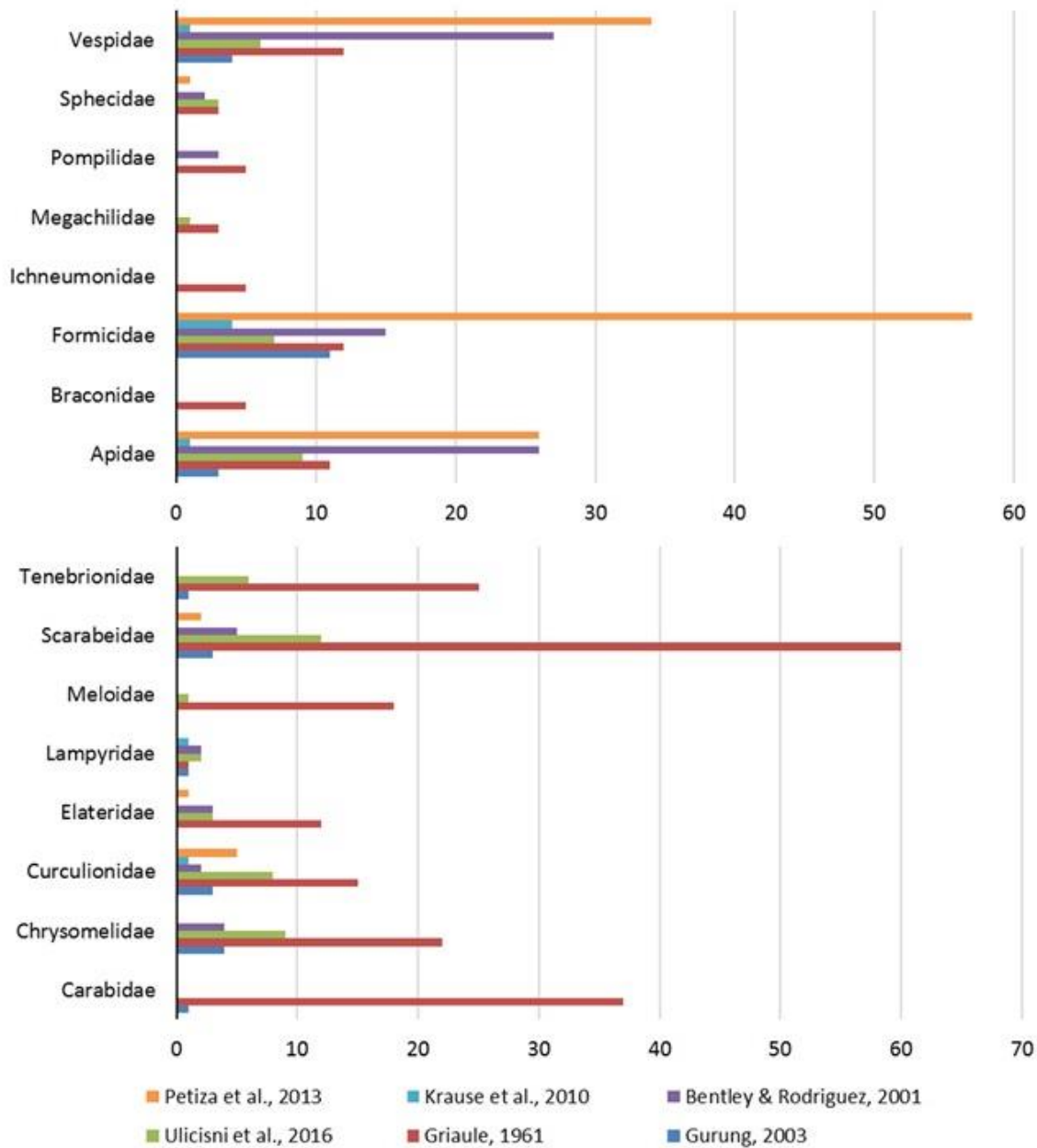


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2 **Supplementary Figure 1.** Relative extent of knowledge of different arthropod orders, for farmers
3 and country folk worldwide ($n= 15$ studies). Per arthropod order, the absolute number of
4 recognized or freely listed taxa (including ethno-categories; red in primary X-axis) is contrasted
5 with the total number of taxonomically-described species (log-transformed; grey in secondary X-
6 axis). The extent of informant knowledge was gauged through different approaches, including
7 free-listing, photo-elicitation and specimen description.

