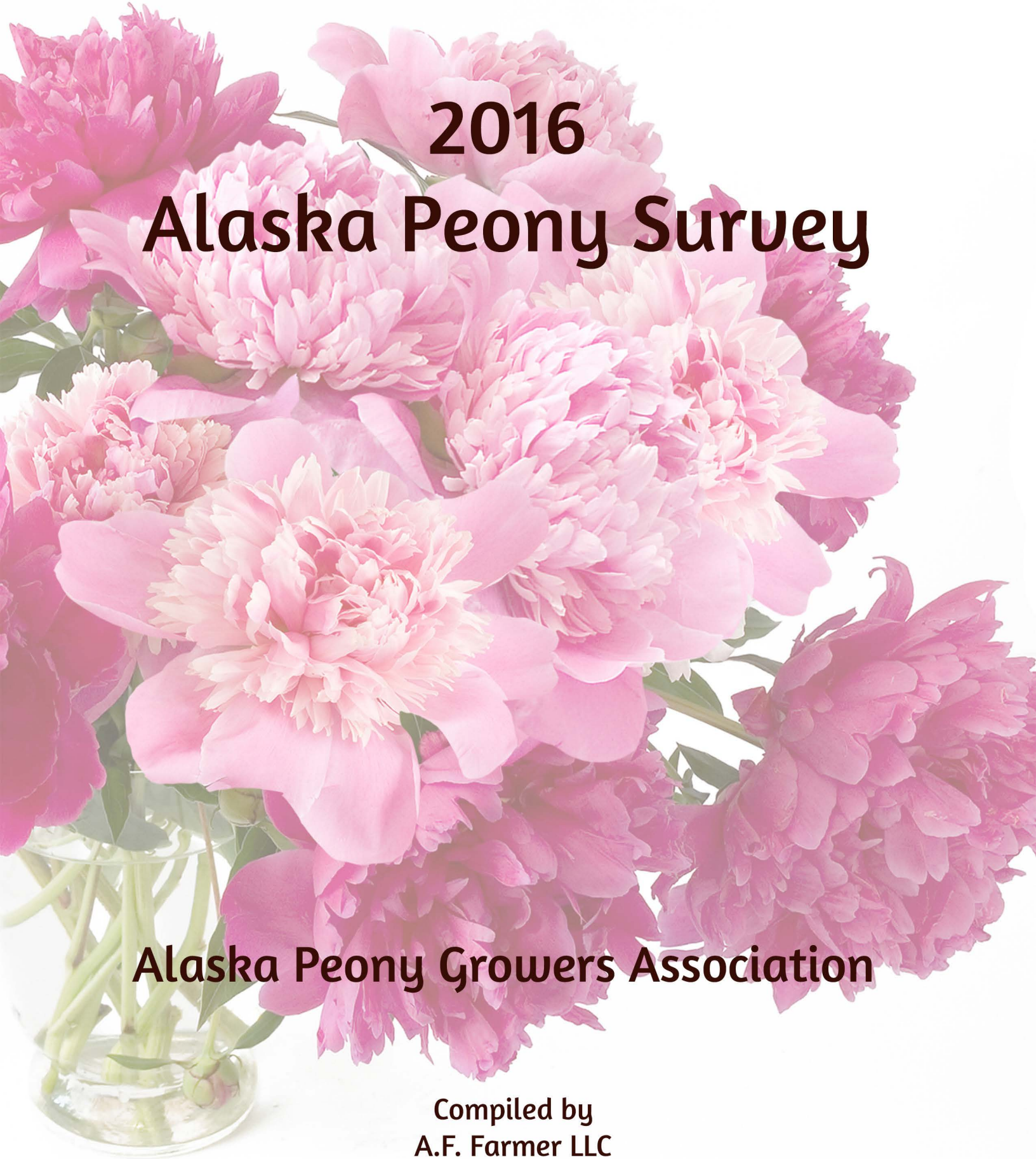

2016
Alaska Peony Survey

Alaska Peony Growers Association

Compiled by
A.F. Farmer LLC
Fairbanks, Alaska

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2016 Peony Survey

Introduction and Methods

A 40-question survey (Attachment 1) was designed using the Alaska Peony Growers Association (APGA) Peony Industry Survey, 2014 as a template. The survey was designed and implemented using SurveyMonkey online data system (surveymonkey.com). Original questions were developed by APGA members in cooperation with the University of Alaska Fairbanks Agricultural and Forestry Experiment Station (Holloway and Buchholz 2013[1]). Wording for the 2015 survey was changed to clarify some questions and to reflect grower requests for information.

The survey was sent to all respondents from the 2015 survey, all current members of the APGA and non-member growers who are part of a cooperative or other sales organization. In addition, a paper copy of the survey was mailed upon request to anyone who could not access the online forms. The survey was released, 25 January 2017, and reminders were sent 25 Jan, 28 February, and 23 March with an announcement during the APGA annual conference. The survey document was closed on 10 April. 2017.

Results and Discussion

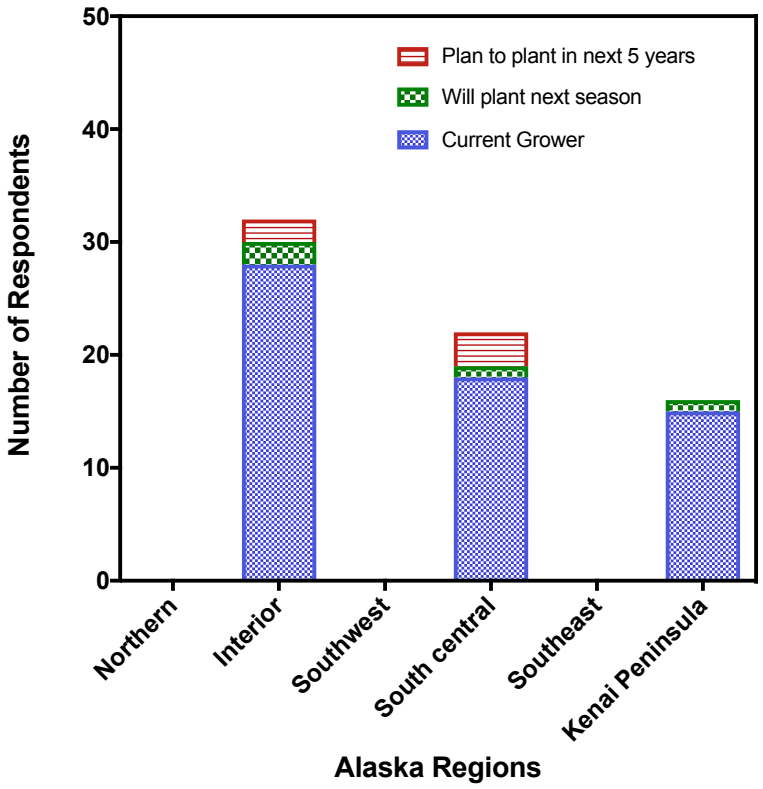
Respondents

The email survey was sent to 222 emails. This list comprised every individual who attended a meeting or class, responded to previous surveys, was a current or former member of APGA, members of Alaska co-ops and packhouses, and any contacts who expressed an interest in growing peonies. The list includes current growers as well as people who might have attended a meeting, decided peony growing was not for them, and never pursued a business.

The survey was opened by 152 recipients. Three individuals on the original list opted out of the survey, while 16 recipients had un-workable emails. The total number of workable contacts was 203 individuals/farms for a response rate of 34 percent. Responses among APGA commercial growers was 85 percent. Forty-five percent of the respondents were located in the Interior Region, 30 percent in South Central Region, 24 percent from Kenai Peninsula, and 1 percent from Southeast Region.

[1]Holloway, P. and K. Buchholz. 2013. The state of the Alaska Peony Industry 2012. University of Alaska Fairbanks Agricultural and Forestry Experiment Station Misc. Pub 2013-03.

Fig. 1. Respondents by location completing the peony survey and their status as growers

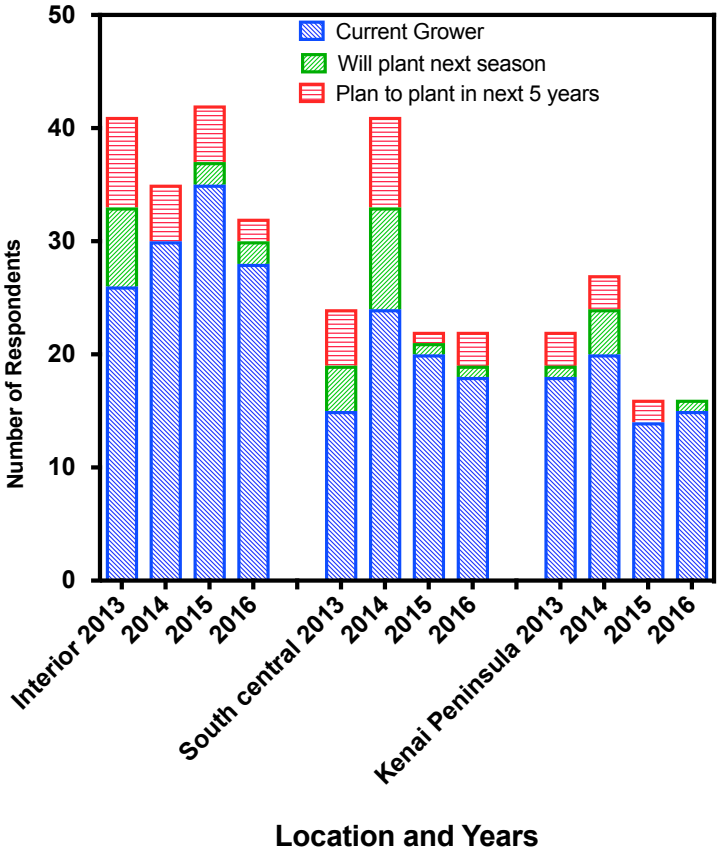


Sixty-one respondents indicated they had roots in the ground as of fall, 2016 (Fig 1). Four respondents plan to plant in 2017, and 5 respondents will plant within the next five years. In 2016, as in 2015, most of the growth in the number of farms was in the Interior Region. Plans to plant in 2016 and in the next five years, will be slightly higher in the Interior region, but new growth in all regions will amount to only one or two new farms. The Interior and South Central Regions had up to three respondents who plan to plant in the next 5 years. No new growers were identified on the Kenai Peninsula in the next 5 years.

No peony growers responded from Southwest or Northern Alaska Regions in 2016. One respondent from Southeast Region stated they had abandoned plans to plant commercial fields in the next year or the near future.

In 2016, the Interior region showed the largest decrease in growers with roots in the ground compared to South Central and Kenai Peninsula Regions over 2015 levels (Fig. 2). The number of respondents in the Interior with roots in the ground was reduced by seven farms. This reduction could be because 2015 respondents did not complete the survey in 2016, but at least three growers indicated that because of poor site conditions, poor plant survival, or lack of time, they were "getting out of the peony business". The predicted new plantings in 2016 did not offset the losses of growers with roots in the ground. Only two respondents indicated plans to plant in the next five years compared to five respondents in 2015.

Fig 2. Respondent numbers by year and location

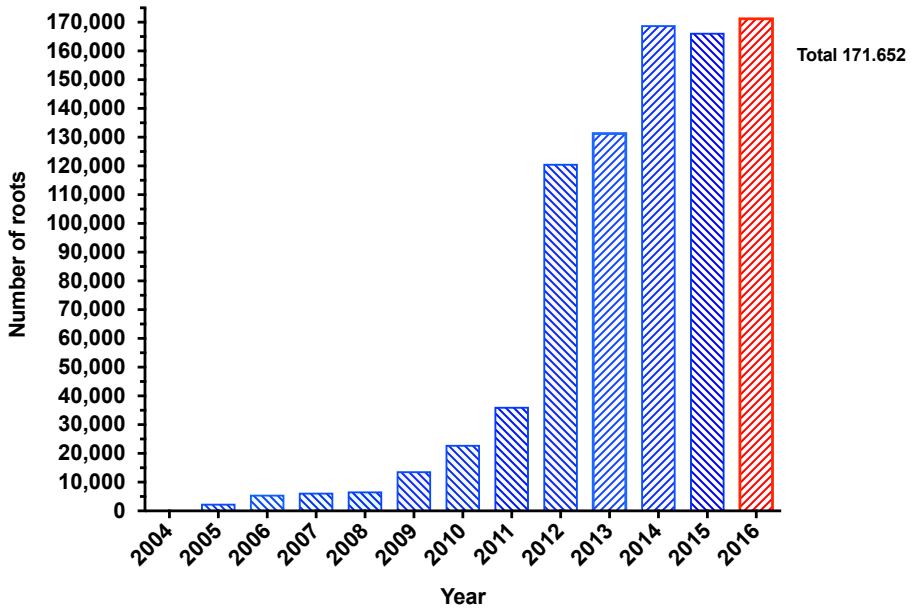


The South Central Region showed a reduction of three farms from 2015 levels. The predicted spike in new and future growers from 2014 did not materialize into new grower numbers in 2015 and 2016. The Kenai Peninsula Region showed a similar, but smaller, spike in interest in 2014, and it, too, did not materialize. The Kenai Peninsula gained two growers with roots in the ground in 2016 but future growth is predicted to be slow (one new farm in 2017, and none thereafter).

