Technical Documentation Report

Intermountain Forest Tree
Nutrition Cooperative

April, 1985

College of Forestry, Wildlife, and
Range Sciences

University of Idaho

Moscow

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Section I

Experimental Design Models

Experimental Design Model #1

Variable definitions:

BAI	= Two year basal area per acre increment
LN	= Natural log
Year	= Year of establishment (1981 or 1982)
Region	= Geographic region of the cooperative
Install	= Installation (201 - 290)
TRT	= Fertilizer treatment (control; 200 lbs/acre nitrogen; 400 lbs/acre nitrogen)
BAO	= Initial basal area per acre at time of treatment
BAO_2	= Initial basal area per acre squared.

TABLE 1

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE 9:07 SATURDAY, MARCH 30, 1985 13
ANALYSIS OF GROWTH RESPONSE TO NITROGEN FERTILIZATION
EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY REGION AND WITH TREATMENT BY BA

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	199	76.33686141	0.38360232	15.81	0.0001	0.902499	6.8619
ERROR	340	8.24700375	0.02425589		ROOT MSE		LN_BAI MEAN
CORRECTED TOTAL	539	84.58386516			0.15574304		2.26968259

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
YEAR	1	5.86937927	241.98	0.0001	1	0.15045279	6.20	0.0132
REGION	5	23.04977124	190.06	0.0001	5	14.59877176	120.37	0.0001
YEAR*REGION	5	5.60870287	46.25	0.0001	5	4.91792485	40.55	0.0001
INSTALL(YEAR*REGION)	78	27.40349855	14.48	0.0001	78	27.14344799	14.35	0.0001
BLOC(YEAR*REGI*INSTI	90	3.12683376	1.43	0.0124	90	2.52858626	1.16	0.1787
TRT	2	9.26341617	190.95	0.0001	2	0.19417903	4.00	0.0191
REGION*TRT	10	0.55262720	2.28	0.0136	10	0.48678335	2.01	0.0319
BAO	1	0.90822101	37.44	0.0001	1	0.40868540	16.85	0.0001
BAO*TRT	2	0.19415200	4.00	0.0191	2	0.00766100	0.16	0.8542
BAO*YEAR	1	0.10225713	4.22	0.0408	1	0.12256378	5.05	0.0252
BAO_2	1	0.13051468	5.38	0.0210	1	0.19324260	7.97	0.0050
BAO_2*TRT	2	0.02191506	0.45	0.6369	2	0.01114888	0.23	0.7948
BAO_2*YEAR	1	0.10557247	4.35	0.0377	1	0.10557247	4.35	0.0377

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT		1.80088958 B	6.60	0.0001	0.27284322
YEAR	1981	-0.58370028 B	-1.83	0.0675	0.31824600
	1982	0.00000000 B	.	.	.
REGION	1	0.49165505 B	3.19	0.0016	0.15435667
	2	-0.51450045 B	-3.62	0.0003	0.14225696
	3	0.42333170 B	3.12	0.0020	0.13577615
	4	0.07446196 B	0.55	0.5829	0.13547840
	5	0.87291093 B	5.91	0.0001	0.14762255
	6	0.00000000 B	.	.	.
YEAR*REGION	1981 1	0.03086239 B	0.16	0.8761	0.19779259
	1981 2	1.05927399 B	4.98	0.0001	0.21276310
	1981 3	-0.26353359 B	-1.44	0.1522	0.18364690
	1981 4	-0.16523673 B	-0.89	0.3752	0.18610663
	1981 5	-0.89095534 B	-4.66	0.0001	0.19128917
	1981 6	0.00000000 B	.	.	.
	1982 1	0.00000000 B	.	.	.
	1982 2	0.00000000 B	.	.	.
	1982 3	0.00000000 B	.	.	.
	1982 4	0.00000000 B	.	.	.
	1982 5	0.00000000 B	.	.	.
	1982 6	0.00000000 B	.	.	.
INSTALL(YEAR*REGION)	204 1981 1	0.19747629 B	1.45	0.1491	0.13657739

Tabel 1 (Continued)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE		T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
205 1981 1		0.06617333	B	0.49	0.6222	0.13416649
206 1981 1		-0.02500118	B	-0.20	0.8397	0.12745309
208 1981 1		-0.72735896	B	-5.67	0.0001	0.12817172
240 1981 1		0.00000000	B	.	.	.
231 1981 2		-0.38815969	B	-2.78	0.0058	0.13987472
232 1981 2		-0.14216436	B	-0.89	0.3743	0.15980529
233 1981 2		-0.36372502	B	-2.26	0.0244	0.16089251
234 1981 2		-0.33025627	B	-2.07	0.0388	0.15920299
235 1981 2		-0.89465974	B	-5.83	0.0001	0.15348415
236 1981 2		-1.01186568	B	-6.18	0.0001	0.16384410
237 1981 2		-0.72482425	B	-4.58	0.0001	0.15835971
238 1981 2		0.00000000	B	.	.	.
201 1981 3		0.01901838	B	0.15	0.8821	0.12814434
202 1981 3		0.25475430	B	1.80	0.0730	0.14167384
203 1981 3		-0.03258197	B	-0.25	0.7989	0.12777572
219 1981 3		0.01215174	B	0.10	0.9241	0.12750778
220 1981 3		-0.23246501	B	-1.82	0.0690	0.12754241
221 1981 3		-0.14814981	B	-1.17	0.2448	0.12719218
222 1981 3		-0.05493262	B	-0.43	0.6687	0.12826221
223 1981 3		0.00000000	B	.	.	.
207 1981 4		0.11570611	B	0.86	0.3921	0.13502748
212 1981 4		0.37981561	B	2.59	0.0099	0.14648505
213 1981 4		-0.26291600	B	-1.84	0.0671	0.14313172
239 1981 4		-0.02887262	B	-0.23	0.8212	0.12760727
244 1981 4		-0.33316536	B	-1.82	0.0696	0.18302112
245 1981 4		0.00000000	B	.	.	.
224 1981 5		0.26092095	B	2.04	0.0420	0.12782042
225 1981 5		0.37126315	B	2.90	0.0040	0.12800867
226 1981 5		0.35036515	B	2.62	0.0092	0.13379691
227 1981 5		0.04789806	B	0.36	0.7162	0.13165175
228 1981 5		0.06800539	B	0.53	0.5942	0.12754155
229 1981 5		0.22670323	B	1.76	0.0788	0.12858860
230 1981 5		-0.13930949	B	-1.09	0.2770	0.12795474
241 1981 5		0.60633513	B	4.70	0.0001	0.12887391
242 1981 5		0.00000000	B	.	.	.
209 1981 6		-0.08987823	B	-0.71	0.4804	0.12723268
210 1981 6		-0.06692078	B	-0.53	0.5995	0.12733156
211 1981 6		0.70610565	B	5.46	0.0001	0.12934840
214 1981 6		0.53834222	B	4.07	0.0001	0.13242273
215 1981 6		0.74175456	B	5.43	0.0001	0.13665347
216 1981 6		-0.18946705	B	-1.49	0.1379	0.12739351
217 1981 6		0.30026560	B	2.32	0.0210	0.12948680
218 1981 6		0.32823171	B	2.47	0.0139	0.13275890
243 1981 6		0.00000000	B	.	.	.
250 1982 1		0.51335511	B	3.18	0.0016	0.16134889
253 1982 1		-0.12317837	B	-0.84	0.4034	0.14722699
254 1982 1		0.58574499	B	3.54	0.0004	0.16524421
255 1982 1		0.32265922	B	2.08	0.0379	0.15481835

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
	256 1982 1	-0.00291089 B	-0.02	0.9849	0.15399743
	264 1982 1	-0.07553185 B	-0.56	0.5767	0.13516951
	265 1982 1	0.31182325 B	1.94	0.0535	0.16093150
	273 1982 1	0.55581239 B	3.54	0.0005	0.15706661
	274 1982 1	-0.07317297 B	-0.46	0.6468	0.15957286
	275 1982 1	-0.25931713 B	-1.65	0.0993	0.15688465
	281 1982 1	-0.25085508 B	-1.75	0.0812	0.14343056
	286 1982 1	-0.43708320 B	-2.96	0.0033	0.14760768
	287 1982 1	-0.11051337 B	-0.71	0.4795	0.15610473
	288 1982 1	0.00000000 B	.	.	.
	251 1982 2	0.16221498 B	1.20	0.2294	0.13471670
	252 1982 2	0.39575926 B	3.01	0.0028	0.13160771
	269 1982 2	0.28417775 B	2.17	0.0306	0.13084646
	270 1982 2	0.34698375 B	2.71	0.0070	0.12786284
	271 1982 2	0.18059465 B	1.38	0.1688	0.13096877
	272 1982 2	0.44095619 B	3.42	0.0007	0.12885130
	284 1982 2	0.33259034 B	2.61	0.0094	0.12735935
	285 1982 2	0.00000000 B	.	.	.
	276 1982 3	-0.18830085 B	-1.48	0.1399	0.12727269
	277 1982 3	0.00803110 B	0.06	0.9514	0.13164618
	278 1982 3	-0.14654622 B	-1.14	0.2551	0.12856501
	279 1982 3	-0.26592125 B	-2.07	0.0391	0.12840039
	280 1982 3	0.00000000 B	.	.	.
	257 1982 4	0.17306116 B	1.35	0.1771	0.12793825
	258 1982 4	0.00000000 B	.	.	.
	248 1982 5	-0.13379182 B	-1.05	0.2943	0.12737985
	249 1982 5	-0.41910018 B	-3.04	0.0026	0.13808251
	259 1982 5	-0.60202170 B	-4.21	0.0001	0.14304643
	260 1982 5	-0.86425848 B	-5.91	0.0001	0.14620888
	261 1982 5	-0.46850296 B	-3.52	0.0005	0.13310641
	262 1982 5	-0.50987809 B	-3.34	0.0009	0.15284011
	263 1982 5	-0.65704099 B	-4.74	0.0001	0.13874956
	282 1982 5	0.01255623 B	0.10	0.9215	0.12734651
	283 1982 5	0.00000000 B	.	.	.
	246 1982 6	0.38949779 B	2.73	0.0066	0.14251671
	247 1982 6	0.36337897 B	2.73	0.0066	0.13305060
	266 1982 6	0.04465971 B	0.33	0.7423	0.13569096
	267 1982 6	0.05345032 B	0.38	0.7030	0.14008934
	268 1982 6	0.30818487 B	2.42	0.0160	0.12729526
	289 1982 6	0.65246063 B	5.12	0.0001	0.12747521
	290 1982 6	0.00000000 B	.	.	.
BLOC(YEAR*REGI*INST)	1 1981 1 204	-0.02684749 B	-0.21	0.8367	0.13017080
	2 1981 1 204	0.00000000 B	.	.	.
	1 1981 1 205	0.06361546 B	0.49	0.6219	0.12889128
	2 1981 1 205	0.00000000 B	.	.	.
	1 1981 1 206	-0.16725388 B	-1.28	0.2005	0.13041242
	2 1981 1 206	0.00000000 B	.	.	.
	1 1981 1 208	0.04001547 B	0.31	0.7543	0.12774725

Table 1 (Continued)

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EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY REGION AND WITH TREATMENT BY BA

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
2 1981 1 208	0.00000000 B				
1 1981 1 240	0.15884624 B	1.23	0.2189	0.12894769	
2 1981 1 240	0.00000000 B				
1 1981 2 231	0.05754088 B	0.45	0.6559	0.12901648	
2 1981 2 231	0.00000000 B				
1 1981 2 232	0.02107189 B	0.17	0.8686	0.12725170	
2 1981 2 232	0.00000000 B				
1 1981 2 233	0.10265329 B	0.81	0.4207	0.12733694	
2 1981 2 233	0.00000000 B				
1 1981 2 234	-0.00350406 B	-0.03	0.9781	0.12742182	
2 1981 2 234	0.00000000 B				
1 1981 2 235	-0.03158210 B	-0.25	0.8050	0.12780541	
2 1981 2 235	0.00000000 B				
1 1981 2 236	-0.06910992 B	-0.54	0.5890	0.12778200	
2 1981 2 236	0.00000000 B				
1 1981 2 237	-0.00560745 B	-0.04	0.9651	0.12822225	
2 1981 2 237	0.00000000 B				
1 1981 2 238	0.03993253 B	0.31	0.7556	0.12818794	
2 1981 2 238	0.00000000 B				
1 1981 3 201	-0.05074101 B	-0.38	0.7052	0.13400881	
2 1981 3 201	0.00000000 B				
1 1981 3 202	-0.15159790 B	-1.17	0.2421	0.12936716	
2 1981 3 202	0.00000000 B				
1 1981 3 203	-0.18920862 B	-1.48	0.1386	0.12745740	
2 1981 3 203	0.00000000 B				
1 1981 3 219	0.15121316 B	1.19	0.2363	0.12746717	
2 1981 3 219	0.00000000 B				
1 1981 3 220	-0.11102633 B	-0.87	0.3843	0.12745862	
2 1981 3 220	0.00000000 B				
1 1981 3 221	-0.11683104 B	-0.92	0.3592	0.12724933	
2 1981 3 221	0.00000000 B				
1 1981 3 222	0.15813314 B	1.24	0.2156	0.12745665	
2 1981 3 222	0.00000000 B				
1 1981 3 223	0.24394260 B	1.91	0.0568	0.12763933	
2 1981 3 223	0.00000000 B				
1 1981 4 207	0.01405457 B	0.11	0.9125	0.12784844	
2 1981 4 207	0.00000000 B				
1 1981 4 212	-0.27892493 B	-2.18	0.0298	0.12779994	
2 1981 4 212	0.00000000 B				
1 1981 4 213	0.25081133 B	1.96	0.0511	0.12812045	
2 1981 4 213	0.00000000 B				
1 1981 4 239	0.14225200 B	1.10	0.2727	0.12947994	
2 1981 4 239	0.00000000 B				
1 1981 4 244	0.06773894 B	0.51	0.6093	0.13241600	
2 1981 4 244	0.00000000 B				
1 1981 4 245	-0.06293877 B	-0.49	0.6246	0.12851194	
2 1981 4 245	0.00000000 B				
1 1981 5 224	0.10737716 B	0.83	0.4049	0.12875495	

Table 1 (Continued)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE		T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
2 1981 5 224		0.00000000	B			
1 1981 5 225		0.31776257	B	2.45	0.0149	0.12982310
2 1981 5 225		0.00000000	B			
1 1981 5 226		0.04020781	B	0.32	0.7522	0.12724752
2 1981 5 226		0.00000000	B			
1 1981 5 227		0.11668395	B	0.92	0.3603	0.12737861
2 1981 5 227		0.00000000	B			
1 1981 5 228		-0.05845718	B	-0.46	0.6463	0.12727020
2 1981 5 228		0.00000000	B			
1 1981 5 229		0.01322078	B	0.10	0.9177	0.12780135
2 1981 5 229		0.00000000	B			
1 1981 5 230		0.30749266	B	2.42	0.0162	0.12729736
2 1981 5 230		0.00000000	B			
1 1981 5 241		-0.06132118	B	-0.48	0.6311	0.12760456
2 1981 5 241		0.00000000	B			
1 1981 5 242		0.13529334	B	1.06	0.2922	0.12823563
2 1981 5 242		0.00000000	B			
1 1981 6 209		-0.00579337	B	-0.05	0.9638	0.12744498
2 1981 6 209		0.00000000	B			
1 1981 6 210		-0.10662465	B	-0.84	0.4032	0.12740045
2 1981 6 210		0.00000000	B			
1 1981 6 211		-0.07795024	B	-0.61	0.5430	0.12800475
2 1981 6 211		0.00000000	B			
1 1981 6 214		0.10531762	B	0.83	0.4097	0.12759519
2 1981 6 214		0.00000000	B			
1 1981 6 215		-0.03896503	B	-0.30	0.7631	0.12917760
2 1981 6 215		0.00000000	B			
1 1981 6 216		0.10510635	B	0.83	0.4099	0.12739468
2 1981 6 216		0.00000000	B			
1 1981 6 217		-0.06145445	B	-0.48	0.6301	0.12748700
2 1981 6 217		0.00000000	B			
1 1981 6 218		0.06334273	B	0.50	0.6191	0.12728352
2 1981 6 218		0.00000000	B			
1 1981 6 243		0.13747820	B	1.06	0.2881	0.12920617
2 1981 6 243		0.00000000	B			
1 1982 1 250		0.11057527	B	0.87	0.3873	0.12772985
2 1982 1 250		0.00000000	B			
1 1982 1 253		0.03197040	B	0.25	0.8021	0.12743831
2 1982 1 253		0.00000000	B			
1 1982 1 254		0.05304169	B	0.42	0.6772	0.12730466
2 1982 1 254		0.00000000	B			
1 1982 1 255		-0.03841571	B	-0.30	0.7631	0.12736329
2 1982 1 255		0.00000000	B			
1 1982 1 256		0.19413000	B	1.53	0.1280	0.12723412
2 1982 1 256		0.00000000	B			
1 1982 1 264		-0.30676185	B	-2.38	0.0178	0.12880934
2 1982 1 264		0.00000000	B			
1 1982 1 265		0.08652563	B	0.67	0.5038	0.12929181

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
2 1982 1 265	0.00000000 B				
1 1982 1 273	0.04658669 B	0.37	0.7147	0.12732542
2 1982 1 273	0.00000000 B				
1 1982 1 274	-0.32536370 B	-2.56	0.0110	0.12720666
2 1982 1 274	0.00000000 B				
1 1982 1 275	0.03427395 B	0.27	0.7894	0.12822378
2 1982 1 275	0.00000000 B				
1 1982 1 281	0.05829708 B	0.45	0.6498	0.12826465
2 1982 1 281	0.00000000 B				
1 1982 1 286	0.15436379 B	1.21	0.2282	0.12785929
2 1982 1 286	0.00000000 B				
1 1982 1 287	-0.17991264 B	-1.41	0.1594	0.12757794
2 1982 1 287	0.00000000 B				
1 1982 1 288	-0.03984220 B	-0.29	0.7742	0.13875281
2 1982 1 288	0.00000000 B				
1 1982 2 251	-0.18897308 B	-1.45	0.1481	0.13036744
2 1982 2 251	0.00000000 B				
1 1982 2 252	-0.06195867 B	-0.48	0.6293	0.12823758
2 1982 2 252	0.00000000 B				
1 1982 2 269	-0.15659794 B	-1.23	0.2193	0.12725754
2 1982 2 269	0.00000000 B				
1 1982 2 270	0.07308299 B	0.57	0.5660	0.12720370
2 1982 2 270	0.00000000 B				
1 1982 2 271	0.15644890 B	1.23	0.2203	0.12740049
2 1982 2 271	0.00000000 B				
1 1982 2 272	-0.06173256 B	-0.49	0.6277	0.12717121
2 1982 2 272	0.00000000 B				
1 1982 2 284	-0.02254500 B	-0.17	0.8690	0.13662204
2 1982 2 284	0.00000000 B				
1 1982 2 285	0.09800944 B	0.77	0.4439	0.12785354
2 1982 2 285	0.00000000 B				
1 1982 3 276	-0.25903328 B	-2.03	0.0428	0.12742186
2 1982 3 276	0.00000000 B				
1 1982 3 277	-0.04955598 B	-0.36	0.7213	0.13882827
2 1982 3 277	0.00000000 B				
1 1982 3 278	-0.12044523 B	-0.92	0.3567	0.13049044
2 1982 3 278	0.00000000 B				
1 1982 3 279	0.23020701 B	1.77	0.0782	0.13030506
2 1982 3 279	0.00000000 B				
1 1982 3 280	0.10497182 B	0.82	0.4141	0.12836156
2 1982 3 280	0.00000000 B				
1 1982 4 257	0.08649108 B	0.67	0.5007	0.12829572
2 1982 4 257	0.00000000 B				
1 1982 4 258	-0.02392891 B	-0.19	0.8516	0.12784566
2 1982 4 258	0.00000000 B				
1 1982 5 248	0.08429676 B	0.66	0.5127	0.12862450
2 1982 5 248	0.00000000 B				
1 1982 5 249	0.09333783 B	0.73	0.4641	0.12733945

Table 1 (Continued)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
	2 1982 5 249	0.00000000 B	.	.	.
	1 1982 5 259	-0.11619005 B	-0.91	0.3649	0.12805275
	2 1982 5 259	0.00000000 B	.	.	.
	1 1982 5 260	0.29183143 B	2.29	0.0224	0.12720459
	2 1982 5 260	0.00000000 B	.	.	.
	1 1982 5 261	-0.01320123 B	-0.10	0.9178	0.12788116
	2 1982 5 261	0.00000000 B	.	.	.
	1 1982 5 262	-0.25601600 B	-1.88	0.0607	0.13604496
	2 1982 5 262	0.00000000 B	.	.	.
	1 1982 5 263	0.16098121 B	1.24	0.2162	0.12991566
	2 1982 5 263	0.00000000 B	.	.	.
	1 1982 5 282	-0.10526044 B	-0.83	0.4085	0.12720670
	2 1982 5 282	0.00000000 B	.	.	.
	1 1982 5 283	-0.00293782 B	-0.02	0.9816	0.12720989
	2 1982 5 283	0.00000000 B	.	.	.
	1 1982 6 246	0.13927976 B	1.09	0.2743	0.12720307
	2 1982 6 246	0.00000000 B	.	.	.
	1 1982 6 247	-0.16418192 B	-1.28	0.2000	0.12786894
	2 1982 6 247	0.00000000 B	.	.	.
	1 1982 6 266	-0.08682895 B	-0.68	0.4960	0.12739518
	2 1982 6 266	0.00000000 B	.	.	.
	1 1982 6 267	-0.07117403 B	-0.55	0.5822	0.12922936
	2 1982 6 267	0.00000000 B	.	.	.
	1 1982 6 268	-0.05972205 B	-0.47	0.6410	0.12795760
	2 1982 6 268	0.00000000 B	.	.	.
	1 1982 6 289	-0.15019735 B	-1.18	0.2384	0.12717660
	2 1982 6 289	0.00000000 B	.	.	.
	1 1982 6 290	0.27410323 B	2.12	0.0343	0.12900789
	2 1982 6 290	0.00000000 B	.	.	.
TRT	0	-0.30991735 B	-1.95	0.0518	0.15880625
	1	0.03164558 B	0.22	0.8293	0.14664132
	2	0.00000000 B	.	.	.
REGION*TRT	1 0	-0.07848919 B	-1.43	0.1548	0.05505004
	1 1	-0.01981867 B	-0.37	0.7153	0.05429689
	1 2	0.00000000 B	.	.	.
	2 0	-0.00329189 B	-0.06	0.9529	0.05564907
	2 1	-0.00579781 B	-0.10	0.9166	0.05531806
	2 2	0.00000000 B	.	.	.
	3 0	-0.02582368 B	-0.44	0.6607	0.05877195
	3 1	-0.03008293 B	-0.51	0.6093	0.05881413
	3 2	0.00000000 B	.	.	.
	4 0	-0.03257028 B	-0.44	0.6599	0.07394298
	4 1	-0.03069755 B	-0.42	0.6718	0.07239856
	4 2	0.00000000 B	.	.	.
	5 0	-0.19950404 B	-3.68	0.0003	0.05419324
	5 1	-0.10045714 B	-1.86	0.0643	0.05412054
	5 2	0.00000000 B	.	.	.
	6 0	0.00000000 B	.	.	.

Table 1 (Continued)

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INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE 9:07 SATURDAY, MARCH 30, 1985 20
ANALYSIS OF GROWTH RESPONSE TO NITROGEN FERTILIZATION
EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY REGION AND WITH TREATMENT BY BA

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
	6 1	0.00000000 B	.	.	.
	6 2	0.00000000 B	.	.	.
BAO		0.00357033 B	1.29	0.1973	0.00276376
BAO*TRT	0	-1.1185516E-05 B	-0.01	0.9956	0.00204999
	1	-0.00088383 B	-0.47	0.6362	0.00186700
	2	0.00000000 B	.	.	.
BAO*YEAR	1981	0.00741875 B	2.25	0.0252	0.00330034
	1982	0.00000000 B	.	.	.
BAO_2		-6.7396488E-06 B	-0.86	0.3922	0.00000787
BAO_2*TRT	0	3.4415118E-06 B	0.53	0.5985	0.00000653
	1	3.8172575E-06 B	0.65	0.5171	0.00000589
	2	0.00000000 B	.	.	.
BAO_2*YEAR	1981	-2.1232237E-05 B	-2.09	0.0377	0.00001018
	1982	0.00000000 B	.	.	.

Experimental Design Model #2

Variable definitions:

BAI	= Two year basal area per acre increment
LN	= Natural log
Year	= Year of establishment (1981 or 1982)
Region	= Geographic region of the cooperative
Install	= Installation (201 - 290)
TRT	= Fertilizer treatment (control; 200 lbs/acre nitrogen; 400 lbs/acre nitrogen)
BAO	= Initial basal area per acre at time of treatment
BAO_2	= Initial basal area per acre squared.
Bloc	= Set of three plots each with a different treatment
Min_N	= Rate of nitrogen mineralization before treatment

Table 2

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INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE 9:07 SATURDAY, MARCH 30, 1985 32
ANALYSIS OF GROWTH RESPONSE TO NITROGEN FERTILIZATION
EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY MIN_N

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	188	76.44512251	0.40662299	17.54	0.0001	0.903779	6.7090
ERROR	351	8.13874265	0.02318730		ROOT MSE		LN_BAI MEAN
CORRECTED TOTAL	539	84.58386516			0.15227377		2.26968259

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
YEAR	1	5.86937927	253.13	0.0001	1	0.19208401	8.28	0.0042
REGION	5	23.04977124	198.81	0.0001	5	11.59241853	99.99	0.0001
YEAR*REGION	5	5.60870287	48.38	0.0001	5	4.26724565	36.81	0.0001
INSTALL(YEAR*REGION)	78	27.40349855	15.15	0.0001	78	27.46502221	15.19	0.0001
BLOC(YEAR*REGI*INST)	90	3.12683376	1.50	0.0055	90	2.63216199	1.26	0.0733
TRT	2	9.26341617	199.75	0.0001	2	4.22113471	91.02	0.0001
BAO	1	0.84810004	36.58	0.0001	1	0.46284349	19.96	0.0001
BAO*YEAR	1	0.10889003	4.70	0.0309	1	0.16317497	7.04	0.0083
BAO_2	1	0.20649173	8.91	0.0030	1	0.22787378	9.83	0.0019
BAO_2*YEAR	1	0.21139903	9.12	0.0027	1	0.14464425	6.24	0.0130
MIN_N	1	0.01189186	0.51	0.4744	1	0.00995964	0.43	0.5126
MIN_N*TRT	2	0.73674796	15.89	0.0001	2	0.73674796	15.89	0.0001

PARAMETER		ESTIMATE	T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT		1.90272512 B	7.97	0.0001	0.23885785
YEAR	1981	-0.66329187 B	-2.18	0.0298	0.30394473
	1982	0.00000000 B	.	.	.
REGION	1	0.47619041 B	3.21	0.0014	0.14827764
	2	-0.51020933 B	-3.76	0.0002	0.13578921
	3	0.43456537 B	3.26	0.0012	0.13310640
	4	0.02653655 B	0.21	0.8320	0.12502497
	5	0.79803759 B	5.46	0.0001	0.14619409
	6	0.00000000 B	.	.	.
YEAR*REGION	1981 1	0.01383908 B	0.07	0.9429	0.19314244
	1981 2	1.06464221 B	5.14	0.0001	0.20720924
	1981 3	-0.24070815 B	-1.34	0.1808	0.17950144
	1981 4	-0.14261309 B	-0.78	0.4344	0.18224186
	1981 5	-0.89727815 B	-4.77	0.0001	0.18806817
	1981 6	0.00000000 B	.	.	.
	1982 1	0.00000000 B	.	.	.
	1982 2	0.00000000 B	.	.	.
	1982 3	0.00000000 B	.	.	.
	1982 4	0.00000000 B	.	.	.
	1982 5	0.00000000 B	.	.	.
	1982 6	0.00000000 B	.	.	.
INSTALL(YEAR*REGION)	204 1981 1	0.23839283 B	1.76	0.0785	0.13509006
	205 1981 1	0.09894854 B	0.75	0.4546	0.13216449

Table 2 (Continued)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER			ESTIMATE		T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
206	1981	1	-0.03022243	B	-0.24	0.8096	0.12536078
208	1981	1	-0.67973746	B	-5.42	0.0001	0.12552135
240	1981	1	0.00000000	B	.	.	.
231	1981	2	-0.40594230	B	-2.98	0.0031	0.13609425
232	1981	2	-0.14123989	B	-0.91	0.3626	0.15494730
233	1981	2	-0.37060246	B	-2.37	0.0185	0.15654192
234	1981	2	-0.33839419	B	-2.19	0.0290	0.15432868
235	1981	2	-0.87322636	B	-5.80	0.0001	0.15045862
236	1981	2	-1.02549442	B	-6.45	0.0001	0.15889014
237	1981	2	-0.69518573	B	-4.51	0.0001	0.15423329
238	1981	2	0.00000000	B	.	.	.
201	1981	3	0.00814662	B	0.06	0.9484	0.12568007
202	1981	3	0.24505143	B	1.77	0.0781	0.13869780
203	1981	3	-0.05267626	B	-0.42	0.6755	0.12574931
219	1981	3	-0.03077379	B	-0.24	0.8073	0.12605861
220	1981	3	-0.23694391	B	-1.89	0.0589	0.12504662
221	1981	3	-0.17914521	B	-1.43	0.1532	0.12515389
222	1981	3	-0.08020265	B	-0.63	0.5271	0.12669382
223	1981	3	0.00000000	B	.	.	.
207	1981	4	0.14862626	B	1.13	0.2609	0.13198644
212	1981	4	0.40400912	B	2.84	0.0048	0.14226490
213	1981	4	-0.21914781	B	-1.53	0.1276	0.14348617
239	1981	4	-0.00364756	B	-0.03	0.9769	0.12564398
244	1981	4	-0.30368001	B	-1.77	0.0783	0.17197164
245	1981	4	0.00000000	B	.	.	.
224	1981	5	0.26589151	B	2.12	0.0346	0.12534571
225	1981	5	0.38373690	B	3.01	0.0028	0.12765548
226	1981	5	0.37376098	B	2.79	0.0056	0.13410048
227	1981	5	0.05715774	B	0.44	0.6614	0.13037592
228	1981	5	0.08525937	B	0.67	0.5022	0.12692688
229	1981	5	0.23032946	B	1.83	0.0681	0.12584717
230	1981	5	-0.11761671	B	-0.93	0.3517	0.12613017
241	1981	5	0.62348298	B	4.85	0.0001	0.12850437
242	1981	5	0.00000000	B	.	.	.
209	1981	6	-0.05142517	B	-0.40	0.6919	0.12966048
210	1981	6	-0.03127691	B	-0.24	0.8094	0.12956066
211	1981	6	0.73484304	B	5.59	0.0001	0.13149076
214	1981	6	0.56676979	B	4.30	0.0001	0.13192817
215	1981	6	0.76099076	B	5.61	0.0001	0.13564891
216	1981	6	-0.15587324	B	-1.21	0.2269	0.12876375
217	1981	6	0.34553775	B	2.64	0.0086	0.13066980
218	1981	6	0.37315418	B	2.74	0.0064	0.13611223
243	1981	6	0.00000000	B	.	.	.
250	1982	1	0.52215051	B	3.32	0.0010	0.15716976
253	1982	1	-0.14327610	B	-1.00	0.3194	0.14368638
254	1982	1	0.56836929	B	3.55	0.0004	0.16007403
255	1982	1	0.32473046	B	2.15	0.0322	0.15102621
256	1982	1	0.01326668	B	0.09	0.9298	0.15050513

Table 2 (Continued)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
	264 1982 1	-0.06938067 B	-0.53	0.5985	0.13165351
	265 1982 1	0.31535253 B	2.01	0.0450	0.15673283
	273 1982 1	0.56776962 B	3.69	0.0003	0.15384061
	274 1982 1	-0.07973659 B	-0.51	0.6085	0.15551144
	275 1982 1	-0.25451025 B	-1.66	0.0973	0.15310142
	281 1982 1	-0.25404991 B	-1.81	0.0712	0.14037944
	286 1982 1	-0.46287690 B	-3.21	0.0015	0.14425697
	287 1982 1	-0.08823742 B	-0.57	0.5676	0.15420728
	288 1982 1	0.00000000 B	.	.	.
	251 1982 2	0.18303722 B	1.38	0.1695	0.13296671
	252 1982 2	0.39538327 B	3.07	0.0023	0.12881267
	269 1982 2	0.28891063 B	2.26	0.0244	0.12779147
	270 1982 2	0.36345916 B	2.91	0.0039	0.12493138
	271 1982 2	0.19649120 B	1.54	0.1254	0.12792280
	272 1982 2	0.45628029 B	3.61	0.0004	0.12642436
	284 1982 2	0.30774196 B	2.45	0.0147	0.12557455
	285 1982 2	0.00000000 B	.	.	.
	276 1982 3	-0.21349798 B	-1.68	0.0932	0.12681176
	277 1982 3	-0.02174101 B	-0.17	0.8668	0.12948326
	278 1982 3	-0.16205021 B	-1.29	0.1974	0.12548512
	279 1982 3	-0.27371937 B	-2.18	0.0298	0.12549137
	280 1982 3	0.00000000 B	.	.	.
	257 1982 4	0.15997343 B	1.28	0.2008	0.12482291
	258 1982 4	0.00000000 B	.	.	.
	248 1982 5	-0.12279716 B	-0.98	0.3260	0.12484747
	249 1982 5	-0.43406052 B	-3.18	0.0016	0.13654512
	259 1982 5	-0.61484020 B	-4.38	0.0001	0.14040410
	260 1982 5	-0.86420696 B	-6.06	0.0001	0.14261501
	261 1982 5	-0.47440174 B	-3.64	0.0003	0.13020964
	262 1982 5	-0.49540208 B	-3.34	0.0009	0.14830075
	263 1982 5	-0.67818126 B	-4.86	0.0001	0.13956792
	282 1982 5	0.01457587 B	0.12	0.9068	0.12444799
	283 1982 5	0.00000000 B	.	.	.
	246 1982 6	0.39315123 B	2.82	0.0051	0.13949127
	247 1982 6	0.36433626 B	2.80	0.0055	0.13028361
	266 1982 6	0.04382649 B	0.33	0.7431	0.13359043
	267 1982 6	0.06112987 B	0.44	0.6607	0.13914077
	268 1982 6	0.33622381 B	2.67	0.0080	0.12611759
	289 1982 6	0.67204626 B	5.37	0.0001	0.12525672
	290 1982 6	0.00000000 B	.	.	.
BLOC(YEAR*REGI*INST)	1 1981 1 204	-0.03674169 B	-0.29	0.7728	0.12716632
	2 1981 1 204	0.00000000 B	.	.	.
	1 1981 1 205	0.05993903 B	0.48	0.6340	0.12579602
	2 1981 1 205	0.00000000 B	.	.	.
	1 1981 1 206	-0.12775655 B	-1.00	0.3183	0.12784054
	2 1981 1 206	0.00000000 B	.	.	.
	1 1981 1 208	-0.00954200 B	-0.07	0.9404	0.12752779
	2 1981 1 208	0.00000000 B	.	.	.

