



The Bee Informed Partnership
Management Survey Results (2011)
Brood Comb Management

BeeInformed.org

Funded by:



United States
Department of
Agriculture

National Institute
of Food
and Agriculture

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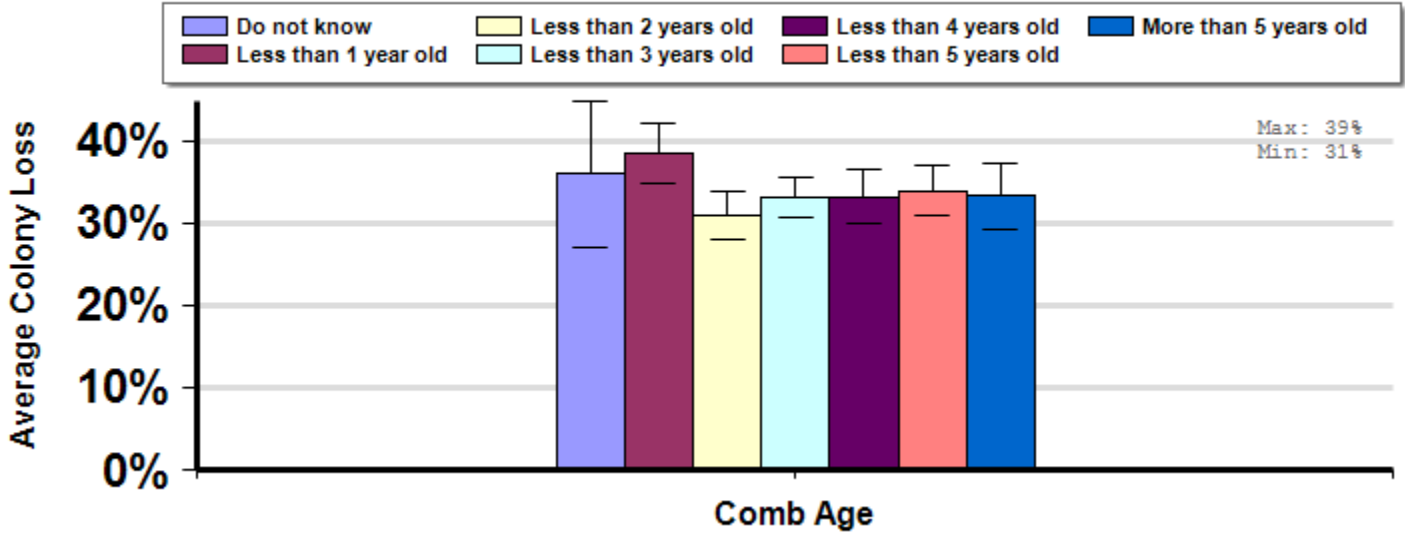
Average Brood Comb Age

Average winter colony mortality suffered by beekeepers who kept bees in colonies with brood comb of different ages.

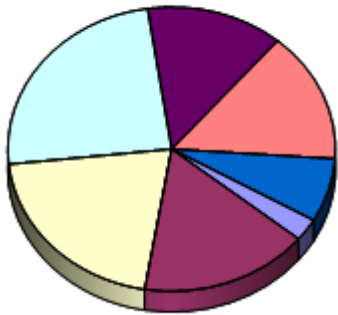
Winter

Report ID: 143

Some Significant Differences



Respondent Ratio



Interpretation

Beekeepers who kept bees in colonies where the average age of the brood comb in their operation was less than 1 year old, lost on average 7.5 more colonies per hundred when compared to beekeepers who managed bees in colonies where the average age of the brood comb in their operation was between 1 and 2 years old.

Survey Question

30. On average, how old is the brood comb in your colonies?
- More than 5 years old
 - Less than 5 years old
 - Less than 4 years old
 - Less than 3 years old
 - Less than 2 years old
 - Less than 1 year old
 - Don't know

		Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
				Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Comb Age	Do not know	77	8,240	107.0	99.0	36.1	27.2	44.9
	Less than 1 year old	504	1,682	3.3	0.3	38.6	34.9	42.3
	Less than 2 years old	622	3,543	5.7	0.4	31.1	28.2	33.9
	Less than 3 years old	733	36,271	49.5	26.5	33.3	30.8	35.8
	Less than 4 years old	409	8,428	20.6	6.6	33.3	30.0	36.6
	Less than 5 years old	448	22,271	49.7	13.8	34.1	31.1	37.1
	More than 5 years old	218	188,772	865.9	401.3	33.5	29.4	37.5

Comments About This Data

This survey is not designed to understand the reason for differences, so we cannot say if the increased mortality recorded in those that kept bees on comb less than a year old is due to some underlying biology (i.e. old comb is somehow better for bees) or some other correlated factor (i.e. new beekeepers are more likely to have new comb and have increased winter mortality).

