.1	51.9	4.4	6.5	47.6	4.0	95.8			1051.6	3.7
I1	127	V5	2.9	49.9	2.4	5.8	80.8	3.9	130.7			578.8	0.0
I1	130	V5	3.0	53.9	2.7	6.0	80.8	4.0	129.6			964.1	5.0
I1	AVE	V5	3.0	51.9	2.6	5.9	80.8	4.0	130.1			771.5	2.5
I1	127	V6	6.8	49.9	5.7	17.0	99.9	11.4	149.8			1352.8	0.0
I1	130	V6	3.2	53.9	2.8	7.5	99.9	5.3	143.3			1092.4	10.5
I1	AVE	V6	5.0	51.9	4.3	12.2	99.9	8.3	146.6			1222.6	5.2
I1	127	V7	5.3	50.2	4.4	24.2	216.4	18.9	223.7	45.3		1408.2	42.9
I1	130	V7	2.6	53.9	2.3	12.6	216.4	9.3	201.5	37.3		1580.4	68.8
I1	AVE	V7	3.9	52.1	3.4	18.4	216.4	14.1	212.6	41.3		1494.3	55.8
J1	131	D2	50.0	50.7	42.3	7.4		0.0	22.8	34.0	20.0	275.0	27.9
J1	134	D2	45.0	51.9	38.9	6.7		0.0	26.4	31.1	17.5	404.6	25.5
J1	AVE	D2	47.5	51.3	40.6	7.0		0.0	24.6	32.5	18.8	339.8	26.7
J1	131	M2	25.0	56.5	23.6	14.1		0.0	47.5	25.8	4.0	517.1	9.0
J1	134	M2	25.5	52.4	22.3	11.3		0.0	37.7	27.9	2.3	646.9	14.6
J1	AVE	M2	25.3	54.4	22.9	12.7		0.0	42.6	26.9	3.2	582.0	11.8
J1	131	V1	15.5	51.7	13.4	7.6		0.0	42.1		1.8	288.8	9.6
J1	134	V1	12.0	52.9	10.6	5.7		0.0	41.3		0.8	456.8	11.6
J1	AVE	V1	13.8	52.3	12.0	6.6		0.0	41.7		1.3	372.8	10.6
J1	131	V2	3.5	113.4	6.6	4.6		0.0	90.2			371.3	23.1
J1	134	V2	5.0	109.7	9.1	7.3		0.0	99.2			892.4	10.5
J1	AVE	V2	4.3	111.5	7.9	5.9		0.0	94.7			631.8	16.8
J1	131	V3	7.8	52.6	6.9	7.0		0.0	44.8			438.4	7.8
J1	134	V3	5.0	50.8	4.2	4.5		0.0	43.1			433.5	7.7
J1	AVE	V3	6.4	51.7	5.5	5.8		0.0	43.9			436.0	7.7
J1	131	V4	2.8	52.6	2.4	3.8	47.6	2.2	96.6			300.2	3.6
J1	134	V4	3.0	50.8	2.5	4.8	47.6	2.4	98.4			424.3	0.0
J1	AVE	V4	2.9	51.7	2.5	4.3	47.6	2.3	97.5			362.2	1.8
J1	131	V5	2.7	53.0	2.4	4.7	80.8	3.6	128.3			377.7	5.5

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT & INFILTRATION SUMMARY
1987 BARE PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	OFR mm/hr	OFV mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
J1	134	V5	1.8	50.8	1.5	3.8	80.8	2.5	131.5			296.2	0.0
J1	AVE	V5	2.3	51.9	1.9	4.2	80.8	3.0	129.9			337.0	2.8
J1	131	V6	1.0	53.4	0.9	9.2	99.9	1.7	148.4	39.3		618.5	5.0
J1	134	V6	4.7	50.8	4.0	14.7	99.9	7.8	150.7	34.4		1010.0	0.0
J1	AVE	V6	2.8	52.1	2.5	12.0	99.9	4.7	149.5	36.8		814.2	2.5
K1	138	D2	60.0	58.1	58.1	1.5		0.0	12.4	41.5	21.5	195.6	45.7
K1	138	V1	14.0	55.3	12.9	4.7		0.0	30.5		1.7	801.1	24.8
K1	138	V2	6.0	117.5	11.8	6.1		0.0	69.8			1121.6	47.7
K1	138	V3	4.0	58.5	3.9	2.6		0.0	24.0			455.2	34.5
K1	138	V4	3.6	58.5	3.5	3.8	47.6	2.8	80.6			813.9	25.5
K1	138	V5	2.3	58.5	2.2	3.7	80.8	3.0	115.0			771.8	24.3
K1	138	V6	3.7	58.5	3.6	10.0	99.9	6.1	125.1	35.2		1830.0	33.3