Roots in the Ground, Fall 2016

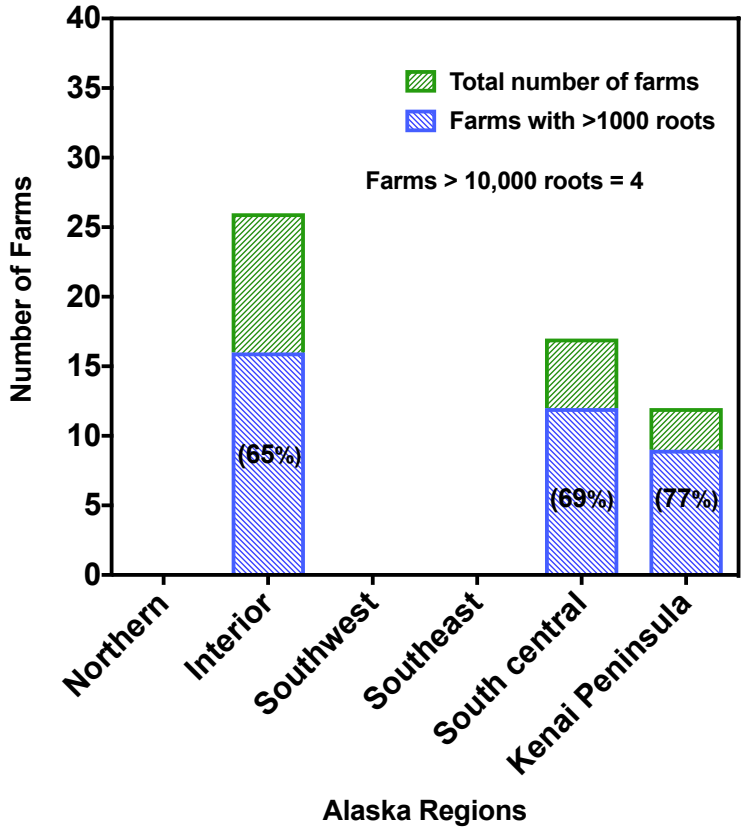
The total number of roots in the ground as of fall 2016 reflects roots planted through last season plus losses recorded from winterkill and other causes. Fifty-five respondents reported 171,652 roots in the ground in 2016, an overall increase of 5305 roots statewide. For the 55 respondents, the number of roots averaged 3121 roots per farm (Fig. 3,4). These numbers reflect an increase in total roots in the ground and a slight increase of 675 roots per farm over 2015 levels. Although the total number of farms with roots in the ground decreased from previous years, these numbers show that established farms continue to add plants to their existing acreage.

Fig. 3. Roots in ground, Fall 2016



Thirty-eight of respondents (69%) reported having >1000 roots in the ground in 2016 (Fig 4). The size of farms changed in all regions from 2015 levels with an increase of 18% (Interior) and 25% (South Central), and a decrease of 10% (Kenai Peninsula) with >1000 roots. The Kenai Peninsula had fewer farms overall, but 77% of the farms had >1000 roots in the ground. Four farms had 10,000 or more roots, three in the Interior and one in the Kenai Peninsula Region.

Fig 4. Total number of farms per region with roots in the ground in 2016 and those with >1000 roots



Number of Roots per Farm
Maximum = 15,000
Minimum = 35
Mean =3121

The maximum number of roots on a single farm was reported from the Kenai Peninsula Region at 15,000 roots, and the fewest reported, 35 roots, was in the Interior Region. The largest farm location did not change from 2015 (15,000 roots). Four farms reported 10,000 or more roots in the ground in 2014. That number decreased to three farms in 2015, but was back up to 4 farms in 2016. The 2015 data probably was a respondent error in data entry in 2015.

Root Winterkill, Injury - Interior Region

Sixty-two percent of farms in the Interior reported some plant losses in 2016 compared to 68 percent in 2015. The average plant loss per farm was 6 percent (range 0 – 35%); 42 percent of farms had losses of 10 percent or less. A top complaint in 2015 was that plants did not grow well after planting. Weak growth from the beginning. This observation dropped to third place in 2016. Root quality issues from the supplier continue to be significant. Three issues present in previous years that did not show up in 2016 were:

1. Plants showed disease, viruses that possibly killed them
2. Roots may have been planted too deeply
3. Roots were planted in pots and not protected well enough from desiccation over the winter

Losses were attributed to (ranked highest to lowest responses):

1. Don't know (7)
2. Poor root quality from suppliers (5)
3. Plants did not grow well after planting. Weak growth from the beginning (5)
4. Plants were stressed by environmental conditions – drought, lack of irrigation, drying winds (5)
5. Winterkilled – buds too shallow, exposed to freezing temperatures (2)
6. Moose damage (trampling) (1)
7. Winterkilled- repeated freezing and thawing of soils in winter (1)
8. Roots rotted because of too much rainfall, poor drainage (1)
9. Voles tunneled into the ground around roots, exposing them (1)
10. Winter killed – too low or no snow (1)

Additional comments from growers:

"In 2016, I suffered a devastating hail storm that damaged the buds, stems and leaves that made them unsalable. It was very hard to manage all the dead and dying

leaves because it was a great place for mold to start but I couldn't cut down all the stems for fear of damaging the whole plant! I was literally ripping hanging sections of leaves off to save what was left. This was far worse than any bug, soil condition or mold problem combined. I'm keeping my fingers crossed that they will come back in 2017!"

"We had one variety (Ben Franklin) that did not return very well at all. We think it's just weaker roots because we did not see this in other varieties and had 95% return on those or higher."

Root Winterkill, Injury - South Central Region

Thirty-eight percent of farms in the South Central Region reported some plant losses in 2016 compared to 68 percent in 2015 and 35% in 2014. The average plant loss per farm was 8 percent (range 0 – 23%). In 2015, two farms reported 99% and 100% root loss, but the highest loss reported in 2016 was 23 percent; only two farms (21 farms reporting) had losses of 10 percent or greater.

Losses were attributed to (ranked highest to lowest responses):

1. Poor root quality from supplier (4)
2. Plants did not grow well after being planted. Weak growth from the beginning (4)
3. Roots rotted because of too much rainfall, poor drainage (3)
4. Don't know (2)
5. Winterkilled – repeated freezing and thawing of soils in winter (2)
6. Plants showed disease, virus, other disorders that possibly killed them (1)
7. Winterkilled- buds too shallow, exposed to freezing temperatures (1)
8. Winterkilled – no snow (1)
9. Moose stomped on them (1)
10. Plants were stressed by environmental conditions – drought, lack of irrigation, drying winds, fire etc. (1)
11. Poor survival after spring planting (1)

Poor root quality from supplier was the second leading cause of death in 2015, and in 2016, it rose to first place. Two conditions included in last year's survey, lack of water and poor soil drainage, did not appear in the 2016 listing.

Additional comments from growers:

"Most losses were from the Sockeye Fire that destroyed hundreds of acres in 2016."

"I think that 'Charlie's White' is not a good fit for our region"

"I probably didn't plant them right, or maybe a moose. Our loss was minimal"

"Spring planting not successful. Roots planted in fall fared much better".

Root Winterkill, Injury - Kenai Peninsula Region

Sixty-one percent of farms on the Kenai Peninsula reported some plant losses in 2016 compared to 86 percent in 2015 and 33 percent in 2014. The average plant loss per farm was 6 percent (range 0 – 65 %). One farm reported 65% loss of roots, while all others reported less than 10 percent loss. The single grower with significant losses, attributed them to winterkill due to shallow buds that froze, no snow and repeated freeze thaw in winter.

Losses for all growers were attributed to (ranked highest to lowest responses):

1. Winterkilled- buds too shallow, exposed to freezing temperatures (3)
2. Don't know (2)
3. Winterkilled – repeated freezing and thawing of soils in winter (2)
4. Poor root quality from supplier (1)
5. Plants showed disease, viruses, other disorders that possibly killed them (1)
6. Winterkilled – no snow (6)
7. Roots rotted because of too much rainfall, poor drainage (1)
8. Moose stomped on them (1)
9. Plants did not grow well after being planted. Weak growth from the beginning (2)
10. Plants were stressed by environmental conditions- drought, lack of irrigation, drying winds, etc. (1)

Additional comments from growers:

Not sure why we had 9% loss except we didn't know what we were doing. I suspect partly poor root quality as only certain cultivars seemed to have greater loss than others. Also, they were planted by neophytes and maybe didn't get the depth right. And possibly not proper fertilizing at first. Big learning curve.

Statewide, root losses were highly variable (0 – 65%). More than half of the farms (64%) in all regions reported losses in 2016, but only 8 of the 55 respondents reported losses greater than 10 percent. The largest losses were in South Central and Kenai Peninsula, and the largest losses were attributed to winterkill due to lack of snow and freeze/thaw cycles. All regions had issues with moose damage, but it was isolated and did not cause major losses.

The top category, as in 2015, continues to be "don't know". There are so many variables in field production, it is very hard to pinpoint a single cause. More than 20% of respondents indicated that plants did not grow well after planting. They had weak growth from the beginning. Although site conditions may be the reason for poor growth, this observation also may be related to the third most frequent category: poor root quality from supplier.

A significant issue occurring in 2016 was the extremely high rate of Tobacco Rattle Virus (TRV) appearing in newly planted roots. In at least five fields from the Interior, South Central and Kenai Peninsula Regions, up to 50 percent of the growth on one-year-old plants showed TRV in the first full season. Although the outward symptoms of yellow ringspots and bright yellow chevrons are the most visible symptoms, other effects of viruses in general, (i.e. reduced yield, stunted growth, shortened life, deformed leaves, etc.) have not been studied on peonies and potential effects of TRV.

Weak, Non-emergent Roots

In 2015, 33 percent of growers stated they encountered problems with weak, non-emergent roots, a reduction from 2014 levels (57 percent). In 2016, 44 percent of respondents reported having issues with plants that sent up one or two shoots, were weak, or did not emerge until late in the season. Levels ranged from 0 to 60 percent of planted roots (average 4%, [2015 levels were 11%]). Many growers have commented over the years how variable growth is on the same cultivar planted in the same location. One robust peony could be next to one that emerged late. The pattern in all grower fields seems to be random, probably due to differences in the root pieces. Some of these weak roots do catch up but only after several years. Others simply die. The key is probably to purchase the highest quality roots one can afford from reputable suppliers and ask for replacements if the percentage losses are high.

2015 Plantings and future plans

In 2014, 58 growers reported planting a total of 51,847 roots. The total number of roots planted in 2015 decreased slightly to 47,811 roots, and the number decreased

again in 2016 to 31,580 roots for 55 growers (Table 1). The largest plantings were in the Interior Region with 13,980 roots, a decrease of 15,614 roots over 2015 levels. Nearly half of Interior growers did not plant new roots in 2016. Forty-four percent of all new roots planted occurred in the Interior.

