The New England Apple Scab-Control Practices Survey

Renae Moran and Glen Koehler
University of Maine

Daniel Cooley, Arthur Tuttle, and Jon Clements
University of Massachusetts Amherst

Cheryl Smith, George Hamilton, and William MacHardy
University of New Hampshire

Lorraine Berkett and Terence Bradshaw
University of Vermont

Heather Faubert
University of Rhode Island

Mary Conklin
University of Connecticut

Summary

- Sanitation, a nonchemical approach to disease control, is practiced by 74% of growers in northern New England, an increase of 7% over the last two years. The proportion of acres in which sanitation was 67% in 2012, an increase of 23%.

- Scab indexing, a method to predict disease and to reduce the use of fungicide, is practiced by 24% of growers, an increase of 9% over the last two years.

- In 2014, 28% of apple growers reduced fungicide use on all or part of their apple acreage by using sanitation, measuring the scab index or by growing resistant varieties.

A survey was conducted in spring 2012 and summer 2014 to learn about current apple scab management in commercial apple orchards within New England. Growers were asked nine of 11 questions using SurveyMonkey®, an online survey conducting program. Growers in Maine, New Hampshire, Massachusetts and Vermont were invited to take the survey in both 2012 and 2014. Growers in Rhode Island and Connecticut were invited to take the survey in 2012. In 2012, a total of 490 growers were invited to take the survey and 115 (23%) had responded. In 2014, 77 growers completed the survey out of an estimated total of 300 (100 in Massachusetts, 90 in Maine).

Farm Size

Farm size ranged from 1 acre to over 50 acres. The number of acres represented in the initial survey was estimated to be 3174 in 2012 and 1400 in 2014. Farms greater than 50 acres were estimated to be 100 acres in size. Most farms were less than 10 acres, accounting for over 50% of the farms in the survey (Figure 1). The relative number of midsized farms, by New England standards, or those farms that were 10 to 50 acres in size, accounted for 30%, and large farms represented the smallest sector accounting for less than 20%.

Sanitation

Growers were asked if they had used any sanitation method for scab reduction in their orchard.

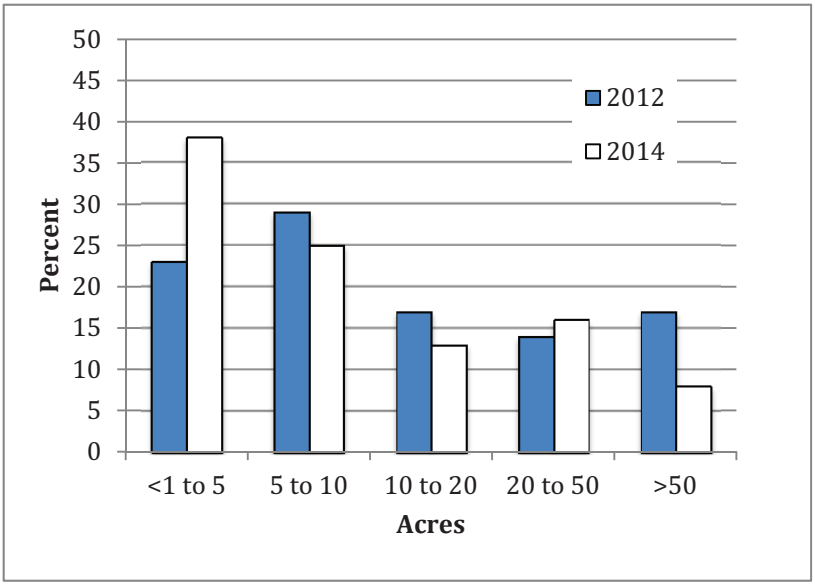

Figure 1. Survey respondent farm size, as a percentage of the total number of respondents. Number of respondents was 115 in 2012 and 77 in 2014.

The majority indicated that they had used some method of sanitation in their orchards, 67% in 2012 with an increase to 74% in 2014. The estimated proportion of acres that were given sanitation was 44% in 2012. This increased to 67% in 2014.

The most commonly used method of sanitation was flail mowing in spring or fall, with 70% mowing once during either time. The practice of applying urea to trees in fall increased from 24% in 2012 to 38% in 2014. Few growers applied urea to the ground in fall or spring, generally less than 20%.

In 2012, 33% of the growers indicated that they did not use sanitation in their orchards. This decreased to 26% in 2014. The most common reasons for not using sanitation was the lack of a flail mower and lack of time when it needed to be performed.