Relevant Links, References, and Citations

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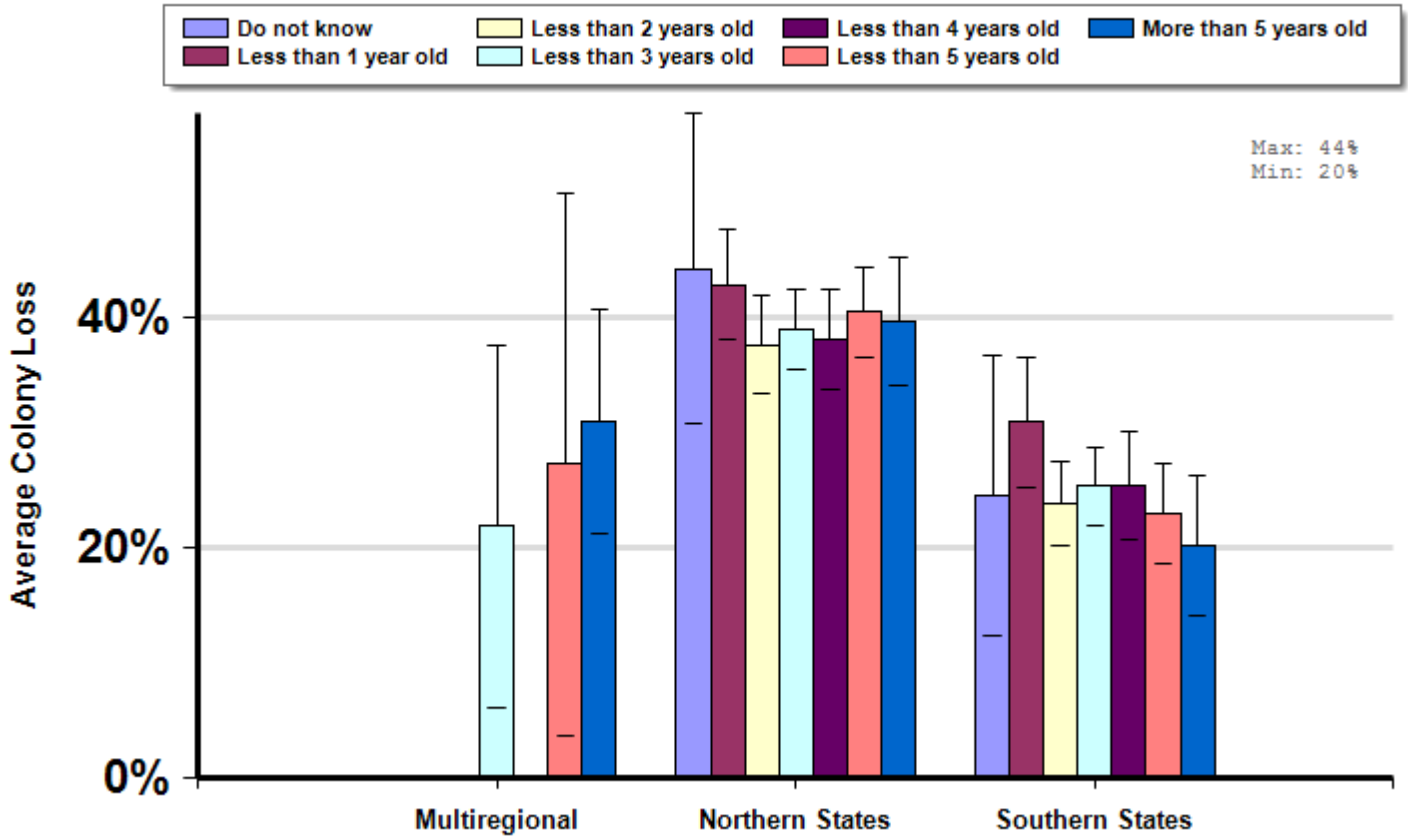
Average Brood Comb Age By Region

Average winter colony mortality suffered by beekeepers who kept bees in colonies with brood comb of different ages by operations in different regions.

