data necalc;

input idcode$ init\_sbw final\_sbw target\_sbw target\_endpoint$ dmi dof;

\*Change idcode as needed to describe treatments, blocks, pens, etc., or add other identifiers to the input line as needed. Shrunk ADG (sadg in the code below) is calculated from the difference between initial and final shrunk BW (init\_sbw and final\_sbw) divided by days on feed (dof). The target\_sbw variable is the weight of the animal at the target endpoint (target\_endpoint), which is entered as the quality grade (choice, select, standard).;

if target\_endpoint="choice" then target=478;

if target\_endpoint="select" then target=462;

if target\_endpoint="standard" then target=435;

avgsbw=(init\_sbw+final\_sbw)/2;

avgmbw=avgsbw\*\*0.75;

sadg=(final\_sbw-init\_sbw)/dof;

nemreq=0.077\*avgmbw;

eqsbw=avgsbw\*(target/target\_sbw);

meqsbw=eqsbw\*\*0.75;

negreq=0.0557\*meqsbw\*sadg\*\*1.097;

x=0.877\*dmi;

y=(0.877\*-nemreq)+(-0.41\*dmi)+(-negreq);

z=-0.41\*(-nemreq);

negy=-y;

ysq=y\*\*2;

fourxz=4\*x\*z;

sqroot=(ysq-fourxz)\*\*0.5;

num=negy+sqroot;

denom=2\*x;

nemconc=num/denom;

negconc=0.877\*nemconc-.41;

meconc=0.896706+0.847878\*nemconc+0.100045\*nemconc\*\*2-0.003842\*nemconc\*\*3;

cards;

a 330 550 550 choice 9.5 140

a 320 550 550 choice 9.5 140

a 310 550 550 choice 9.5 140

b 330 550 550 select 9.5 140

b 320 550 550 select 9.5 140

b 310 550 550 select 9.5 140

c 330 550 550 standard 9.5 140

c 320 550 550 standard 9.5 140

c 310 550 550 standard 9.5 140

run;

title 'Quadratic Solution of Net Energy Values from Performance Data';

proc print; var idcode init\_sbw final\_sbw target\_sbw target\_endpoint dof sadg nemconc negconc meconc;

proc sort; by idcode;

proc means data=necalc; by idcode; var nemconc negconc meconc;

run; quit;