

Antibiotic Use by Organic Apple and Pear Growers

Results of a survey conducted by The Cornucopia Institute

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C O R N U C O P I A

I N S T I T U T E

The Cornucopia Institute conducted a survey of 764 organic apple and pear producers in February and March of 2013 to determine their practices for control of fire blight. The survey was sent to all Cornucopia organic farmer-members producing tree fruit and all identifiable growers on the USDA's National Organic Program database. We received 85 responses (11%). Of those, 72 were apple growers; 32 were pear growers (some farmers grow both). The responses from apple and pear growers were tabulated separately.

The survey respondents represented a diversity of farm sizes, organic experience, and geographic locations. The acreage under organic cultivation ranged from 1 to 800 acres of apples, and from 1 to 600 acres of pears. Some farmers grew up to 800 acres of conventional tree fruits, in addition to their organic acreage.

Table 1. Overview of respondents

	Apples	Pears
Number of responses	72	32
Acres of organic fruit	1 to 800	1 to 600
Percent with conventional tree fruit	31%	28%
Acres of conventional fruit	Zero to 800	Zero to 800
Years of organic certification	2 to 30	1 to 25

Responses were received from the following states: California, Colorado, Illinois, Iowa, Maine, Massachusetts, Michigan, Montana, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Vermont, Washington, and Wisconsin.

Results

The complete survey questions and the letter sent to growers are in the Addendum.

The following questions are paraphrased from the survey:

Do you use antibiotics on your organic apple or pear trees?

	Apples	Pears
Yes (streptomycin or tetracycline)	44% (32)	66% (21)
Tetracycline	24% (17)	53% (17)
Streptomycin	32% (23)	22% (7)
No	56% (40)	34% (11)

(The number in parentheses is the number of respondents)

Growers were asked if they used tetracycline or streptomycin. The majority of the growers used only one antibiotic, although some used both antibiotics; therefore, the total number of “yes” answers best reflects antibiotic use.

How often do you spray antibiotics to control fire blight?

	Apples	Pears
Never	56% (40)	34% (11)
Once every few years, only if needed	25% (18)	31% (10)
Every year	7% (5)	3% (1)
Several times a year	13% (9)	34% (11)

(The number in parentheses is the number of respondents)

What practices do you use to prevent fire blight?

	Apples	Pears
Biological controls	21% (15)	34% (11)
Blossom thinning	39% (28)	34% (11)
Resistant rootstocks	31% (22)	28% (9)
Resistant apple or pear varieties	32% (23)	19% (6)
Bordeaux mix (copper sulfate / lime)	36% (26)	19% (6)
Limited nitrogen fertilizer	35% (25)	44% (14)

How would a prohibition of antibiotics affect you?

	Apples	Pears
No effect	44% (32)	31% (10)
Use more biological and cultural controls to prevent fire blight	19% (14)	25% (8)
Stop growing organic fruit, switch to conventional fruit production	28% (20)	25% (8)
Stop growing organic fruit, but grow other organic crops	0%	0%
Stop growing certain varieties of organic fruit	15% (11)	19% (6)
Stop farming altogether	1% (1)	0%
Lose money	15% (11)	25% (8)

Discussion:

The purpose of this survey was to provide information as to whether antibiotics are essential for fire blight control in apples and pears. The data strongly indicates that antibiotics are not essential, because 56% of apple growers and 34% of pear growers responded that they do not use these antibiotics. More specifically, the data indicate that tetracycline is not essential for organic apple production, because only 24% of apple growers reported using tetracycline.

Recent research has indicated that a combination of blossom thinning and biological controls are as effective as antibiotics in managing fire blight¹. Yet, only 21% of apple growers and 34% of pear growers indicated that they use biological controls. This indicates that effective controls are available, but they are not being widely adopted by organic growers. Orchardists simply prefer to use antibiotics, perhaps due to lower cost or the need for fewer sprays. Orchardists who were previously engaged in conventional production may simply be continuing to use techniques that they have found successful in the past.

The discussion of antibiotics in tree fruits has parallels with antibiotics in livestock. When the abolition of antibiotics was first proposed in organic dairy production in the early 1990s, organic farmers claimed it would be impossible to produce milk without their arsenal of antibiotic drugs (mostly to treat mastitis). After the prohibition against antibiotics went into effect, dairy producers concentrated on preventing mastitis and, when necessary, treating cows with herbs and other alternative measures. Today, a thriving organic dairy sector exists without the use of antibiotics.

What will happen if antibiotics are prohibited in organic apples and pears? At this time, 63% of apple growers and 56% of pear growers will continue to grow organic fruit, based on the respondents who stated that the ban will have no effect or will require them to use more organic and cultural controls. As research on alternative fire blight management continues for the next two years, this percentage will likely increase. Based on these numbers, we question whether antibiotics are essential for organic tree fruit production.

¹ Johnson, K. 2013. *Research Update on Non-antibiotic Control of Fire Blight*. Webinar date March 19, 2013. www.extension.org/organic_production