

Table 1 Stored-product insect species found in feed, barley (B), seminola (S) and flour mills.

Species	Feed mills							B	S	Flour mills							Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15		
<i>Tribolium confusum</i> Jacquelin du Val	1	1	1	1	1	1	1	1	1	1	1	1	1	1		14	
<i>Tribolium castaneum</i> (Herbst)	1	1	1	1	1	1	1	1	1		1		1	1	1	13	
<i>Sitophilus oryzae</i> (Linnaeus)	1	1			1	1	1	1	1		1	1	1	1	1	12	
<i>Oryzaephilus surinamensis</i> (Linnaeus)	1	1	1	1	1	1	1	1	1				1	1		11	
<i>Tenebroides mauritanicus</i> (Linnaeus)	1	1	1	1	1			1		1	1	1	1	1		11	
<i>Typhaea stercorea</i> (Linnaeus)	1	1	1	1	1	1	1		1				1	1	1	11	
<i>Cryptolestes ferrugineus</i> (Stephens)	1	1	1	1	1			1	1		1		1	1		10	
<i>Rhyzopertha dominica</i> (Fabricius)	1	1		1	1	1		1	1		1			1	1	10	
<i>Ahasverus advena</i> (Waltl)	1	1	1	1		1	1		1				1		1	9	
<i>Plodia interpunctella</i> (Hübner)	1		1	1		1	1	1					1	1	1	9	
<i>Sitophilus granarius</i> (Linnaeus)	1	1	1	1	1	1					1		1	1		9	
<i>Ephestia kuehniella</i> Zeller	1		1	1				1		1	1	1	1			8	
<i>Alphitobius diaperinus</i> (Panzer)			1	1	1			1				1	1	1		7	
<i>Cryptolestes pusillus</i> (Schönherr)			1		1	1		1			1		1	1		7	
<i>Palorus ratzeburgii</i> (Wissmann)				1	1		1	1			1			1	1	7	
<i>Pyralis farinalis</i> Linnaeus	1		1	1			1	1					1	1		7	
<i>Tenebrio molitor</i> (Linnaeus)	1	1	1	1	1						1		1			7	
<i>Cryptolestes turcicus</i> (Grouvelle)			1	1	1					1	1		1			6	
<i>Latheticus oryzae</i> Waterhouse					1		1	1	1					1	1	6	
<i>Stegobium paniceum</i> (Linnaeus)	1	1	1	1	1		1									6	
<i>Tenebrio obscurus</i> (Fabricius)			1	1	1			1			1		1			6	

<i>Anthrenus verbasci</i> (Linnaeus)	1	1	1				1			1		5
<i>Cadra cautella</i> (Walker)	1					1	1	1			1	5
<i>Dermestes lardarius</i> Linnaeus			1	1			1		1	1		5
<i>Attagenus unicolor</i> (Brahm)				1	1			1			1	4
<i>Cynaues angustus</i> (LeConte)			1	1						1		4
<i>Gibbium psylloides</i> (de Czenpinski)			1	1		1				1		4
<i>Gnatocerus cornutus</i> (Fabricius)					1				1	1		4
<i>Lasioderma serricorne</i> (Fabricius)						1	1	1	1			4
<i>Nemapogon granella</i> (Linnaeus)			1	1				1				4
<i>Palorus subdepressus</i> (Wollaston)					1		1				1	4
<i>Sitophilus zeamais</i> Motschulsky						1	1	1				4
<i>Anthicus floralis</i> (Linnaeus)				1					1	1		3
<i>Anthrenus scrophulariae</i> (Linnaeus)			1	1						1		3
<i>Hofmannophila pseudospretella</i> (Stainton)			1						1	1		3
<i>Ptinus fur</i> (Linnaeus)				1	1					1		3
<i>Ptinus latro</i> Fabricius				1	1							3
<i>Ptinus tectus</i> Boieldieu			1						1	1		3
<i>Ptinus villiger</i> (Reitter)			1	1						1		3
<i>Sitotroga cerealella</i> (Olivier)	1					1	1					3
<i>Trogoderma inclusum</i> LeConte		1	1							1		3
<i>Trogoderma variabile</i> Ballion				1			1				1	3
<i>Attagenus brunneus</i> Faldermann	1			1								2
<i>Carcinops pumilio</i> (Erichson)				1			1					2
<i>Cryptophagus cellaris</i> (Scopoli)						1				1		2
<i>Endrosis sarcitrella</i> (Linnaeus)									1	1		2
<i>Enicmus minutus</i> (Linnaeus)				1						1		2
<i>Glischrochilus quadrisignatus</i> (Say)				1			1					2
<i>Lariophagus distinguendus</i> (Foerster)*				1						1		2
<i>Liposcelis bostrychophila</i> Badonnel						1		1				2
<i>Litargus balteatus</i> LeConte				1							1	2
<i>Lyctocoris campestris</i> (Fabricius)*				1						1		2

