

The Bach Biodynamic Research and Planting Calendar

Based on indications given by Rudolf Steiner



2016

Introduction

Welcome to the 2016 edition of the *Bach Biodynamic Research and Planting Calendar*. This year's calendar will continue to investigate the various lunar and cosmic rhythms that affect the germination of seeds and subsequent growth and vitality of plants. In the 2015 calendar, planting trials were conducted during the waxing and waning moon phases of the synodic cycle, and also during apogee (when the moon is furthest from the earth) and perigee (when the moon is closest to the earth). This rhythm is known as the anomalistic cycle. Previous trials in this calendar have demonstrated that perigee offers one of the best times to plant, and that planting two days before a full moon, as advocated by Rudolf Steiner in his 1923 lectures¹ also is of benefit to above ground crops. In the 2014 edition of this calendar, results showed that below ground crops may, in fact, best be sown two days before a new moon or during perigee. In the 2015 calendar, three trials were conducted to research this phenomenon. Results were mixed. Good results for beets and radishes were obtained two days before a new moon, but carrots had higher weights when sown two days before a full moon, rather than two days before a new moon. The beet trial was an interesting trial, because lettuce was planted in parallel with the beets, and the lettuce yields were higher two days before a full moon than they were two days before a new moon. Perigee again proved to be a strong planting time throughout all of the trials. The table below shows the planting times that will be used for this calendar.

Waxing phase (3 and two days before a full moon)	All above ground crops
Waning phase (3 and two days before a new moon)	All below ground crops
Perigee	Good for planting all crops

Planting during a waxing phase when perigee is near to the ideal waxing phase date (2 or 3 days before a full moon) should be considered as an ideal time to plant above ground crops, while planting during a waning phase when perigee is near to the ideal waning phase date (2 or 3 days before a new moon) should be considered as an ideal time to plant below ground crops. All of these dates and ideal planting times are specifically indicated on the dates when they occur in this year's calendar. Best planting dates will be indicated as 'superior' for either below ground or above ground crops. Apogee, where the moon is furthest from the earth should be considered as a poor time to plant all crops, and when apogee occurs at or near a corresponding favourable waxing or waning phase, these planting times will be designated as 'inferior'. An exception to planting below ground crops during a waning phase may occur with carrots, as mentioned above. Harmut Spiess found that carrots gave the highest yields when planted two to three days before a

¹ Steiner, R. (2004). *Agricultural Course, The Birth of the Biodynamic Method*. Eight Lectures given in Koberwitz, Silesia, between 7 and 16 June 1924. Rudolf Steiner Press.

full moon, when the moon was in mid-descent in Virgo. This result was further validated by Barber and Goldstein who found that carrots gave highest yields during the waxing phase before full moon. I have also found carrots give the highest yields when sown two days before a full moon.

With regards to perennials used in farming (blueberries, raspberries, grapes, fruit trees, etc.) attention should also be made to the ascending phases of the inner planets and Mars. In past calendars, I have advocated looking at times when the moon and planets were in opposition, coupled with a waxing phase as the best time to sow perennial crops. I have now decided to look specifically at the ascending phases of a planet, and then couple that with the waxing moon cycle, rather than look for planetary oppositions with the moon. I think this fits more closely into Rudolf Steiner’s indications given in the lectures of the *Agricultural Course*. Steiner spoke in his 1923 agricultural lectures, which form the foundation of the biodynamic movement, of how the planets have a significant effect on the growth of plants. The inner planets, Venus and Mercury, affect the growth of short-lived annuals, and the outer planets affect the growth of longer-lived plants, specifically those with rind or bark. Steiner gives the following examples:

If someone wishes to plant an oak, it is of no little importance whether or no he has a good knowledge of the periods of Mars; for an oak, rightly planted in the proper Mars period, will thrive differently from one that is planted in the Earth thoughtlessly, just when it happens to suit. Or, if you wish to plant coniferous forests, where the Saturn-forces play so great a part, the result will be different if you plant the forest in a so-called ascending period of Saturn, or in some other Saturn period (p. 108).

An ascending planet is one that is moving from the horizon (from either the western or eastern horizon) towards midheaven (the point directly above you). With respect to shorter-lived perennial crops (blueberries, raspberries, grapes, etc.), I believe the best combination for growing these plants would be to plant seed in a waxing lunar phase with an inner planet (Venus or Mercury), or ideally both, ascending. The ideal combination for planting fruit trees from seed would be to do so when Venus and Mars are both ascending, during a waxing phase. As most fruit trees today are started from grafts, the question as to whether this is also a good time to graft is one I cannot answer, as Steiner did not give direct indications regarding grafting. The following table shows the dates when the planets are in ascending phases this year.