Table 2 (Continued)

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE 9:07 SATURDAY, MARCH 30, 1985 35
ANALYSIS OF GROWTH RESPONSE TO NITROGEN FERTILIZATION
EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY MIN_N

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
1 1981 1 240	0.20218449 B	1.60	0.1106	0.12639511
2 1981 1 240	0.00000000 B	.	.	.
1 1981 2 231	0.07982153 B	0.63	0.5318	0.12752836
2 1981 2 231	0.00000000 B	.	.	.
1 1981 2 232	0.00193864 B	0.02	0.9876	0.12463362
2 1981 2 232	0.00000000 B	.	.	.
1 1981 2 233	0.11318292 B	0.91	0.3647	0.12469618
2 1981 2 233	0.00000000 B	.	.	.
1 1981 2 234	0.00954814 B	0.08	0.9391	0.12480674
2 1981 2 234	0.00000000 B	.	.	.
1 1981 2 235	-0.08316661 B	-0.66	0.5072	0.12528036
2 1981 2 235	0.00000000 B	.	.	.
1 1981 2 236	-0.07340900 B	-0.59	0.5569	0.12482621
2 1981 2 236	0.00000000 B	.	.	.
1 1981 2 237	-0.02129254 B	-0.17	0.8657	0.12582955
2 1981 2 237	0.00000000 B	.	.	.
1 1981 2 238	0.06104801 B	0.48	0.6341	0.12816688
2 1981 2 238	0.00000000 B	.	.	.
1 1981 3 201	-0.04810709 B	-0.37	0.7134	0.13088074
2 1981 3 201	0.00000000 B	.	.	.
1 1981 3 202	-0.14307442 B	-1.13	0.2584	0.12638915
2 1981 3 202	0.00000000 B	.	.	.
1 1981 3 203	-0.17869534 B	-1.44	0.1521	0.12451223
2 1981 3 203	0.00000000 B	.	.	.
1 1981 3 219	0.16805940 B	1.35	0.1793	0.12488617
2 1981 3 219	0.00000000 B	.	.	.
1 1981 3 220	-0.13023053 B	-1.05	0.2959	0.12440399
2 1981 3 220	0.00000000 B	.	.	.
1 1981 3 221	-0.10253372 B	-0.82	0.4104	0.12439817
2 1981 3 221	0.00000000 B	.	.	.
1 1981 3 222	0.13946141 B	1.11	0.2684	0.12580833
2 1981 3 222	0.00000000 B	.	.	.
1 1981 3 223	0.22035831 B	1.77	0.0783	0.12480385
2 1981 3 223	0.00000000 B	.	.	.
1 1981 4 207	0.00068300 B	0.01	0.9956	0.12483472
2 1981 4 207	0.00000000 B	.	.	.
1 1981 4 212	-0.27954304 B	-2.24	0.0256	0.12469679
2 1981 4 212	0.00000000 B	.	.	.
1 1981 4 213	0.24437579 B	1.95	0.0514	0.12502771
2 1981 4 213	0.00000000 B	.	.	.
1 1981 4 239	0.13482482 B	1.06	0.2919	0.12771982
2 1981 4 239	0.00000000 B	.	.	.
1 1981 4 244	0.05800108 B	0.45	0.6525	0.12870179
2 1981 4 244	0.00000000 B	.	.	.
1 1981 4 245	-0.09075746 B	-0.72	0.4710	0.12576704
2 1981 4 245	0.00000000 B	.	.	.
1 1981 5 224	0.11332277 B	0.90	0.3683	0.12579383
2 1981 5 224	0.00000000 B	.	.	.

Table 2 (Continued)

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF GROWTH RESPONSE TO NITROGEN FERTILIZATION
EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY MIN_N

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
1 1981 5 225	0.32692280 B	2.58	0.0103	0.12681804
2 1981 5 225	0.00000000 B			
1 1981 5 226	0.04741944 B	0.38	0.7033	0.12439150
2 1981 5 226	0.00000000 B			
1 1981 5 227	0.12027032 B	0.97	0.3343	0.12439238
2 1981 5 227	0.00000000 B			
1 1981 5 228	-0.04975001 B	-0.40	0.6910	0.12506532
2 1981 5 228	0.00000000 B			
1 1981 5 229	0.01695870 B	0.14	0.8921	0.12493478
2 1981 5 229	0.00000000 B			
1 1981 5 230	0.30083239 B	2.40	0.0167	0.12512547
2 1981 5 230	0.00000000 B			
1 1981 5 241	-0.06811307 B	-0.55	0.5858	0.12486646
2 1981 5 241	0.00000000 B			
1 1981 5 242	0.14815035 B	1.18	0.2380	0.12533271
2 1981 5 242	0.00000000 B			
1 1981 6 209	-0.01555898 B	-0.13	0.9006	0.12444427
2 1981 6 209	0.00000000 B			
1 1981 6 210	-0.10497806 B	-0.84	0.3999	0.12454617
2 1981 6 210	0.00000000 B			
1 1981 6 211	-0.07114121 B	-0.57	0.5699	0.12507449
2 1981 6 211	0.00000000 B			
1 1981 6 214	0.09666519 B	0.77	0.4390	0.12475585
2 1981 6 214	0.00000000 B			
1 1981 6 215	-0.03185472 B	-0.25	0.8007	0.12610188
2 1981 6 215	0.00000000 B			
1 1981 6 216	0.09073088 B	0.73	0.4672	0.12467251
2 1981 6 216	0.00000000 B			
1 1981 6 217	-0.07364735 B	-0.59	0.5544	0.12447096
2 1981 6 217	0.00000000 B			
1 1981 6 218	0.06331134 B	0.51	0.6123	0.12479892
2 1981 6 218	0.00000000 B			
1 1981 6 243	0.15252563 B	1.21	0.2282	0.12634182
2 1981 6 243	0.00000000 B			
1 1982 1 250	0.09376011 B	0.75	0.4549	0.12531958
2 1982 1 250	0.00000000 B			
1 1982 1 253	0.00027504 B	0.00	0.9982	0.12496303
2 1982 1 253	0.00000000 B			
1 1982 1 254	0.06902284 B	0.55	0.5807	0.12483328
2 1982 1 254	0.00000000 B			
1 1982 1 255	0.03471383 B	0.28	0.7814	0.12500984
2 1982 1 255	0.00000000 B			
1 1982 1 256	0.16756704 B	1.34	0.1796	0.12461690
2 1982 1 256	0.00000000 B			
1 1982 1 264	-0.32625179 B	-2.59	0.0099	0.12579369
2 1982 1 264	0.00000000 B			
1 1982 1 265	0.09470268 B	0.75	0.4533	0.12614144
2 1982 1 265	0.00000000 B			

Table 2 (Continued)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
1 1982 1 273	0.03547344 B	0.28	0.7759	0.12452900
2 1982 1 273	0.00000000 B	.	.	.
1 1982 1 274	-0.31684502 B	-2.54	0.0116	0.12483124
2 1982 1 274	0.00000000 B	.	.	.
1 1982 1 275	0.02207366 B	0.18	0.8605	0.12553432
2 1982 1 275	0.00000000 B	.	.	.
1 1982 1 281	0.06427613 B	0.51	0.6086	0.12541471
2 1982 1 281	0.00000000 B	.	.	.
1 1982 1 286	0.15312205 B	1.23	0.2210	0.12488528
2 1982 1 286	0.00000000 B	.	.	.
1 1982 1 287	-0.19240245 B	-1.54	0.1240	0.12477659
2 1982 1 287	0.00000000 B	.	.	.
1 1982 1 288	-0.04629070 B	-0.34	0.7319	0.13499348
2 1982 1 288	0.00000000 B	.	.	.
1 1982 2 251	-0.24066347 B	-1.87	0.0627	0.12888306
2 1982 2 251	0.00000000 B	.	.	.
1 1982 2 252	-0.06874510 B	-0.55	0.5842	0.12550547
2 1982 2 252	0.00000000 B	.	.	.
1 1982 2 269	-0.14032768 B	-1.13	0.2613	0.12471315
2 1982 2 269	0.00000000 B	.	.	.
1 1982 2 270	0.08531229 B	0.69	0.4934	0.12442143
2 1982 2 270	0.00000000 B	.	.	.
1 1982 2 271	0.16419272 B	1.32	0.1881	0.12449926
2 1982 2 271	0.00000000 B	.	.	.
1 1982 2 272	-0.06947833 B	-0.56	0.5767	0.12435090
2 1982 2 272	0.00000000 B	.	.	.
1 1982 2 284	-0.02596578 B	-0.19	0.8464	0.13395235
2 1982 2 284	0.00000000 B	.	.	.
1 1982 2 285	0.07217264 B	0.57	0.5661	0.12564816
2 1982 2 285	0.00000000 B	.	.	.
1 1982 3 276	-0.27724958 B	-2.22	0.0268	0.12471517
2 1982 3 276	0.00000000 B	.	.	.
1 1982 3 277	-0.03444676 B	-0.25	0.7990	0.13515292
2 1982 3 277	0.00000000 B	.	.	.
1 1982 3 278	-0.12207103 B	-0.96	0.3385	0.12735591
2 1982 3 278	0.00000000 B	.	.	.
1 1982 3 279	0.23642964 B	1.86	0.0640	0.12724922
2 1982 3 279	0.00000000 B	.	.	.
1 1982 3 280	0.09637049 B	0.77	0.4426	0.12538510
2 1982 3 280	0.00000000 B	.	.	.
1 1982 4 257	0.14168869 B	1.13	0.2587	0.12524329
2 1982 4 257	0.00000000 B	.	.	.
1 1982 4 258	-0.01365414 B	-0.11	0.9129	0.12467077
2 1982 4 258	0.00000000 B	.	.	.
1 1982 5 248	0.06140967 B	0.49	0.6267	0.12613497
2 1982 5 248	0.00000000 B	.	.	.
1 1982 5 249	0.09636995 B	0.77	0.4393	0.12447749
2 1982 5 249	0.00000000 B	.	.	.

Table 2 (Continued)

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE 9:07 SATURDAY, MARCH 30, 1985 38
ANALYSIS OF GROWTH RESPONSE TO NITROGEN FERTILIZATION
EXAMINATION OF COMBINED 1981 AND 1982 INSTALLATIONS
MODEL WITH TREATMENT BY MIN_N

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LN_BAI LOG(BAI)

PARAMETER		ESTIMATE	T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
	1 1982 5 259	-0.11466773 B	-0.92	0.3601	0.12513956
	2 1982 5 259	0.00000000 B	.	.	.
	1 1982 5 260	0.29455423 B	2.37	0.0184	0.12434497
	2 1982 5 260	0.00000000 B	.	.	.
	1 1982 5 261	0.00521736 B	0.04	0.9670	0.12621095
	2 1982 5 261	0.00000000 B	.	.	.
	1 1982 5 262	-0.28242368 B	-2.14	0.0331	0.13202589
	2 1982 5 262	0.00000000 B	.	.	.
	1 1982 5 263	0.18413782 B	1.42	0.1564	0.12964043
	2 1982 5 263	0.00000000 B	.	.	.
	1 1982 5 282	-0.11175421 B	-0.90	0.3694	0.12434162
	2 1982 5 282	0.00000000 B	.	.	.
	1 1982 5 283	-0.00248353 B	-0.02	0.9841	0.12436710
	2 1982 5 283	0.00000000 B	.	.	.
	1 1982 6 246	0.13030421 B	1.05	0.2963	0.12456705
	2 1982 6 246	0.00000000 B	.	.	.
	1 1982 6 247	-0.16356739 B	-1.30	0.1929	0.12538563
	2 1982 6 247	0.00000000 B	.	.	.
	1 1982 6 266	-0.07742533 B	-0.62	0.5348	0.12461522
	2 1982 6 266	0.00000000 B	.	.	.
	1 1982 6 267	-0.08258910 B	-0.65	0.5160	0.12700996
	2 1982 6 267	0.00000000 B	.	.	.
	1 1982 6 268	-0.08509004 B	-0.68	0.4965	0.12500372
	2 1982 6 268	0.00000000 B	.	.	.
	1 1982 6 289	-0.15093100 B	-1.21	0.2278	0.12493995
	2 1982 6 289	0.00000000 B	.	.	.
	1 1982 6 290	0.28258771 B	2.24	0.0259	0.12633984
	2 1982 6 290	0.00000000 B	.	.	.
TRT	0	-0.49084910 B	-12.56	0.0001	0.03907781
	1	-0.08315761 B	-2.06	0.0405	0.04043750
	2	0.00000000 B	.	.	.
BAO		0.00280956 B	1.29	0.1967	0.00217192
BAO*YEAR	1981	0.00825244 B	2.65	0.0083	0.00311086
	1982	0.00000000 B	.	.	.
BAO_2		-3.0145885E-06 B	-0.51	0.6071	0.00000586
BAO_2*YEAR	1981	-2.3725585E-05 B	-2.50	0.0130	0.00000950
	1982	0.00000000 B	.	.	.
MIN_N		-0.00122190 B	-1.41	0.1593	0.00086640
MIN_N*TRT	0	0.00419293 B	5.34	0.0001	0.00078580
	1	0.00095234 B	1.17	0.2413	0.00081146
	2	0.00000000 B	.	.	.

Adjusted and unadjusted two-year basal area per acre increment and response for 1981 and 1982 installations with site and stand characteristics.

INSTALLATION 201 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 5500 FEET
PERCENT SLOPE= 18
SITE INDEX= 62.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 113.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 23.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.5	7.4			
200 LBS N	7.7	7.7	0.2	0.3	4.5
400 LBS N	10.6	11.0	3.0	3.7	49.7

INSTALLATION 202 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 5500 FEET
PERCENT SLOPE= 29
SITE INDEX= 55.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 66.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 20.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.4	6.4			
200 LBS N	7.5	7.9	1.1	1.5	23.5
400 LBS N	9.6	9.1	3.2	2.7	42.2

INSTALLATION 203 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 5500 FEET
PERCENT SLOPE= 24
SITE INDEX= 57.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 100.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 19.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.6	5.7			
200 LBS N	8.7	8.2	3.1	2.5	43.4
400 LBS N	7.4	7.7	1.8	2.0	34.5

INSTALLATION 204 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3300 FEET
PERCENT SLOPE= 33
SITE INDEX= 80.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 104.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 30.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	11.4	11.1			
200 LBS N	14.9	15.1	3.5	3.9	35.4
400 LBS N	16.0	16.3	4.6	5.2	47.0

INSTALLATION 205 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3300 FEET
PERCENT SLOPE= 13
SITE INDEX= 86.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 110.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 33.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.6	10.3			
200 LBS N	15.2	14.5	5.6	4.3	41.4
400 LBS N	15.5	15.7	5.9	5.4	52.9

INSTALLATION 206 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 4
SITE INDEX= 81.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 152.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 27.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	10.3	11.0			
200 LBS N	13.8	13.8	3.5	2.8	25.3
400 LBS N	13.8	13.8	3.5	2.8	25.7

INSTALLATION 207 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 18
SITE INDEX= 71.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 156.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 40.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.9	7.3			
200 LBS N	10.5	10.5	3.6	3.2	44.2
400 LBS N	9.2	9.3	2.3	2.0	28.2

INSTALLATION 208 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 2800 FEET
PERCENT SLOPE= 15
SITE INDEX= 67.8 FEET AT 50 YEARS
INITIAL BASAL AREA= 188.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 57.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.4	7.8			
200 LBS N	8.3	8.2	0.8	0.4	4.9
400 LBS N	6.7	6.8	-0.7	-1.0	-13.3

INSTALLATION 209 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2800 FEET
PERCENT SLOPE= 28
SITE INDEX= 69.8 FEET AT 50 YEARS
INITIAL BASAL AREA= 143.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 30.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.1	6.3			
200 LBS N	8.9	8.9	2.9	2.6	41.8
400 LBS N	8.0	8.1	2.0	1.9	29.8

INSTALLATION 210 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2600 FEET
PERCENT SLOPE= 28
SITE INDEX= 73.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 143.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 34.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.8	6.0			
200 LBS N	8.7	8.5	2.9	2.4	40.1
400 LBS N	8.3	8.3	2.5	2.3	37.8

INSTALLATION 211 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3100 FEET
PERCENT SLOPE= 37
SITE INDEX= 88.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 171.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 30.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	14.9	14.8			
200 LBS N	19.8	19.8	4.9	5.0	33.8
400 LBS N	19.2	19.4	4.3	4.6	31.3

INSTALLATION 212 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 4100 FEET
PERCENT SLOPE= 51
SITE INDEX= 55.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 81.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=SHALLOW (<12")
MINERALIZABLE NITROGEN= 55.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.8	5.8			
200 LBS N	8.2	8.4	2.4	2.6	44.2
400 LBS N	7.4	7.5	1.6	1.7	29.9

INSTALLATION 213 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 4250 FEET
PERCENT SLOPE= 3
SITE INDEX= 63.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 95.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 22.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	4.5	4.2			
200 LBS N	5.4	5.5	0.9	1.3	30.6
400 LBS N	6.3	6.6	1.8	2.4	56.4

INSTALLATION 214 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 6
SITE INDEX= 70.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 91.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 46.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	11.1	11.1			
200 LBS N	11.3	12.2	0.3	1.2	10.5
400 LBS N	13.6	12.8	2.5	1.7	15.6

INSTALLATION 215 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3400 FEET
PERCENT SLOPE= 27
SITE INDEX= 67.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 73.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 52.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	10.1	10.6			
200 LBS N	14.5	13.9	4.4	3.3	30.9
400 LBS N	12.1	12.1	2.0	1.4	13.5

INSTALLATION 216 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 13
SITE INDEX= 67.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 142.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 40.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.4	6.2			
200 LBS N	7.3	7.7	0.9	1.6	25.7
400 LBS N	8.4	8.4	2.0	2.3	36.6

INSTALLATION 217 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2900 FEET
PERCENT SLOPE= 5
SITE INDEX= 61.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 113.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 41.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.4	7.7			
200 LBS N	10.1	11.0	1.7	3.3	42.7
400 LBS N	11.3	11.3	2.9	3.6	47.2

INSTALLATION 218 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3000 FEET
PERCENT SLOPE= 19
SITE INDEX= 48.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 94.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 36.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.9	9.5			
200 LBS N	9.3	9.1	-0.6	-0.3	-3.5
400 LBS N	10.0	10.6	0.1	1.1	11.5

INSTALLATION 219 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4600 FEET
PERCENT SLOPE= 23
SITE INDEX= 55.8 FEET AT 50 YEARS
INITIAL BASAL AREA= 127.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 57.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.4	7.6			
200 LBS N	10.7	10.9	3.3	3.3	43.0
400 LBS N	12.6	12.1	5.2	4.5	59.1

INSTALLATION 220 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 5700 FEET
PERCENT SLOPE= 31
SITE INDEX= 49.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 104.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 25.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.0	4.8			
200 LBS N	6.5	6.8	1.5	2.0	41.6
400 LBS N	7.4	7.6	2.4	2.8	58.8

INSTALLATION 221 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4200 FEET
PERCENT SLOPE= 39
SITE INDEX= 54.8 FEET AT 50 YEARS
INITIAL BASAL AREA= 118.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 55.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.1	6.2			
200 LBS N	8.4	8.9	1.3	2.8	44.7
400 LBS N	6.2	6.8	-0.8	0.7	11.0

INSTALLATION 222 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4800 FEET
PERCENT SLOPE= 27
SITE INDEX= 53.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 138.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 43.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.2	9.3			
200 LBS N	8.8	9.4	-0.4	0.2	1.6
400 LBS N	11.3	11.0	2.1	1.8	18.9

INSTALLATION 223 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4400 FEET
PERCENT SLOPE= 35
SITE INDEX= 55.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 111.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 35.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.4	7.2			
200 LBS N	12.1	12.5	4.6	5.3	74.3
400 LBS N	10.2	10.3	2.7	3.2	44.0

INSTALLATION 224 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3800 FEET
PERCENT SLOPE= 3
SITE INDEX= 91.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 155.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=SHALLOW (<12")
MINERALIZABLE NITROGEN= 35.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.9	8.5			
200 LBS N	12.8	12.4	4.8	3.9	45.9
400 LBS N	11.4	11.6	3.5	3.1	36.8

INSTALLATION 225 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2200 FEET
PERCENT SLOPE= 0
SITE INDEX= 54.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 109.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 19.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.2	8.7			
200 LBS N	11.2	10.8	3.0	2.1	24.7
400 LBS N	14.1	15.0	5.9	6.4	73.6

INSTALLATION 226 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2900 FEET
PERCENT SLOPE= 9
SITE INDEX= 57.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 88.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 17.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.5	6.1			
200 LBS N	9.2	9.1	2.8	2.9	47.8
400 LBS N	9.7	10.5	3.3	4.4	71.3

INSTALLATION 227 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2400 FEET
PERCENT SLOPE= 33
SITE INDEX= 55.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 101.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 24.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	4.3	4.9			
200 LBS N	9.7	8.9	5.4	4.0	82.9
400 LBS N	7.9	7.7	3.7	2.9	59.1

INSTALLATION 228 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2500 FEET
PERCENT SLOPE= 28
SITE INDEX= 76.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 140.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/ICESS
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 28.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.1	6.9			
200 LBS N	7.3	7.5	0.2	0.6	8.5
400 LBS N	9.0	9.0	2.0	2.2	31.3

INSTALLATION 229 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3000 FEET
PERCENT SLOPE= 14
SITE INDEX= 79.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 130.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 45.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.1	8.1			
200 LBS N	9.1	9.0	1.0	0.9	11.6
400 LBS N	10.0	10.1	1.9	2.1	25.6

INSTALLATION 230 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2900 FEET
PERCENT SLOPE= 8
SITE INDEX= 68.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 124.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/ICESS
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 23.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	4.8	4.7			
200 LBS N	7.9	7.9	3.1	3.2	68.2
400 LBS N	9.6	9.7	4.8	5.0	106.2

INSTALLATION 231 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3500 FEET
PERCENT SLOPE= 28
SITE INDEX= 59.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 97.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 83.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.4	7.1			
200 LBS N	8.0	8.7	0.6	1.6	22.7
400 LBS N	9.3	8.9	1.9	1.8	25.9

INSTALLATION 232 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 12
SITE INDEX= 79.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 137.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=SHALLOW (<12")
MINERALIZABLE NITROGEN= 69.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	10.0	10.4			
200 LBS N	13.6	13.4	3.6	2.9	28.0
400 LBS N	14.2	14.0	4.2	3.5	33.7

INSTALLATION 233 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 12
SITE INDEX= 78.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 144.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ALLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 60.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.7	9.2			
200 LBS N	10.7	11.0	1.0	1.7	18.7
400 LBS N	12.0	12.2	2.3	3.0	32.6

INSTALLATION 234 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 4
SITE INDEX= 71.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 131.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=SHALLOW (<12")
MINERALIZABLE NITROGEN= 68.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	11.0	10.4			
200 LBS N	10.5	10.2	-0.5	-0.1	-1.4
400 LBS N	8.5	9.3	-2.4	-1.0	-9.9

INSTALLATION 235 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 15
SITE INDEX= 49.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 109.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ALLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 52.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	3.6	3.9			
200 LBS N	6.1	5.9	2.4	2.0	52.4
400 LBS N	5.8	5.6	2.1	1.7	43.8

INSTALLATION 236 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3500 FEET
PERCENT SLOPE= 35
SITE INDEX= 54.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 167.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=VALLEY FILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=SHALLOW (<12")
MINERALIZABLE NITROGEN= 74.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.2	5.3			
200 LBS N	5.6	5.5	0.5	0.2	3.3
400 LBS N	5.3	5.5	0.2	0.2	3.3

INSTALLATION 237 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4400 FEET
PERCENT SLOPE= 1
SITE INDEX= 56.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 148.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 66.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.9	7.5			
200 LBS N	7.2	7.5	-0.7	0.1	1.0
400 LBS N	6.4	6.5	-1.5	-1.0	-13.2

INSTALLATION 238 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3500 FEET
PERCENT SLOPE= 55
SITE INDEX= 70.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 48.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=VALLEY FILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=SHALLOW (<12")
MINERALIZABLE NITROGEN= 67.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.0	7.3			
200 LBS N	9.3	9.6	1.3	2.3	31.2
400 LBS N	8.5	9.0	0.4	1.7	22.8

INSTALLATION 239 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 3700 FEET
PERCENT SLOPE= 45
SITE INDEX= 71.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 188.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 71.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.0	8.4			
200 LBS N	8.2	8.7	0.1	0.3	3.4
400 LBS N	9.3	9.4	1.2	1.0	11.7

INSTALLATION 240 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3500 FEET
PERCENT SLOPE= 15
SITE INDEX= 88.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 149.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 46.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	12.6	12.1			
200 LBS N	16.0	17.8	3.4	5.8	47.9
400 LBS N	16.4	16.7	3.8	4.6	38.4

INSTALLATION 241 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3300 FEET
PERCENT SLOPE= 3
SITE INDEX= 61.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 113.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 24.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.1	9.6			
200 LBS N	11.9	11.1	3.8	1.5	15.1
400 LBS N	16.2	15.5	8.1	5.9	61.5

INSTALLATION 242 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 4500 FEET
PERCENT SLOPE= 19
SITE INDEX= 47.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 137.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 52.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.9	6.0			
200 LBS N	8.0	7.7	2.2	1.7	29.2
400 LBS N	10.2	10.7	4.3	4.7	79.1

INSTALLATION 243 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3300 FEET
PERCENT SLOPE= 18
SITE INDEX= 61.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 130.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 81.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.9	8.3			
200 LBS N	8.6	8.9	0.7	0.6	7.4
400 LBS N	9.1	8.8	1.2	0.5	6.3

INSTALLATION 244 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 5900 FEET
PERCENT SLOPE= 35
SITE INDEX= 62.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 272.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 72.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.6	5.4			
200 LBS N	5.8	6.1	0.3	0.6	11.7
400 LBS N	5.4	5.5	-0.2	0.0	0.9

INSTALLATION 245 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 5000 FEET
PERCENT SLOPE= 18
SITE INDEX= 62.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 191.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 68.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.4	7.0			
200 LBS N	8.3	8.3	1.9	1.3	19.4
400 LBS N	9.0	9.4	2.7	2.4	34.8

INSTALLATION 246 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 1500 FEET
PERCENT SLOPE= 38
SITE INDEX= 92.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 99.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 59.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.5	9.5			
200 LBS N	12.2	12.3	2.7	2.8	29.6
400 LBS N	13.8	13.5	4.3	4.0	42.1

INSTALLATION 247 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2900 FEET
PERCENT SLOPE= 13
SITE INDEX= 65.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 137.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 54.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.7	9.1			
200 LBS N	11.9	12.0	3.2	2.9	32.1
400 LBS N	11.3	11.0	2.6	1.9	21.1

INSTALLATION 248 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2500 FEET
PERCENT SLOPE= 5
SITE INDEX= 66.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 114.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 31.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	14.0	13.8			
200 LBS N	16.1	16.3	2.2	2.5	18.0
400 LBS N	15.1	15.0	1.1	1.1	8.1

INSTALLATION 249 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3000 FEET
PERCENT SLOPE= 4
SITE INDEX= 77.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 169.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 42.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	10.6	10.7			
200 LBS N	14.7	14.3	4.1	3.6	33.7
400 LBS N	13.6	13.7	3.0	3.0	27.8

INSTALLATION 250 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 35
SITE INDEX= 83.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 114.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/PETASEDIMENT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 49.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	17.3	16.8			
200 LBS N	20.1	20.9	2.8	4.1	24.5
400 LBS N	27.9	27.4	10.7	10.5	62.6

INSTALLATION 251 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4700 FEET
PERCENT SLOPE= 40
SITE INDEX= 63.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 151.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=COLLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 84.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	4.4	4.5			
200 LBS N	5.7	5.6	1.2	1.2	26.7
400 LBS N	6.0	6.0	1.6	1.5	34.1

INSTALLATION 252 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4200 FEET
PERCENT SLOPE= 1
SITE INDEX= 40.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 144.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ALLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 48.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.9	5.8			
200 LBS N	7.7	8.0	1.8	2.2	38.5
400 LBS N	7.4	7.3	1.5	1.6	27.5

INSTALLATION 253 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3100 FEET
PERCENT SLOPE= 46
SITE INDEX= 96.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 203.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 62.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	11.0	10.9			
200 LBS N	12.4	12.5	1.4	1.6	14.9
400 LBS N	15.3	15.4	4.3	4.5	41.6

INSTALLATION 254 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 2750 FEET
PERCENT SLOPE= 21
SITE INDEX= 90.8 FEET AT 50 YEARS
INITIAL BASAL AREA= 92.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 51.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	17.0	17.5			
200 LBS N	24.1	23.4	7.1	5.9	33.9
400 LBS N	22.6	22.8	5.6	5.3	30.6

INSTALLATION 255 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3800 FEET
PERCENT SLOPE= 19
SITE INDEX= 84.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 176.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 53.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	18.2	17.8			
200 LBS N	20.0	20.1	1.9	2.3	12.8
400 LBS N	19.5	19.6	1.4	1.8	10.2

INSTALLATION 256 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3300 FEET
PERCENT SLOPE= 13
SITE INDEX= 93.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 173.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 65.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	13.9	13.5			
200 LBS N	14.8	15.4	0.9	1.9	14.4
400 LBS N	16.7	16.5	2.8	3.0	22.4

INSTALLATION 257 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 4900 FEET
PERCENT SLOPE= 38
SITE INDEX= 56.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 176.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 80.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.0	9.4			
200 LBS N	12.5	12.1	3.6	2.6	27.9
400 LBS N	12.5	12.5	3.6	3.1	32.8

INSTALLATION 258 REGION: NE OREGON

SITE AND TREE INFORMATION:

ELEVATION= 2400 FEET
PERCENT SLOPE= 26
SITE INDEX= 77.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 181.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 88.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.8	8.2			
200 LBS N	9.1	9.2	1.3	1.0	12.2
400 LBS N	10.3	10.1	2.4	1.9	23.8

INSTALLATION 259 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 57
SITE INDEX= 67.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 189.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=SANDSTONE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 41.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.8	7.2			
200 LBS N	10.1	10.4	3.3	3.2	43.7
400 LBS N	13.7	13.3	6.9	6.1	84.5

INSTALLATION 260 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3700 FEET
PERCENT SLOPE= 79
SITE INDEX= 84.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 216.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 27.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.6	8.3			
200 LBS N	11.0	11.3	2.4	3.1	37.0
400 LBS N	10.1	10.1	1.4	1.8	21.7

INSTALLATION 261 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2700 FEET
PERCENT SLOPE= 47
SITE INDEX= 71.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 146.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=SANDSTONE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 38.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.2	7.0			
200 LBS N	13.1	13.3	5.9	6.4	91.4
400 LBS N	14.1	14.6	6.9	7.7	110.3