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT, & INFILTRATION SUMMARY
1988 NATURAL PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
D1	71	D2	60.0	53.3	53.3	6.7	11.9	48.0	16.5	99.0	41.5
D1	76	D2	60.0	46.5	46.5	0.7	2.0	30.8	32.5	3.9	44.5
D1	AVE	D2	60.0	49.9	49.9	3.7	6.9	39.4	24.5	51.5	43.0
D1	71	M2	23.0	60.6	23.2	5.6	27.3	26.8	5.5	54.2	33.3
D1	76	M2	23.0	55.6	21.3	0.6	3.4	16.2	11.3	3.3	52.2
D1	AVE	M2	23.0	58.1	22.3	3.1	15.3	21.5	8.4	28.8	42.8
D1	71	V1	7.0	58.3	6.8	0.3	7.2	40.2	2.5	4.5	51.2
D1	76	V1	13.5	54.2	12.2	0.3	3.7	34.3	5.5	3.4	50.5
D1	AVE	V1	10.3	55.6	9.5	0.3	5.4	37.2	4.0	3.4	50.2
D1	71	V2	5.0	125.8	10.5	3.6	72.4			37.6	53.4
D1	76	V2	11.0	86.8	15.9	3.8	35.2			23.7	51.6
D1	AVE	V2	8.0	99.0	13.2	3.7	53.8			30.7	45.2
D1	71	V3	19.5	58.3	19.0	17.1	39.5			55.2	18.9
D1	76	V3	10.5	51.7	9.0	3.1	3.7			42.9	48.0
D1	AVE	V3	15.0	55.0	13.8	10.1	21.6			49.0	33.4
D2	77	D2	41.8	53.2	37.0	0.7	3.4	25.6	19.3	8.0	49.8
D2	80	D2	45.5	56.7	43.0	3.4	9.5	32.0	16.8	49.3	47.2
D2	AVE	D2	43.6	55.0	40.0	2.0	6.5	28.8	18.0	28.7	48.6
D2	77	M2	25.2	59.1	24.8	6.6	27.2	25.2	9.0	34.1	32.0
D2	80	M2	23.3	59.9	23.2	6.3	25.6	23.3	8.0	13.9	34.4
D2	AVE	M2	24.2	59.5	24.0	6.5	26.4	24.3	8.5	24.0	33.1
D2	77	V1	7.5	55.0	6.9	0.2	6.5	35.9	3.4	1.3	48.4
D2	80	V1	6.5	57.2	6.2	0.1	5.6	33.0	3.7	1.4	51.6
D2	AVE	V1	7.0	56.1	6.5	0.2	6.1	34.5	3.5	1.3	50.0
D2	77	V2	7.5	106.7	13.3	6.8	74.0			46.4	32.7
D2	80	V2	4.0	108.4	7.2	1.9	65.2			14.3	43.2
D2	AVE	V2	5.8	107.6	10.3	4.4	69.6			30.3	37.9
D2	77	V3	18.7	56.2	17.5	17.2	22.4			32.1	33.9
D2	80	V3	16.5	56.1	15.4	13.4	31.3			18.6	24.8
D2	AVE	V3	17.6	56.2	16.5	15.3	26.8			25.4	29.3
E1	86	D2	60.2	48.3	48.4	0.0	0.0	0.0	0.0	0.0	48.3
E1	88	D2	60.0	53.1	53.1	0.0	0.0	0.0	0.0	0.0	53.1
E1	AVE	D2	60.1	50.7	50.7	0.0	0.0	0.0	0.0	0.0	50.7
E1	86	M2	30.0	57.3	28.7	0.0	0.0	0.0	0.0	0.0	57.3
E1	88	M2	30.0	55.7	27.8	0.0	0.0	0.0	0.0	0.0	55.7
E1	AVE	M2	30.0	56.5	28.3	0.0	0.0	0.0	0.0	0.0	56.5
E1	86	V1	7.5	56.9	7.1	0.0	0.0	0.0	0.0	0.0	56.9
E1	88	V1	10.0	57.7	9.6	0.0	0.0	0.0	0.0	0.0	57.7
E1	AVE	V1	8.8	57.3	8.4	0.0	0.0	0.0	0.0	0.0	57.3
E1	86	V2	6.0	100.1	10.0	0.0	0.0			0.0	100.1
E1	88	V2	7.5	90.6	11.3	0.0	0.0			0.0	90.6
E1	AVE	V2	6.8	95.4	10.7	0.0	0.0			0.0	95.4
E1	86	V3	10.5	63.3	11.1	0.0	0.0			0.0	63.3
E1	88	V3	5.8	58.8	5.6	0.0	0.0			0.0	58.8
E1	AVE	V3	8.1	61.0	8.3	0.0	0.0			0.0	61.0
E2	91	D2	45.5	59.1	44.8	0.0	0.0	0.0	0.0	0.0	59.1
E2	94	D2	45.2	61.1	46.0	0.0	0.0	0.0	0.0	0.0	61.1
E2	AVE	D2	45.3	60.1	45.4	0.0	0.0	0.0	0.0	0.0	60.1
E2	91	M2	23.5	66.1	25.9	0.6	4.0	11.1	12.7	7.5	62.1
E2	94	M2	25.5	59.8	25.4	1.8	14.2	14.3	15.0	20.7	45.5
E2	AVE	M2	24.5	62.8	25.6	1.2	9.1	12.7	13.8	14.1	53.7
E2	91	V1	9.0	57.2	8.6	0.1	1.4	14.3	6.0	2.1	55.8

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT, & INFILTRATION SUMMARY
1988 NATURAL PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
E2	94	V1	11.0	52.9	9.7	0.6	18.7	34.6	6.5	3.8	34.2
E2	AVE	V1	10.0	55.1	9.2	0.4	10.1	24.4	6.3	3.0	45.0
E2	91	V2	4.5	109.8	8.2	0.3	8.0			10.0	101.8
E2	94	V2	4.0	97.5	6.5	2.6	52.2			22.0	45.3
E2	AVE	V2	4.3	103.7	7.3	1.5	30.1			16.0	73.6
E2	91	V3	19.5	59.0	19.2	0.4	1.2			3.8	57.9
E2	94	V3	19.5	55.7	18.1	10.4	21.4			26.4	34.3
E2	AVE	V3	19.5	57.4	18.6	5.4	11.3			15.1	46.1
E3	96	D2	60.0	57.7	57.7	0.0	0.0	0.0	0.0	0.0	57.7
E3	97	D2	60.0	55.7	55.7	0.0	0.0	0.0	0.0	0.0	55.7
E3	AVE	D2	60.0	56.7	56.7	0.0	0.0	0.0	0.0	0.0	56.7
E3	96	M2	30.0	61.0	30.5	0.0	0.0	0.0	0.0	0.0	61.0
E3	97	M2	30.5	54.8	27.8	0.0	0.0	0.0	0.0	0.0	54.8
E3	AVE	M2	30.3	57.8	29.2	0.0	0.0	0.0	0.0	0.0	57.8
E3	96	V1	10.0	59.1	9.8	0.0	0.0	8.0	19.0	0.0	59.1
E3	97	V1	10.0	57.4	9.6	0.0	0.0	0.0	0.0	0.0	57.4
E3	AVE	V1	10.0	58.2	9.7	0.0	0.0	4.0	9.5	0.0	58.2
E3	96	V2	16.0	101.7	27.1	0.1	1.0			3.9	100.6
E3	97	V2	15.0	101.1	25.3	0.0	0.0			0.0	101.1
E3	AVE	V2	15.5	101.4	26.2	0.1	0.5			1.9	100.8
E3	96	V3	21.6	61.9	22.3	0.0	0.0			0.0	61.9
E4	151	D2	45.0	52.9	39.7	0.0	0.0	0.0	0.0	0.0	52.9
E4	152	D2	45.2	54.5	41.0	0.0	0.0	0.0	0.0	0.0	54.5
E4	AVE	D2	45.1	53.7	40.3	0.0	0.0	0.0	0.0	0.0	53.7
E4	151	M2	26.3	62.1	27.2	0.0	0.0	0.0	0.0	0.0	62.1
E4	152	M2	25.7	47.2	20.2	0.0	0.0	0.0	0.0	0.0	47.2
E4	AVE	M2	26.0	54.8	23.7	0.0	0.0	0.0	0.0	0.0	54.8
E4	151	V1	10.0	58.5	9.8	0.0	0.0	13.4	11.8	0.0	58.5
E4	152	V1	7.0	57.8	6.7	0.0	0.0	0.0	0.0	0.0	57.8
E4	AVE	V1	8.5	58.2	8.2	0.0	0.0	6.7	5.9	0.0	58.2
E4	151	V2	15.0	98.6	24.7	0.2	0.7			0.0	97.9
E4	152	V2	3.0	80.7	4.0	0.0	0.0			0.0	80.7
E4	AVE	V2	9.0	89.6	13.4	0.1	0.4			0.0	89.3
E4	152	V3	20.0	57.4	19.1	0.0	0.0			0.0	57.4
E5	156	D2	45.0	55.4	41.5	0.8	2.1	31.9	16.3	25.1	53.3
E5	158	D2	45.1	54.4	40.9	6.3	13.6	39.7	13.0	88.3	40.8
E5	AVE	D2	45.1	54.9	41.2	3.6	7.8	35.8	14.7	56.7	47.1
E5	156	M2	25.5	54.5	23.2	1.5	8.6	20.7	8.0	63.7	45.9
E5	158	M2	25.5	54.8	23.3	3.0	14.5	25.8	7.0	35.7	40.3
E5	AVE	M2	25.5	54.6	23.2	2.3	11.5	23.2	7.5	49.7	43.1
E5	156	V1	11.0	62.0	11.4	0.7	13.8	29.5	2.8	2.1	48.2
E5	158	V1	8.5	58.5	8.3	0.2	6.6	37.6	2.7	3.1	51.9
E5	AVE	V1	9.8	60.3	9.8	0.4	10.2	33.5	2.7	2.6	50.1
E5	156	V2	12.0	97.0	19.4	11.2	65.3			25.0	31.7
E5	158	V2	5.5	93.0	8.5	2.4	38.6			36.5	54.4
E5	AVE	V2	8.8	95.0	13.9	6.8	51.9			30.8	43.1
E5	158	V3	18.0	58.5	17.6	9.1	24.9			65.9	33.6
H1	113	D2	60.0	60.5	60.5	1.3	1.5	50.2	9.8	77.3	58.9
H1	118	D2	65.0	56.6	61.3	0.5	4.9	13.8	55.5	5.5	51.7
H1	AVE	D2	62.5	58.5	60.9	0.9	3.2	32.0	32.7	41.4	55.3
H1	113	M2	23.2	58.3	22.5	1.5	12.7	22.8	5.7	47.1	45.6
H1	118	M2	23.0	59.5	22.8	3.0	20.9	23.2	9.5	52.9	38.7