Mercury	March 24-April 19; July 8-Aug 22; Oct 29-Dec12
Venus	July 6- end of the year
Mars	(rising from Western horizon) May 23-Sep 10
Jupiter	(rising from Western horizon) Feb 27-June 3
Saturn	(rising from Western horizon) June 10-Aug 30

A close to ideal time for planting blueberries, raspberries, grapes and other short lived perennials, as well as fruit and nut trees occurs on July 16-17. I assume that this is also a good time to start these plants from cuttings and grafts. It is important to note that the information pertaining to ascending planets is valid for the Northern hemisphere only. The planets ascending in the Northern hemisphere will be in their descending phases in the Southern hemisphere. The information regarding synodic (waxing and waning) and also anomalistic (apogee and perigee) lunar cycles are valid for both hemispheres.

Pest Control Using Ashing

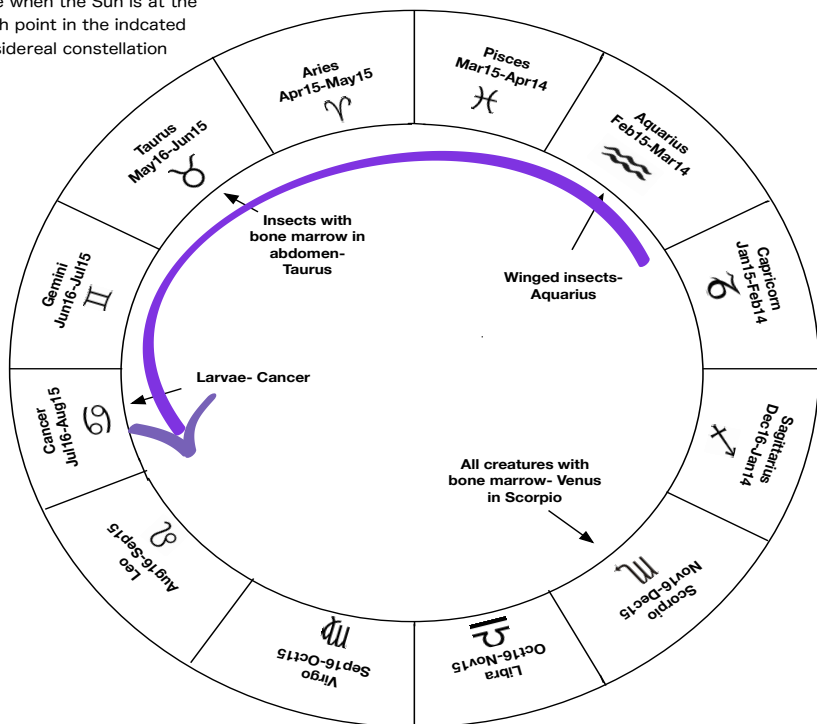
In lecture six of the Agricultural Course, Rudolf Steiner gave practical information on the biodynamic approach to dealing with pest control. This is done through the process of ashing, where the pest that needs to be controlled is burned in a small wood fire. These ashes are then spread over the ground in a process Steiner called peppering. Only small amounts need to be used, and can be spread over a wide area. Steiner spoke of how life forces live in the watery element, and the counter forces to these life forces live in the element of fire. Hence, when we burn a seed, insect or rodent, we create anti-life or anti-reproductive forces in the burned substance. These forces are then spread out over the garden or field when peppering takes place. These forces can be further magnified in a process called potentization, where one part of ashed substance is added to nine parts water, and the mixture is stirred rhythmically for ten minutes. Rhythmical stirring involves stirring one way vigorously in one direction to create a vortex (30 seconds in one direction is sufficient), and then stirring in the opposite direction for the same amount of time, again creating a vortex. In the transition from stirring from one direction to another, stirring should again be vigorous, so as to create a period of what Steiner refers to as 'chaos'. The creation of the vortex draws the necessary cosmic forces into the water/pepper mixture, and the chaos period infuses these forces into the mixture. After the first ten-minute stirring takes place, the first potentization has occurred (called D1). After this first stirring has been completed, one part of this D1 mixture is added to nine parts water, and the process is again completed to create the second potentization, D2. I then spray the nine parts of the D1 on the field or garden in the areas where pest control is needed. A backpack sprayer can be used for larger areas, and a simple cedar or fir branch can be dipped into a bucket, and then used to whisk the potentized substance onto the soil for smaller areas. This process is then repeated. I recommend stirring up to a D14. In her book *Agriculture of Tomorrow* (I believe to be the most important Agricultural book in the world) Lili Kolisko spoke of how the first seven potentizations work in the physical realm, the seven after that on the etheric realm, and the seven after that on the astral realm. For ashing of pests, it should not be necessary to work further than the ether (or life) body of an organism to create the desired conditions where these pests will not want to inhabit the peppered or potentized area. This occurs from D7-14 in the potentization process.

