

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

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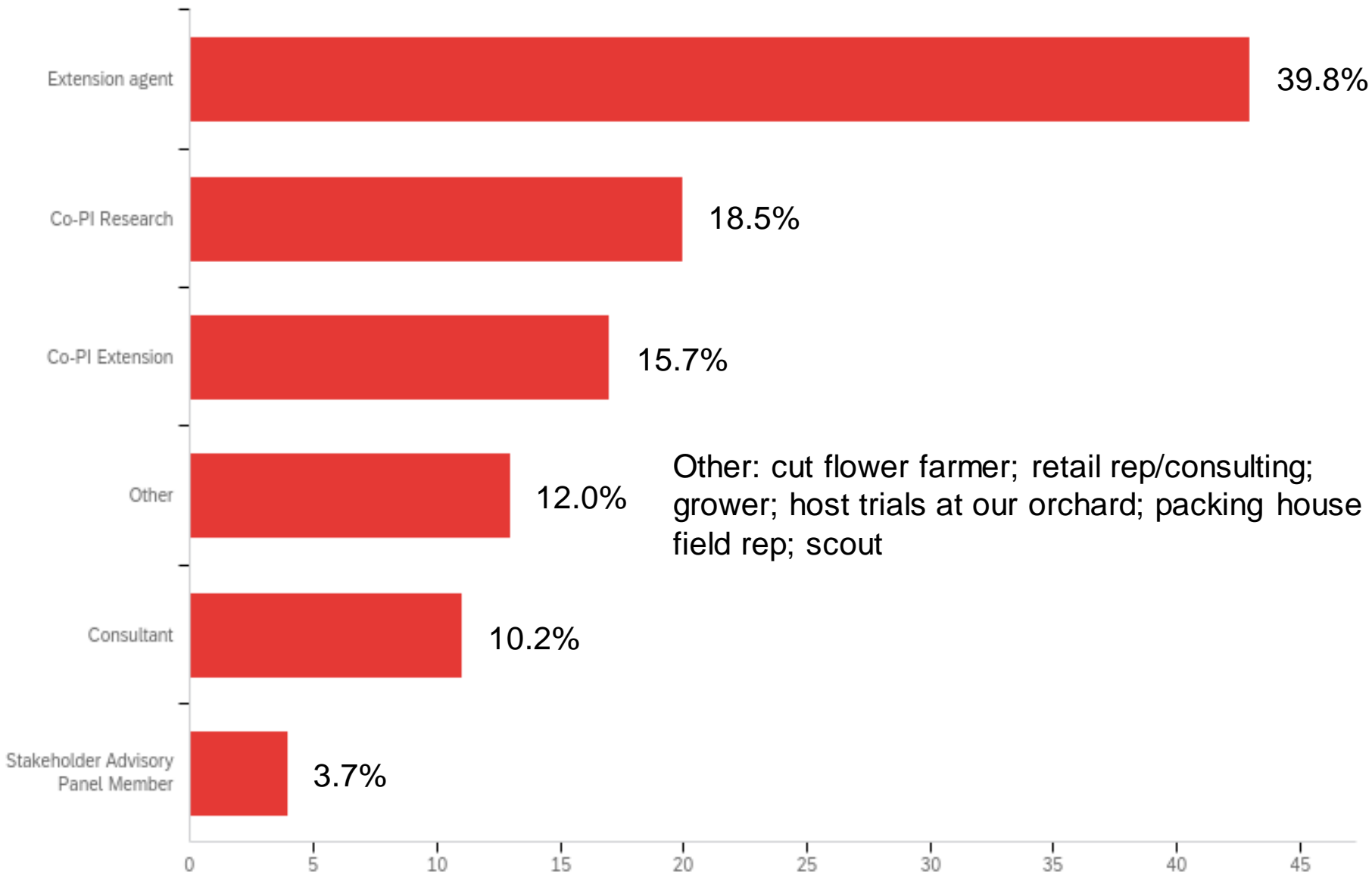
  