INSTALLATION 262 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2800 FEET
PERCENT SLOPE= 19
SITE INDEX= 70.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 218.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 21.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.5	9.2			
200 LBS N	10.8	10.9	1.3	1.8	19.2
400 LBS N	11.9	11.9	2.4	2.7	29.3

INSTALLATION 263 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2500 FEET
PERCENT SLOPE= 15
SITE INDEX= 68.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 154.8 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=SANDSTONE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 40.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.8	7.7			
200 LBS N	11.3	11.2	3.5	3.5	45.5
400 LBS N	11.7	12.0	3.9	4.4	57.0

INSTALLATION 264 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4600 FEET
PERCENT SLOPE= 41
SITE INDEX= 84.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 237.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 40.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.1	9.0			
200 LBS N	14.4	14.7	5.3	5.7	63.2
400 LBS N	13.2	13.1	4.1	4.2	46.4

INSTALLATION 265 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 41
SITE INDEX= 94.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 129.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 37.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	14.4	14.3			
200 LBS N	20.4	20.4	6.0	6.1	42.2
400 LBS N	19.0	19.1	4.6	4.7	33.0

INSTALLATION 266 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 1900 FEET
PERCENT SLOPE= 6
SITE INDEX= 56.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 122.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 50.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.8	6.1			
200 LBS N	8.4	8.4	2.7	2.3	37.9
400 LBS N	9.5	9.3	3.7	3.2	52.8

INSTALLATION 267 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 1900 FEET
PERCENT SLOPE= 4
SITE INDEX= 54.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 118.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 45.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	6.3	6.3			
200 LBS N	8.7	9.1	2.4	2.7	43.2
400 LBS N	8.9	8.6	2.6	2.3	36.2

INSTALLATION 268 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3350 FEET
PERCENT SLOPE= 13
SITE INDEX= 82.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 187.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 43.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.2	9.6			
200 LBS N	13.9	13.7	4.7	4.0	41.9
400 LBS N	11.9	11.8	2.6	2.2	22.7

INSTALLATION 269 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4800 FEET
PERCENT SLOPE= 56
SITE INDEX= 57.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 145.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=COLLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 45.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.1	5.0			
200 LBS N	5.7	5.9	0.6	0.9	18.7
400 LBS N	7.6	7.5	2.6	2.6	52.3

INSTALLATION 270 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4700 FEET
PERCENT SLOPE= 43
SITE INDEX= 67.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 123.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=COLLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 44.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.1	5.4			
200 LBS N	7.7	7.6	2.6	2.2	41.6
400 LBS N	8.0	7.9	2.8	2.5	46.2

INSTALLATION 271 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4000 FEET
PERCENT SLOPE= 32
SITE INDEX= 70.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 155.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=COLLUVIUM
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 37.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	4.1	4.0			
200 LBS N	7.5	7.4	3.4	3.4	84.0
400 LBS N	8.8	9.0	4.7	5.0	123.7

INSTALLATION 272 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 4200 FEET
PERCENT SLOPE= 58
SITE INDEX= 63.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 134.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 28.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	5.5	5.4			
200 LBS N	8.6	8.6	3.1	3.2	60.1
400 LBS N	7.8	8.0	2.3	2.6	48.0

INSTALLATION 273 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4200 FEET
PERCENT SLOPE= 35
SITE INDEX= 90.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 145.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 34.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	20.0	20.1			
200 LBS N	22.9	22.6	2.9	2.5	12.5
400 LBS N	26.1	26.4	6.1	6.3	31.2

INSTALLATION 274 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 2800 FEET
PERCENT SLOPE= 9
SITE INDEX= 78.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 133.6 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 47.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.7	7.7			
200 LBS N	11.9	11.9	4.3	4.2	54.9
400 LBS N	11.3	11.2	3.6	3.5	45.7

INSTALLATION 275 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 2600 FEET
PERCENT SLOPE= 26
SITE INDEX= 66.2 FEET AT 50 YEARS
INITIAL BASAL AREA= 173.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 46.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.4	9.2			
200 LBS N	10.8	10.5	1.4	1.3	13.9
400 LBS N	12.0	12.3	2.6	3.1	33.3

INSTALLATION 276 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4250 FEET
PERCENT SLOPE= 20
SITE INDEX= 65.1 FEET AT 50 YEARS
INITIAL BASAL AREA= 148.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 59.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.2	8.2			
200 LBS N	8.6	8.5	0.3	0.3	3.8
400 LBS N	10.3	10.4	2.1	2.2	26.7

INSTALLATION 277 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4400 FEET
PERCENT SLOPE= 12
SITE INDEX= 60.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 137.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 46.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	11.3	11.2			
200 LBS N	12.8	12.9	1.5	1.7	15.0
400 LBS N	11.2	11.3	-0.1	0.1	0.5

INSTALLATION 278 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4500 FEET
PERCENT SLOPE= 21
SITE INDEX= 54.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 102.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 23.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.4	7.5			
200 LBS N	9.3	9.3	1.9	1.8	23.3
400 LBS N	10.6	10.5	3.2	3.0	39.4

INSTALLATION 279 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4600 FEET
PERCENT SLOPE= 24
SITE INDEX= 57.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 143.9 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 27.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	9.6	9.7			
200 LBS N	10.7	10.8	1.1	1.1	11.7
400 LBS N	11.1	11.1	1.5	1.4	14.8

INSTALLATION 280 REGION: CEN IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 4900 FEET
PERCENT SLOPE= 38
SITE INDEX= 65.3 FEET AT 50 YEARS
INITIAL BASAL AREA= 128.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GRANITE
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 23.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	10.1	10.0			
200 LBS N	13.1	13.7	3.0	3.6	36.2
400 LBS N	14.2	13.9	4.1	3.9	39.1

INSTALLATION 281 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3200 FEET
PERCENT SLOPE= 37
SITE INDEX= 88.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 207.3 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 40.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	10.6	10.6			
200 LBS N	11.9	12.0	1.4	1.5	13.8
400 LBS N	11.9	11.9	1.3	1.3	12.3

INSTALLATION 282 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3400 FEET
PERCENT SLOPE= 17
SITE INDEX= 62.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 103.1 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 14.3 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	12.0	11.9			
200 LBS N	16.7	17.1	4.6	5.2	44.1
400 LBS N	18.4	18.1	6.3	6.3	52.9

INSTALLATION 283 REGION: CEN WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3250 FEET
PERCENT SLOPE= 9
SITE INDEX= 57.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 97.5 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 12.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	11.2	11.0			
200 LBS N	16.8	16.8	5.6	5.7	52.0
400 LBS N	21.0	21.2	9.8	10.2	92.1

INSTALLATION 284 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 11
SITE INDEX= 64.6 FEET AT 50 YEARS
INITIAL BASAL AREA= 138.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=VALLEY FILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 76.2 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.3	7.1			
200 LBS N	6.1	6.3	-1.2	-0.8	-11.7
400 LBS N	6.4	6.5	-0.8	-0.6	-8.1

INSTALLATION 285 REGION: MONTANA

SITE AND TREE INFORMATION:

ELEVATION= 3600 FEET
PERCENT SLOPE= 17
SITE INDEX= 60.0 FEET AT 50 YEARS
INITIAL BASAL AREA= 118.4 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=VALLEY FILL
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 53.5 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	4.0	3.9			
200 LBS N	5.1	5.1	1.1	1.3	32.6
400 LBS N	5.5	5.6	1.6	1.7	44.2

INSTALLATION 286 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 2500 FEET
PERCENT SLOPE= 45
SITE INDEX= 71.9 FEET AT 50 YEARS
INITIAL BASAL AREA= 212.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/METASEDIMENT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 62.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.8	7.8			
200 LBS N	10.2	10.5	2.4	2.7	34.3
400 LBS N	12.6	12.5	4.8	4.6	59.3

INSTALLATION 287 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3150 FEET
PERCENT SLOPE= 6
SITE INDEX= 71.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 174.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 20.7 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	7.8	7.7			
200 LBS N	13.5	13.3	5.8	5.6	73.2
400 LBS N	13.3	13.6	5.5	5.9	76.1

INSTALLATION 288 REGION: N IDAHO

SITE AND TREE INFORMATION:

ELEVATION= 3400 FEET
PERCENT SLOPE= 21
SITE INDEX= 87.7 FEET AT 50 YEARS
INITIAL BASAL AREA= 256.2 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=ASH/LOESS
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 60.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	12.8	12.7			
200 LBS N	18.0	17.7	5.1	5.0	39.0
400 LBS N	14.8	14.9	1.9	2.2	16.9

INSTALLATION 289 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 2800 FEET
PERCENT SLOPE= 20
SITE INDEX= 82.5 FEET AT 50 YEARS
INITIAL BASAL AREA= 181.7 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=GLACIAL TILL
ASH CAP DEPTH=MORE THAN 12"
SOIL DEPTH=DEEP (>24")
MINERALIZABLE NITROGEN= 70.8 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	14.2	14.6			
200 LBS N	16.2	15.6	2.0	1.0	6.6
400 LBS N	16.2	16.6	2.0	2.0	13.6

INSTALLATION 290 REGION: NE WASHINGTON

SITE AND TREE INFORMATION:

ELEVATION= 3800 FEET
PERCENT SLOPE= 22
SITE INDEX= 61.4 FEET AT 50 YEARS
INITIAL BASAL AREA= 207.0 SQ FT/ACRE

SOIL INFORMATION:

PARENT MATERIAL=BASALT
ASH CAP DEPTH=12" OR LESS
SOIL DEPTH=MEDIUM (12 TO 24")
MINERALIZABLE NITROGEN= 76.0 PPM

GROWTH INFORMATION:

	2 YEAR BASAL AREA INCREMENT		RESPONSE (TREATMENT - CONTROL)		
TREATMENT	UNADJUSTED	ADJUSTED	UNADJUSTED	ADJUSTED	% OF CONTROL
CONTROL	8.9	9.3			
200 LBS N	10.5	10.2	1.6	0.9	9.8
400 LBS N	12.1	12.1	3.2	2.8	30.1

Section II

Regression Models

Regression Model #1

Parent Material by Treatment Effects

Variable definitions:

BAI = Two year basal area per acre increment

LN = Natural log

Treatment (TRT) = Fertilizer treatment (control; 200 lbs/acre nitrogen; 400 lbs/acre nitrogen)

Parent Material = Soil parent material = one of the following classes:

- alluvium
- ash/loess
- ash/metasediments
- basalt
- colluvium
- glacial till
- granite
- sandstone
- valley fill

Soil depth = Depth to parent material or bedrock

- deep $\geq$ 24"
- medium 12" to 24"
- shallow $\leq$ 12"

Ash depth = Depth of volcanic ash

- deep $\geq$ 12"
- not deep $\leq$ 12"

Site Index = Douglas-fir site index (Monserud 1984)

BA = Basal area per acre at time of treatment

Table 3

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF RESPONSE TO NITROGEN FERTILIZATION--COMBINED DATA
REGRESSION MODEL--WITH PARENT MATERIAL X TREATMENT EFFECTS

DEPENDENT VARIABLE: LN_BAI LOG(BASAL AREA INCREMENT)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE
MODEL	57	59.10284982	1.01689210	19.61
ERROR	482	25.48141508	0.05286601	PR > F
CORRECTED TOTAL	539	84.58426490		0.0001

R-SQUARE	C.V.	ROOT MSE	LN_BAI MEAN
0.698745	10.1303	0.22992609	2.26968476

SOURCE	DF	TYPE I SS	F VALUE	PR > F
TREATMENT	2	9.26340713	87.61	0.0001
PARENT MATERIAL	8	31.08120519	73.49	0.0001
ASH DEPTH	1	1.92354448	36.39	0.0001
SOIL DEPTH	2	2.09828799	19.85	0.0001
PARENT MATERIAL X TRT	16	0.90635071	1.07	0.3758
SITE INDEX	1	4.85725248	91.88	0.0001
% SLOPE	1	0.01472690	0.28	0.5979
SLOPE*COS(ASPECT)	1	1.24213494	23.50	0.0001
SLOPE*SIN(ASPECT)	1	0.00748580	0.14	0.7069
INITIAL BA	1	0.01402231	0.27	0.6068
BA X PARENT MATERIAL	8	3.74597656	8.86	0.0001
BA X ASH DEPTH	1	0.21396076	4.05	0.0448
BA X TREATMENT	2	0.34355310	3.25	0.0397
BA*BA	1	0.69381047	13.12	0.0003
BA*BA X PARENT MATERIAL	8	2.21841359	5.25	0.0001
BA*BA X ASH DEPTH	1	0.22341387	4.23	0.0403
BA*BA X TREATMENT	2	0.25530355	2.41	0.0905

SOURCE	DF	TYPE III SS	F VALUE	PR > F
TREATMENT	2	0.44809147	4.24	0.0150
PARENT MATERIAL	8	3.34598041	7.91	0.0001
ASH DEPTH	1	0.00004485	0.00	0.9768
SOIL DEPTH	2	1.78766916	16.91	0.0001
PARENT MATERIAL X TRT	16	1.12273151	1.33	0.1754
SITE INDEX	1	2.07774658	39.30	0.0001
% SLOPE	1	0.00260475	0.05	0.8244
SLOPE*COS(ASPECT)	1	0.17198333	3.25	0.0719
SLOPE*SIN(ASPECT)	1	0.04263269	0.81	0.3696
INITIAL BA	1	0.05275616	1.00	0.3183
BA X PARENT MATERIAL	8	2.66728554	6.31	0.0001
BA X ASH DEPTH	1	0.05373720	1.02	0.3139
BA X TREATMENT	2	0.22529569	2.13	0.1199
BA*BA	1	0.02384949	0.56	0.4528
BA*BA X PARENT MATERIAL	8	2.09735430	4.96	0.0001
BA*BA X ASH DEPTH	1	0.11466879	2.17	0.1415
BA*BA X TREATMENT	2	0.25530355	2.41	0.0905

Table 3 (Continued)

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF RESPONSE TO NITROGEN FERTILIZATION--COMBINED DATA
REGRESSION MODEL--WITH PARENT MATERIAL X TREATMENT EFFECTS

PARAMETER				ESTIMATE	T FOR HO: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT				2.29663008	7.64	0.0001	0.30050212
TREATMENT	CONTROL			-0.01425724	-0.06	0.9527	0.26024575
	200 LBS NITROGEN			0.32529638	1.49	0.1382	0.21904079
	400 LBS NITROGEN			0.00000000	.	.	.
PARENT MATERIAL	ALLUVIUM			-4.10075315	-2.69	0.0073	1.52279351
	ASH/LOESS			-2.66425766	-6.13	0.0001	0.43408021
	ASH/META			-0.68822544	-1.47	0.1425	0.46855659
	BASALT			-0.76694158	-2.16	0.0311	0.35466580
	COLLUVIUM			0.27859969	0.12	0.9063	2.36657966
	GLACIAL TILL			-0.41363818	-1.22	0.2224	0.33859771
	GRANITE			-1.29427633	-3.76	0.0002	0.34385680
	SANDSTONE			0.77185644	0.61	0.5410	1.26177220
	VALLEY FILL			0.00000000	.	.	.
ASH DEPTH	DEEP			-0.00997280	-0.01	0.9768	0.34240188
	NOT DEEP			0.00000000	.	.	.
SOIL DEPTH	DEEP			0.17145088	4.44	0.0001	0.03864401
	MEDIUM			0.03069951	0.91	0.4165	0.03775033
	SHALLOW			0.00000000	.	.	.
PARENT MATERIAL X TREATMENT	ALLUVIUM	CONTROL		-0.25661557	-1.41	0.1582	0.18154876
	ALLUVIUM	200 LBS	NITROGEN	0.09690508	0.53	0.5938	0.18158987
	ALLUVIUM	400 LBS	NITROGEN	0.00000000	.	.	.
	ASH/LOESS	CONTROL		-0.38600872	-2.71	0.0069	0.14238040
	ASH/LOESS	200 LBS	NITROGEN	-0.02581142	-0.18	0.8561	0.14222009
	ASH/LOESS	400 LBS	NITROGEN	0.00000000	.	.	.
	ASH/META	CONTROL		-0.36063315	-2.64	0.0085	0.13641768
	ASH/META	200 LBS	NITROGEN	-0.08925737	-0.65	0.5133	0.13643225
	ASH/META	400 LBS	NITROGEN	0.00000000	.	.	.
	BASALT	CONTROL		-0.28510551	-2.21	0.0278	0.12920666
	BASALT	200 LBS	NITROGEN	-0.00300299	-0.02	0.9813	0.12833786
	BASALT	400 LBS	NITROGEN	0.00000000	.	.	.
	COLLUVIUM	CONTROL		-0.58388004	-3.42	0.0007	0.17054430
	COLLUVIUM	200 LBS	NITROGEN	-0.16214276	-0.96	0.3361	0.16840611
	COLLUVIUM	400 LBS	NITROGEN	0.00000000	.	.	.
	GLACIAL TILL	CONTROL		-0.29530126	-2.32	0.0205	0.12704177
	GLACIAL TILL	200 LBS	NITROGEN	-0.03331123	-0.26	0.7922	0.12639651
	GLACIAL TILL	400 LBS	NITROGEN	0.00000000	.	.	.
	GRANITE	CONTROL		-0.29409281	-2.13	0.0338	0.13813543
	GRANITE	200 LBS	NITROGEN	-0.07299169	-0.53	0.5948	0.13714570
	GRANITE	400 LBS	NITROGEN	0.00000000	.	.	.
	SANDSTONE	CONTROL		-0.56728540	-3.01	0.0027	0.18835237
	SANDSTONE	200 LBS	NITROGEN	-0.04947746	-0.27	0.7903	0.18592604
	SANDSTONE	400 LBS	NITROGEN	0.00000000	.	.	.
	VALLEY FILL	CONTROL		0.00000000	.	.	.
	VALLEY FILL	200 LBS	NITROGEN	0.00000000	.	.	.
	VALLEY FILL	400 LBS	NITROGEN	0.00000000	.	.	.

Table 3 (Continued)

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF RESPONSE TO NITROGEN FERTILIZATION--COMBINED DATA
REGRESSION MODEL--WITH PARENT MATERIAL X TREATMENT EFFECTS

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
SITE INDEX		0.00613882	6.27	0.0001	0.00097921
% SLOPE		0.00016114	0.22	0.8244	0.00072595
SLOPE*COS(ASPECT)		-0.12085231	-1.80	0.0719	0.06708389
SLOPE*SIN(ASPECT)		0.04673891	0.90	0.3696	0.05204697
INITIAL BA		-0.01594672	-2.99	0.0029	0.00532895
BA X PARENT MATERIAL	ALLUVIUM	0.06069569	2.66	0.0080	0.02278224
	ASH/LOESS	0.03677605	5.79	0.0001	0.00634727
	ASH/META	0.02475262	3.40	0.0007	0.00727793
	BASALT	0.02055151	3.44	0.0006	0.00597510
	COLLUVIUM	-0.00108172	-0.03	0.9739	0.03310077
	GLACIAL TILL	0.01584701	2.74	0.0063	0.00577847
	GRANITE	0.02752053	4.79	0.0001	0.00574694
	SANDSTONE	0.00324512	0.20	0.8407	0.01613613
	VALLEY FILL	0.00000000	.	.	.
BA X ASH DEPTH	DEEP	0.00458296	1.01	0.3139	0.00454566
	NOT DEEP	0.00000000	.	.	.
BA X TREATMENT	CONTROL	-0.00105326	-0.35	0.7277	0.00302473
	200 LBS NITROGEN	-0.00535137	-1.92	0.0551	0.00278409
	400 LBS NITROGEN	0.00000000	.	.	.
BA*BA		6.0559746E-05	2.73	0.0066	0.00002221
BA*BA X PARENT MATERIAL	ALLUVIUM	-0.00019637	-2.34	0.0196	0.00008417
	ASH/LOESS	-0.00010720	-4.48	0.0001	0.00002391
	ASH/META	-9.5125679E-05	-3.50	0.0005	0.00002717
	BASALT	-7.4279595E-05	-3.10	0.0020	0.00002394
	COLLUVIUM	6.7875847E-06	0.06	0.9529	0.00011497
	GLACIAL TILL	-5.8893853E-05	-2.50	0.0129	0.00002357
	GRANITE	-0.00010078	-4.19	0.0001	0.00002394
	SANDSTONE	-2.6395276E-05	-0.54	0.5912	0.00004911
	VALLEY FILL	0.00000000	.	.	.
BA*BA X ASH DEPTH	DEEP	-2.0362014E-05	-1.47	0.1415	0.00001383
	NOT DEEP	0.00000000	.	.	.
BA*BA X TREATMENT	CONTROL	7.9974960E-06	0.84	0.4036	0.00000957
	200 LBS NITROGEN	1.8967248E-05	2.17	0.0305	0.00000874
	400 LBS NITROGEN	0.00000000	.	.	.

Regression Model #2

Mineralizable Nitrogen Effects

Variable definitions:

BAI = Two year basal area per acre increment

LN = Natural log

Treatment (TRT) = Fertilizer treatment (control; 200 lbs/acre nitrogen; 400 lbs/acre nitrogen)

Parent Material = Soil parent material = one of the following classes:

- alluvium
- ash/loess
- ash/metasediments
- basalt
- colluvium
- glacial till
- granite
- sandstone
- valley fill

Soil depth = Depth to parent material or bedrock

- deep $\geq$ 24"
- medium 12" to 24"
- shallow $\leq$ 12"

Ash depth = Depth of volcanic ash

- deep $\geq$ 12"
- not deep $\leq$ 12"

Site Index = Douglas-fir site index (Monserud 1984)

BA = Basal area per acre at time of treatment

Min_N = Rate of nitrogen mineralization before treatment

Table 4

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF RESPONSE TO NITROGEN FERTILIZATION--COMBINED DATA
REGRESSION MODEL--WITH MINERALIZABLE NITROGEN EFFECTS

DEPENDENT VARIABLE: LN_BAI LOG(BASAL AREA INCREMENT)

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE
MODEL	53	60.16888098	1.13526191	22.60
ERROR	486	24.41538392	0.05023742	PR > F
CORRECTED TOTAL	539	84.58426490		0.0001

R-SQUARE	C.V.	ROOT MSE	LN_BAI MEAN
0.711348	9.8753	0.22413705	2.26968476

SOURCE	DF	TYPE I SS	F VALUE	PR > F	TYPE III SS	F VALUE	PR > F
TREATMENT	2	9.26340713	92.20	0.0001	0.37671953	3.75	0.0242
PARENT MATERIAL	8	31.08120519	77.34	0.0001	2.90680374	7.23	0.0001
ASH DEPTH	1	1.92354448	38.29	0.0001	0.02419183	0.48	0.4981
SOIL DEPTH	2	2.09828799	20.88	0.0001	1.14587373	11.40	0.0001
SITE INDEX	1	4.85529748	96.65	0.0001	1.59837401	39.78	0.0001
% SLOPE	1	0.02256401	0.45	0.5031	0.00605176	0.12	0.7287
SLOPE*COS(ASPECT)	1	1.21047237	24.10	0.0001	0.21538143	4.29	0.0389
SLOPE*SIN(ASPECT)	1	0.00725642	0.14	0.7041	0.00309822	0.06	0.8040
INITIAL BA	1	0.02053633	0.41	0.5229	0.17723008	3.53	0.0481
BA X PARENT MATERIAL	8	3.70057862	9.21	0.0001	2.47522073	6.16	0.0001
BA X ASH DEPTH	1	0.23802847	4.74	0.0300	0.22781007	4.53	0.0337
BA X TREATMENT	2	0.19512780	1.94	0.1445	0.22744095	2.26	0.1051
BA*BA	1	0.70461116	14.03	0.0002	0.14459581	2.88	0.0904
BA*BA X PARENT MATERIAL	8	2.14201700	5.33	0.0001	1.63039567	4.06	0.0001
BA*BA X ASH DEPTH	1	0.23513631	4.68	0.0310	0.33190568	6.61	0.0104
BA*BA X TREATMENT	2	0.28204756	2.81	0.0614	0.30815014	3.07	0.0475
MINERALIZABLE NITROGEN	1	0.09007610	1.79	0.1812	0.28132994	5.60	0.0184
MIN N X PARENT MATERIAL	8	1.05816925	2.63	0.0079	1.18511777	2.95	0.0031
MIN N X ASH DEPTH	1	0.29187357	5.81	0.0163	0.30821911	6.14	0.0136
MIN N X TREATMENT	2	0.74864374	7.45	0.0006	0.74864374	7.45	0.0006

Table 4 (Continued)

INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF RESPONSE TO NITROGEN FERTILIZATION--COMBINED DATA
REGRESSION MODEL--WITH MINERALIZABLE NITROGEN EFFECTS

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
INTERCEPT		1.90629885	4.71	0.0001	0.40475902
TREATMENT	CONTROL	-0.23109155	-1.08	0.2794	0.21392607
	200 LBS NITROGEN	0.32855698	1.64	0.1015	0.20024748
	400 LBS NITROGEN	0.00000000	.	.	.
PARENT MATERIAL	ALLUVIUM	-4.99707601	-3.30	0.0010	1.51226501
	ASH/LOESS	-2.35962280	-4.62	0.0001	0.51054187
	ASH/META	-0.24588548	-0.45	0.6544	0.54887136
	BASALT	-0.33056470	-0.74	0.4609	0.44799447
	COLLUVIUM	0.10207006	0.05	0.9636	2.23270156
	GLACIAL TILL	-0.05929507	-0.13	0.8932	0.44146556
	GRANITE	-0.74263031	-1.63	0.1036	0.45541922
	SANDSTONE	1.60849929	1.17	0.2422	1.37382204
	VALLEY FILL	0.00000000	.	.	.
ASH DEPTH	DEEP	-0.24147356	-0.69	0.4881	0.34797591
	NOT DEEP	0.00000000	.	.	.
SOIL DEPTH	DEEP	0.14521301	3.71	0.0002	0.03913771
	MEDIUM	0.02675307	0.72	0.4694	0.03655198
	SHALLOW	0.00000000	.	.	.
SITE INDEX		0.00612632	6.31	0.0001	0.00097135
X SLOPE		0.00026437	0.35	0.7287	0.00076171
SLOPE*COS(ASPECT)		-0.13950607	-2.07	0.0389	0.06737559
SLOPE*SIN(ASPECT)		0.01368650	0.25	0.8040	0.05511252
INITIAL BA		-0.01079161	-1.97	0.0494	0.00547702
BA X PARENT MATERIAL	ALLUVIUM	0.07333593	3.40	0.0007	0.02154579
	ASH/LOESS	0.03420446	5.15	0.0001	0.00664767
	ASH/META	0.01686874	2.24	0.0254	0.00752292
	BASALT	0.01631285	2.66	0.0080	0.00612250
	COLLUVIUM	0.00246780	0.08	0.9373	0.03134603
	GLACIAL TILL	0.01116166	1.86	0.0636	0.00600228
	GRANITE	0.02201589	3.65	0.0003	0.00602352
	SANDSTONE	-0.00819972	-0.50	0.6141	0.01625149
	VALLEY FILL	0.00000000	.	.	.
BA X ASH DEPTH	DEEP	0.01016820	2.13	0.0337	0.00477498
	NOT DEEP	0.00000000	.	.	.
BA X TREATMENT	CONTROL	-0.00392675	-1.38	0.1671	0.00283807
	200 LBS NITROGEN	-0.00546177	-2.10	0.0364	0.00260261
	400 LBS NITROGEN	0.00000000	.	.	.

Table 4 (Continued)

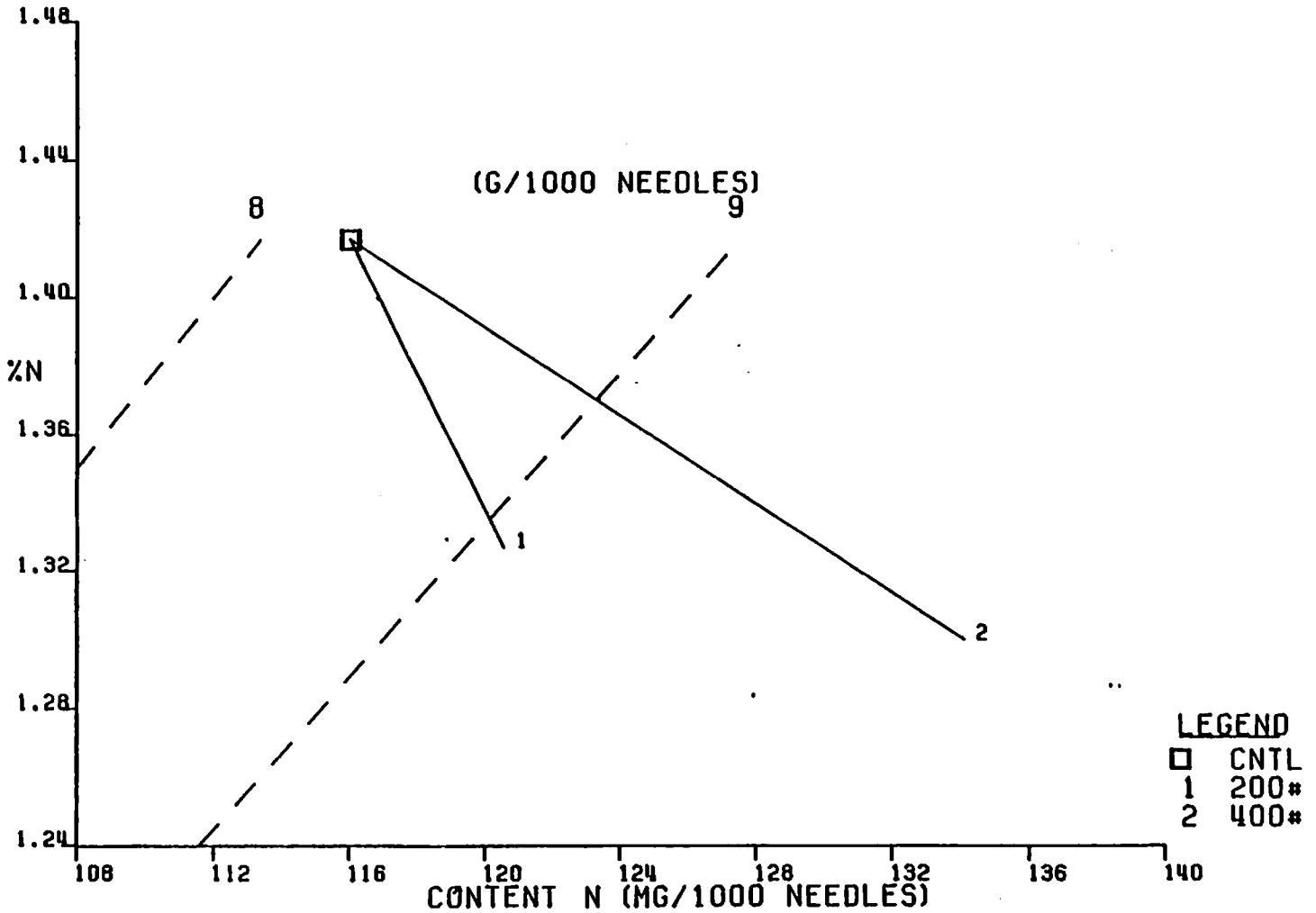
INTERMOUNTAIN FOREST TREE NUTRITION COOPERATIVE
ANALYSIS OF RESPONSE TO NITROGEN FERTILIZATION--COMBINED DATA
REGRESSION MODEL--WITH MINERALIZABLE NITROGEN EFFECTS

PARAMETER		ESTIMATE	T FOR H0: PARAMETER=0	PR > |T|	STD ERROR OF ESTIMATE
DA*BA		3.8098635E-05	1.61	0.1089	0.00002372
DA*BA X	ALLUVIUM	-0.00023682	-2.99	0.0029	0.00007923
PARENT	ASH/LOESS	-8.7802173E-05	-3.40	0.0007	0.00002581
MATERIAL	ASH/META	-6.5917636E-05	-2.30	0.0218	0.00002865
	BASALT	-5.2537459E-05	-2.07	0.0393	0.00002542
	COLLUVIUM	4.1645536E-09	0.00	1.0000	0.00010921
	GLACIAL TILL	-3.6802278E-05	-1.46	0.1461	0.00002529
	GRANITE	-7.3212906E-05	-2.91	0.0037	0.00002514
	SANDSTONE	1.2980622E-05	0.26	0.7971	0.00005046
	VALLEY FILL	0.00000000	.	.	.
DA*BA X	DEEP	-3.6272138E-05	-2.57	0.0104	0.00001411
ASH DEPTH	NOT DEEP	0.00000000	.	.	.
DA*BA X	CONTROL	1.4950599E-05	1.67	0.0949	0.00000893
TREATMENT	200 LBS NITROGEN	1.9858639E-05	2.43	0.0156	0.00000818
	400 LBS NITROGEN	0.00000000	.	.	.
MIN N		0.00347546	1.02	0.3065	0.00339540
MIN N X	ALLUVIUM	-0.00124912	-0.26	0.7935	0.00476407
PARENT	ASH/LOESS	-0.01061012	-2.71	0.0070	0.00391773
MATERIAL	ASH/META	0.00087928	0.22	0.8287	0.00406198
	BASALT	-0.00618350	-1.84	0.0658	0.00335284
	COLLUVIUM	-0.00698268	-1.83	0.0672	0.00340672
	GLACIAL TILL	-0.00358542	-1.06	0.2877	0.00336873
	GRANITE	-0.01044398	-2.10	0.0366	0.00499199
	SANDSTONE	-0.00208735	-0.45	0.6496	0.00459101
	VALLEY FILL	0.00000000	.	.	.
MIN N X	DEEP	-0.00566919	-2.48	0.0136	0.00228877
ASH DEPTH	NOT DEEP	0.00000000	.	.	.
MIN N X	CONTROL	0.00339356	2.84	0.0047	0.00119593
TREATMENT	200 LBS NITROGEN	-0.00097342	-0.80	0.4239	0.00121629
	400 LBS NITROGEN	0.00000000	.	.	.