It is, however, of paramount importance that the pest in question be burned at the correct time. In the case of insects, the timing of this correlates to the sun's passage through the constellations.

Weeds should be ashed two-days before a new moon. The chart on the next page shows the progression given by Rudolf Steiner, where winged insects are ashed in the constellation of Aquarius, those with bone marrow in their abdomen (beetles) in Taurus, and larvae (I include slugs and snails in this category) are ashed in Cancer. The ashing takes place when the sun is in the mid-point of the constellation in question. The ashing for creatures with a bony system, with a spine and skeleton, is somewhat different. Here the creature should be ashed when Venus is in the sign of Scorpio. All of these dates are achieved by using a sidereal zodiac, which shows the true position of the sun as it passes through the zodiac. I have included all of the dates of the sun's high point through the zodiac in the table below.

Insect and Animal Ashing Chart (sidereal)

All Ashing for insects is done when the Sun is at the high point in the indicated sidereal constellation



Aquarius	Feb 29
Pisces	March 30
Aries	April 29
Taurus	May 30
Gemini	July 1
Cancer	August 1

Venus is in the high sign of Scorpio on the Jan 7th and Oct 26th.

Planting Trials 2016

This year's planting trials will again be of a similar nature to the trials conducted in 2015, with the goal of replicating and further validating previous research. A lettuce/radish trial will occur in

April. As with last year, perigee occurs during the waning phases in the spring, and in April, perigee occurs on the date of the new moon. In May, bush beans will be planted in the four days up to and including perigee, to ascertain at what point the strong growth effects of perigee begin. A beet trial will also occur in May. In June, carrots will be planted to follow the effects of full and new moon and also perigee and apogee on the growth of carrots. In July the largest trial will take place, where sowings of carrots, beets and radishes will occur. An attempt to get a clearer picture of the effects of cosmic influences on different root crops will be attempted in this trial. Also of interest are the ascending phases of Venus and Mercury that will occur halfway through this trial. Steiner indicated that ascending phases are important considerations when planting, especially with perennial plants. It will be interesting to see if Venus, and in particular Mercury will affect the growth of these annual root crops during this trial. As with last year's calendar, the trigon planting dates for each of the sowings will be compared with both the anomalistic cycle data (apogee and perigee), and with the synodic data (full and new moon).

In past versions of this calendar, I have included data sheets for those who wished to participate in the planting trials. It has always been my intention that this calendar would be a participation based calendar, where farmers and gardeners would take part in one or more of the trials, and that by having wide participation, accuracy of results would be enhanced. Over the three years of the calendar, and with thousands of downloads, there has been only one participant in any of the trials. This has been a disappointment to me. I will carry on with the work, but have not included data trial sheets with this year's calendar, due to the lack of participation. If you would like to participate in any of the trials this year, if you send me an email, I will send data sheets. Conversely, any of the data can be sent via e-mail, or attached as a word or excel document. The following data is needed: number of seeds sown, germination rates, weights of each plant, date the seeds were sown and the plants harvested. Please e-mail all results you receive to me at: jbbach1@yahoo.ca. If you have any questions or comments about this calendar, please use this email as well. My essay *Rudolf Steiner's Indications Regarding Cosmic Influences Upon the Growth of Plants*, which forms the basis of this calendar is available on my website at: www.bachbiodynamics.com. You will also find information on biodynamic beekeeping there as well. The goal of this calendar is to research the most effective and beneficial rhythms that affect the growth of plants. It is assumed that planting at the best times will provide not only the highest yields, but also the healthiest and most robust plants and food. This calendar is also meant to be a collaborative effort, where farmers and gardeners become researchers learn firsthand, through direct experience, of the different cosmic influences that pour down to the earth from above. Please consider partaking in one, or all of the trials here indicated. All research conducted by readers of this calendar is greatly appreciated.

