

# Towne's Harvest Garden

## Annual Report 2018



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Dylan Fishman, Student Marketing Manager  
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## Executive Summary

Towne's Harvest Garden (THG) is a certified organic, small-scale, diversified vegetable farm located at Montana State University's (MSU) Horticulture Farm in Bozeman. THG was initiated by Friends of Local Foods (FLF), a student organization at MSU. The vision of FLF is to bring a diverse group of students and faculty together to raise awareness about local foods and to encourage sustainable lifestyles on campus and in the community. This vision was realized through a partnership with the Gallatin Valley Food Bank (GVFB), that made the first year of THG possible.

After its 12th growing season in 2018, Towne's Harvest Garden's mission is still to be a source of locally, sustainably, and educationally grown food for MSU's campus and members of the surrounding community. THG has become a key element in the SFBS program by serving as an outdoor classroom. In 2018, Mac Burgess continued as the director for THG. Elisa Boyd served as the Production Manager and was assisted by student workers: Dylan Fishman (Student Marketing Manager), Wes Cawood (Student Operations Manager), Sam Wilson, Kristin Katchmar, Emma Burke, Gabi Poupart, and Serena Whitcome (Student General Labor). Many groups participated in activities at THG during the 2018 season including: SFBS 296 Towne's Harvest Garden Practicum, SFBS 445R Culinary Marketing: Farm to Table, and the Montana Dietetic Interns. During the 2018 season, the farm offered a Community Supported Agriculture (CSA) membership, operated two farm stands, and sold additional produce through wholesale accounts.

During the 2018 season, 1.5 of 3 acres was planted in cover crops. On the remaining 1.5 acres, 18,760 pounds of produce was harvested from 124 different crop varieties. Over 2,000 pounds of produce was donated to the Gallatin Valley Food Bank, and 573 pounds of produce was donated to the Bounty of the Bridgers on campus pantry.

Labor is THG's biggest expense (\$31,513.91), \$10,000 of this labor was covered by generous funding through the High Stakes Foundation. During the 2018 season, the farm's gross income totaled \$45,222.56 (which included the \$10,000 from High Stakes), and expenses including labor were \$46,880.82.

Efforts were made this season to ensure produce offered at CSA was of high quality, quantity, and diversity. According to CSA member surveys, between 91% and 100% of 2018 customers agreed or strongly agreed that produce was of good or excellent quality, quantity, and diversity: a significant increase when compared to the 2015 season. CSA was offered at the same price as in 2017, for 20 weeks and had an average of 12 items in each share.

## Our Story: About Towne's Harvest Garden

Towne's Harvest Garden (THG) was envisioned and initiated by Friends of Local Foods (FLF), a student organization at Montana State University (MSU). In 2006, with the help of faculty, FLF produced vegetables on two acres of land at MSU's Horticulture Farm. A partnership with the Gallatin Valley Food Bank enabled the success of the garden. Over the years, THG has expanded in size (now 3 acres), added structures to the farm (4 hoop houses and 1 heated greenhouse space at the Plant Growth Center on campus), increased agricultural output, earned more monetary revenue, expanded market opportunities, and built relationships with partners, direct participants, and associated staff.

2018 marked the 12<sup>th</sup> growing season at THG. This student-led effort has become integral to the Sustainable Food and Bioenergy Systems (SFBS) degree program at MSU. SFBS students (10-30 students/season) enroll in a summer-long practicum course at THG to learn the basics of vegetable production and marketing. Additionally, THG has become incorporated into other programs, such as the Montana Dietetic Internship and the MSU Culinary Marketing course. Our markets now include an approximately 50 member Community Supported Agriculture (CSA) program, a farm stand located on the MSU campus, a farm stand at Legion Villa which supplies low-access and low-income populations with discounted produce, and several wholesale accounts.

Over the years, THG has worked closely with Montana State University, the Sustainable Food and Bioenergy Systems degree program, the Department of Health and Human Development, the College of Agriculture (the Department of Land Resources and Environmental Sciences and the Department of Plant Sciences and Plant Pathology), the Horticulture Farm, and the Gallatin Valley Food Bank.

THG has been valuable to many people and organizations over the years. THG serves as a source of local food for community members, students, and staff and is:

- An educational tool
- A demonstration of sustainable agriculture and local food systems
- An interdisciplinary collaboration
- A student recruitment tool
- An avenue for campus and community outreach

## Mission, Vision & Values

### **Towne's Harvest Garden: Mission**

To offer interdisciplinary educational opportunities, be an outdoor classroom for Sustainable Food and Bioenergy Systems (SFBS), and be a source of locally, sustainably, and educationally grown food for the Montana State University campus and members of the surrounding community.

### **Towne's Harvest Garden: Vision**

- + That Towne's Harvest will be a valuable and permanent part of MSU that is enthusiastically supported by the administration.
- + That Towne's is an interdisciplinary center of education for any MSU department and is integrated into MSU as a classroom, research laboratory, and source of good food for the campus community.
- + That Towne's inspires students from diverse backgrounds to become involved in sustainable food production and consumption.
- + That Towne's continues to diversify crop production to include a large variety of vegetables, and fruits.
- + That Towne's strengthens community food security in Bozeman and the surrounding area, increasing access to fresh nutritious produce for all.
- + That Friends of Local Foods remains a strong and active supporting student organization.
- + That Towne's continues to address all aspects of sustainability including ecology, economic viability, and social justice.



# Overview of THG

## People and Groups Involved at THG



Name	Role
<b>THG Board Members and Associated People</b>	
Alison Harmon	HHD Dean
Bill Dyer	PSPP Professor
Bruce Maxwell	LRES Professor
Mary Stein	SFBS Program Leader
Mac Burgess	THG Director
David Baumbauer	Horticulture Farm Director
<b>THG Staff</b>	
Elisa Boyd	Production Manager
Dylan Fishman	Student Marketing Manager
Wes Cawood	Student Operations Manager
Sam Willson, Emma Burke, Gabi Poupart, Kristin Katchmar, Serena Whitcome	General Student Labor
<b>Groups Hosted at THG</b>	
SFBS 296 Towne's Harvest Garden Practicum	Hands-on field experience
Marcy Gaston	Culinary Marketing Instructor
SFBS 445R Culinary Marketing: Farm to Table	Cook with produce harvested from THG
Anna Diffenderfer	Assistant Director of Montana Dietetic Internship
Montana Dietetic Interns	Two week rotation at THG



## Typical Weekly Schedule During Market Season

Activity	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday / Sunday
SFBS Practicum		SFBS Practicum 8am- 12pm	SFBS Practicum 8am- 12pm	SFBS Practicum 8am- 12pm	SFBS Practicum 12pm - 3pm	
Morning (General)	Harvest / General tasks	Harvest	Harvest	Harvest	General tasks	Watering / weather dependent tasks
Afternoon (General)	General tasks	General tasks	Prep for CSA Distribution	Prep for both markets	General tasks	
CSA Distribution/ Farm Stands			CSA Distribution 4pm - 6pm	Legion Villa Farm Stand 1pm - 3pm ----- Campus Farm Stand 3pm - 6pm		



# Production Layout



June 24, 2018 ↑N

## Field Layout



<b>Block 9: Burgess</b>	
<b>Block 8: Burgess</b>	
<b>Block 7: Burgess - buckwheat</b>	
<b>Block 6: THG - cover crop</b> 2017/2018: winter wheat/winter pea 2018 summer: lentil/chickpea/triticale	
<b>Block 5: THG - crop</b> 400' beds: sunflower, onions, leek, potato, garlic	
<b>Block 4: diversified veggies</b> 200' beds: broccoli, cabbage, cauliflower, onions, shallots, corn  60' beds: kale, fava beans, sugar snap peas, kohlrabi, carrots, beets, green beans, celeriac, head lettuce, flowers, chard, parsley, radish, cilantro, dill	<b>Block 3: cover crop</b> 2017/2018: winter wheat/winter pea 2018 summer: oat
<b>Block 2: cover crop</b> 2017/2018: winter wheat/winter pea 2018 summer: oat/spring pea	<b>Block 1: plastic mulch</b> 200' beds: zucchini, yellow summer squash, acorn squash, butternut squash, delicata squash, flowers, pumpkin, patty pan squash, tomatillos, jalapenos, sweet corn
<b>Greens Garden: 2018</b> 20' beds: carrots, beets, lettuce mix, spinach, head lettuce, chinese cabbage, chard, radishes, cilantro, dill, sunflower, parsley, kale, buckwheat, phacelia	<b>Greens Garden: 2017</b> cover crop: oat/radish



## High Tunnel Layout

**Fan Tunnel:**

Spring: Lettuce mix, spinach  
Sumer: tomatoes, eggplant  
Fall: tomatoes, eggplant

**High Tunnel 3:**

Spring: broccoli, cabbage, chinese cabbage, kohlrabi, kale, head lettuce  
Summer: sweet peppers and basil  
Fall: sweet peppers and basil

**High Tunnel 4:**

Spring: lettuce mix, spinach , radish, turnips, arugula, spicy mix  
Summer: lettuce mix, spinach  
Fall, spinach, head lettuce, turnips



## Harvest Data

- 18,760 pounds of produce harvested
  - 124 crop varieties
  - 1.5 acres in production
  - 1.5 acres in cover crop
- 2,000 + pounds of produce donated to the Gallatin Valley Food Bank
- 573 pounds of produce to Bounty of the Bridgers, MSUs on campus pantry





## Income and Expense Summary (January 1, 2018 - January 15, 2019)

### Income

During the 2018 Season, Towne's Harvest brought in income from CSA, two farm stands, and several wholesale accounts. The most revenue came from a combination of the spring greens and summer shares that were offered as CSA options. Campus farm stand was held under the noodle sculpture near the Strand Union Building as in previous years. The Legion Villa market brought half price produce to a section 8 housing area for the elderly and disabled in Bozeman. Our wholesale accounts were comprised of the Montana Dietetic Internship preceptor fees, flower arrangements for event services on campus, produce for several classes, as well as produce for the staff welcome back lunch on campus.



