

Summary of Questionnaire Responses

EPPO Workshop Pollen Beetle
Berlin, Sept 2007

David Richardson
UK - PSD



Summary of findings from a participant country questionnaire on pest insects in oilseed rape

U. Heimbach

Responses

- 20 responses
- Not all questions answered
- Qualitative and quantitative data
- Some rounding in presentation

11 responding countries (with 5,400,000 ha oilseed rape = 83% of EU)

Not all questions answered

Qualitative and quantitative data

Some rounding in presentation

Possibly some items wrongly understood by me or a country



Countries and hectares of crop grown						
	<1k	1 – 9.99 k	10 – 50k	50 – 100k	>100k - 1m	>1m
Spring rape	AU, BE, CH, HR, LU, NO, SL	CZ, DK, FR, HU, IR, NL, SK	DE, PL, SE, UK	LV		
Winter		IR, LU, NL, NO, SL,	AU, CH, SE, LV	EE*, HR, SK,	CZ, DK, HU, PL, UK	DE, FR

in 1000 ha	SE	LV	PL	UK	DE	LU	FR	AU	CZ	SK	HU
W OSR	93,4	66,6	838	635	1305	4,0	1517	42	388	114	240
S OSR	7,4	39,1	70,0	8,0	3,3	0,3	1,3	0,2	6,5	5,4	2,0
all OSR	101	106	908	643	1308	4,3	1518	43	394	119	242

%

% S OSR	7,3	37,0	7,7	1,2	0,3	7,0	0,1	0,4	1,6	4,5	0,8
% OSR of all arables	7,7	9,1	9,0	11,0	11,5	7,1	8,5	0,4	16,0	8,9	5,6

in years

OSR years of rotation	4 to 5	4	3	3	3 to 4	3 to 4	3 to > 3	4 to 5	3 to 4	5 to 6	3
% rotation < 3 years	0	10	40-50 ?	??	3 to 4	< 2	??	1	??	10	10

Insecticidal a.i. and rates (excluding seed appl.) registered in EU countries in winter oilseed rape



2017

	IRAC	SE	LV	PL	UK	DE	LU	FR	AU	CZ	SK	HU	No a.i.	dose range
acetamiprid	4 A	40	-	16-50*	40	40	40	40	40	16-36	20-30	15-40*	10	16-50*
thiacloprid	4 A	72	72	50-69*	80	72	72	50-62,5*	72	62,5-72*	48-72	72	11	48-80*
indoxacarb	22 A	25,5	25,5	26,8	25	25,5	25,5	18,8-25,5	25,5	25,5	22,5	25,5	11	18,8-27
pymetrozin	9 B	75	75	75	75	75	75	75	75	75	-	75	10	75
pirimicarb	1 A	-	-	-	-	-	-	100-125*	-	250	150-250	-	3	100-250*
phosmet	1 B	-	-	500-750	-	-	-	500-750	500	-	-	500	4	500-750
malathion	1 B	-	-	800	-	-	-	-	880	880	880	-	4	800-880
chlorpyrifos meth.	1 B	-	-	222-277*	-	-	-	250-338*	-	250-450*	450	300-450*	5	222-450*
chlorpyrifos ethyl	1 B	-	-	221-355*	-	-	-	-	-	300-450*	188-450	188-480*	4	188-480*
cypermethrin	3 A	-	25	22-32,3*	25	25	25	15-25*	25	25-30*	20-30	20-30*	10	15-32,3*
α-cypermethrin	3 A	15	15	10,9-13	10	10	7,5-10	7-10,5	-	max. 15	10-15	10	10	7-15
zeta cypermethrin	3 A	-	10	9,7	10	10	10	5-10	10	10	10-12,5	7,5	10	5-12,5
β-cypermethrin	3 A	-	-	-	-	-	-	-	-	-	-	16	1	16
β-cyfluthrin	3 A	7,5	7,5	6,9-13,6*	8	7,5	-	5-7,5	7,5	5,2-7,7	5-15	7,5-15*	10	5-15*
deltamethrin	3 A	-	7,5	3,9-9,8*	7,5	5-6,25	5	5-6,3*	7,5	5-7,5	4-7,5	7,5	10	3,9-9,8*
esfenvalerat	3 A	-	-	13,9	-	12,5	7,5	12,5-15	5-15	5-10	7,5	10-15	7	5-15
γ-cyhalothrin	3 A	-	-	-	-	4,8	-	3-4,5	-	3,6-4,8	-	3,6-4,8	4	3-4,8
λ-cyhalothrin	3 A	7,5	7,5	4,8-7,9*	7,5	7,5	7,5	5-7,5*	7,5	5-7,5	5-7,5	7,5-10	11	4,8-10*
etofenprox	3 A	-	-	60-90	57	57,5	-	57,5	57,5	57,5	57,5	-	7	57-90
tau fluvalinate	3 A	48	48	44-48	48	48	-	48	48	48	48	48	10	44-48
*ready mix of 2 insect.a.i.														
Sum of a.i.	20	8	10	17	12	14	10	17	14	18	16	17		
Sum of MoA	5-6	4	4	5	4	4	4	5-6	5	5-6	4-5	5		

