

The gap between research and extension: A survey of current BMSB management strategies across the US

Art Agnello, Cornell University

David Lane & Deb Grantham,

NE IPM Center

Jim Walgenbach, NC State University



Funding



United States
Department of
Agriculture

National Institute
of Food and
Agriculture

Specialty Crop Research Initiative

Collaborating Institutions



NC STATE UNIVERSITY



UNIVERSITY OF
MARYLAND



Northeastern
IPM
Center

WASHINGTON STATE
UNIVERSITY



RUTGERS
UNIVERSITY

THE OHIO STATE
UNIVERSITY

University of
Kentucky

UC DAVIS

UNIVERSITY
OF MINNESOTA

VirginiaTech

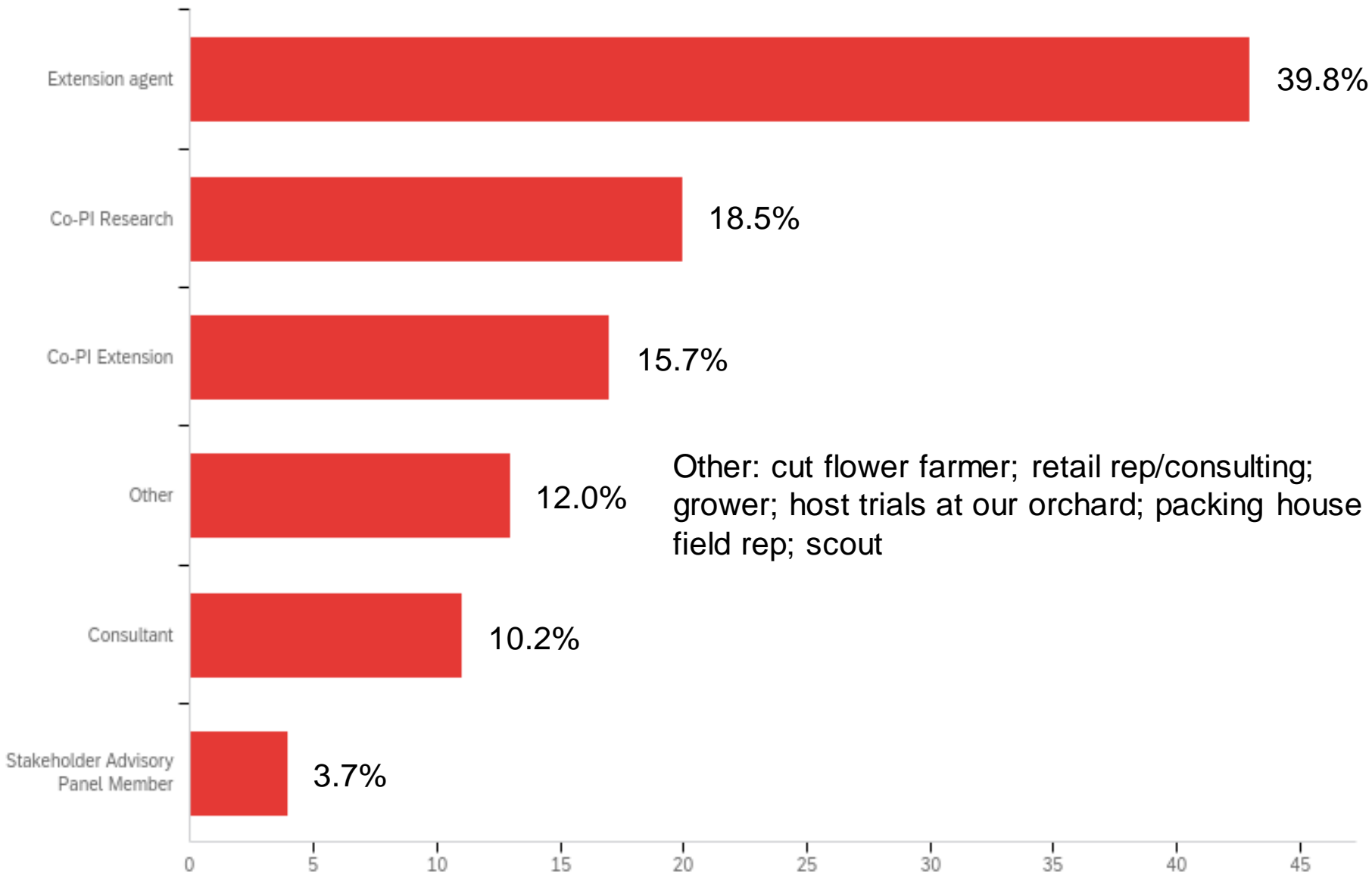


MICHIGAN STATE
UNIVERSITY

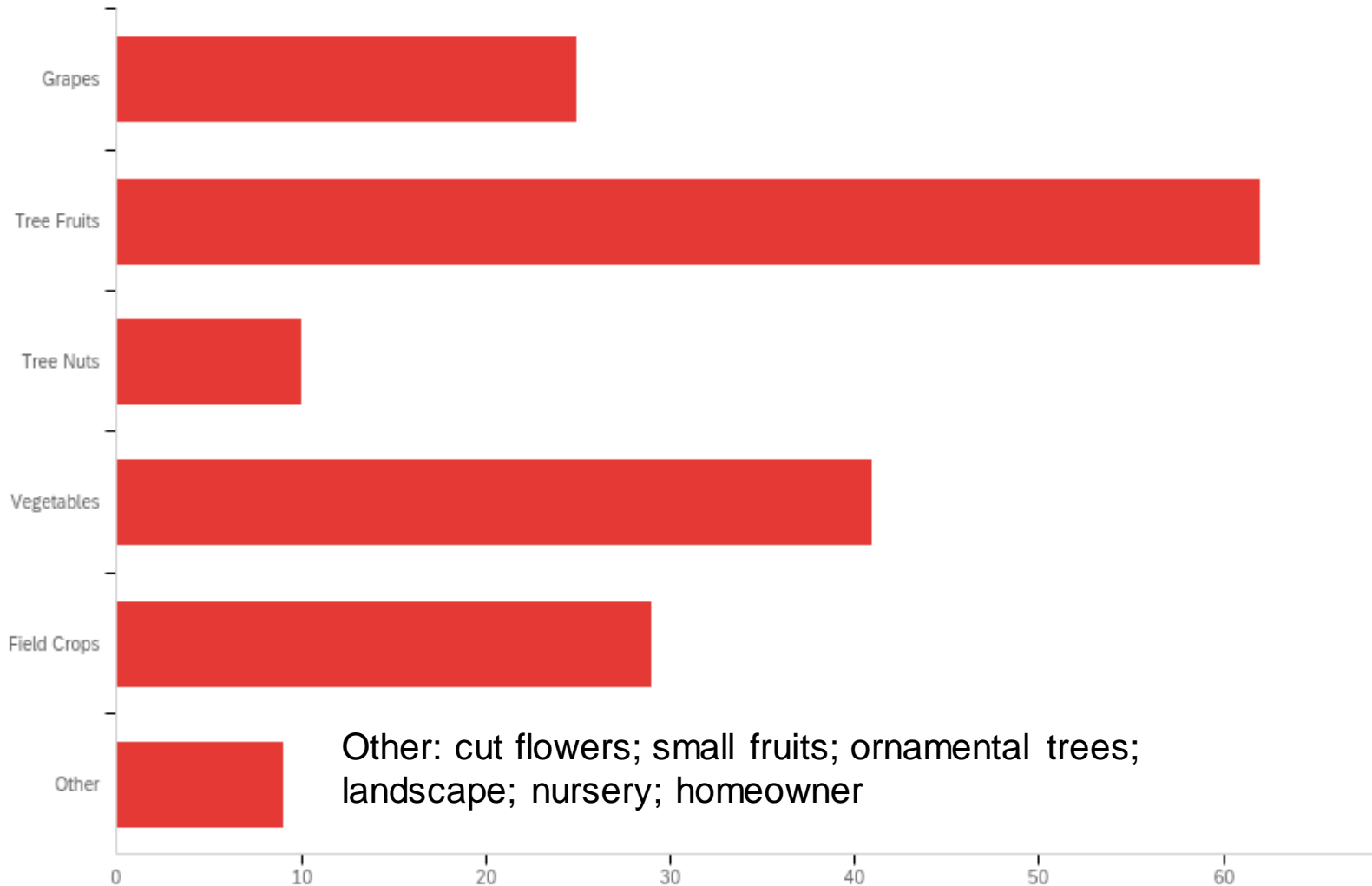
UC RIVERSIDE

This material is based upon work that is supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, Specialty Crop Research Initiative under award number 2016-51181-25409.

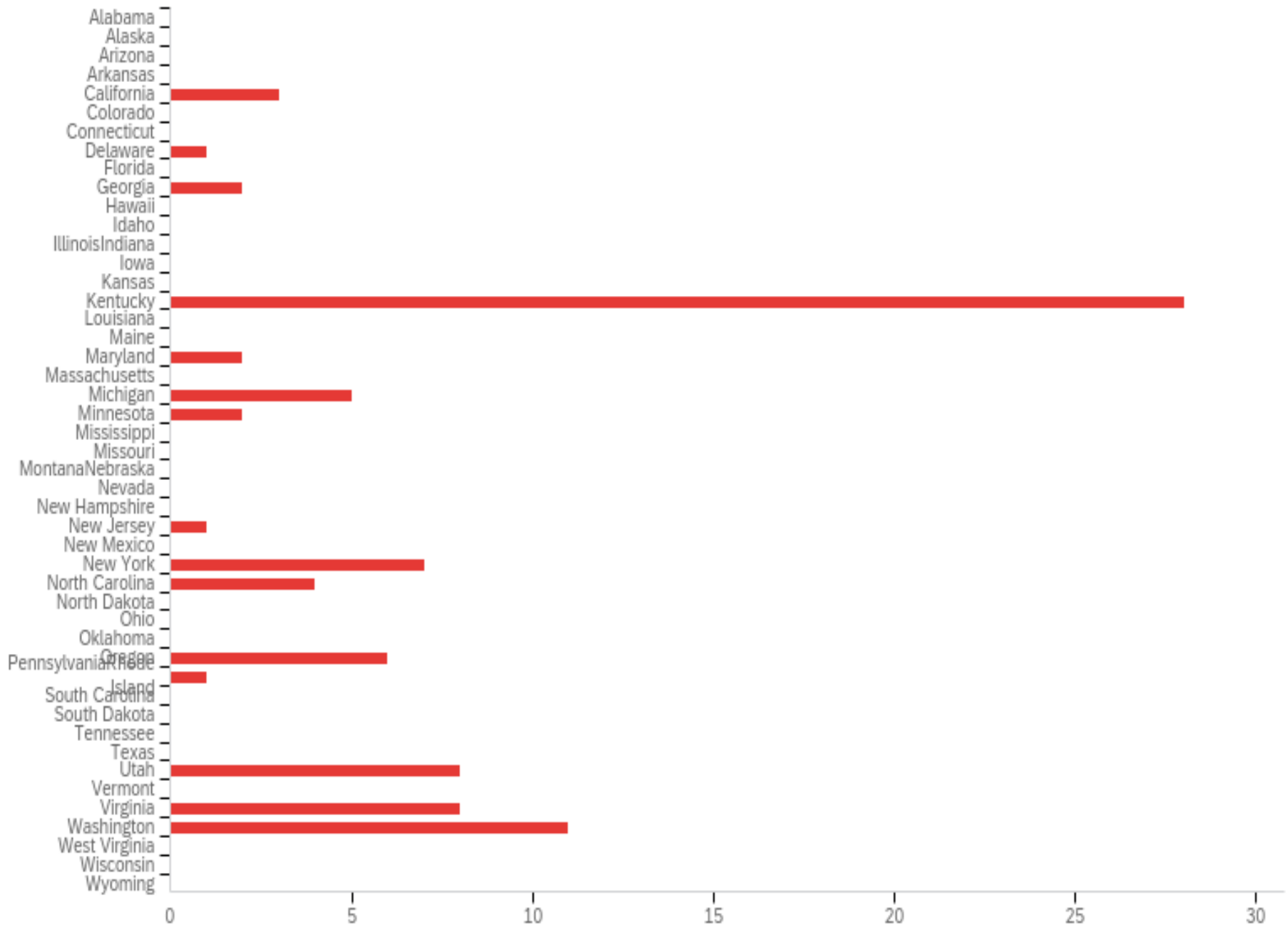
Q1 - Describe the type of work you do with respect to BMSB *(105 responses, pooled)*



Q2 - What are the primary crops for which you have knowledge of grower practices? (*pooled*)