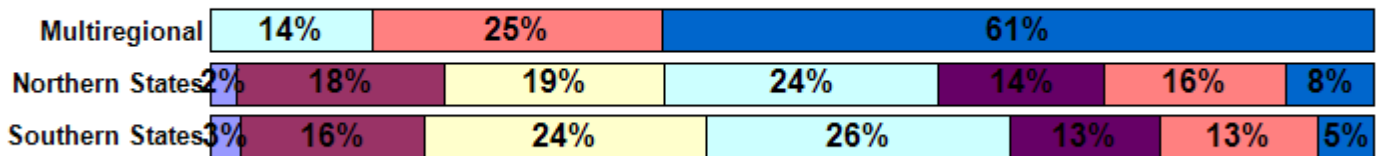
Winter

Report ID: 146

No Significant Differences (within regions)



Respondent Ratio



Interpretation

No difference within groups

Survey Question

30. On average, how old is the brood comb in your colonies?

- More than 5 years old
- Less than 5 years old
- Less than 4 years old
- Less than 3 years old
- Less than 2 years old
- Less than 1 year old

Don't know

		Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
				Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Multiregional	Less than 3 years old	5	17,484	3496.8	2911.9	21.8	6.0	37.6
	Less than 5 years old	9	12,369	1374.3	521.7	27.2	3.7	50.7
	More than 5 years old	22	159,572	7253.3	3770.0	30.9	21.2	40.6
Northern States	Do not know	39	117	3.0	0.5	44.1	30.7	57.6
	Less than 1 year old	312	1,006	3.2	0.3	42.8	38.0	47.6
	Less than 2 years old	330	1,835	5.6	0.5	37.5	33.3	41.8
	Less than 3 years old	411	3,498	8.5	1.0	38.9	35.4	42.3
	Less than 4 years old	246	2,370	9.6	0.8	38.0	33.6	42.3
	Less than 5 years old	273	5,095	18.7	3.7	40.4	36.5	44.3
	More than 5 years old	133	9,747	73.3	28.5	39.6	34.1	45.1
	Do not know	32	217	6.8	1.9	24.5	12.4	36.6
Southern States	Less than 1 year old	186	620	3.3	0.5	30.8	25.2	36.4
	Less than 2 years old	284	1,624	5.7	0.6	23.8	20.1	27.4
	Less than 3 years old	308	15,227	49.4	39.3	25.2	21.9	28.6
	Less than 4 years old	153	5,891	38.5	17.5	25.4	20.6	30.1
	Less than 5 years old	159	4,554	28.6	7.1	22.9	18.6	27.2
	More than 5 years old	58	14,762	254.5	74.2	20.1	14.0	26.1
	Do not know							

Comments About This Data

Confidence intervals for winter mortality figures are fairly high, indicating a large variation in the response. These confidence intervals would narrow if we had greater response.

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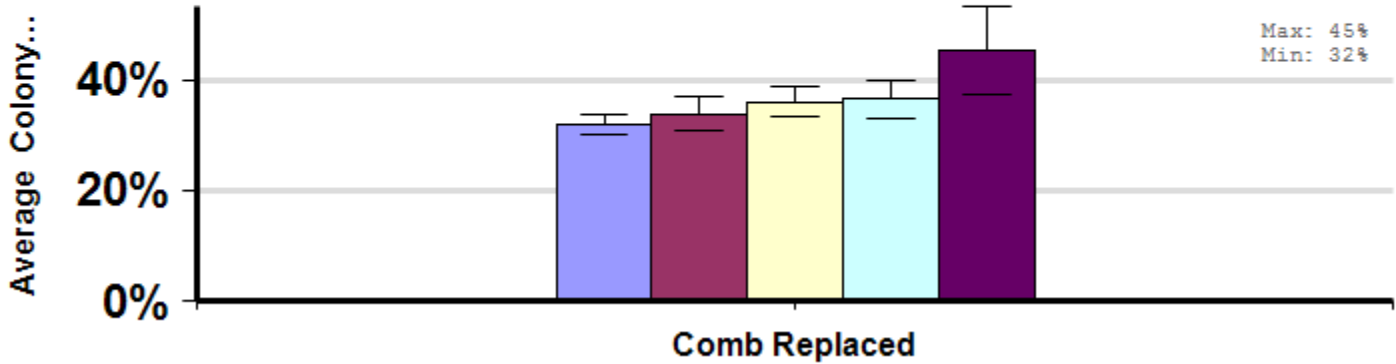
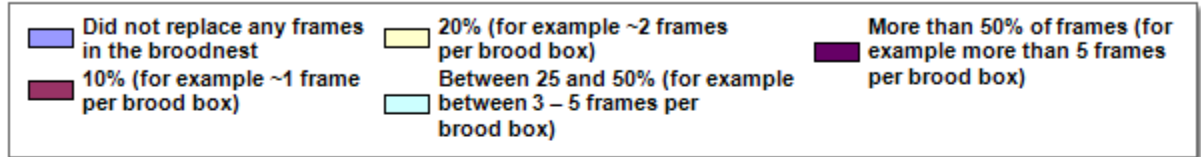
Degree of Brood Comb Replacement

Average winter colony mortality suffered by beekeepers who replaced different percentages of their brood nest comb the previous year.