Active substances

- Wide range of actives
 - Both old and new;
- Huge range of doses

Actives and doses?

- Consistently highest doses – NO
- Some countries – more than 1 dose
 - Use higher doses in denser crops (NO, EE)
 - Lower dose (0.5N) when buds are small (SE)
 - Some raised dose in response to resistance (DE)
- Lost actives ?
 - OP, OC and some pyrethroid

Insecticidal a.i. and rates registered in EU countries in winter oilseed rape 2017

Changes to 2007 situation:

Indoxacarb and pymetrozin new

Spinosad (IRAC 5) not further developed

Neonicotinoid seed treatments lost, but new in 2017: cyantraniliprole on seeds

Fenitrothion and dichlorphos (both IRAC 1B) lost

Some changes also within pyrethroids (IRAC 3A)

Wide range of doses for several actives, but not for all of them

Several countries with insecticide mixtures, usually pyr + neonic. or pyr + OP

Numbers of applications



EPPO pollen beetle 2007

	0	<1	1	>1 -3	4-5	>5
For pollen beetle						
Winter rape	IR, NO	SE, UK	CH, CZ, HU, HR, FR, SL,	AU, BE, DK, DE, EE, LU, LV, NL, SK,	PL	
For all pests						
Winter rape	IR, NO	SE	CH	AU, BE, CZ, DE, EE, HU, HR, LU, NL, SL, UK	PL, SK	LV

For all pests in winter OSR

	SE	LV	PL	UK	DE	LU	FR	AU	CZ	SK	HU
autumn	0,3	0,1	1		0,7	0,5	1,2	0,7	1	2	1,1
spring < BBCH 60	0,9	2,5	1,7		1,8	1,7	1,2	2,1	2,5	2,5	1,5
spring > BBCH 59	0,3	0,4	0,7		0,5	0,3	0,2	0,3	1	1,5	0,5
total	1,5	3	3,4	3	3	2,5	2,6	3,1	4,5	6	3,1

Wide range of rates registered: is there a scientific base for this?

Why differ the No. of applications used in OSR in adjacent countries a lot?

Number and type of a.i. registered per country differ a lot, European harmonisation?

5 countries with insecticide mixtures, but EPPO Standard PP 277 Insecticide co-formulated mixtures?

MoA vary between countries between 4 and 6, but for some insect species often no MoA (e.g. HYLERA) or only 1 MoA (e.g. PSYICH) is available

Some questions 2017 on resistance issues to be answered by countries



<p>If insecticide resistance management (IRM) strategies are developed in your country:</p>	<p>- who is responsible?</p>	
	<p>- how is the IRM strategy communicated (on-label, web, farmer's journals etc.)?</p>	
	<p>- which pest(s) are covered by IRM strategy?</p>	
<p>Are emergency authorizations for use of neonicotinoid treated OSR seeds in place in your country?</p>		
<p>Is Mode of Action (MoA) labelling according to the IRAC classification commonly used in your country?</p>		
<p>Are there non-insecticide control strategies used in your country? If yes, on which % of OSR area are they used and what is applied?</p>		
<p>Are there any commercially available OSR pest resistant varieties used in your country and, if yes, to what pest?</p>		
<p>Please give any additional information you believe is relevant to the resistance problem in oilseed rape?</p>		
<p>Is there an established working group in your country/region addressing resistance management issues such as a national Resistance Action Groups (RAGs), e.g. NORBARAG?</p>		

Resistance

EPPO pollen
beetle 2007

- Present in 12 of 20 countries
 - In excess of 4m ha winter rape
 - And 150k ha spring rape
- No resistance in other pests

In 2017 resistance situation not known in all 11 countries for:
HYLERA, ATALCO, PLUTLA

Little resistance knowledge (unknown in country if not named) on:

PHYLSP: 0 pyr resistance in DE and CZ

CEUTPI: 1 pyr resistance in DE, 0-2 in FR

DASIBR: 0 pyr resistance in DE

BREVBR: 0 pyr resistance in DE, FR; 0 neo resistance in DE, FR; 0
pir resistance in FR

pyr = pyrethroids, neo = neonicotinoids, pir = pirimicarb

Resistance

EPPO pollen beetle 2007



- Present in 12 of 20 countries
 - In excess of 4m ha winter rape
 - And 150k ha spring rape
- No resistance in other pests

Resistance situation known in some countries in 2017, resistance situation unknown in countries if not named

	No. + country answers	Pyr IRAC 3A	Neo IRAC 4A	OP IRAC 1B	Pir IRAC 1A	Inдох. IRAC 22A	Pymet. IRAC 9B
MYZUPE	5	SE 2-3 ; PL, UK, DE, FR 3	PL, UK, DE, FR 0	SE 3 ; PL 1	DE, FR 2		
PSYICH	5	SE, DE 1 ; FR 1-3 ; UK 3		CZ, FR 0			
CEUTQU	3	PL, DE, CZ 0	CZ 0	PL, CZ 0			
CEUTNA	4	PL, DE, FR, CZ 0	FR, CZ 0	PL, FR, CZ 0			
MELIAE	10	SE, LV, PL, UK, DE, FR, AU, CZ, SK 3 ; LU 2 ; HU 1-2	SE, UK, DE, LU 0 , LV 0-1 ; PL 1 ; CZ 1-2	LV, PL, DE, LU, FR, CZ 0		LV, PL, UK, DE, LU, FR, CZ 0	LV, UK, LU, FR, SK 0
CEUTAS	5	SE, PL, FR, CZ 0 ; DE 2-3	SE, DE, CZ 0 ; PL 1	CZ 0			

- Thresholds are old
- Hugely diverse
 - Plant part assessed
 - Field area (AU)
 - Growth stage
- UK experience – practical and difficult to apply
- So, are they valuable?
- Do they need revising?
- How should they be expressed?
- Would they be used?

Threshold values in countries in Winter OSR

pl = plant, L = Larva, YWT = yellow water trap

all renewed
2008/09 in FR

	SE	LV	PL	UK	DE	LU	FR	AU	CZ	SK	HU
HYLERA	no	no	1/YWT in 3d	no	no	no	no	no	no	no	no
MYZUPE	no	no	no	no	no	no	20% pl infest. >BBCH 16 2 colon. /m ² <BBCH 74	no	no	no	no
BREVBR	10-20% pl inf	no	2 colon. /m ²	13% pl inf.<BBC H 69	no	no	see MYZUPE	no	10% pl inf.<BBCH 69	no	no
ATALCO	1L/pl, early stage	no	1L/pl early, 4L/pl later	no	1L/pl	no	25% leaf dam.<BBCH 16	1-2L/pl	1L/pl	2L/pl	no
PLUTMA	no	no	1L/pl	not a pest	no	no	no	not a pest	no	no	no
CEUTPI	not a pest	no	not a pest	no	10/ YWT in 3d, recently preliminary	no	presence in YWT BBCH 31-57	not a pest	no	no	no

Threshold values in countries in winter OSR

pl = plant, L = Larva, dam = damage, YWT = yellow water trap



	SE	LV	PL	UK	DE	LU	FR	AU	CZ	SK	HU
PSYICH Larvae			not a pest?	2 L/pl, 50% petiol. dam.	3 L/pl	3 L/pl	70% inf. pl, 2-3/pl		1L/pl spring	1-2 L/pl spring	
PSYICH Adult	10% leaf area dam. <BBCH14, 50-100/YWT in 21d, 1-2 /m row at night	3/40 pl	not a pest?	25% leaf dam BBCH12 50% BBCH 14 seas.	10% leaf dam <BBCH14, 50/YWT in 21d	10% leaf <BBCH14 50/YWT in 10d	80% pl with bites <BBCH14	10% leaf dam. <BBCH14, 25-35/YWT in 21d	1/m row	1-3/m row, 3/YWT per 1d	10% leaf dam <BBCH14
PHYLSP	not a pest	no	1/m ²	no	10% leaf dam <BBCH14	no	80% pl with bites <BBCH14	10% leaf dam <BBCH14	1/m row	no	10% leaf dam. <BBCH14
CEUTQU	20/YWT in 3d	no	20/YWT in 3d, 6/25 pl	no	15/YWT with grid in 3d	10/YWT in 3d	no pest	10 /YWT in 3d	3/YWT per 1d, above 6°C	no	15/YWT in 3d
CEUTNA	Not a pest	no	10/YWT in 3d or 2-4/25 pl	no pest	5/YWT with grid in 3d	10/YWT in 3d	presence in YWT BBCH 31-57	10/ YWT in 3d	3/YWT per 1d or in sticky trap	25/YWT in 3d, 40/HPS foil in 21d	10/YWT in 3d