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT, & INFILTRATION SUMMARY
1988 NATURAL PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
H1	AVE	M2	23.1	58.9	22.7	2.3	16.8	23.0	7.6	50.0	42.1
H1	113	V1	7.0	57.0	6.6	0.1	3.0	39.1	3.0	2.6	54.0
H1	118	V1	14.0	59.3	13.8	2.7	31.5	30.7	4.7	42.3	27.9
H1	AVE	V1	10.5	58.2	10.2	1.4	17.2	34.9	3.8	22.5	41.0
H1	113	V2	6.5	107.4	11.6	5.3	65.3			2.6	42.1
H1	118	V2	6.0	98.9	9.9	6.0	77.9			85.8	20.9
H1	AVE	V2	6.3	103.1	10.7	5.7	71.6			44.2	31.5
H1	113	V3	21.3	57.0	20.2	11.8	26.2			143.0	30.8
H1	118	V3	5.0	56.5	4.7	5.9	35.1			54.2	21.4
H1	AVE	V3	13.1	56.7	12.4	8.9	30.7			98.6	26.1
H2	119	D2	45.0	56.7	42.5	3.6	13.6	32.6	18.5	47.8	43.1
H2	122	D2	25.0	49.4	20.6	0.8	6.7	16.2	9.0	17.3	42.7
H2	AVE	D2	35.0	54.1	31.6	2.2	10.1	24.4	13.8	32.6	44.0
H2	119	M2	23.0	51.9	19.9	8.0	40.4	26.3	6.7	45.9	11.5
H2	122	M2	23.0	54.5	20.9	6.9	28.1	21.8	8.5	30.7	26.4
H2	AVE	M2	23.0	53.2	20.4	7.5	34.3	24.0	7.6	38.3	19.0
H2	119	V1	8.5	60.1	8.5	1.8	47.1	36.8	2.8	13.0	13.0
H2	122	V1	8.5	48.9	6.9	0.9	32.8	35.8	5.2	5.6	16.1
H2	AVE	V1	8.5	54.5	7.7	1.4	39.9	36.3	4.0	9.3	14.6
H2	119	V2	5.0	116.5	9.7	6.7	105.3			31.0	11.3
H2	122	V2	8.0	82.0	10.9	9.2	81.1			33.3	0.9
H2	AVE	V2	6.5	99.3	10.8	8.0	93.2			32.2	6.1
H2	119	V3	13.5	60.8	13.7	18.0	54.3			48.7	6.6
H2	122	V3	15.8	48.9	12.8	15.8	40.3			32.2	8.5
H2	AVE	V3	14.6	54.8	13.4	16.9	47.3			40.5	7.5
K1	137	D2	45.0	58.2	43.7	0.00	0.0	0.0	0.0	0.0	58.2
K1	140	D2	45.3	59.1	44.6	0.24	1.4	16.3	29.0	4.7	57.7
K1	AVE	D2	45.1	58.7	44.1	0.12	0.7	8.2	14.5	2.4	58.0
K1	137	M2	23.0	60.5	23.2	0.06	0.4	10.1	13.0	1.1	60.2
K1	140	M2	23.0	64.1	24.6	0.77	2.9	19.3	4.0	19.7	61.2
K1	AVE	M2	23.0	62.3	23.9	0.42	1.6	14.7	8.5	10.4	60.7
K1	137	V1	9.0	55.7	8.4	0.00	0.0	10.5	7.5	0.1	55.7
K1	140	V1	11.0	61.3	11.2	0.20	2.9	20.7	3.5	6.1	58.4
K1	AVE	V1	10.0	58.5	9.8	0.10	1.5	15.6	5.5	3.1	57.1
K1	137	V2	5.0	100.3	8.4	0.10	1.3			3.9	99.0
K1	140	V2	5.0	107.9	9.0	0.60	7.0			30.0	100.9
K1	AVE	V2	5.0	104.1	8.7	0.35	4.1			16.9	99.9
K1	137	V3	31.0	55.8	28.8	0.00	0.0			0.8	55.8
K1	140	V3	7.0	61.4	7.2	0.50	3.6			12.1	57.8
K1	AVE	V3	19.0	58.6	18.6	0.25	1.8			6.5	56.8
L1	145	D2	60.0	53.8	53.8	0.06	0.5	17.5	7.5	0.0	53.3
L1	147	D2	60.0	52.0	52.0	0.56	0.7	51.9	8.3	21.9	51.3
L1	AVE	D2	60.0	52.9	52.9	0.31	0.6	34.7	7.9	11.0	52.3
L1	145	M2	30.0	59.5	29.8	0.10	0.4	22.5	7.5	3.8	59.2
L1	145	V1	10.0	53.0	8.8	0.01	0.1	28.8	5.2	0.3	52.9
L1	147	V1	9.0	60.9	9.1	0.10	2.3	27.8	7.2	9.2	58.6
L1	AVE	V1	9.5	56.9	9.0	0.06	1.2	28.3	6.2	4.7	55.7
L1	145	V2	6.5	105.1	11.4	0.20	2.3			10.0	102.8
L1	147	V2	6.0	114.9	11.5	0.60	6.3			54.2	108.6
L1	AVE	V2	6.3	110.0	11.5	0.40	4.3			32.1	105.7
L1	145	V3	25.5	53.6	22.8	0.40	0.1			6.9	53.5
L1	147	V3	19.5	60.7	19.7	0.80	2.1			17.5	58.6
L1	AVE	V3	22.5	57.1	21.4	0.60	1.1			12.2	56.1

