

# Electronic Supplementary Material for Perry *et al.* (2010)

The following material gives additional data concerning the parameter values that were used in the model published as:

A mathematical model of exposure of non-target Lepidoptera to Bt-maize pollen expressing Cry1Ab within Europe.

J. N. Perry, Y. Devos, S. Arpaia, D. Bartsch, A. Gathmann, R. S. Hails, J. Kiss, K. Lheureux, B. Manachini, S. Mestdagh, G. Neemann, F. Ortego, J. Schiemann and J. B. Sweet (2010), *Proc R Soc B*, **277**, 1417-1425.

(EXiS Open Choice)

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Below, the authors give details of exactly which values of parameters were used for each particular site and non-target lepidopteran species. These values are in Table 1 of the published paper, but only in summarised form.

Note that for the Po Valley (southern and coastal) region the model was not parameterized for the two butterfly species (*Inachis io* and *Venessa atalanta*), for which no results were output. This was because no data were collected in that region for either of these butterfly species. Data were only collected for the moth, *Plutella xylostella*, for which output from the model was derived.

Note also that for the two regions within Spain, Madrid and Catalunya, no host plants were observed during the period in which the two butterfly species would have been exposed, therefore there was no exposure and consequently no mortality.

<i>Parameter</i>	$z$ , maize cropping (proportion of fields in maize)	$v$ , utilization rate (uptake of <i>Bt</i> maize)	$C$ , size of maize field	$D$ , width of field margin	$q$ , proportion of fields with no margin (for regions with bimodal fields)	$x$ , physical effects	$a$ , temporal coincidence	$x$ , physical effects	$a$ , temporal coincidence	$x$ , physical effects	$a$ , temporal coincidence
<i>Species</i>						<i>Inachis io</i>	<i>Inachis io</i>	<i>Vanessa atalanta</i>	<i>Vanessa atalanta</i>	<i>Plutella xylostella</i>	<i>Plutella xylostella</i>
<i>Site</i>											
Bonn	0.100	0.800	5.0	1.0	0	0.3	0.5	0.3	0.5	0.5	0.50
Oderbruch	0.200	0.800	50.0	2.0	0.50	0.3	0.5	0.3	0.5	0.5	0.50
Aachen	0.200	0.800	2.6	2.0	0	0.5	0.5	0.5	0.5	0.1	0.75
Berkatal	0.060	0.800	1.1	1.0	0.70	0.5	0.5	0.5	0.5	0.5	0.50
Grebbin	0.150	0.800	58.0	2.0	0.30	0.5	0.5	0.5	0.5	0.6	0.50
U.R.V.	0.700	0.800	15.0	2.0	0.50	0.3	0.5	0.3	0.5	0.5	0.50
Tolna County	0.450	0.800	30.0	4.0	0.67	0.2	0.5	0.1	0.5	0.2	0.50
Po Valley (east & central)	0.250	0.800	25.0	4.0	0	0.8	0.6	0.7	0.6	0.8	0.80
Po Valley (southern and coastal)	0.200	0.800	30.0	2.0	0.50	no results output	no results output	no results output	no results output	0.5	0.50
Madrid	0.024	0.035	4.0	4.5	0	no exposure	no exposure	no exposure	no exposure	0.8	0.10
Catalunya	0.040	0.650	4.0	4.5	0	no exposure	no exposure	no exposure	no exposure	0.8	0.10

<i>Parameter</i>	<i>y</i> , proportion of host-plants in arable fields	<i>e</i> , host-plant density within- crop	<i>f</i> , host-plant density in margin	<i>y</i> , proportion in arable fields	<i>e</i> , host-plant density within- crop	<i>f</i> , host-plant density in margin
<i>Species</i>	<i>Inachis io</i> & <i>Vanessa atalanta</i>	<i>Inachis io</i> & <i>Vanessa atalanta</i>	<i>Inachis io</i> & <i>Vanessa atalanta</i>	<i>Plutella</i> <i>xylostella</i>	<i>Plutella</i> <i>xylostella</i>	<i>Plutella</i> <i>xylostella</i>
<i>Site</i>						
Bonn	0.20	0	0.5	0.500	0	0.5
Oderbruch	0.20	0	0.5	0.300	0	0.5
Aachen	0.20	0	0.2	0.050	0	1.0
Berkatal	0.30	0.01000	5.0	0.700	0.05	15.0
Grebbin	0.50	0.01000	10.0	0.800	0.05	15.0
U.R.V.	0.50	0	0.5	0.500	0.01	0.5
Tolna County	0.10	0	10.0	0.100	0.50	5.0
Po Valley (east & central)	0.25	0.00625	0.5	0.500		
Po Valley (southern and coastal)	no results output	no results output	no results output	0.500	0	0.5
Madrid	0.10	0	0	0.001	0	0
Catalunya	0.10	0	0	0.001	0	0