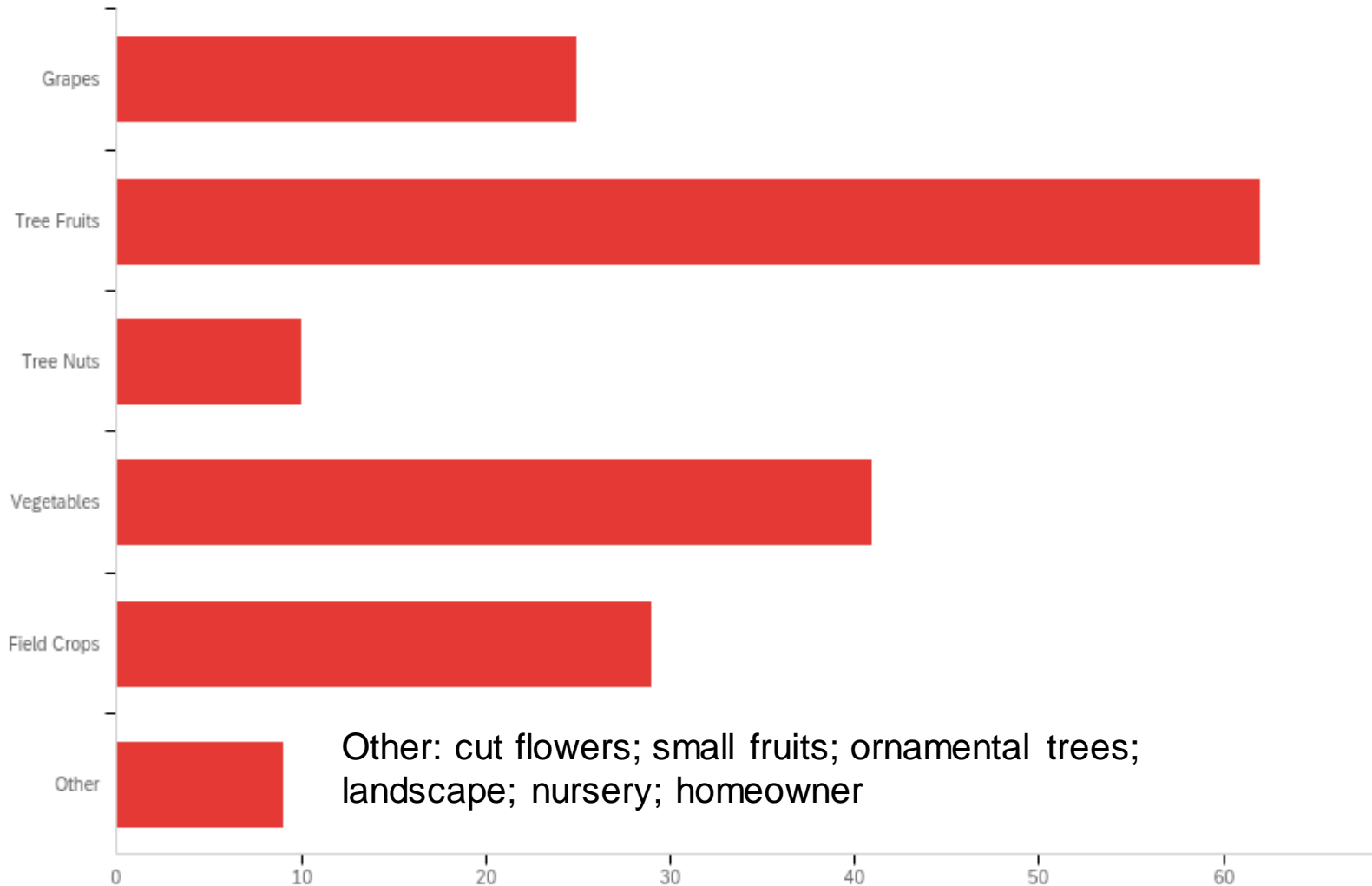
  

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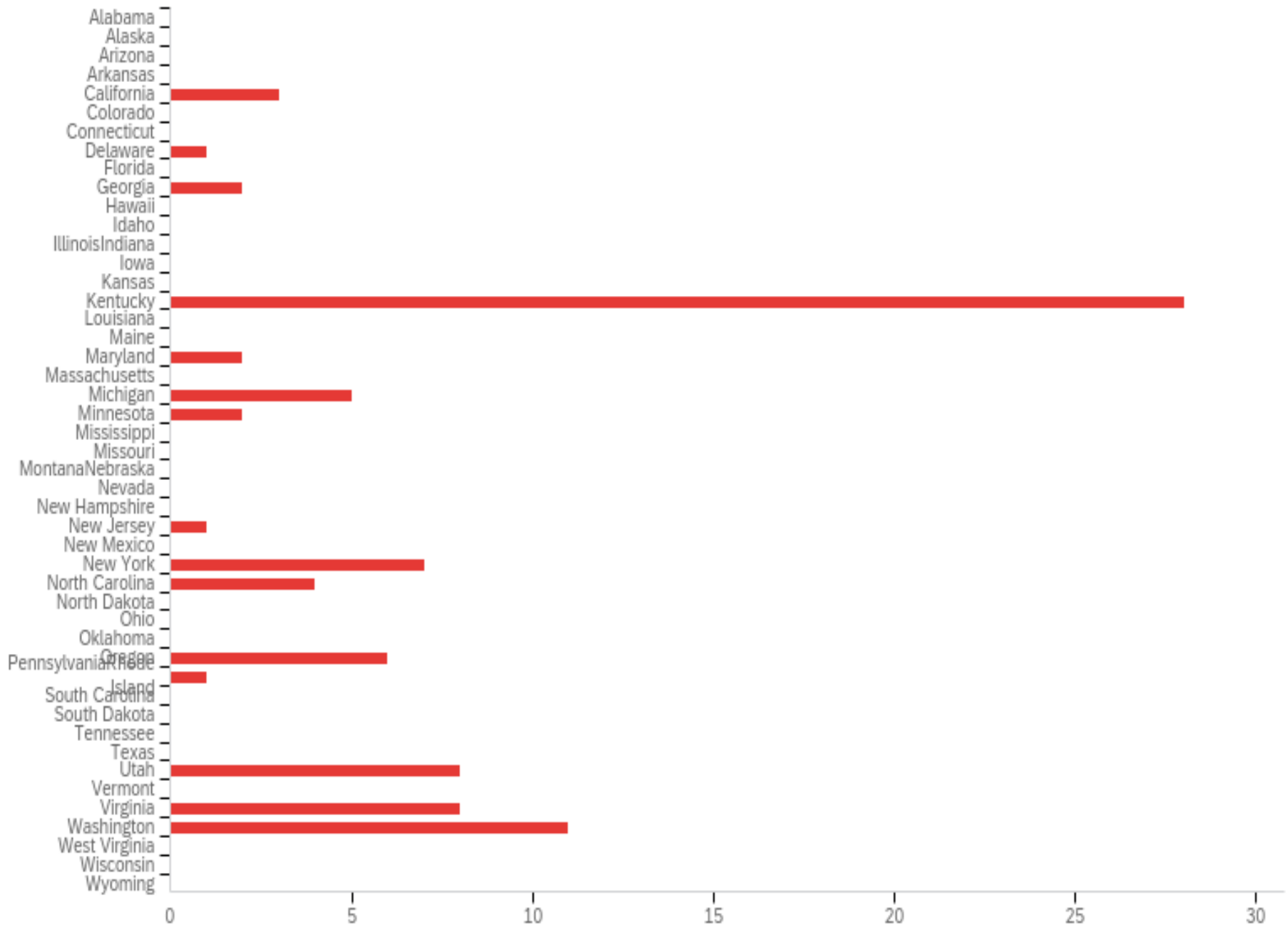
Q1 - Describe the type of work you do with respect to BMSB (105 responses, pooled)