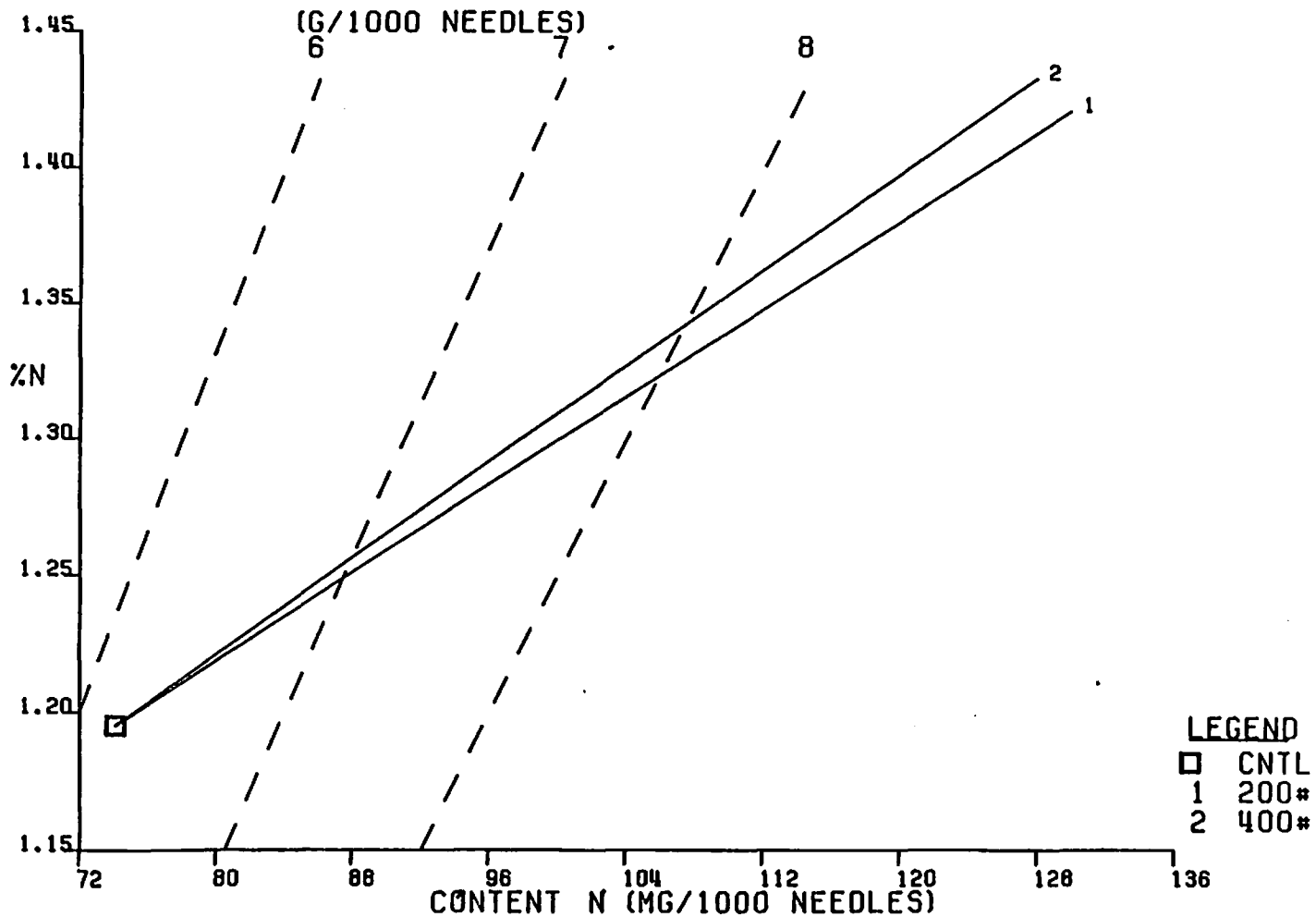
Section III

Nitrogen/needle weight graphs for the 1982 Installations

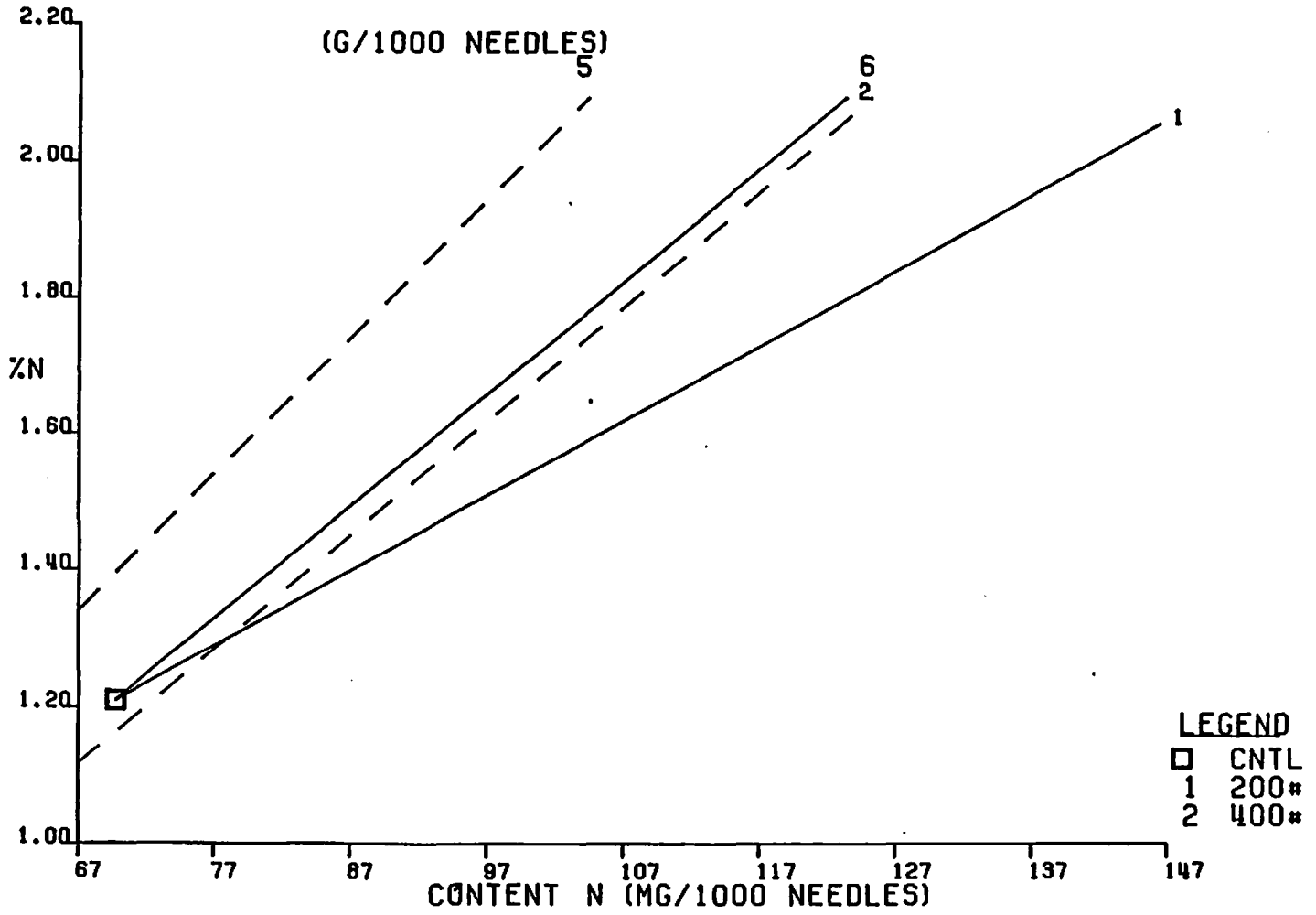
246 KETTLE FALLS



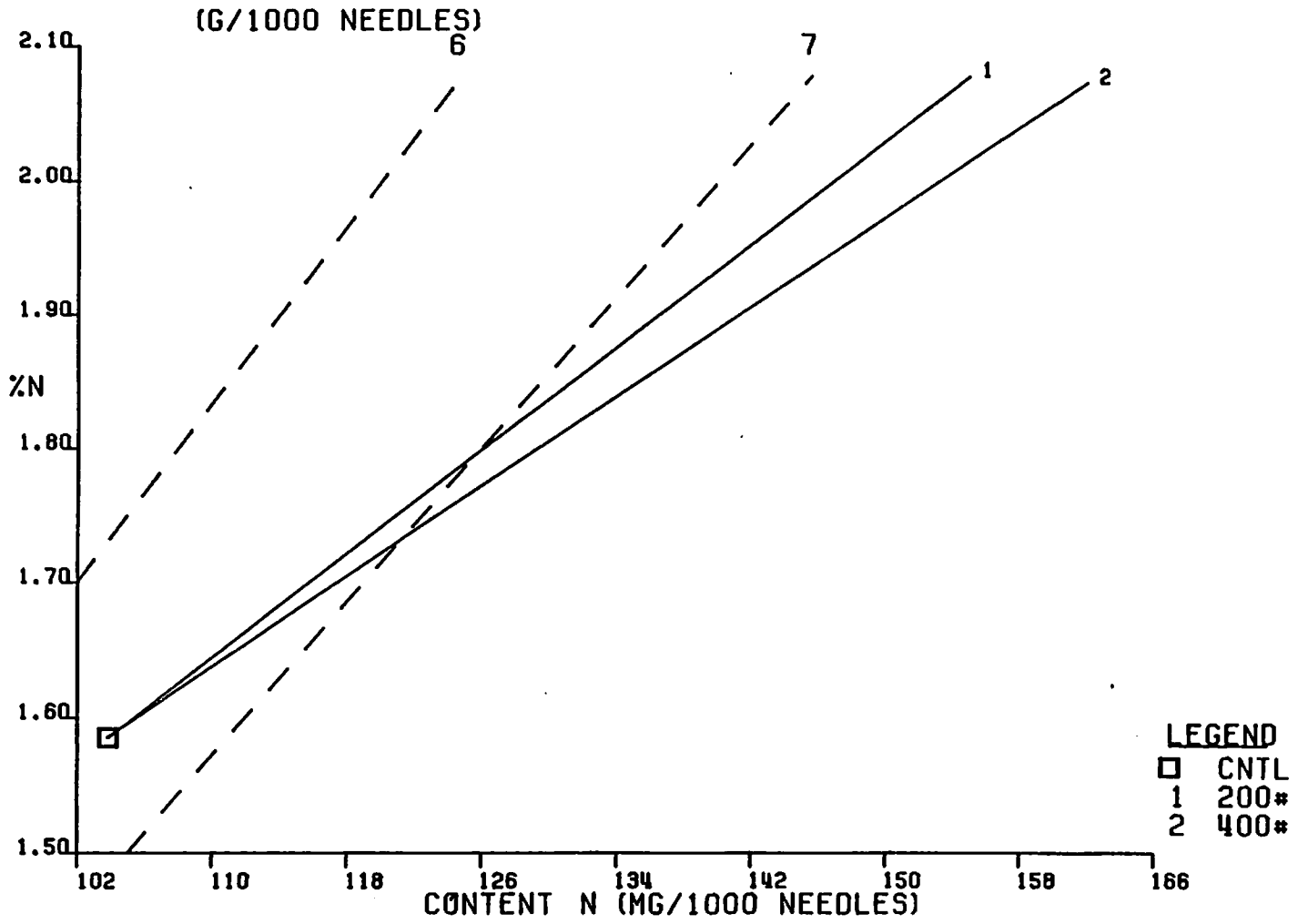
247 PARK RAPIDS

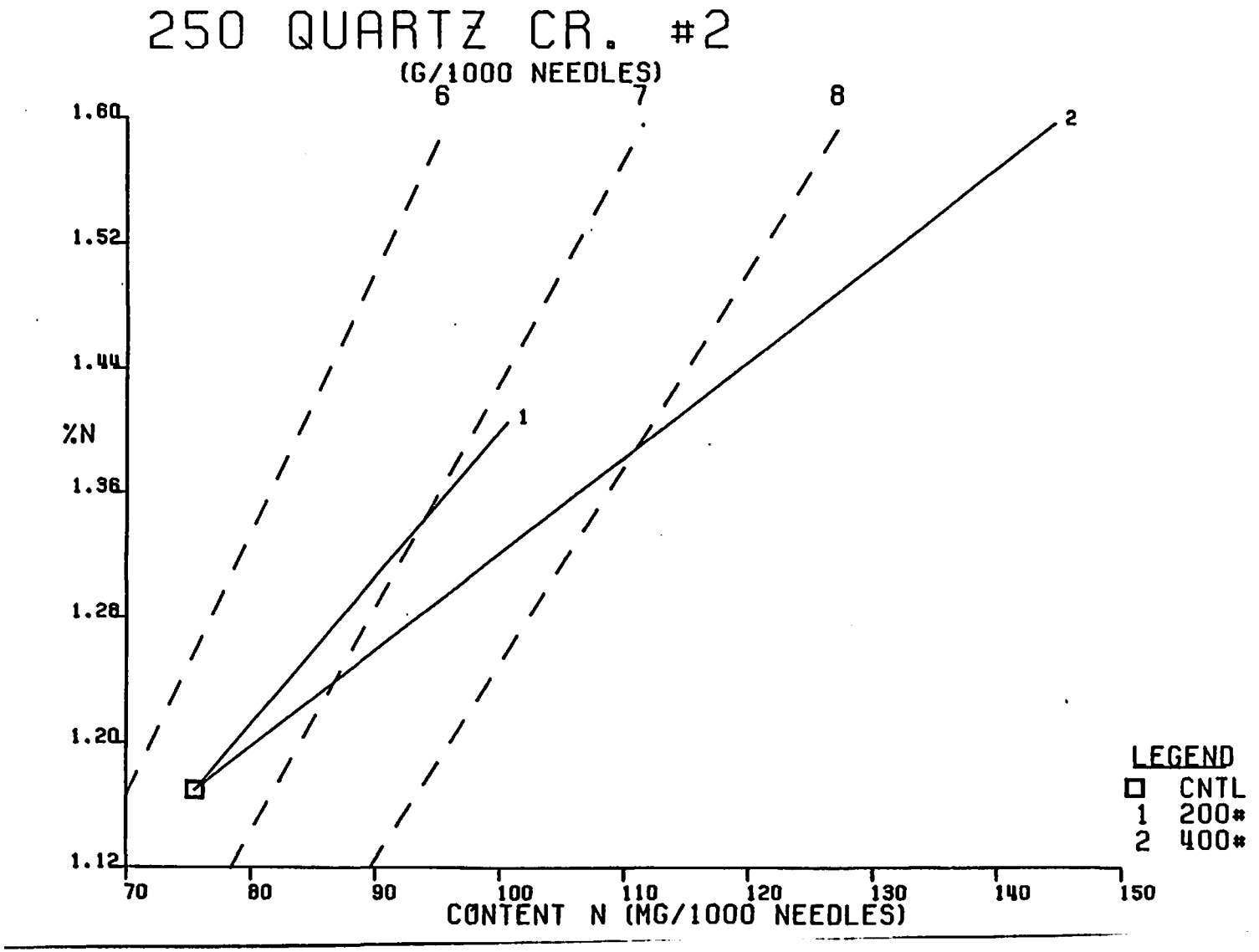


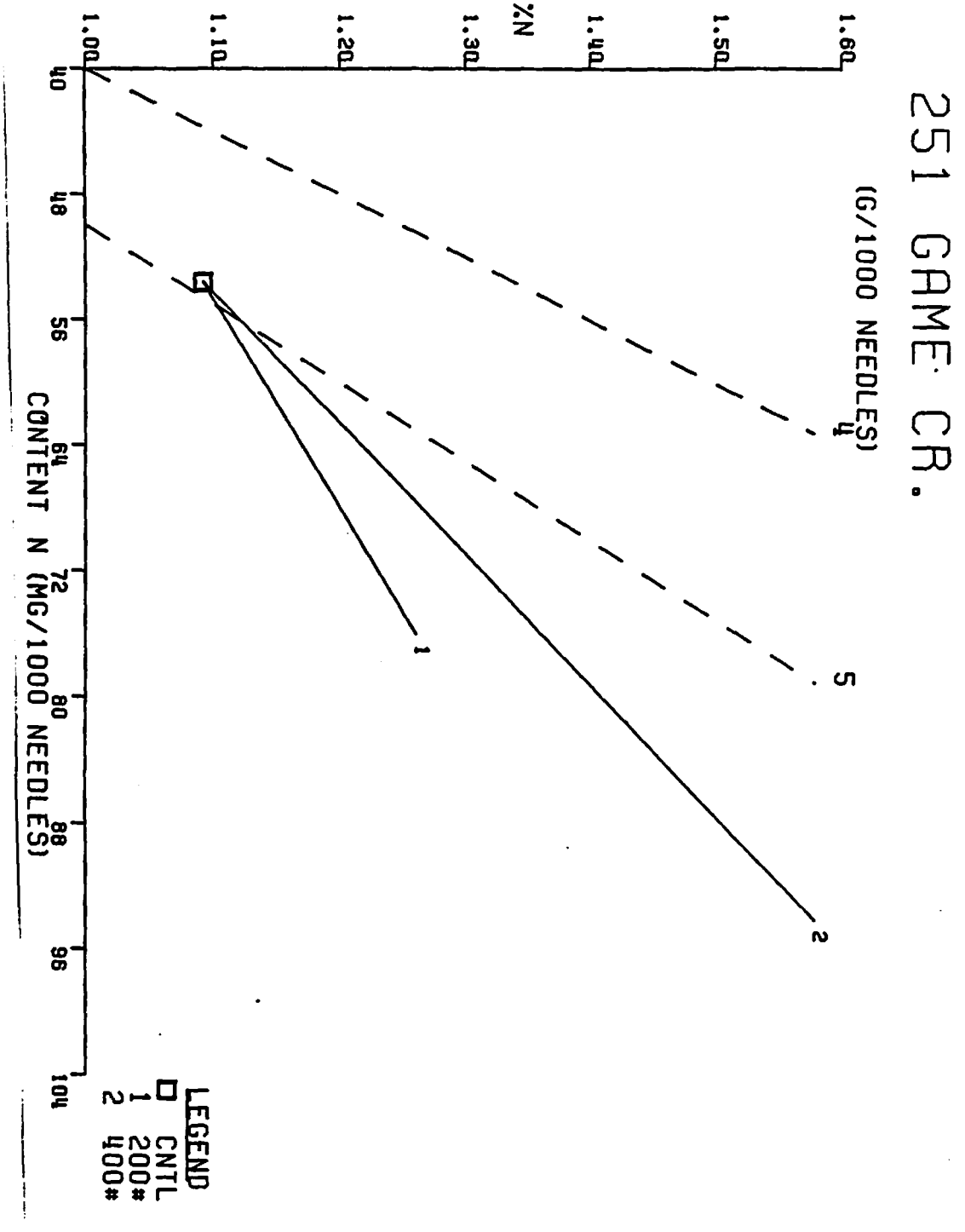
248 QUINEY FLAT



249 KAISER BUTTE #2

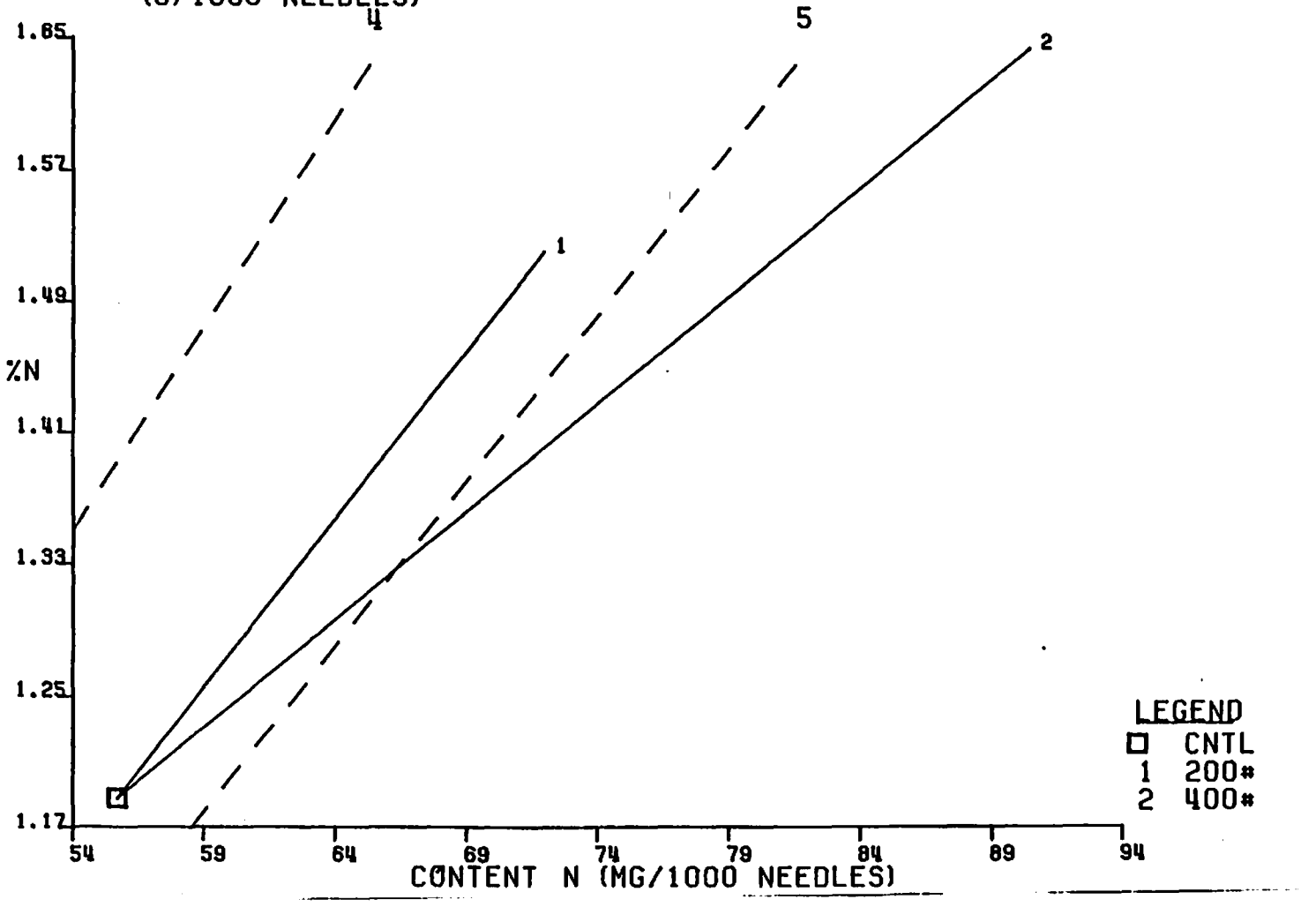



250 QUARTZ CR. #2
(G/1000 NEEDLES)
6
7
8
2
1
1.60
1.52
1.44
%N
1.36
1.28
1.20
1.12
70
80
90
100
110
120
130
140
150
CONTENT N (MG/1000 NEEDLES)
LEGEND
CNTL
1 200#
2 400#

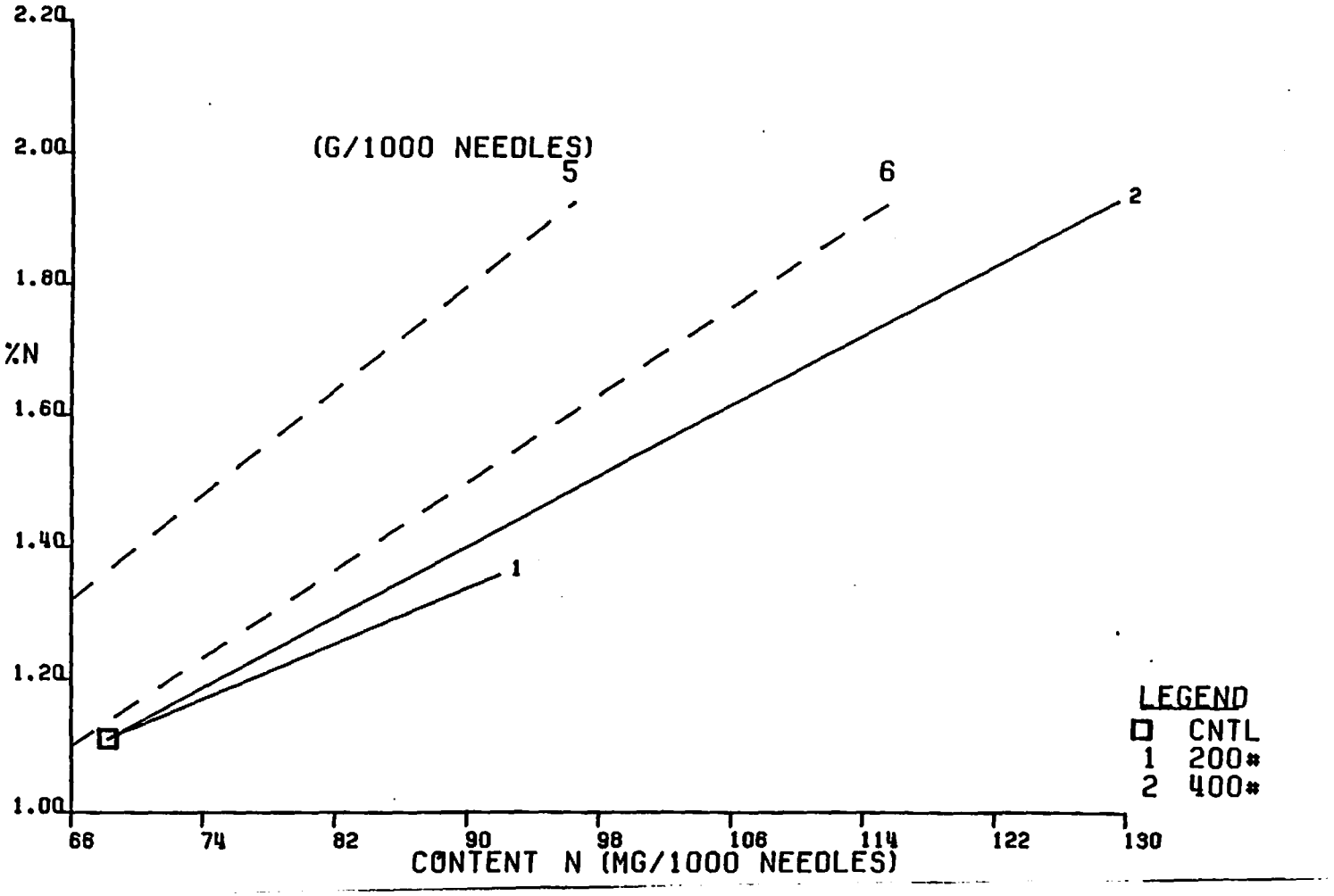

251 GAME CR.
(G/1000 NEEDLES)
%N
1.60
1.50
1.40
1.30
1.20
1.10
1.00
40
48
56
64
72
80
88
96
104
CONTENT N (MG/1000 NEEDLES)
5
1
2
LEGEND
CNTL
200#
400#

252 BLACK CANYON RANCH

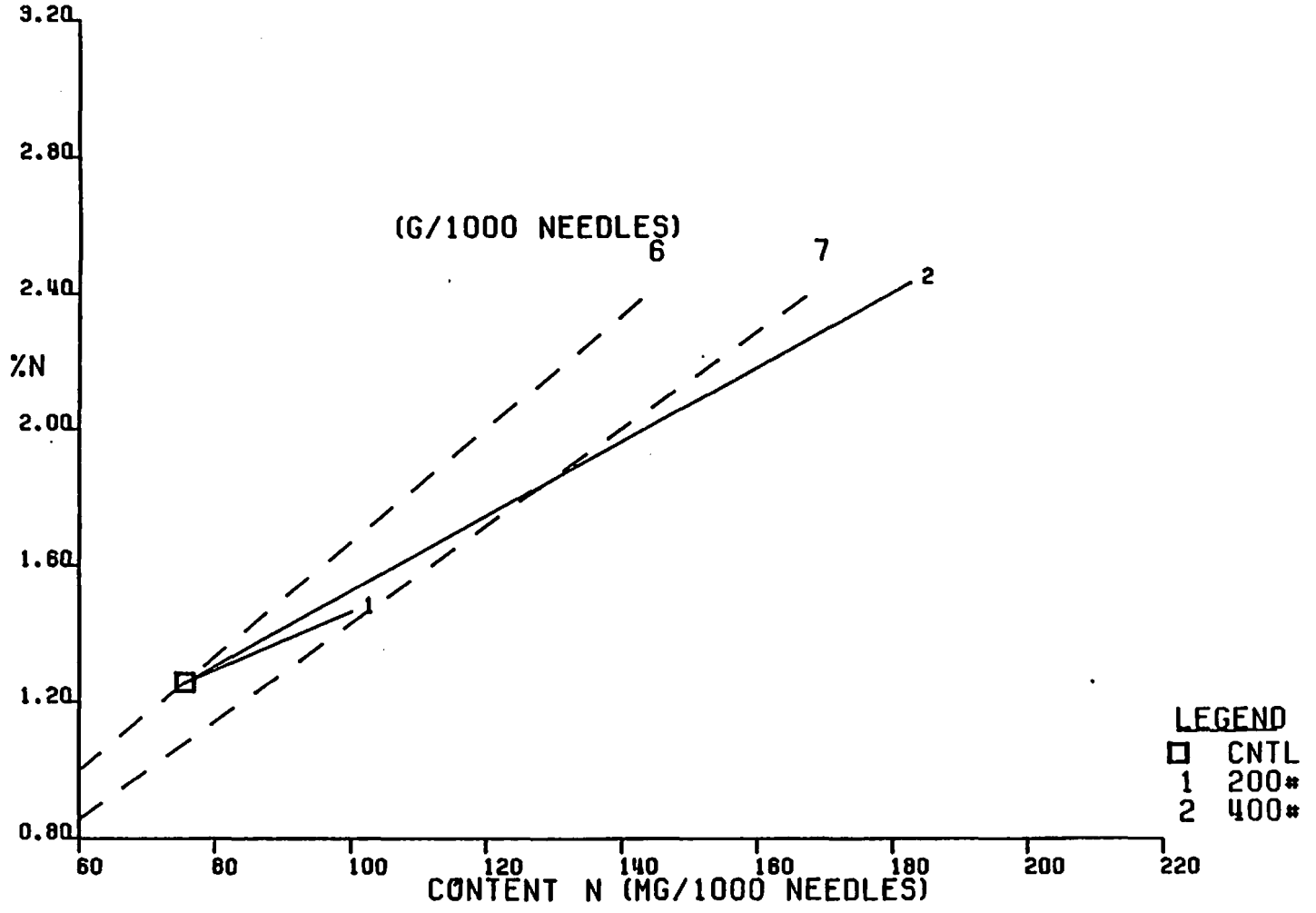
(G/1000 NEEDLES)

