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proc import datafile='E:\Hamm\Hamm\SASField Data.xls' out=field
DBMS=Excel;
getnames=yes;
DATA field;
    set field;
    keep day bfly trmt sex wingcon seen;
    if day=. then delete;
RUN;
proc print data=field;
run;
/*simple model*/
proc glimmix data=field ic=pq ;
class bfly trmt sex wingcon ;
model seen=day trmt sex wingcon /ddfm=kr dist=binomial link=logit;
random intercept /subject=bfly(trmt*sex*wingcon);
run;

/*Full model*/
proc glimmix data=field ic=pq ;
class bfly trmt sex wingcon ;
model seen=day| trmt | sex| wingcon /ddfm=kr dist=binomial link=logit;
random intercept /subject=bfly(trmt*sex*wingcon);
run;
/*interaction till three way model*/
proc glimmix data=field ic=pq ;
class bfly trmt sex wingcon ;
model seen=day | trmt | sex |wingcon @3/ddfm=kr dist=binomial link=logit;
random intercept /subject=bfly(trmt*sex*wingcon);
run;
/*interaction till two way */
proc glimmix data=field ic=pq ;
class bfly trmt sex wingcon ;
model seen=day | trmt | sex |wingcon @2/ddfm=kr dist=binomial link=logit;
random intercept /subject=bfly(trmt*sex*wingcon);
run;
/*
%glimmix(data=green,
stmts = %str(
class BTFLY TRMT SEX ;
model seen=day| TRMT|SEX;
random intercept /subject=BTFLY(TRMT*SEX) type=un ;
),
error=binomial,
link=logit
)
run;
%glimmix(data=green,
stmts = %str(
class BTFLY TRMT SEX ;
model seen=day trmt sex day*sex day*sex*trmt /ddfm=kr;
random intercept /subject=BTFLY(TRMT*SEX) ;
),
error=binomial,
link=logit,
maxit=99

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)
run;

proc glimmix data=salamander;
class fpop fnum mpop mnum;
model mating(event=E1E) = fpop|mpop / dist=binary;
random fpop*fnum mpop*mnum;
lsmeans fpop*mpop / ilink;
lsmeans sex/diff cl;
run;

*/

/* Full Model*/
proc import datafile='G:\quist\Deepa\Cleaner Comparison.xls' out=all
DBMS=Excel;
getnames=yes;
proc print data=all;
run;
proc glm data=all ;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp |time1| time2 |pressure;
run;
quit;
/*Find power for Full Model*/
proc glmpower data=all;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp |time1| time2 |pressure;
power
stddev = .011124297/* Root MSE of this model */
ntotal = 672
alpha = 0.05
power = .;
run;

/* Model with significant interaction terms*/
proc glm data=all ;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner temp time1 time2 pressure Cleaner*temp Cleaner*time2
temp*time2 time1*pressure Cleaner*time1*pressure temp*time1*pressure
Cleaner*temp*time1*pressure Cleaner*temp*time1*time2
Cleaner*time1*time2*pressure Cleaner*temp*time1*time2*pressure;
run;
quit;
/* Power for Model with significant interaction terms*/
proc glmpower data=all;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner temp time1 time2 pressure Cleaner*temp Cleaner*time2
temp*time2 time1*pressure Cleaner*time1*pressure temp*time1*pressure
Cleaner*temp*time1*pressure Cleaner*temp*time1*time2
Cleaner*time1*time2*pressure Cleaner*temp*time1*time2*pressure;
power
stddev = .011124297/* Root MSE of this model */
ntotal = 672
alpha = 0.05

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power = .;
run;
/* Two way interaction model*/
proc glm data=all ;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp| time1| time2 |pressure @2;
title 'Two way interaction model';
run;
quit;
/*Power for Two way interaction model*/
proc glmpower data=all;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp| time1| time2 |pressure @2;
power
stddev = 0.011660/* Root MSE of this model */
ntotal = 672
alpha = 0.05
power = .;
run;

proc glm data=all outstat=summary ;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp| time1| time2 |pressure @2;
means Cleaner temp time1 time2 pressure Cleaner*temp Cleaner*time2 temp*time2
time1*pressure;
title 'means, standard deviations, and Tukey's multiple comparisons tests are
displayed
for each level of the main effects and just the means and standard deviations
are displayed for each of the above interaction terms.';
run;
quit;

proc glm data=all ;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp| time1| time2 |pressure @2;
lsmeans Cleaner*temp/ADJUST=TUKEY PDIF slice=(cleaner temp);
lsmeans Cleaner*time2/ADJUST=TUKEY PDIF slice=(cleaner time2);
lsmeans temp*time2/ADJUST=TUKEY PDIF slice=(temp time2);
lsmeans time1*pressure/ADJUST=TUKEY PDIF slice=(time1 pressure);
title 'Two way interaction model with slice option';
run;
quit;

proc glm data=all ;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp| time1| time2 |pressure @2;
contrast'CONTROL VS OTHERS' Cleaner -3 1 1 1;
contrast'Pace vs FMC' Cleaner 0 .5 .5 -1;
contrast'FMC vs pace field clean' Cleaner 0 1 0 -1;
contrast'FMC vs pace field clean' Cleaner 1 0 0 -1;
run;