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

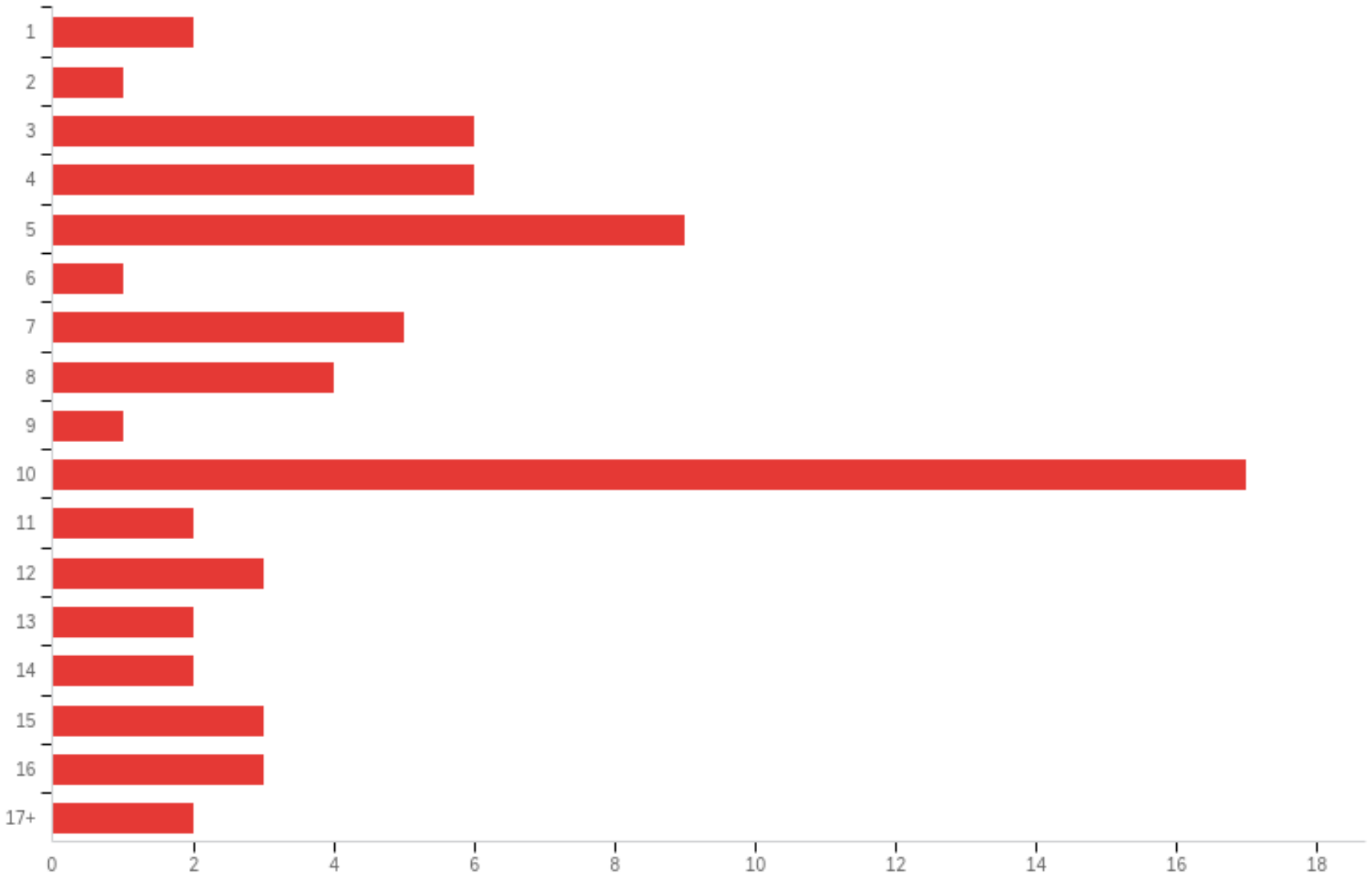


Q3 - In what state do you live?

