

2016 DRAINAGE SURVEY [85 respondents]

The 85 respondents reported here were the decision makers for their farms and reported farm acreage. Other respondents were not the decision maker.

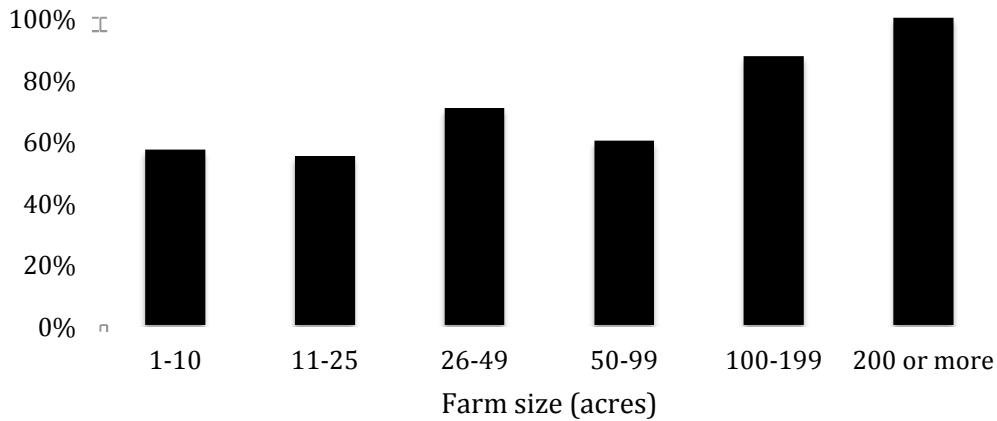
Do you have tile drains on your farm?

57 growers (67%; 7305 acres) had tile drain installed on some of their acres
percent of those acres in tile is not known

28 growers (33%; 708 acres) had no tile drains

□

Percent that have drains, by farm size
(2016)



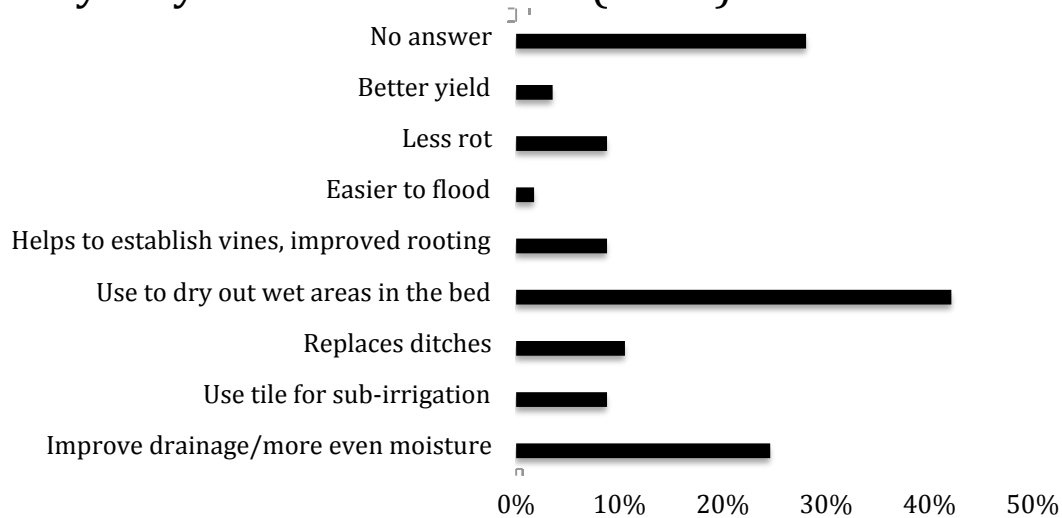
Similar trend to previous years. Larger growers are more likely to have drain installed on at least some of their acres.

The following questions were specific to those who have tiles. **n=57**

- 1) How many acres have tile? **1726** (but 7 did not answer this)
- 2) How many acres were installed after 2012? **747** (43% of those reported in #1)
- 3) Do you plan to install in 2016? **184 acres** 2017? **163 acres**

4) Top 2 reasons you install tile.