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
D1	73	D2	60.0	56.7	56.7	1.33	3.1	47.8	12.7	59.3	53.6
D1	75	D2	60.0	56.0	56.0	3.80	7.2	50.8	12.3	41.7	48.9
D1	AVE	D2	60.0	56.4	56.4	2.57	5.1	49.3	12.5	0.0	51.3
D1	73	M2	23.0	59.4	22.8	0.73	4.1	20.2	7.7	10.8	55.3
D1	75	M2	23.0	55.4	21.2	0.98	5.2	19.3	7.8	7.4	50.2
D1	AVE	M2	23.0	57.4	22.0	0.86	4.6	19.7	7.7	0.0	52.8
D1	73	V1	5.5	57.6	5.3	0.10	2.1	33.1	2.2	7.1	55.5
D1	75	V1	13.5	56.7	12.7	1.00	12.4	35.1	4.8	12.5	44.3
D1	AVE	V1	9.5	57.1	15.5	0.55	7.2	34.1	3.5	9.8	49.9
D1	73	V2	5.0	98.2	7.6	0.90	37.9			28.3	60.3
D1	75	V2	11.0	90.8	17.3	7.70	53.2			39.4	37.6
D1	AVE	V2	8.0	94.5	12.6	4.30	45.6			33.8	48.9
D1	73	V3	19.5	57.6	18.7	6.80	12.8			52.4	44.7
D1	75	V3	10.5	54.0	9.5	5.50	14.8			8.5	39.2
D1	AVE	V3	15.0	55.8	13.9	6.15	13.8			30.5	42.0
E1	87	D2	60.0	59.3	59.3	0.00	0.0	0.0	0.0	0.0	59.3
E1	90	D2	60.0	39.7	39.7	0.00	0.0	0.0	0.0	0.0	39.7
E1	AVE	D2	60.0	49.5	49.5	0.00	0.0	0.0	0.0	0.0	49.5
E1	87	M2	30.0	61.0	30.5	0.00	0.0	0.0	0.0	0.0	61.0
E1	90	M2	30.0	57.0	28.5	0.00	0.0	0.0	0.0	0.0	57.0
E1	AVE	M2	30.0	59.0	29.5	0.00	0.0	0.0	0.0	0.0	59.0
E1	87	V1	10.0	63.0	10.5	0.00	0.0	9.2	11.5	0.0	63.0
E1	90	V1	10.0	49.9	8.3	0.00	0.0	15.3	10.8	0.0	49.9
E1	AVE	V1	10.0	56.4	9.4	0.00	0.0	12.2	11.1	0.0	56.4
E1	87	V2	7.5	99.0	12.4	0.30	6.0			29.5	93.0
E1	90	V2	11.0	99.4	18.2	1.43	11.2			92.1	88.1
E1	AVE	V2	9.3	99.2	15.3	0.00	8.6			0.0	90.6
E1	87	V3	5.8	63.7	6.1	0.13	0.1			5.2	63.6
E1	90	V3	9.0	60.4	9.1	0.00	0.0			4.8	60.4
E1	AVE	V3	7.4	62.0	7.6	0.00	0.0			0.0	62.0
E3	98	D2	60.0	55.2	55.2	0.00	0.0	0.0	0.0	0.0	55.2
E3	98	M2	30.5	60.8	30.9	0.00	0.0	0.0	0.0	0.0	60.8
E3	98	V1	10.0	57.0	9.5	0.00	0.0	11.5	13.7	0.0	57.0
E3	98	V2	15.0	100.5	25.1	0.70	5.3			54.0	95.1
E4	150	D2	45.0	58.4	43.8	0.00	0.0	0.0	0.0	0.0	58.4
E4	150	M2	26.3	53.3	23.3	0.04	0.4	6.3	20.0	0.0	53.0
E4	150	V1	10.0	51.9	8.7	0.00	0.0	15.8	10.5	0.0	51.9
E4	150	V2	15.0	87.5	21.9	0.20	0.8			8.9	86.7
E5	157	D2	45.0	53.1	39.9	2.13	4.5	35.3	14.0	36.2	48.6
E5	157	M2	25.5	57.7	24.5	3.90	16.7	24.3	6.8	87.4	41.0
E5	157	V1	11.0	65.3	12.0	0.20	22.8	28.2	2.5	9.7	42.5
E5	157	V2	12.0	102.2	20.4	1.10	60.0			24.9	42.1
H1	115	D2	60.0	58.1	58.1	0.10	0.5	7.2	53.0	0.0	57.5
H1	117	D2	65.0	56.4	61.1	6.61	13.0	60.2	10.7	238.6	43.4
H1	AVE	D2	62.5	57.2	59.6	3.36	6.8	33.7	31.8	0.0	50.5
H1	115	M2	23.0	58.7	22.5	1.64	14.3	26.8	4.0	76.7	44.4
H1	117	M2	23.0	58.8	22.6	7.70	34.5	26.2	3.7	334.5	24.3
H1	AVE	M2	23.0	58.8	22.5	4.67	24.4	26.5	3.8	0.0	34.3
H1	115	V1	8.0	52.9	7.1	0.20	5.2	38.7	3.0	14.6	47.7
H1	117	V1	14.0	61.4	14.3	6.90	33.6	33.9	1.5	260.5	27.8
H1	AVE	V1	11.0	57.2	10.5	3.55	19.4	36.3	2.3	137.5	37.8

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	QDUR min	TB min	SED kg/ha	Kf mm/hr
H1	115	V2	6.5	101.2	11.0	6.90	78.4			799.7	22.8
H1	117	V2	6.0	102.3	10.2	8.30	99.9			246.5	2.4
H1	AVE	V2	6.3	101.8	10.6	7.60	89.1			523.1	12.6
H1	115	V3	14.0	56.3	13.1	14.50	35.8			535.1	20.5
H1	117	V3	5.0	58.5	4.9	9.00	56.1			248.1	2.4
H1	AVE	V3	9.5	57.4	9.1	11.75	46.0			391.6	11.4
K1	139	D2	45.3	56.0	42.2	0.00	0.0	0.0	0.0	0.0	56.0
K1	139	M2	23.0	58.6	22.5	0.07	0.7	11.6	11.5	1.0	57.9
K1	139	V1	11.0	54.7	10.0	0.10	1.1	15.0	8.0	1.4	53.6
K1	139	V2	5.0	96.2	8.0	0.10	2.6			5.3	93.5
K1	139	V3	7.0	54.7	6.4	0.10	0.7			2.1	54.1