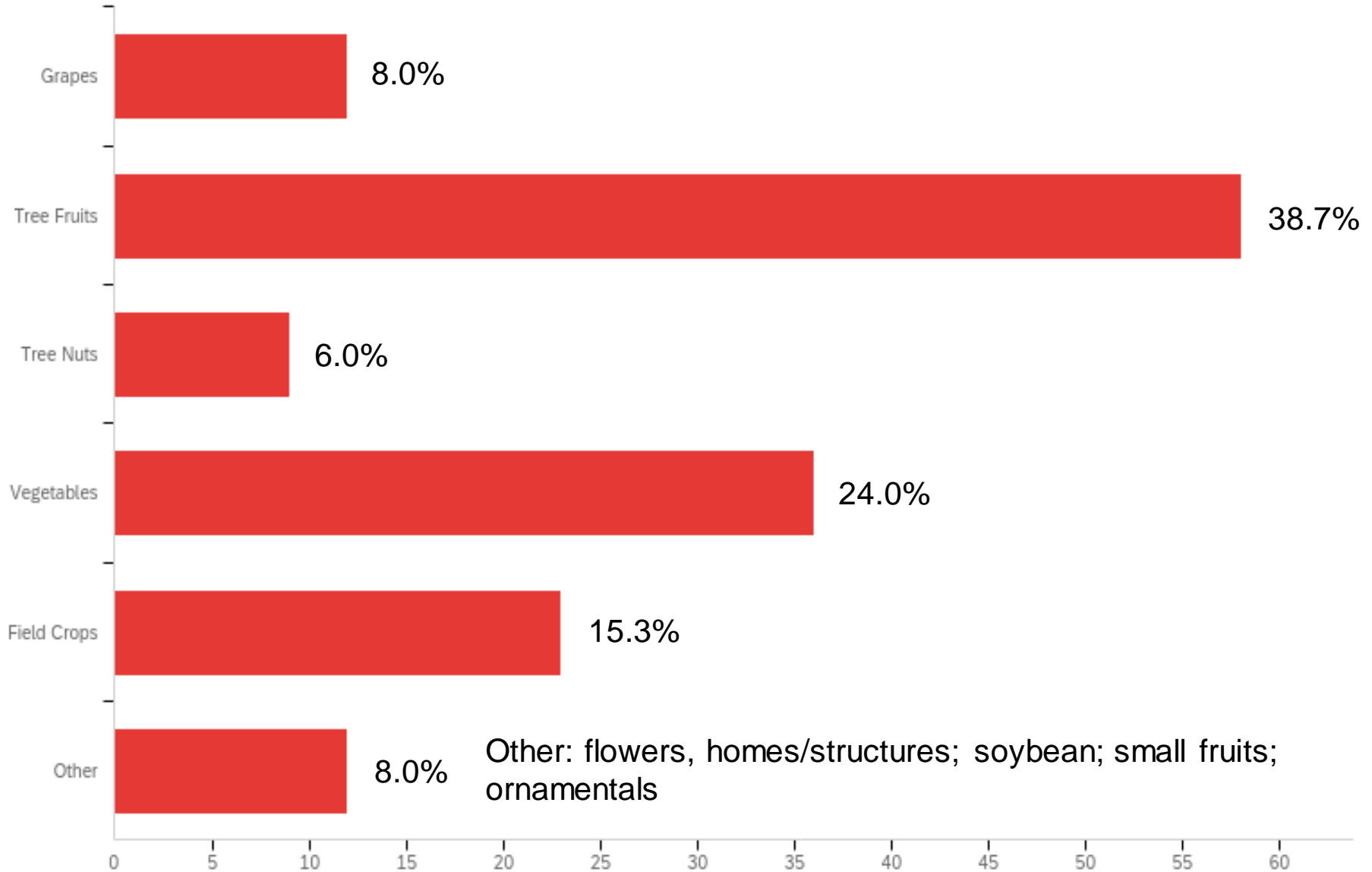


Q4 - How many years has BMSB been established in your state?

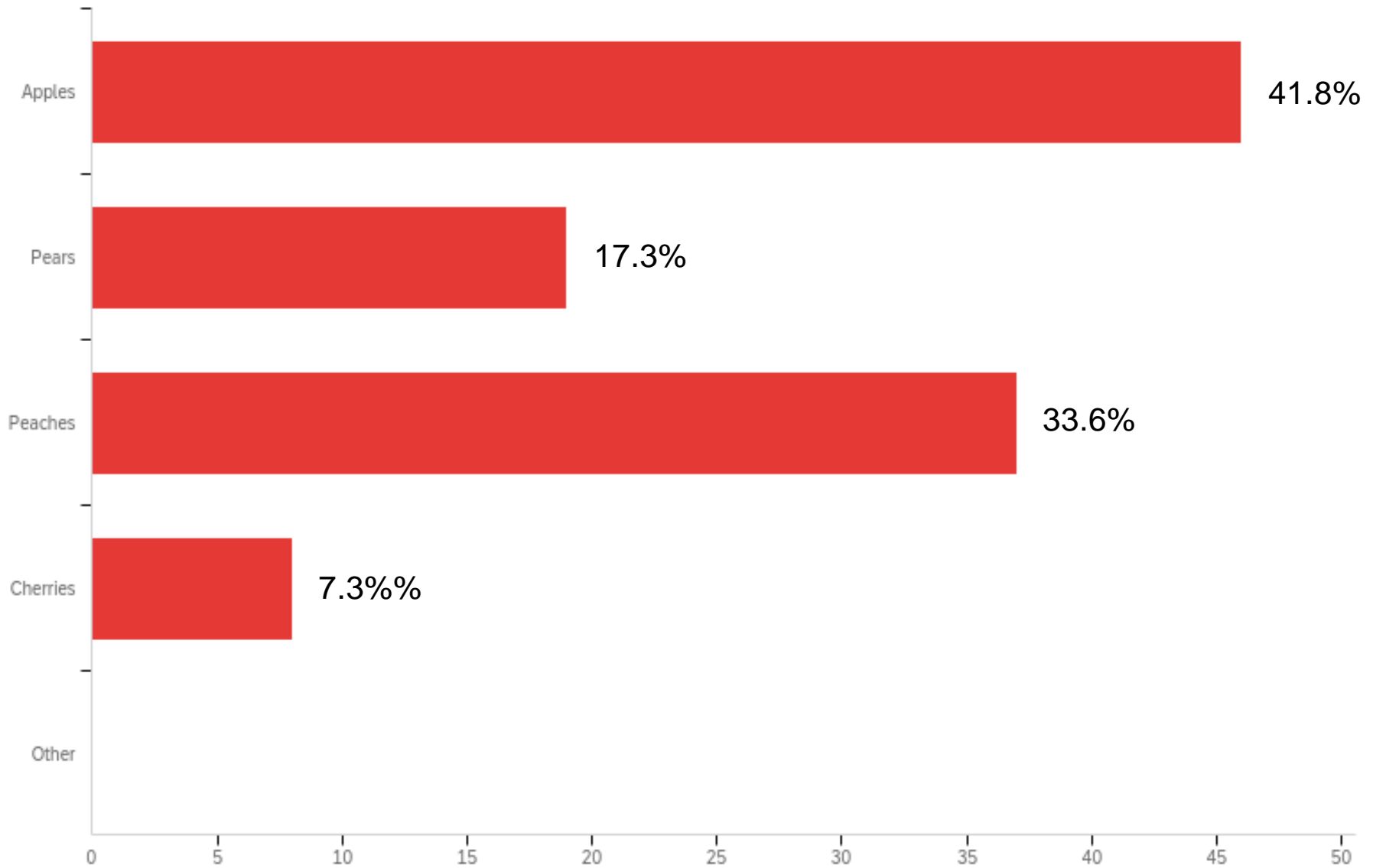
(pooled; mean = 8.43)