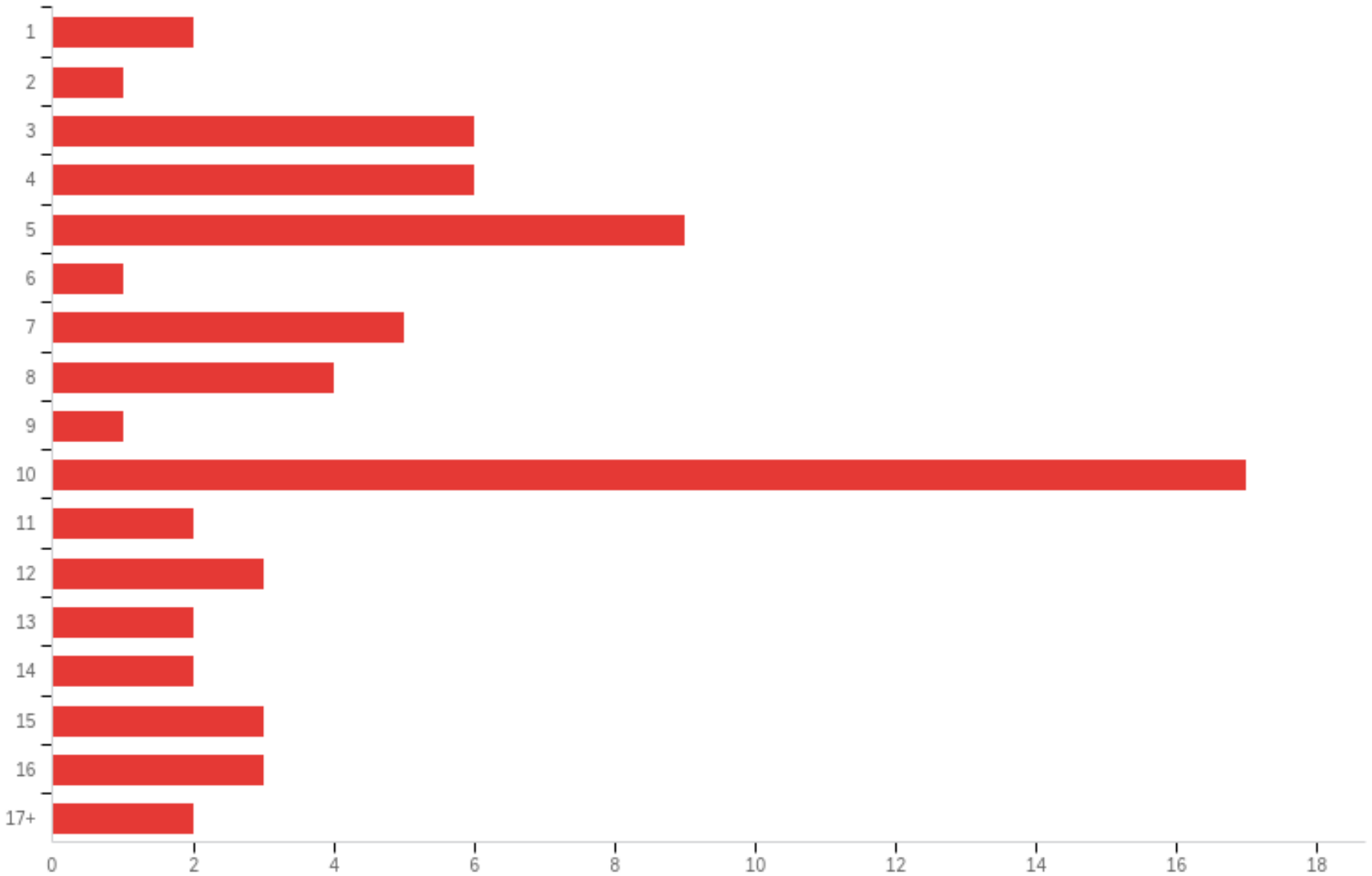


Q3 - In what state do you live?

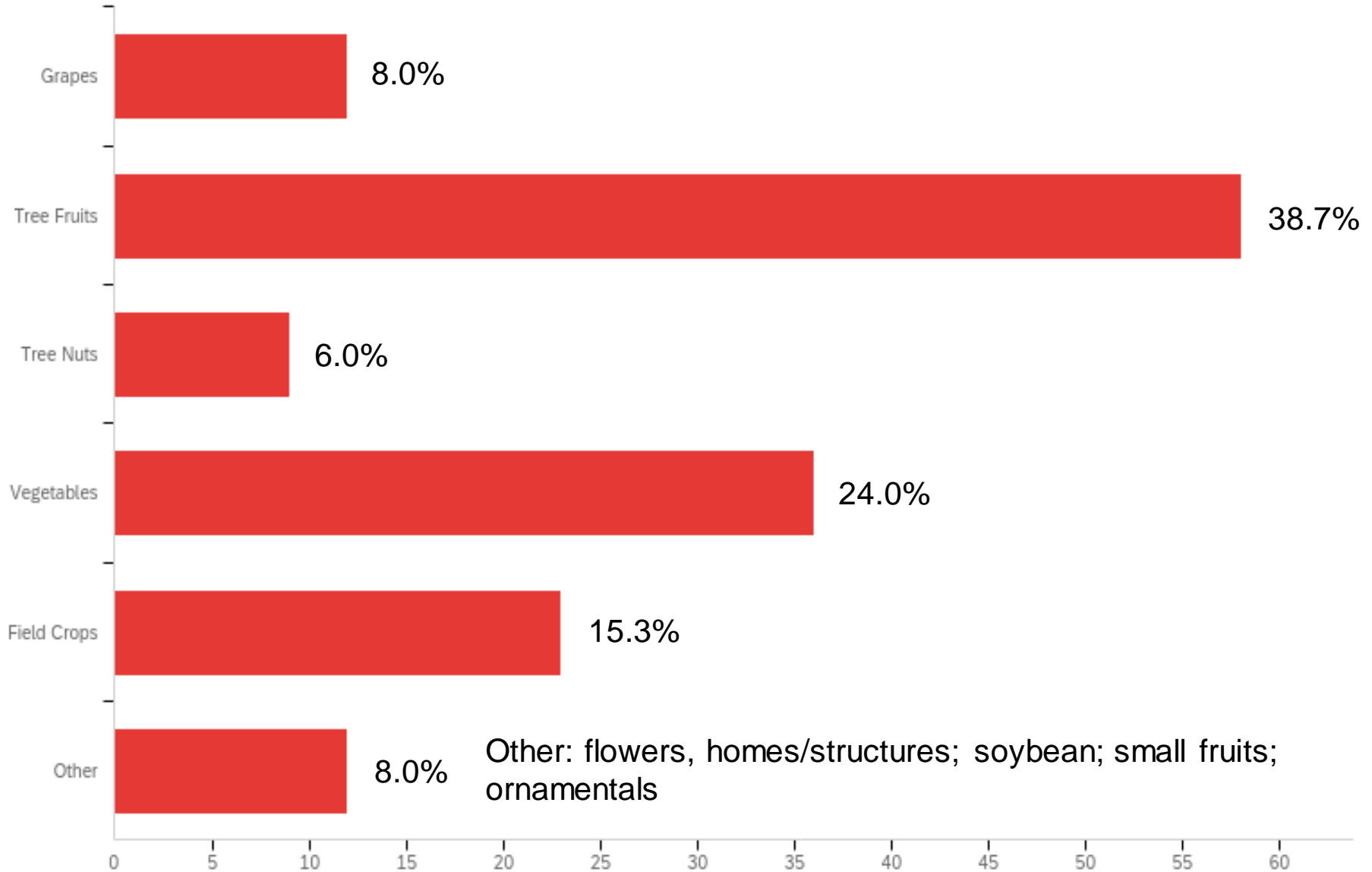


Q4 - How many years has BMSB been established in your state?