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	OFR mm/hr	OFV mm	QDUR min	TB min	SED kg/ha	Kf mm/hr
D1	72	D2	60.0	53.4	53.4	35.5	43.1		0.0	56.5	6.7	5456.1	10.3
D1	74	D2	60.0	55.1	55.1	27.4	35.2		0.0	49.7	12.8	3088.1	20.0
D1	AVE	D2	60.0	54.3	54.3	31.4	39.1		0.0	53.1	9.8	4272.1	15.2
D1	72	M2	23.0	53.8	20.6	16.5	51.1		0.0	24.9	2.3	2195.9	2.6
D1	74	M2	23.0	56.7	21.8	14.5	47.8		0.0	22.2	4.3	1603.0	8.9
D1	AVE	M2	23.0	55.3	21.2	15.5	49.5		0.0	23.5	3.3	1899.5	5.8
D1	72	V1	7.0	51.2	6.0	3.9	51.1		0.0		1.0	467.4	0.1
D1	74	V1	5.5	56.7	5.2	2.6	51.7		0.0		1.3	375.7	5.0
D1	AVE	V1	6.3	54.0	5.6	3.3	51.4		0.0		1.2	421.6	2.5
D1	72	V2	5.0	110.5	9.2	7.8	105.3		0.0			1675.5	5.2
D1	74	V2	5.0	97.0	8.1	1.7	92.7		0.0			1138.8	4.3
D1	AVE	V2	5.0	103.7	8.6	4.7	99.0		0.0			1407.1	4.7
D1	72	V3	5.0	51.2	4.3	5.3	51.1		0.0			785.2	0.1
D1	74	V3	5.7	56.9	5.4	5.5	50.7		0.0			713.8	6.1
D1	AVE	V3	5.4	54.0	4.8	5.4	50.9		0.0			749.5	3.1
D1	72	V4	3.3	51.2	2.8	4.3	98.8	47.6	2.6			613.5	0.0
D1	74	V4	3.6	56.9	3.4	5.4	100.5	47.6	2.8			464.5	4.0
D1	AVE	V4	3.4	54.0	3.1	4.9	99.6	47.6	2.7			539.0	2.0
D1	72	V5	3.8	51.2	3.2	7.5	129.5	80.8	5.1			1123.5	2.5
D1	74	V5	3.5	56.9	3.3	7.1	132.9	80.8	4.8			701.3	4.8
D1	AVE	V5	3.7	54.0	3.3	7.3	131.2	80.8	4.9			912.4	3.7
D1	72	V6	3.8	51.2	3.2	8.9	141.5	99.9	6.3			1179.4	9.6
D1	74	V6	3.4	56.9	3.2	8.0	145.0	99.9	5.6			981.6	11.8
D1	AVE	V6	3.6	54.0	3.2	8.4	143.3	99.9	6.0			1080.5	10.7
D1	72	V7	3.8	51.2	3.2	17.1	233.3	216.4	13.5	36.2		2325.1	34.4
D1	74	V7	3.4	56.9	3.2	17.0	244.4	216.4	12.2	33.4		1782.7	28.9
D1	AVE	V7	3.6	54.0	3.2	17.1	238.8	216.4	12.8	34.8		2053.9	31.6
D2	78	D2	41.8	60.4	42.0	20.2	46.8		0.0	33.7	10.2	2278.1	13.6
D2	79	D2	45.5	53.3	40.4	19.7	48.8		0.0	32.0	16.0	2106.2	4.5
D2	AVE	D2	43.6	56.7	41.2	20.0	47.8		0.0	32.9	13.1	2192.2	8.9
D2	78	M2	25.2	69.0	28.9	20.6	56.2		0.0	25.7	3.1	1747.6	12.8
D2	79	M2	23.3	44.9	17.4	11.8	43.1		0.0	21.4	5.0	970.1	1.8
D2	AVE	M2	24.2	57.4	23.2	16.2	49.7		0.0	23.5	4.0	1358.9	7.8
D2	78	V1	7.5	63.3	7.9	5.0	55.2		0.0		1.3	414.1	8.1
D2	79	V1	6.5	55.3	6.0	2.6	45.0		0.0		2.0	231.9	10.3
D2	AVE	V1	7.0	59.3	6.9	3.8	50.1		0.0		1.6	323.0	9.2
D2	78	V2	7.5	123.0	15.4	12.6	103.9		0.0			1623.0	19.1
D2	79	V2	4.0	104.8	7.0	5.2	88.9		0.0			602.9	15.9
D2	AVE	V2	5.8	113.9	10.9	8.9	96.4		0.0			1112.9	17.5
D2	78	V3	4.0	59.9	4.0	3.8	55.2		0.0			400.7	4.6
D2	79	V3	3.4	54.2	3.1	3.3	48.8		0.0			292.2	5.4
D2	AVE	V3	3.7	57.0	3.5	3.6	52.0		0.0			346.4	5.0
D2	78	V4	3.8	59.9	3.8	5.2	101.4	47.6	3.0			412.0	6.1
D2	79	V4	3.4	54.2	3.1	4.3	95.3	47.6	2.7			350.1	6.5
D2	AVE	V4	3.6	57.0	3.4	4.8	98.3	47.6	2.9			381.1	6.3
D2	78	V5	3.1	59.9	3.1	6.3	131.0	80.8	4.2			407.2	9.6
D2	79	V5	2.7	55.7	2.5	5.1	128.4	80.8	3.6			368.4	8.1
D2	AVE	V5	2.9	57.8	2.8	5.7	129.7	80.8	3.9			387.8	8.9
D2	78	V6	3.6	59.9	3.6	8.5	146.1	99.9	6.0			544.8	13.7
D2	79	V6	3.3	55.7	3.1	7.6	143.5	99.9	5.5			479.3	12.2
D2	AVE	V6	3.5	57.8	3.3	8.1	144.8	99.9	5.7			512.1	12.9
D2	78	V7	4.6	59.9	4.6	22.0	232.6	216.4	16.6	41.5		1357.3	43.7
D2	79	V7	3.7	53.5	3.3	16.8	236.7	216.4	13.2	29.2		884.5	33.1
D2	AVE	V7	4.1	56.7	3.9	19.4	234.7	216.4	14.9	35.4		1120.9	38.4
E1	85	D2	60.2	53.9	54.0	0.0	0.0		0.0	0.0	0.0	0.0	53.9