Scab Indexing

The scab index or PAD, which is measured by counting the number of shoots that have scab in September or October, was not used as frequently as sanitation. In 2012, only 15% of growers surveyed indicated that they routinely do a scab index. However, this increased to 24% in 2014. Lack of time when it needed to be done and not knowing how to do an index were the most common reasons for not measuring the index. In 2012, 4% of growers indicated that they did not do indexing becasue their varieties were resistant to scab and therefore, an index was not needed. This increased to 7% in 2014.

Reducing the Number of Fungicide Sprays

Most growers, 87%, plan to apply the first non-copper fungicide at either green tip or at half-inch

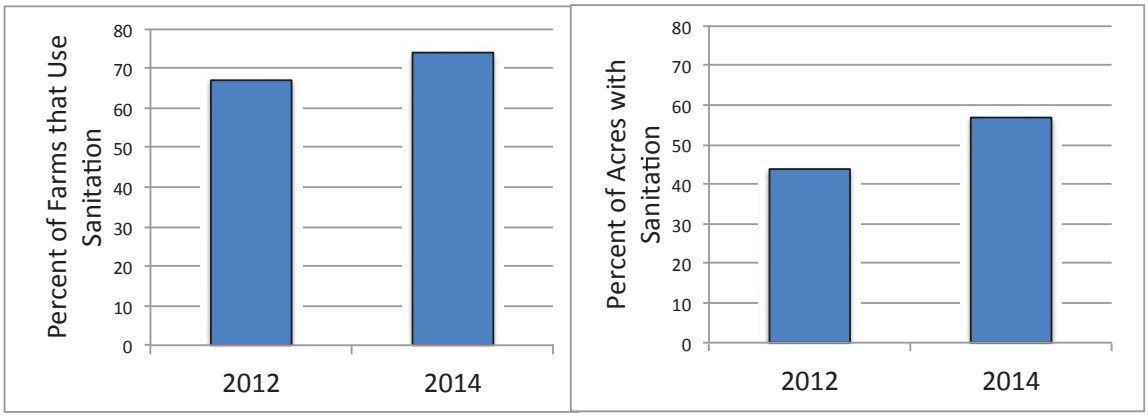

Figure 2. The percentage of farms where sanitation is used as a method for scab control and the percentage of acreage where sanitation is practiced.

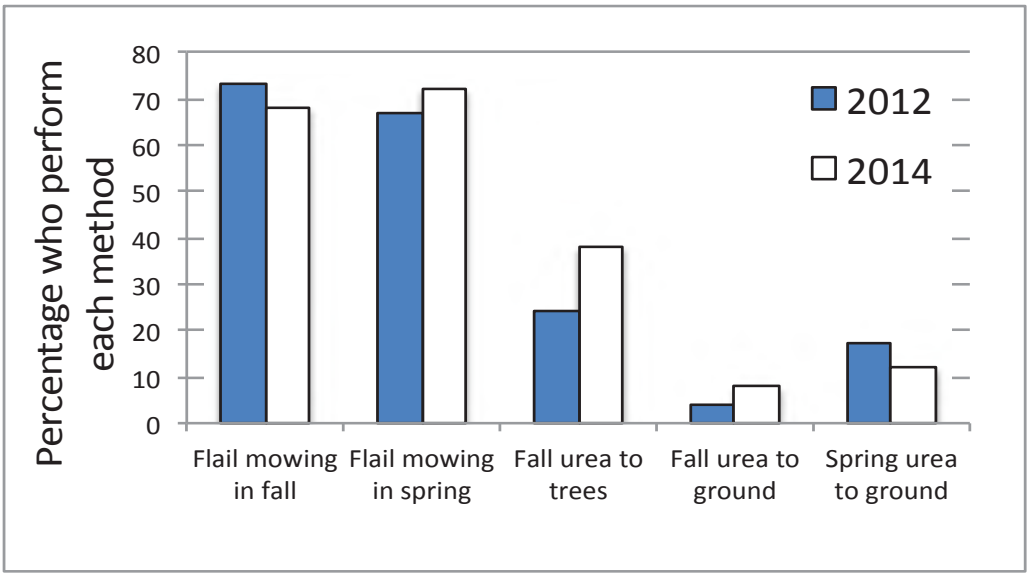

Figure 3. Scab sanitation methods used by New England apple growers. Some growers indicated more than one method being used in their orchard.

green. In 2012, 21% percent indicated that they delay the first scab fungicide to tight cluster or later. In 2014, 13% of growers indicated that they delay fungicide. However, when growers were asked how many acres were not sprayed until tight cluster or later, 28% indicated that they delayed fungicide use on 7% of the total apple acreage in 2014.