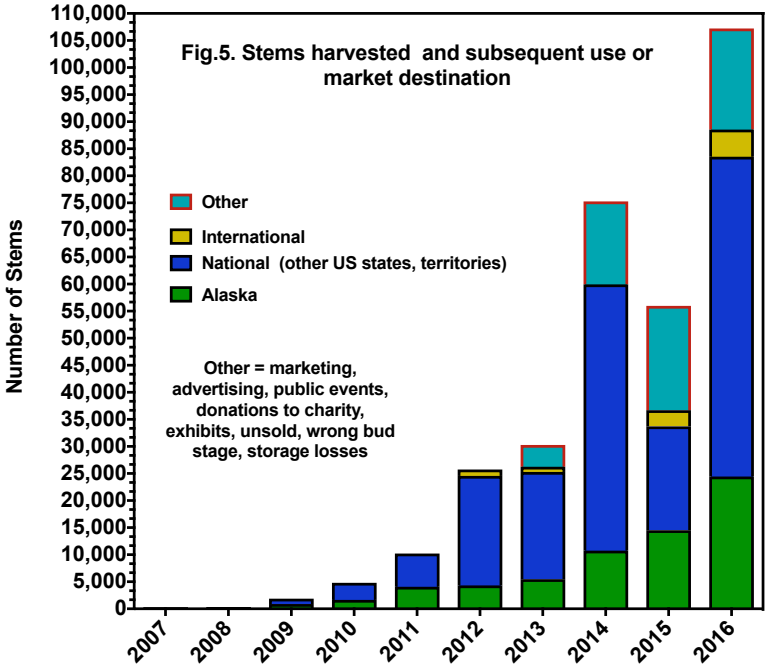
Table 1. The number of respondents by region and quantity of roots planted in 2015, 2016 and their future planting plans.

Root Planting and Future Plans						
2016						
Region	Number of Growers	Roots				
		Maximum (#)	Minimum (#)	Mean (#)	Farms with no new plantings (%)	Total (#)
Interior	26	3,000	0	538	46	13,980
South Central	16	4,500	0	610	44	9,755
Kenai Peninsula	13	3,414	0	603	38	7,845
Southeast						0
Southwest						0
Grand Total						31,580
2015						
Interior	34	5,700	0	870	32	29,594
South Central	18	2,900	0	844	11	15,197
Kenai Peninsula	14	1,000	0	216	50	3,020
Southeast						0
Southwest						0
Grand Total						47,811
Future Root Planting Plans, 2017						
Interior	26	3,000	0	485	54	12,600
South Central	16	2,500	0	328	38	5,250
Kenai Peninsula	13	1,200	0	337	38	4,375
Southeast						0
Southwest						0
Grand total	55					22,225

Both Interior and South Central regions showed a decrease from 2015 levels in the total number of growers planting new roots as well as the quantity of roots planted. The Kenai Peninsula had fewer growers planting than other regions, but the total number of roots was more than double the 2015 count. All regions showed that planting will occur in 2017, but at a slower pace than previous years. The Interior Region will be greater than the combined plantings in the Kenai Peninsula and South Central regions. Planting will be to replace roots that died, experiment with new cultivars, expand existing farms or start new plantings. About half of the respondents in the Interior plan to plant new roots in 2017, whereas in South Central and Kenai Peninsula, 38 percent of growers anticipate planting new roots.

2016 Fresh Cut Stem Harvest

The total number of stems harvested for all regions in 2016 was 107,226 stems, an increase of 51,242 from 2015 levels. Harvest ranged from 0 to 50,000 stems per farm (average 1631 stems) with 25 percent of farms indicating they did not harvest any stems. Of the quantity harvested, 88,542 stems or 83 percent were sold. Alaska, national (all states other than Alaska), and international sales all increased from 2015 levels with the greatest increase in national sales (19,190 stems in 2015 and 59,100 stems in 2016). Alaska sales increased by 9,928 stems, and international sales by 2000 stems.



In 2015, Alaska peonies were shipped directly from growers to 15 states. In 2016, the diversity was similar, but three growers indicated they had sales in "all 50 states" or "most every state (Table 2).

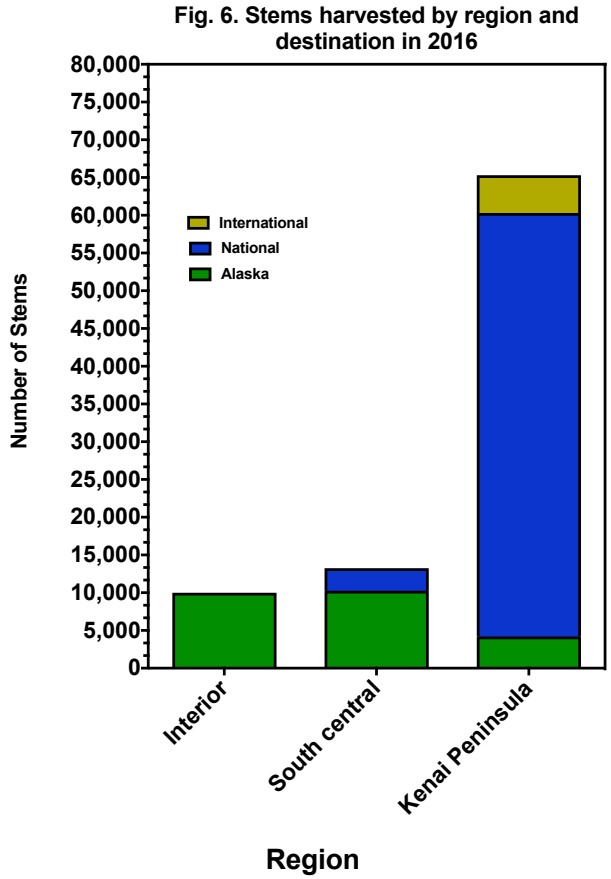
One foreign country was listed as a recipient of Alaska peonies in 2016 – Canada. However, 13 respondents indicated an interest in selling internationally. Growers are interested in learning more about export procedures, quarantines, and more especially to Hong Kong, Singapore, South Korea, China (general), Taiwan, Japan and Canada. Three of the 53 growers said they would not be interested in shipping internationally. The remaining growers were not sure – their decision would depend on the infrastructure required, quantities of flowers and shipping fees, if any. Three growers had reservations about fumigation. They are organic growers and not interested in chemical fumigants on their farm.

Table 2. Direct grower sales by state (more than one shipment could have gone to each state).

Two growers	One grower
California	Arizona
Montana	Colorado
New York	Delaware
Rhode Island	Florida
Texas	Idaho
	Minnesota
	Mississippi
	North Carolina
	Oregon
	South Carolina
	Washington

Sales by Region

As in 2013, 2014 and 2015, most stems sold commercially in 2016 were harvested from the Kenai Peninsula followed by the South Central and Interior Regions (Fig. 6). All cut stems from grower respondents in the Interior Region were sold in Alaska markets (mostly to Alaska owned co-ops and pack houses, see below), whereas South Central and Kenai Peninsula Regions reported a mixed market. The only international sales were from the Kenai Peninsula.

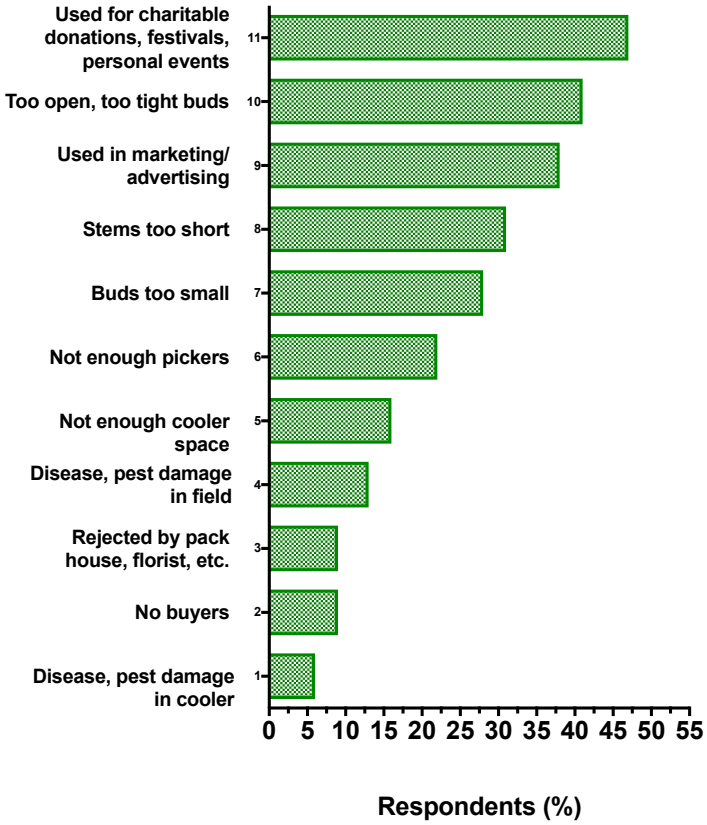


Unsold Stems

Seventeen percent of harvested stems were not sold to Alaska, national or international markets**.** In 2016, as in 2014 and 2015, many unsold stems were used for public events such as parades and fairs, donations to charitable organizations and advertising (Fig 7). These uses are related to the next categories because often it is the

"too open buds, too short stems" that are donated or used for local advertising. Additionally, flowers rejected by the pack house/co-op may be related to the bud size being too small or flowering being past their prime for shipping. The categories are not independent. Five respondents noted that although they harvested stems, the plants were too young, and stem quantities were too low to sell.

Fig. 7 Reasons for unsold stems



Secondary reasons for unsold stems included production/marketing issues such as insufficient cooler space, few pickers and no buyers. These categories may change as farms become fully productive and stem numbers increase across the state. Finding

and keeping markets remains a significant concern for most growers. Several reported comments from national buyers stating they had no idea Alaska grew great peonies. Many respondents commented that the entire industry could benefit from a nationwide marketing campaign in mid-summer that advertised Alaska peonies from all growers, co-ops, distributors, etc.

More than 40% of growers did not sell some stems because of plant issues: short stems (<24"), small bud diameters, diseases and more. One grower stated the stems matured very early– the earliest they had ever experienced – and therefore they were caught off guard in early June. One grower reported "the 9 stems I sold were before I got hailed out"! A similar massive hail storm hit the UAF peony plots during the third week of June just as the first color was showing on early cultivars. The hail tattered the leaves and left pock marks all over the buds and stems. Buds that did not show color were not damaged, but damage to the rest of the stems and leaves made them unsalable.

2016 Buyers of Alaska Fresh Cut Peonies

In 2013, there were no sales to mass markets, brokers and Alaska cooperatives. In 2014 and 2015 no sales were reported to mass markets, whereas in 2016, one respondent sold 60 percent of their cut stems to mass markets (Table 3). In addition to mass markets, sales to regional wholesale houses, Alaska distributors, were reported for the first time. Since 2014, seven businesses have been formed that purchase cut stems from multiple growers and act as in-state marketing and/or distribution centers for peony cut stems. They include Alaska packhouses, member-owned cooperatives, and independent distributors.

The percentage of total sales by individual growers was highest on average to Alaska pack houses followed by direct sales to consumers (Table 3). Of the respondents who sold stems, 69 percent sold exclusively to one type of buyer: 24 percent to a pack house; 25 percent direct to customers, 16 percent to a cooperative, and 4 percent to an Alaska distributor (Table 3, Fig 8). The remaining growers reported selling to a variety of buyers, not just one type. Overall, the greatest number of respondents sold directly to consumers and to Alaska pack houses (Fig 8).

Table 3. Percentage of total sales by individual growers to different buyers.

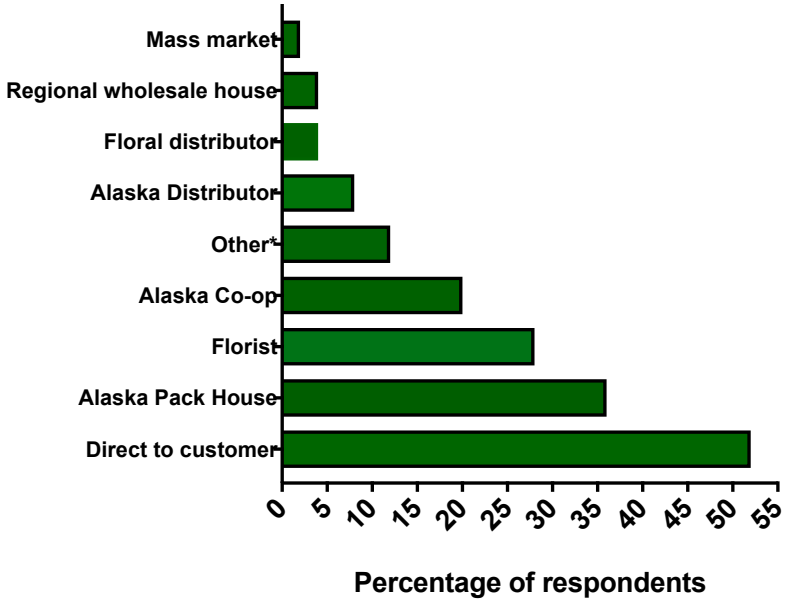
Buyer*	Grower sales (% of grower total)**		
	Maximum 2016 (2015)	Minimum 2016 (2015)	Mean 2016 (2015)
Direct to Consumer	100 (100)	20 (0)	40 (37)
Alaska Pack House	100(100)	0 (90)	57(77)
Alaska-owned Cooperative	100 (100)	0 (66)	39 (87)
Alaska Distributor	100 (0)	0 (0)	16 (0)
Florist	50 (45)	0 (20)	11(37)
Regional Wholesale House	65 (0)	0 (0)	9 (0)
Broker	0	0	0 (0)
Floral Distributor	30 (50)	0	4 (50)
Mass Market	60 (0)	0	9 (0)

**An example: For Alaska-owned Cooperatives, individual growers sold between 66% and 100% of their cut stems to this buyer category. Average sales across growers in this category were 87% compared to 39% sales in 2015.