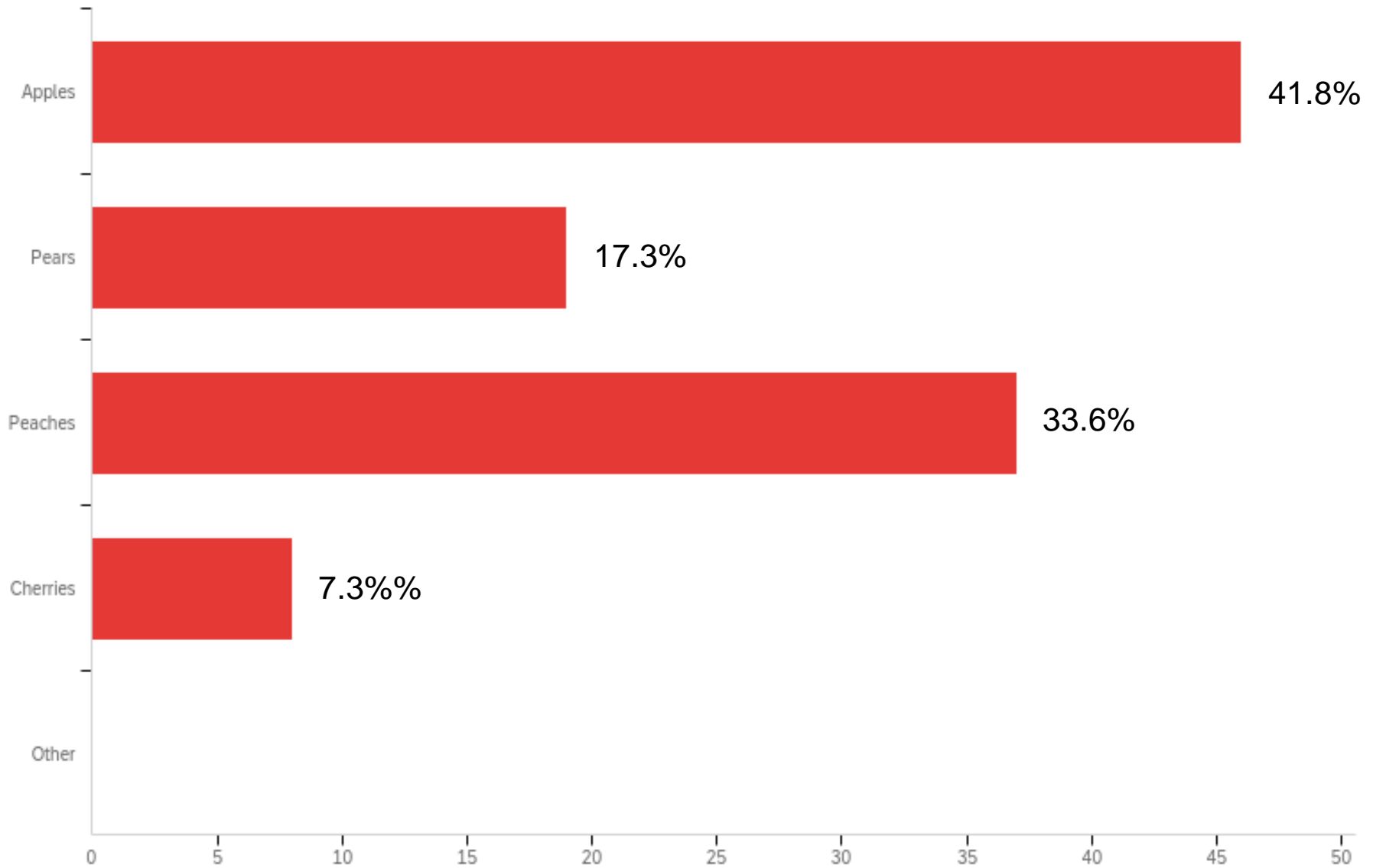
(pooled; mean = 8.43)



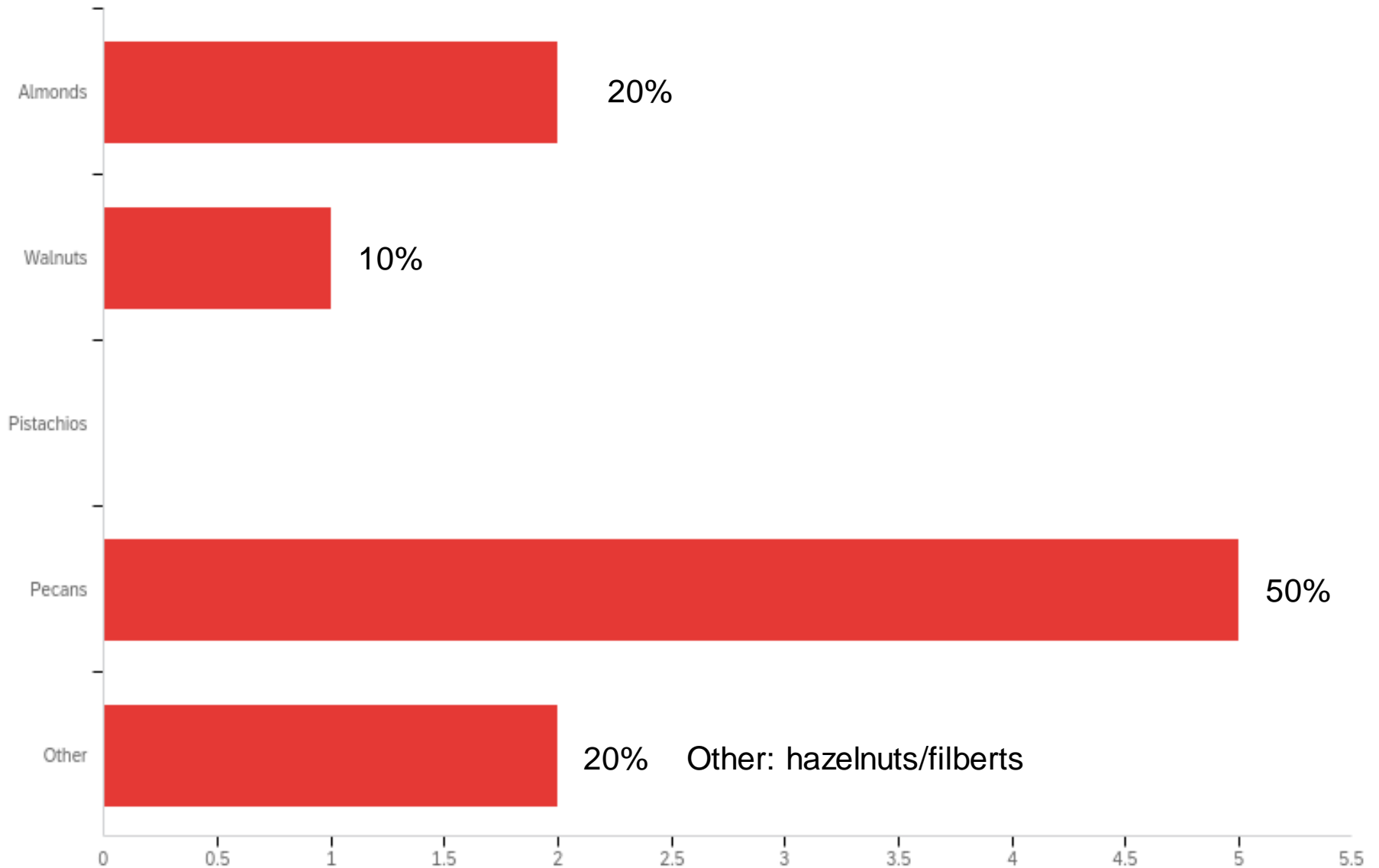
Q5 - On what crops has BMSB been a problem? (*pooled*)