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LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	OFR mm/hr	OFV mm	QDUR min	TB min	SED kg/ha	Kf mm/hr
E1	89	D2	60.0	57.5	57.5	0.9	1.5		0.0	54.4	6.1	50.7	56.0
E1	AVE	D2	60.1	55.7	55.8	0.5	0.7		0.0	27.2	3.1	25.4	54.9
E1	85	M2	30.0	64.5	32.2	3.1	7.5		0.0	26.3	5.1	820.2	57.0
E1	89	M2	30.0	60.5	30.2	10.4	23.9		0.0	28.9	2.3	4691.8	36.6
E1	AVE	M2	30.0	62.5	31.2	6.7	15.7		0.0	27.6	3.7	2756.0	46.8
E1	85	V1	7.5	63.9	8.0	0.4	8.0		0.0		3.6	77.1	55.9
E1	89	V1	10.0	51.7	8.6	1.8	18.1		0.0		1.5	847.4	33.6
E1	AVE	V1	8.8	57.8	8.4	1.1	13.1		0.0		2.5	462.3	44.7
E1	85	V2	6.0	112.3	11.2	5.3	72.2		0.0			2958.3	40.2
E1	89	V2	11.0	103.4	19.0	11.1	79.1		0.0			10083.8	24.3
E1	AVE	V2	8.5	107.9	15.3	8.2	75.6		0.0			6521.0	32.3
E1	85	V3	6.5	60.3	6.5	2.5	10.1		0.0			1646.3	50.2
E1	89	V3	5.8	62.6	6.0	3.8	24.9		0.0			3503.3	37.7
E1	AVE	V3	6.1	61.4	6.3	3.2	17.5		0.0			2574.8	43.9
E1	85	V4	7.5	62.0	7.8	5.4	98.5	47.6	6.0			5253.1	11.1
E1	89	V4	3.3	61.7	3.4	1.9	43.1	47.6	2.6			2189.9	66.3
E1	AVE	V4	5.4	61.9	5.6	3.7	70.8	47.6	4.3			3721.5	38.7
E1	85	V5	6.0	61.8	6.2	2.4	93.3	80.8	8.1			2057.4	49.3
E1	89	V5	2.3	61.8	2.4	4.1	138.9	80.8	3.1			4139.8	3.8
E1	AVE	V5	4.2	61.8	4.3	3.3	116.1	80.8	5.6			3098.6	26.5
E1	85	V6	6.5	61.8	6.7	6.6	120.7	99.9	10.8			5408.3	41.0
E1	89	V6	2.8	61.8	2.9	6.4	129.9	99.9	4.7			5838.9	31.9
E1	AVE	V6	4.7	61.8	4.8	6.5	125.3	99.9	7.7			5623.6	36.4
E1	85	V7	4.5	61.8	4.6	15.6	199.0	216.4	16.2	32.4		13333.3	79.3
E1	89	V7	5.5	61.8	5.7	8.8	164.1	216.4	19.8	39.0		7828.2	114.2
E1	AVE	V7	5.0	61.8	5.2	12.2	181.5	216.4	18.0	35.7		10580.7	96.7
E2	92	D2	45.5	59.8	45.4	38.8	53.2		0.0	45.1	2.8	5661.3	6.7
E2	93	D2	45.2	66.4	50.0	43.9	55.2		0.0	45.2	3.0	5275.8	11.2
E2	AVE	D2	45.3	63.1	47.7	41.3	54.2		0.0	45.1	2.9	5468.6	8.9
E2	92	M2	23.5	60.2	23.6	16.5	53.6		0.0	25.6	1.8	2110.2	6.7
E2	93	M2	25.5	66.8	28.4	21.4	52.9		0.0	27.5	2.0	2413.1	13.8
E2	AVE	M2	24.5	63.6	26.0	18.9	53.2		0.0	26.5	1.9	2261.7	10.4
E2	92	V1	9.0	56.6	8.5	6.5	56.6		0.0		1.0	1105.3	0.0
E2	93	V1	11.0	57.9	10.6	4.9	52.6		0.0		1.1	581.4	5.4
E2	AVE	V1	10.0	57.3	9.5	5.7	54.6		0.0		1.0	843.4	2.7
E2	92	V2	4.5	108.7	8.1	7.1	101.8		0.0			1761.0	6.9
E2	93	V2	4.0	108.6	7.2	9.4	101.8		0.0			1611.8	6.8
E2	AVE	V2	4.3	108.6	7.7	8.3	101.8		0.0			1686.4	6.9
E2	92	V3	6.0	57.7	5.8	4.6	57.7		0.0			766.4	0.0
E2	93	V3	4.8	62.0	5.0	5.3	54.5		0.0			979.5	7.5
E2	AVE	V3	5.4	59.8	5.4	5.0	56.1		0.0			872.9	3.8
E2	92	V4	1.8	59.1	1.8	5.8	106.8	47.6	1.5			899.4	0.0
E2	93	V4	3.9	69.0	4.5	6.1	101.8	47.6	3.1			924.7	14.8
E2	AVE	V4	2.9	64.1	3.1	6.0	104.3	47.6	2.3			912.1	7.4
E2	92	V5	3.7	59.1	3.6	9.1	139.9	80.8	4.9			1325.4	0.0
E2	93	V5	3.3	69.0	3.8	7.0	138.3	80.8	4.4			911.5	11.5
E2	AVE	V5	3.5	64.1	3.7	8.1	139.1	80.8	4.7			1118.4	5.7
E2	92	V6	4.0	59.1	3.9	11.3	159.0	99.9	6.7			1601.5	0.0
E2	93	V6	3.7	69.0	4.3	9.2	158.1	99.9	6.2			1204.3	10.8
E2	AVE	V6	3.9	64.1	4.1	10.3	158.6	99.9	6.4			1402.9	5.4
E2	92	V7	4.0	57.3	3.8	21.3	258.1	216.4	14.4	37.3		1995.4	15.6
E2	93	V7	3.8	69.0	4.4	17.3	228.4	216.4	13.8	39.8		1935.8	57.0
E2	AVE	V7	3.9	63.1	4.1	19.3	243.3	216.4	14.1	38.5		1965.6	36.3
E3	95	D2	60.0	46.6	46.6	0.0	0.0		0.0	0.0	0.0	0.0	46.6
E3	95	M2	30.0	58.0	29.0	0.0	0.0		0.0	0.0	0.0	0.0	58.0

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT & INFILTRATION SUMMARY
1988 BARE PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	OFR mm/hr	OFV mm	QDUR min	TB min	SED kg/ha	Kf mm/hr
E3	95	V1	10.0	57.2	9.5	0.0	0.0		0.0		11.3	0.0	57.2
E3	95	V2	16.0	93.9	25.0	2.4	13.4		0.0			1426.6	80.6
E3	95	V3	3.7	57.2	3.5	0.2	2.2		0.0			82.4	55.0
E3	95	V4	4.8	57.2	4.6	0.4	11.7	47.6	3.8			200.4	93.1
E3	95	V5	6.2	57.2	5.9	3.5	24.9	80.8	8.3			1874.3	113.0
E3	95	V6	3.5	57.2	3.3	1.8	35.2	99.9	5.8			996.3	121.9
E3	95	V7	3.5	57.2	3.3	6.6	105.8	216.4	12.4	38.0		4568.3	167.8
E4	153	D2	45.2	54.7	41.2	5.1	12.8		0.0	34.8	12.3	666.7	41.9
E4	153	M2	25.7	61.5	26.3	12.4	40.9		0.0	22.9	4.8	1119.1	20.7
E4	153	V1	7.0	61.6	7.2	2.6	46.0		0.0		1.8	323.5	15.6
E4	153	V2	3.0	86.0	4.3	1.6	64.0		0.0			386.2	22.0
E4	153	V3	5.4	63.6	5.7	5.1	44.9		0.0			337.9	18.6
E4	153	V4	3.1	63.6	3.3	3.5	93.0	47.6	2.4			429.6	18.1
E4	153	V5	2.3	63.6	2.5	4.0	121.8	80.8	3.1			498.0	22.5
E4	153	V6	3.6	63.6	3.8	7.6	138.3	99.9	6.0			772.3	25.1
E4	153	V7	5.6	63.6	5.9	17.1	164.8	216.4	20.1	31.5		1443.4	115.2
E5	159	D2	45.1	55.1	41.5	13.2	27.9		0.0	37.7	10.3	937.2	27.2
E5	159	M2	25.5	56.8	24.1	12.0	41.2		0.0	23.7	4.9	1228.7	15.6
E5	159	V1	8.5	58.5	8.3	3.8	47.1		0.0		1.5	468.0	11.4
E5	159	V2	5.5	93.3	8.6	6.9	81.8		0.0			975.8	11.5
E5	159	V3	5.5	58.7	5.4	5.0	48.1		0.0			458.3	10.6
E5	159	V4	3.5	58.7	3.4	4.2	89.4	47.6	2.8			292.5	16.9
E5	159	V5	2.5	58.7	2.4	4.5	115.0	80.8	3.4			377.2	24.5
E5	159	V6	3.0	58.7	2.9	6.4	135.4	99.9	5.0			442.9	23.1
E5	159	V7	3.5	58.7	3.4	16.3	227.7	216.4	12.6	36.0		739.1	47.4
H1	114	D2	60.0	50.5	50.5	47.7	50.5		0.0	60.3	6.7	11976.3	0.0
H1	116	D2	60.0	57.6	57.6	47.0	55.8		0.0	58.5	6.0	5883.6	1.9
H1	AVE	D2	60.0	54.1	54.1	47.4	53.1		0.0	59.4	6.3	8930.0	0.9
H1	114	M2	23.2	61.1	23.6	19.2	55.1		0.0	25.5	2.7	6971.8	6.0
H1	116	M2	23.0	67.8	26.0	23.1	63.1		0.0	28.3	1.0	3190.1	4.7
H1	AVE	M2	23.1	64.5	24.8	21.1	59.1		0.0	26.9	1.8	5081.0	5.3
H1	114	V1	7.0	64.1	7.5	4.9	56.3		0.0		0.8	1921.2	7.8
H1	116	V1	8.0	63.5	8.5	6.1	60.2		0.0		0.8	928.2	3.3
H1	AVE	V1	7.5	63.8	8.0	5.5	58.3		0.0		0.8	1424.7	5.5
H1	114	V2	6.5	120.7	13.1	9.8	89.4		0.0			3788.6	31.3
H1	116	V2	6.5	121.6	13.2	10.2	95.6		0.0			1856.1	26.0
H1	AVE	V2	6.5	121.1	13.1	10.0	92.5		0.0			2822.3	28.6
H1	114	V3	5.5	57.0	5.2	5.4	51.4		0.0			1716.0	5.6
H1	116	V3	6.5	66.5	7.2	6.7	57.0		0.0			1009.8	9.5
H1	AVE	V3	6.0	61.8	6.2	6.1	54.2		0.0			1362.9	7.5
H1	114	V4	3.5	57.0	3.3	5.4	101.6	47.6	2.8			1612.6	3.0
H1	116	V4	3.5	66.5	3.9	5.1	58.0	47.6	2.8			751.2	56.1
H1	AVE	V4	3.5	61.8	3.6	5.3	79.8	47.6	2.8			1181.9	29.6
H1	114	V5	4.0	57.0	3.8	8.3	127.5	80.8	5.4			2210.3	10.3
H1	116	V5	3.5	68.9	4.0	7.7	139.4	80.8	4.7			990.0	10.3
H1	AVE	V5	3.8	62.9	3.9	8.0	133.4	80.8	5.0			1600.2	10.3
H1	114	V6	5.0	57.0	4.8	12.1	151.7	99.9	8.3			2272.2	5.2
H1	116	V6	1.0	68.9	1.1	2.4	150.2	99.9	1.7			301.6	18.5
H1	AVE	V6	3.0	62.9	3.1	7.3	150.9	99.9	5.0			1286.9	11.9
H1	114	V7	3.3	57.0	3.1	14.8	192.1	216.4	11.7	38.0		2254.9	81.3
H1	116	V7	4.2	68.9	4.8	20.1	206.0	216.4	15.0	39.8		1790.7	79.3
H1	AVE	V7	3.7	62.9	3.9	17.5	199.0	216.4	13.4	38.9		2022.8	80.3
H2	120	D2	45.0	58.2	43.6	36.9	54.7		0.0	45.7	4.3	5696.9	3.4
H2	121	D2	25.0	49.9	20.8	12.1	41.4		0.0	23.8	4.0	3048.0	8.5
H2	AVE	D2	35.0	55.2	32.2	24.5	48.1		0.0	34.7	4.2	4372.4	7.1