Threshold values updated since 2007 for PYSICH in 5 countries, CEUTQU+PHYLSP in 1 country, CEUTNA in 2 countries

Threshold values in countries

	SE	LV	PL	UK	DE	LU	FR	AU	CZ	SK	HU
MELIAE	2-3/pl BBCH 51 3-4/pl BBCH 52/53, 5- 6/pl BBCH 59	4/pl	1-2/pl BBCH 50-52, 3-5/pl BBCH 55-59	<30pl/m ² 25/pl, 30- 50 pl/m ² 18/pl, >70 pl/m ² 7/pl	10 in healthy fields >BBCH 55	6-8 BBCH 51-53, 8-10 BBCH 55-59	6-9/pl BBCH50- 57, weak field 2-3/pl or 65% pl inf.	5-6/pl	1/pl BBCH51 3/pl BBCH55- 69	1-3/pl	2-5 /pl BBCH 50-59
CEUTAS	1-2/pl	1-3/40 pl	1/pl	0,5-1 /pl	1-2 /pl	1/ pl	0,5/pl BBCH57- 73	1-2/pl	1/pl BBCH 59-69	1/pl	0,5-1 /pl
DASIBR	no	15/YWT or 5/glue shield	1/pl	see CEUTAS	see CEUTAS + prev. infest.	no	see CEUTAS	1/pl + prev. infest.	1/ 4 inflor.	0,25/pl	no

**Threshold values updated since 2007 for
MELIAE in 5 countries
CEUTAS in 3 countries
DASIBR in 1 country**

Resistance activities in countries

Auth = Authority, Res = Research, Adv = Advice, Ind = Industry

	resist. group	off resist. group	scope	jour	web	label	MoA on label	emerg reg	relevant points for resistance
SE	Auth,Res,Adv,Ind	NORBARAC	MELIAE	x	x		(X)	no	more MoA needed
LV	no	No					x	yes for neonic	> 3-4 MoA
PL	Res	Inst Pl. Prot.					no	no	sens. of the diff species
UK	Auth, Res,Adv,Ind	UK-IRAG	MELIAE PSYICH	x	x	(x)	(x)	yes for neonic	less applications
DE	Auth, Res,Adv,Ind	ECPR-I	most pests	x	X	(x)	X	no	more MoA, less appl., non chem. methods
LU	Auth, Res	close coop betw. officials	most pests	x	x		x	no	Rotation, less OSR, farmer education, more advise, control private advise
FR	Auth, Res, Adv	Nat. Res Group	most pests	x			x	no	
AU	Auth, Res	group in AGES	MELIAE PSYICH	x	x	x	x	no	result of loss of neo: more pyrethroids used
CZ	Auth,Res,Adv,Ind	new for monit.res	general IRM for some			x	x	no	
SK	no	no	general IRAC			X	x	no	
HU	no	no					x	yes for neonic	

Resistance activities in countries



Resume:

Resistance awareness and activities between countries is very different, only few with intensive knowledge and activities

Threshold values vary a lot even in similar climatic conditions and updating might support a reduction of the application frequency

Recommendation:

More activity and exchange between countries would support smaller ones

EPPO could support knowledge transfer

Non chemical methods used on oilseed rape

	resistant cultivars	non chem. methods (except general IPM rules)
SE	no	choice between W and S OSR
LV	no	no
PL	no	no
UK	yes TuYV	sowing date
DE	yes TuYV res./tolerance	sowing date and sowing rate
LU	no	no
FR		MELIAE: on 30-50% of area: mixed OSR cultiv. with diff. flower time; PSYICH: soil cult.; strong, healthy and vigorous plants; sowing date; sufficient N
AU	no	no
CZ	yes TuYV	no
SK	no	no
HU		no

Resume: Lots of research on non chemical control options, but very limited implementation in farming practice yet except changes in sowing date and rates

Conclusions



**Some positive effects obtained since EPPO Workshop 2007 on
pollen beetle**

but

control options between countries still differ

much more resistance in 2017 and therefore more to do!

**No non chem. control method widely established
Thresholds in few countries updated and still too much variable**

**Thanks for countries to answer the questionnaire and
please apologize for any mistakes in this analysis**