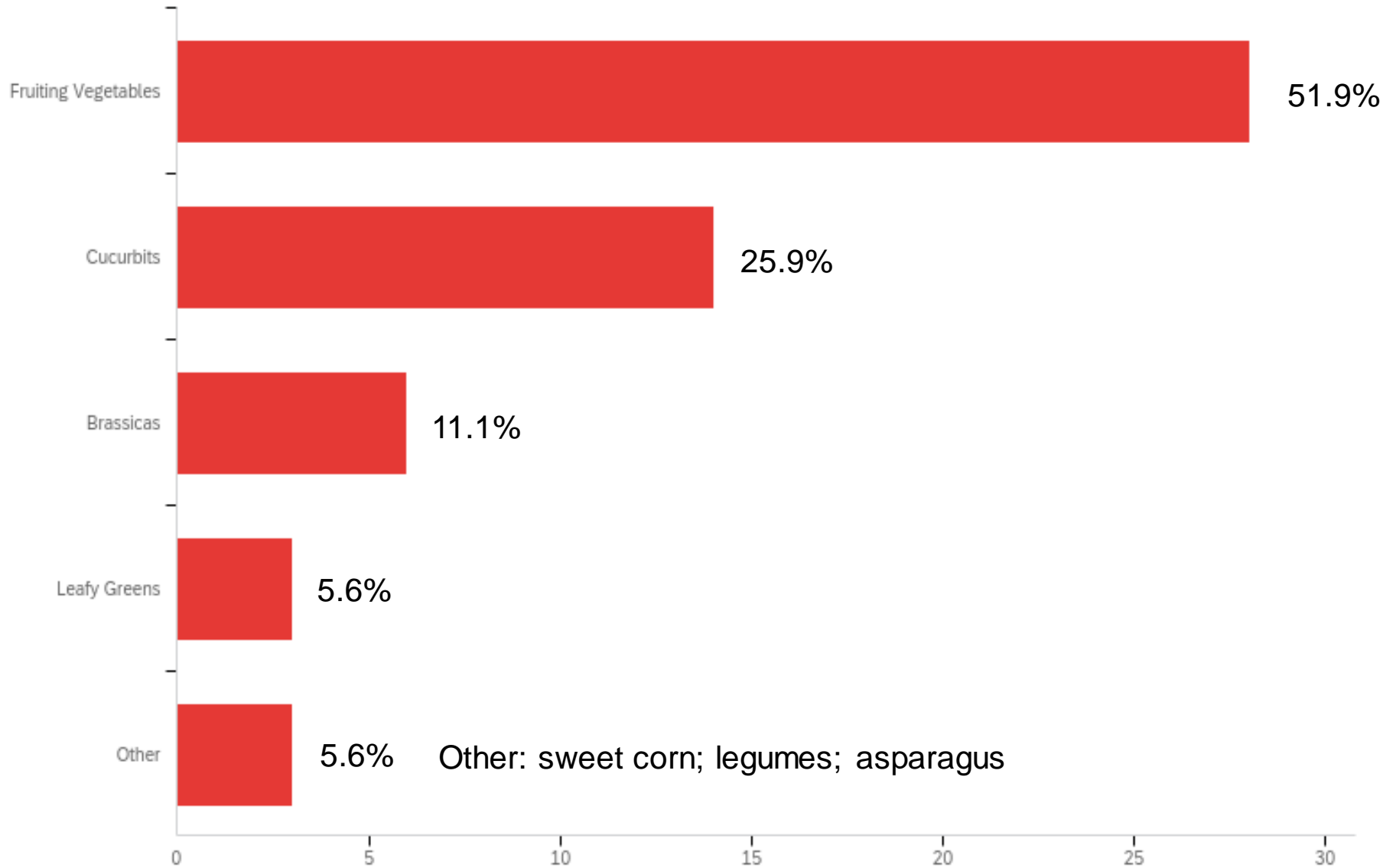
Q6 - What kind of tree fruits? *(pooled)*