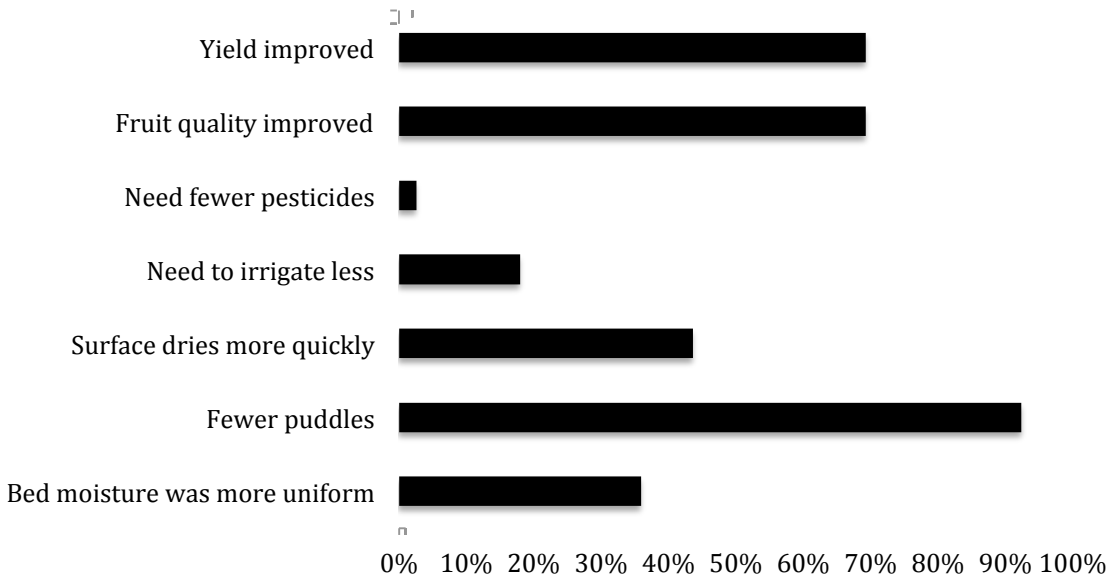
□ Why do you use tile drains? (n=57)



5) Have you retrofit tiles (installed into existing beds)? 39/57 answered yes (68%)

6) After retrofitting, what did you observe?

□ After retrofitting tiles -
What did you observe? n=39

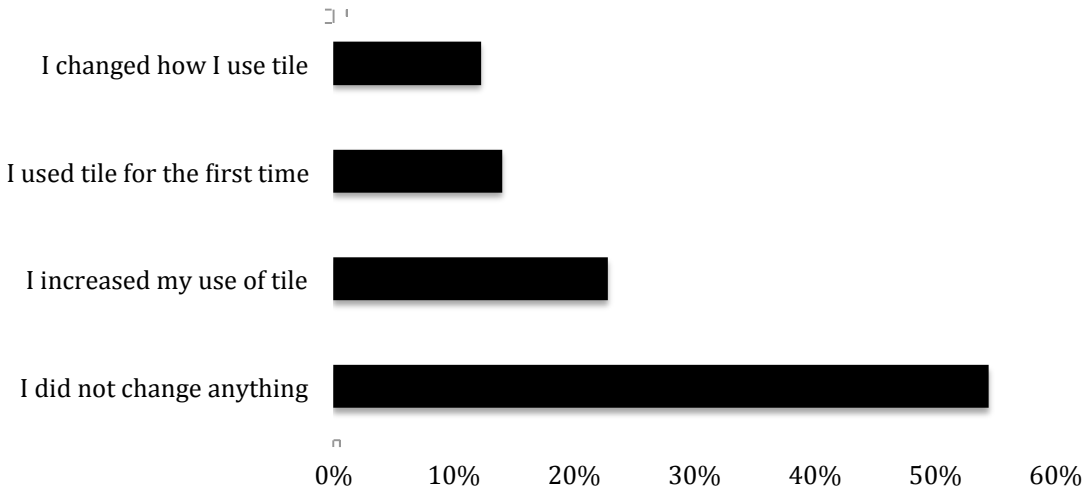


7) Has performance declined in your tiles over time? **20/57 (35%) said YES**

8) How did this project affect you?