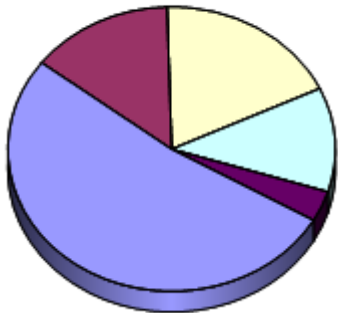
Winter

Report ID: 149

Some Significant Differences



Respondent Ratio



Interpretation

Beekeepers who replaced 50% or more of the comb in their colonies more colonies than those who did not replace any, or 10% of the combs in their brood chambers.

Survey Question

- On average, how many frames from the brood nest of your colonies did you replace last year?
 - Did not replace any frames
 - 10% (for example ~1 frame per brood box)
 - 20% (for example ~2 frames per brood box)
 - Between 25 and 50% (for example between 3 – 5 frames per brood box)
 - More than 50% of frames (more than 5 frames per brood box)
 - Don't know
 - Other (please specify)

		Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
				Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Comb Replaced	Did not replace any frames in the brood nest	1,527	29,053	19.0	5.2	31.9	30.0	33.8
	10% (for example ~1 frame per brood box)	415	30,895	74.4	21.2	33.7	30.6	36.8
	20% (for example ~2 frames per brood box)	541	149,439	276.2	161.1	36.0	33.2	38.8
	Between 25 and 50% (for example between 3 - 5 frames per brood box)	348	32,851	94.4	41.5	36.4	32.9	40.0
	More than 50% of frames (for example more than 5 frames per brood box)	102	16,630	163.0	146.9	45.3	37.4	53.1

Comments About This Data

This survey was not meant to determine the cause of differences, so we cannot comment on the reason those replacing no or few comb lost fewer colonies overwinter than those who replaced 50% or more of their colonies frames.

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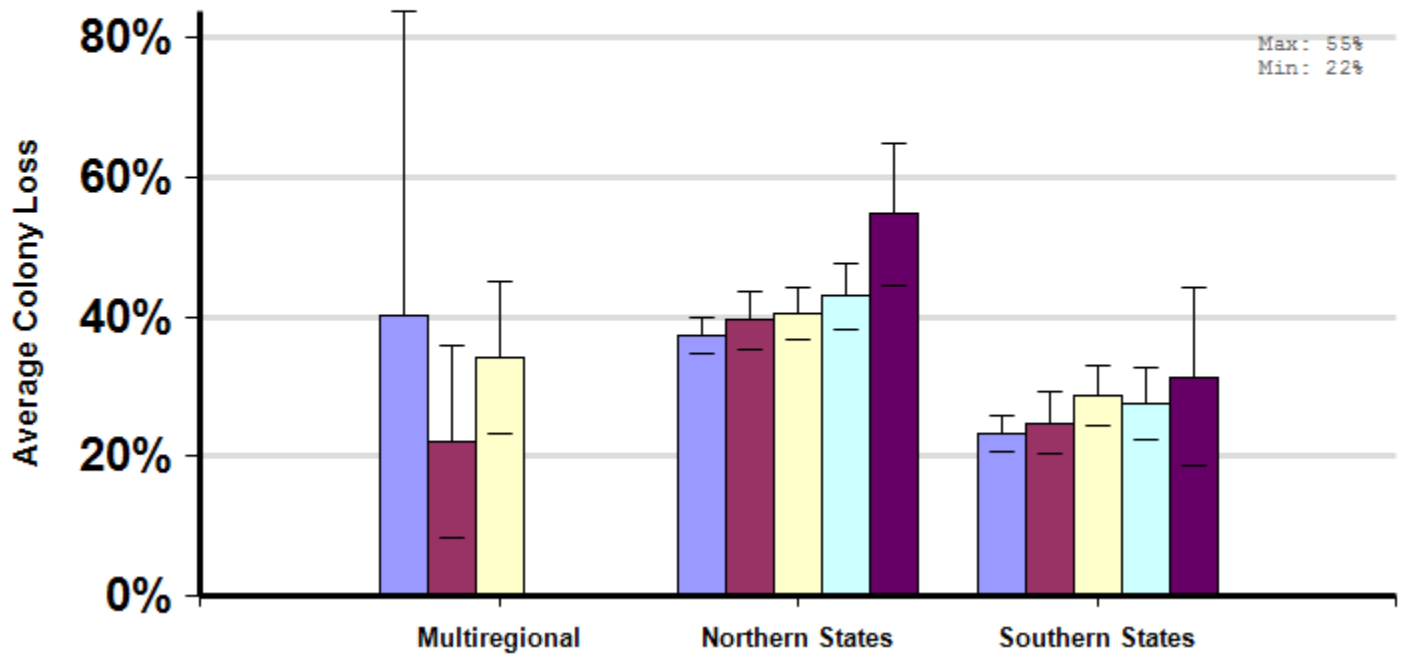
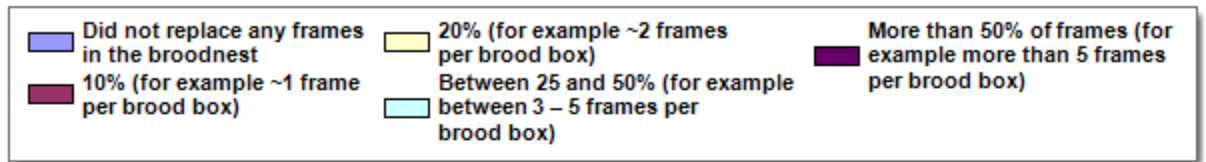
Degree of Brood Comb Replacement By Region

