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"GLM probit analysis options (treatments)"

"Independent"
MODEL [DISTRIBUTION=binomial; LINK=probit; DISPERSION=1] RE; NBINOMIAL=sown
TERMS [FULL=yes] treatment*period
FIT [PRINT=model,summary,estimates; CONSTANT=omit; FPROB=yes; TPROB=yes;
FACT=9] treatment/period
RKEEP DF=DFInd; DEVIANCE=DevInd

"Common intercept"
MODEL [DISTRIBUTION=binomial; LINK=probit; DISPERSION=1] RE; NBINOMIAL=sown
FIT [PRINT=model,summary,estimates; CONSTANT=estimate; FPROB=yes; TPROB=yes;
FACT=9] treatment.period
RKEEP DF=DFCI; DEVIANCE=DevCI

"Common slope"
MODEL [DISTRIBUTION=binomial; LINK=probit; DISPERSION=1] RE; NBINOMIAL=sown
FIT [PRINT=model,summary,estimates; CONSTANT=omit; FPROB=yes; TPROB=yes;
FACT=9] treatment+period
RKEEP DF=DFCS; DEVIANCE=DevCS

"One line"
MODEL [DISTRIBUTION=binomial; LINK=probit; DISPERSION=1] RE; NBINOMIAL=sown
FIT [PRINT=model,summary,estimates; CONSTANT=estimate; FPROB=yes; TPROB=yes;
FACT=9] period
RKEEP DF=DF1line; DEVIANCE=Dev1line

"F-tests"
"Common intercept vs. Independent"
CALC  DFChange1=DFCI-DFInd
CALC  F1=((DevCI-DevInd)/DFChange1)/(DevInd/DFInd)
CALC  FProb1=1-CLF(F1;DFChange1;DFInd)
PRINT F1,DFChange1,DFInd,FProb1

"Common slope vs. Independent"
CALC  DFChange2=DFCS-DFInd
CALC  F2=((DevCS-DevInd)/DFChange2)/(DevInd/DFInd)
CALC  FProb2=1-CLF(F2;DFChange2;DFInd)
PRINT F2,DFChange2,DFInd,FProb2

"Common line vs. Common intercept"
CALC  DFChange3=DF1line-DFCI
CALC  F3=((Dev1line-DevCI)/DFChange3)/(DevCI/DFCI)
CALC  FProb3=1-CLF(F3;DFChange3;DFCI)
PRINT F3,DFChange3,DFCI,FProb3

"Common line vs. Common slope"
CALC  DFChange4=DF1line-DFCS
CALC  F4=((Dev1line-DevCS)/DFChange4)/(DevCS/DFCS)
CALC  FProb4=1-CLF(F4;DFChange4;DFCS)
PRINT F4,DFChange4,DFCS,FProb4
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"One-stage fit - seed longevity moisture relations"

"Common Ki within each sorption series (de1, ad1, de2, ad2); independent K,
independent CW within each cycle (1, 2)"
CALC germ = RE
VARI Fv
CALC Fv = sown
CALC lmoist=log10(MC)
EXPRESSION e[1,2,3,4]; VALUE=!e(SLOPE = 1/(10**((K+(K1*d0)) -
((CW+(CW1*d0))*lmoist)))),\
  !e(Fv = A+(A1*Kid1)+(A2*Kid2)+(A3*Kid3) - (SLOPE * period)),\
  !e(Fv = NORMAL(Fv)),\
  !e(Fv = sown * Fv)
MODEL [DISTRIBUTION=binomial; LINK=probit; DISP=*] germ; NBINOMIAL=sown;\
      FITTEDVALUES=Fv
RCYCLE A,A1,A2,A3,K,K1,CW,CW1; INITIAL=3.8,0,0,0,4.1,-0.5,3.7,-0.6
FITNONLINEAR [PRINT=monitoring,estimates,summary;\
             CALCULATION=e[1,2,3,4]; SELINEAR=yes]
RKEEP DF=DFIndKIndCW; DEVIANCE=DevIndKIndCW