□

How did information from this project change you? n=57



9) What more would you like to learn? **N=85** (same question asked of all respondents)

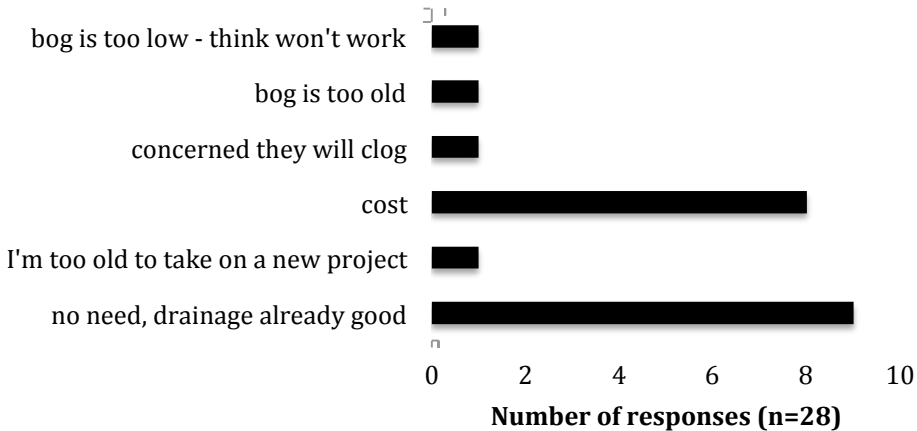
- | | |
|---------------------------------------|--|
| more about 20' spacing | can you flush them? |
| effectiveness over time (4) | use with crushed stone or fabric (2) |
| best tile to use | optimum depth |
| impact on yield | do they promote chemical movement? |
| impact on mud weed (yellow loostrife) | more about NJ use of plowed in 2" drains |

The following questions were specific to those who DO NOT have tiles. **n=28**

1) Why have you not installed tile?

□

Why have you not installed tiles?



2) Will you install in 2016? 2017? 2 among all 28 have plans to add tiles

3) What might change your mind about installing tile? Most did not answer. One wanted to learn about the 2" tiles reported to be used in NJ.

Of the 57 respondents that used tiles, 39 had retro-fitted tiles into existing beds. In addition to improvements in drainage and soil moisture, 70% reported observing increased yield and reduced fruit rot. This reinforces the case that we have been making for more than 10 years that saturated soils lead to reduced yield and quality. Large acreage growers were more likely to have tiles installed on at least some of their acreage (similar in 2012 and 2016 surveys). Respondents in the 2012 survey were using tiles on renovations, new plantings, and established beds (retro-fitting tile into the beds). More than 80% responded that they were very likely or likely to include tiles in any renovation.

In our 2013 survey, 60% of respondents, representing 83% of the acreage reporting, had tile on 30% of their acres. By 2016, 67% of respondents, representing 91% of the acreage reporting, had tile on more than 25% of their acreage (7 of 57 did not report acres in tile). Of course, these are not necessarily the same respondents. In 2013, 1956 of the 7600 acres reporting were tiled. In 2016, 1726 of 8013 acres reported tile installation. Seven growers who reported having tile did not report the number of tile acres out of their total reported acreage. These data alone do not indicate an increase in tile use.

However, in January of 2016, we specifically asked respondents how much of their drainage was installed after we began this project in 2012. Of their 1726 acres of tiled bog, 43% of the tile was installed since 2012. Those growers also planned to install tile on an additional 347 acres in 2016-2017.

The pace of installation of drains for those growers who already have installed some drains appears to be steady. However, growers without drains installed are less likely to install them. Is this due to lack of interest, or conviction? This is uncertain since we did not ask that question. In 2014, reasons for not installing were split between financial constraints and lack of conviction (bad experiences, not convinced, adding ditches instead - likely less expensive).

Those with drains that plan to install more are most likely satisfied with the practice and they plan to install more. However, current financial times are hard in the cranberry industry, so it makes sense that since those with drains are mostly larger growers with better access to capital and equipment, they are more likely to be able to afford to install more tile. This also follows from the indication in our first survey that a major reason to install is when renovating or planting new beds; 59% cited this as their motivation in 2015. Again, renovation and new plantings are not likely options for small growers in the current financial climate.