**DATA** A1;

INPUT DISTANCE MULCH RUN SAMPLE COUNT;

CARDS;

1 7 1 1 2

2 7 1 1 3

3 7 1 1 3

4 7 1 1 0

5 7 1 1 0

6 7 1 1 1

7 7 1 1 0

8 7 1 1 2

9 7 1 1 1

10 7 1 1 1

11 7 1 1 0

12 7 1 1 .

1 7 1 2 6

2 7 1 2 4

3 7 1 2 0

4 7 1 2 0

5 7 1 2 2

6 7 1 2 0

7 7 1 2 0

8 7 1 2 0

9 7 1 2 1

10 7 1 2 0

11 7 1 2 0

12 7 1 2 0

1 7 1 3 6

2 7 1 3 6

3 7 1 3 3

4 7 1 3 0

5 7 1 3 0

6 7 1 3 2

7 7 1 3 2

8 7 1 3 1

9 7 1 3 0

10 7 1 3 1

11 7 1 3 .

12 7 1 3 .

1 7 1 4 2

2 7 1 4 0

3 7 1 4 1

4 7 1 4 1

5 7 1 4 0

6 7 1 4 0

7 7 1 4 2

8 7 1 4 1

9 7 1 4 1

10 7 1 4 1

11 7 1 4 1

12 7 1 4 1

1 7 2 1 0

2 7 2 1 0

3 7 2 1 1

4 7 2 1 0

5 7 2 1 1

6 7 2 1 0

7 7 2 1 0

8 7 2 1 0

9 7 2 1 0

10 7 2 1 0

11 7 2 1 .

12 7 2 1 .

1 7 2 2 7

2 7 2 2 7

3 7 2 2 0

4 7 2 2 1

5 7 2 2 1

6 7 2 2 0

7 7 2 2 0

8 7 2 2 1

9 7 2 2 0

10 7 2 2 1

11 7 2 2 1

12 7 2 2 0

1 7 2 3 5

2 7 2 3 5

3 7 2 3 0

4 7 2 3 1

5 7 2 3 0

6 7 2 3 0

7 7 2 3 0

8 7 2 3 0

9 7 2 3 0

10 7 2 3 2

11 7 2 3 0

12 7 2 3 .

1 7 2 4 3

2 7 2 4 4

3 7 2 4 3

4 7 2 4 3

5 7 2 4 1

6 7 2 4 1

7 7 2 4 3

8 7 2 4 1

9 7 2 4 0

10 7 2 4 0

11 7 2 4 0

12 7 2 4 0

1 0 1 1 15

2 0 1 1 14

3 0 1 1 13

4 0 1 1 6

5 0 1 1 6

6 0 1 1 8

7 0 1 1 0

8 0 1 1 3

9 0 1 1 3

10 0 1 1 2

11 0 1 1 .

12 0 1 1 .

1 0 1 2 8

2 0 1 2 7

3 0 1 2 6

4 0 1 2 6

5 0 1 2 7

6 0 1 2 6

7 0 1 2 2

8 0 1 2 4

9 0 1 2 2

10 0 1 2 0

11 0 1 2 5

12 0 1 2 2

1 0 1 3 22

2 0 1 3 6

3 0 1 3 7

4 0 1 3 4

5 0 1 3 4

6 0 1 3 6

7 0 1 3 6

8 0 1 3 6

9 0 1 3 3

10 0 1 3 2

11 0 1 3 1

12 0 1 3 .

1 0 1 4 18

2 0 1 4 13

3 0 1 4 4

4 0 1 4 3

5 0 1 4 3

6 0 1 4 6

7 0 1 4 3

8 0 1 4 4

9 0 1 4 1

10 0 1 4 1

11 0 1 4 0

12 0 1 4 1

1 0 2 1 17

2 0 2 1 11

3 0 2 1 7

4 0 2 1 8

5 0 2 1 3

6 0 2 1 3

7 0 2 1 4

8 0 2 1 3

9 0 2 1 1

10 0 2 1 3

11 0 2 1 2

12 0 2 1 .

1 0 2 2 9

2 0 2 2 5

3 0 2 2 3

4 0 2 2 0

5 0 2 2 0

6 0 2 2 0

7 0 2 2 1

8 0 2 2 2

9 0 2 2 2

10 0 2 2 2

11 0 2 2 0

12 0 2 2 2

1 0 2 3 9

2 0 2 3 4

3 0 2 3 3

4 0 2 3 1

5 0 2 3 5

6 0 2 3 0

7 0 2 3 2

8 0 2 3 1

9 0 2 3 0

10 0 2 3 0

11 0 2 3 2

12 0 2 3 .

1 0 2 4 11

2 0 2 4 7

3 0 2 4 8

4 0 2 4 1

5 0 2 4 3

6 0 2 4 2

7 0 2 4 1

8 0 2 4 1

9 0 2 4 1

10 0 2 4 3

11 0 2 4 2

12 0 2 4 .

;

**PROC** **SORT**; BY MULCH DISTANCE RUN;

**PROC** **MEANS** NOPRINT; BY MULCH DISTANCE RUN;

VAR COUNT;

OUTPUT OUT=A2 MEAN=COUNT;

**PROC** **PRINT**;

**PROC** **NLIN**; BY MULCH;

PARAMETERS A=**1** B=-**0.1**;

MODEL COUNT=A\*DISTANCE\*\*B;

**DATA** A3;

SET A2;

LOGCOUNT=LOG(COUNT+**1**);

LOGDIST=LOG(DISTANCE);

**PROC** **PRINT**;

**PROC** **REG**; BY MULCH;

MODEL LOGCOUNT=LOGDIST;

**PROC** **MIXED** COVTEST;

CLASS RUN MULCH;

MODEL LOGCOUNT=MULCH|LOGDIST/SOLUTION DDFM=BETWITHIN RESIDUAL;

RANDOM RUN;

REPEATED/SUBJECT=RUN\*MULCH TYPE=AR(**1**) R RCORR;

**PROC** **MIXED** COVTEST;

CLASS RUN MULCH;

MODEL LOGCOUNT=MULCH LOGDIST/NOINT SOLUTION DDFM=BETWITHIN RESIDUAL OUTPM=B;

RANDOM RUN;

REPEATED/SUBJECT=RUN\*MULCH TYPE=AR(**1**) R RCORR;

LSMEANS MULCH/DIFF;

LSMEANS MULCH/DIFF AT LOGDIST=**0**;

LSMEANS MULCH/DIFF AT LOGDIST=**1**;

LSMEANS MULCH/DIFF AT LOGDIST=**2**;

**PROC** **REG**;

MODEL LOGCOUNT=PRED;

**RUN**;