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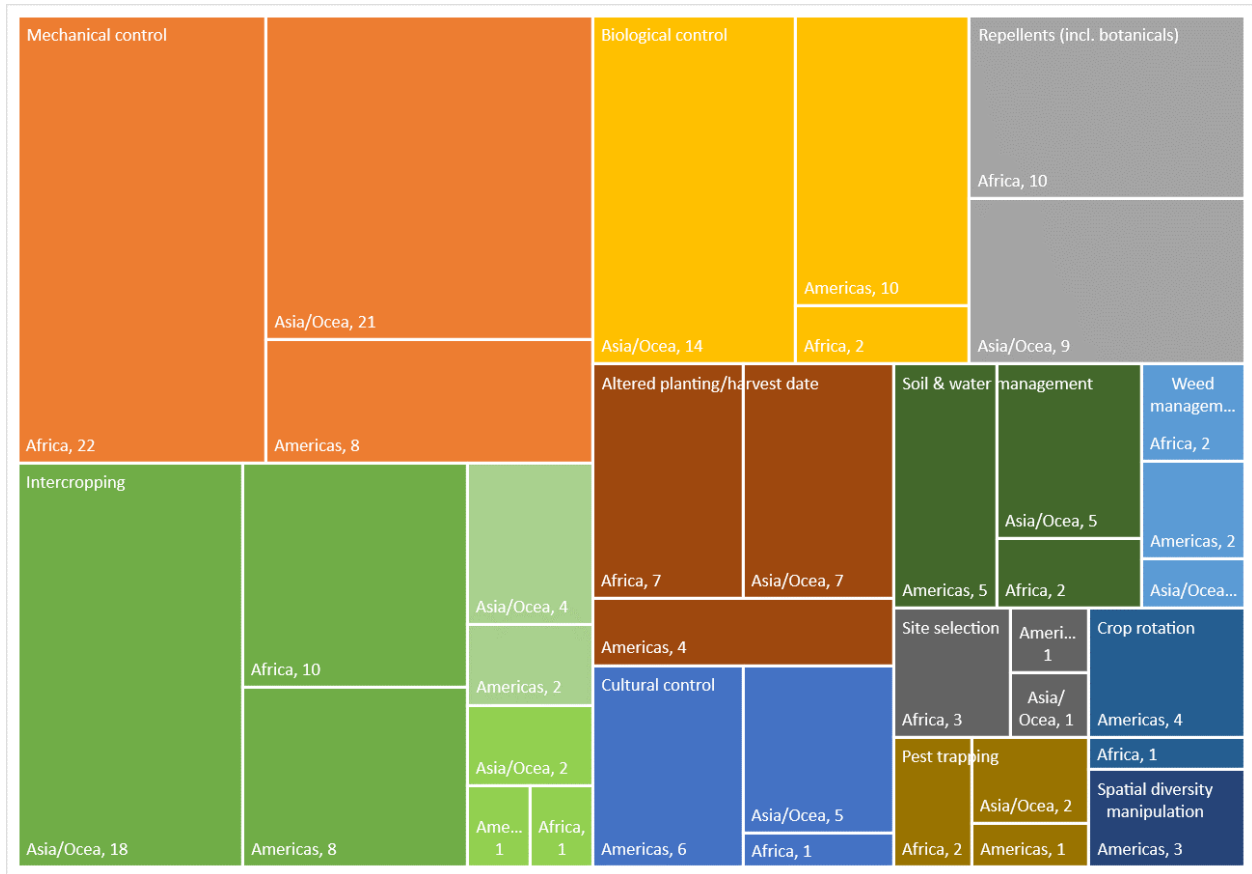
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13 Supplementary Figure 2. Variability in informants' extent of knowledge for the 8 most salient
 14 families within the order Hymenoptera and Coleoptera. Patterns are drawn for 6 comprehensive
 15 ethno-entomology surveys of tribal people in Brazil (Petiza et al., 2013), Nepal (Gurung, 2003)
 16 and Mali (Griaule, 1961), as compared with those for smallholder farmers in the Carpathian Basin
 17 (Ulicisni et al., 2016), Honduras (Bentley & Rodriguez, 2001) and the Solomon Islands (Krause
 18 et al., 2010). Per study, the number of listed species or ethno-categories is indicated for each of
 19 the different insect families. Studies employed different methods, including free-listing, specimen
 20 description, and photo-elicitation.