<i>Mezium americanum</i> (Laporte)					1		1	2
<i>Mycetaea subterranea</i> (Fabricius)			1				1	2
<i>Niditinea fuscella</i> (Linnaeus)	1					1		2
<i>Niptus hololeucus</i> (Faldermann)					1		1	2
<i>Ptinus pusillus</i> Sturm	1	1						2
<i>Scenopinus fenestralis</i> (Linnaeus)*			1	1				2
<i>Thes bergrothi</i> (Reitter)	1	1						2
<i>Tineola bisselliella</i> (Hummel)				1			1	2
<i>Tribolium audax</i> Halstead			1		1			2
<i>Agonopterix heracliata</i> (Linnaeus)							1	1
<i>Alphitobius laevigatus</i> (Fabricius)							1	1
<i>Alphitophagus bifasciatus</i> (Say)			1					1
<i>Anchicera gilvipennis</i> Casey					1			1
<i>Anobium punctatum</i> (DeGeer)							1	1
<i>Anthicus cervinus</i> LaFerte-Senectere			1					1
<i>Anthrenus castaneae</i> Melsheimer			1					1
<i>Anthrenus fuscus</i> Olivier			1					1
<i>Aridius nodifer</i> (Westwood)							1	1
<i>Attagenus pelli</i> (L.)	1							1
<i>Blaps mucronata</i> Latreille							1	1
<i>Cadra figulilella</i> (Gregson)	1							1
<i>Carpophilus brachyperus</i> (Say)			1					1
<i>Carpophilus dimidiatus</i> (Fabricius)							1	1
<i>Carpophilus hemipterus</i> (Linnaeus)			1					1
<i>Carpophilus lugubris</i> Murray					1			1
<i>Carpophilus sayi</i> Parson			1					1
<i>Cartodere constricta</i> (Gyllenhal)			1					1
<i>Cathartus quadricollis</i> Guerin							1	1
<i>Cephitinea colonella</i> (Erschoff)					1			1
<i>Corticaria fenestralis</i> (Linnaeus)					1			1
<i>Corticaria fulva</i> (Comolli)					1			1

<i>Corticaria serrata</i> (Paykull)				1	1
<i>Cryptophagus croceus</i> Zimmerman	1				1
<i>Cryptophagus obsoletus</i> Reitter	1				1
<i>Cryptophagus pilosus</i> Gyllenhal	1				1
<i>Cryptophilus integer</i> (Heer)	1				1
<i>Dendrophilus punctatus</i> (Herbst)	1				1
<i>Dendrophilus xavieri</i> Marseul	1				1
<i>Ephestia elutella</i> (Hubner)	1				1
<i>Glischrochilus fasciatus</i> (Olivier)	1				1
<i>Haplotinea ditella</i> Pierce and Diakonoff				1	1
<i>Liposcelis entomophilus</i> (Enderlein)		1			1
<i>Lophocateres pusillus</i> (Klug)		1			1
<i>Lyctus carbonarius</i> Waltl	1				1
<i>Monotoma fulvipes</i> Melsheimer		1			1
<i>Monotoma picipes</i> Herbst	1				1
<i>Mycetophagus quadriguttatus</i> P. Muller	1				1
<i>Neatus picipes</i> Herbst			1		1
<i>Necrobia rufipes</i> (DeGeer)		1			1
<i>Omosita colon</i> (Linnaeus)	1				1
<i>Orius insidiosus</i> (Say)	1				1
<i>Paralipsa gularis</i> (Zeller)			1		1
<i>Placonotus testaceus</i> (Fabricius)				1	1
<i>Platydema ruficorne</i> (Sturm)	1				1
<i>Priobium sericeus</i> (Say)	1				1
<i>Pseudeurostus hilleri</i> (Reitter)	1				1
<i>Ptinus raptor</i> Sturm	1				1
<i>Reduvius personatus</i> (Linnaeus)*	1				1
<i>Scatopse notata</i> (Linnaeus)				1	1
<i>Silvanus bidentatus</i> (Fabricius)	1				1
<i>Sphindus trinitifer</i> Casey		1			1
<i>Tenebrio syriacus</i> Zoufal				1	1

<i>Tipnus unicolor</i> (Piller and Mitterpacher)											1					1
<i>Tribolium destructor</i> Uyttenboogaart													1			1
<i>Trogium pulsatorium</i> (Linnaeus)											1					1
<i>Trogoderma glabrum</i> (Herbst)				1												1
<i>Trogoderma granarium</i> Everts									1							1
Total	25	16	30	65	22	23	25	26	11	8	34	8	32	21	13	

Study 1=Trematerra and Fioilli 1999, 2=Trematerra and Sciarretta 2004, 3=Sinha and Watters 1985, 4=Pellitteri and Boush 1983, 5=Rillett and Weigel 1956, 6=Larson et al. 2008, 7=Roesli et al. 2003b, 8=Imura 1981, 9=Trematerra et al. 2007, 10=Dyte 1965, 11=Salmond 1956, 12=Salama and Salem 1973, 13=Sinha and Watters 1985, 14=Good 1937, 15=Campbell and Arbogast 2004