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quit;
/*Power of Two way interaction model with contrast option*/
proc glmpower data=all;
class Cleaner temp time1 time2 pressure ;
model Residue= Cleaner| temp| time1| time2 |pressure @2;
contrast'CONTROL VS OTHERS' Cleaner -3 1 1 1;
contrast'Pace vs FMC' Cleaner 0 .5 .5 -1;
contrast'FMC vs pace field clean' Cleaner 0 1 0 -1;
contrast'FMC vs pace field clean' Cleaner 1 0 0 -1;
power
stddev = 0.011660/* Root MSE of this model */
ntotal = 672
alpha = 0.05
power = .;
run;
/* Cleaner present or absent with temperature tap and 40*/
proc import datafile='G:\quist\Deepa\cleaner vs temperature.xls' out=cleatemp
DBMS=Excel;
getnames=yes;
proc print data=cleatemp;
run;
proc glm data=cleatemp ;
class cleaner temp;
model Residue= cleaner|temp;
run;
quit;
/* Power of Cleaner present or absent with temperature tap and 40*/
proc glmpower data=all;
class cleaner temp;
model Residue= cleaner|temp;
power
stddev = 0.012302 /* Root MSE of this model */
ntotal = 672
alpha = 0.05
power = .;
run;

/*Best cleaner(Yes and No), Best temperature(Yes and No), Time*/
proc import datafile='G:\quist\Deepa\cl vs temp vs t1.xls' out=cltempt1
DBMS=Excel;
getnames=yes;
proc print data=cltempt1;
run;
proc glm data=cltempt1 ;
class cleaner temp time1;
model Residue= cleaner|temp|time1;
run;
quit;
/* Power of Best cleaner(Yes and No), Best temperature(Yes and No), Time*/
proc glmpower data=all;
class cleaner temp;
model Residue= cleaner|temp;
power
stddev = 0.012317 /* Root MSE of this model */
ntotal = 672

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alpha = 0.05
power = .;
run;
/* Best cleaner and temperature*/
proc import datafile='G:\quist\Deepa\bestcleaner.xls' out=bestcleaner
DBMS=Excel;
getnames=yes;
proc print data=bestcleaner;
run;
proc glm data=bestcleaner ;
class temp;
model Residue= temp;
run;
quit;
/* Best cleaner and temperature*/
proc glmpower data=bestcleaner ;
class temp;
model Residue= temp;
power
stddev = 0.011733 /* Root MSE of this model */
ntotal = 128
alpha = 0.05
power = .;
run;

/* Best cleaner,Best temperature and time1 */
proc import datafile='G:\quist\Deepa\bestcltempand time1.xls' out=bestcl
DBMS=Excel;
getnames=yes;
proc print data=bestcl;
run;
proc glm data=bestcl ;
class time1;
model Residue= time1;
run;
quit;
/* Power of Best cleaner,Best temperature and time1 */
proc glmpower data=bestcl ;
class time1;
model Residue= time1;
power
stddev = 0.011391 /* Root MSE of this model */
ntotal = 63
alpha = 0.05
power = .;
run;

/* Best cleaner, best temp,best time1 and time2*/
proc import datafile='G:\quist\Deepa\bestcltemptlvst2.xls' out=besttl
DBMS=Excel;
getnames=yes;
proc print data=besttl;
run;
proc glm data=besttl ;
class time2;

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model Residue= time2;
run;
quit;
/* Power of Best cleaner, best temp,best time1 and time2*/

proc glmpower data=bestt1 ;
class time2;
model Residue= time2;
power
stddev =.01024695/* Root MSE of this model */
ntotal = 32
power = .;
run;

/* Best cleaner, best temp,best time1,best time2 and pressure*/
proc import datafile='G:\quist\Deepa\allgoodand pres.xls' out=bestt2
DBMS=Excel;
getnames=yes;
proc print data=bestt2;
run;
proc glm data=bestt2 ;
class pressure;
model Residue= pressure;
run;
quit;
/* power of Best cleaner, best temp,best time1,best time2 and pressure*/

proc glmpower data=bestt2;
class pressure;
model Residue= pressure;
power
stddev = .011572812/* Root MSE of this model */
ntotal = 16
power = .;
run;

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