## Expenses

This year, total expenses including labor are being reported. This is important information, especially since it has always been THG's largest expense. Giving students the opportunity to have practical, paid, on-farm experiences is something we pride ourselves in offering. If we wish to continue hiring student employees, labor costs should be carefully considered during budgeting.

<b>Summary of Income and Expenses 2018 (Jan 1 2018 - Jan 15, 2019)</b>	
<b>THG category</b>	<b>Amount (\$)</b>
wholesale	7,317.05
farm stands (Campus/Legion Villa)	8,778.44
CSA	18,995.00
tree grant remaining	132.07
High Stakes Grant for student labor	10,000.00
administrative/organic fees, cc machine & pres. lunch	-4,294.67
production supplies & seeds	-4,158.77
facility/tractor rent	-3,354.00
student labor	-21,513.91
student labor covered by High Stakes	-10,000.00
equipment repairs/fuel	-605.05
marketing	-731.46
capital investment	-2,222.96
<b>Total</b>	<b>-1,658.26</b>

## Community Supported Agriculture



Several Community Supported Agriculture (CSA) share options were offered in 2018:

- **Spring Greens Share:** (\$165, \$27.50 value/week)
  - May 23 - June 27
  - 6 weeks of CSA distribution at the Horticulture Farm Barn
  - First six weeks of full share CSA
- **Summer CSA Share:** (\$385, \$27.50 value/week)
  - July 11 - October 10
  - 14 weeks of CSA distribution at the Horticulture Farm Barn



- Second 14 weeks of full share CSA
- **Student Summer CSA Share:** (\$300, \$21.43 value/week)
  - July 11 - October 10
  - 14 weeks of CSA distribution at the Horticulture Farm Barn
  - \$85 student discount off summer CSA price
- **Full Season CSA Share:** (\$540, \$27.00 value/week)
  - May 23 - October 10
  - 20 weeks of CSA distribution at the Horticulture Farm Barn
  - A combination of the Spring Greens and Summer shares

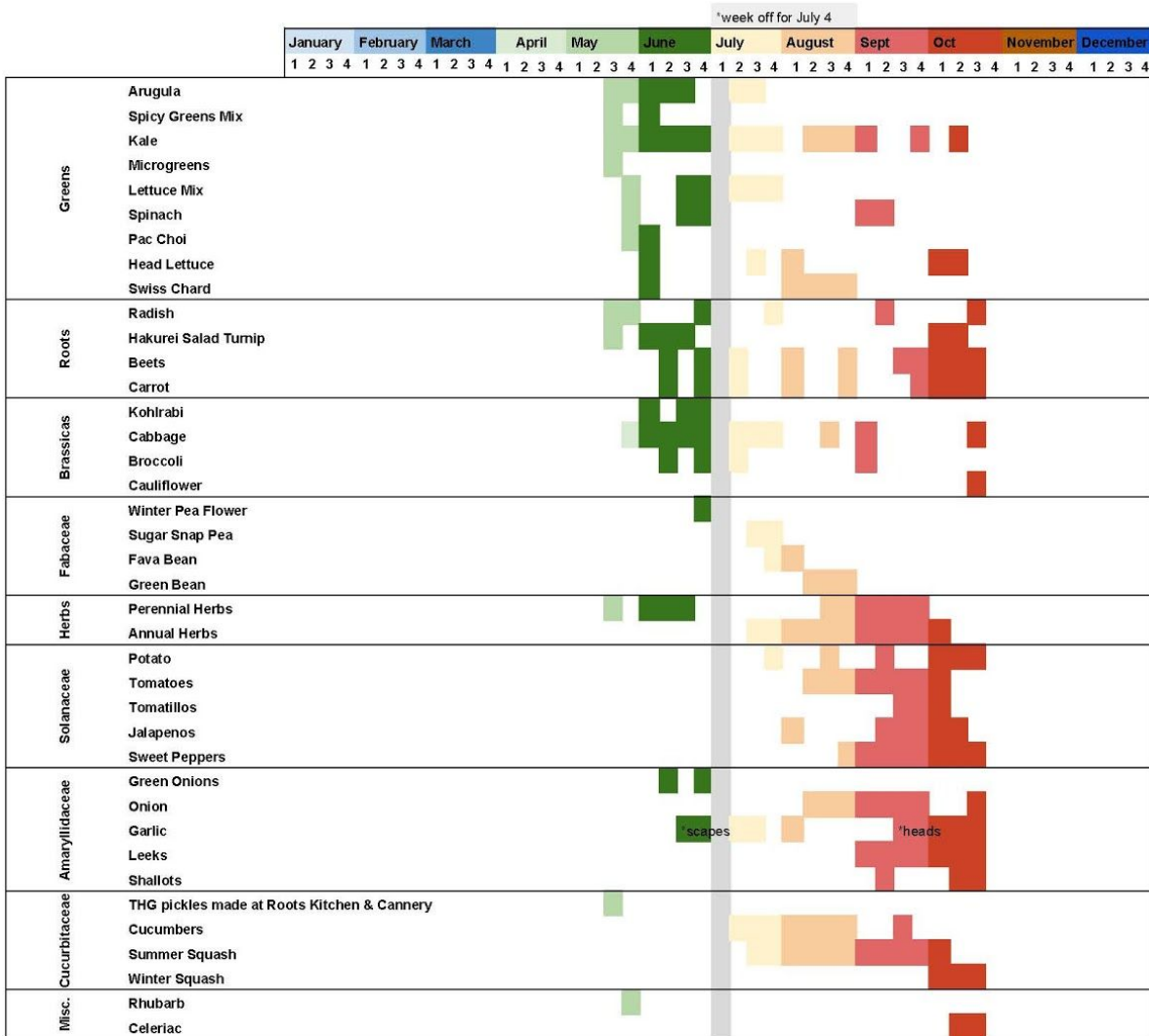
CSA share sales began mid-March, with electronic payment through the THG website as well as payment with checks. Shares were advertised on the THG website, through flyers on campus, and by word of mouth. Spring greens sold 30 out of 30 available shares, and Summer sold 48 out of 60 available shares. Two shares were donated, and four work trade members received a complimentary share in exchange for four hours of work at THG.

CSA shares were offered for pickup Wednesdays from 4pm to 6pm at the Horticulture Farm Barn. Students from the SFBS Practicum and Montana Dietetic Interns were required to help the Student Marketing Manager for one distribution. Prior to distribution, the barn was swept, tables were set up with tablecloths, and signs were written indicating what produce was offered and a quantity to take. Produce was placed in baskets and bins. The barn was cleaned and supplies were put away after distribution.

A student discount summer CSA share was also offered. The share was a savings of \$85 and students received the same product as those who purchased the summer CSA share. Twelve students purchased this option.

A weekly newsletter was distributed through MailChimp to CSA members at the beginning of the week (see appendix for example newsletter). The newsletter served as a reminder for pickup and provided information about the produce that would be available. It also included student written "Favorite Veggie Reports, Favorite Tool Reports, and Student Biographies."

## CSA Produce Availability



This graphic depicts what was distributed in each week of the CSA. Vegetable varieties are combined for simplification (eg. three varieties of Kale were grown, “Winterbor, Redbor and Toscano”) and are represented under “Kale”).

## CSA Comparison: 2015 through 2018

The following information was gathered from newsletters and SurveyMonkey member surveys conducted in 2015 and 2017, and google form survey in 2018. Efforts to improve the CSA experience in 2017 seem to have been appreciated by CSA members, and continued to improve in 2018.

Measure	2015	2017	2018
Average number of items per week for full share	10.25	12.65	12
Number of weeks in full share	18	20	20
CSA price per week for full share	\$30.00 (\$540 / 18 weeks)	\$27.00 (\$540 / 20 weeks)	\$27.00 (\$540 / 20 weeks)
Perceived CSA value	85% said it was affordable / inexpensive	90% agree/strongly agree it was a good value	95% Yes, CSA share accurately reflected initial payment
Veggie Quality (% respondents that rated it above neutral - good or excellent)	76% (33 total respondents)	95% (39 total respondents)	100% (22 total respondents)
Veggie Quantity (% respondents that rated it above neutral - good or excellent)	21% (33 total respondents)	87% (39 total respondents)	95% (22 total respondents)
Veggie Diversity (% respondents that rated it above neutral - good or excellent)	27% (33 total respondents)	87% (39 total respondents)	91% (22 total respondents)

## Campus Farm Stand



The Campus Farm Stand located under the noodle near the Strand Union Building at MSU ran for 14 consecutive weeks (July 12 - October 11). The stand was open from 3pm to 6pm on Thursdays. Each week, the Student Marketing Manager was in charge of leading students through set-up, market, and take down of the stand. Produce was placed in baskets on tables that were set up under tents. Items were labeled with chalkboard signs. Campus Farm Stand was advertised on the THG website, through the CSA member newsletter, and with fliers placed on campus. On the day of market signs were placed on campus street corners.