*Definitions of buyer types:

1. Direct to customer includes brides, tourists, farmers market, ad agencies, hotels, etc.
2. Alaska pack house is an Alaska grower who purchases peonies from many growers, combines them together, and sells them elsewhere. Flowers are sold under a single grower logo and name.
3. Alaska grower-owned cooperative. A group of growers/investors own the company collectively. The co-op markets and sells for all grower-owners.
4. Alaska Distributor - one or more people (growers, investors) formed a business separate from any single farm and whose purpose is to purchase, market and sell peonies from anyone who meets their quality standards.
5. Florists include anyone who arranges flowers in vases for sale to customers and usually has their own retail shop.
6. Regional wholesale house includes businesses such as Seattle Wholesale Flowers, Denver Wholesale Flowers. They bring in flowers and supplies and act as a regional hub for florists, decorators, and others.
7. Brokers buy in bulk and redistribute to auctions, wholesale houses or other distributors.
8. Floral distributor is a florist business that buys in bulk and sells extras to other flower shops in the area.
9. Mass market includes chain grocery stores and big box stores.

Fig. 8 Percentage of respondents who sold to different buyers



*Other = field sales, event planners

2016 Cut Flower Sales

In the past, price ranges were similar across buyer types and, showed a range from $2.00 to $7.00 per stem (Table 4). In 2015, stem prices ranged from $0.50 to $7.00. In 2016, no sales occurred at the low $0.50 price, but some flowers were sold direct to customers at $1.00 per stem. Part of this change reflects sales to pack houses and cooperatives where a portion of the cost stays with these businesses rather than going directly to growers. In 2015 and 2016, sales directly to customers commanded the highest maximum price, but on average, the highest price was with florists.

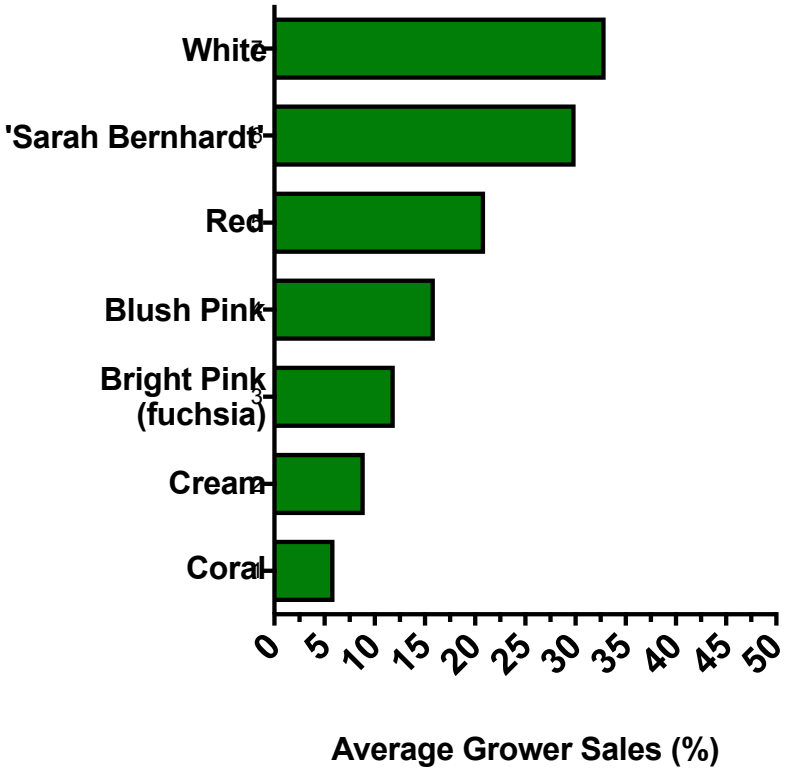
The method used to pay growers for their flowers depended on the buyer. Mass markets paid monthly. The floral distributor and Alaska distributor categories paid growers within 7- 14 days of shipment. Florists paid by cash/credit card at the time of shipping or delivery. Direct field sales were cash at time of sale as were farmers markets. Cooperatives and pack houses had different methods of paying members: 1) paid $0.50 per stem at time of sale, and the remainder at the end of the season. 2) paid members once at the end of the season, 3) paid monthly, and 4) paid 50% at the end of June; the remainder was paid in September.

Table 4. Price range by buyer for Alaska peonies.

Buyer	Price range ($)				Mean ($)
	2013	2014	2015	2016	2016
Mass Market	–	–	–	3.30	3.30
Floral Distributor	3.50 – 5.00	3.25 – 5.00	None listed	3.25 – 5.00	4.12
Broker	–	4.00	–	–	–
Regional wholesale house	3.50 – 4.00	–	3.00 – 5.00	3.25 – 4.50	3.87
Florist	3.50 – 6.00	3.75 – 6.00	4.00 – 6.50	3.00 – 7.00	4.52
Alaska Co-op		3.00 – 4.20	0.50 – 4.50	1.53 – 5.50	2.43
Alaska Pack house	2.00 – 6.50	2.00 – 4.50	3.00 – 3.85	1.50 – 3.00	2.08
Direct to Customer	2.50 – 7.00	2.00 – 7.00	2.00 – 7.00	1.00 – 8.00	3.81
Other				1.00 – 3.00	2.00

White peonies and ‘Sarah Bernhardt’ topped the sales according to color (Fig 9) followed by red peonies. The ranking by color was the same as 2015. Coral and cream sales increased slightly from 2015 sales, but they did not amount to more than 10% of sales at any one farm. No growers reported 100 percent sales of a single color. No sales were reported for yellow-colored peonies.

Fig. 9. Sales by Color



Gross Sales of Fresh Cut Flowers

Flowers ranged widely in price, and all colors showed large price difference within color classes (Table 5). In 2013, the only color that ranged below $2 per stem was 'Sarah Bernhardt' reported by one grower. No category was below $2.00 per stem in 2014, but all colors showed prices below $2.00 except for coral in 2015 and 2016. Coral-colored peonies commanded the highest overall price based on minimum prices of all colors.

Table 5. Price range per stem based on flower color and gross sales, all colors

Flower Color	Range of prices per stem ($)			
	2013	2014	2015	2016
Red	3.25 – 6.60	3.25 – 5.10	1.80 – 4.00	1.00 – 5.50
Bright Pink	3.50 – 6.50	3.25 – 6.00	1.97 – 4.00	1.00 – 5.00
Blush Pink	3.00 – 7.00	3.25 – 7.00	0.50 – 7.00	1.00 – 6.50
White	2.00 – 7.00	3.00 – 7.00	1.80 – 7.00	1.00 – 6.50
Cream/off white	4.25 – 7.00	3.50 – 7.00	5.00	1.59 – 6.50
Coral	3.50 – 6.00	5.00 – 7.00	5.00 – 7.00	3.00 – 7.00
Sarah Bernhardt	1.85 – 6.00	3.00 – 6.00	1.80 – 4.00	1.50 – 5.00
Total gross sales, all colors	$92, 905	$136,912	$128,044	$276,184

Total gross sales reported by all growers responding to the survey were $276, 184, more than double the total sales for 2014 and 2015 seasons (Table 5). Average sales per farm were $7.891 ranging from no sales to $150,000 for a single farm. In 2016, three growers reported gross sales greater than $10,000.

Grower Questions

The following questions were submitted by growers to help identify best practices for peony farms. This summary is not an exhaustive list but things growers believed were extremely important to peony production. Some suggestions were repeated many times, so they have been summarized. The list is in no specific order besides being grouped into tasks.

What are the top 5 "must do" practices in establishing or maintaining your peony field?

Pre-plant/planting:

1. Field preparation minimum one year before planting
2. Start with clean, weed free fields by tilling, using green manures
3. Make sure to get high quality rootstocks
4. Plan rows for the harvesting equipment you will use to minimize walking with armloads of flowers
5. Do the math- figure out how many plants per acre or 100 sq. ft. so you can anticipate yields and dollar returns; wider spacing and big aisles means fewer dollars per acre return. Plant as closely as you can to maximize returns but still accommodate the plant needs and harvest equipment.
6. Plan to install a good irrigation system with adequate water from a pond or river before you plant one root!
7. Don't think of irrigation two weeks after you have planted 1000 roots!
8. Plant 3-4 inches deep to avoid winter injury
9. Plant in raised beds
10. Incorporate organic matter into the soil before planting
11. Soil prep, soil prep, soil prep!
12. Ask local growers or pack house/ co-op managers what cultivars work best in the area before you buy dozens that will not work or yield well.
13. Put in a cover crop before planting to minimize weeds.
14. Use Typar® to cover the field with bare minimum holes for plants. Plan to expand the holes as plants grow
15. Make a place to sit and relax in your field. You will need it!

Field management:

1. Provide stakes or trellises for robust stems as well as weaker varieties
2. Conduct daily field inspection for plant health and pests
3. Plan to put a shovel of compost on the root crowns in fall for winter protection
4. Plan for daily disbudding on most varieties

Soils/nutrients:

1. Know your dirt!
2. Test soil pH and use lime if necessary
3. Practice good fertilization so you don't waste fertilizers
4. Test soils annually and use appropriate amendments; follow soil test recommendations
5. Use the same lab every year for soil testing so data are comparable

6. Use resources such as NRCS, Soil Conservation districts and CES for soil analysis and fertilizer recommendations
7. Test individual sections of fields to find inconsistencies in soil tests over large areas
8. Check for odd leaf colors. Check with local experts and get tissues tested

Irrigation:

1. Plan for consistent and adequate watering practices (plan to water vigilantly!)
2. Prepare for early season irrigation
3. Use irrigation system with built in emitters to save time hand installing all those emitters
4. Use drip irrigation
5. You will use more water than you ever thought. Plan big!

Pest Control:

1. Provide safe pesticide sprayer training for you and employees
2. Follow labels on all chemicals to avoid disasters
3. Practice consistent disease control especially for *Botrytis*
4. Create pesticide spray schedules for pest management, and stick to it
5. Use fungicides. You might not see *Botrytis* in the field, but it still can show up in the cooler.
6. Monitor insect pests especially Lygus bugs and thrips. Spray only when needed
7. Plan ahead for *Botrytis* and pest problems. Just one insect can be harbingers of population explosions to come.

Weeds:

1. Weeding, weeding, weeding
2. Hit weeds hard early in the season to make it more manageable later in season
3. Use pre-emergent herbicides
4. There will be lots of weeds, and if you don't use herbicides, plan for a lot of labor.
5. Do not allow weeds, especially perennials to get out of control.
6. Use Geotextile fabric for weed control
7. Try a nasturtium ground cover planting for weed control
8. If organic, must stay on top of weeds
9. Weeds can host thrips – get rid of them in and around the field where possible
10. Keep annual weeds down by removing them as seedlings

11. And did we mention weeding?

Harvesting:

1. Develop a "how to harvest" program for each cultivar, and keep good notes on harvest dates
2. Have "How to harvest" signage (right stages for harvest) in the field
3. Know the different harvest times for each cultivar

Post Harvest:

1. Have sufficient cooling/chilling facilities on farm. Plan for double what you think you need!
2. Plan for very quick flower movement from field to cooler
3. Keep stems cold – 32- 34F
4. Have a recording data logger on your cooler so you know exactly what your temperatures are inside and overnight
5. Use a cooler alarm
6. Don't keep opening the cooler door!
7. Have a pre-cooler to get the field heat out, and then the main cooler

Records:

1. Develop clear and consistent record keeping practices for inventory, cutting dates, cultivars, stems harvested, etc
2. Keep a seasonal diary including everything you do in the field, times of cutting, fertilizing, watering, pests, etc. and then read it over the winter before the next season starts!