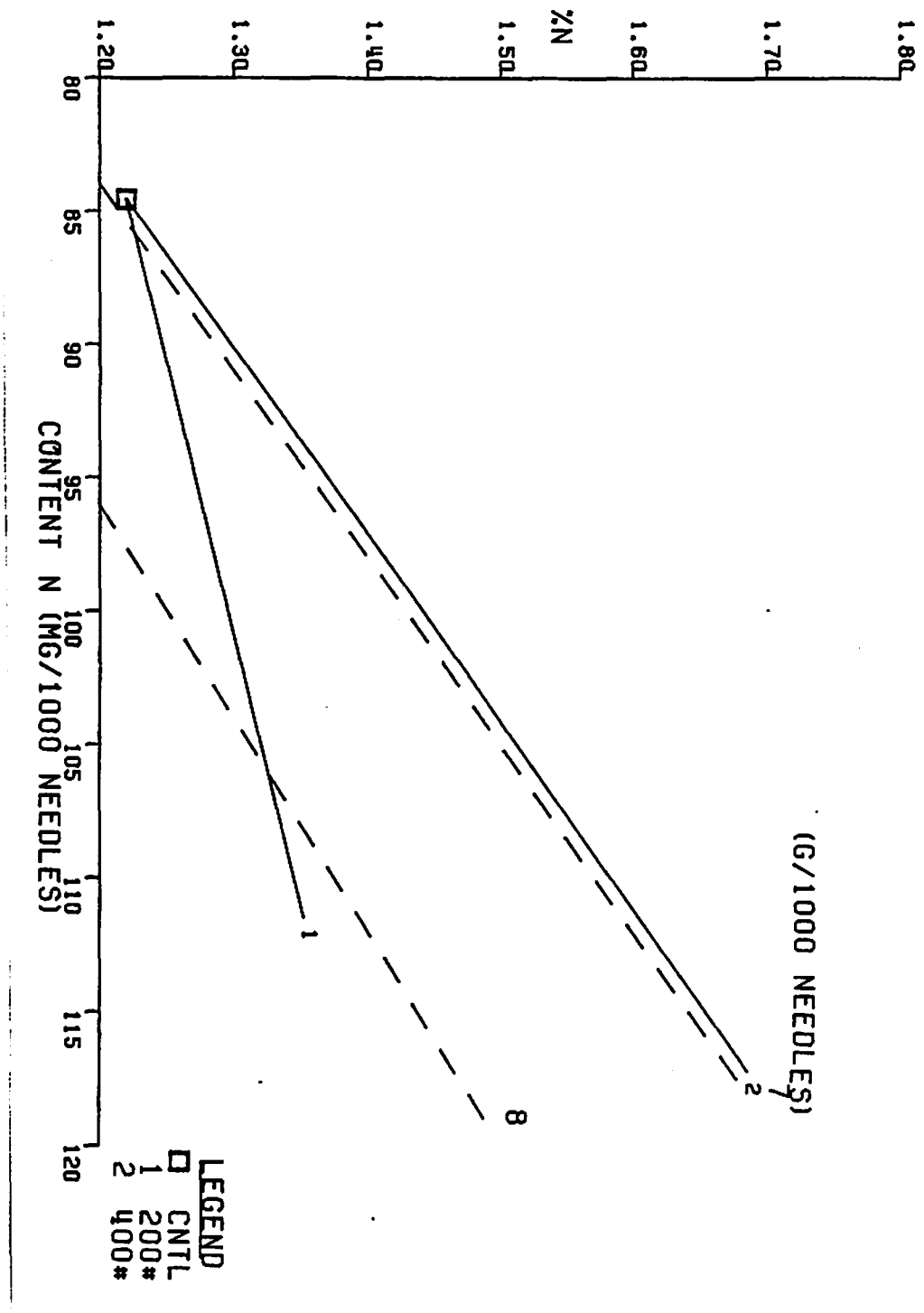


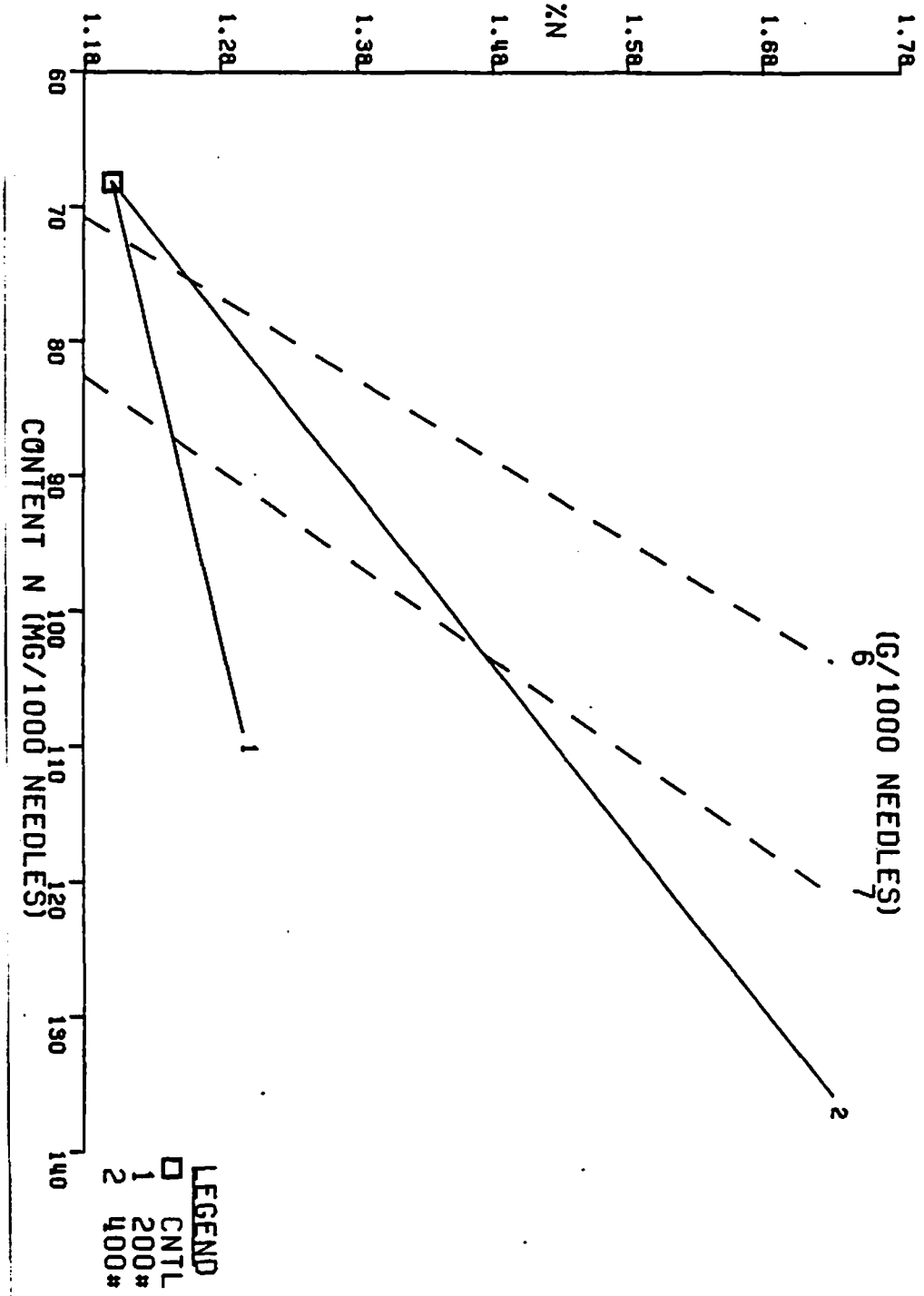
253 ELK CR. RESERVØIR



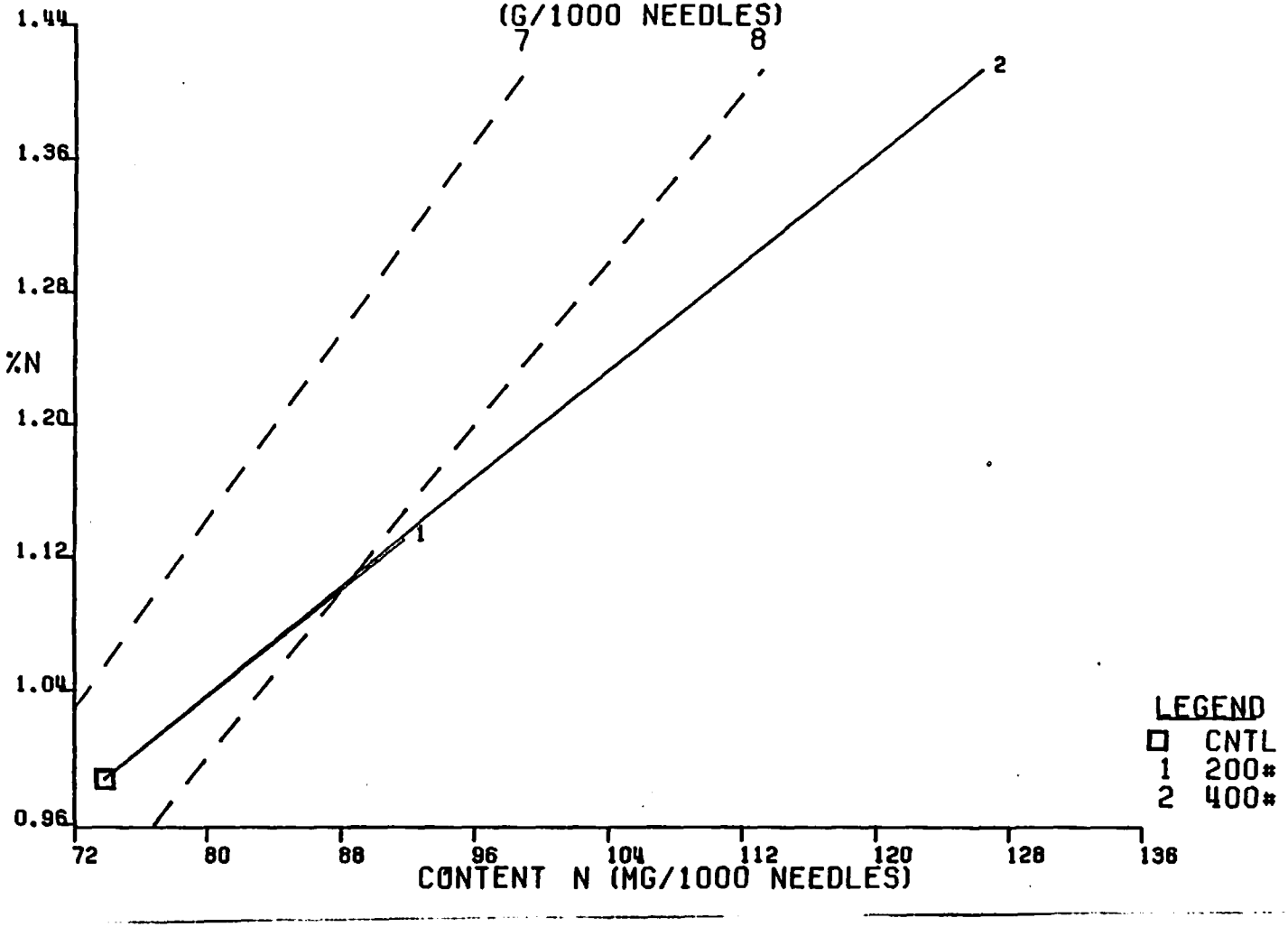
254 CRANBERRY CR.



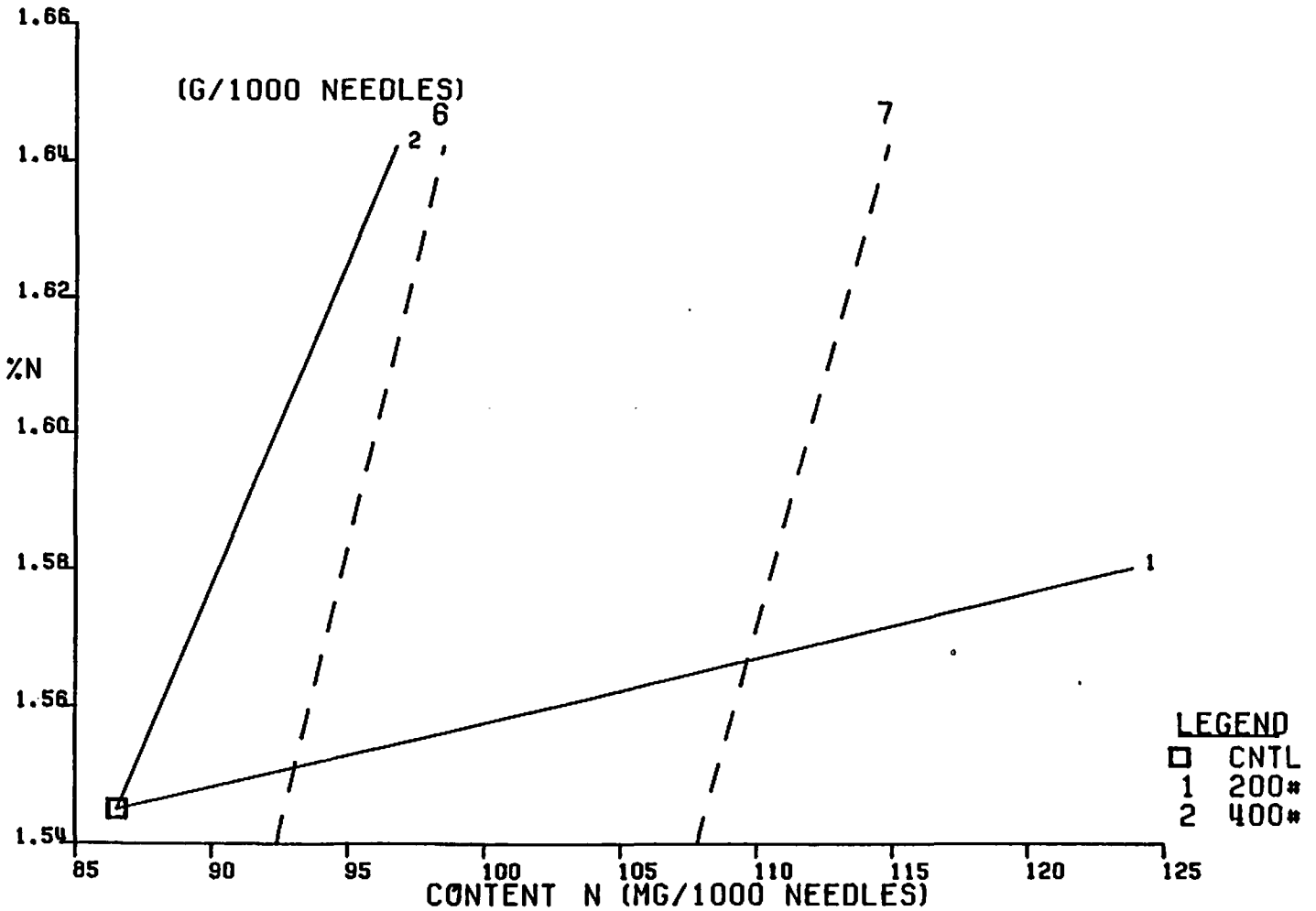

255 BIRCH CR.
%N
1.80
1.70
1.60
1.50
1.40
1.30
1.20
80
85
90
95
100
105
110
115
120
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
LEGEND
CNTL
200*
400*
1
2
8

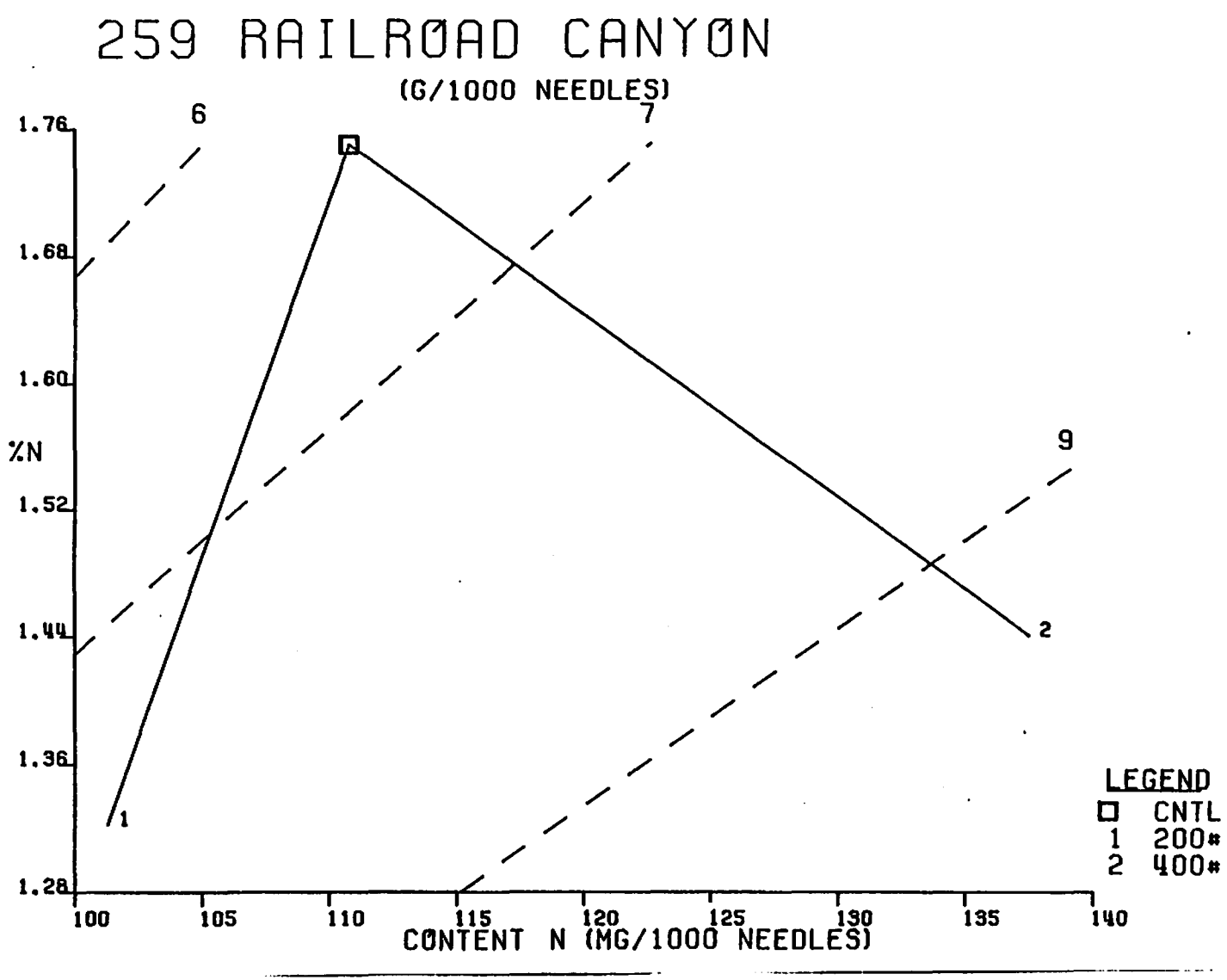

256 SLY MEADOWS
%N
1.7
1.6
1.5
1.4
1.3
1.2
1.1
60
70
80
90
100
110
120
130
140
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
6
7
1
2
LEGEND
CNTL
1 200#
2 400#

257 LITTLE CATHERINE CR.

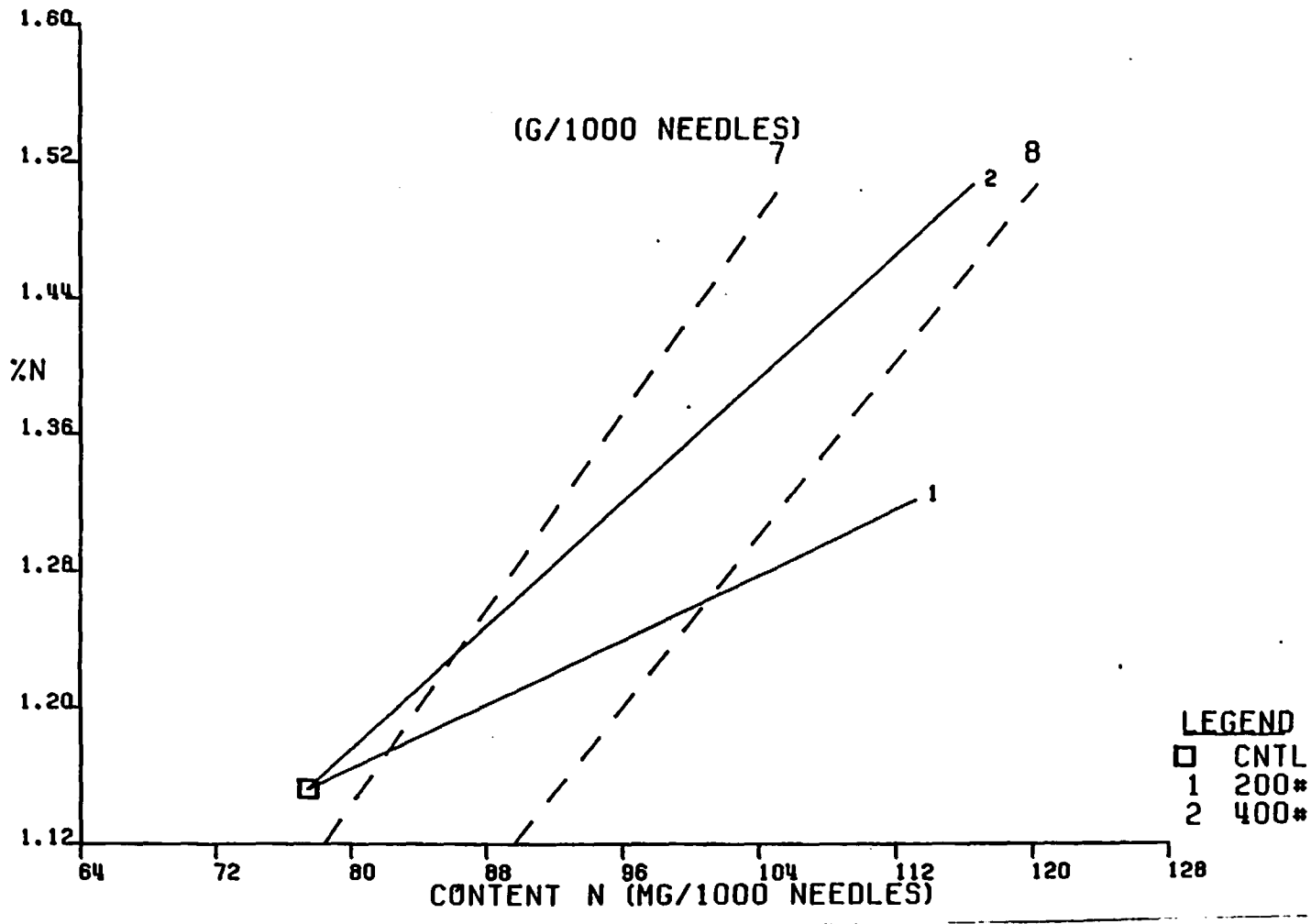


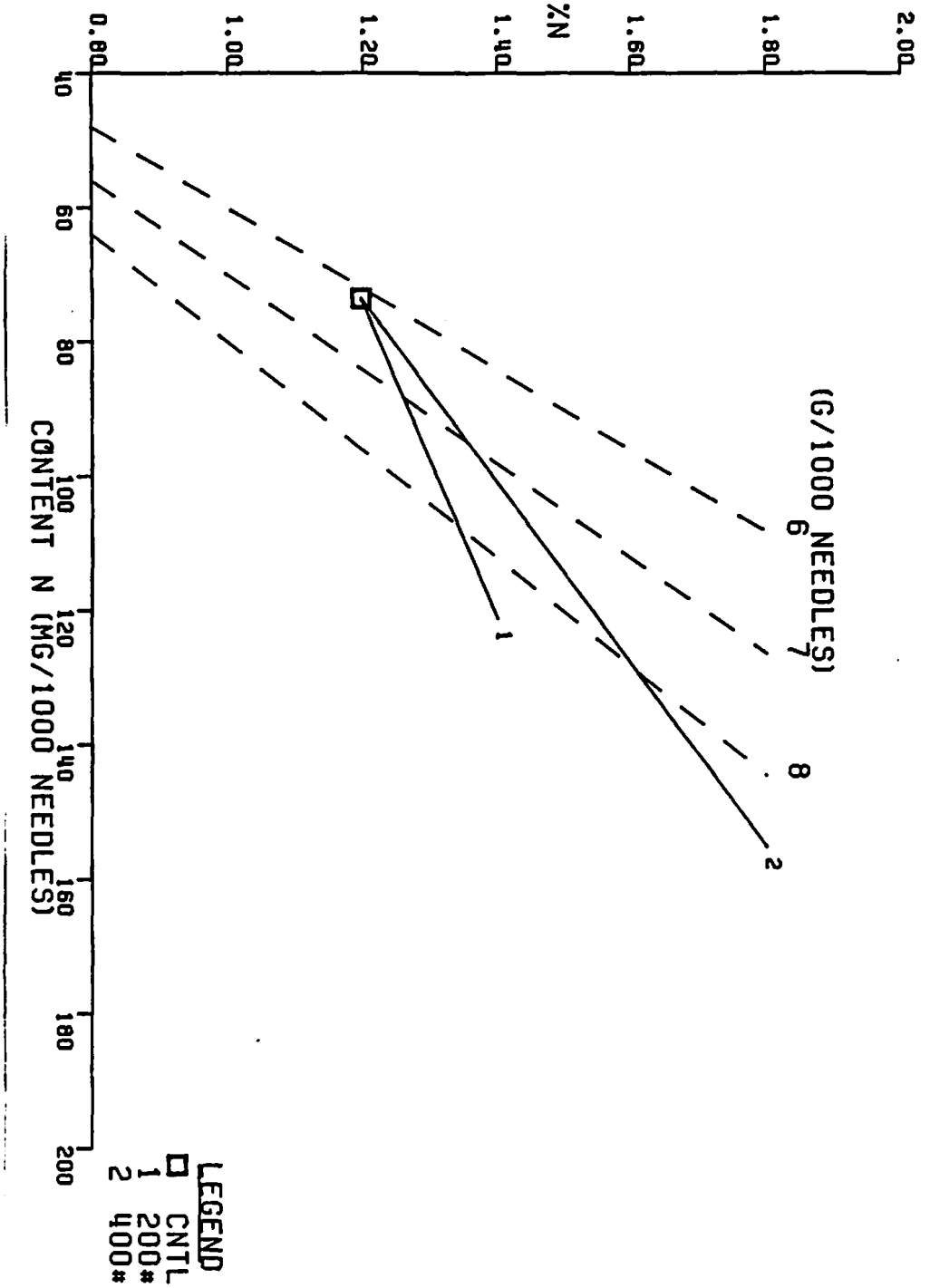
258 RONDOWA


1.66
1.64
1.62
%N
1.60
1.58
1.56
1.54
(G/1000 NEEDLES)
6
2
7
1
LEGEND
CNTL
1 200#
2 400#
85
90
95
100
105
110
115
120
125
CONTENT N (MG/1000 NEEDLES)

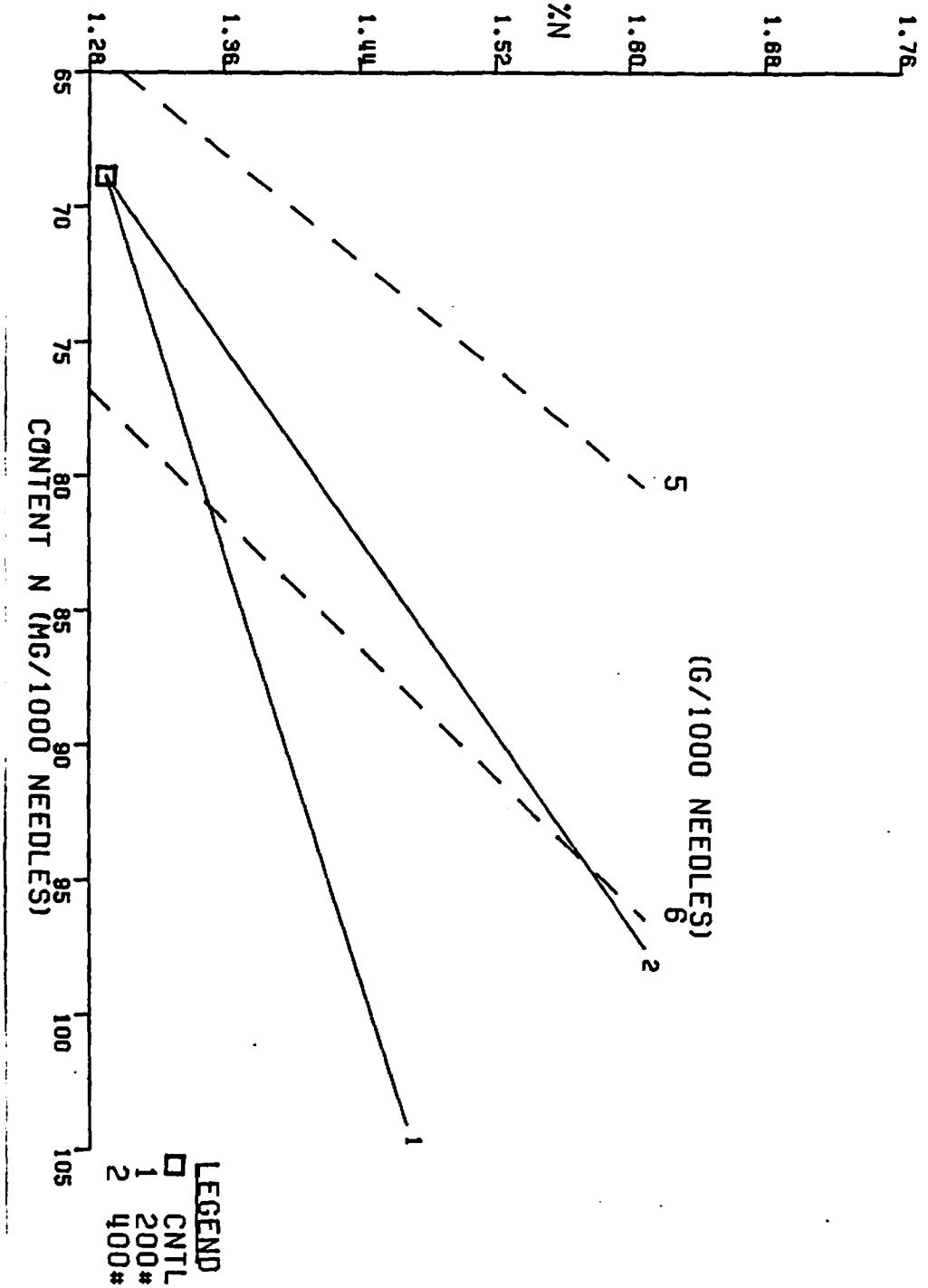

259 RAILROAD CANYON
(G/1000 NEEDLES)
1.76
1.68
1.60
1.52
1.44
1.36
1.28
%N
6
7
9
1
2
100
105
110
115
120
125
130
135
140
CONTENT N (MG/1000 NEEDLES)
LEGEND
CNTL
1 200#
2 400#

260 TUMWATER MTN



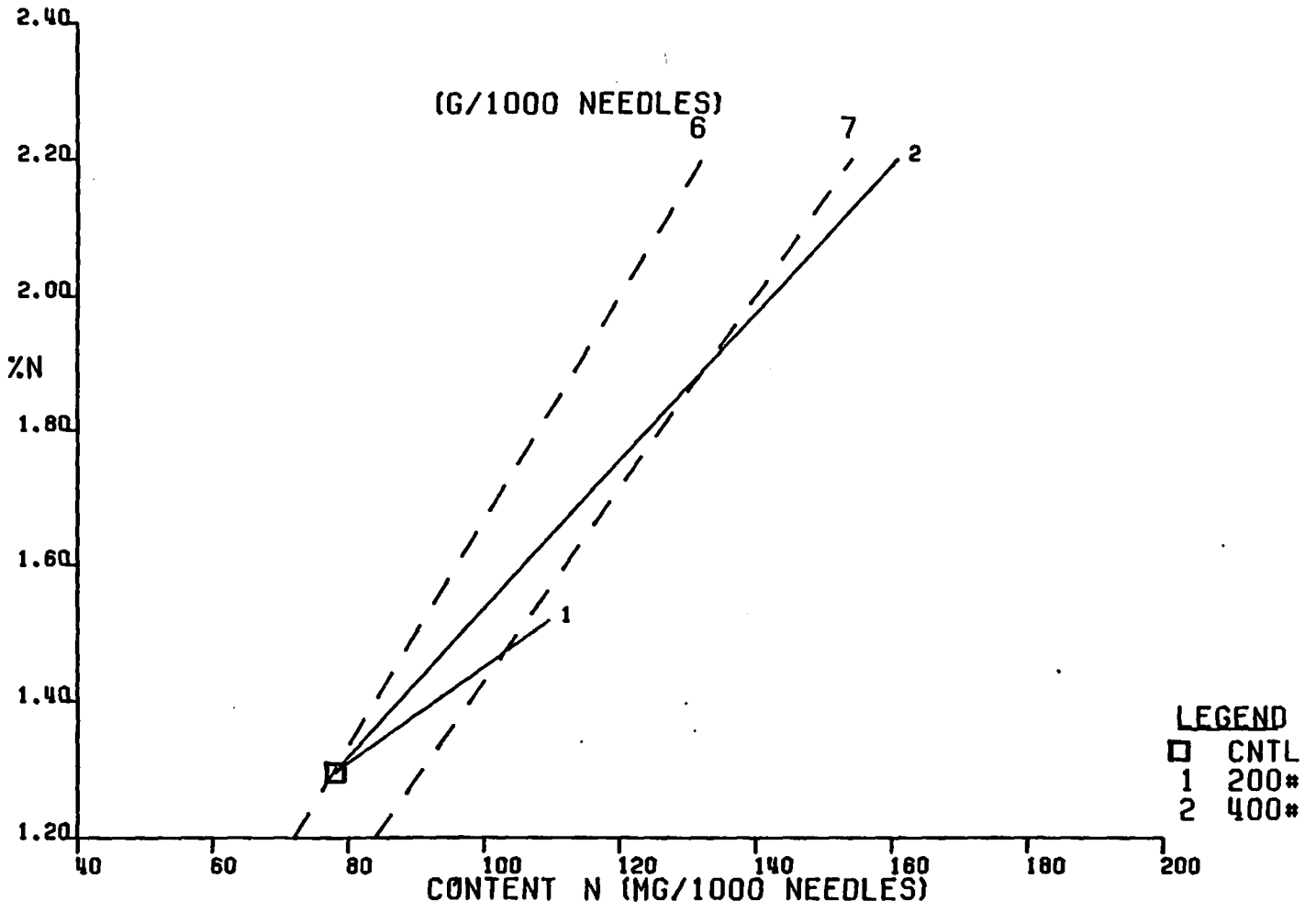

261 SECOND CR.
%N
2.00
1.80
1.60
1.40
1.20
1.00
0.80
40
60
80
100
120
140
160
180
200
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
6
7
8
1
2
LEGEND
CNTL
1 200#
2 400#