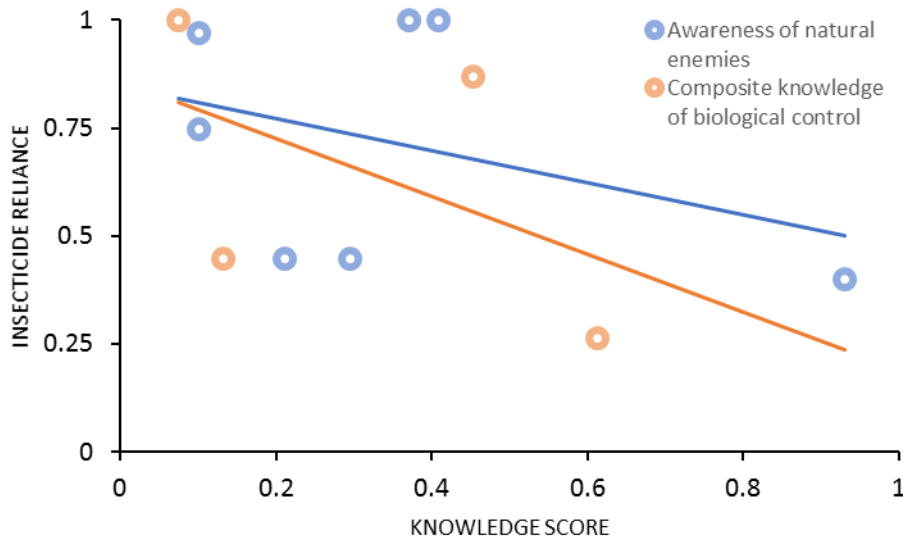
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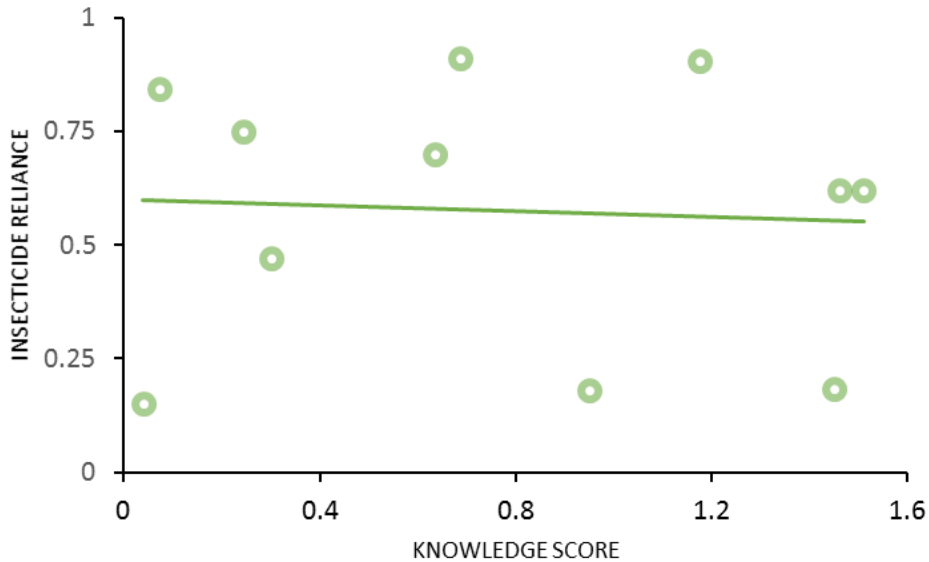
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23 **Supplementary Figure 3.** Treemap chart reflecting type and relative importance of non-chemical
 24 crop protection measures, as compiled from a non-exhaustive set of 207 literature records. Each
 25 color tone within the chart represents a different tactic, with the size of a given rectangle reflective
 26 of the number of respective literature records (as split out per geographical location). Intercropping
 27 tactics are further sub-divided into measures intended to a) lower pest pressure, b) to offset risks
 28 of crop failure, and c) to favor natural enemies. Biological control measures include the
 29 conservation of predaceous ants, herding of chickens/ducks in fields, collection of virus-killed
 30 caterpillars for preparation of aqueous suspensions, amongst others. The preparation and use of
 31 plant extracts with insecticidal action is included under mechanical control.

32 **A**



33 **B**



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Supplementary Figure 4. Grower dependency on synthetic insecticides lowers with increasing awareness of biological control (A), and enhanced knowledge of non-chemical alternatives (B). Underlying data are averaged records of technology use or knowledge, as drawn from the global literature. Patterns are only shown for crop x pest systems in which there is a minimum level of insecticide use (cut-off 20% and 10%, for A and B respectively). Trendlines reflect non-significant patterns.