Labor:

1. Prepare to work full time
2. Plant for the size you and/or your partner can manage and have a hiring plan for quality help

Other advice:

1. Meet and know other farmers and peony neighbors – their knowledge is invaluable
2. Farm tours!! Yes!
3. Read all you can – be prepared!
4. Take daily field walks and really look at the plants to know their characteristics and behaviors, signs of weakness, etc.
5. Plan ahead. Get educated. Network with other growers. Be patient, Be resilient
6. Keep smiling!

What are the top 5 "don't do" practices in establishing or maintaining your peony field/business?

Pre planting/planting:
Don't

1. plant until you know what to grow in your area
2. plant more than your support system will provide
3. plant until you've worked (volunteered) on established farms
4. purchase poor rootstocks to save a few bucks
5. plant too many varieties- too difficult to harvest
6. get your rows too close together
7. plant too shallowly
8. plant on wet, soggy land
9. plant in areas where the roots stand in water for any amount of time and have poor exposure
10. wait to put down fabric if you are thinking about it. Do it first before planting
11. plant rare or unknown cultivars- stick with what is selling best

Field Management:
Don't

1. let hills/raised beds settle and expose roots
2. allow grass in walkways to get too long and go to seed- BIG headache
3. totally disbud your two-year-old plants. You need to correctly identify each plant to ensure it is true to name, and you need to practice with real flowers for harvesting, pest ID and problems in the field
4. worry if you lose some plants. It will happen

Soils/Nutrients:
Don't

1. plant until you have your soils up to speed or plant before you know your dirt including pH and nutrient composition
2. underfertilize or over fertilize especially with micro nutrients. They can poison your soil for life!
3. place fertilizers in locations where feeder roots cannot access it, like beneath the plants
4. have free manure tested for nutrients before applying it to your fields. Undigested supplements can pass through the animal's GI tract unabsorbed and end up in the manure (i.e. iron). Free manure can also carry heavy seed loads for similar reasons
5. plant your peonies with the idea of amending your soils later

6. plant without taking a soil test and preparing the soil
7. forget to take soil samples in fall and get them tested

Irrigation:
Don't

1. underestimate how much water you will need especially in planting year
2. plan to water by hand especially in the planting year
3. over irrigate
4. wait until it is dry to start irrigating
5. assume rainfall and overhead sprinklers will be adequate to grow healthy peonies

Pest control:
Don't

1. overspray with too many chemicals
2. underestimate your response when you see one insect or one unhealthy plant. Practice "preventive medicine"
3. use the same fungicide all the time
4. use herbicides, fungicides or other chemicals without testing first on a small number of plants

Weeds:
Don't

1. let weeds get out of control
2. use a winter mulch unless you need to. Straw, especially, can bring in a lot of weed seeds that can cause problems down the road.
3. forget to correctly identify weeds especially whether they are annuals, perennials. Control is so different

Harvesting:
Don't

1. pick too early or too late
2. harvest all blooms from a plant

Post harvest:
Don't

1. forget to have a cooler on your farm at least a year before you need it
2. keep opening and closing the cooler door. It causes serious drops in temperature and humidity that can ruin your flowers
3. let your help "cool off" in the cooler

Records:
Don't

1. forget to keep good records on your own farm
2. think you can remember everything you did or saw all summer. Write it down!

Labor:
Don't

1. have too little help
2. assign important jobs to student workers
3. underestimate the amount of time your fields will needs. This is a hands-on crop, so be prepared

Business:
Don't

1. plan on making a profit for 5 years at least
2. wait to start developing markets for your peonies, if you have roots in the ground you should be working on this even if you are not ready to harvest.
3. wait to partner with a local co-op/pack house until you have flowers to sell. Start before you plant the roots. Help build the business before you have anything to sell and it will be ready for you when the time comes to sell your stems
4. take a haphazard approach to your farm's public image in the web and social media. The floral industry is looking for professionalism and quality… make sure this is conveyed to your employees, your farm's public posts and advertisements.
5. expect a return on your investment for a number of years
6. put all your eggs in one basket. This is not a quick cash flow crop. It takes years
7. believe everything you hear about getting rich growing peonies
8. "Bet the farm". Don't overextend your finance

Other advice:
Don't

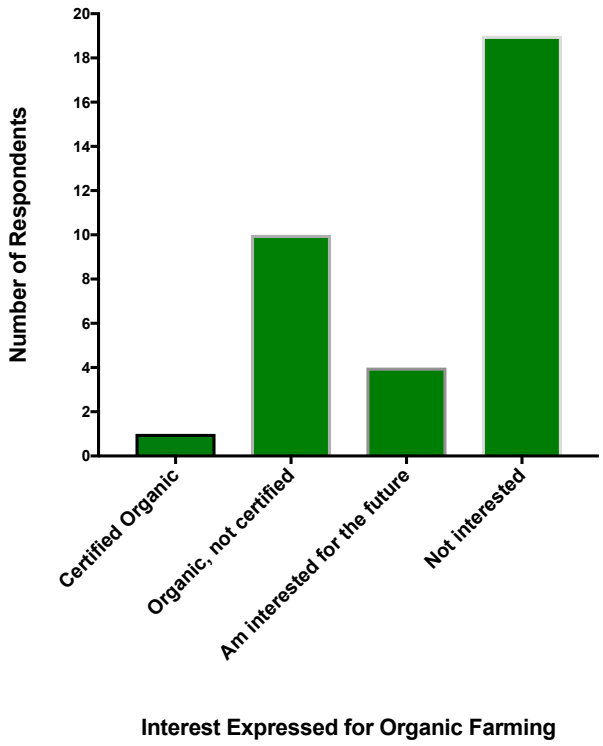
1. forget to use other farms as a guide but remember that each farm is its own microclimate
2. think you have to know everything to get started (you'll never know everything...).
3. just 'go it alone.' Ask for help and guidance from other growers

4. expect too much too soon
5. deny yourself the beauty of blooms – keep a few plants in bloom just for your own satisfaction

Are you growing organically? Is there sufficient interest in organic production and certification to warrant some joint efforts among growers?

One peony grower is certified organic. Ten other growers practice organic methods but are not certified. Four additional growers are interested in organic methods and would like to become certified in the future. Nineteen respondents do not adhere solely to organic practices and do not intend to pursue organic labeling or certification in the near future. Forty-two percent of respondents expressed interest in organic production. APGA could provide an avenue for communication for these growers after receiving permission to share contact information.

Fig 10. Organic interest by growers



Describe what kind of weed control you practice including methods, how often, and most important weeds. (Individual grower responses). Also comment on research needs.

Interior:

Three respondents (of 28) exclusively use hand weeding. Others used a mixture of hand weeding, herbicides, mowing and/or landscape fabric.

1. By hand, mower, every two weeks. Chickweed, lambs quarters, grasses. Need assistance
2. Cover as much ground as possible with woven fabric. Use granular pre-emergent. Apply herbicide every two weeks.
3. Hand weeding including hoeing and burning in the spring. We weed daily through harvest. Somehow if's more difficult to weed after blooming....it's a mental thing!
4. Hand weeding, herbicides: Pendulum pre-emergent, Snap Shot pre-emergent, Acclaim, Outrider, spot treatment with Round-up. Worst weeds are lambs quarter, some grasses, wild chamomile, and horse tail.
5. Herbicides, Hand Weeding, String Trimmer, and Mowing b) Continually and it's never enough c) Nearly every weed common to the Interior Need a lot more help and research on specific herbicide effectiveness and timing of application.
6. One early application of herbicide and then hand weeding and mowing regularly throughout the season (it never stops!) Dandelion, lamb's quarters, shepherds purse, bird vetch, fireweed.
7. Pre-emergent and post-emergent herbicide Hand weeding
8. Pre-emergent by hand, herbicide as needed by hand, hand weeding as needed.
9. Pre-emergent: spring and 1-2x during the season around the plants if needed. 1-2x around the field perimeter Herbicide: 1-2x in the season Hand weeding: as soon as we see one! 2-3x week.
10. So far weed control is application of Preen twice a season
11. Spring pre-emergent (snap shot) spray for grass (Fucilate and Aclaim) spot spray for perennials (cornerstone) weed-eater to cut back weeds outrider after peonies are tall enough to spray under plant
12. Weed control includes landscape fabric in the pathways, Pendulum pre-emergent spray twice a year, and hoeing by hand when the weeds are seedlings which is done almost constantly. I had a problem with the annual rye grass cover crop coming back last year but I think I've gotten rid of it now. The most problematic weed we have is horsetail which I find impossible to eradicate, I control it by slicing it off at soil level. Other weeds are bird vetch, lambs quarters, plantain, hawksbeard and fireweed. While I am not organic, I

do not plan to use glyphosate and am not eager to use chemicals, however, I certainly understand why farmers do.

Kenai Peninsula:

Four respondents (15 total) use exclusively hand weeding. Others used a mixture of hand weeding, herbicides, landscape fabric and/or mulching.

1. Hand weed every 2 weeks till July then about every 3 weeks
2. We are organic and as such we use no herbicides. However, we pay the price by having to weed often. We are trying sand as a suppressant and the jury is still out. I think there is some benefit but I have seen where the weeds just come right through the sand. still experimenting. each year seems to bring a new weed that is more troublesome than others around it. One year seemed to be grasses then the next year something else. I have noticed as the peonies get larger they tend to shade the ground and the weeds don't seem so thick. Any assistance or research in weed suppression on organic farms would be helpful. Bottom line we weed a lot and all by hand
3. We use pre-emergent in the spring only then hand weed after that.
4. Year one: a) exclusively by hand, b) Every available moment - all summer, c) horsetail, grasses & sedges. Year two: a) herbicide & by hand, b) work through the field then start over - not as overwhelming as year 1, c) horsetail, grasses & sedges. Year three: same as year two but more manageable yet as the peony started to shade out the weeds. Would love assistance/research in this area.
5. Geotextile fabric, ground cover plants, hand weeding, weeder geese. Weeding is a constant job. Dandelions, clover, plantain, and other weeds I don't know the names of.
6. Hand weeding. Ground cover that can be mowed in pathways
7. The primary weed at my farm is horsetail. What I lack in weed diversity I make up for in the volume of horsetail. I've been hand weeding and use mechanical cultivation by hoe and tiller (in between peony rows). This year when I plant I will lay Typar®, and if it goes well I will also lay typar in the original field as well (in 2018). I've found that if I give it two hard weedings early in the season then it really knocks it back and is easier to manage later in the season. The areas that are consistently weeded also show improvement from year to year. My strategy for the horsetail is deprivation (of light via hand weeding, so far) and displacement (hoping it moves back to the birch forest if I keep knocking it back through weeding and by improving my soil in the peony beds). Obviously, because of the root system, horsetail never truly goes away, so I'm attempting to heavily manage the areas I don't want it and not worry about it in the areas that are not important to my business. I don't use herbicides because I keep bees, and market both my flowers and honey as

sustainably grown. I anticipate in the future I will have other weeds in increasing numbers. When I had my driveway graveled there was weed seed mixed in and I'm beginning to see some of those weeds in greater numbers, but not in the peony fields yet. I'm always open to research and assistance, as long as it doesn't involve herbicides.

8. We use Roundup on the sides of our hills to kill the grass that is creeping up as needed, about once a month. We use a hoe to weed by hand every two to three weeks around the plants. We spray Pendulum AC in the fall after the plants have been cut down to prevent spring weeds. We tested a tank mix of Round Up and Pendulum AC for the first time in 2016 with pretty good results. (no peonies showed damage, weeds died and did not come back for the expected amount of time according to the application rate table.) This was only done once with a backpack sprayer and a directional cone on the nozzle to control the application. We will try it again in 2017 to see if it is a good practice.
9. We weed by hand and use herbicides. Our weeds are strawberry weed, fireweed, grasses. I would love a better way to keep my fields weeded.
10. We weed the field by hand every three weeks or so. Any help in this area would be very helpful. I'd like to know which weeds to be concerned about or to look for. Also, any suggestions about mulching or other things we could do to help inhibit the weeds.

Describe your fertilizer plan including type of fertilizer and when it is applied. Also comment on research needs.