THG accepted cash, checks and credit cards during the 2018 season. Campus Farm Stand had an average weekly sales of \$587.75, with the lowest market bringing in \$261.50, and the highest market making \$774.00. Total sales made at the Campus Farm Stand totaled \$8,228.44.

Campus Farm Stand	
number of weeks	14
highest market sales	\$774.00
lowest market sales	\$261.50
average market sales	\$587.75
<b>Total sales 2018</b>	<b>\$8,228.44</b>

## Legion Villa Farm Stand

The Legion Villa Farm Stand seeks to strengthen community food security in Southwest Montana by increasing access to fresh, nutritious produce for limited resource households, at a discounted rate. The farm stand is located at Legion Villa, a section 8 housing complex that serves low income, elderly members of the Bozeman community. The farm stand was set up under their pergola on Thursdays from 1pm to 3pm and from 4-5pm Fridays once school started for 13 weeks of the summer (July 12 - October 5). Produce was sold at 50% of prices being charged at the Campus Farm Stand and Senior Farmers Market Nutrition Program (SFMNP) vouchers were accepted. Vouchers were collected throughout the market season and were then taken to the Bozeman Senior Center for reimbursement. Of the total Legion Villa market sales (\$550.00), \$308.00 was from SFMNP vouchers. The farm stand averaged \$47.12 in weekly sales with it's lowest week bringing in \$24.00, and it's highest week bringing in \$65.00.

A student in the SFBS Summer Practicum was in charge of running the Legion Villa Farm Stand as their special project for the class. Each week they were responsible for packing appropriate produce for the market, setting up, running, and taking down the stand. Each week, additional students were required to assist at this market.

Legion Villa Farm Stand	
numbers of weeks	13
highest market sales	\$65.00
lowest market sales	\$24.00
average market sales	\$47.12
SFNP coupons	\$308
<b>Total sales 2018</b>	<b>\$550.00</b>





## Wholesale Summary

During the 2018 season, produce was sold to several organizations on and off campus. Produce was supplied to several classes: the Montana Dietetic Internship, and Culinary Marketing. The Montana Dietetic Interns paid Towne's Harvest Garden a preceptor fee for holding one of their rotations at the farm. In addition, THG supplied flower arrangements for a MSU President's football team dinner, and one other campus event. At the end of August, MSU hosts a Faculty and Staff Welcome Back Picnic on the Hanon Hall Lawn and some produce for this event was from THG.



Wholesale Summary 2018	
description	amount (\$)
Montana Dietetic Interns (produce fee)	1,093.55
Montana Dietetic Interns (preceptor fees)	4,400.00
SFBS 445/541 Culinary Marketing produce	252.50
June Flowers Campus Events	121.00
President's football team dinner (flowers)	265.00
Measuring Innovation in the Food Systems produce *unpaid	*75.00
Faculty/Staff Welcome Back Picnic (produce)	480.00
T-post re-sale	630.00
<b>Total wholesale 2018</b>	<b>\$7,317.05</b>

## President's Lunch



The President's Lunch was hosted in the grove of the Horticulture Farm July 11. Students in the Culinary Marketing: Farm to Table course (SFBS 445R/541) prepared food from Towne's Harvest Garden for the event. In attendance was MSU's President, Waded Cruzado. The lunch had a Moroccan theme and included dishes such as lentil hummus, and a carrot cake with goat cheese frosting. Students also put together arrangements for the tables from flowers grown on the farm.





## THG Practicum: SFBS 296

The SFBS Practicum had 13 summer session students, and four fall session students. Both the spring and fall sessions of the practicum are offered as an internship (SFBS 298). The instructor of record for the spring and fall class (SFBS 298) was Mac Burgess, and for summer (SFBS 296) it was Elisa Boyd. The summer class schedule ran Tuesday, Wednesday, Thursday from 8am - 12pm, and Friday from 1pm - 3pm. Students attended two 8am-12pm sessions a week as well as Friday. In addition to scheduled class times, students were responsible for assisting with one Campus Farm Stand, one Legion Villa Farm Stand, and one CSA distribution.

Every Friday, all students convened and had lunch at the farm. Time was provided to prepare and eat lunch. The wood fired pizza oven was utilized and pizza was made for one lunch. The student who assisted with CSA distribution reported on the value of that week's CSA if a customer were to have purchased the same items at a grocery store or farmers market. The week's activities were discussed and, occasionally, guest presenters also attended. One presenter, David Baumbauer, the Horticulture Farm Director, led the class through an opening of the farm's bee hives and went over basic honey bee biology and care. Time was also set aside for students to work on their special projects.

Each practicum student chose a "special project" to pursue over the course of the summer. These projects ranged from running the Legion Villa Farm Stand to interviewing key THG stakeholders. Two students took soil samples and documented nitrate levels around the farm. One student collected and identified common insects of the farm, and another made herbal teas from plants she grew. Write-ups for these projects were due at the end of the semester and projects were presented to class.







## Montana Dietetic Interns

The Montana Dietetic Internship at Montana State University is closely tied with the Sustainable Food and Bioenergy Systems degree program. Interns spend 41 weeks attaining their dietetics certificate and do rotations in the areas of Food Service Management, Clinical Nutrition, Community Nutrition, and Sustainable Food Systems. The Sustainable Food Systems rotation lasts 2 weeks and a portion of it is held at Towne's Harvest Garden.

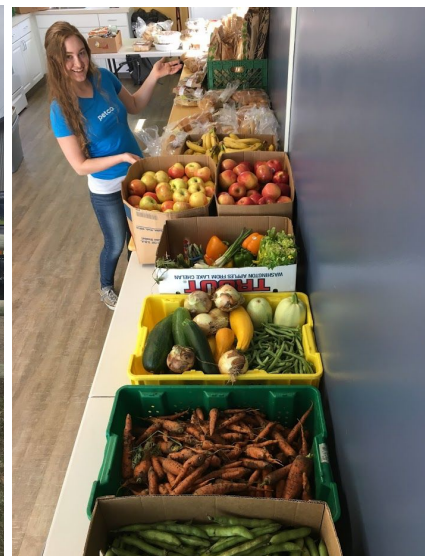
Twenty four Interns experienced daily farm tasks from harvest to market. Similar to the practicum students, the interns assisted with one CSA distribution and one farm stand. During their time at the farm, interns harvested produce to cook as a part of their classroom experience.

The dietetic interns of 2018 were excited to be at the farm experiencing food production first hand. Their enthusiasm and motivation made them a wonderful group to work alongside.



## Volunteers at THG

Every season volunteers assist in farm activities at THG. For the first time, THG had four work-trade members who earned a weekly CSA share in exchange for four hours of labor each week. This program was a success overall, and should be continued. In 2018, Rachel Juel, MSU's AmeriCorps Vista took over the Bounty of the Bridgers (BOB) pop up food pantry on campus. BOB volunteers planted a small garden at Towne's and utilized excess produce in the pantry. Their mission is to educate about food insecurity and serve MSU students in need. Students un-related to the Sustainable Foods program also spent time volunteering at THG. As always, THG is thankful for its volunteers.



## Tours at THG

Group	Description	Duration	Approx. Number Participants
BOB Pantry	Farm tour and kids activities for public	4 hours	50
MOSS	Farm tour for 2 separate classes	2 hours	30
Culinary Marketing Class	Farm tour and orientation	1 hour	10
PATHS	Farm tour and work session	3 hours	6
PATHS	Farm tour and work session	3 hours	6
Gallatin Valley Farm to School	Farm tour	2 hours	12
President's Lunch	Farm tour for lunch attendees	1 hour	15
High School 4-H	Farm tour	1 hour	10
Elementary 4-H	Farm tour	1 hour	10
City of Bozeman Parks & Rec	Farm tour for 2-4 year olds & families	1 hour	50
Kumamoto Ag Leaders	Farm tour for Japanese Ag leaders	1 hour	4
Honors College #ClimateClass	Farm Tour and Pizza Lunch	2 hours	12
Grow Gallatin	Farm tour and activities	4 hours	8
Montana Dietetic Internship	Farm tour and orientation	1 hour	25
Culinary Medicine	Farm Tour & Social	3 hours	70
<b>Total Hours at THG: 30</b>			
<b>Number of Community Members Served: 318</b>			



# Appendix



## Production Details

### Greenhouse Production



#### Growing media

Sunshine Mix #4 was primarily used for starting plants. When planting anything in growing media be sure to pre-moisten it in the wheelbarrow first! This helps cut down on the amount of dirt on the greenhouse floor and makes watering to complete saturation possible. Add water to the media in the wheelbarrow and mix until it has the consistency of a wrung out sponge, damp but excess moisture doesn't come out when you squeeze a clump.

#### Fertilization schedule

For transplants, mix OMRI granular fertilizer in the potting mix and then pre-moisten media as usual. The fertilizer injector with liquid fish emulsion should be used once seeds have germinated. Do not use before seeds have germinated! The fertilizer may burn emerging plants and kill them. Water with the injector once a week once seedling have emerged and about three times a week once seedlings have a few true leaves.