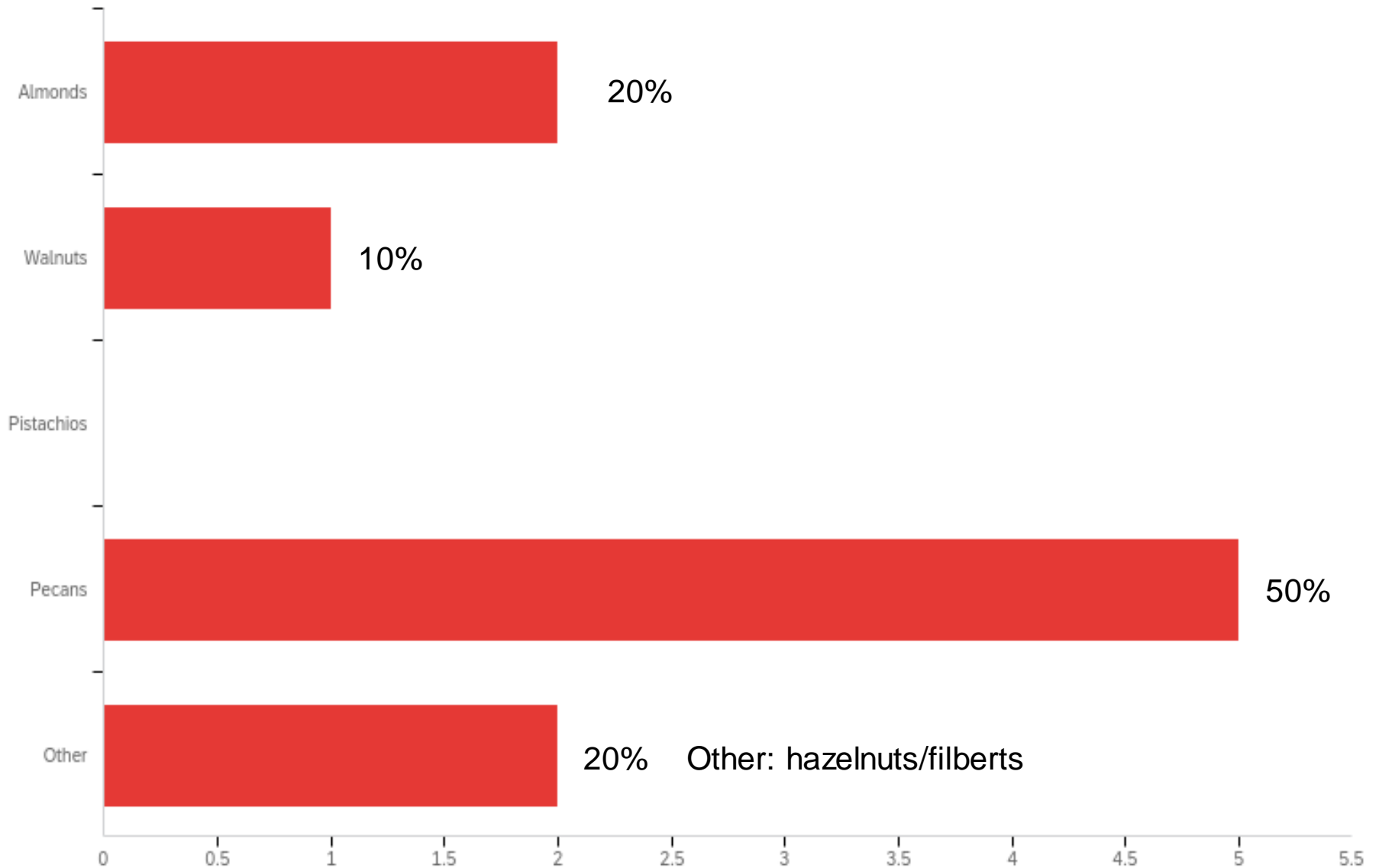
Q5 - On what crops has BMSB been a problem? (*pooled*)