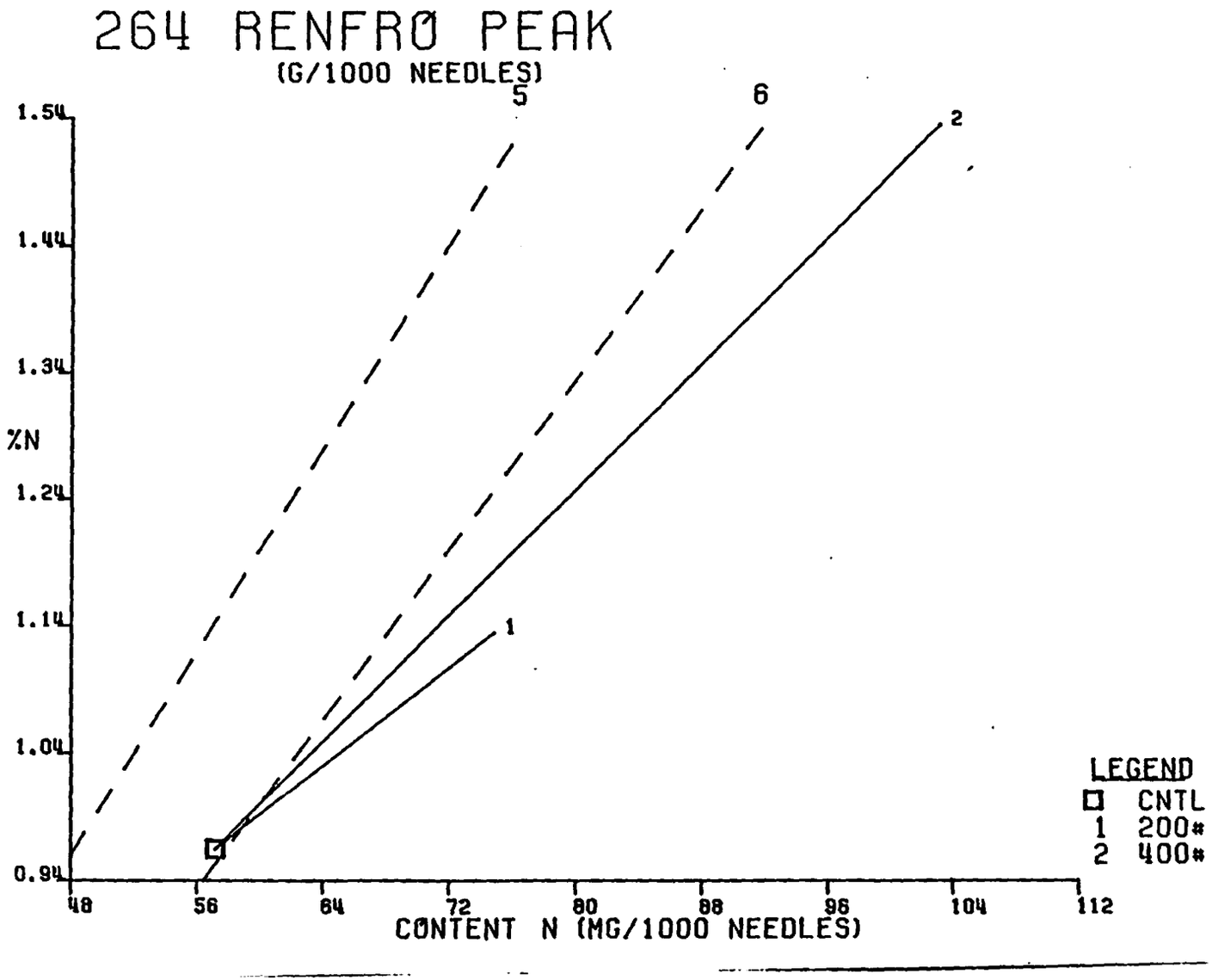
262 STEVENS PASS

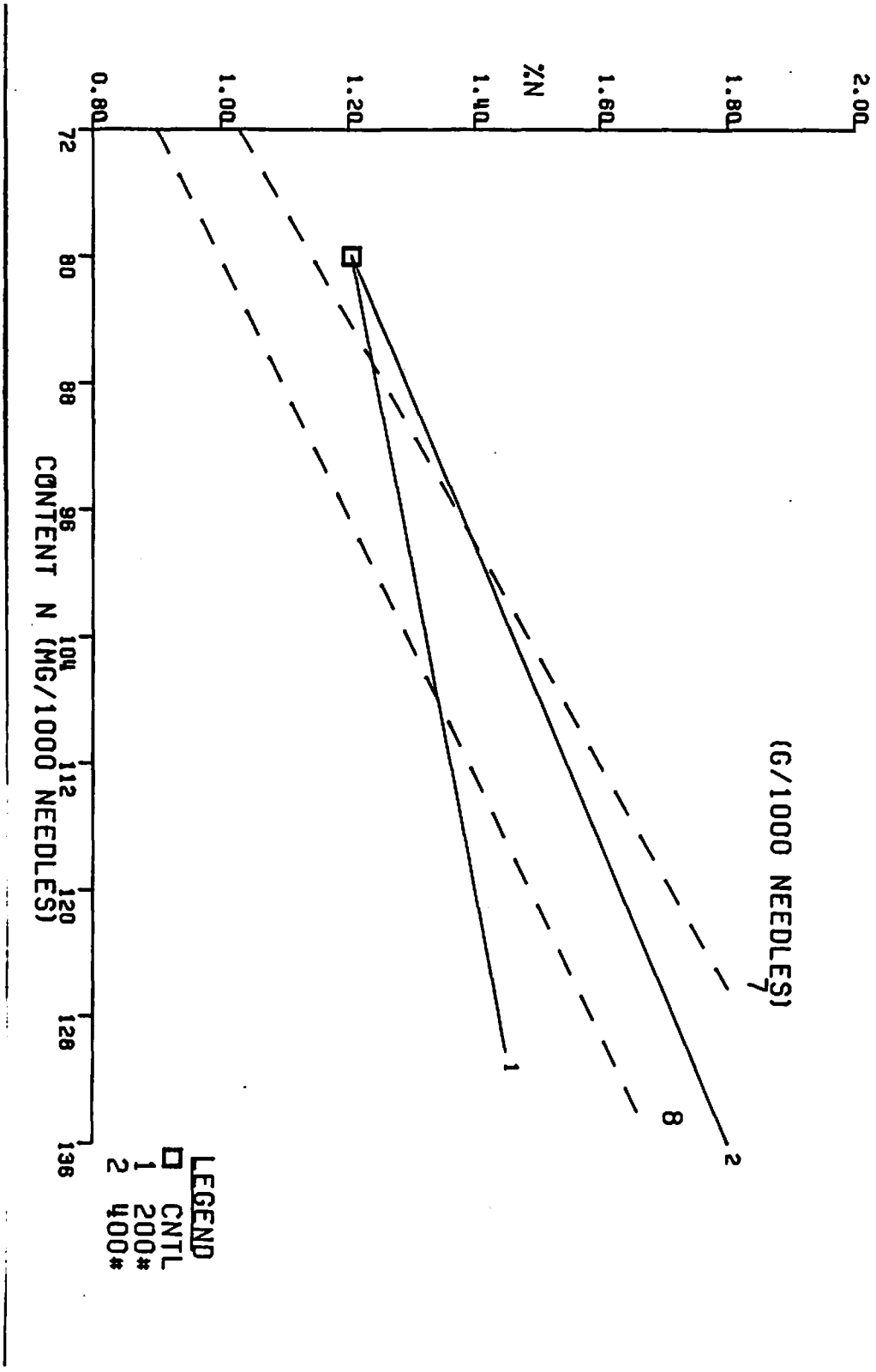


76

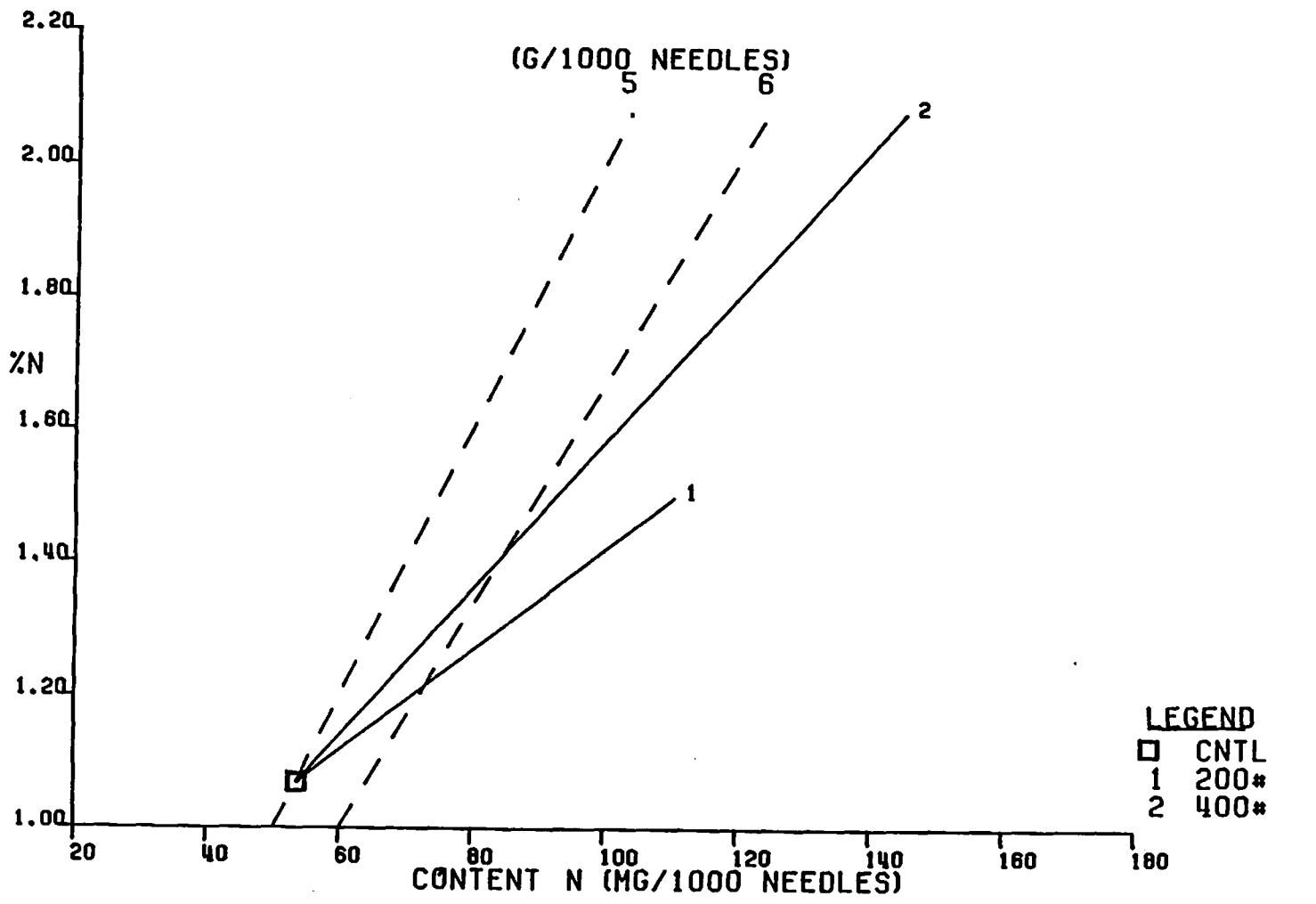
263 N.F. TEANAWAY R.

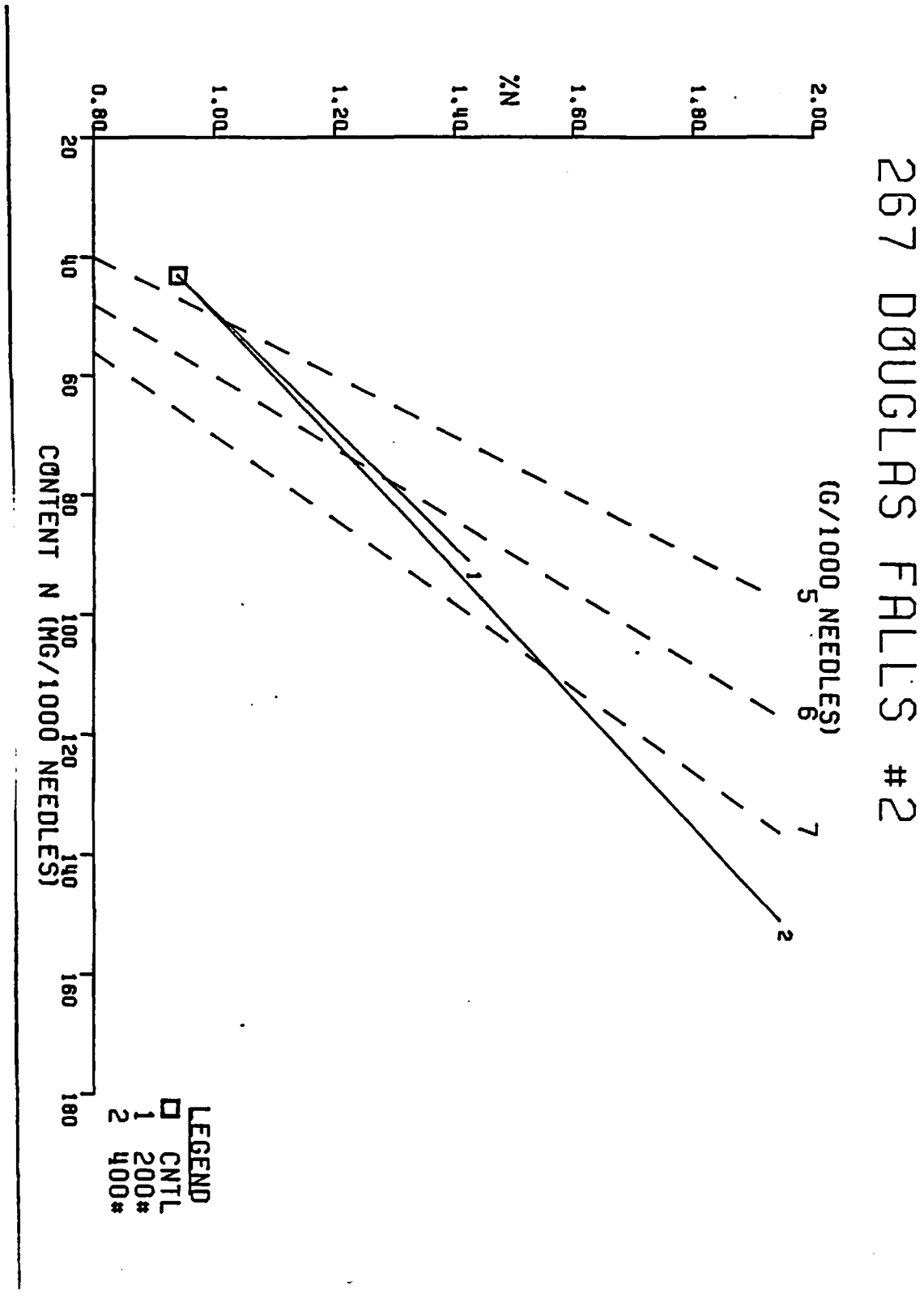


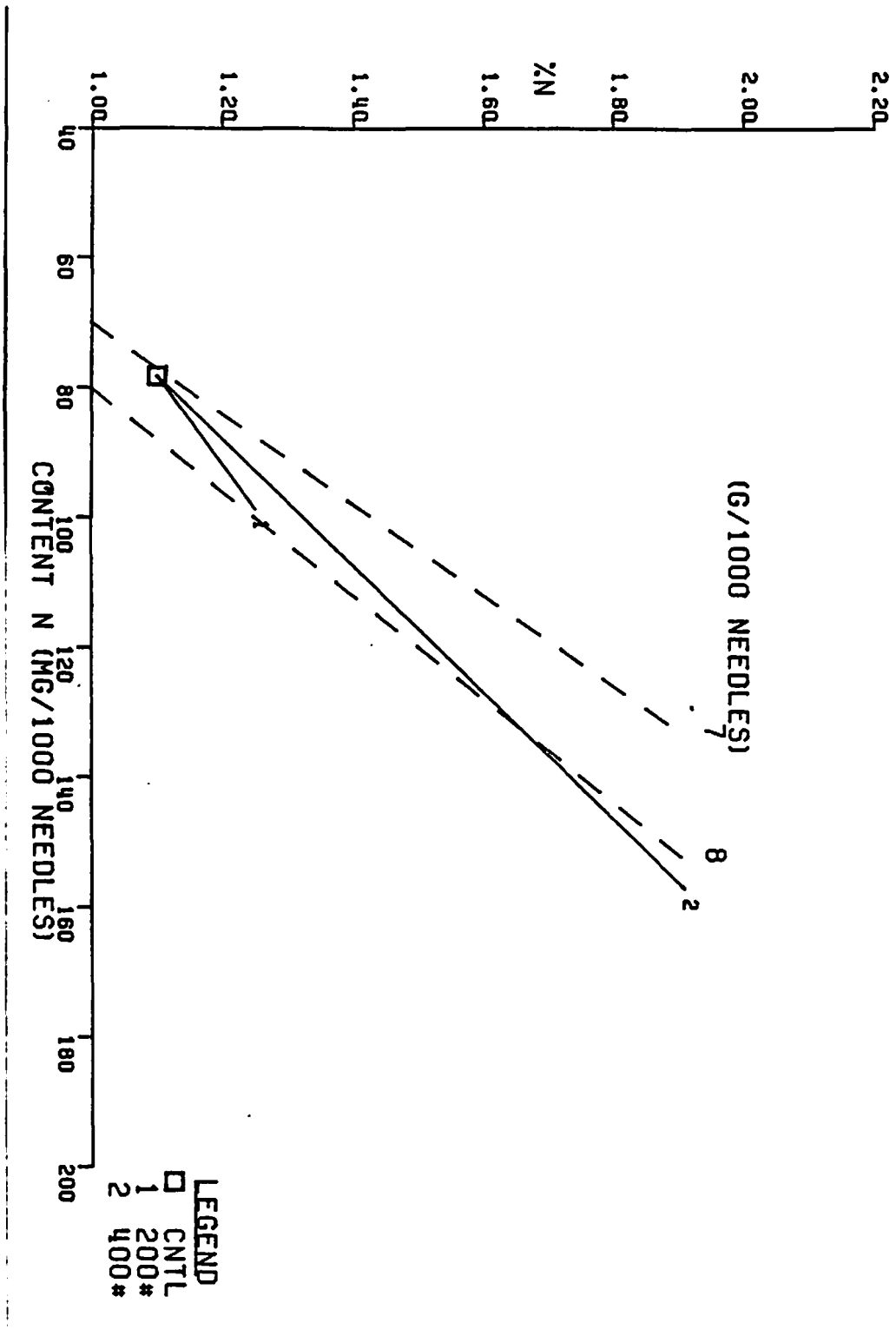

264 RENFRØ PEAK
(G/1000 NEEDLES)
5
6
2
1
1.54
1.44
1.34
%N
1.24
1.14
1.04
0.94
48
56
64
72
80
88
96
104
112
CONTENT N (MG/1000 NEEDLES)
LEGEND
CNTL
1 200#
2 400#


265 MALLORY CR.
%N
2.00
1.80
1.60
1.40
1.20
1.00
0.80
72
80
88
96
104
112
120
128
136
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
7
8
1
2
LEGEND
CNTL
1 200*
2 400*

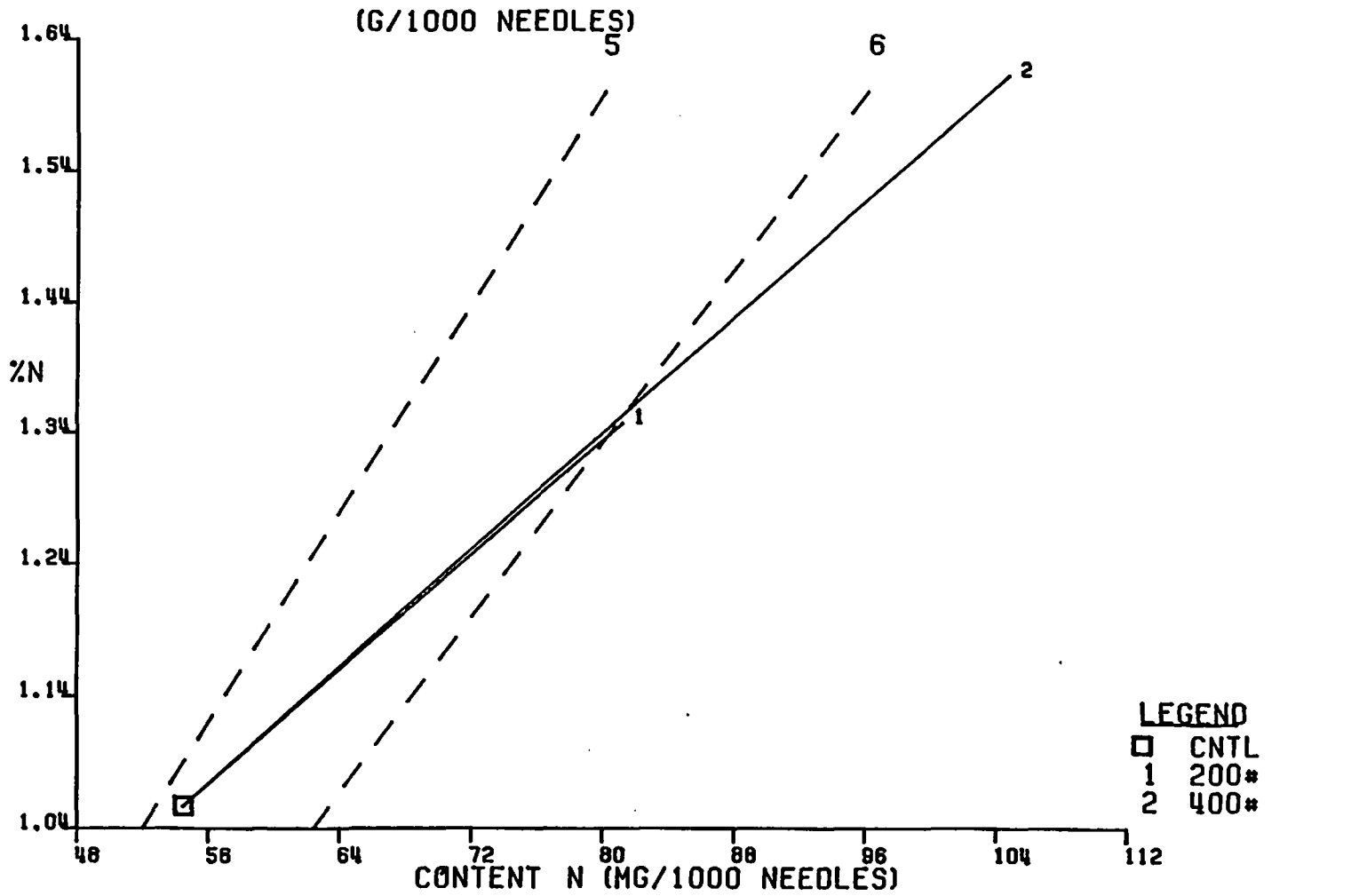
266 DOUGLAS FALLS #1

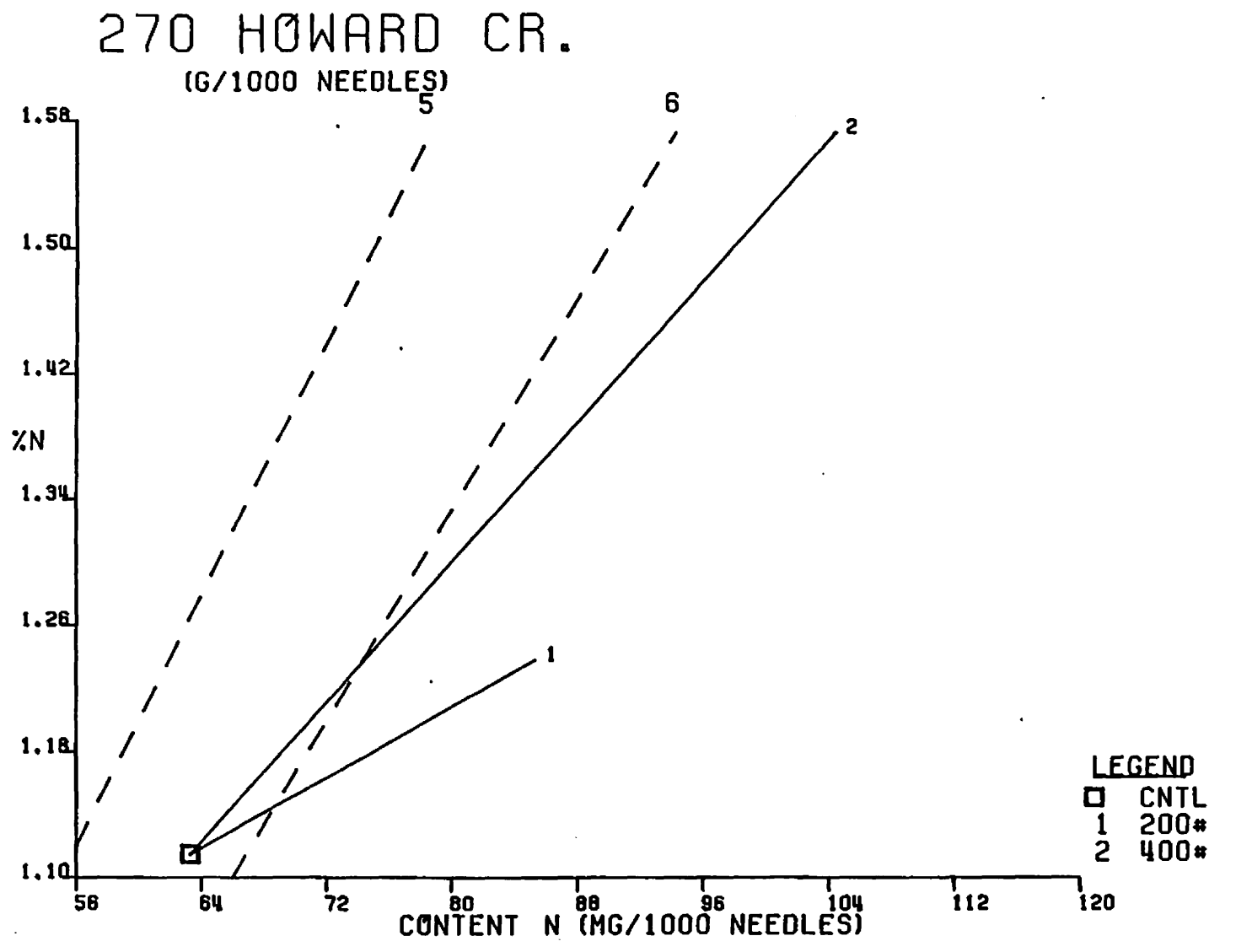



267 DOUGLAS FALLS #2
%N
2.00
1.80
1.60
1.40
1.20
1.00
0.80
20
40
60
80
100
120
140
160
180
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
5
6
7
1
2
LEGEND
CNTL
1 200#
2 400#

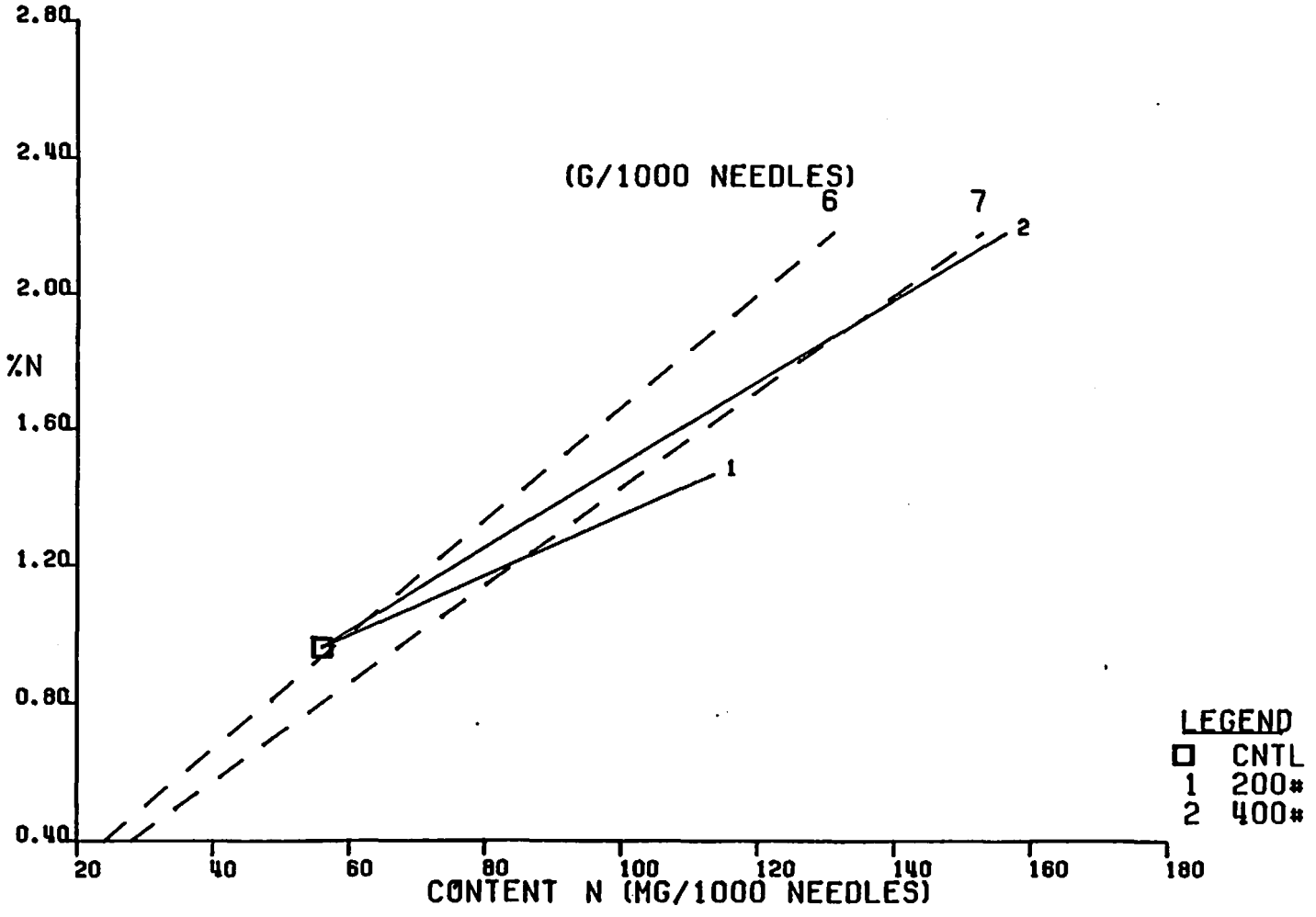

268 SHEEP CR.
%N
2.20
2.00
1.80
1.60
1.40
1.20
1.00
40
60
80
100
120
140
160
180
200
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
7
8
2
LEGEND
CNTL
1 200*
2 400*

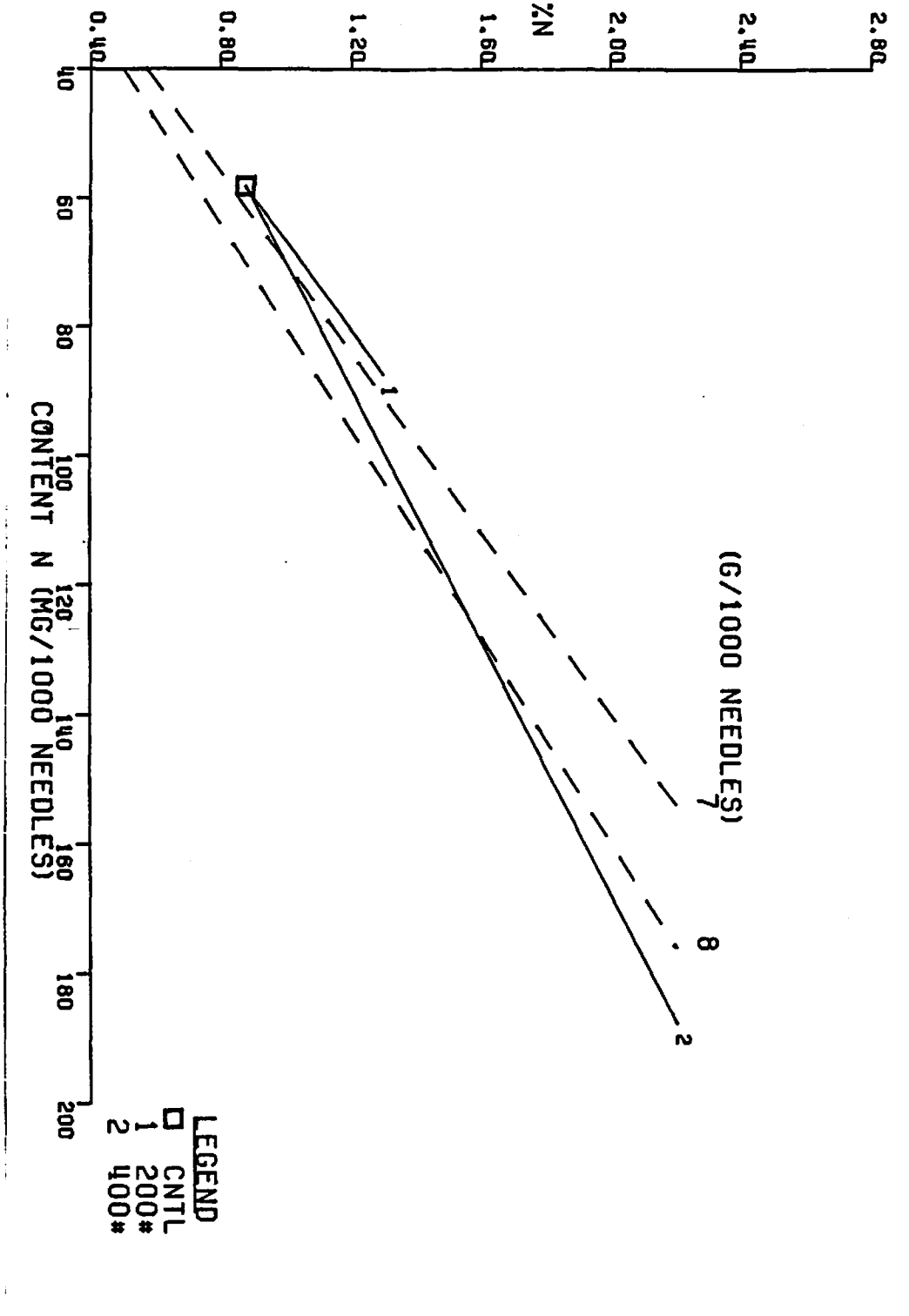
269 UPPER BURNT FØRK CR.