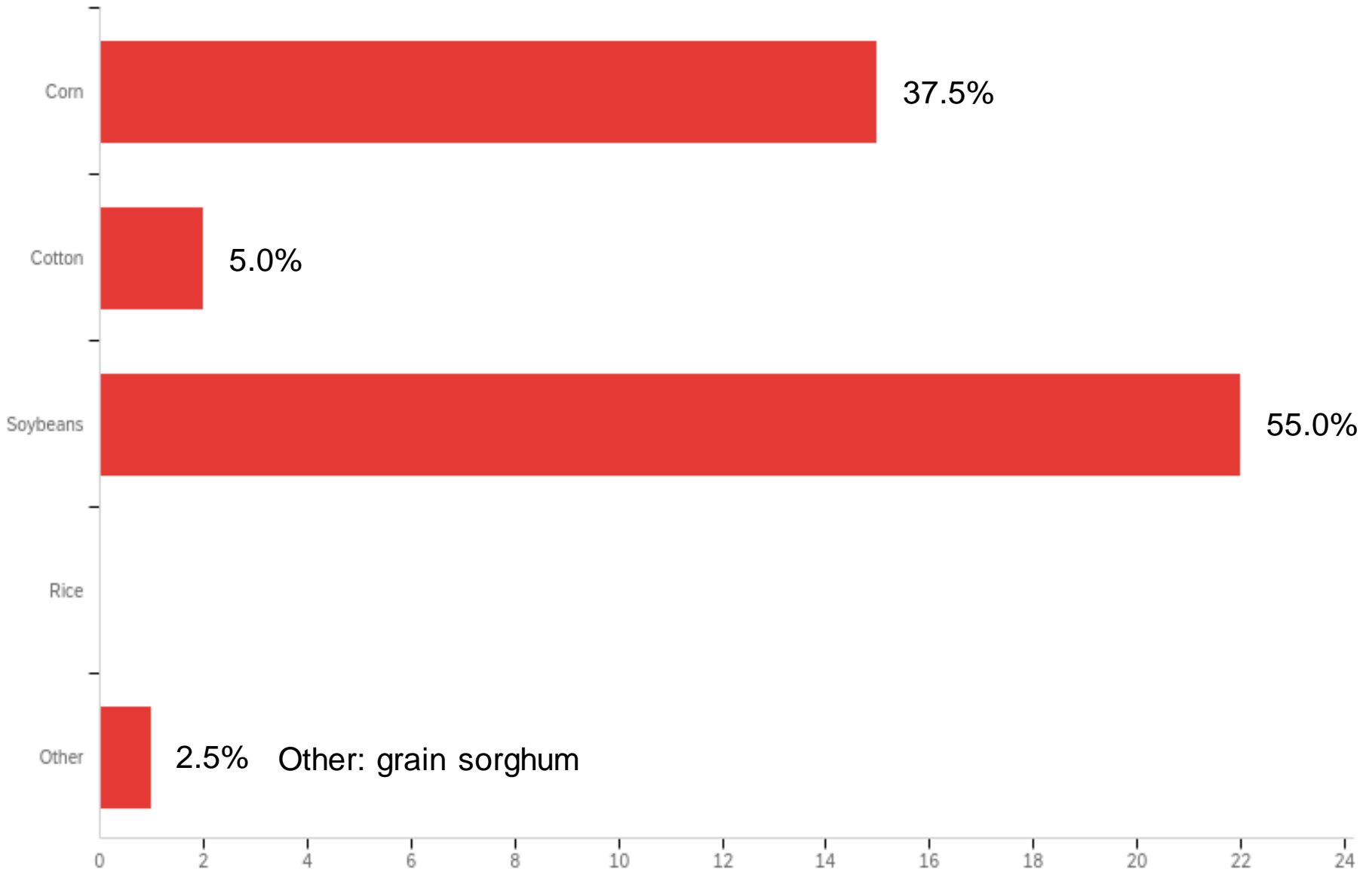
Q7 - What kind of tree nuts? *(pooled)*



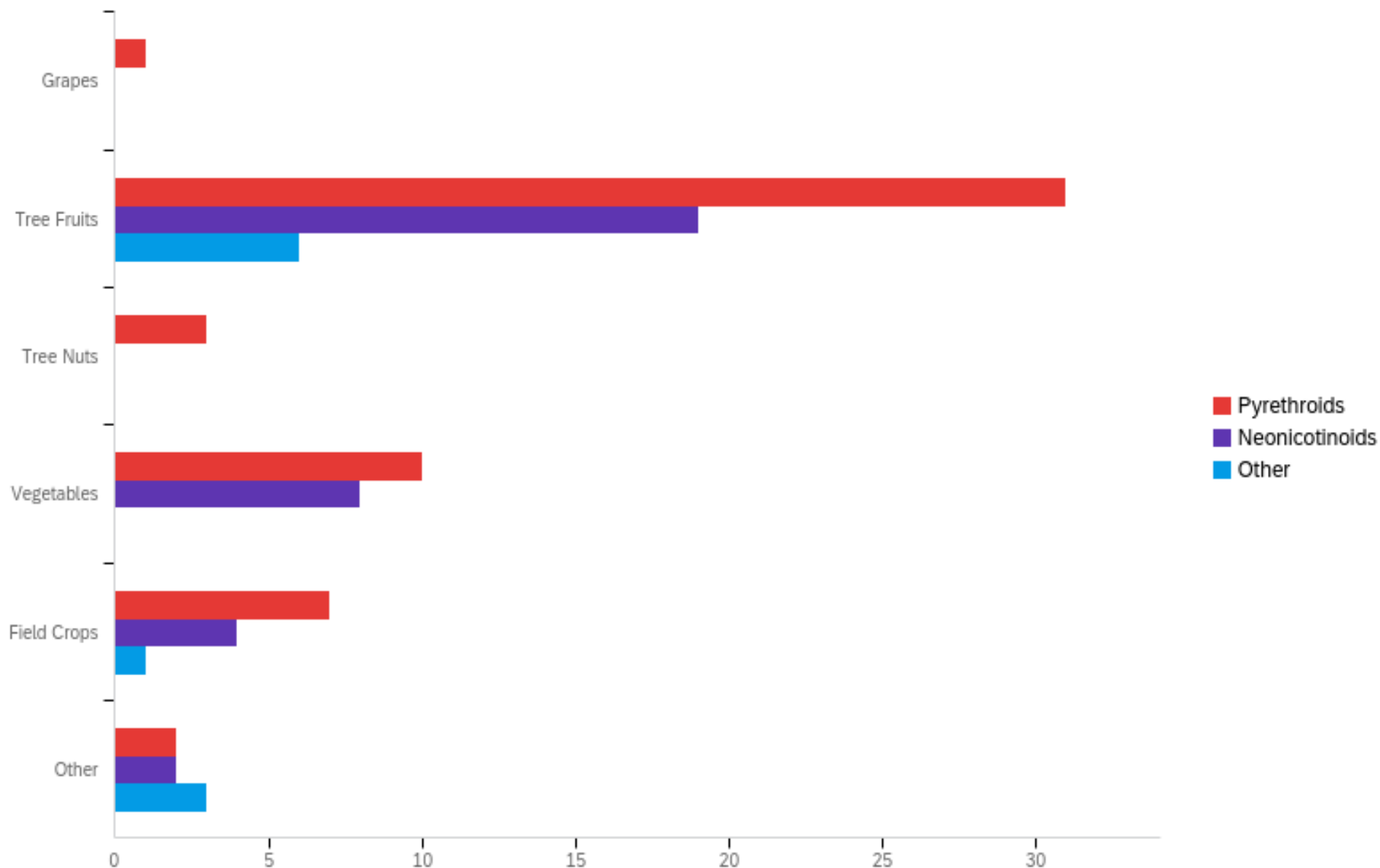
Q8 - What kind of vegetables? (*pooled*)