The majority of growers indicated an interest in reducing fungicide use, and close to 30% of growers already do it on all or part of their orchards. A greater number of growers would consider reducing fungicide use with greater access to disease forecast models, and additional training in methods that reduce disease.

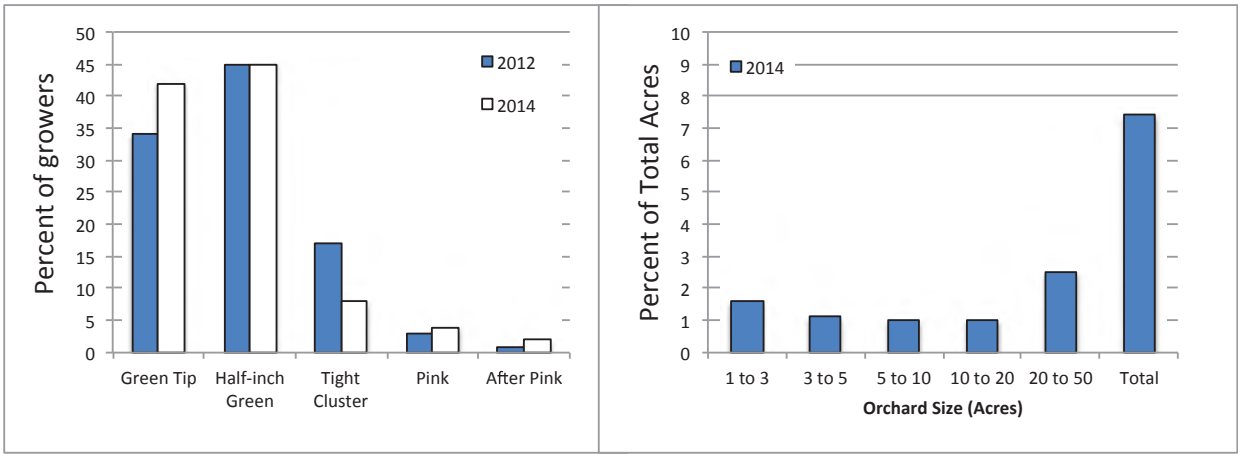

Figure 4. Bloom stage when the first non-copper fungicide is applied in apple orchards and percentage of apple acres that are not sprayed until tight cluster or later.

Survey Questions

1. Please, indicate the number of acres of managed apple orchards in your operation.

Answer Options	Response Count		Response Percent		Estimated Acres	
	2012	*2014*	*2012*	*2014*	*2012*	*2014*
1 to 5	27	29	25	38	81	73
5 to 10	33	19	29	25	248	142
10 to 20	19	11	17	14	285	165
20 to 50	16	12	14	15	560	420
>50	20	6	17	8	2000	600
Total	115	77			3174	1400
Skipped question	0	0				

2. Have you used scab sanitation methods in your orchard?

Answer Options	Response Count		Response Percent	
	2012	*2014*	*2012*	*2014*
No	38	20	33	26
Yes, (in all orchards*)	77	41	67	53
Yes, in some orchards*	--	16	--	21
Answered question	115	77		
Skipped question	0	0		

*not asked in 2012

3. If you have NOT used scab sanitation, please indicate why (select all that apply):

Answer Options	Response Percent	
	2012	*2014*
I do not know how to use scab sanitation.	16	26
I do not think sanitation makes a difference in the amount of scab in my orchard.	16	26
Scab sanitation requires extra time when I have none to spare.	43	37
I want to winterize my sprayers and not use them in the fall when there is risk of freezing.	22	11
Apple leaves do not fall early enough in the autumn to allow for ground application of urea before the ground is covered by snow.	30	16
I do not have a flail mower.	54	58
There is not enough time between removing winter prunings and bud break to do spring sanitation treatments.	45	21
I cannot run a flail mower before budbreak because soil is too wet for tractor traffic or because the flail will do too much damage to grass sod.	30	16
Answered question	37	19
Skipped question	1	1