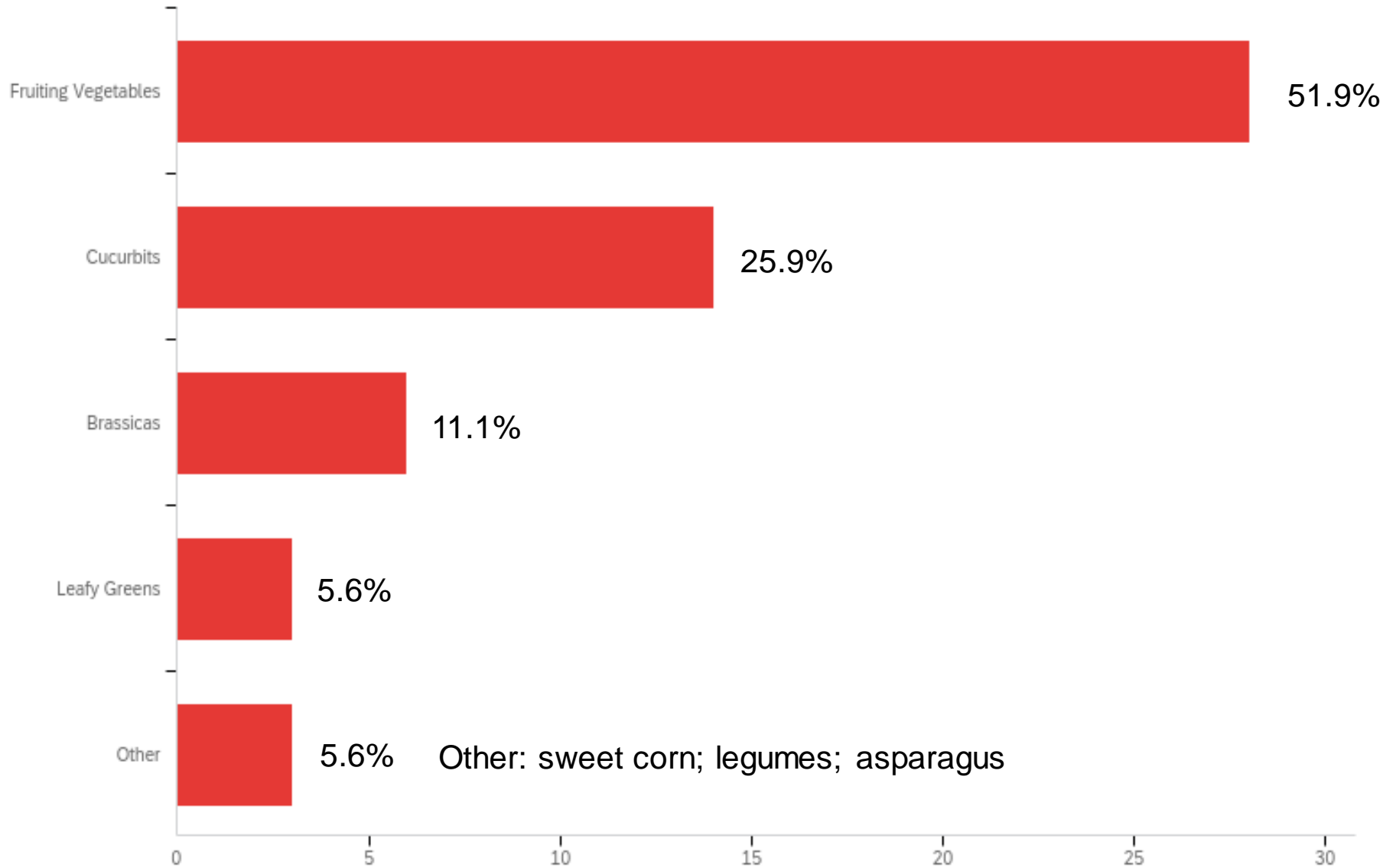
Q6 - What kind of tree fruits? *(pooled)*