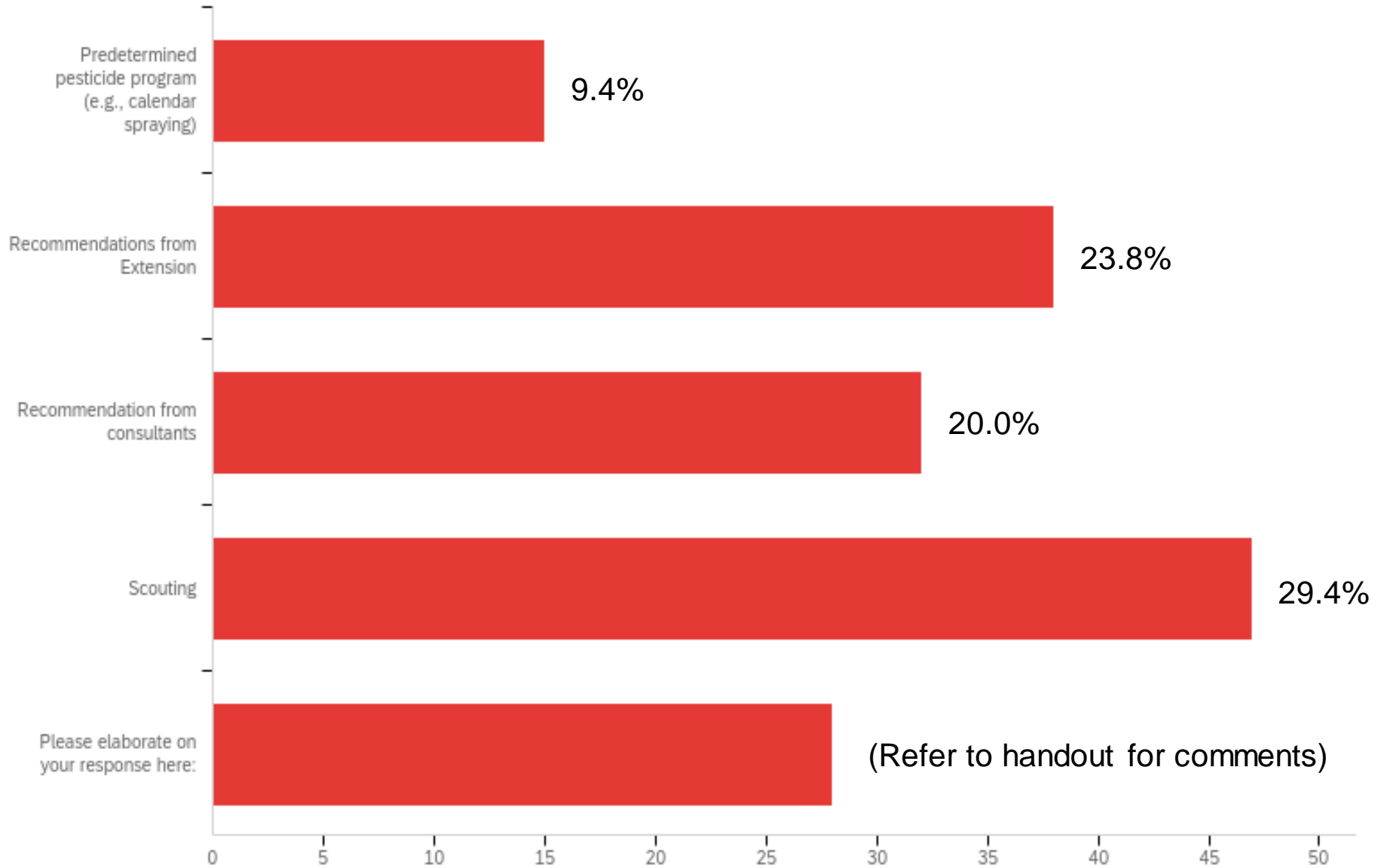
Q9 - What kind of field crops? (*pooled*)



Q10 - Which group of insecticides are most commonly used to manage BMSB on the following crops? *(pooled; trends similar with Co-PIs excluded)*



Q11 - How are decisions made regarding when to apply the insecticides? *(pooled; trends similar with Co-PIs excluded)*



Q12 - Approximately what percentage of growers or consultants use pheromone traps placed in their fields/orchards for management decisions?

Co-PIs	Non-Co-PIs*
15.42	21.48

Q13 - Approximately what percentage of growers rely on a network of pheromone trap catches monitored by Extension educators for management decisions?

Co-PIs	Non-Co-PIs*
40.92	41.19

Q14 - Approximately what percentage of growers have received education and training on the following BMSB IPM practices?

Field	Co-PIs	Non-Co-PIs*
Border spraying of insecticides	51.00	46.66
Attract-and-Kill	39.20	39.50
Naturally occurring biological control	25.27	36.96
Conservation biocontrol	46.69	33.04
Augmentative release of biological control	41.45	31.95
Threshold traps	47.31	42.07

*Non-Co-PIs: Extension Agents, Private Consultants, SAP Members

Q15 - What percentage of the growers have adopted the following pest management tactics?

Field	Co-PIs	Non-Co-PIs*
Border spraying of insecticides	24.38	25.79
Attract-and-Kill	17.25	10.86
Naturally occurring biological control	49.11	25.80
Conservation biocontrol	37.11	14.83
Augmentative release of biological control	14.80	10.64
Threshold traps	20.30	22.16

*Non-Co-PIs: Extension Agents, Private Consultants, SAP Members

Q16 - What are the barriers to adoption of border spraying?

Choice	Pooled	Co-PIs	Non-Co-PIs*
High cost of practice	5.8%	3.5%	4.4%
The research is not complete	16.1%	24.1%	6.7%
Difficulty of timing/implementation of practice	26.4%	20.7%	31.1%
Lack of awareness	28.7%	31.0%	33.3%
Other	23.0%	20.7%	24.4%

***Non-Co-PIs: Extension Agents, Private Consultants, SAP Members**

Other: Small acreages either spray it all or none; Damage levels are still generally low; Other insect pest priorities; IPM disruption; PHI problems; Low pressure from BMSB to date; Fear of unnecessary pesticide usage; Does not conform with their other practices; Already spraying whole orchards; Eradication mentality; Different from traditional practices; Spraying the whole orchard for other pests anyway; No wide spread distribution, YET; Not needed yet; Mess up Pear Psylla control; Field configuration; Tall Timber is difficult to spray, thick canopy is difficult to penetrate; We grow in forested areas and have tall timber and maple surrounding many of our orchards; Unsure if it works

Q17 - What are the barriers to adoption of attract-and-kill?

