

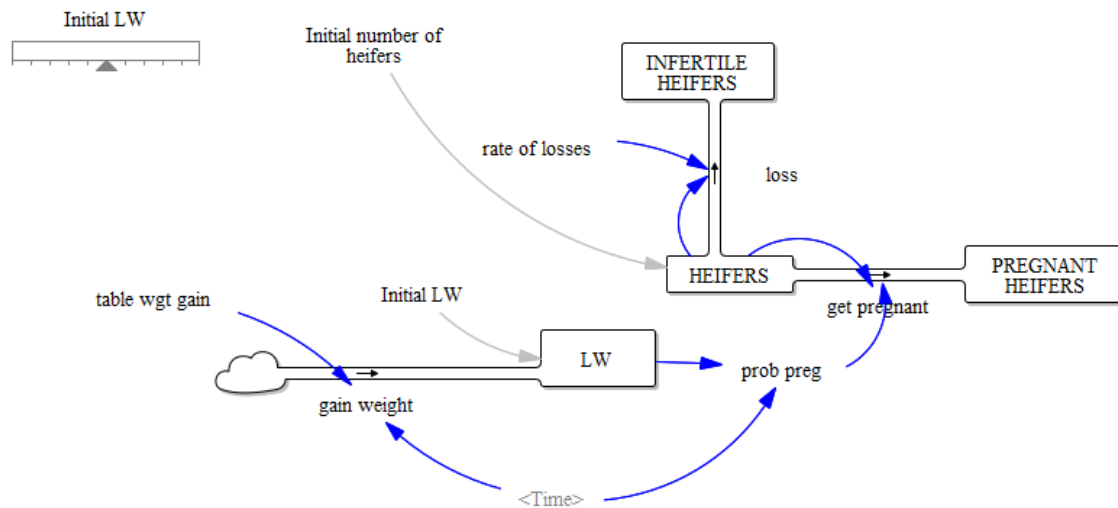
Supplementary material to:

Modelling the reproductive performance of tropical beef herds using long-term experimental grazing data on *Urochloa humidicola* pastures in the Llanos of Colombia

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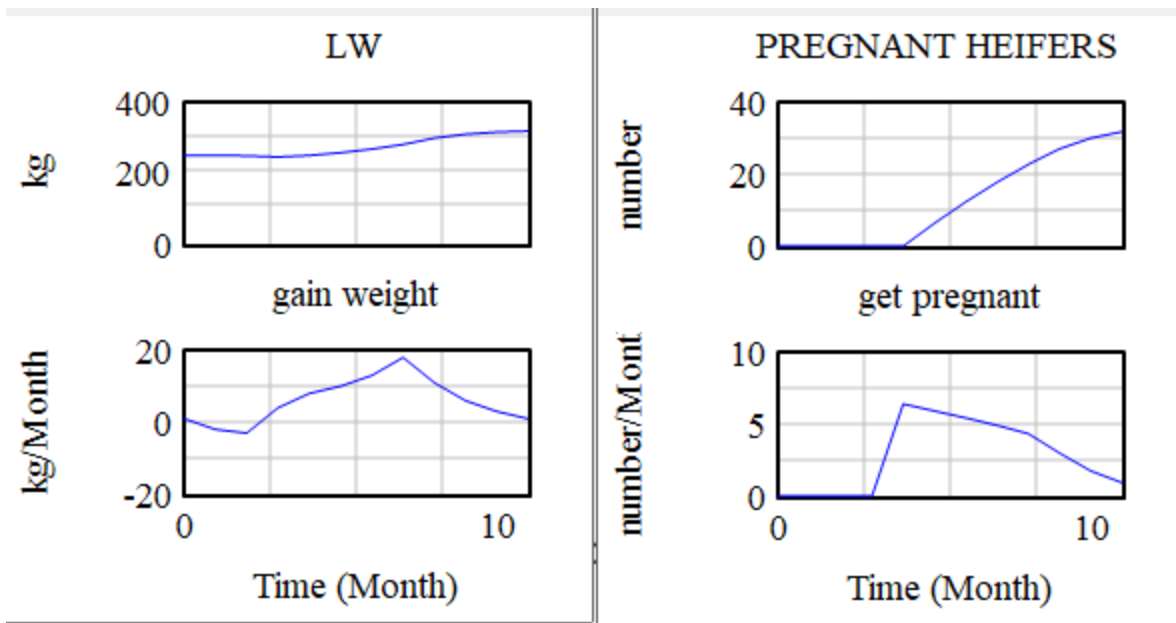
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Appendix 1.



In the above graph, boxes represent stocks of animals, pipes show flows or rates of change, and the rest are auxiliary variables. Blue arrows represent the flow of information between stocks and variables. The convention is that stocks are identified with capital letters; all others in lower case letters.

Appendix 2.



The above graphs show examples of model outputs.

Appendix 3.

Model equations. As per convention, stocks are identified in capital letters, all others in lower case letters. Per convention, models begin at t=0.

(01) FINAL TIME = 11

Units: Month

The final time for the simulation.

(02) gain weight= table wgt gain(Time)

Units: kg/Month

(03) get pregnant= HEIFERS*prob preg

Units: number/Month

(04) HEIFERS= INTEG (-get pregnant-loss, Initial number of heifers)

Units: number

(05) INFERTILE HEIFERS= INTEG (loss,0)

Units: number

(06) Initial LW= 240

Units: kg

(07) Initial number of heifers= 100

Units: number

(08) INITIAL TIME = 0

Units: Month

The initial time for the simulation.

(09) loss= HEIFERS*rate of losses

Units: number/Month

(10) LW= INTEG (gain weight, Initial LW)

Units: kg

(11) PREGNANT HEIFERS= INTEG (get pregnant,0)

Units: number

(12) prob preg=

IF THEN ELSE (Time<4,0,(1/(1+EXP(6.67251-0.0208803*LW))))

Units: dimensionless

(13) rate of losses= 0.01/11

Units: dimensionless

(14) SAVEPER = 0.25

Units: Month

Saving and integration period

Note: Monthly weight gains in the table that follows are shown enclosed in curved parenthesis, with the first number indicating the month and the second one kg of gain per month

(15) table wgt gain ([(0,0)-(11,20)],(0,1),(1,-2),(2,-3),(3,4),(4,8),(5,10),(6,13),(7,18),(8,11),(9,6),(10,3),(11,1))

Units: kg/Month

(16) TIME STEP = 1

Units: Month