LARGE PLOT RAINFALL, RUNOFF, SEDIMENT & INFILTRATION SUMMARY
1988 BARE PLOTS

LOC	PLT	AMC	PDUR min	PINT mm/hr	PVOL mm	QVOL mm	Qe mm/hr	OFR mm/hr	OFV mm	QDUR min	TB min	SED kg/ha	Kf mm/hr
H2	120	M2	23.0	52.8	20.2	20.0	51.7		0.0	32.0	1.6	1802.3	1.1
H2	121	M2	23.0	58.4	22.4	21.8	57.2		0.0	26.4	2.3	3725.4	1.2
H2	AVE	M2	23.0	55.6	21.3	20.9	54.5		0.0	29.2	2.0	2763.9	1.1
H2	120	V1	8.5	60.0	8.5	5.9	56.8		0.0		1.3	491.3	3.2
H2	121	V1	8.5	52.4	7.4	5.9	52.4		0.0		1.0	881.9	0.0
H2	AVE	V1	8.5	56.2	8.0	5.9	54.6		0.0		1.1	686.6	1.6
H2	120	V2	5.0	116.2	9.7	7.7	104.5		0.0			691.1	11.7
H2	121	V2	8.0	83.4	11.1	12.2	83.4		0.0			2495.9	0.0
H2	AVE	V2	6.5	99.8	10.8	10.0	93.9		0.0			1593.5	5.8
H2	120	V3	2.0	60.0	2.0	2.7	59.9		0.0			246.5	0.1
H2	121	V3	5.0	50.1	4.2	5.7	50.1		0.0			766.0	0.0
H2	AVE	V3	3.5	55.1	3.2	4.2	55.0		0.0			506.2	0.1
H2	120	V4	2.8	60.0	2.8	4.3	107.6	47.6	2.2			326.3	0.0
H2	121	V4	3.8	50.1	3.2	4.2	88.3	47.6	3.0			512.5	9.5
H2	AVE	V4	3.3	55.1	3.0	4.3	98.0	47.6	2.6			419.4	4.7
H2	120	V5	3.1	60.0	3.1	7.2	140.8	80.8	4.2			468.0	0.0
H2	121	V5	7.0	50.1	5.8	12.5	66.3	80.8	9.4			1202.4	64.6
H2	AVE	V5	5.1	55.1	4.6	9.9	103.5	80.8	6.8			835.2	32.3
H2	120	V6	3.0	60.0	3.0	8.4	159.9	99.9	5.0			479.6	0.0
H2	120	V7	3.4	60.0	3.4	14.9	242.5	216.4	12.3	35.0		749.2	33.9
K1	138	D2	45.0	58.5	43.9	3.8	13.4		0.0	36.0	11.0	657.3	45.1
K1	138	M2	23.0	65.6	25.2	12.8	39.5		0.0	26.0	2.0	3013.4	26.2
K1	138	V1	9.5	58.2	9.2	3.7	41.1		0.0		1.8	948.5	17.1
K1	138	V2	4.5	104.8	7.9	5.5	77.9		0.0			1819.3	26.9
K1	138	V3	8.0	58.4	7.8	5.5	36.0		0.0			1488.7	22.3
K1	138	V4	2.5	58.4	2.4	2.7	91.4	47.6	2.0			781.4	14.6
K1	138	V5	10.5	58.4	10.2	17.0	99.2	80.8	14.1			4789.6	40.0
K1	138	V6	6.0	58.4	5.8	12.7	119.7	99.9	10.0			3994.6	38.5
K1	138	V7	5.0	59.0	4.9	15.3	165.7	216.4	18.0	45.7		4780.9	109.7
L1	146	D2	60.0	61.2	61.2	8.5	9.7		0.0	57.2	4.0	310.8	51.5
L1	148	D2	60.0	61.1	61.1	30.9	31.2		0.0	60.3	2.8	1258.9	29.9
L1	AVE	D2	60.0	61.1	61.1	19.7	20.4		0.0	58.7	3.4	784.9	40.7
L1	146	M2	30.0	66.2	33.1	6.0	20.1		0.0	28.8	4.0	274.7	46.1
L1	148	M2	30.0	60.6	30.3	11.9	32.8		0.0	28.7	3.5	454.7	27.8
L1	AVE	M2	30.0	63.4	31.7	9.0	26.4		0.0	28.7	3.7	364.7	37.0
L1	146	V1	10.0	66.2	11.0	3.4	32.7		0.0		2.3	207.4	33.5
L1	148	V1	9.0	66.8	10.0	4.2	46.6		0.0		1.8	203.2	20.2
L1	AVE	V1	9.5	66.5	10.5	3.8	39.6		0.0		2.0	205.3	26.9
L1	146	V2	6.5	131.2	14.2	8.0	87.6		0.0			667.3	43.6
L1	148	V2	6.0	126.1	12.6	8.9	96.0		0.0			649.2	30.1
L1	AVE	V2	6.3	128.7	13.4	8.5	91.8		0.0			658.3	36.9
L1	146	V3	10.0	66.9	11.2	9.6	44.0		0.0			559.9	22.9
L1	148	V3	5.0	66.6	5.6	4.6	43.0		0.0			222.0	23.6
L1	AVE	V3	7.5	66.8	8.3	7.1	43.5		0.0			391.0	23.3
L1	146	V4	5.3	66.9	5.9	7.7	103.1	47.6	4.2			439.4	11.4
L1	148	V4	5.0	66.6	5.6	7.9	108.1	47.6	4.0			455.5	6.2
L1	AVE	V4	5.2	66.8	5.7	7.8	105.6	47.6	4.1			447.5	8.8
L1	146	V5	4.0	66.9	4.5	8.3	131.4	80.8	5.4			482.3	16.3
L1	148	V5	1.0	66.6	1.1	1.8	109.3	80.8	1.3			94.2	38.1
L1	AVE	V5	2.5	66.8	2.8	5.1	120.3	80.8	3.4			288.2	27.2
L1	146	V6	5.9	66.9	6.6	16.9	119.7	99.9	9.9	44.5		505.3	47.1
L1	148	V6	8.5	66.6	9.4	22.5	140.2	99.9	14.2	37.3		880.3	26.3
L1	AVE	V6	7.2	66.8	8.0	19.7	130.0	99.9	12.0	40.9		692.8	36.7