Choice	Pooled	Co-PIs	Non-Co-PIs*
High cost of practice	9.1%	17.2%	5.3%
The research is not complete	31.3%	37.9%	26.3%
Difficulty of timing/implementation of practice	19.2%	10.3%	24.6%
Lack of awareness	30.3%	24.1%	33.3%
Other	10.1%	10.3%	10.5%

*Non-Co-PIs: Extension Agents, Private Consultants, SAP Members

Other: Damage levels are still generally low; Other insect pest priorities; Drawbacks presented by the idea of ATTRACTING them to your garden; Already spraying whole orchards; As the threat increases, the use will increase; Not needed yet; The current traps cannot be place in the orchard, nor would we want attract more BMSB into the orchard; Pheromones aren't attractive enough to create trap-areas; Unsure if it works

Q18 - What are the barriers to adoption of threshold traps?

Choice	Pooled	Co-PIs	Non-Co-PIs*
High cost of practice	5.3%	6.9%	5.7%
The research is not complete	29.8%	37.9%	22.7%
Difficulty of timing/implementation of practice	20.2%	17.2%	20.8%
Lack of awareness	31.9%	20.7%	37.7%
Other	12.8%	17.2%	13.2%

*Non-Co-PIs: Extension Agents, Private Consultants, SAP Members

Other: Lack of effort; The fact that traps in the orchard concentrate BMSB damage around the traps; Other insect pest priorities; Attitude; Insufficient training on BMSB ID in traps; Already spraying whole orchards; They aren't effective for low pressure and we end up with damage anyway; As the threat increases, so will implementation; May prefer to spray on calender; Not needed yet; Unsure if it works

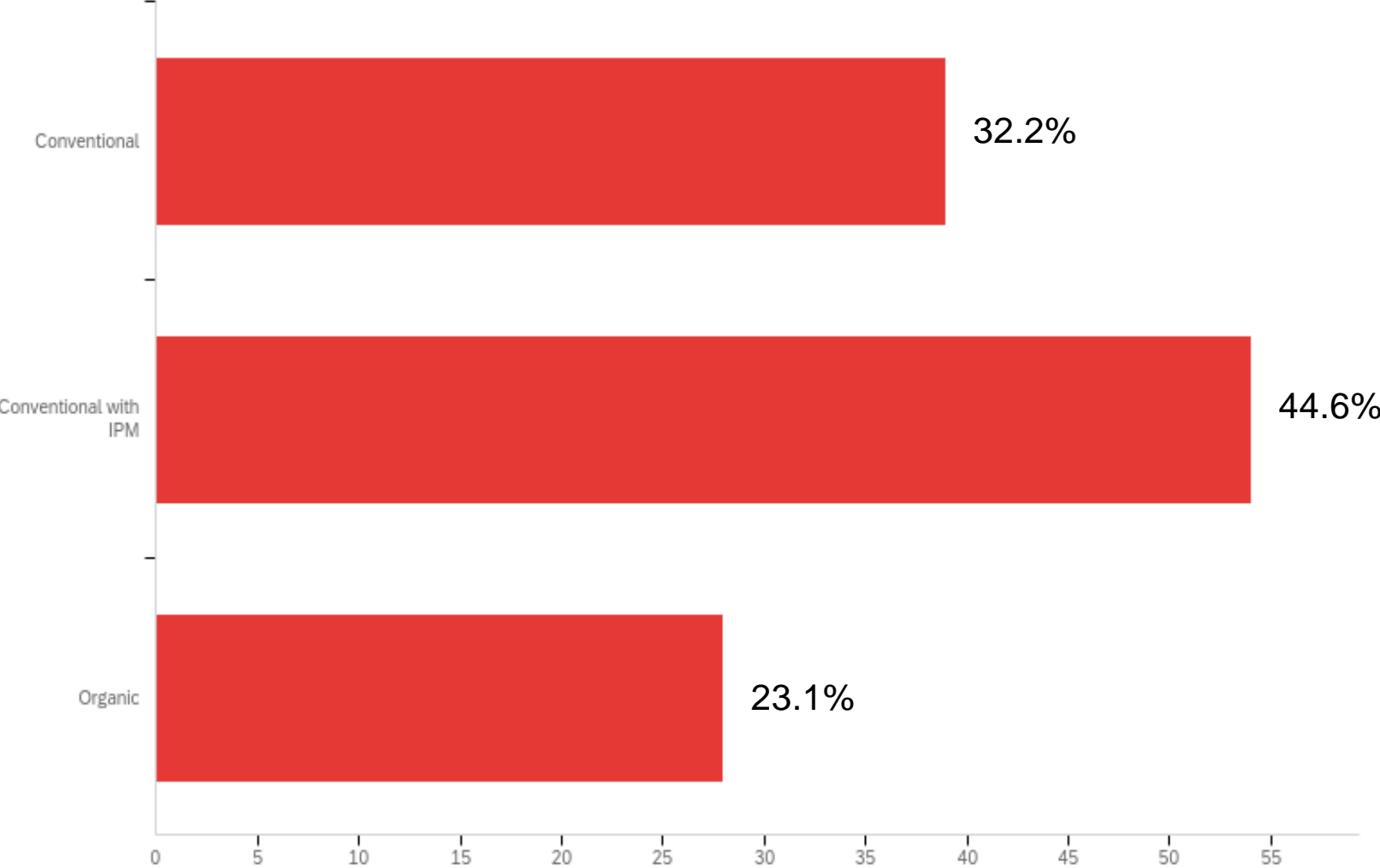
Q19 - What are the barriers to adoption of biocontrol?

Choice	Pooled	Co-PIs	Non-Co-PIs*
High cost of practice	13.6%	7.7%	14.9%
The research is not complete	29.1%	34.6%	26.9%
Difficulty of timing/implementation of practice	20.4%	23.1%	22.4%
Lack of awareness	26.2%	19.2%	28.4%
Other	10.7%	15.4%	7.5%

***Non-Co-PIs: Extension Agents, Private Consultants, SAP Members**

Other: Is it effective? Other insect pest priorities; Lack of parasitic wasps to purchase; Not sure what is meant by "adoption" of biocontrol. Growers like the concept/potential, but do not have any control over its effects. No access to agents for release; Risk of failure; Biocontrol has not been available in Utah; Not needed yet; We are hopeful the beneficial wasp can establish and thrive here, but 50% product loss is not sustainable and can't be tolerated while waiting for nature to balance; Lots of support for biocontrol

Q20 - What type of production system are your answers relevant to?
(pooled)



Q21 - How much more money is spent on insecticides each year now in contrast to before BMSB was a problem in your area? (*pooled*)