Respondents used a variety of fertilizer sources depending upon whether they were organic or conventional growers. Most were based on soil test results. Several respondents use soluble fertilization and apply nutrients in irrigation water (fertigation). Most, however apply a solid fertilizer once or twice a year. Organic nutrient sources included compost, fish emlusion, fish fertilizer, compost tea, wood ashes, worm castings, kelp and bone meal, horse manure and biochar additive.

Interior:

1. Compost, fish emulsion
2. Compost. 12-12-12, 8-32-16
3. Fertigation--diluted Need assistance
4. I fertilize through my irrigation system. I use water soluable Gro-More, 20-20-20. I also use Alaska Fish Fertilizer - liquid form, adding a small amount with the Gro More. I side dress with Alaska Sea- Ag fish fertilizer, 1/2 Tablespoon per plant.

5. Granular and Water Soluble b) Granular at planting and water soluble fertigation Need continued research on nutrient demands and deficiencies
6. I fertigation (20-20-20) weekly beginning in late May or early June thru harvest, fertigation (5-40-10) weekly from harvest thru mid August
7. No fertilizers are being used except for initial bone meal and compost when roots were planted
8. Take soil samples in the fall. Calculate how much to add over the growing season. Application somewhat depends on weather as I fertigate through drip irrigation. Use Growmore 20-20-20 + micro.
9. We use worm tea, wood ash and a fertilizer I can't recall right now (we're not in AK at the moment, on vacation)
10. We used granular fertilizer at planting time as recommended by Fairbanks Soil and Water. We used a half strength balanced water soluble fertilizer weekly in June and July and then side dressed with a balanced granular twice during the growing season. This was recommended in a beginner peony growing class, but when we tested the soil in the fall we had over-fertilized and will not add P or K to this field next year.
11. We would like research in this area. What kind and when is the right fertilizer? Also, can someone do research using organic fertilizers?

Kenai Peninsula

1. Haven't figured out a good way to fertilize the peony without fertilizing the weeds.
2. I use barnyard compost, for side dressing and placing into the holes when planting. I also top dress with commercial some times. I use Snapshot, as a reemergent, to help slow the weeds.
3. We fertigate through our 3 1,000 +gallon tanks using compost tea formulated for each field based on soil tests and visual inspection of foliage and flowers.
4. We initially turned the acres 3x so the biomass can decompose and feed the dirt. We planted each root with fertilizer and biochar. Going forward we will feed the soil and plants pursuant to the sample results we get from the soil tests. We will feed using homemade compost tea to feed at each plants base.
5. May horse manure late August dry fish fertilizer
6. We take a fall soil sample and a summer soil sample and when they return from Brookside labs we give them to Dave Nunley at Alaska Organics and he mixes up a concentrated powder that we put into our vortex brewer and feed the field three times a season
7. Commercial peony blend Yes, assistance would be appreciated
8. I have my soil tested and follow NRCS recommendations for organic soil amendments. I've also incorporated manure, coffee grounds, and spent grains from a local brewery (at time of planting). NRCS recommended soil

amendments are applied to the top of the beds and worked in during spring and in fall (as needed and based on soil tests) and I also apply additional amendments such as fish emulsion and flower-specific organic liquid fertilizers right after bloom time.

9. I use peony fertilizer from Alaska Mill and Feed. Applied in the spring and fall. More research is always welcome.
10. NRCS soil nutrient program helps up fertilize organically, bone meal and fish meal are commonly used.
11. Soil sample analyzed by Brookside labs, then given to USDA for a nutrient recommendation. Supplies purchased and applied at the rates given by USDA. Records kept and turned in at the end of the year to USDA. We use granular, non-organic amendments, Urea, TSP and Muriate of Potash and mix each individual ingredient into a custom blend for each field according the the recommendation and apply by hand to each plant. We apply it once per year, after dis-budding the side buds.
12. We followed the recommendations from the soil test. This was just our second year and we applied the fertilizer in the spring on last year's roots and in the fall prior to planting the new roots. Ongoing help in this area would be appreciated.
13. Compost, worm castings, kelp, bone meal

Do you send soil samples to a lab for testing? If so, where do you send samples, what do you test for and how often?

1. Four of 31 respondents did not complete a soil test. Others relied on agency support especially the Soil and Water Conservation districts or sent directly to a commercial lab including Brookside Labs, Ohio and Peaceful Valley Farms, CA. The Palmer Experiment Farm lab is no longer in business. Most tested once each year, sometimes twice.

2. We send everything to Brookside. Sending to more than one lab we received totally different reports indicating to me the lab reports are only a very small weapon in our arsenal. We only look at the lab reports for things that are totally off the scale. We test at least once a year usually in the Fall to plan for the following years program. If there was something really out of whack, we test after attempting to fix the problem.

3. Yes, send samples for full testing (ph, and nutrients, including micro nutrients each year. Different fields are tested each year cycling thru all fields. We send our to Fairbanks Soil and Water (Jessica Guritz)

4. Yes. We send them to the Fairbanks Soil and Water Conservation District every year.
5. Yes. Through Fairbanks Soil Conservation. Test annually for NPK and cation exchange coefficient, micronutrients etc.
6. Yes, I have 4-5 plots tested every year on a 2 -yr rotating basis. I use the Soil Conservation service in Fbks with Jessica.
7. Yes, 1x year in Fairbanks. We ask for a broad test of soil composition.
8. I use Brookside lab, spring and fall tests ideally.
9. Yes. peaceful valley farms in Ca.
10. I get a yearly soil test from Bookside labs and then the Extension service interprets it for me
11. I send soil samples to the cooperative extension service in the spring.
12. Brookside lab yearly.
13. Yes, Brookside Laboratories. Test series recommended by cooperative extension (see website). Every fall.
14. Yes a) Brookside Laboratories b) Standard Sampling with Micronutrients c) Annually, have sent samples in both fall and spring
15. Yes - it is imperative to keep very detailed soil results. A field diary. We send them through Homer soil and water conservation. This will be done a regular cycle. They use Brookside Labs.
16. We send them to Brookside Labs, we do the test that Bob V. suggested, the Mehlich III test to test for macro and micro nutrients once a year now that the fields are established. Previously we did two a year to check if the soil was ready for planting.
17. Brookside Labs 200 White Mountain Dr. New Bremen, Ohio standard soil with buffer - exchange capacity, ph, nitrogen release, organic matter %, minerals, sulfur, phosphorus, calcium, mag, K, sodium
18. Brookside labs in spring
19. Yes. Use the state brookside
20. No. I have tested twice. Now I use a cheap test from the garden store.
21. yes, spring
22. Ohio
23. We tested in the spring and in the fall last year with Faribanks Soil and Water Conservation.
24. We used the Palmer Extension service but will now need to use someone else. We have only tested the field once.
25. Yes. Fairbanks Soil and Water. We test for pH and other nutrients that they send the samples to. Things like organics along with N, P, K, Mg etc.
26. Yes... Palmer Experimental Farm lab

Do you spray for insects? If so which insect pests, which insecticides, how often. Comment on research needs.

Seventy-nine percent of respondents did not spray for insects or use any kind of control mechanisms in 2016. Five respondents indicated their fields were so new, the insects have not become a problem yet, but they anticipate spraying in the future. All other growers sprayed as follows:

Interior:

1. I have not sprayed but plan to spray spray Beleaf in the future
2. I did not spray last season but anticipate having to spray for both lygus and thrips next year. I will use Beleaf as needed and as per instructions.
3. I spray for Lygus and Thrips. Last summer I used BeLeaf because I did not want to harm the helpful insects. The summer before I used Orthene. However, I noticed the Lygus seemed to be reappearing on my plants after only about a week after spraying. Don't know if I'm not using a strong enough solution? Needed: we need a "cheat sheet" that shows the amount of all these insecticides and herbicides that we need to mix into small sprayers! The amounts in the instructions/labels are for big farm applications. Many of us are using 5, 10, or 20 gallon sprayers. Trying to convert the amounts from large to small is too much math for some of us who are far removed from school!!!!!
4. Lygus and thrips. Orlene [Orthene?] will switch to something else in 2017
5. Lygus on occasion. We use diatomaceous earth.
6. Not yet but will begin once harvesting starts
7. Yes - primaily lygus & thrips. We use beleaf bi-weekly from shortly after emergence thru harvest
8. Yes a) Lygus and Thrips b) Beleaf and Orthene c) Twice, 1 week apart when Lygus are detected Some research still needed
9. Yes. We use insecticides purchased through the Arctic Alaska Coop.
10. KP do not spray for insects
11. KP don't spray for insects; field seems to have minor number of insects, occasionally aphids

Kenai Peninsula

No respondent in the Kenai Peninsula Regions sprayed or controlled for insects in 2016.

South Central Region

1. Apply a granular bug-b-gone in the spring. Mainly targeting cutworms. I do have spray on hand for aphids but have not had to use it.
2. Haven't had to spray chemicals. Had a great crop of ladybugs appear
3. I've sprayed for cutworms using Azamax (for organic pest control). I've also used insecticidal soap, neem, etc here and there, but not in a great amount. I had a problem with cutworms (mostly during 2015 but also a few sightings in 2016) and plan to use sluggo-plus for that in the future. I also plan to put out yellow sticky cards this year and utilize the services of the extension offices. Any other help and research in this area would be great, it's probably my biggest concern related to bud/flower quality.

How do you monitor insects?

Twenty respondents rely on visual observation of insects/damage to monitor insects. Two respondents have not monitored or looked for problems yet. Others use visual cues along with sticky cards and take photos of damage

1. Visual--have put out traps to assist in monitoring by IPM folks and found it interesting. But nothing of consequence. which in itself was helpful
2. We have participated in insect sampling for several years. Would like results of the samples.
3. Insect occurrence, visual damage, sticky traps.
4. Visual checking by myself and my farm workers every day
5. I watch the fields daily for damage and call/send pictures out to try and get information. Extension service rep's have been to my farm which was very helpful; they put out yellow sticky traps but I got busy and never had them analyzed (I hope to do better with this in 2017).
6. Take photos of the unusual ones
7. Visual and sticky traps.
8. Visual, but plan to use sticky traps in the future
9. Visually...walk the field, collect insects that appear to be doing damage, note the occurrence of damage, ID from the Cooperative Extension.
10. Insects don't seem to be a problem (yet)
11. I visually look at the plants and next year I plan to put up yellow sticky traps.
12. We have appreciated the information provided by the conferences and we keep watching for issues. Next year we plan to put up sticky traps.
13. Yes. We have sticky traps and have been involved in the insect study

Do you spray for diseases? If so, what diseases, what kind of treatment, how often? Comment on research needs.

Twelve respondents did not spray for disease either because their plantings were ver new or they had not seen the disease. Everyone else sprayed for Botrytis using frequency and rates from the label. It ranged from one application early in the season to once per week. One grower in South Central mentioned also spraying for sooty mold control

Interior:

1. I sprayed Kocide which is an organic copper fungicide for botrytis every 2 weeks between rain showers. I plan to alternate with a Sulphur-based fungicide as well next year.
2. We do not spray for diseases. We do cut out leaves that we see are problems. We spaced our plants far apart and ran our rows east and west to expose the whole side to the sun.
3. We spray Pageant for *Botrytis*, right now 2-3x in the season as preventative. The only year we've seen botrytis was year 1. We are coming up on year 3.
4. Yes a) Fungal diseases b) Various appropriate fungicides Need continued research! The prior research has been very helpful and effective.
5. Yes, *Botrytis* weekly
6. Yes, *Botrytis*, Pageant
7. Yes, *Botrytis*. I use Topsin and Chip Co, alternating
8. Yes, *Botrytis*, Pageant fungicide application depends on weather and presence of disease
9. Yes, spray regularly for *Botrytis* bi-weekly
10. Yes, we apply fungicide

Kenai Peninsula:

1. Have a sulfur spray but didn't use last year
2. We spray for *Botrytis* one time per year. We rotate our chemicals

South Central Region:

1. We spray for fungus, mainly sooty mold and *Botrytis*. We use Copper Fungicide, Pageant, and Dithane 75. The Copper Fungicide and Pageant were alternated, only used each once. The Dithane 75 was a test for WSU and only applied on half of the field once.
2. Yes. *Botrytis*. I rotate captan, Spectro 70, Mancozeb, copper fungicide.

How do you monitor for diseases (presence, damage, etc.)

All 25 respondents monitored by visual inspection of fields daily, sometimes weekly.