Average winter colony mortality suffered by beekeepers who replaced different percentages of their brood nest comb the previous year by region of operation.

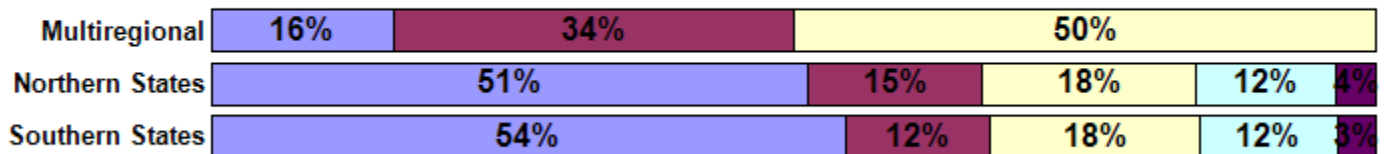
Winter

Report ID: 152

Some Significant Differences (within regions)



Respondent Ratio



Interpretation

Beekeepers in northern states who replaced 50% or more of the comb in their colonies lost on average 17.2 more colonies per hundred than those who did not replace any of the combs in their brood chambers.

Survey Question

31 On average, how many frames from the brood nest of your colonies did you replace last year?

- Did not replace any frames
- 10% (for example ~1 frame per brood box)
- 20% (for example ~2 frames per brood box)
- Between 25 and 50% (for example between 3 – 5 frames per brood box)
- More than 50% of frames (more than 5 frames per brood box)

Don't know
Other (please specify)

		Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
				Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Multiregional	Did not replace any frames in the broodnest	5	13,550	2710.0	945.2	40.3	0.0	83.8
	10% (for example ~1 frame per brood box)	11	21,191	1926.5	565.9	22.1	8.4	35.8
	20% (for example ~2 frames per brood box)	16	128,757	8047.3	5224.8	34.1	23.3	44.9
Northern States	Did not replace any frames in the broodnest	874	6,195	7.1	1.1	37.2	34.6	39.8
	10% (for example ~1 frame per brood box)	256	5,739	22.4	4.6	39.5	35.4	43.6
	20% (for example ~2 frames per brood box)	313	3,861	12.3	1.2	40.4	36.6	44.1
	Between 25 and 50% (for example between 3 - 5 frames per brood box)	204	6,266	30.7	17.9	42.9	38.2	47.6
	More than 50% of frames (for example more than 5 frames per brood box)	60	947	15.8	3.6	54.7	44.4	64.9

Southern States	Did not replace any frames in the brood nest	624	9,064	14.5	4.3	23.3	20.8	25.8
	10% (for example ~1 frame per brood box)	142	3,811	26.8	10.3	24.7	20.2	29.3
	20% (for example ~2 frames per brood box)	205	12,173	59.4	19.1	28.7	24.5	32.9
	Between 25 and 50% (for example between 3 - 5 frames per brood box)	136	16,813	123.6	90.4	27.4	22.3	32.6
	More than 50% of frames (for example more than 5 frames per brood box)	38	636	16.7	6.3	31.3	18.6	44.0

Comments About This Data

This survey was not designed to determine the cause of differences between mortality. That these differences were most pronounced in northern states suggests large amounts of comb replacement maybe detrimental to overwintering survivorship.

