```
syms S L P I A H R D real
x = [S;L;P;I;A;H;D;R];

syms beta tau_L tau_P tau_I tau_A tau_H p_I p_H p_D q_A q_H N_p real

Infectious = P + I + q_A*A + q_H*H;

omega = 0;
nu = 0;

dS = -beta*Infectious*S/N_p - nu*S + omega*R;
dL = beta*Infectious*S/N_p - tau_L*L;
dP = tau_L*L - tau_P*P;
dI = p_I*tau_P*P - tau_I*I;
dA = (1-p_I)*tau_P*P - tau_A*A;
dH = tau_I*p_H*I - tau_H*H;
dD = p_D*tau_H*H;
dR = tau_I*(1-p_H)*I + tau_A*A + (1-p_D)*tau_H*H + nu*S - omega*R;

f_sym = [dS dL dP dI dA dH dD dR].'
```

f_sym =

$$
\begin{pmatrix}
-\sigma_1 \\
\sigma_1 - L\,\tau_L \\
L\,\tau_L - P\,\tau_P \\
P\,p_I\,\tau_P - I\,\tau_I \\
-A\,\tau_A - P\,\tau_P\,(p_I - 1) \\
I\,p_H\,\tau_I - H\,\tau_H \\
H\,p_D\,\tau_H \\
A\,\tau_A - H\,\tau_H\,(p_D - 1) - I\,\tau_I\,(p_H - 1)
\end{pmatrix}
$$

where

$$
\sigma_1 = \frac{S\,\beta\,(I + P + A\,q_A + H\,q_H)}{N_p}
$$

```
% Q("Original","Period_I") = table(4);
% Q("Original","Pr_I") = table(0.48);
% Q("Original","Period_L") = table(1.5);
% Q("Original","Period_P") = table(3.1);
% Q("Original","Period_A") = table(4);
% Q("Original","Pr_H") = table(0.076);
% Q("Original","Period_H") = table(12);
% Q("Original","Pr_D") = table(0.48);
```

Rögzített paraméterek (relatív fert z képesség):

```
q_A = 0.75;
q_H = 0.1;
```

Egyenként kézzel, a megadott sorrendben illesztett paraméterek:

```
tau_I = 1/4;
p_I = 0.48;
tau_L = 1/1.5;
tau_P = 1/3.1;
tau_A = 1/4;
p_H = 0.076;
tau_H = 1/12;
p_D = 0.48;
```