42 **Supplementary table 1.** Overview of the consulted literature, including a summary of details regarding
 43 survey period, focal crop, geography, sample size and main survey methods. Sample size refers to the total
 44 number of farmers that were interviewed in the study. For multiple entries from the same literature
 45 reference, every entry refers to either a different crop or geographical focus.
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Number	Year	Country	Crop	Survey method	Sample size	Reference
1	2001-02	India	cotton	Free-listing	64	Mancini et al., 2008
2	1991-99	Indonesia	rice	Open questionnaire	52	Feder et al., 2004
3	1999	Peru	potato	Open questionnaire	329	Godtland et al., 2003
4	2016-17	Iran	citrus	Open questionnaire	381	Abdollahzadeh et al., 2018
5	2011	Iran	rice	Open questionnaire	352	MoumeniHelali & Ahmadpour, 2013
6	2008	Iran	rice	Open questionnaire	346	Dinpanah et al., 2010
7	2012	India	rice	Multiple-choice	120	Manoj & Vijayaragavan, 2014
8	2013-15	India	coconut	Open questionnaire	120	Anithakumari & Mohan, 2017
9	1996	Vietnam	sapodilla	Open questionnaire	190	Van Mele & Cuc, 2001
10	2007	Benin	mango & cashew	Open questionnaire	40	Sinzogan et al., 2008
11	1998	Vietnam	mango	Free-listing	93	Van Mele et al., 2001
12	2006	Guinea	fruit orchard	Free-listing	100	Van Mele et al., 2009
13	1994-98	Vietnam	orange & mandarine	Open questionnaire	150	Van Mele & Cuc, 2000
14	2002-03	Honduras	maize	Free-listing	120	Wyckhuys & O'Neil, 2007
15	2015	UK	wheat, maize, sugarbeet	Free-listing	8	Zhang et al., 2018
16	2015	Sweden	wheat, maize, sugarbeet	Free-listing	5	Zhang et al., 2018
17	2015	Poland	wheat, maize, sugarbeet	Free-listing	9	Zhang et al., 2018
18	2015	Netherlands	wheat, maize, sugarbeet	Free-listing	20	Zhang et al., 2018
19	2015	Italy	wheat, maize, sugarbeet	Free-listing	12	Zhang et al., 2018

20	2015	Hungary	wheat, maize, sugarbeet	Free-listing	18	Zhang et al., 2018
21	2015	Germany	wheat, maize, sugarbeet	Free-listing	9	Zhang et al., 2018
22	2008-09	Colombia	passionfruit	Free-listing	124	Wyckhuys et al., 2010
23	1978	Nicaragua	maize	Photo-elicitation, specimen description	182	VanHuis, 1982
24	2014-15	Vietnam	cassava	Photo-elicitation	83	Uphadayay et al., 2018
25	2005	Brazil	mixed	Specimen collection	31	Costa-Neto & Magelhaes, 2007
26	2006	Kenya	mixed	Free-listing	352	Kasina et al., 2009
27	1999-2001	Nepal	mixed	Free-listing, triad testing & consensus	30	Gurung, 2003
28	1990	Sri Lanka	rice	Not specified	-	van de Fliert & Matteson, 1990
29	NA ^a	Philippines	rice	Recall	30	Litsinger et al., 2009
30	NA	Philippines	rice	Free-listing	-	Litsinger et al., 1982
31	NA	Philippines	rainfed rice	Free-listing	-	Litsinger et al., 1980
32	NA	Philippines	rice	Recall	60	Litsinger et al., 1980
33	1992-93	Philippines	rice	Open questionnaire	30	Palis, 1998
34	1991-92	Indonesia	rice	Prompting	474	Rubia et al., 1996
35	1998	Philippines	rice	Open questionnaire	402	Heong & Escalada, 1999
36	1987	Philippines	rice & corn	Free-listing	19	Fujisaka et al., 1989
37	1984-85	Peru	potato	Specimen description	74	Ewel, 1990
38	1998	Philippines	rice	Free-listing	150	Joshi et al., 2000
39	1980-81	Malaysia	rice	Not specified	92	Heong, 1984
40	1992	Ivory Coast	rice	Not specified	178	Andesina et al., 1994
41	2003	Benin	cotton	Free-listing	126	Sinzogan et al., 2004
42	2011	Kenya	cotton & cereals	Free-listing	250	Midega et al., 2012