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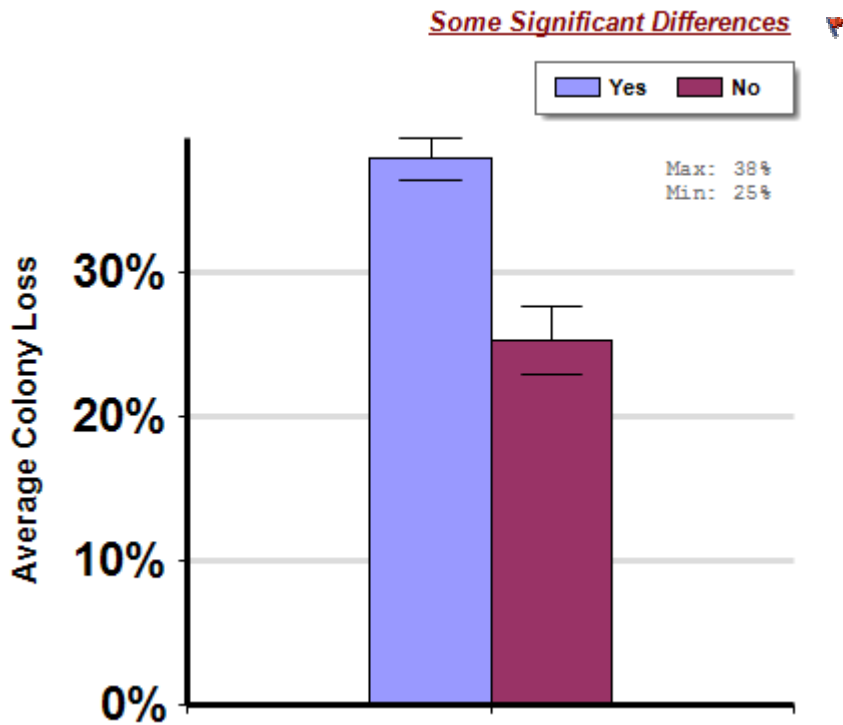


Brood Comb Reuse

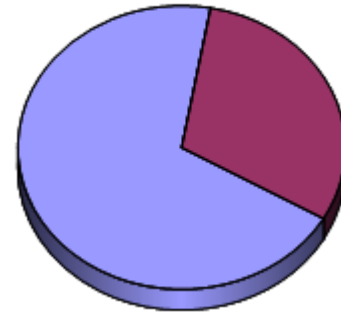
Average winter colony mortality suffered by beekeepers who did or did not re-use any old brood comb in their colonies.

Winter

Report ID: 71



Respondent Ratio



Interpretation

Beekeepers who reported reusing old brood comb in their colonies reported losing on average 12.6 more colonies per 100 (49.5% more) than beekeepers who did not report reusing brood comb that had been taken out of production or purchased.

Survey Question

45. Between 1 April 2010 and 1 April 2011, before you re-used brood comb that you had taken out of production or purchased did you? Check all that apply.

	Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
			Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Yes	2,110	265,614	125.9	43.0	37.9	36.4	39.4
No	926	4,439	4.8	0.4	25.3	23.0	27.7

Comments About This Data

We did not collect data on what proportion of the colonies within operations received reused combs, nor did we collect data on why beekeepers re-used comb.