1. We inspect our crops visually. Intensely in the spring and off and on during the season making notes and often writing on the typar adjacent to the plant suspected with problems. If that same plant continues to have problems in the next season, we remove from fields
2. All fields are surveyed a couple times a week by myself and workers are trained to monitor as they work so most fields are suveyed daily from 2 weeks after emergence thru harvest.
3. We look at our flowers every day.
4. Daily checking different sections of my field. Plant samples have been taken by experts during farm tour.
5. Visual observation. I take pictures and samples, and send them to the pro's, such as the WSU peony research center. I'm considering proactively spraying a fungicide this summer but still on the fence and need to do more research.
6. visual
7. Visual and use experts
8. Look at each plant – walk the rows
9. Visually. We keep records of areas of the field, or varieties, that seem more prone to botrytis. Insect damage is monitored to keep it within acceptable levels.
10. Visual for botrytis, field has very good airflow so we don't seem to have much
11. recognize botrytis when I see it. I also have a few plants with tobacco rattle virus that were identified by an expert. I would call an expert to come look if I had an outbreak of something I didn't know.
12. We keep a close eye on the plants and look up on the APGA when we have questions.
13. We look for it and send pictures of things we have worried about. We have sent one sample in to Palmer to have tested for Tobacco Rattle, but that was negative. We have used Pat Holloway for questions and WSU.

Do you irrigate? If so, include type, frequency, and how you monitor for plant needs

Six of the 28 respondents did not irrigate**.** All other respondents used drip/trickle irrigation alone or combined with overhead and hand watering.

Interior:

1. Drip Irrigation. Application depends on weather/forecast and readings of soil moisture sensors.
2. Trickle by hand so far and installing new system this summer.
3. We irrigate with a drip irrigation system when needed. I stick my finger in the ground to see if it needs water. I may get a moisture meter if I knew a good one to buy.
4. We irrigate with drip. We water when the plants need it so sometimes it's constant when it's hot and dry. We just keep moving the water from field to field. We have to water in sections because our pressure isn't enough to do everything at once.
5. we use surface emitters and water anytime moisture at 2" depth is low. This is usually alternate days unless rainy
6. Yes a) Overhead and Drip
7. Yes. A) overhead, B) weekly, C) dry soil

Kenai Peninsula:

1. By hand with a hose, off of the plant, usually once or twice through June or July, as the flowers need it.
2. Drip tape, as needed
3. Hand water from a creek with a hose. I use a Honda pump to pump up to field. No electricity
4. I use drip tape to irrigate weekly
5. We check for dryness of soil and condition of plants. We seem to have a reasonable amount of rain and if we go for a couple of weeks without then we water and feed at the same time
6. We irrigate by T tape through a system supported by one lake and one 15 foot pond and 3 1,000 gallon plus tanks all gravity fed. We hand monitor the soils for frequency. In 2015 we distributed 200,000 gallons of water. A big improvement has been seen since we have a very active watering system.

South Central Region

1. Drip
2. I use a gravity fed drip irrigation system with pressure compensating emitters because I'm on a slope (it can also be hooked to a gas-powered water pump if needed). I attempted to use a soil probe moisture meter last summer but I think it was a cheap model and was not accurate. I stick my fingers in the soil to check for dampness as well. If it's hot out (75 degrees or more) I water every couple of days even if it doesn't seem like it needs it. I don't have a well

and haul water from a spring; since this is so labor intensive I probably don't water as deeply as I would if there was a faucet that I could turn on. I DEFINITELY do not wait for the plants to look 'thirsty' before I water.

3. We set up a drip irrigation system in July and prior to that used an overhead sprinkler. When it was hot we were watering everything every day. It was a guess on how much we needed to water.
4. Yes, drip irrigation as needed, checked with a soil moisture meter. When it is just between moist and dry we irrigate, which usually starts sometime in June, about once a week or every 10 days for two months, then really don't need any irrigation after August due to rain. We built an irrigation pond to collect rain water and pump water from the river into. The pond is 5,000 gallons and we need to water each plant about one gallon each. We have three zones to control water flow.
5. Yes, drip irrigation system as needed. Visual monitoring for need.
6. Yes, irrigation is a must. We use drip system—we do a visual to make sure plants are being watered. This is a system that we are still tweaking to get the bugs out.
7. Yes, Drip irrigation. Do not have this perfected yet - still working on having an adequate water supply in hot weather. Size of field has outgrown ability of house pump to supply water.

Do you use winter protection such as mulch, insulating blankets? If so what do you use, how much, what is your cost of materials and labor, your success rate?

One grower of 13 in the Interior Region used mulch (straw) for winter protection in 2016. Most others relied on snow cover. Eight of 15 respondents in the Kenai Peninsula Region did not use mulch or other winter protection on peonies. Others used straw, sand and snow. Growers would like to find a cheaper alternative to straw. One of six growers in South Central Region used wood chips as a winter mulch. All others used nothing, just prayed for snow.

Interior:

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1. Have not needed to use any winter protection until this past winter. Have always had at least 2' of snow on the field. The big blizzard after Christmas with it's crazy winds blew the snow off of about 15 rows of my field! Do not know if I will lose those peonies or not. This is a big need for Interior farmers. How do you adequately insulate when you have hundreds of rows of plants? It is not economically feasible to buy/use straw or hay. We have contacted the

Soil Conservation Service folks and have been told they have a person in Delta who is an "expert" in snow fencing. Will have him look at our place this summer.

2. No, natural snow only.
3. No. My back spasms at the thought of raking all that straw up in the spring. Also I was advised that straw would do little to help insulate the plants if there was no snowfall and that it might cause an ice lens to form around the plants in the spring during the freeze thaw cycle.
4. Not yet. We have plenty of snow cover.
5. Straw
6. We count on snowfall.
7. We have not had to do this yet, thank goodness!

Kenai Peninsula:

1. Snow
2. We do not winter protect. We have tried 5 methods of protection in the past with little or no positive results.
3. Did not mulch. I have a snow cover this year
4. Nothing, have weights on Typar to hold down when no snow, but so far snow covered fields
5. Sand and fertilizer
6. Straw 1 bale per 30 plants. Too expensive. Need better deal.
7. Used straw first winter to a cost of $1500. the next winter about the same conditions and we ignored it and plants seemed to be just fine as if we had covered them. this winter 16/17 seems to have a more normal snow load of about 1.5 to 2 feet with below freezing temps so there seems to be no concern with exposure (yet). if the snow melts before breakup and the ground freezes again we are just going to ignore it and see what happens. My feeling is that these plants are very tough plus we have very good drainage.

South Central:

1. No, I rely on snow (so far). In both 2014 and 2015 there were 2+ feet of snow at the farm all winter.
2. No, we rely on snow cover, which has not yet failed us...fingers crossed. We do not plan on using any type of mulch in the future.
3. Pray for snow
4. Wood chips

Please comment on your growing season—the good, the bad and the ugly. How will you solve problems for the next year? Please add comments that will help all growers.

Kenai Peninsula

1. We continue to have problems with green buds in our largest whites. We've been working with Don Hollingsworth and he is confident it is a weather-related problem. The freeze/thaw repetition in the spring. if no snow again this year, we will cover a few rows with a heavy ag blanket to see if there are any improvements.
2. Fertilize early and often
3. Find a mentor, ask lots of questions, be patient with the learning process.
4. Too early in the process to know
5. It was good
6. the biggest lesson we have learned after three summers of taking care of growing plants is that we needed to become much better at organizing our time for weeding. we don't let the weeds get much of a foothold if possible so we spend a lot of time making sure they don't by weeding them as soon as they start showing up. we employ several weeders throughout the summer to stay ahead of them and are just factoring that cost into our business model until a bolt of inspiration comes down out of the sky that helps us to solve the cursed weed problem. the most important thing that works on our farm is organization so things get done when they should with as little effort as possible and we personally don't feel that we are running around like chickens with their heads cut off
7. It was good enough. Now want to maximize the buds on each plant.

South Central Region

1. My biggest obstacle is trying to get everything done as just one person. I'm learning to streamline my processes, such as buying irrigation with pressure compensating emitters built in, laying typar to help mitigate weed pressure, etc. It's getting better every year.
2. We learned a lot about when to harvest. We learned to spray early and spray often for disease control.
3. We were very happy with our healthy plants this first growing season. Some, however, didn't appear to be the variety we had ordered. We will be observing these blooms more closely this next growing season.

4. I learned I needed to apply a fungicide a couple of weeks before harvest to control sooty mold on certain varieties that seem to weep more sugary dew than others.
5. We didn't get our irrigation system set up early enough this year and that definitely negatively impacted our plants.
6. Main lesson was Fall over Spring planting

Interior:

1. This year's harvest came on fast and early. Biggest lesson - have labor on call earlier in the season.
2. Hot weather in the Interior is a killer for harvesting. It is not possible for a single person to keep up with the harvesting in hot weather. We lost many buds this year that bloomed in the field- I simply could not get to them. I learned that I need to communicate with my farm workers early on in regards to when the harvesting season will be to make sure that their grandparents are not visiting those same weeks of the summer, thus pulling them away from availability. I need to have help with harvesting!! I did not know I was going to have to do all this spraying when we got into this. I simply cannot keep up with all the spraying that seems to be required for botrytis, weeds, and insects. It would take up all the time of one person just to keep up with all the spraying. Don't know how we are going to handle this.
3. To act ahead of disease and insects - preventative action is better than reactive action. Water in the cool evening & morning with slow release so the soil absorbs it where the roots are rather than run off.
4. Very wet, but no fungal problems or root rot in established plants. About average temperature overall, with cooler than normal July.
5. Very good
6. Know your soil, know your varieties (they all have their quirks), know how to identify pests and diseases. Stop and smell the peonies now and then to keep from getting overwhelmed!!
7. All new to us as we planted our first roots this summer.
8. This was our firstyear planting. We learned something new every day! We had great success with the roots we got from Oregon Perennials and I found they were great to work with. We got a little excited and tried to install irrigation lines in May before the ground was completely dry in one corner. We will wait next year. We learned to ask questions from other farmers and ignore advice from well meaning friends. I think next year we will switch from pot dripper emitters to woodpecker emitters (from Dripworks) because the pot drippers were labor intensive to install. We are still learning about our soil and how much fertlizers to use.

9. We are happy with the health of our plants. We think there may be some kind of beneficial thing that happens with sunflowers and peonies because for the last two years we've had a sunflower randomly (from other parts of the farm) show up beside a peony. The peony that the sunflower grew next to was dark green and shiny. Maybe they are companions but I haven't found in any research this is so. Still, fascinating!

Is it necessary to develop a statewide Alaska peony brand? If so, what should it emphasize/ Size? Quality? Alaska? (12 responses, 20 growers skipped this question)

Twelve respondents answered this question which is too small to draw any meaningful conclusions. APGA should consider this discussion at a future statewide meeting.

1. Consistently large size, brighter colors, high quality - always
2. Yes! It should emphasize the quality and size of the AAA and AA peonies.
3. Ideally it would be great to do this, but I think we have too wide of an area to properly enforce the idea of sending out only quality stems. Someone is sending out buds that are too hard and won't open - I have heard this from numerous florists and wholesalers I have had contact with on my visits out to the States. :(The comment told to me was " Alaska peonies are golf balls on a stick." It gives us all a bad reputation.
4. We think it is more important to develop a statewide QUALITY and CONSISTENCY.
5. Yes, Quality!
6. Quality and pristine Alaska
7. No, growing practices and standards vary so much that it will be very hard to police a Brand.
8. Yes! If we can keep the quality high then I think that should be the first thing to advertise. Followed closely by size and color.
9. quality and possibly size, but if the flowers are so huge, people may not buy as many. Quality is always important.
10. No

Some growers would like to develop a certification of quality, sort of like the Good Housekeeping Seal of Approval. Growers pledge to produce a certain quality standard in order to use a stamp or seal on their website. What do you think about that, and would you participate?

Twelve respondents answered this question which is too small to draw any meaningful conclusions. APGA might take up this issue at a future meeting. More than half of the people responding said, yes. A certification program would be great, but enforcement would be nearly impossible, and the expense would make it prohibitive. Again, the response rate is too small to draw conclusions.