RANGELAND SOIL ERODIBILITIES AND CRITICAL SHEAR
Site Averages

Site	Ki ($kg/s/m^4$)	Kr (s/m)	TAUc (Pa)
A1	219,980	0.00053	0.5025
A2	208,960	0.00035	1.3615
B1	99,150	0.00046	0.1365
B2	138,350	0.00033	0.2885
C1	127,920	0.00010	1.9925
D1	134,120	0.00011	0.7125
D2	217,720	0.00015	1.1650
E1	5,740	0.00302	5.7100
E2	305,940	0.00083	1.8775
E3	88,340	0.00064	1.8775
E4	417,280	0.00010	0.0500
E5	440,520	0.00009	0.0001
F1	215,520	0.00032	0.8438
G1	911,980	0.00162	4.3600
H1	639,440	0.00020	0.4266
H2	738,100	0.00015	3.2700
I1	358,360	0.00021	0.5275
J1	225,760	0.00017	0.5760
K1	64,420	0.00012	0.3130
L1	171,380	0.00004	0.0312

RANGELAND Ki, Kr, TAUc ESTIMATED FROM SOIL PROPERTIES

Rangeland soil interrill erodibility (Ki) values were determined from the uncovered small plots from 19 rangeland sites. These values were then correlated to soil properties and a multiple linear regression equation was developed to predict Ki from soil properties.

Rangeland rill soil erodibility (Kr) and critical shear stress (TAUc) values were determined with a computer optimization program using large bare plot erosion data. These values were also related to soil properties and multiple linear regression equations were developed to predict Kr and TAUc from soil properties.

Soil properties used in regression analysis:

Fraction SAND, SILT, CLAY, and ROCK FRAGMENTS > 2 mm
Fraction ORGANIC MATTER (OM), SOIL MOISTURE at -1/3 & -15 BARS
CATION EXCHANGE CAPACITY
BULK DENSITY (BD, at time of dry run, gms/cc top 5 cm of soil)
ROOT BIOMASS (RB, Kg/m^2 in top 0.1m of soil)
DEPTH OF A-HORIZON (cm)

Ki, Kr, and TAUc equations:

$$Ki = 1000*(1709-(1765(SAND)-645(SILT)-4557(OM)-902(-1/3\ BAR\ MOISTURE)))$$

$R^2 = 0.94$ Std error = 70,000

$$Kr = 0.0017+(0.0024(CLAY)-0.0088(OM)-0.00088(BD)-0.00048(RB))$$

$R^2 = 0.60$ Std error = 0.00028

$$TAUc = 3.23-(5.6(SAND)-24.4(OM)+0.90(BD))$$

$R^2 = 0.62$ Std error = 0.79

ADJUSTMENTS TO RANGELAND Ki

Ki adjustments include ground and canopy cover effects. Exponential equations were developed to adjust Ki for ground cover effects on shrub and grass dominated range locations.

Shrubland Ki adjustment = exp(-5.0 GC) $R^2 = 0.80$
Grassland Ki adjustment = exp(-7.0 GC) $R^2 = 0.82$

GC = fraction of ground covered with litter, rock, gravel, and vegetation basal parts.

Ki adjustments for canopy cover have not yet been adequately determined for rangeland. Additional data sets and literature review are necessary so that temporal changes can be incorporated.

WEPP RANGELAND ADDITIONAL NEEDS:

Rangeland Field Experiments:

Rangeland field experiments will be necessary to:

1. Determine temporal changes in soil interrill and rill erodibilities and soil critical shear.
2. Determine temporal changes in vegetation canopy and ground surface effects on erosion and infiltration.
3. Determine cover adjustments for soil rill erodibility and critical shear.
4. Determine rill spacing under different vegetation types and covers.
5. Detail the significance of range condition on erosion and infiltration.

Rangeland Model Enhancements:

Enhancements to the rangeland portion of the WEPP model should include:

1. Develop dynamic model routines that provide feedback for management options and inputs.
2. Develop rill spacing algorithms that are based on soil, vegetation and surface cover types.
3. Develop methods to adjust infiltration parameters, soil water movement equations and soil erodibility values for soils with high rock fragment content.
4. Improve model components for snow drift/melt in complex topography and vegetation covers.
5. Develop algorithms for soil erodibility changes at time of thawing associated with antecedent moisture contents at time of soil freezing.
6. Incorporate orographic influences and rain shadow effects in the WEPP model climate component.

SUMMARY

The WEPP rangeland field experiments were specifically designed to gather soil, vegetation, surface cover, erosion, runoff and infiltration data from a broad spectrum of rangeland soils and vegetation associations. The WEPP effort represents the first national effort to incorporate such data into an erosion prediction technology.

Many of the WEPP model develoment goals of the rangeland field experiments have been met by:

1. identifying soil properties most affecting infiltration, interrill and rill soil erodibility and soil shear strength;
2. determining preliminary interactions and effects on erosion and infiltration of soil surface and vegetation canopy cover;
3. determining preliminary parameterization of the rangeland plant growth model;
4. demonstrating that an extensive National experimental field program could be undertaken through the cooperation of local residents, State Universities, ARS locations, USDA agencies and Federal Government Departments.