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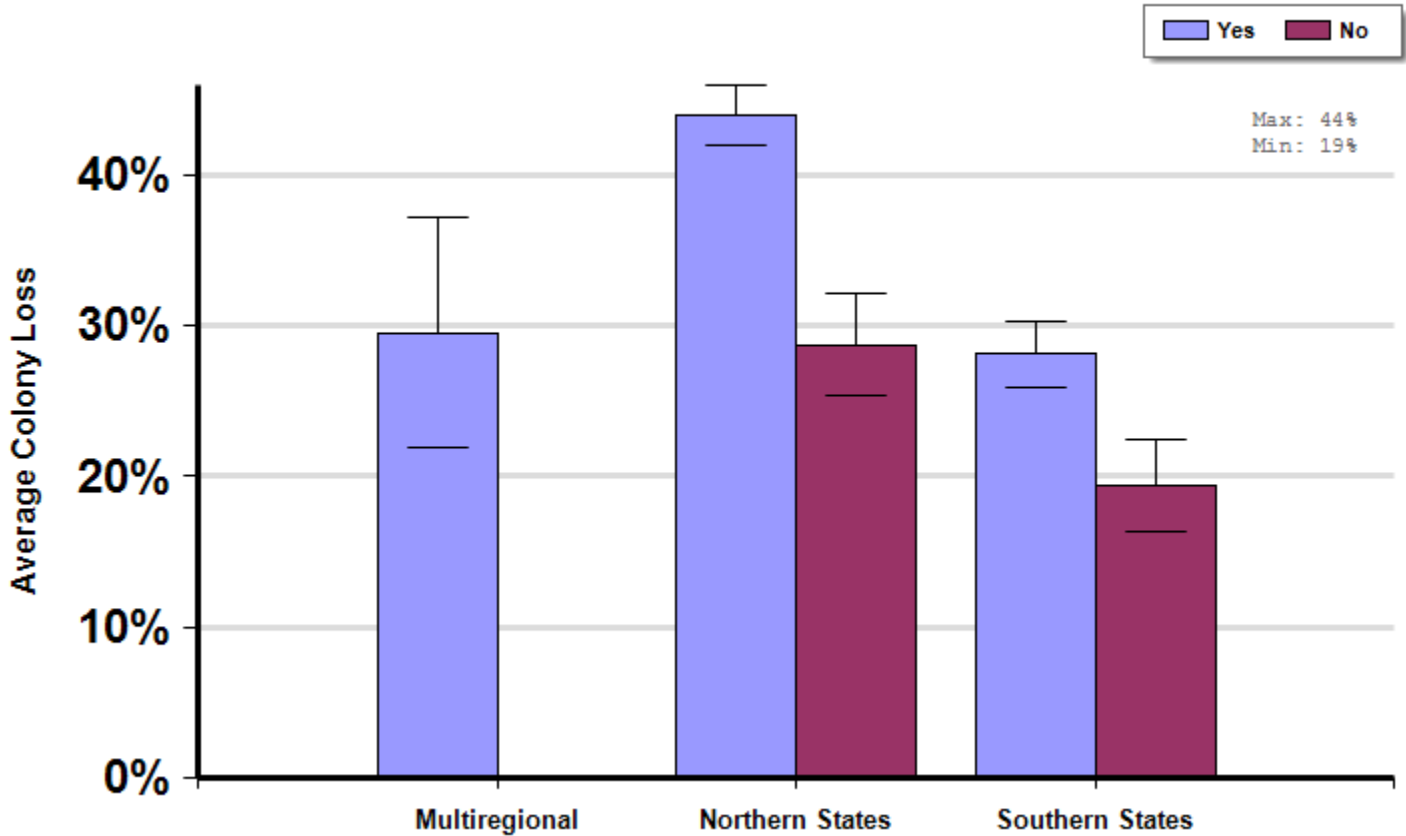
Brood Comb Reuse By Region

Average winter colony mortality suffered by beekeepers who did or did not reuse any old brood comb in their colonies, by region of operation.

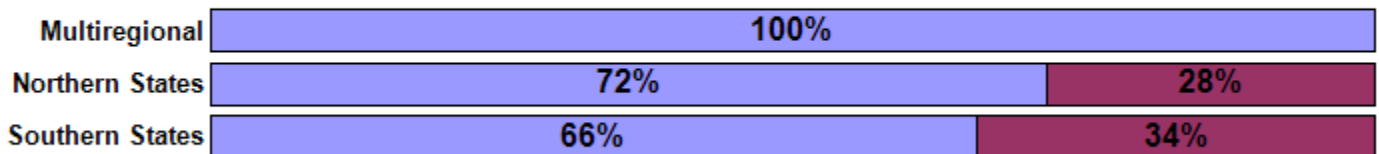
Winter

Report ID: 77

Some Significant Differences (within regions)



Respondent Ratio



Interpretation

In both northern and southern states, beekeepers who reported reusing old brood comb in their colonies reported losing more colonies than those who did not.

Survey Question

45. Between 1 April 2010 and 1 April 2011, before you re-used brood comb that you had taken out of production or purchased did you? Check all that apply.

- I did not reuse any old brood comb
- Cull any particularly old or bad combs and replace them
- Irradiate the comb
- Fumigate the comb with acetic acid

Freeze the comb
 Store the comb with paradichlorobenzene crystals (moth balls)
 Did not treat the comb in any particular way
 Other (please specify)

		Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
				Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Multiregional	Yes	40	197,564	4939.1	2129.4	29.6	21.9	37.3
Northern States	Yes	1,265	22,200	17.5	3.2	44.0	42.0	46.0
	No	497	1,842	3.7	0.3	28.7	25.3	32.2
Southern States	Yes	779	40,829	52.4	17.0	28.1	26.0	30.3
	No	405	2,078	5.1	0.6	19.4	16.3	22.4

Comments About This Data

We did not collect data on what proportion of the colonies within operations received reused combs, nor did we collect data on why beekeepers re-used comb. We plan to gather additional information in future years.