1. APGA already has a quality standard to use the bud tags. Growers need to buy in to the process
2. Yep
3. Again - how do you enforce this. People can agree to it - but what are they really shipping out??? Someone needs to be checking the farms to make sure they are sending out quality stems.
4. Yes, yes, yes
5. Not sure
6. Not sure
7. Yes, it is an excellent idea. With an increasing number of farms in production, we must maintain a reputation for quality! Our farm would participate
8. Great idea
9. Yes
10. No
11. Yes, we would
12. Yes, but it needs to be voluntary. The costs associated with enforcing that standards would be greater than the benefit

The State of the Alaska Peony Industry- 2016 (Growers only)

Grower Survey

This survey is conducted by the Alaska Peony Growers Association (APGA) annually to establish the size of the industry, document its growth, and provide information requested by growers. You do not need to have peonies in the ground to complete this survey. If you are still in the planning stages, complete the first couple of questions, and you're done! We appreciate your time and effort to help us produce an accurate picture of this amazing industry.

All responses are encrypted and confidential. Only summarized data will be released. No member of APGA, its board, survey respondents or the public have access to the raw business data.

The survey summary will be available to all grower participants. The Board approves distribution of survey totals to the Press in public service announcements, to public agencies, and government officials where the data will be useful in marketing efforts.

Please complete by February 1, 2017.

Please help make this survey as accurate as possible to help the industry grow.

* 1. Please complete your contact information. It will not be shared with anyone.

Name:

Company:

City/Town:

* 2. What is the physical location of your farm or farms? Choose all that apply if you have more than one farm.

- [ ] Interior (north of Alaska Range to Yukon River)
- [ ] Northern (north of Yukon River)
- [ ] South central (south of Alaska Range including Anchorage east to Canadian Border)
- [ ] Southwest (west of Anchorage to Bering Sea, Kodiak)
- [ ] Kenai Peninsula
- [ ] Southeast (the Panhandle)

Other (please specify)

YOUR ROOTS

These questions relate to the number of roots you have in the ground, losses of roots, and possible reasons for those losses.

* 3. Did you have peony roots in the ground in 2016?

If you reply no, you don't need to continue further. After you answer this question,you're done! We will record your progress next year.

- ◯ Yes
- ◯ No- I will be planting in 2017
- ◯ No- I'm not quite there yet. I intend to plant within the next five years
- ◯ No - and I don't plan to plant peonies in the future.

Other (please specify)

* 4. How many live peony roots did you have in the ground by the end of this season, 2016?

Total number of live roots (#):

* 5. If you planted roots in 2015 or earlier, what percentage of roots did not survive in 2016 (died, winter killed,etc)?

Roots killed from previous seasons. Enter (0) zero if you didn't lose any roots. (%):

6. Please speculate on why roots died during the previous year. Check all that apply.

- [ ] Did not have any losses.
- [ ] Don't know.
- [ ] Poor root quality from supplier.
- [ ] Plants did not grow well after being planted. Weak growth from the beginning.
- [ ] Plants showed disease, viruses, other disorders that possible killed them.
- [ ] Winter killed - buds too shallow, exposed to freezing temperatures.
- [ ] Winter killed - no snow.
- [ ] Winter killed - repeated freezing and thawing of soils in winter.
- [ ] Roots rotted because of too much rainfall, poor drainage,
- [ ] Moose stomped on them.
- [ ] Voles tunneled into the ground around roots, exposing them.
- [ ] Plants were stressed by environmental conditions- drought, lack of irrigation, drying winds, etc.

Other (please specify)

* 7. What percentage of your roots in 2016 were weak, emerged late in the season, or didn't emerge at all but were solid, not rotten? You're holding onto them to see if they recover next season.

Weak, non-emergent roots. Enter (0) zero if you did not have any like that in 2016 (%):

* 8. How many new roots did you plant in 2016?

Number of new roots planted. Enter 0 (zero) if no new roots planted in 2016 (#):

* 9. How many roots do you anticipate planting in 2017?

Number of roots for planting in 2016. Enter (0) zero if you are not planning to plant new roots in 2016 (#).

Cut flower harvest and sale

* 10. How many cut flowers did you harvest (include sold and unsold) in 2016? Put a zero (0) in the box if you did not harvest anything. Please include flowers cut at your farm. Do not include pack house sales. Only your farm numbers.

Total number of harvested stems (#, do not include commas):

* 11. How many harvested stems did you sell in 2016?

Total number of stems sold (#):

12. If you had stems that were not sold, why? Choose all that apply.

- [ ] Cut flowers were at the improper maturity stage (too open, too tight).
- [ ] Flowers in the field showed Botrytis, thrips, other pest damage
- [ ] Cut flowers in storage showed Botrytis, thrips, other pest damage
- [ ] Stem length too short for grade.
- [ ] Bud diameter too small for grade.
- [ ] Donated to charity, public events, churches, personal weddings, etc.
- [ ] Used for marketing, advertising
- [ ] Not enough picjkers. Bloomed in the field.
- [ ] Rejected by pack house, florist, other buyer.
- [ ] Sold, shipped, but rejected by buyer (shipping disasters, blown in shipping, not the right color, etc)
- [ ] No buyers
- [ ] Not enough cooler space

Other (please specify)

* 13. How many cut stems did you sell in each category? If you sold to an Alaska pack house, co-op, local market or other distributor, then your answer is Alaska. Please make sure your total matches what you recorded in question 10.

Alaska (#)	
National (rest of the U.S.) (#)	
International (#)	

14. If you sold nationally or internationally from your farm, what states/countries were recipients of your gorgeous peonies?

15. If you would like to sell internationally in the future, which countries do you anticipate selling to?

16. In constructing your business plans and enterprise budgets, how many years do you predict it will be before you turn a profit in your peony farm?

Who bought your peonies that you grew on your own farm?

Definition of buyer types:

1. Direct to customer includes brides, tourists, farmers market, ad agencies, hotels, etc.

2. Alaska pack house is an Alaska grower who purchases peonies from many growers, combines them together, and sells them elsewhere. Flowers are sold under a single grower logo and name.

3. Alaska grower-owned cooperative. A group of growers/investors own the company collectively. The co-op markets and sells for all grower-owners.

4. Alaska Distributor - one or more people (growers, investors) formed a business separate from any single farm and whose purpose is to purchase, market and sell peonies from anyone who meets their quality standards.

5. Florists include anyone who arranges flowers in vases for sale to customers and usually has their own retail shop.

6. Regional wholesale house includes businesses such as Seattle Wholesale Flowers, Denver Wholesale Flowers. They bring in flowers and supplies and act as a regional hub for florists, decorators, and others.

7. Brokers buy in bulk and redistribute to auctions, wholesale houses or other distributors.

8. Floral distributor is a florist business that buys in bulk and sells extras to other flower shops in the area.

9. Mass market includes chain grocery stores and big box stores.

* 17. Who bought your peonies? Include all that apply and estimate the percentage of sales. If a business wears many hats, choose other, and describe in the next question. Column must add to 100%.

Did not sell to anyone (%)	
Direct to customer (%)	
Alaska pack house (%)	
Alaska member-owned co-op (%)	
Alaska distributor	
Florist (%)	
Regional wholesale house (%)	
Broker (%)	
Floral distributor (%)	
Mass market (%)	
Other (%)	

18. If you chose the "other" category in the previous question, please describe the business you sold to. We will include it in future surveys.

19. What was the price or range of prices you received from each of the buyer categories?

Direct to customer ($)

Alaska pack house ($)

Alaska member-owned co-op ($)

Alaska Distributor ($)

Florist ($)

Regional wholesale house ($)

Broker ($)

Floral distributor ($)

Mass market ($)

Other ($)

20. How were you paid for your flowers? (i.e. at time of sale, at end of season, monthly upon billing, etc)

Flower Sales

21. What percentage of cut flowers did you sell in each color category? Column must equal 100%.

Red (%)	
Bright pink (fuchsia) (%)	
Blush Pink (%)	
White (%)	
Cream/off white (%)	
Coral (%)	
Yellow (%)	
Sarah B	
Other (%)	

22. What price or range of prices did you receive for each color category?

Red ($)	
Bright pink (fuchsia) ($)	
Blush Pink ($)	
White ($)	
Cream/off white ($)	
Coral ($)	
Sarah B ($)	
Other ($)	

23. Total gross sales for peonies in 2016. Just numbers; no commas, decimals. Put in a zero (0) if you had no sales. All numbers are confidential.

Grand total, all colors ($)	

Production Practices

Many growers in APGA would like to know about successful production practices you have developed. What activities, supplies, methods you have used that you believe are necessary for a successful peony farm. Also let us know if you are still searching for answers to a particular question. We will try to work it into a future research project.

24. List your top 5 "must do" practices in establishing or maintaining your peony field.

25. List your top 5 "absolutely don't do this" in establishing or maintaining your peony field.

26. Are you growing organically? This question was requested by a grower to see if there is any interest in organic production and certification.

- ◯ Yes, and I am certified organic
- ◯ Yes, but I am not certified
- ◯ Not now, but I would like to become certified in the future
- ◯ No, and I do not plan to pursue organic status
- ◯ Other (please specify)

27. Please describe what kind of weed control you practice. Include: a) your method such as herbicides, by hand, etc, b) how often, and c) what are you most important weeds). Also comment on whether you need assistance or research in this area.

28. Please describe your fertilizer plan. Include: a) what you use, b) when you apply it. Also comment on whether you need assistance or research in this area.

29. Do you send soil samples to a lab for testing? If so, a) where do you send samples, b) what do you test for and c) how often?

30. Do you spray for insects? If so, a) which insects are pests in your fields b) what insecticides do you use, c) how often do you spray? Also comment on whether you need assistance or research in this area.

31. How do you monitor insects (insect occurrence, visual damage, sticky traps, help from an expert, etc)?

32. Do you spray for diseases? If so, a) what diseases, b)what do you spray and c) how often? Also comment on whether you need assistance or research in this area.

33. How do you monitor for diseases (disease presence, disease damage, experts)?

34. Do you irrigate? If so, please include a) type (overhead, trickle, etc.), b) frequency, and c) how you monitor for plant water needs.

35. Do you use winter protection such as a mulch of straw, insulating blanket, piles of snow, windbreaks, snow fencing, etc, etc? If so, a) what do you use, b) how much, c) what is your cost of materials and labor. d) your success rate?

36. Please comment on your growing season-- the good, the bad and the ugly. What did you learn this year? How will you solve problems for next year? Please add comments that will help all growers.

Marketing and Branding

Many growers have indicated that a key role of APGA could be in assisting growers, co-ops, pack houses in a general marketing campaign. To help this along, please let us know what you or your Alaska buyer are doing currently to spread the word about peonies.

37. What methods are you currently using to market your peonies? Check all that apply

- [ ] Your own website
- [ ] Facebook
- [ ] Pinterest
- [ ] Instagram
- [ ] Your own blog
- [ ] Contributions to your co-op blog, Facebook page, etc
- [ ] Contributions to APGA website, Facebook
- [ ] Radio
- [ ] Oral Presentations, word-of-mouth, interviews
- [ ] Television (paid ads)
- [ ] Print- local newspapers, magazine ads
- [ ] Print - national, international newspapers, magazine ads
- [ ] Twitter
- [ ] Google +
- [ ] WhatsAp
- [ ] Tumblr
- [ ] Linkedin
- [ ] YouTube
- [ ] Snapchat
- [ ] WeChat
- [ ] Gab
- [ ] Charitable events- flower donations

Other (please specify)

38. Is it necessary to develop a statewide Alaska peony brand? If so, what should it emphasize? Size? Quality? Pristine Alaska?

39. Some growers would like to develop a certification of quality, sort of like the Good Housekeeping Seal of Approval. Growers pledge to produce a certain quality standard in order to use a stamp or seal on their website. What do you think about that, and would you participate?

THE END

Thank you so much for completing this survey. We will compile this information just as soon as all other growers complete it. If you have comments, questions, or wish to make suggestions for future surveys, please email them to:

863surcons@gmail.com.

You may also print off and mail back a paper version of this survey to the following address. If your email link is sheer misery, email us and we will send you a paper copy.

A. F. Farmer
PO Box 84425
Fairbanks, AK 99708

Please complete by Feb 1, 2017

Thank you!

Your Alaska Peony Growers Association!

40. The final survey summary cannot be emailed. The file is too big. How would you like to receive results? We will get back to you for account information if you choose one of those options.

- [ ] By snail mail, paper copy ($ 6.00 printing, postage)
- [ ] By Dropbox (you need an account)
- [ ] By Google Drive (you need a gmail account)

Other (please specify)