#### Lights

Lights should be on 12 day/12 night cycle earlier in the year when it is darker. Once there is more adequate natural light, move to a split day where supplemental lighting is on in the morning and evening and off during the middle of the day when it is only adding extra heat to the greenhouse.

## Watering

Plants should be watered until there is liquid dripping out the bottom of the containers. Pop a few plugs out and double check that the growing media is thoroughly saturated. Allow plugs to dry between waterings (every day most likely). Water in the morning, before noon to prevent optimal conditions for powdery mildew. Potting media (especially Peaco) is dark in color and sometimes looks wet even though it is dry!

## Pest management

We had issues with shore flies and fungus gnats: keep greenhouse floors swept and trash emptied. Allow plants to dry between watering.

## Crop Specifics

### Timing of Solanaceous Crops

Tomatoes were seeded 4/12/18 in 128 cells, stepped up into 4" pots on 5/2/18, and transplanted into the field 5/24/18. Plants could have been slightly bigger, but timing was much better than last year. Next year, maybe start 1 week earlier. Tomatoes experienced yellowing which was not attributable to anything according to the Schutter Diagnostic lab. Plants grew out of symptoms.



Eggplants were started 3/27/18 in 128 cells, stepped up into 4" pots on 4/30/18, and transplanted into the fan tunnel 6/8/18 and were too big, start at the same time as tomatoes next year.

Peppers were started 3/27/18 in 128 cells, stepped up into 4" pots on 5/1/18, and transplanted into high tunnel 3 on 6/13/18 and were too big and flowering, start at the same time as tomatoes next year.

## Onion Trimming

Onions are seeded in mid February with approximately 25 seeds per 4" pot. Once onions are about 3" tall, trim weekly to encourage thicker diameter plants. Transplants should be pencil sized in diameter at the time of transplanting into the field.





## Field Production: Major Crops, Details and Notes for 2018 Season

### Brassicas: Kale, Cabbage, Broccoli, Cauliflower, Kohlrabi



Winterbor, Darkibor and Redbor Kale (1, 60' bed each) was a success. A second planting (1, 60' bed each of Winterbor and Redbor) was done in early summer and was instrumental in providing adequate kale harvests. This is the first year THG has grown enough broccoli to offer it in the CSA, and did so more than once! Broccoli Green Magic F1 was planted in one High Tunnel 3 bed and was enough for 1 head/person for spring CSA. 1, 200' bed in block 4 provided another weeks worth of early summer broccoli for CSA. Imperial F1 Broccoli was planted late spring and filled another week of CSA in late summer. Amazing cauliflower was planted in early summer and just barely filled enough heads to fill the last week of CSA. In total, there were four weeks of broccoli/cauliflower offered in CSA with extra to bring to farm stand, a success worth repeating next year! Cabbage was planted in succession and due to its storage capabilities was offered in

almost every week of CSA, to the dismay of a majority of members. Varieties planted were: Minuet, Bilko, Tiara, and Red Express. Plant less cabbage next year. Winner and Quickstar kohlrabi were planted and filled two weeks of CSA, more successions could be planted next year. There were no complaints from CSA members.

### Corn



Corn was successful enough to be offered in CSA and distributed at farm stand once. One 200' bed of each varieties, Allure and Xtra Tender 2171 was planted. This crop took up 2,000 square feet on the farm and only provided enough for one CSA offering. This was an extremely inefficient use of space and should not be repeated. Remaining ears were taken to farm stand and did not sell well (50%).

### Cucumbers





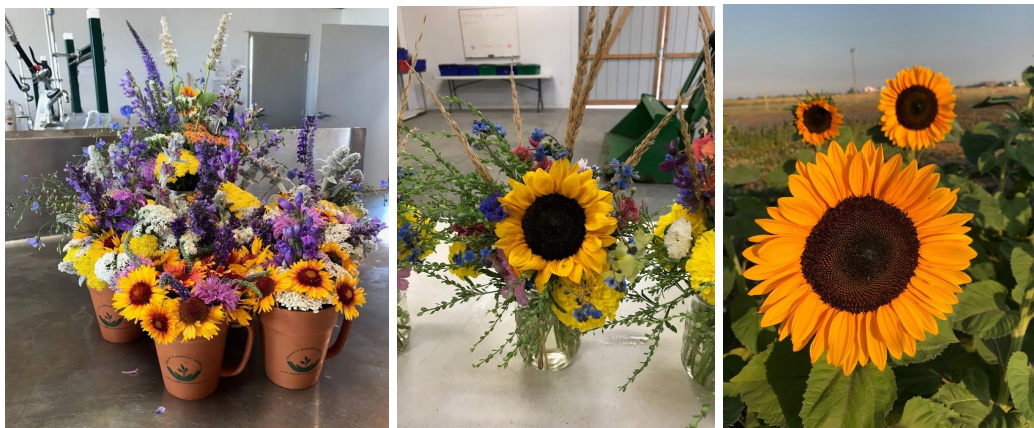
Dr. Burgess's research program continued a variety evaluation project comparing 10 different hybrid parthenocarpic cucumbers in the Season Extension Research Program Tunnels. The varieties ranged in size from cocktail cucumbers (Unistar and Iznik) to large english-type (Tyria), with several medium slicer types as well. Cucumber plants were transplanted on May 17 in double-row beds with 2' spacing between plants in each row. The first cucumbers offered in CSA was July 11, with peak productivity in excess of 60 kg per week in late July and sustained weekly harvests of at least 20 kg through the 3rd week of September.

### Eggplant



Orient Express and Nadia were planted in the Fan Tunnel. Two, 40' beds was enough eggplant to take to farm stand. We would have had to plant 3-4 times as many plants to get enough for CSA. Orient Express produced more individual fruits and earlier than nadia. It would be worth planting a limited quantity for farm stand next year.

### Flowers



We grew a small assortment of flowers and made bouquets for several events on campus. Blue and gold are often requested colors. Sunflowers sold very well and

should be planted in multiple successions next year. Emerald Tassels Amaranth was neat looking, but challenging to use in bouquets, not worth doing again.

### Garlic



In 2018, two, 400' beds were harvested (1,600 row feet). This was an overabundance. Varieties planted were Carpathian, Music, German Red, and Inchelium Soft Stem. The soft stem variety Inchelium had small cloves and undesirable bulb shapes, therefore, was not replanted. Garlic scapes and green garlic were a part of CSA and farm stand, in addition to cured garlic bulbs. Garlic harvested in 2018 was planted in the fall for a crop that will be harvested in 2019.

### Greens: lettuce mix, spicy mix, head lettuce, asian greens, spinach



2018 was better than last year in terms of variety and consistency of greens offered. Shade cloth was put on High Tunnel 4 June 18th when weather started to turn hot. Greens were successfully grown without bolting for the rest of the season under shade cloth. This worked well and is worth repeating! Look for greens varieties outside the Aster and Brassica families to break up rotation in the high tunnels.



## Herbs



### **Annual Herbs**

Italian Flat Leaf and Curly Moss parsley were grown in the field and filled 1, 60' bed. Parsley should be planted earlier in the season and 1, 60' bed is enough early on and become too much later, but that's ok.

Hera Dill was successful and planted more than once in 60' long beds. This was more than enough for CSA but was also planted for pollinators. It could be seeded earlier and more frequently next year.

Cruiser cilantro was the best variety out of calypso, marino, and cruiser. It was the slowest to bolt. Germination was improved this year by row covering the soil after seeding to prolong soil moisture.

Genovese basil was planted in 1 bed in High Tunnel 3. Aim to seed basil a week earlier next year. The quantity planted was perfect. We harvested off it all season long and plants did not suffer enough disease pressure to decrease yields.

### **Perennial Herbs**

Oregano, Sage, and Thyme were available in the perennial bed and from Allison's raised beds. They were offered in the spring CSA and then as "you cut" during the summer CSA.

## Onions



In 2018, the storage onion Patterson, sweet onion Ailsa Craig, and red onions Cabernet and Monastrell were planted. Everything did well except for Monastrell, which didn't size up as well as Cabernet did. Quantities were adequate.

## Peppers



Varieties planted were: Carmen (sweet Italian frying pepper), Ace (red bell), and Glow (orange snack pepper). All peppers had an extreme aphid infestation which was treated mostly unsuccessfully with insecticidal soap. As summer went on and temperatures rose, aphid numbers decreased and "mummies" were found, evidence of a parasitic wasp population. Carmen was the best variety. Glow was unique, and Ace was unimpressive, not worth planting again. In the past, it has been planted because it was supposedly the earliest to mature, however, Carmen and Glow ripened at similar times.



## Potatoes



Varieties planted included: Dark Red Norland, Yukon Gem, Purple Pelisse, Mozart, and Huckleberry Gold. New potatoes were offered twice in CSA and the rest were offered as harvested. All varieties performed well and tasted ok. Potatoes were planted May 30 (later than ideal in order to accommodate student interaction and wet soil conditions). Seed potatoes were weighed and cut into approximately 2 oz seed pieces.

## Roots: Carrots, Beets, Radishes, Turnips



Carrot varieties grown were: Napoli, Mokum, Bolero, Hercules, Malbec, and Scarlet Nantes. Napoli carrots from SERP were the first to mature and made it into the spring greens CSA. Carrots planted in the greens garden at the end of April never matured. Malbec was a red variety that was new. It was better than the purple varieties trialed in the past, but not very impressive. Fertilize and plant more successions of carrots next year.