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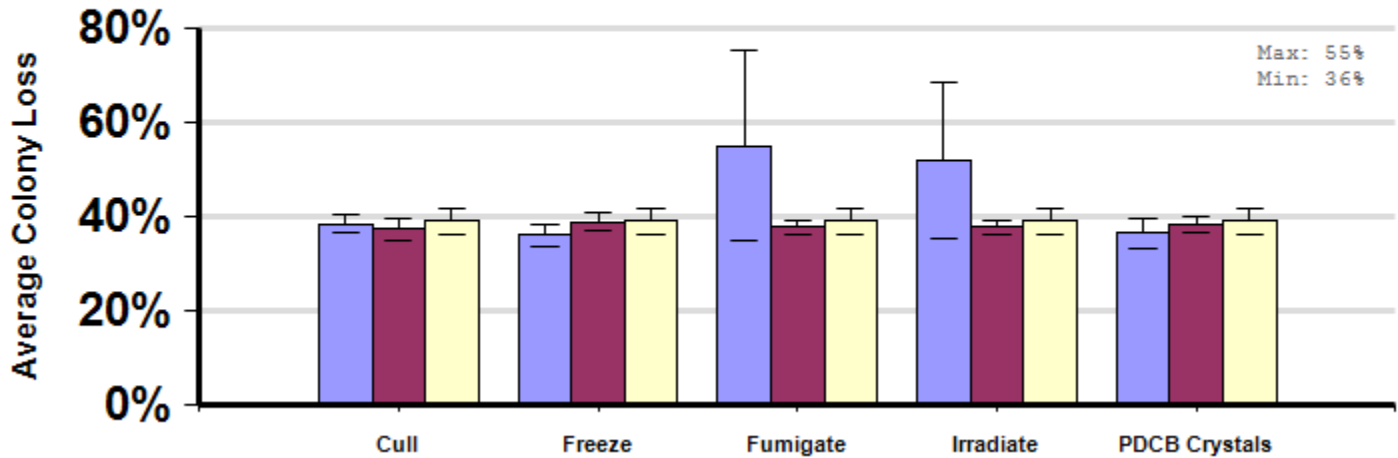
Brood Comb Treatment Before Reuse

Average winter colony mortality suffered by beekeepers who treated brood comb differently before re-using them.

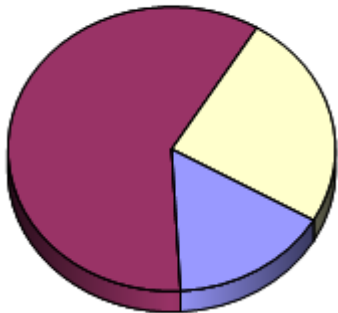
Winter

Report ID: 74

No Significant Differences



Respondent Ratio



Interpretation

There was no difference between groups.

Survey Question

45. Between 1 April 2010 and 1 April 2011, before you re-used brood comb that you had taken out of production or purchased did you? Check all that apply
- I did not reuse any old brood comb
 - Cull any particularly old or bad combs and replace them
 - Irradiate the comb
 - Fumigate the comb with acetic acid
 - Freeze the comb
 - Store the comb with paradichlorobenzene crystals
 - Did not treat the comb in any particular way
 - Other (please specify)

		Total Number of Respondents Providing Valid Responses	Total Number of Colonies Managed	Average Number of Colonies Managed		Average Colony Loss		
				Mean	Standard Error	Mean(%)	Lower 95% CI	Upper 95% CI
Cull	This Technique Used	1,106	212,637	192.3	80.5	38.4	36.4	40.3
	Other Technique Used	1,004	52,977	52.8	17.4	37.3	35.1	39.6
	No Technique Used	689	49,356	71.6	24.4	39.0	36.2	41.7
Freeze	This Technique Used	687	23,678	34.5	13.4	35.9	33.4	38.5
	Other Technique Used	1,423	241,936	170.0	63.4	38.8	37.0	40.6
	No Technique Used	689	49,356	71.6	24.4	39.0	36.2	41.7
Fumigate	This Technique Used	17	4,869	286.4	268.4	55.0	34.9	75.2
	Other Technique Used	2,093	260,745	124.6	43.3	37.7	36.3	39.2
	No Technique Used	689	49,356	71.6	24.4	39.0	36.2	41.7
Irradiate	This Technique Used	22	5,642	256.5	226.6	52.0	35.4	68.6
	Other Technique Used	2,088	259,972	124.5	43.4	37.7	36.2	39.2
	No Technique Used	689	49,356	71.6	24.4	39.0	36.2	41.7
PDCB Crystals	This Technique Used	378	21,010	55.6	20.7	36.5	33.2	39.7
	Other Technique Used	1,732	244,604	141.2	52.2	38.2	36.5	39.9
	No Technique Used	689	49,356	71.6	24.4	39.0	36.2	41.7

Comments About This Data

The number of beekeepers who fumigated comb with acetic acid or reportedly irradiated comb before reuse was small so caution must be used when drawing inferences from these data.

We did not collect data on what proportion of the colonies within operations received reused combs, nor did we collect data on the exact methods by which combs were treated, nor how long the re-used combs were stored. We plan to gather additional information in future years.

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