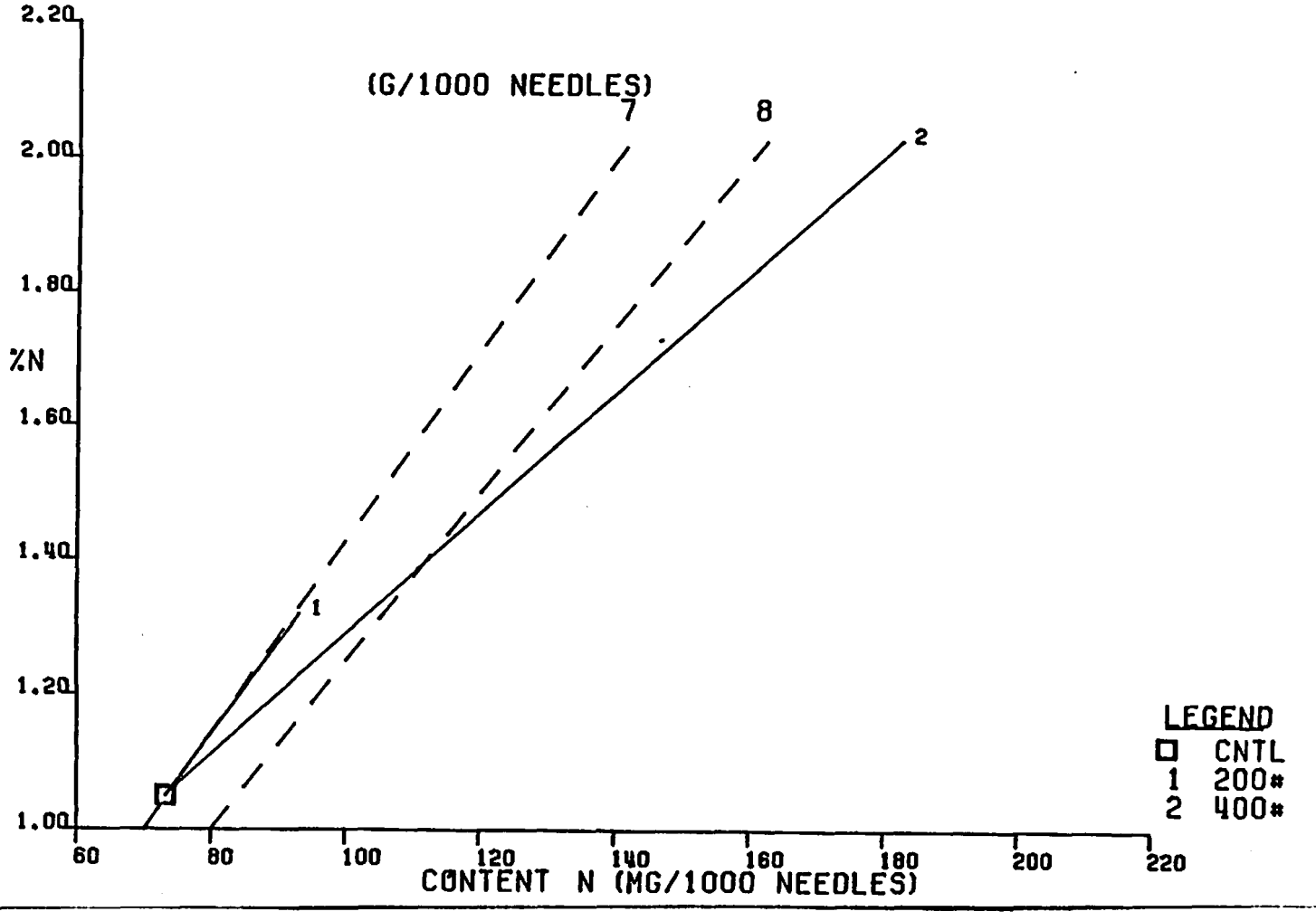

270 HOWARD CR.
(G/1000 NEEDLES)
1.58
1.50
1.42
%N
1.34
1.26
1.18
1.10
5
6
2
1
56
64
72
80
88
96
104
112
120
CONTENT N (MG/1000 NEEDLES)
LEGEND
CNTL
1 200#
2 400#

271 WHITNEY CR.

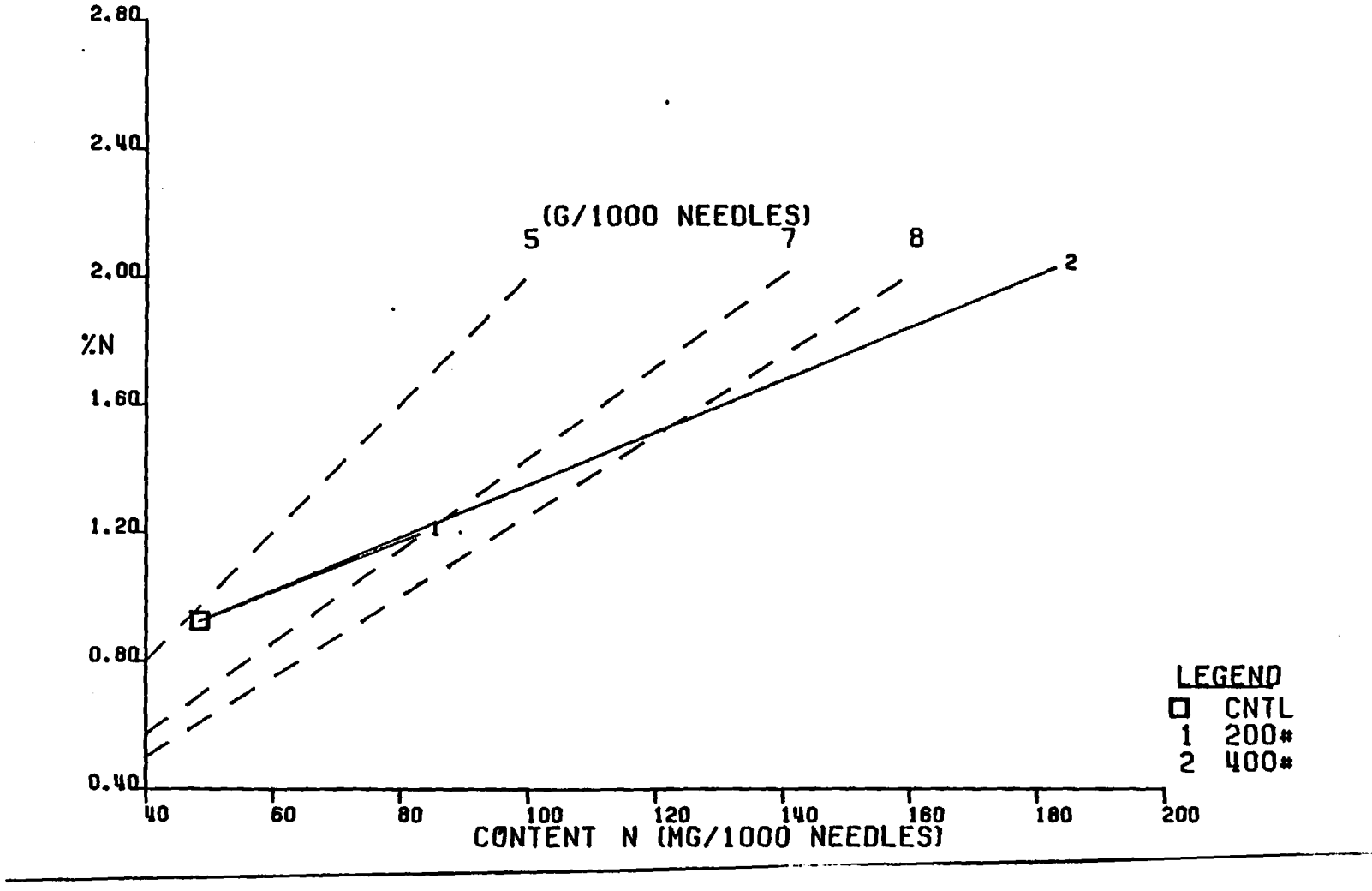


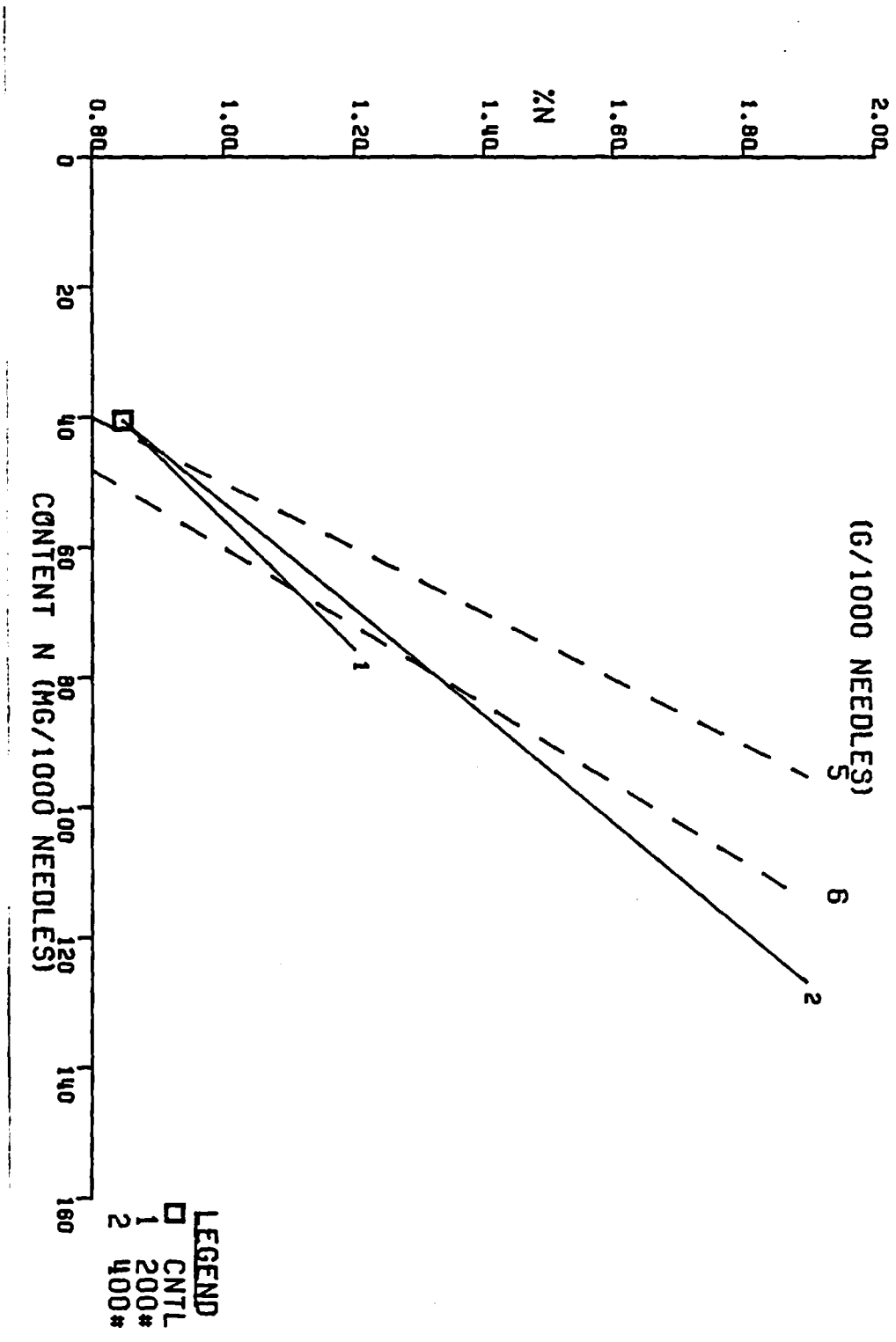

272 INDIAN CR.
2.80
2.40
2.00
1.60
1.20
0.80
0.40
%N
40
60
80
100
120
140
160
180
200
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
7
8
1
2
LEGEND
CNTL
1 200#
2 400#

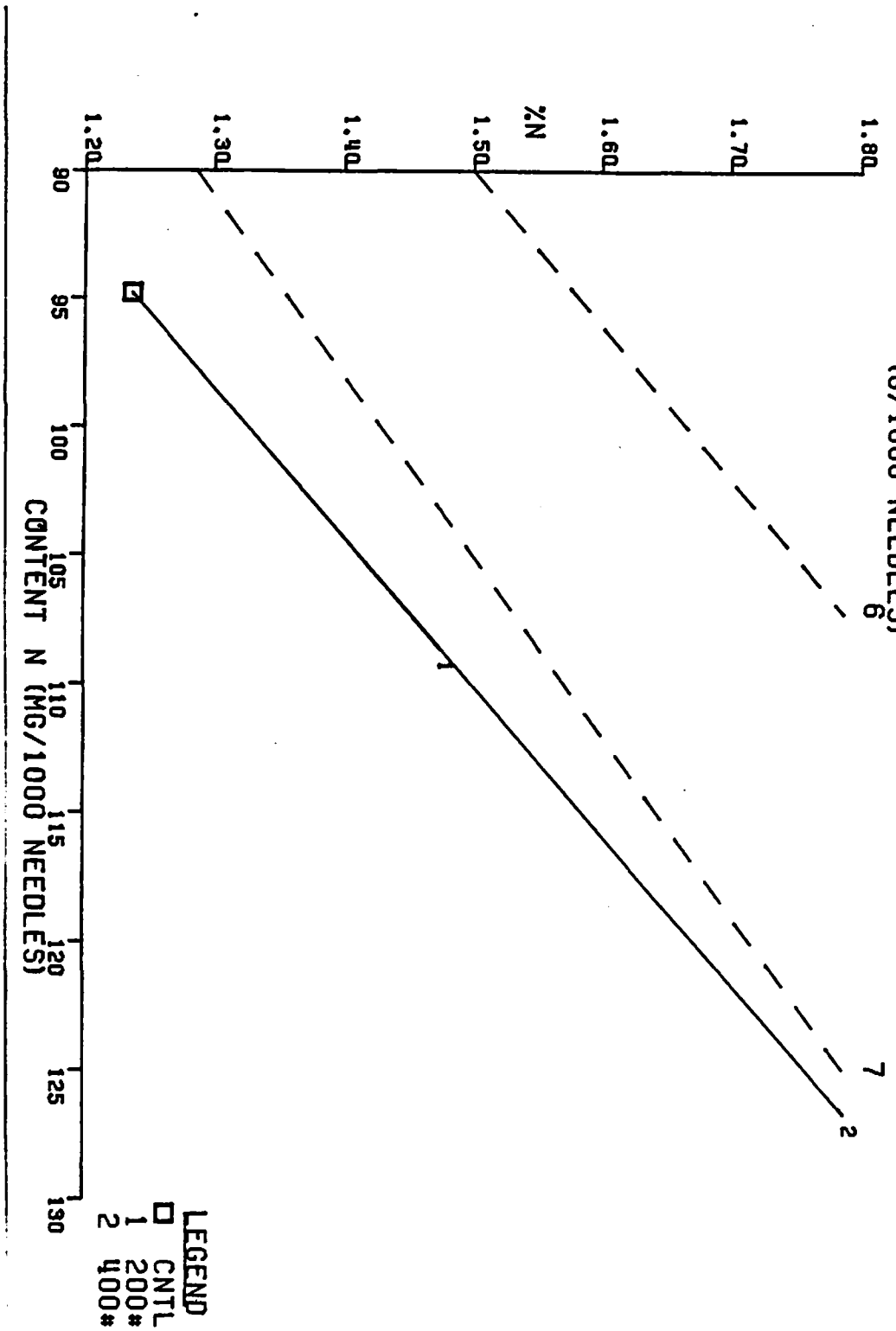
273 LITTLE BEAVER CR.



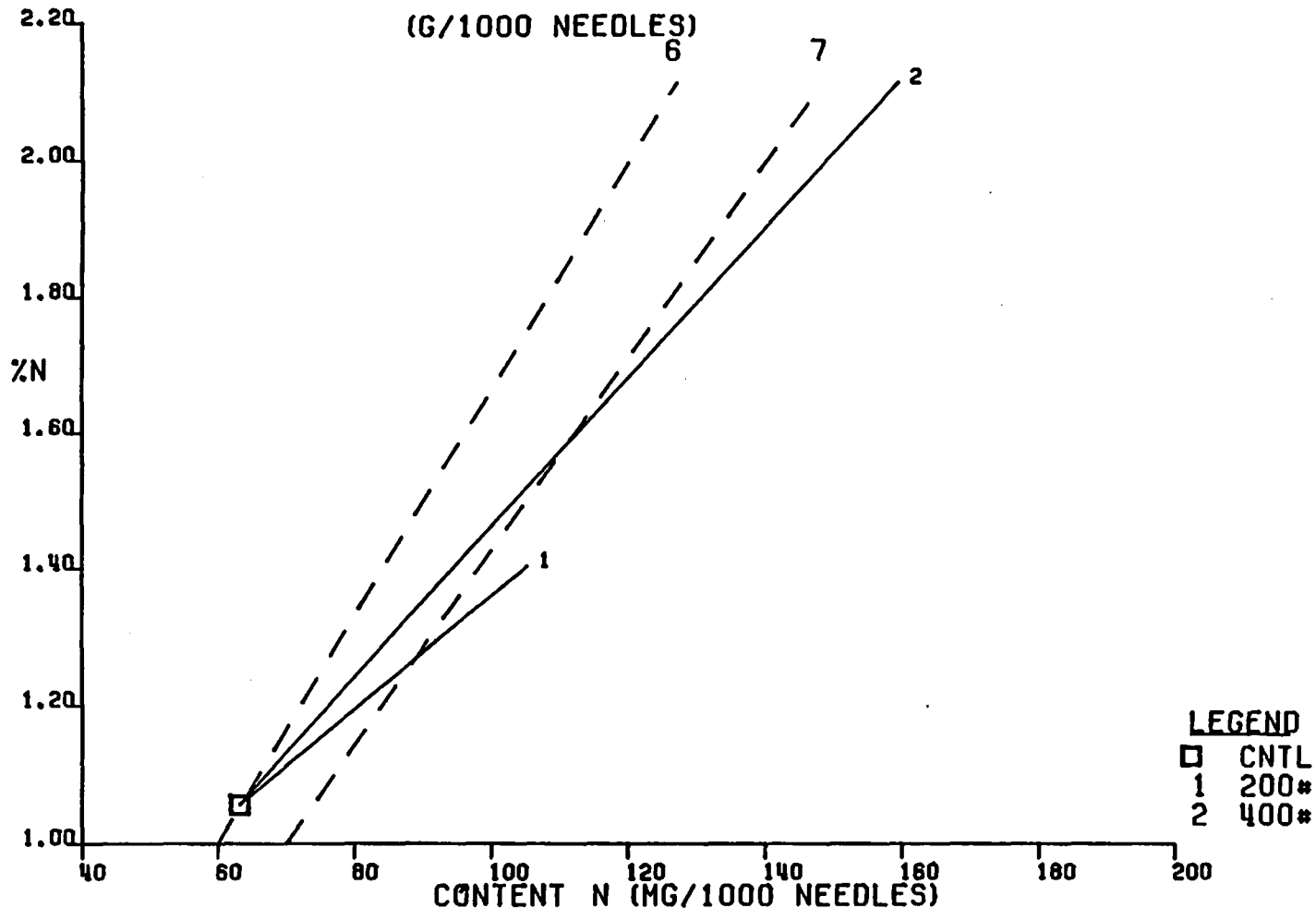
274 CARREYWOOD CR.



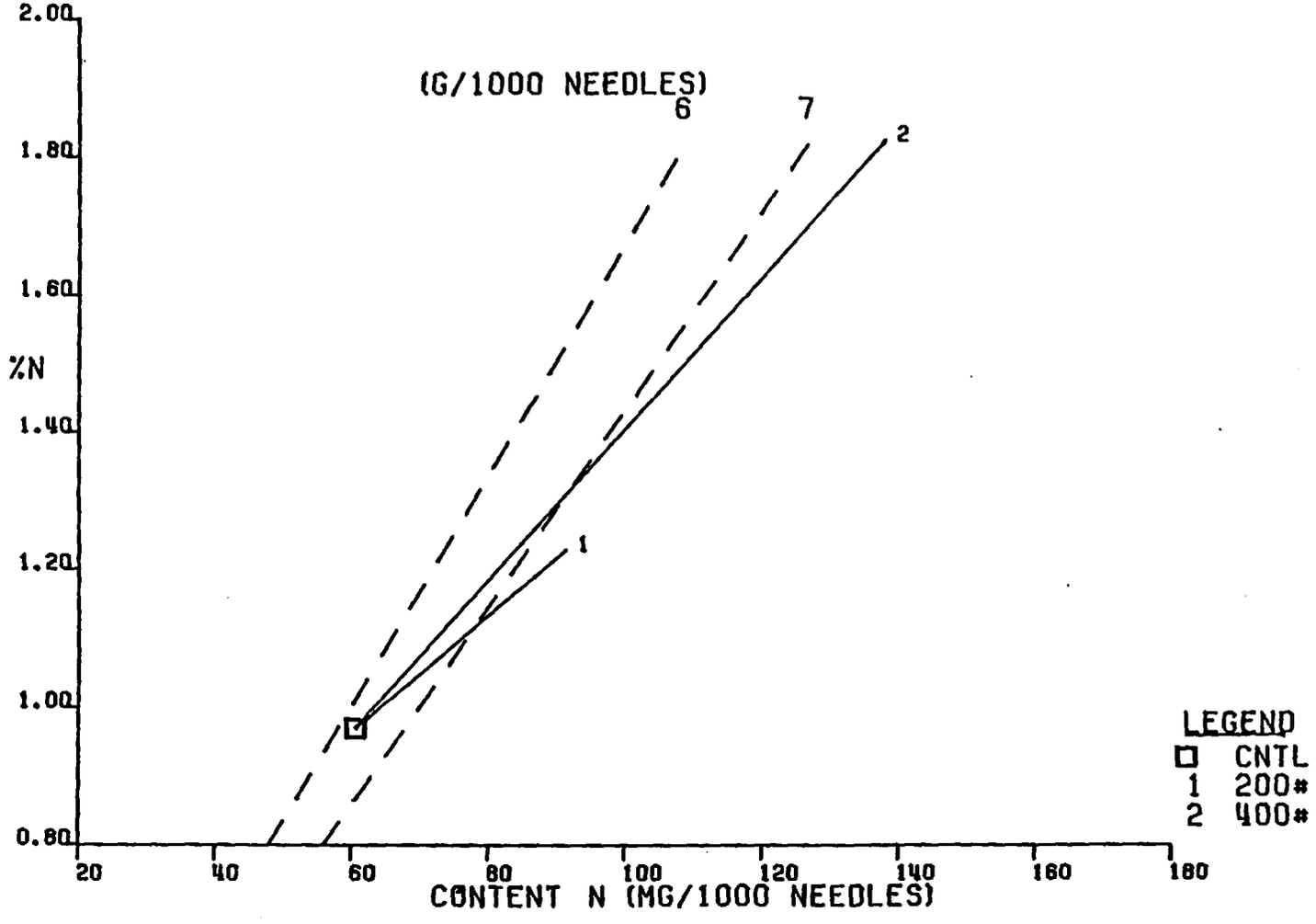

275 SMITH LAKE
%N
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0
20
40
60
80
100
120
140
160
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
5
6
1
2
LEGEND
CNTL
1 200#
2 400#

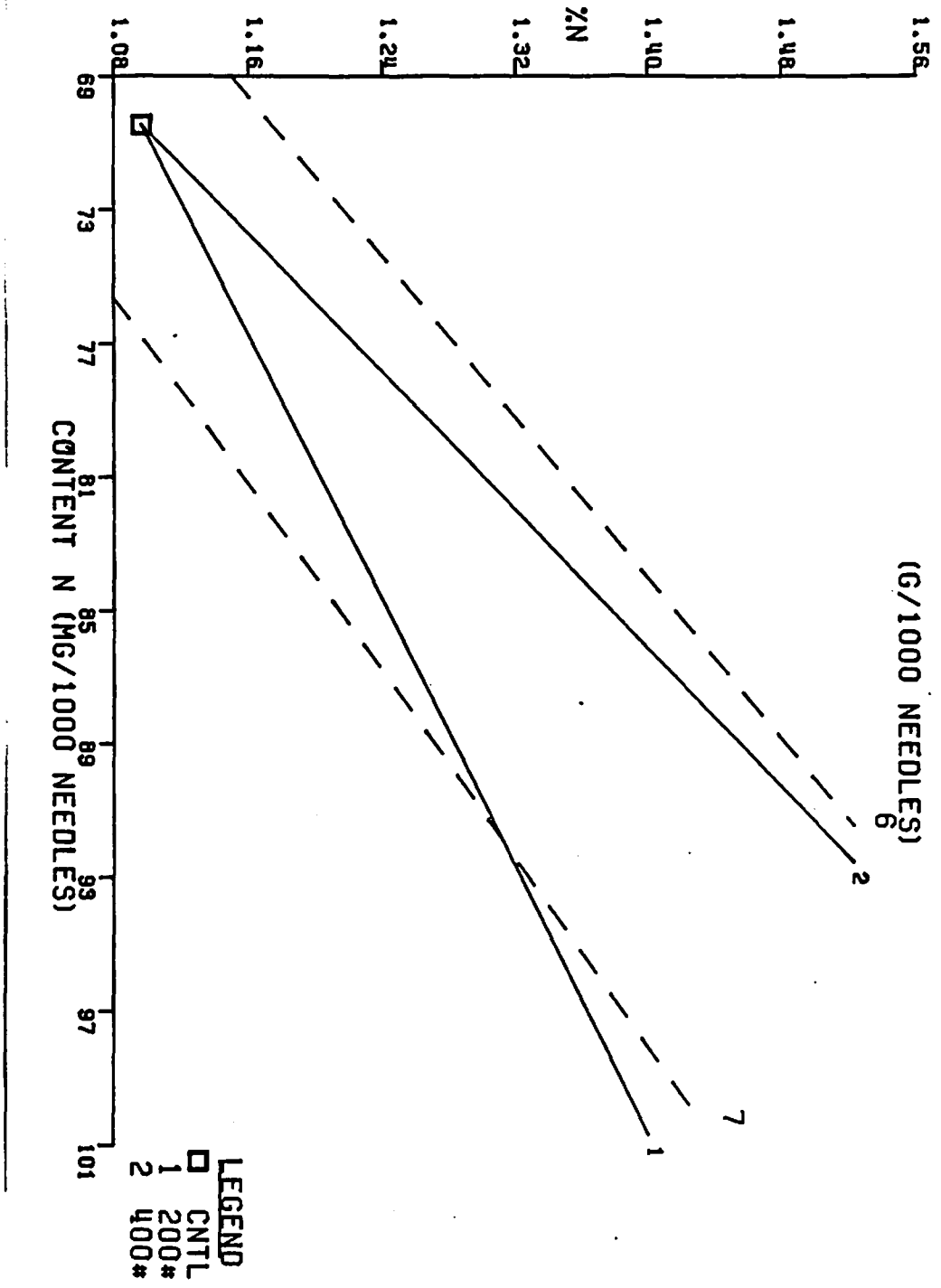

276 MILL CR.
(G/1000 NEEDLES)
6
7
2
%N
1.80
1.70
1.60
1.50
1.40
1.30
1.20
90
95
100
105
110
115
120
125
130
CONTENT N (MG/1000 NEEDLES)
LEGEND
CNTL
1 200#
2 400#