Beets (Red Ace, Touchstone Gold, and Chioggia) did about as predicted. These are tried and true varieties at Towne's.

French Breakfast, Rover and KN-Bravo daikon radishes were planted. These were good varieties, and we could have planted a few more successions to have a more regular supply. Flea beetle is an issue and must be controlled with a Pyrethrin, to prevent total foliar dissemination, and root damage (fall).

Hakurei Salad Turnips are always a favorite. They are always infested by cabbage root maggots later in the spring. The last planting in May was almost a total loss. They do well in the fall.

### Tomatillos



Toma Verde tomatillos were planted on black plastic mulch. One hundred row feet was planted and provided more than enough tomatillos for CSA, farm stand, and to make a large batch of salsa verde which will be distributed in the spring next year. Less could be planted next year.



## Tomatoes



### **Cherry Tomatoes**

Varieties grown included: Sungold, Supersweet 100 F1, and Indigo Cherry Drops. Flavor on all was good. Indigo Cherry Drops were not as popular as last year, maybe worth replacing with a different variety. Sungold and supersweet 100 were well liked and purchased.

### **Slicing Tomatoes**

Planted in SERP was: Purple Cherokee and Estiva. Estiva was planted for the Welcome Back Picnic as a uniform variety that is sturdy, it had these qualities but lacked in taste. Purple Cherokee performed well. In the Fan Tunnel we planted: Marbonne, Marnero, and Green Zebra. All varieties experienced some cracking until we went to an everyday watering schedule, do this sooner next year. There was some blossom end rot, but not as bad as last year.

## Summer Squash



A total of 600' of summer squash was planted consisting of the varieties: Dunja, Dark Star, Tempest yellow summer squash, and Y-Star patty pan. For zucchini, Dunja was more productive and matured at the same time as Dark Star. Tempest added some nice variety. Customers liked having patty pan squash as well. Next year, plant less, and keep the variety or add more.

## Winter Squash



In 2018 winter squash was grown from transplants into plastic mulch 1, 400' row of each: Acorn, Butternut, and Delicata. Angel spaghetti squash was planted, and was the only squash variety to die during the June 12th frost. A squash taste test conducted by Culinary Arts student Courtnee Stipp ranked varieties as follows: Honey Boat delicata, Sweet Dumping Delicata, Bush Delicata, Jester Delicata, JWS Butternut, and Taybelle Acorn.



**Delicata: Honeyboat, Sweet Dumpling, Bush, and Jester**

All varieties yielded comparably and produced fruit that ripened in storage. Honeyboat and Sweet Dumpling were the best tasting and should be planted again next season. Sweet Dumpling has thinner skin and is starting to get soft in storage, while Honeyboat is not.

**Butternut: JWS**

Plants produced fruit that just barely ripened. Decent flavor, small seed cavities. A good variety to plant again since customers favor butternuts and acorn squashes.

**Acorn: Taybelle**

Produced well, but had poor taste. Did not taste any worse than last years Acorn variety though. It is worth planting since people want to buy it. Does not store as well and doesn't taste great, unfortunately.

**Racer (F1) Jack-o-Lantern Pumpkin**

Two, 200' beds produced triple the number of pumpkins needed to give each CSA member one pumpkin. Pumpkins did not sell well at farm stand and we ended up taking a little less than 100 pumpkins to the food bank, which was a great donation!



## Pest management



### **Flea Beetle**

Flea Beetle affected almost all brassica crops throughout their lifecycle. Excluding flea beetle with row cover is ineffective. Flea beetle pressure in the high tunnels is lower, plant brassicas where leaf quality is important in the tunnels. Spraying with Pyganic is effective and should be done early.

### **Cabbage Moth**

Cabbage Moth affected Lacinato Kale, Cabbage, Broccoli, and Cauliflower. Dipel was applied at least weekly once white butterflies were observed and worked well to manage the pest.

### **Cabbage Root Maggot**

Cabbage Root Maggot damages Hakurei Turnip roots in the late spring in the high tunnels. Avoid this by planting in early spring and fall, and accept that the last harvest in spring will probably have high damage. There is an organic approved control, but it would have to be submitted to the Montana Department of Ag for review before using.

### **Aphids**

Aphids on the peppers in High Tunnel 3 were worse than last year. Undersides of all leaves were almost 100% covered. They were treated with insecticidal soap which helped some, but was not that effective. As summer went on, there were parasitic wasps, and aphid mummies. Despite the high aphid population, yields did not seem to be affected.

### **Deer**

Deer ate summer squash and lettuce before the deer fence was installed. The Horticulture Farm now has an 8' electrified fence around the entire farm. Deer are able to jump over it and through it, but it deters the majority of them.



## Irrigation



There are many factors that go into deciding what locations and crops receive certain types of irrigation. Towne's Harvest Garden has access to ground and surface water and can distribute it through overhead sprinklers run off handline, overhead lawn type sprinklers, and through drip irrigation systems. Our well water and pond water is tested each year to determine that the well water used for washing produce is free of E.Coli, and that the pond water has a low enough level to be safely used. In accordance with the THG GAP plan, surface water from the pond is only used to irrigate crops that are typically cooked (winter squash, onions, leeks, garlic), to reduce the chance of E.Coli on produce. All other crops are irrigated with well water. Blocks 1-4 planted in diverse vegetables are irrigated with overhead sprinklers off of handline that connects to the well with 2" blue hose, and runs at a much higher pressure than a garden hose. Small areas such as the greens garden are watered using a garden hose and lawn type sprinkler. High tunnel crops are mostly irrigated with drip. Crops planted on plastic mulch in Blocks 1-4 are also watered with drip. Drip irrigation is great for crops prone to

foliar diseases that can be prevented by keeping leaf surfaces dry (tomatoes, peppers, winter and summer squash).

From a food safety standpoint, it would be prudent to reduce or eliminate irrigation from the pond. The E.Coli risk is quite high and it cannot be guaranteed that customers will cook this produce. Running the pond pump and moving as well as continually fixing handline is very labor intensive and inefficient. It would be safer/more efficient to plant all crops in Blocks 1-4 where they will receive overhead irrigation from the well if space allows.

## Soil Fertility Management

As a whole, in field locations at THG, phosphorus and potassium levels are high, and nitrate is low. Supplemental nitrogen is required in the field to grow most crops, especially brassicas. In the high tunnels, planting media has less topsoil so the nutrient disparity is smaller. 8-2-4 fertilizer is used in all tunnel settings. In the field and tunnels, fertilizer is applied at a rate of 3 lb N/ 1,000 SqFt.

### Towne's Harvest Garden Compost

Natalie Sturm SBFS 298 – Fall 2018

Towne's Harvest Garden (THG) has almost always had compost piles. The piles have been upkept with varying degrees of management throughout the past few years. Currently, the compost pile at THG is comprised mainly of vegetable crop residue and straw/hay. The current pile has had minimal management for the past year, so while it is productive, it is not creating compost as fast as it could. However, there is some increased interest in the compost at THG (for example, measurements of the pile temperature are being taken). Measurements of the compost pile at THG were taken September 2018: 10 ft. x 4 ft. cone-shaped pile = ~100 ft.<sup>3</sup> compost.

The pile is not nearly large enough to supplement the fertilizer needs of THG. In fact, this pile would only cover half an acre if applied at the rate of 16<sup>th</sup> of an inch deep. To cover the entire 3-acre farm in 1 inch of compost THG would need a *much* larger pile: 300 ft. long x 4 ft. high x 10 ft. wide windrow = ~12,000 ft<sup>3</sup> compost. A compost windrow of the size described above would create enough compost to cover the entire 3 acres in 1 inch of compost.

This raises the question of the desirability and sustainability of using solely compost to supplement the nutritional needs of the crops grown at THG. Creating and managing a compost pile of the large size described above could be a part- or full-time job all by itself. Additionally, acquiring enough food waste, crop waste, and dry material to create a pile of this size would be a challenge.

Happy Trash Can Compost is an example of a company managing a compost pile of a size comparable to the size that would be needed at THG. Happy Trash Can collects residential and commercial food waste from households and businesses in Bozeman. Their compost pile has the following dimensions: 67.5 ft. long x 19.5 ft. wide x 4 ft. high = ~5,250 ft<sup>3</sup> compost. The Happy Trash Can pile would supply enough compost to cover the 3 acres of THG in about 0.45 inches of compost. The compost calculations detailed above indicate that compost would most likely not be adequate as the sole source of nutrients for THG crops. However, when used in conjunction with other techniques such as cover cropping, compost can be an effective tool to increase the fertility and enhance the quality of the soil at THG.

