

Possible Models For Fertility Traits

Definition of terms in model.

a	=	animal additive genetic effect, random
Ac	=	Age at current calving (in months)
Ap	=	Age at previous calving (in months)
Af	=	Age at first service (in months)
B	=	Batch-year code of semen collection on sire
CE	=	Calving ease, categorical
CTFS	=	Calving to first service
CZ	=	Calf size, categorical
DO	=	Days Open
e	=	residual effect common to all records, random
e(A1)	=	different residual variance for each A1
e(PAC)	=	different residual var for each age, PAC
FSTC	=	First service to conception
GL	=	Gestation length, days
H	=	Herd
Mc	=	Month of current calving (1-12)
McX	=	Month of current calving by sex of calf
Mp	=	Month of previous calving
Mf	=	Month of first insemination
NS	=	Number of services
NRR-56	=	First service non return rate at 56 days
pe	=	permanent environmental effect, random
P	=	Parity number
PAC	=	Ages at later calvings within parity
R	=	Regions of Canada (same as for production)
RYS	=	Region by year by season of birth, fixed Seasons(Dec-Feb, Mar-June, July-Sep, Oct-Nov)
RYS:H	=	Herd within YS, random
SB	=	Stillbirth, 0 or 1
SC	=	Sire of calf effect, random, sires related
SS:B	=	Service sire-batch effect, random, unrelated
T	=	AI technician
X	=	Sex of calf

Heifer Traits

AFS	RYS	RYS:H				a	e
NS	RYS	RYS:H	Mf			a	e
NRR-56	RYS	RYS:H	Mf	T	SS:B	a	e
FSTC	RYS	RYS:H	Mf			a	e
GL	RYS	RYS:H	MfX	SC		a	e
CE	RYS	RYS:H	AcMcX	SC		a	e
SB	RYS	RYS:H	AcMcX	SC		a	e
CZ	RYS	RYS:H	AcMcX	SC		a	e

Cow Traits

CTFS	RYS	RYS:H	ApMp			a	pe	e
NS	RYS	RYS:H	ApMf			a	pe	e
NRR-56	RYS	RYS:H	ApMf	SS:B	T	a	pe	e
FSTC	RYS	RYS:H	ApMf			a	pe	e
DO	RYS	RYS:H	ApMp			a	pe	e
GL	RYS	RYS:H	ApMpX	SC		a	pe	e
CE	RYS	RYS:H	AcMcX	SC		a	pe	e
SB	RYS	RYS:H	AcMcX	SC		a	pe	e
CZ	RYS	RYS:H	AcMcX	SC		a	pe	e