Bird focal species for pesticide risk assessment in orchards in Spain

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Introduction

This poster summarises the findings of Syngenta studies to identify focal species in four orchard crops in Spain.
The aim is to show focal species for pesticide risk assessments in these crops and also to demonstrate the main principles involved in focal species selection.

Stone-fruit orchard

Oranges

Table 1: Focal species study details for orchards in Spain

Crop	Region	No. of transects	Survey timings (month)	Total transect area (ha) per survey
Olives	Andalusia	23	Mar, May, Oct	70.3
Stone- fruit		20	Mar, May, June	57.3
Citrus - oranges		20	Mar, May, June	53.2
Citrus - lemons	Murcia	21	Sept, Oct, April	71.9

Lemons

Olives

Methods

Methodology used was as described in EFSA Guidance on Bird and Mammal Risk Assessment (2009). This involved an observer walking a longitudinal transect across a crop field and recording all birds heard or seen within up to 50m to either side. Three surveys were conducted to cover main pesticide application. Key parameters are listed below:

- FO_{field} = % of field surveyed where species was recorded (any potential Focal species must have FO_{field} >20%)

- FO_{survey} = % of surveys where species was recorded

- Abundance = a measure of relative numbers of different species

- Bodyweight – smaller bodyweight indicates higher food intake relative to bodyweight and hence potential for greater risk from pesticide residues

- Feeding guild – one representative focal species is selected per feeding guild, where relevant

Results

Data from the focal species study in lemons is presented in detail below as an example of how focal species can be determined.

Table 2: Lemons – survey details for potential focal species with FO_{field} >20%

Bird species	Feeding guild	Body weight (g)	FO_{field} n = 21 [%]	FO_{survey} n = 63 [%]	Abundance [Ind/ha]
Blackbird (*Turdus merula*)	**Omnivorous**	**113**	**100.0**	**90.5**	**1.6**
Serin (*Serinus serinus*)	**Granivorous**	**11.2**	**100.0**	**61.9**	**1.6**
Robin (*Erithacus rubecula*)	Insectivorous	18.2	100.0	36.5	0.8
Goldfinch (*Carduelis carduelis*)	Granivorous	15.6	95.2	63.5	1.8
Sardinian warbler (*Sylvia melanocephala*)	**Insectivorous**	**11.3**	**90.5**	**81.0**	**1.6**
House sparrow (*Passer domesticus*)	Omnivorous	27.4	71.4	41.3	2.0
Greenfinch (*Carduelis chloris*)	Omnivorous	27.8	71.4	33.3	0.5
Linnet (*Carduelis cannabina*)	Granivorous	15.3	52.4	17.5	0.3
Barn swallow (*Hirundo rustica*)	Insectivorous	15.8	42.9	14.3	0.2
Blackcap (*Sylvia atricapilla*)	Insectivorous	15.5	38.1	12.7	0.3
Red-legged partridge (*Alectoris rufa*)	Omnivorous	391.0	33.3	14.3	0.4
Spotted flycatcher (*Muscicapa striata*)	Insectivorous	14.6	33.3	12.7	0.1
Crested lark (*Galerida cristata*)	Omnivorous	39.0	28.6	9.5	0.1

Species shown in green are recommended focal species for lemons

Serin

Sardinian warbler

Conclusions

Table 3: Focal species recommendations in 'orchard crops' in Spain

Feeding guild	Citrus	Olives	Stone-fruit
Omnivore	Blackbird (*Turdus merula*)	Crested lark (*Galerida cristata*)	Blackbird (*Turdus merula*)
Granivore	Serin (*Serinus serinus*)	Serin (*Serinus serinus*)	Serin (*Serinus serinus*)
Insectivore	Sardinian warbler (*Sylvia melanocephala*)	Great tit (*Parus major*)	NA

No purely herbivorous birds were recorded with FO_{field} >20% in any orchard crop investigated

- EFSA Guidance *generic focal species* - Blue tit, Serin and Robin.
- These data also support Serin as *actual* granivore focal species in all orchard crops.
- Robin was only recorded on migration in lemons (low FO_{survey} table 2) and oranges in Oct, with FO_{field} <20% in stone fruit and not recorded at all in olives
- Blue tit was not found in any of these crops in Spain except olives where FO_{field} was only 8.7%