"Common Ki within each sorption series (de1, ad1, de2, ad2); independent K,
common CW within each cycle (1, 2)"
CALC germ = RE
VARI Fv
CALC Fv = sown
CALC lmoist=log10(MC)
EXPRESSION e[1,2,3,4]; VALUE=!e(SLOPE = 1/(10**((K+(K1*d0)) -
(CW*lmoist)))),\
  !e(Fv = A+(A1*Kid1)+(A2*Kid2)+(A3*Kid3)- (SLOPE * period)),\
  !e(Fv = NORMAL(Fv)),\
  !e(Fv = sown * Fv)
MODEL [DISTRIBUTION=binomial; LINK=probit; DISP=*] germ; NBINOMIAL=sown;\
      FITTEDVALUES=Fv
RCYCLE A,A1,A2,A3,K,K1,CW; INITIAL=3.8,0,0,0,4.1,-0.5,3.7
FITNONLINEAR [PRINT=monitoring,estimates,summary;\
             CALCULATION=e[1,2,3,4]; SELINEAR=yes]
RKEEP DF=DFIndKComCW; DEVIANCE=DevIndKComCW

"Common Ki within each sorption series (de1, ad1, de2, ad2); common K,
independent CW within each cycle (1, 2)"
CALC germ = RE
VARI Fv
CALC Fv = sown
CALC lmoist=log10(MC)
EXPRESSION e[1,2,3,4]; VALUE=!e(SLOPE = 1/(10**(K -
((CW+(CW1*d0))*lmoist)))),\
  !e(Fv = A+(A1*Kid1)+(A2*Kid2)+(A3*Kid3) - (SLOPE * period)),\
  !e(Fv = NORMAL(Fv)),\
  !e(Fv = sown * Fv)
MODEL [DISTRIBUTION=binomial; LINK=probit; DISP=*] germ; NBINOMIAL=sown;\
      FITTEDVALUES=Fv
RCYCLE A,A1,A2,A3,K,CW,CW1; INITIAL=3.8,0,0,0,4.1,3.7,-0.6
FITNONLINEAR [PRINT=monitoring,estimates,summary;\
             CALCULATION=e[1,2,3,4]; SELINEAR=yes]
RKEEP DF=DFComKIndCW; DEVIANCE=DevComKIndCW
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"Common Ki within each sorption series (de1, ad1, de2, ad2); common K, common
CW within each cycle (1, 2)"
CALC germ = RE
VARI Fv
CALC Fv = sown
CALC lmoist=log10(MC)
EXPRESSION e[1,2,3,4]; VALUE=!e(SLOPE = 1/(10**(K - (CW*lmoist)))),\
  !e(Fv = A+(A1*Kid1)+(A2*Kid2)+(A3*Kid3)- (SLOPE * period)),\
  !e(Fv = NORMAL(Fv)),\
  !e(Fv = sown * Fv)
MODEL [DISTRIBUTION=binomial; LINK=probit; DISP=*] germ; NBINOMIAL=sown;\
      FITTEDVALUES=Fv
RCYCLE A,A1,A2,A3,K,CW; INITIAL=3.8,0,0,0,4.1,3.7
FITNONLINEAR [PRINT=monitoring,estimates,summary;\
             CALCULATION=e[1,2,3,4]; SELINEAR=yes]
RKEEP DF=DFComKComCW; DEVIANCE=DevComKComCW

"F-tests"
"F-test Common CW vs. Independent K and CW"
CALC DFChange1=DFIndKComCW-DFIndKIndCW
CALC F1=((DevIndKComCW-DevIndKIndCW)/DFChange1)/(DevIndKIndCW/DFIndKIndCW)
CALC FProb1=1-CLF(F1;DFChange1;DFIndKIndCW)
PRINT F1,DFChange1,DFIndKIndCW,FProb1

"F-test Common K vs. Independent K and CW"
CALC DFChange2=DFComKIndCW-DFIndKIndCW
CALC F2=((DevComKIndCW-DevIndKIndCW)/DFChange2)/(DevIndKIndCW/DFIndKIndCW)
CALC FProb2=1-CLF(F2;DFChange2;DFIndKIndCW)
PRINT F2,DFChange2,DFIndKIndCW,FProb2

"F-test Common K and CW vs. Common CW"
CALC DFChange3=DFComKComCW-DFIndKComCW
CALC F3=((DevComKComCW-DevIndKComCW)/DFChange3)/(DevIndKComCW/DFIndKComCW)
CALC FProb3=1-CLF(F3;DFChange3;DFIndKComCW)
PRINT F3,DFChange3,DFIndKComCW,FProb3

"F-test Common K and CW vs. Common K"
CALC DFChange4=DFComKComCW-DFComKIndCW
CALC F4=((DevComKComCW-DevComKIndCW)/DFChange4)/(DevComKIndCW/DFComKIndCW)
CALC FProb4=1-CLF(F4;DFChange4;DFComKIndCW)
PRINT F4,DFChange4,DFComKIndCW,FProb4
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