## Supplemental CSA Information

### CSA Distribution Logs

#### Spring Greens Share: May 23 - June 27

2018 CSA Spring Greens CSA  
6 weeks @ \$165. \$27.50 per week  
30 members

#### Week 1

1. Arugula
2. Spicy micro mix
3. French breakfast radish
4. Hakurei salad turnips
5. Toscano kale
6. Microgreens
7. Chives
8. Sage



9. Thyme
10. Oregano
11. THG pickles made at Roots Kitchen & Cannery

**Week 2**

1. Encore lettuce mix
2. Spicy micro mix
3. Minuet chinese cabbage
4. Black summer pac choi
5. French breakfast radish
6. Space spinach
7. Toscano kale
8. Rhubarb
9. Oregano
10. THG assorted tomato starts

**Week 3**

1. Bright lights swiss chard
2. toscano/winterbor/darkibor kale medley
3. Black summer pac choi
4. Winner kohlrabi
5. Hakurei salad turnips
6. Concept batavian head lettuce
7. Minuet or tiara cabbage
8. Spicy micro mix
9. Arugula
10. Lemon balm

**Week 4**

1. Green magic broccoli
2. Guardsman green onion
3. Hakurei salad turnips
4. Winterbor / redbor kale
5. Red ace beets
6. Napoli carrots
7. Tiara green cabbage
8. Arugula / Spicy micro mix blend
9. Chives

**Week 5**

1. Darkibor/toscana kale
2. Quickstar kohlrabi
3. Arugula
4. Encore lettuce mix
5. Emperor/corvair/woodpecker spinach
6. Tiara green cabbage
7. Hakurei salad turnips
8. Garlic scapes
9. Sage
10. Tarragon

**Week 6**

1. All-star lettuce mix
2. Emperor/woodpecker spinach
3. Guardsman green onions
4. Red ace beets
5. Napoli carrots
6. Rover radish
7. Darkibor/winterbor/toscana kale
8. Quickstar kohlrabi
9. Tiara green cabbage
10. Green magic broccoli
11. Garlic scapes
12. Winter pea edible flowers

**Summer Share: July 11 - October 10**

2018 CSA Main Season CSA  
14 weeks @ \$385. \$27.50 per week  
\$300 special rate for students  
48 members

**Week 1**

1. All-star lettuce mix
2. Arugula
3. Red ace beets
4. Napoli carrots

5. Cucumbers - mixed varieties
6. Redbor/winterbor/darkibor kale
7. Tiara green cabbage
8. Green magic broccoli
9. Garlic scapes

**Week 2**

1. All-star lettuce mix
2. Arugula
3. Super sugar and PLS 141 sugar snap peas
4. Salanova head lettuce
5. Cucumbers - mixed varieties
6. Redbor/toscana/darkibor kale
7. Tiara green cabbage
8. Cruiser cilantro
9. Garlic scapes
10. Zucchini - mixed varieties

**Week 3**

1. All-star lettuce mix
2. Dark red norland new potatoes
3. Super sugar and PLS sugar snap peas
4. KN-Bravo daikon radishes
5. Cucumbers - mixed varieties
6. Winterbor/darkibor kale
7. Tiara green cabbage
8. Calypso cilantro
9. Hera dill
10. Zucchini - mixed varieties
11. Windsor fava beans

**Week 4**

1. Cucumbers - mixed varieties
2. Salanova head lettuce
3. Early jalapeno peppers
4. Moss curly parsley
5. Genovese basil
6. Bright light swiss chard



7. Mokum carrots
8. Calypso cilantro
9. Hera dill
10. Zucchini - mixed varieties
11. Windsor fava beans
12. Red ace/touchstone gold/chioggia beets
13. Uncured garlic

**Week 5**

1. Cucumbers - mixed varieties
2. Moss curly parsley
3. Genovese basil
4. Bright lights swiss chard
5. Winterbor/redbor kale
6. Ailsa craig sweet onion
7. Calypso cilantro
8. Provider green bean
9. Zucchini and yellow summer squash
10. Sungold/indigo cherry drop tomatoes OR purple cherokee slicing tomato

**Week 6**

1. Cucumbers - mixed varieties
2. Giant of italy flat leaf parsley
3. Genovese basil
4. Bright lights swiss chard
5. Winterbor/redbor kale
6. Ailsa craig sweet onion
7. Calypso cilantro
8. Red express cabbage
9. Provider green beans
10. Yukon gem new potatoes
11. Purple cherokee/estiva/marbonne/green zebra slicer tomatoes
12. You pick herbs

**Week 7**

1. Cucumbers - mixed varieties
2. Zucchini/yellow summer squash/patty pan squash
3. Giant of italy flat leaf parsley

4. Ace/carmen/glow sweet peppers
5. Red ace/touchstone gold/chioggia beets
6. Mokum/bolero carrots
7. Genovese basil
8. Bright lights swiss chard
9. Winterbor/redbor kale
10. Ailsa craig and cabernet onions
11. Provider/EZ-pick/tavera green beans
12. Sungold/indigo cherry drop/supersweet 100 cherry tomatoes
13. You pick herbs

### **Week 8**

1. Zucchini/yellow summer squash/patty pan squash
2. Moss curly parsley
3. Ace/carmen/glow sweet peppers
4. Genovese basil
5. Winterbor/redbor kale
6. Imperial broccoli
7. Red express cabbage
8. Megaton leeks
9. Ailsa craig sweet onion
10. Seaside spinach
11. Hera dill
12. Cherokee purple/estiva/marbonne/green zebra slicer tomatoes
13. You pick herbs

### **Week 9**

1. Giant of italy flat leaf parsley
2. Ace/carmen/glow sweet peppers
3. Genovese basil
4. Megaton leek
5. Ailsa craig onion
6. Conservor shallots
7. KN-Bravo daikon radishes
8. Yukon gold/dark red norland potatoes
9. Early jalapenos
10. Hera dill
11. Cherokee purple/estiva/marbonne/green zebra slicer tomatoes

## 12. You pick herbs

**Week 10**

1. Moss curly parsley
2. Cucumbers - mixed varieties
3. Woodpecker spinach
4. Genovese basil
5. Ace/carmen/glow sweet peppers
6. Zucchini/yellow summer squash/patty pan squash
7. Ailsa craig onion
8. King richard leek
9. Red ace/touchstone gold/chioggia beets
10. Garlic
11. Toma verde tomatillos
12. Early jalapenos
13. Cruiser cilantro
14. Hera dill
15. Cherokee purple/estiva/marbonne/green zebra slicer tomatoes
16. You pick herbs

**Week 11**

1. Moss curly parsley
2. Winterbor/redbor kale
3. Genovese basil
4. Ace/carmen/glow sweet peppers
5. Zucchini/yellow summer squash/patty pan squash
6. Ailsa craig onion
7. King richard leek
8. Red ace/touchstone gold/chioggia beets
9. Hercules/bolero carrots
10. Garlic
11. Toma verde tomatillos
12. Early jalapenos
13. Cruiser cilantro
14. Hera dill
15. Cherokee purple/estiva/marbonne/green zebra slicer tomatoes
16. You pick herbs



**Week 12**

1. Taybelle acorn squash
2. Purple pelisse potato
3. Ace/carmen/glow sweet peppers
4. Zucchini/yellow summer squash/patty pan squash
5. King richard leeks
6. Babybeet beets
7. Hercules/bolero carrots
8. Garlic
9. Toma verde tomatillos
10. Hakurei salad turnips
11. Concept/cherokee head lettuce
12. Early jalapenos
13. Cruiser cilantro
14. Hera dill
15. Moss curly parsley
16. Sungold/indigo cherry drops/supersweet 100 cherry tomatoes

**Week 13**

1. JWS butternut squash
2. Mozart potatoes
3. Ace/carmen/glow sweet peppers
4. King richard leeks
5. Babybeet beets
6. Bolero carrots
7. Garlic
8. Hakurei salad turnips
9. Conservor shallots
10. Concept/cherokee head lettuce
11. Early jalapenos
12. Mars celeriac
13. Winterbor/redbor kale

**Week 14**

1. Racer pumpkin
2. Patterson storage onion
3. JWS butternut squash
4. Taybelle acorn squash

5. Jester and Bush delicata squash
6. Huckleberry gold/french fingerling and mozart potatoes
7. Conservor shallots
8. King richard leeks
9. Chioggia beets
10. Bolero and scarlet nantes carrots
11. Hard and soft stem garlic
12. Ace/carmen and glow sweet peppers
13. Mars celeriac
14. KN-Bravo daikon radish
15. Red express cabbage
16. Amazing cauliflower

## CSA Information Packet

### Welcome to the 2018 season!

Thank you for your interest in supporting Towne's Harvest Garden! THG is MSU's 3-acre, certified organic campus farm. 2018 will mark our 12<sup>th</sup> growing season, and we are looking forward to a field full of crops, teaching growing principles to the next generation of farmers, and your involvement!



### What is a CSA?

A CSA (community supported agriculture) membership is a mutually beneficial relationship between small farms and community members. A member helps support a farm in the beginning of the season when funds are low by paying upfront for a summer's worth of produce. The farm is then able to financially sustain itself in the early season through harvest. **As a member**, you will receive a weekly supply of **certified organic** vegetables from our farm, advice during distribution, online newsletters, recipe suggestions, and much enthusiasm from our students and staff!



### How it works!

This year we will continue offering our spring greens, summer, student summer, and full season share options. If you have any questions, recommendations, or need assistance filling out your member agreement, don't hesitate to contact THG's **Marketing Manager** @ [townes.harvest@gmail.com](mailto:townes.harvest@gmail.com), (**Dylan Fishman: 406-925-3858**) or Production Manager Elisa Boyd: 720-771-3839)



### CSA Membership Options

**All members** – We will provide you with a THG reusable bag your first visit, which we will ask you to bring back each week to carry your vegetables home in. We will also send you a weekly, online newsletter describing your share of the harvest and recipes to help utilize your veggies! As a member, you will be the first to be informed about exciting events and any additional produce bundles for sale towards the end of the season. Each week you will come to our farm and pick out the individual bundle of each item we have to offer, while our students and staff assist you with recommendations on how to use the items. Finally, you will be respected and shown a season's worth of gratitude for supporting Towne's Harvest Garden through yet another year!