43	1998	Sichuan, China	wet rice	Triangulation	27	Mangan & Mangan, 1998
44	2013	Pakistan	cotton	Free-listing	318	Khan & Damalas, 2015
45	2013	Uganda	potato	Photo-elicitation	204	Okonya & Kroschel, 2016
46	2009	Iran	cabbage	Free-listing	200	Pouratashi & Irvani, 2012
47	2015	DR Congo	potato	Photo-elicitation	300	Munyuli et al., 2017
48	2008	Iran	mixed	Multiple-choice	90	Hashemi & Damalas, 2010
49	2014	PNG	sweetpotato	Free-listing	33	Gurr et al., 2016
50	2001	Mexico	coffee	Photo-elicitation	217	Segura et al., 2004
51	1995	Guatemala	maize/milpa	Free-listing	75	Morales & Perfecto, 2000
52	2004-06	Panama	banana	Free-listing, participant observation	75	Polidoro et al., 2008
53	1981	Nigeria	multicropping	Free-listing, specimen description	120	Atteh, 1984
54	1995	Nigeria	cowpea, groundnut, millet, sorghum	Free-listing, specimen description	47	Bottenberg, 1995
55	1986-87	Malawi, Zambia, Zimbabwe, Tanzania, Botswana	groundnut	Not specified	100	Wightman & Wightman, 1994
56	2010-12	Hungary	-	Photo-elicitation, snowballing	58	Ulicisni et al., 2016
57	1997	Mexico	maize	Photo-elicitation	49	Gomez et al., 2000
58	2000	Honduras	mixed	Free-listing & snowballing	-	Bentley & Rodriguez, 2001
59	1910	New Mexico, US	mixed	Possibly snowballing	-	Henderson & Harrington, 1914
60	2002	Malawi	cotton	Free-listing	34	Morris, 2004
61	2008	Solomon Islands	mixed	Free-listing	10	Krause et al., 2010
62	2013	Brazil	mixed	Semi-structured questionnaire	110	Marques et al., 2017
63	2000	Brazil	mixed	Free-listing	533	Costa-Neto & Carvalho, 2000
64	2007-09	Argentina	mixed	Snowball sampling	65	Zamudio & Hilgert, 2012

65	2015	Mexico	mixed	Reference collection & photo elicitation	-	Aldosoro Maya & Gomez, 2016
66	2007	Malawi & Zambia	Brassica & tomato	Free-listing	259	Nyirenda et al., 2011
67	2000	Philippines	rice	Free-listing	90	Price, 2001
68	1997	Laos	rice	Free-listing + belief statements	600	Heong et al., 2002
69	2004-05	Malawi, Mozambique, Zambia	maize, trees	Snowball sampling	89	Sileshi et al., 2007
70	1999	Uganda	Alnus	Free-listing	52	Nyeko et al., 2002
71	1998	Cameroun	mixed	Relative importance listing	389	Kekeunou et al., 2006
72	2006	Uganda	Eucalyptus	Ranking mortality causes	59	Nyeko et al., 2007
73	2015	Uganda	coffee	Participatory rural appraisal	300	Liebig et al., 2016
74	2011	California, US	walnut	Mail-in questionnaire	484	Goldberger & Lehrer, 2015
75	2011	Oregon, US	pear	Mail-in questionnaire	318	Goldberger & Lehrer, 2015
76	2005	Canada	-	Telephone survey	967	McNeil et al., 2010
77	2012	Brazil	-	Photo-elicitation	46	Petiza et al., 2013
78	2004	Botswana	vegetables	Free-listing	112	Obopile et al., 2008
79	2009	Cameroon	vegetables	Free-listing	194	Abang et al., 2014
80	2014	Cameroon	maize	free-listing	151	Oben et al., 2015

48 a. Not applicable: survey time period not specified

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50 Supplementary table 2. Overview of the literature consulted to characterize global trends in arthropod
 51 knowledge.
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Number	Country	Crop	Survey method	Reference
1	Brazil	mixed	Field collection	Costa-Neto & Magelhaes, 2007
2	Brazil	mixed	Free-listing, snowballing	Santos-Fita et al., 2011
3	Nepal	mixed	Free-listing, triad & consensus	Gurung, 2003
4	Mali	mixed	Free-listing, specimen description	Griaule, 1961
5	Brazil	mixed	Open questionnaire	Costa-Neto, 1998
6	Hungary	mixed	Photo-elicitation, snowballing	Ulicisni et al., 2016
7	Honduras	mixed	Possibly snowballing	Bentley & Rodriguez, 2001
8	New Mexico, US	mixed	Possibly snowballing	Henderson & Harrington, 1914
9	Tanzania	mixed	Free-listing, specimen description	Hemp, 2001
10	Solomon Islands	mixed	Free-listing	Krause et al., 2010
11	Brazil	mixed	Specimen collection & description	Posey, 1984
12	Philippines	rice	Free-listing	Price, 2001
13	Brazil	mixed	Specimen collection & description	dos Santos et al., 2008
14	Costa Rica	mixed	Specimen description	Starr & Bozzoli, 1990
15	Brazil	mixed	photo-elicitation	Petiza et al., 2013

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