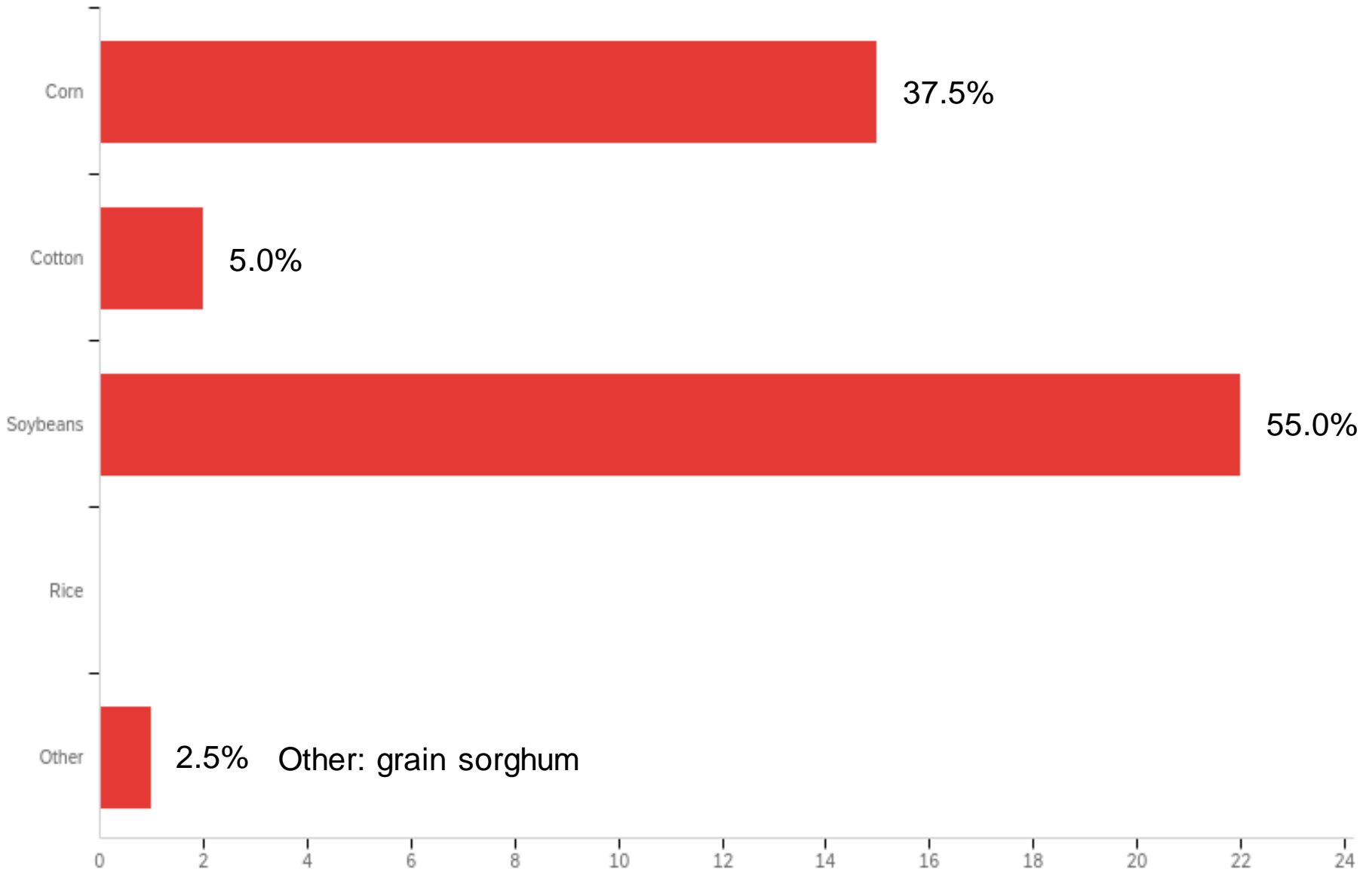
Q7 - What kind of tree nuts? *(pooled)*



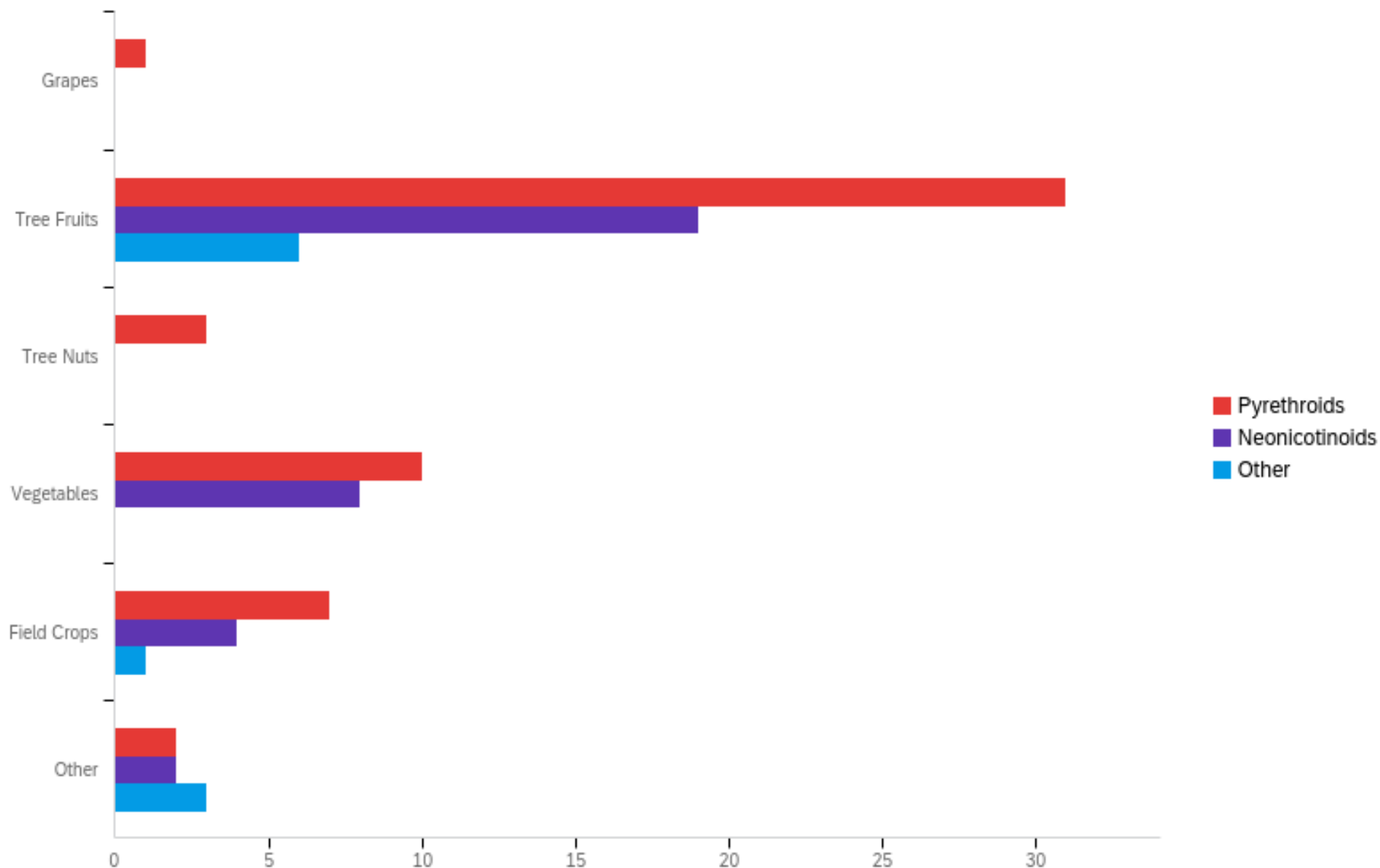
Q8 - What kind of vegetables? (*pooled*)