- **Full Season Share** (20 weeks, May 23-Oct 10 - Wednesday farm pickup 4-6:00pm)  
\$540 (\$10 discount!)

This share combines the Spring Greens Share and Summer Share, along with a discount.

- **Spring Greens Share** (6 weeks, May 23-June 27 – Wednesday farm pickup 4-6:00pm)  
\$165 Limited Supply - only 30 shares available!

This share provides 30 lucky members with pre-season produce! A variety of greens and early roots will fill your refrigerator drawers each week, accompanied by herbs, and any additional early season vegetables that we are able to offer. Start your summer off right! Same as last year, eggs will not be offered as part of the share.

- **Summer Share** (14 weeks, July 11-October 10 - Wednesday farm pickup 4-6:00pm)  
\$385

This is our summertime share, which includes all of the crops we have planted, with more variety as summer progresses! This share includes produce for an average family of 2-4 people.

- **Student Summer Share** (14 wks, July 11-Oct 10 – Wednesday farm pickup 4-6:00pm)  
\$300 Limited to the First 20 Students

This discounted share is designated for STUDENTS ONLY. A current student ID is required. This is the same as the Summer Share. As students, this share may be split among housemates to further reduce costs. We sincerely wish to increase student veggie consumption, so tell all the students you know!

- **Donations** (donation checks may be post-dated)

For every \$25 you donate to support THG, you will receive \$5 in THG Market Bucks, eligible for redemption at any of our farm stand markets.

Donors offering \$100 will also receive a THG hat of their choice, along with \$20 in market bucks.

Tax-deductible donations can be made through the MSU Alumni Foundation.

Contact Gianna Vanata: [gianna.vanata@msuaf.org](mailto:gianna.vanata@msuaf.org)

### Map to Towne's Harvest Garden

The map shows a grid of streets. West College Avenue runs horizontally at the top. West Garfield Avenue runs horizontally below it. South 19th Avenue runs vertically on the right side. A dirt road branches off West Garfield Avenue and runs south. Key locations are marked with boxes: Chronicle Building (top left), Technology Park (top right), Miller Pavilion (middle left), and a Parking Lot (bottom left). The MSU Horticulture Farm is located south of West Garfield Avenue, east of the dirt road. A north arrow is on the left, and an arrow points east towards the Montana State University logo with the text 'to campus'.

**Directions:** From Main St. turn south on 19th Ave., turn right on Garfield, turn left at the Bozeman Area Research and Teaching (BART) Farm sign, drive down the dirt road and Towne's Harvest Garden is on the left. CSA pick up is in the big building.

**Spring Greens Share**  
 6 weeks, May 23-June 27  
 Wednesday farm pickup 4-6:00pm

**Summer Share**  
 14 weeks, July 11-October 10  
 Wednesday farm pickup 4-6:00pm

**Full Season Share**  
 20 weeks, May 23-October 5  
 Wednesday farm pickup 4-6:00pm

**Campus Farm Stand**  
 For the remainder of your vegetable needs visit our farm stand on Thursdays from 4-6pm, July 12 - October 4. The stand is located south of the MSU SUB, at the entrance of the bus loop on 7<sup>th</sup> and Grant.

**Member Agreement Application**

Name(s):

Address:

Phone:

e-mail (please print legibly):

*Include all emails to which the weekly newsletter should be sent.*

Have you been a CSA member before? \_\_\_\_\_ Where? \_\_\_\_\_

**Please select which options you wish to support.**

- Spring Greens Share - \$165
- Summer Share - \$385
- STUDENTS ONLY Summer Share - \$300
- Full Season Share - \$540
- Donation (indicate amount) - \$\_\_\_\_\_

**Please enclose application and check payable to****Towne's Harvest Garden  
Montana State University  
328 Reid Hall  
Bozeman, MT 59717****Or sign up and pay online at:**<http://townesharvest.montana.edu/communitysupportedag/>Additional questions and concerns: THG Marketing Manager [townes.harvest@gmail.com](mailto:townes.harvest@gmail.com)  
**Dylan Fishman 406-925-3858** or Production Manager Elisa Boyd @ 720-771-3839)



*Member understands and agrees that the harvest may vary dramatically from week to week due to weather, pest control, hail, and many other factors which affect plant growth and development. Member further understands that although Towne's Harvest Garden will use its best efforts to grow and harvest produce, it does not guarantee any harvest whatsoever at the garden during any of the stated weeks. Member further understands and agrees that the share payment is non-refundable regardless of actual production. Member also understands and agrees that while Towne's Harvest Garden is associated with MSU, Montana State University has no responsibility for the garden and makes no representations whatsoever as to the quantity or quality of production at the garden.*

**Member** \_\_\_\_\_ **Date** \_\_\_\_\_

Thank you for your support.  
The Towne's Harvest Crew can't wait to see you this season!



## Sample CSA Newsletter

12/6/2018

Spring Greens: Week 4

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Spring Greens: Week 4

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## Spring Greens: Week 4

These past two weeks we transitioned from spring to summer by transplanting some of our favorite plants into our hoop houses. Last week we took out a lot of our greens, which can thrive outside just fine now, and put in the last of our tomatoes, peppers, and eggplants.



Despite our summer preparations, on Monday morning our weather applications predicted a night of freezing weather. We took heed of this warning and took the time to row cover more of, but not all of, our winter squash and green beans. All we could do was hope that the weather would stay above freezing, or only dip below for a short period of time.

Upon waking up Tuesday morning, the weather station on the farm reported temperatures of 32 degrees at 3:00am and 30 degrees at 6:00am which means we had at least three hours of freezing and below freezing temperatures. We hesitantly came to the farm to find frost resting on a lot of our outdoor vegetables in the field.

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Spring Greens: Week 4

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When the frost is still on the plants, it's really hard to tell if the plant is going to be okay or not. We discussed the implications of this frost and waited until the sun took its official position in the sky and melted the frost away to assess the damage. We found that we had lost some squash, pumpkins, and maybe some chard, but not nearly as much as we thought we were going to lose! We would've lost more if we hadn't row covered our squash on Monday, and would've been facing close to total losses on both summer and winter squash. Instead, we saved a couple rows so that we still have some squash coming our way, but now we have to decide a plan of action - do we seed more and hope it ripens in time? Do we buy transplants from someone to ensure a healthy, quick start, and ripe fruit? This is still a discussion that we have to have and decide upon.





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have some really amazing additions to offer all of our members including some root crops that stray away from the theme of spring greens, but are an essential part of Montana's early season food system. Enjoy this week's offering, and please come prepared to CSA pickup with some stories and experiences from what you received last week, how the weather affected your plants, or anything else you think we may find interesting!

## Student Biography

by Kellene Zepeda



Katherine Going is a Sustainable Food and Bio Energy Systems major at MSU. Her degree has a concentration on Sustainable Food Systems. She was born in San Francisco, California, but she was raised in Mount Vernon, Washington. Katherine's favorite vegetable is the snap pea, however, she told me that choosing a favorite vegetable is almost impossible. She was fortunate to be exposed to farming and gardening as a child and young adult with her family. They grew snap peas, tomatoes, strawberries, green beans, pumpkins and various other varieties of fruits and vegetables.

The experience of cooking the food that was grown in the family garden sparked her

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Spring Greens: Week 4

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interested in studying sustainable food systems at MSU. After college, she would like to volunteer with the Jesuit Volunteer Corps through their Urban Food Systems program. This will give her the experience in community supported gardening, immigrant nutritional education, and farm to table education for young people which is the field that she would like to have a career in in the future.

## What's in the CSA this week?

### Spring Greens: Week 4

Green Magic (F1) Broccoli\*  
 Guardsman Green Onions\*  
 Hakurei (F1) Salad Turnips  
 Redbor (F1) and Winterbor\* (F1) Kale  
 Red Ace (F1) Beets\*  
 Napoli (F1) Carrots\*  
 Tiara (F1) Green Cabbage\*  
 Spicier Mix (Arugula and Spicy Micro Mix)  
 Chives

\* = new variety or item

## Do I Need to Bring Anything?



Towne's Harvest Garden is trying to use the least amount of plastic as possible - therefore, we ask that you please bring your own large reusable grocery bags and small produce bags every week. We will have extra produce bags on hand, but we'd love it if we could reduce the amount we provide to zero. Other than that, just bring us any questions you might have and a smiling face!