4. Which of the following might help you consider using orchard sanitation? Please, select all that apply.

Answer Options	Response Percent	
	2012	*2014*
A better understanding of the benefits of orchard sanitation and how it works.	47	58
Demonstrations of sanitation in orchards managed by growers and/or at the University research farm.	43	41
I am not interested in using scab sanitation.	23	35
Answered question	30	17
Skipped question	8	3

5. Approximately how many acres were given scab sanitation treatment(s) in recent years?

Answer Options	Response Count		Response Percent		Estimated Acres	
	2012	*2014*	*2012*	*2014*	*2012*	*2014*
<1 acre	3	4	4	7	2	2
1 to <3 acres	11	11	15	19	24	22
3 to <5 acres	12	11	16	19	48	44
5 to <10 acres	19	13	26	23	142	98
10 to <20 acres	12	8	16	14	180	120
20 to <50 acres	7	6	10	11	245	210
>50 acres	10	4	14	7	750	300
Total	74	57			1389	796
Skipped question	41	0				

6. Which of the following sanitation methods are done in your orchard? Select all that apply.

Answer Options	Response Count		Response Percent	
	2012	*2014*	*2012*	*2014*
Flail mowing in fall.	51	34	73	68
Flail mowing in spring.	47	36	67	72
Urea applied to trees in fall.	17	19	24	38
Urea applied to the ground in fall.	3	4	4	8
Urea applied to the ground in spring.	12	6	17	12
Answered question	70	52		
Skipped question	45	25		

7. Please, indicate which of the following describes the use of fall scab indexing (PAD assessment) in your orchard (select all that apply):

Answer Options	Response Count		Response Percent	
	2012	*2014*	*2012*	*2014*
I do not know how to do a fall scab index.	38	24	36	35
I grow varieties with good resistance to scab and therefore do not need it.	4	5	4	7
I am not confident that my scab index would be accurate.	20	9	19	13
I have no time in September to do a scab index.	39	16	37	24
I will not use a delayed first spray strategy the next spring, so there is no gain from doing it.	25	20	24	29
I normally do a scab index in all or part of my orchard.	16	16	15	24
Answered question	105	68		
Skipped question	10	9		

8. Which of the following describes your reasons for doing a scab index (select all that apply):

Answer Options	Response Count		Response Percent	
	2012	*2014*	*2012*	*2014*
To determine if I can save time and money by delaying the first scab fungicide next spring.	10	12	11	19
If the scab level is high, I want to figure out why, do sanitation measures, and give priority to that block for scab control next spring.	21	13	22	21
It is worth it to have a measure of the scab level in the orchard, whether or not I am going to delay the first scab fungicide next spring.	21	14	22	22
I do not perform a scab index in my orchards.	64	40	68	64
Answered question	94	62		
Skipped question	21	15		

9. When do you normally plan to make your first fungicide application, excluding copper, in blocks that had good scab control last year?

Answer Options	Response Count		Response Percent	
	2012	*2014*	*2012*	*2014*
Green Tip	36	29	34	42
Half-inch Green	47	31	45	45
Tight Cluster	13	2	12	3
Pink	3	3	3	4
After pink	1	1	1	2
Timing is based on the risk of scab in each orchard, but is regularly delayed to tight cluster or after in at least one orchard.	5	3	5	4
Answered question	105	69		
Skipped question	10	8		

10. Approximately how many acres were not treated sprayed with fungicide until tight cluster or later in 2014?*

Answer Options	Response Count	Response Percent	Estimated Acres
None	50	72	0
1 to <3 acres	11	16	22
3 to <5 acres	4	6	16
5 to <10 acres	2	3	15
10 to <20 acres	1	1.5	15
20 to <50 acres	1	1.5	35
Total	69		103
Skipped question	8		

*Question not included in 2012 survey

11. Which of the following might help you consider delaying the first scab fungicide spray in low scab risk orchards (select all that apply).

Answer Options	Response Count		Response Percent	
	2012	*2014*	*2012*	*2014*
Training in scab sanitation and in doing a fall scab index.	36	23	37	36
Demonstration of delayed first spray in grower orchards.	39	21	40	33
Demonstration of delayed first spray in a university research orchard.	30	16	31	25
Access to disease model forecasts for timing and relative severity of primary scab infection periods.	47	30	48	47
I am not interested in delaying the first scab spray.	25	14	26	22
Answered question	98	64		
Skipped question	17	13		

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