Research Priorities

Rank	Research Priority	Mean Score	# Responders
1	Development of IPM-friendly management tactics	93	28
2	Biocontrol agents--identification and study of parasitoids, fungal pathogens, and predators (native and foreign)	89	28
3	Examine overwintering biology (e.g. triggers for seeking and leaving sites; overwintering mortality factors)	82	28
4	Studies of basic BMSB behavior (host preferences, movement, responses to visual cues)	80	28
5	Evaluate efficacy and host range of candidate classical biological control agents	79	28
6	Further study of pheromone-based monitoring (e.g. active space, trap design, attractants)	76	27
6	Define damage diagnostics, economics of injury and threshold	76	28
7	Investigation of host-plant volatiles as attractants	75	27
7	Evaluation of parasitoid host specificity	75	28
8	Identification of potential repellents	74	29
9	Determine factors affecting population densities	71	26
9	Impact of landscape and habitat on population (local)	71	28
9	Studies of basic BMSB biology (physiology, generations)	71	27
10	Develop economic models that include injury, monitoring and management costs	70	27
11	Crop susceptibility and timing	66	28
12	Response of indigenous natural enemies in relation to BMSB densities and their potential for management	65	28
12	Host utilization, preference, and range	65	28
12	Examine interactions between native and exotic parasitoids (additive, synergistic or antagonistic)	65	26
12	Evaluate effects of BMSB management plans on beneficial agents, including pollinators	65	27
13	Develop forecasting models to ID new risk areas, presence and where BMSB is and will not be	64	28
14	Mapping and assessment of distribution	63	27
14	Assess secondary pest outbreaks related to chemical control of BMSB	63	27
15	Role of the gut symbionts and their potential for management	62	27
16	Examination of potential for trap-cropping	61	27
16	Standardized sampling methods	61	27
17	Use of toxins in combination with attractants	60	27
18	Determine conservation bio control efforts for indigenous natural enemies	59	27
18	Determine how far will BMSB travel to overwintering sites	59	28
19	Determine why BMSB appears to not be present in coastal plains	56	27
19	Evaluate potential impacts of cultural control measures	56	28
19	Determine the impact of elevation on overwintering sites	56	27

Research Priorities (continued)

Rank	Research Priority	Mean Score	# Responders
20	Methods development and improve rearing protocol for long term sustainable colonies	55	26
20	Determine low and high temperature thresholds for all stages	55	27
21	Determining monitoring strategies for urban areas	54	27
21	Study potential for damage of harvested/value-added crops by contamination with BMSB	54	27
21	Develop baseline insecticide toxicity data for resistance monitoring	54	27
22	Standardize multiple methods for screening of new insecticide materials	50	27
22	Assessment of economic impact in urban environment	50	28
23	Assessment of displacement of native stink bugs	49	28
24	Evaluate long term sub lethal effects on BMSB (e.g. effects on reproduction)	48	27
24	Evaluate regional landscape-level/watershed-scale population distribution	48	27
24	Validate current physiology and phenology models in laboratory	48	27
25	Risk analysis of overwintering populations in natural landscapes	46	27
26	Evaluate impact of orchard groundcover management	45	27
27	Development of toxicants and inhibitors for plant transgenic delivery	41	27
28	Examination of cross-attraction of BMSB and green stink bugs	36	26
29	Evaluate potential impact of vertebrate predation	35	26
30	How far do BMSB travel after leaving overwintering sites?	31	1

Priority rank is based on scores provided by individual Working Group participants (importance of a particular priority on a scale of 0-100, calculating the mean value for each, and ranking them accordingly.

Extension Priorities

Rank	Extension Priority	Mean Score	# Responders
1	Education programs to growers and the general public	84	27
2	Deliver economic thresholds / action thresholds	83	27
3	Develop revised and unified management plans	82	27
4	Coordinate efforts of state and regional extension programs	75	26
5	Educating professionals to pest ID and diagnosis of injury	72	26
6	Education programs relevant to development of biological control projects	71	26
7	Include education programs relevant to classical biological control	69	24
8	Develop treatment recommendations and guidelines for urban environments	64	25
9	Extension outreach and education programming for urban environment/homeowners	63	25
10	Educational programming for structural and landscape industries	62	26
11	Educational programs relevant to invasive biology using BMSB	60	24
12	Initiate public awareness campaigns - posters, public service announcements, educational materials, etc.	59	24
12	Demonstrate field application techniques for chemical control	59	25
13	Raise awareness of importance of BMSB as pest - APHIS, local political channels, etc.	58	24
14	Use BMSB as an opportunity to educate children	56	26
14	Direct homeowners to local politicians for complaints	56	25
15	Structure extension groups by commodity or region	48	25
16	Establish links between eXtension community of practice (COP) and StopBMSB.org	47	25
17	Evaluate large scale treatment facilities of export cargo	31	1

Priority rank is based on scores provided by individual Working Group participants (importance of a particular priority on a scale of 0-100, calculating the mean value for each, and ranking them accordingly.

Regulatory Priorities

Rank	Regulatory Priority	Mean Score	# Responders
1	Product testing and labeling of new active ingredients/products - only low toxicity/IPM compatible	84	26
2	Use of toxins in combination with attractants (regulatory status)	82	25
3	Define the economic and ecological threat	72	26
4	Expand use of existing registered products	69	25
4	Coordinate interagency and interdisciplinary funding	69	25

Priority rank is based on scores provided by individual Working Group participants (importance of a particular priority on a scale of 0-100, calculating the mean value for each, and ranking them accordingly.

Consumer/Urban Priorities

Rank	Consumer/Urban Priority	Mean Score	# Responders
1	Development of IPM friendly management strategies (trap style and efficacy, overwintering site selection, insecticide timing, repellent -push/pull, efficacy of treating exterior plants/landscapes)	93	27
2	Preventative measures for reducing entry into human-made structures - outreach needed	81	28
3	Define triggers for movement into homes	79	27
4	Important biological control agents around residential areas	74	28
5	Evaluate efficacy of insecticides/killing agents for homeowners	70	22
6	Forecasting population size	67	27
7	Evaluate materials for home-garden and home-landscape protection	66	27
8	Determining repeated entry and exit by BMSB from overwintering sites	62	22
9	Evaluate the use of environmentally "friendlier" treatment options than insecticides such as heat	31	1

Priority rank is based on scores provided by individual Working Group participants (importance of a particular priority on a scale of 0-100, calculating the mean value for each, and ranking them accordingly.

Overall Priorities

Rank	Category	Overall Priorities	Votes
1	Research	Development of IPM-friendly management tactics	17
1	Consumer/ Urban	Development of IPM friendly management strategies (trap style and efficacy, overwintering site selection, insecticide timing, repellent -push/pull, efficacy of treating exterior plants/landscapes)	17
2	Research	Biocontrol agents--identification and study of parasitoids, fungal pathogens, and predators (native and foreign)	16
3	Extension	Develop revised and unified management plans	13
4	Regulatory	Product testing and labeling of new active ingredients/products - only low toxicity/IPM compatible	11
5	Extension	Education programs to growers and the general public	9
6	Regulatory	Define the economic and ecological threat	8
7	Research	Evaluate efficacy and host range of candidate classical biological control agents	7
7	Extension	Deliver economic thresholds / action thresholds	7
7	Regulatory	Coordinate interagency and interdisciplinary funding	7

Overall priority rank is based on Working Group participants designating their five top priorities across all categories; those priorities receiving designations by at least 10 percent of the membership were ranked.