## Favorite Veggie Report:

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Spring Greens: Week 4

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Broccoli  
by Jen Jones

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Broccoli (*Brassica oleracea*), a well-known vegetable that is hated by some and loved by others, is a member of the Brassicaceae family, along with cauliflower, Brussels sprout, and cabbage. Interestingly, its plant family was once referred to as the Cruciferae, or “cross-bearing” family, due to the cross-like image formed by the four petals of the plants’ flowers. <sup>1</sup> Typically grown in cooler temperatures, broccoli can be a tough vegetable to grow in Montana, as it requires constant moisture. Some varieties that grow better in our climate are the Green Magic, Gypsy, Diplomat, and Arcadia hybrid varieties. From direct seed, broccoli can take anywhere from 64 to 160 days to mature, depending on the variety. Transplants will take 44 to 140 days to mature. Although usually green, broccoli can also come in purple varieties. <sup>2</sup> While broccoli florets are typically the only part of the plant eaten, broccoli stems are edible as well and make for a great snack to munch on throughout the day. Among other benefits, broccoli provides a whole list of nutrients, including vitamins A, B, and C; magnesium; calcium; potassium; iron; zinc; and carotene. <sup>3</sup> Many people revolt at the thought of eating broccoli in its raw form, which is understandable, due to its bitter, somewhat “pungent” taste. <sup>4</sup> However, it can be prepared in a variety of ways that make it both delicious and healthy. <sup>5</sup> Simply steam it, roast it, or sauté it with a dash of pepper, salt, and red pepper flakes, and the problem is solved. One of my favorite ways to prepare broccoli is to use it in a cream of broccoli soup. <sup>6</sup>

In this week’s CSA, Towne’s Harvest Garden is featuring Green Magic (F1) broccoli, a unique hybrid variety that really is a bundle of green “magic” for several reasons. First, this particular variety has an exceptional tolerance to heat, which is amazing, considering that most broccoli varieties fail to perform well in hot climates. Second, Green Magic grows incredibly uniform, smooth, and attractive-looking, blueish-green broccoli heads, making for nice presentation; the flavor is even pleasantly “buttery,” according to some <sup>7</sup>. Third, its days to maturity from transplants are comparatively short, only fifty-seven, compared to another variety’s seventy-one. <sup>8</sup> Lastly, Green Magic broccoli, as well as broccoli in general, is considered a super food because of its cancer-fighting capabilities found in its incredible compound, sulforaphane. <sup>9</sup> No more skimping on the broccoli!

<sup>1</sup><http://www.newworldencyclopedia.org/entry/Broccoli>



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Spring Greens: Week 4

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- [4 https://www.huffingtonpost.com/2013/07/11/broccoli-taste-obama-bush\\_n\\_3575686.html?slideshow=true](https://www.huffingtonpost.com/2013/07/11/broccoli-taste-obama-bush_n_3575686.html?slideshow=true)
- [5 https://www.huffingtonpost.com/2013/07/11/broccoli-taste-obama-bush\\_n\\_3575686.html?slideshow=true#gallery/272762/0](https://www.huffingtonpost.com/2013/07/11/broccoli-taste-obama-bush_n_3575686.html?slideshow=true#gallery/272762/0)
- [6 https://www.marthastewart.com/897878/cream-broccoli-soup](https://www.marthastewart.com/897878/cream-broccoli-soup)
- [7 https://parkseed.com/green-magic-hybrid-broccoli-seeds/p/52493-PK-P1/](https://parkseed.com/green-magic-hybrid-broccoli-seeds/p/52493-PK-P1/)
- [8 https://www.huffingtonpost.com/2012/02/29/broccoli-cancer-sulforaphane\\_n\\_1310634.html](https://www.huffingtonpost.com/2012/02/29/broccoli-cancer-sulforaphane_n_1310634.html)



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Contact Dylan Fishman at  
(847) 409-5567 with any questions

CSA Flyer

# Towne's Harvest Garden






*Locally, Sustainably and Educationally Grown*




## 2018 CSA Program

<b>Full Season</b>	<b>Spring Greens</b>	<b>Summer Season</b>	<b>Student Summer Share</b>
May 23rd - Oct 10th	May 23rd - June 27th	July 11th - Oct 10th	July 11th - Oct 10th
20 weeks of fresh vegetables and herbs	6 weeks of spring vegetables and herbs	14 weeks of summer vegetables and herbs	14 weeks of summer vegetables and herbs
most variety of produce and u-pick opportunities	earliest produce available	produce at the peak of our growing season and u-pick opportunities	special student only deal on summer produce and u-pick opportunities
<b>\$540</b> (you save \$10)	<b>\$165</b>	<b>\$385</b>	<b>\$300</b> (you save \$85)

order online at our web page:  
[Townesharvest.montana.edu](http://Townesharvest.montana.edu)  
[Townes.Harvest@gmail.com](mailto:Townes.Harvest@gmail.com)  
 (847) 409 5567

or by mail:  
 Towne's Harvest Garden  
 Montana State University  
 328 Reid  
 Bozeman, MT 59717



## President's Lunch Article for Plant Science Says Newsletter

viruses affecting forest trees, grape vines, almond trees, and other plants of economic importance in the Pacific area. The graduate student presentations saw both domestic and international students presenting on a large variety of diseases affecting agriculture, forest systems, turf grass, and even the florist industry. The benefit of attending this conference was seeing such a wide variety of research topics that represent economic importance in other areas of the country and internationally. It was an eye opening and refreshing experience.

Valerie Smith, Research Associate at the Southern Agricultural Research Center, presented work from sugar beet research in Huntley at the poster session Tuesday evening. Other authors included Myron Bruce, Barry Jacobsen, Ken Kephart, and Jessica Rupp. On Tuesday night we had a delicious banquet and socialized with new and familiar faces.

The presentations continued on Wednesday morning. MSU graduate student Carmen Murphy presented her research about detection and location in the field of *Aphanomyces* root rot on peas and lentils in Montana, PI Mary Burrows. Wednesday afternoon wrapped up the conference with a diverse topic range, with special interest topic IPM for plant pathology, and the concept of thresholds for pathologists. After the afternoon session it was off to the airport to head back to Bozeman, to continue our cereal, pulse, potato, and beet research.

### **Towne's Harvest Garden President's Lunch**

**By Elisa Boyd**

Towne's Harvest Garden, located on MSU's Horticulture Farm, is comprised of about three acres of diverse vegetables and cover crops. This research and teaching farm offers community supported agriculture (CSA) shares, two farm stands, and donates produce to the Gallatin Valley Food Bank.

Every year Towne's Harvest Garden hosts the President's Lunch in the grove of the



*Marcy Gaston introducing the Culinary Marketing: Farm to Table class.*



*Centerpieces and appetizers grown and prepared by Culinary Marketing: Farm to Table and Towne's Harvest Garden Summer Practicum students.*

Farm. Students from the Sustainable Foods and Bioenergy Systems Summer Practicum and Culinary Marketing classes collaborate to bring dishes made from local ingredients and produce grown at Towne's Harvest to the table for faculty and staff invested in the SFBS program, including Waded Cruzado.

Dishes this year followed a Moroccan theme and included: Lentil humus with cucumbers and radishes, lamb, beet stew, Montana Harira, as well as Moroccan spiced carrot and beet cake. Students also put together arrangements for the tables from flowers grown on the farm.



Students in the SFBS summer practicum spend over ten hours each week on the Farm engaging in daily farm activities. By the end of the course, students understand safe harvest and handling procedures, production concepts including crop variety selection, weed identification and management, and soil fertility management. Students in both the practicum and culinary marketing participate in the weekly CSA distribution and two farm stands. Culinary marketing students focus on preparing and preserving seasonal produce.

We welcome everyone to come out and visit Towne's Harvest Garden and see the hard work these students have put in over the summer.

#### **Pollinator Symposium By Michelle Flenniken**

On August 9, the MSU Pollinator Health Center will host a Pollinator Symposium in the Weaver Room of the Emerson from 6:30 - 8:30 pm. This event will feature short research talks by MSU graduate students, a presentation and short films by nature photographer Clay Bolt, and a Q&A session with local bee experts including Co-directors of the Pollinator Center Laura Burkle and Michelle Flenniken.

#### **Grants**

Greg Chorak, Aquatic Plant Management Society, "Identifying Eurasian and hybrid watermilfoil gene expression differences in response to frequently used herbicides for improved adaptive management".

Regarding the above Grant: Student initiatives are among the most important core values of the Aquatic Plant Management Society. High on the list of student support programs is the Graduate Student Research Grant (GSRG) offered by APMS in the area of aquatic plant management and ecology. This academic grant is co-sponsored by APMS and the seven regional APMS chapters: Florida, MidSouth, Midwest, Northeast, South Carolina, Texas, and Western. This grant is

awarded biannually for the most qualified proposal submitted.

Jamie Sherman, "Barley Breeding for Montana: Ensuring a stable malt supply", American Malting Barley Association.

David Sands, "Biocontrol of Field Bindweed and Canada Thistle", Organic Advisory and Education Council.

Mike Ivie, "Pine Shoot Beetle Trapping", Montana Department of Agriculture.

Mike Ivie, "Exotic Woodborer and Bark Beetle" Montana Department of Agriculture.

Hikmet Budak, "Acquisition of Goods and Services" U.S. Department of Agriculture.

#### **Publications**

##### Thum Publication Wins Award

On July 17, 2018, at the Aquatic Plant Management Society in Buffalo, NY, Ryan Thum along with his coauthors won an award for Outstanding Journal of Aquatic Plant Management Paper.

Thum, R., Parks, S., McNair, J. N., Tynning, P., Hausler, P., Chadderton, L., Tucker, A., Monfils, A. (2017). Survival and vegetative regrowth of Eurasian and hybrid watermilfoil following operational treatment with auxinic



*Dr. Jay Ferrell, Editor in Chief of the Journal of Aquatic Plant Management, awarding Ryan Thum the Outstanding Journal of Plant Management Paper Award.*



# THANK YOU

for a great 2018 season