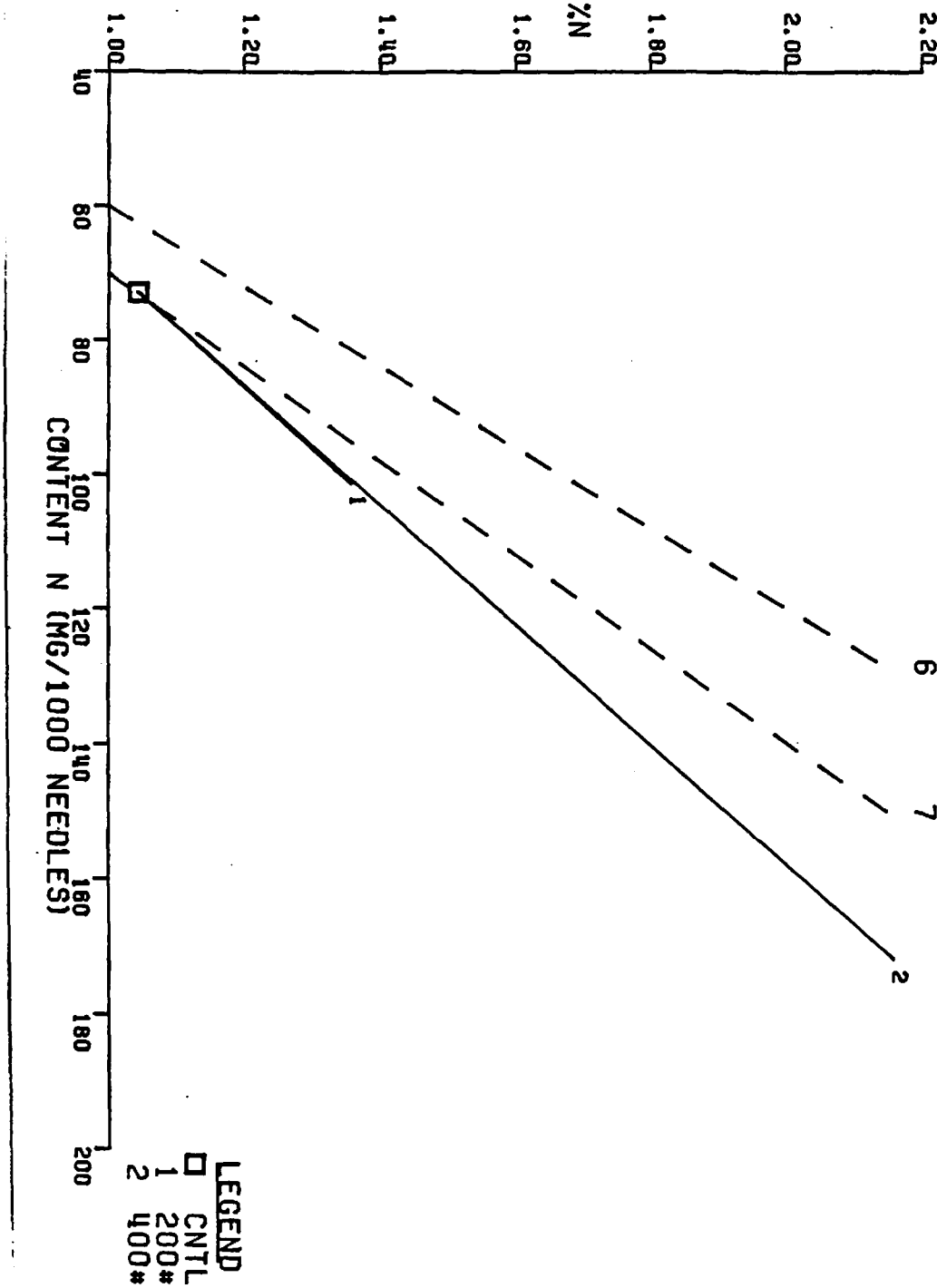
277 LITTLE MUD CR. #2

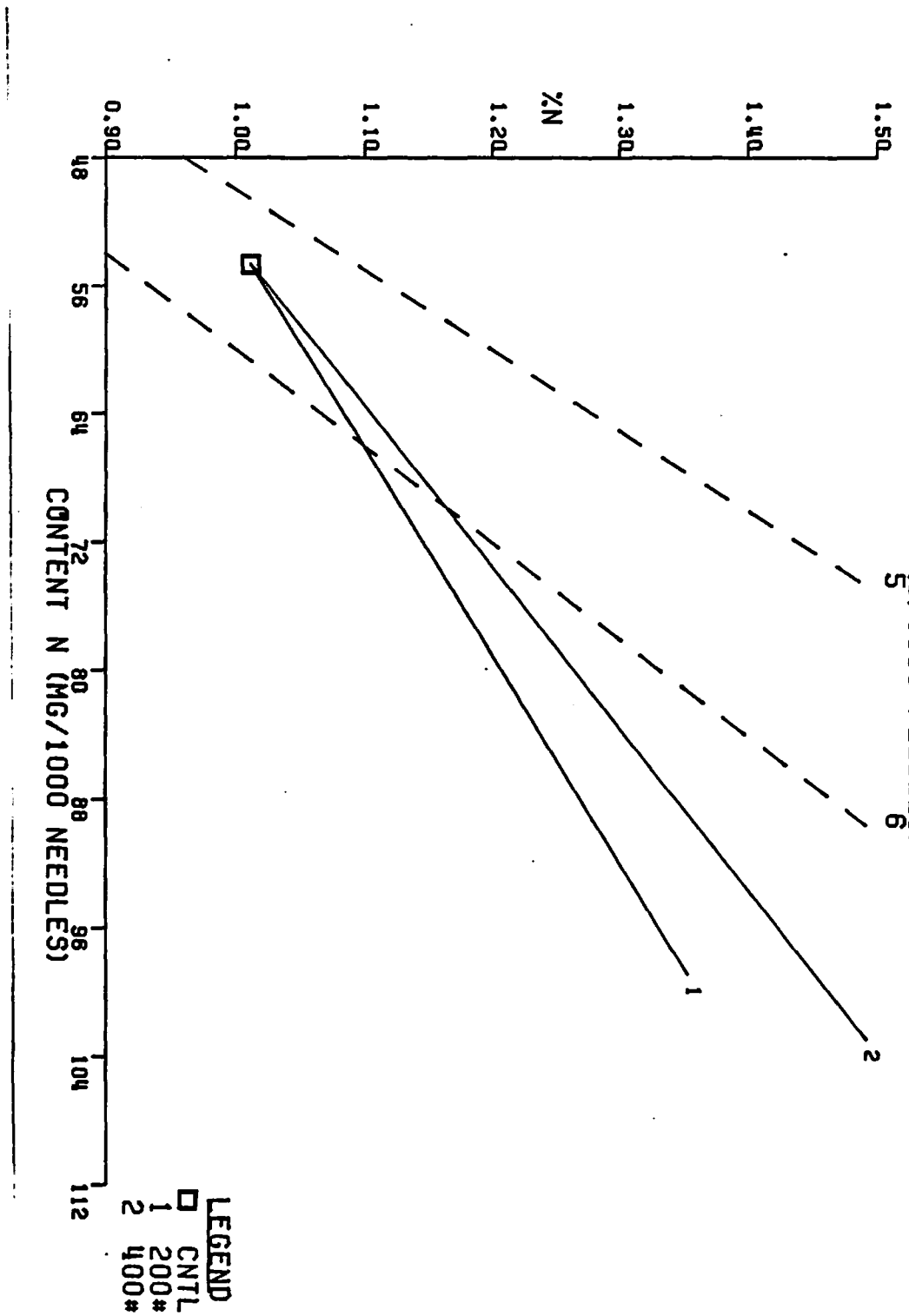


278 WET GULCH

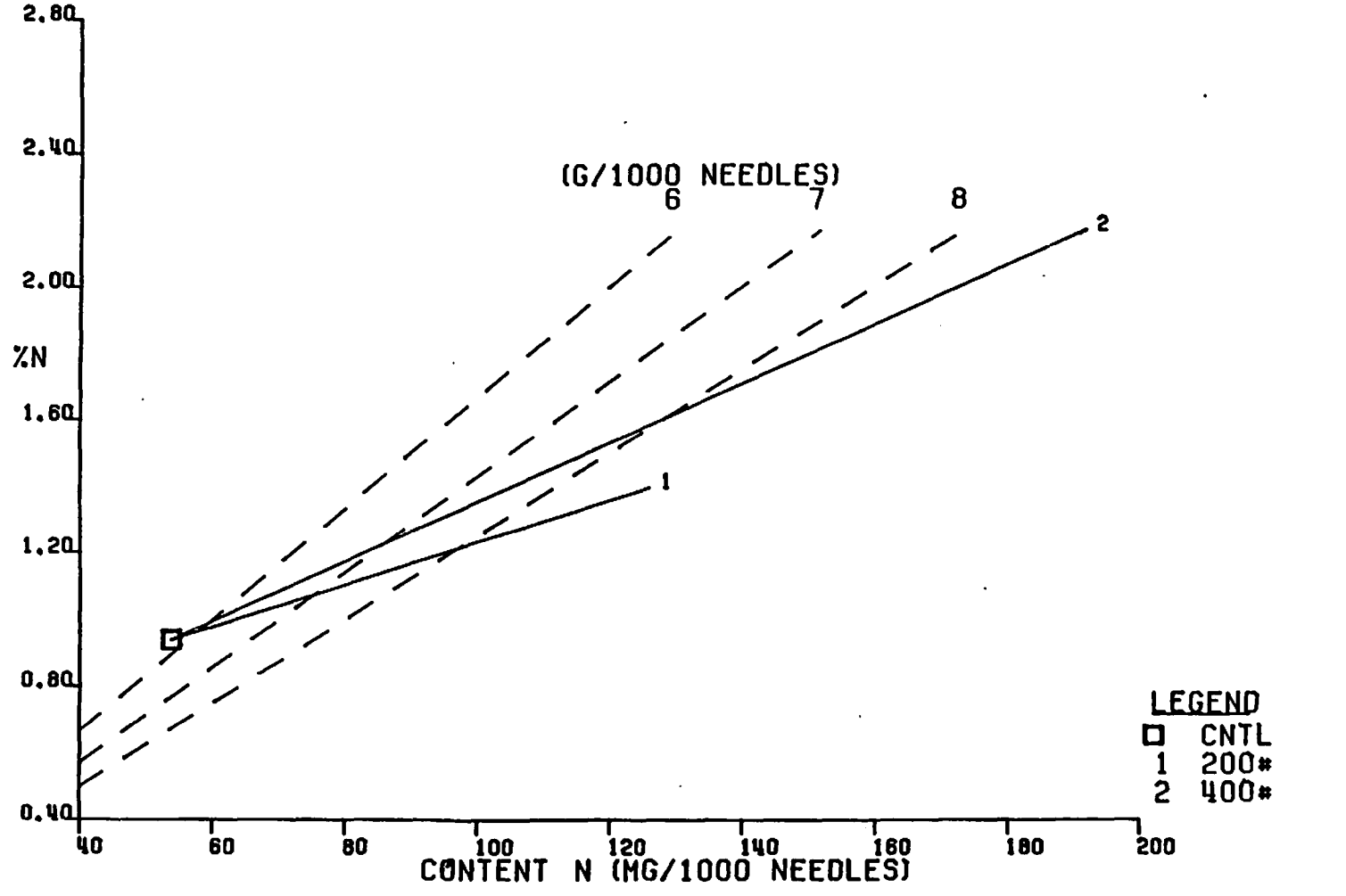



279 HENRY CR.
%N
1.56
1.48
1.40
1.32
1.24
1.16
1.08
69
73
77
81
85
89
93
97
101
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
6
2
7
1
LEGEND
CNTL
1 200#
2 400#

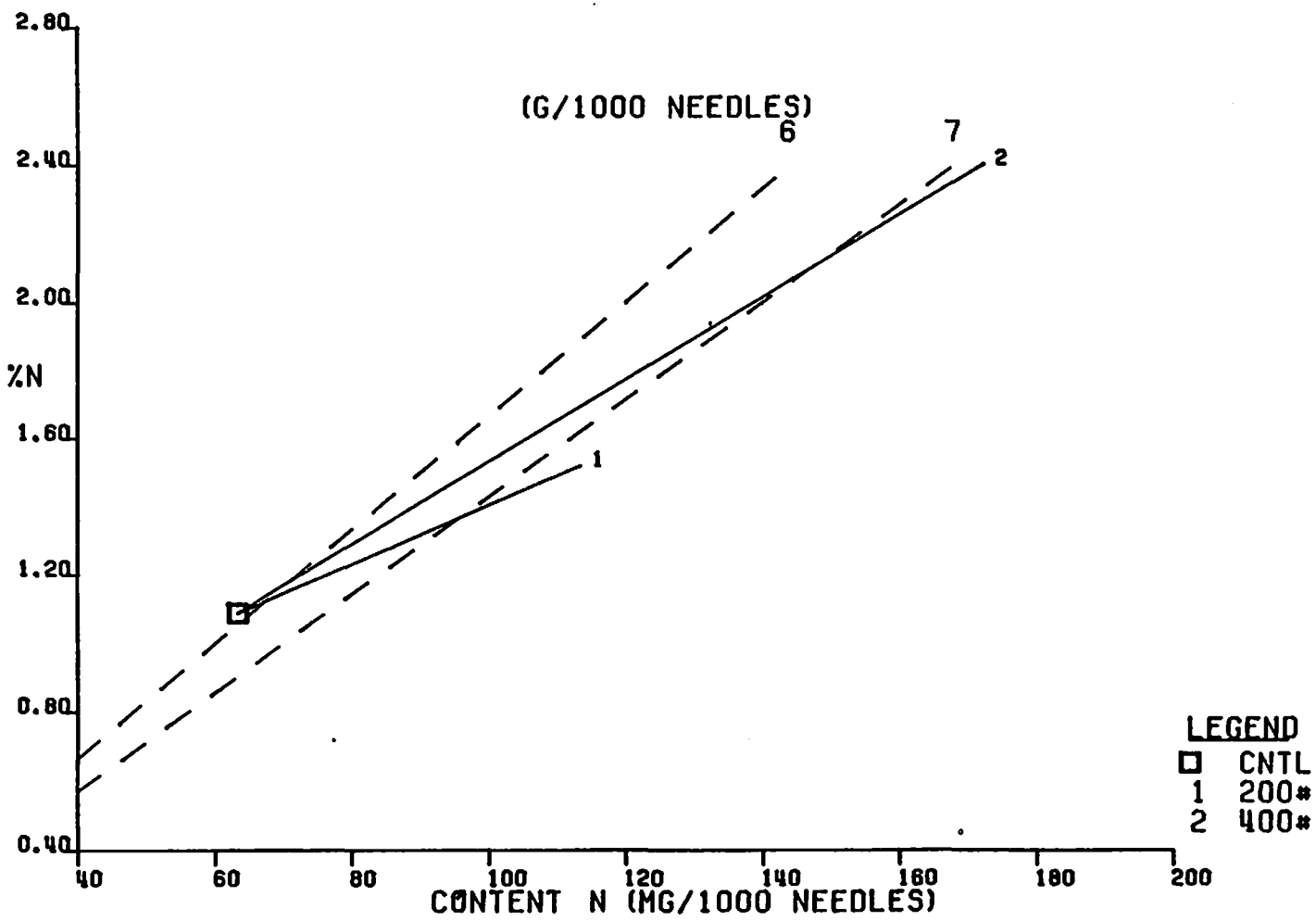

280 SMITH CR.
%N
2.20
2.00
1.80
1.60
1.40
1.20
1.00
40
60
80
100
120
140
160
180
200
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
6
7
1
2
LEGEND
CNTL
1 200#
2 400#


281 O'NEIL HILL
(G/1000 NEEDLES)
5
6
%N
1.50
1.40
1.30
1.20
1.10
1.00
0.90
48
56
64
72
80
88
96
104
112
CONTENT N (MG/1000 NEEDLES)
1
2
LEGEND
CNTL
1 200#
2 400#

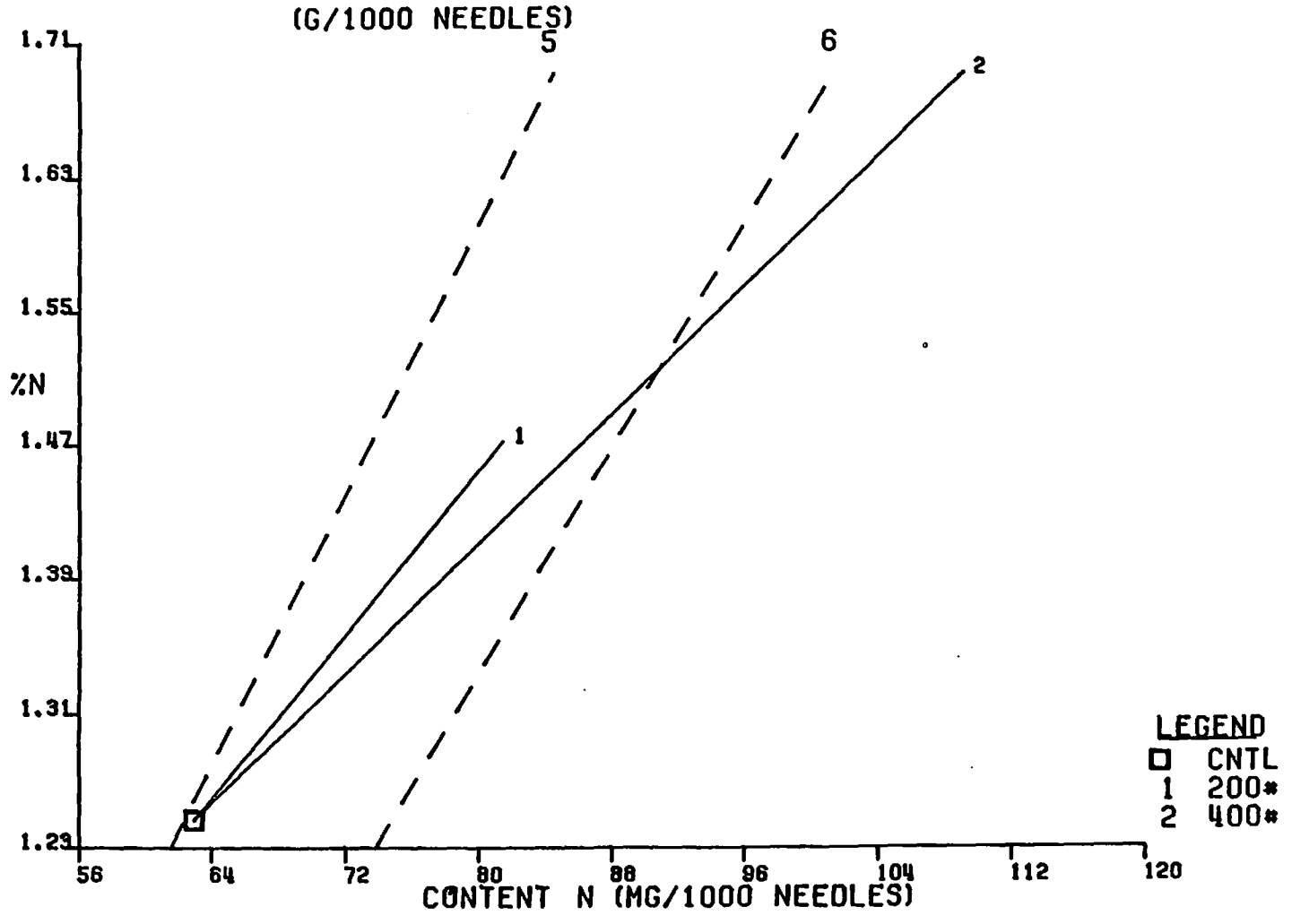
282 COOK MTN.


2.80
2.40
2.00
%N
1.60
1.20
0.80
0.40
(G/1000 NEEDLES)
6
7
8
2
1
LEGEND
CNTL
1 200*
2 400*
40
60
80
100
120
140
160
180
200
CONTENT N (MG/1000 NEEDLES)

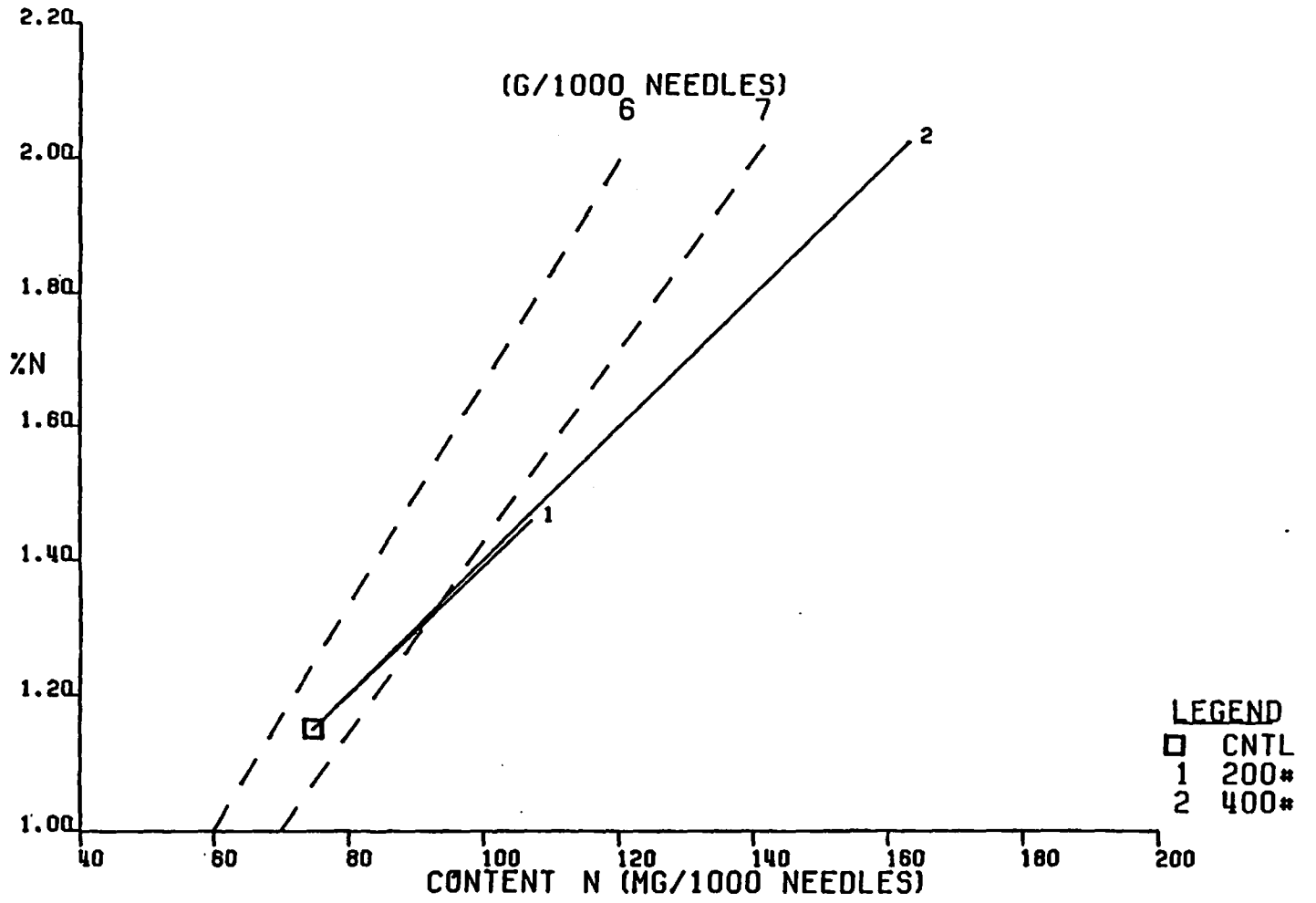
283 SUMMIT CR.



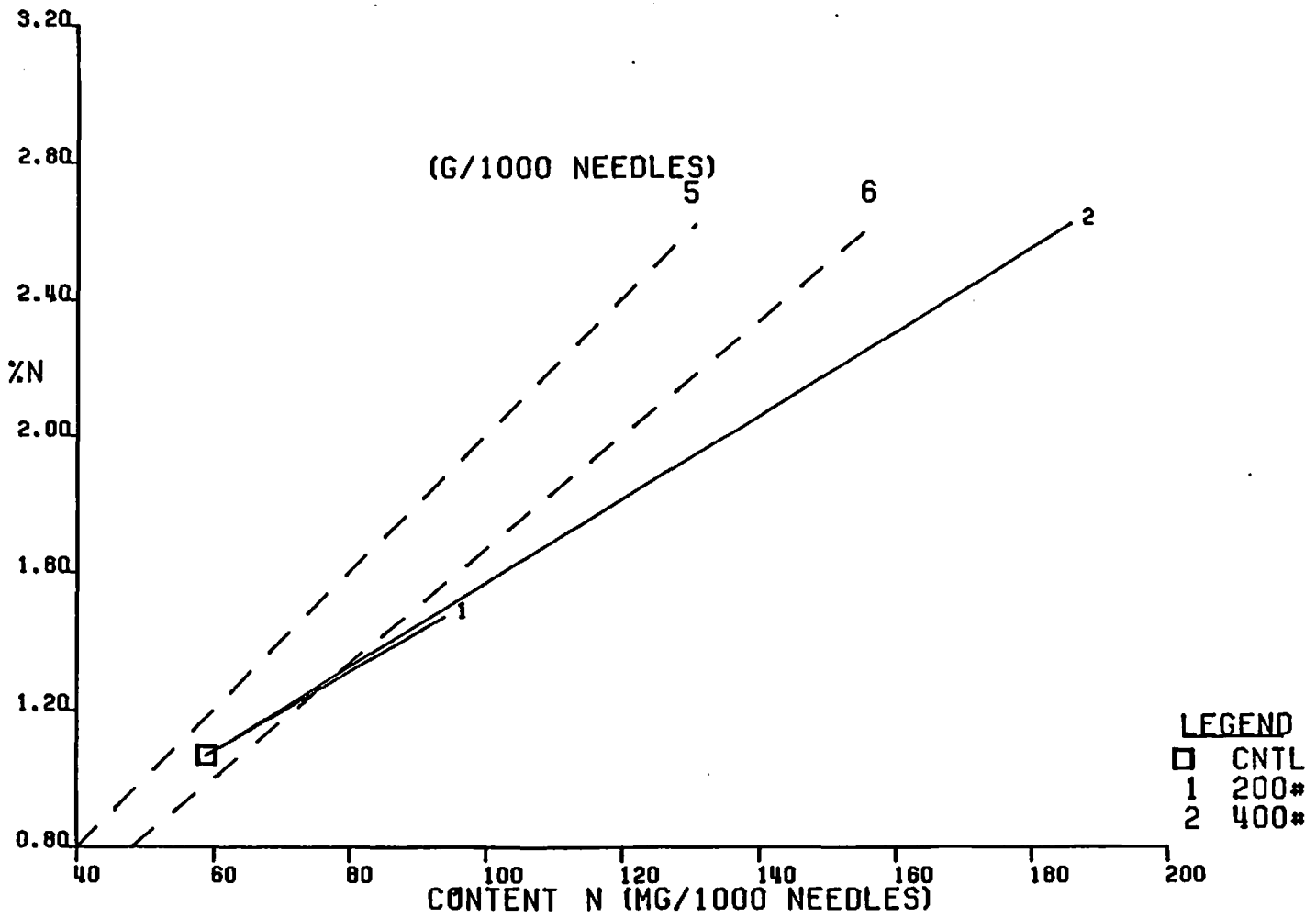
285 S.F. VALLEY CR.

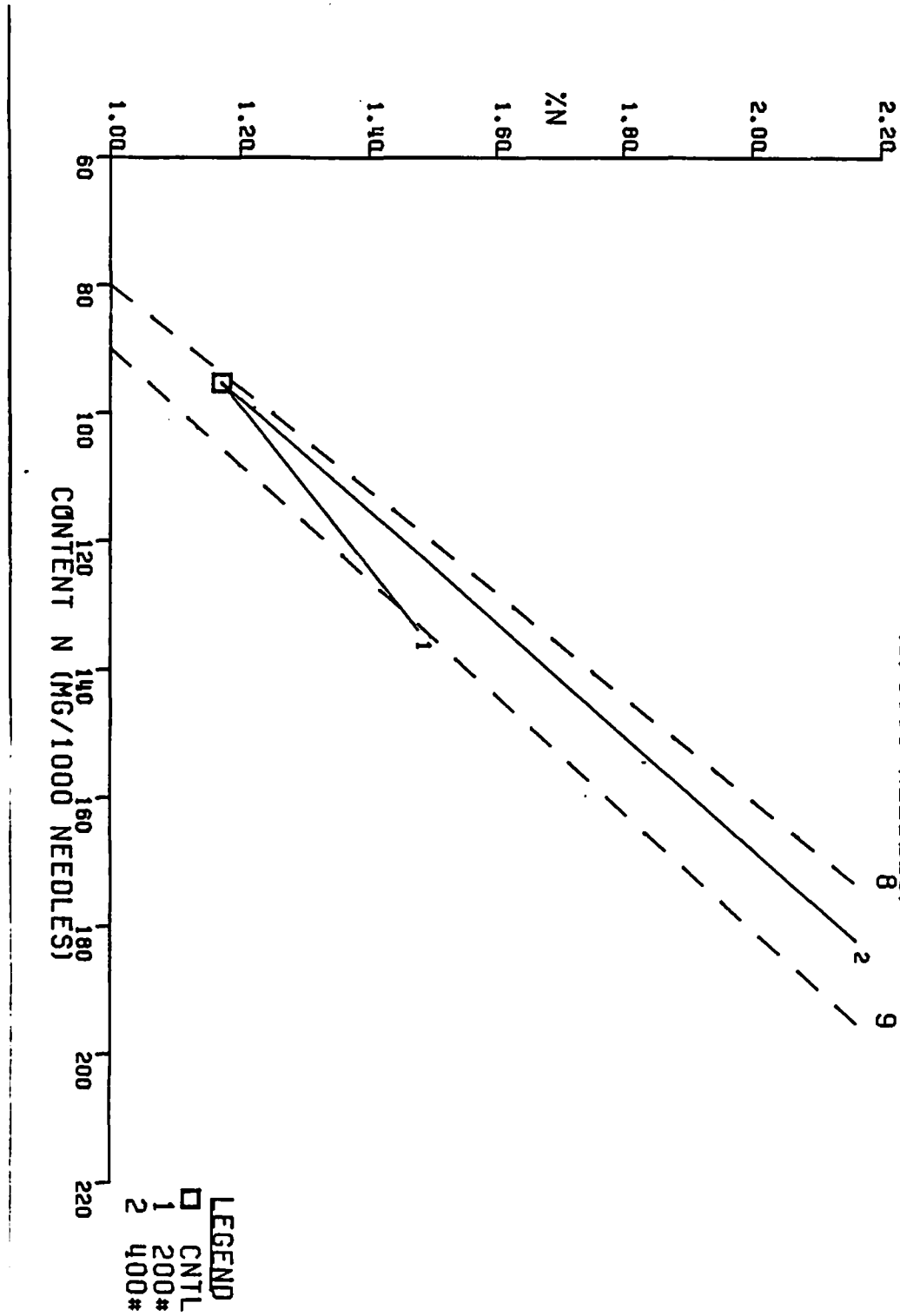


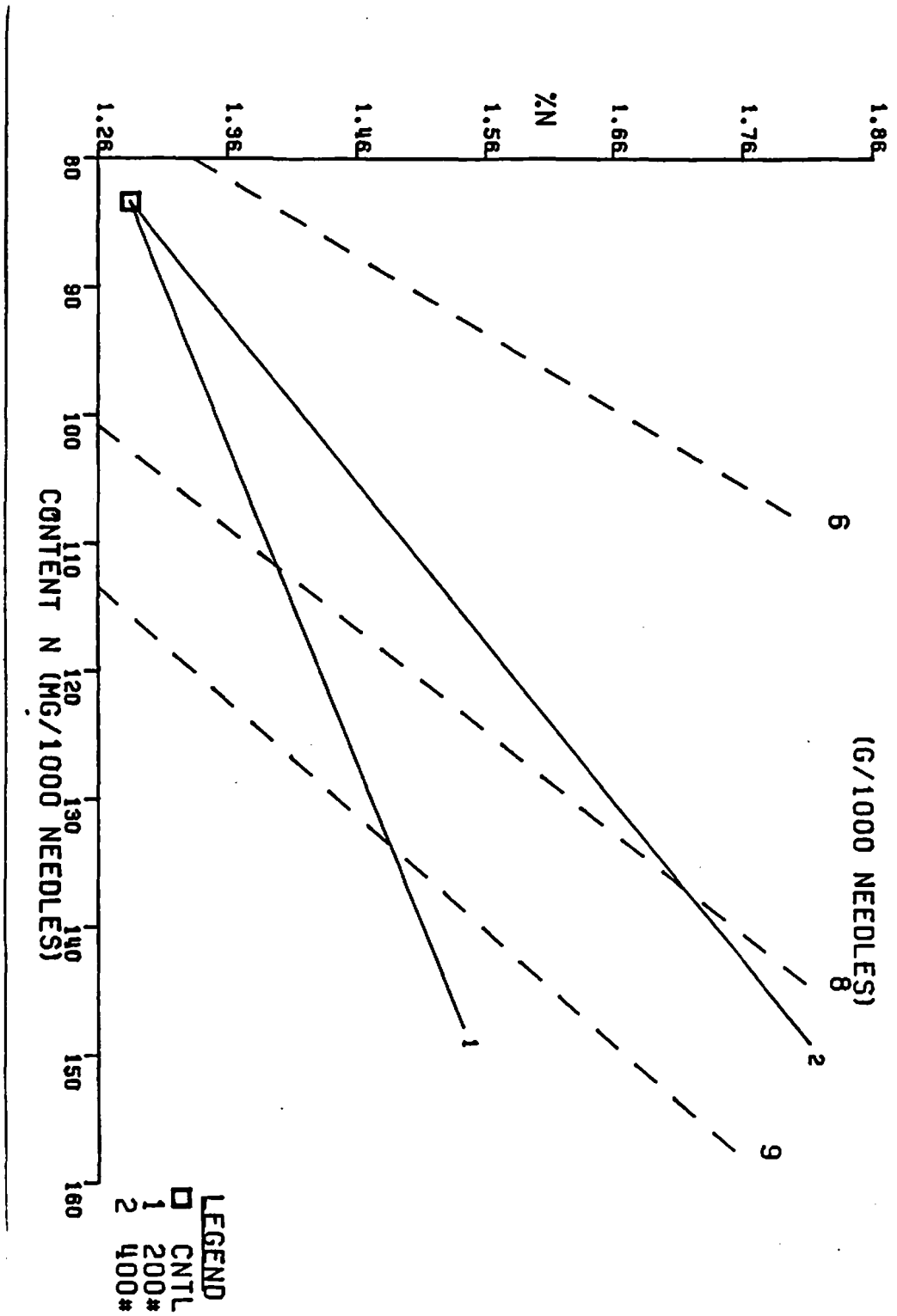
286 BLACK ROCK CR.



287 JIM FØRD CR.




288 MICA MTN.
%N
2.20
2.00
1.80
1.60
1.40
1.20
1.00
60
80
100
120
140
160
180
200
220
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
8
9
1
2
LEGEND
CNTL
1 200#
2 400#


289 GROUSE MTN.
%N
1.8%
1.7%
1.6%
1.5%
1.4%
1.3%
1.2%
80
90
100
110
120
130
140
150
160
CONTENT N (MG/1000 NEEDLES)
(G/1000 NEEDLES)
8
6
9
1
2
LEGEND
CNTL
1 200*
2 400*

290 GRASS MTN.