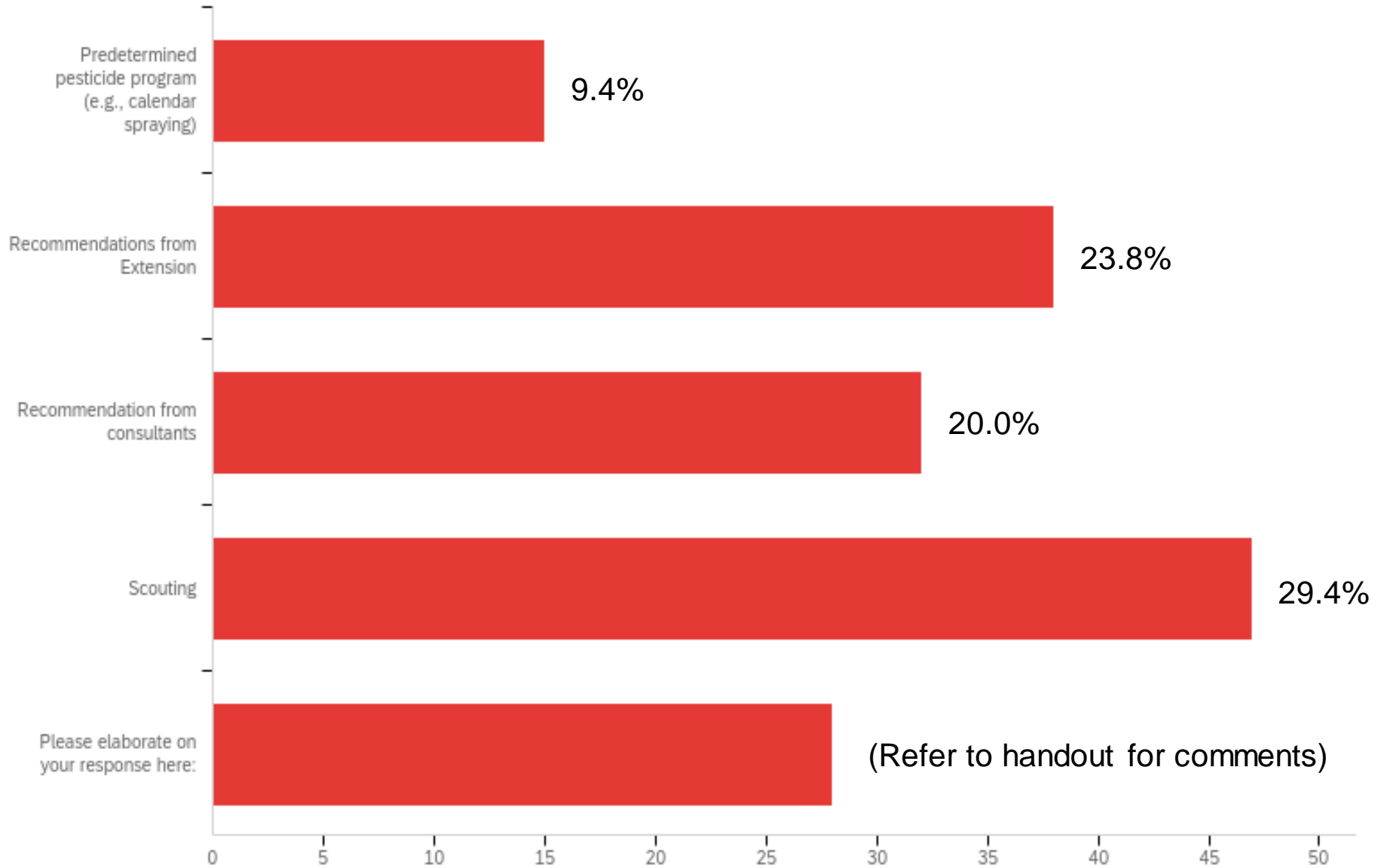
Q9 - What kind of field crops? (*pooled*)



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

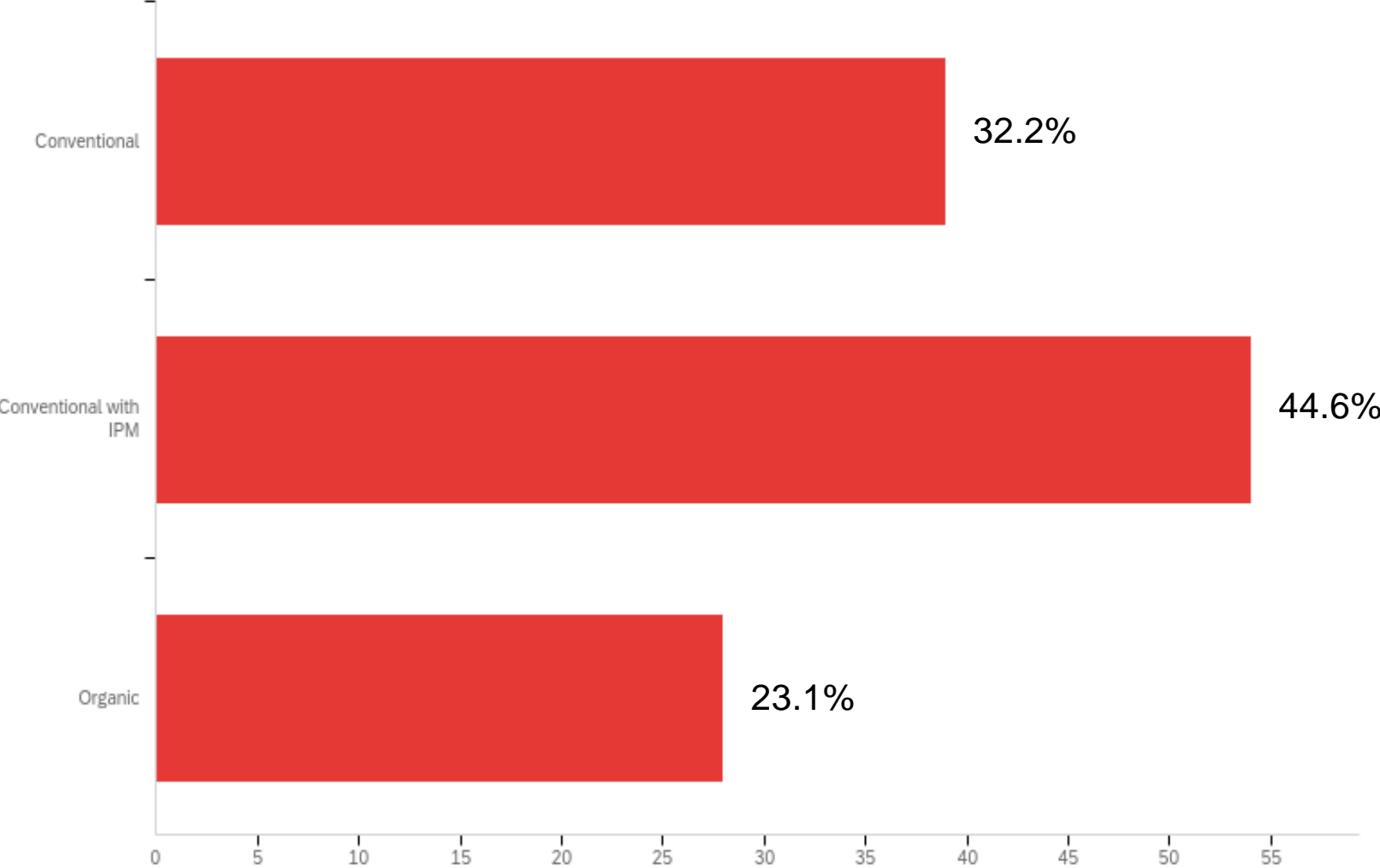
Q19 - What are the barriers to adoption of biocontrol?

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*)