Warm Regards, John Bach

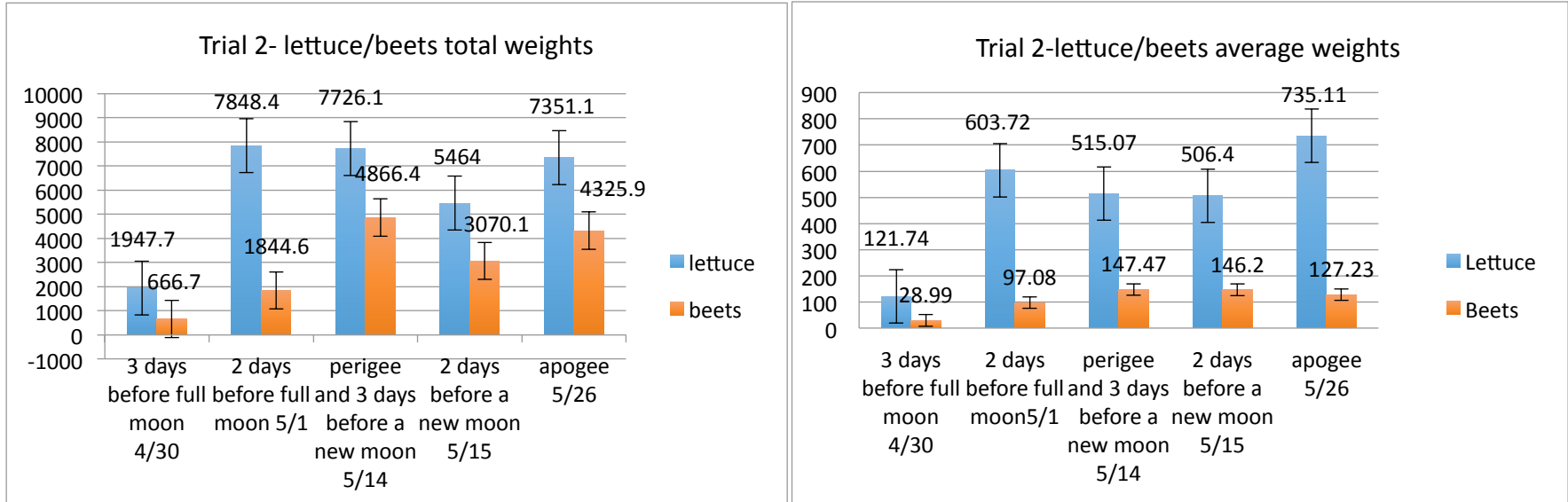
January 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2 Apogee 03:54
3	4	5	6 Plant below ground crops Jan 6-7	7	8	9 New moon 17:31
10	11	12	13 All plant days Jan 13-14	14 Perigee 18:11	15	16
17	18	19	20 Plant above ground crops Jan 20-21	21	22	23 Full moon 17:46
24	25	26	27	28	29	30 Apogee 01:11
31						

Notes:

2015 Research Results

Trial 1 of the 2015 calendar, a lettuce trial, was abandoned due to slug damage. In trial 2 each row was planted by overseeding and then thinning out at regular intervals. This method works well when planting for yield and to maximize space available, but presents drawbacks when doing planting research. It is impossible to determine germination rates, and where germination is poor, seeds that do germinate have more room to grow, and don't have to compete for soil nutrients and water for their entire lifespan. The germination in lettuce trials 2e and 2f was poorer than for the other trials, and less thinning was required. Some of these isolated plants grew much larger as a result. It is difficult to ascertain what affect this had on the weights of individual plants, and how this may have affected averages in these sets. In future, I will go back to planting a set number of seeds, at spaced intervals. That way, clear germination rates and subsequent growth patterns can be more accurately assessed. Thinning has been used by other researchers, but I do not think it is the best way to assess cosmic influences on the growth of plants.



February 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5 Plant below ground crops Feb 5-6	6
7	8 New moon 06:40	9 All plant days Feb 9-10	10 Perigee 18:43	11	12	13
14	15	16	17	18	19 Plant above ground crops Feb 19-20	20
21	22 Full Moon 10:20	23	24	25	26 Apogee 19:29	27 Jupiter Ascending until June 3
28	29 Ash winged insects					

Notes: All times PST

Having said this, the data from trial 2 is still useful, and expected patterns did emerge. Perigee again proved to be an excellent planting time for both above (lettuce) and below (beet) ground crops. This has been demonstrated over each of the three years of research in this calendar. Total weight for lettuce was highest two days before and full moon, and average weights for lettuce were second highest two days before a full moon. This is to be expected, as two days before a full moon was spoken of by Rudolf Steiner as a very favourable planting time.

Interesingly, both new moon days (two and three days before new moon) also produced good results. I believe this can be explained by the timing of perigee during this trial. Pergee, which occurred three days before a new moon produced strong growth, and offset the weak growth that has been demonstrated in previous findings during new moon periods for above ground plants. This is a further affirmation that perigee is an excellent planting time.

Conversely, beets in this trial were largest during perigee and new moon phases, and weakest during the full moon planting dates. This also follows on what I have tentatively found from last year’s research and have recommended in this year’s calendar, namely that new moon phases are best for planting below ground crops. This conclusion is for me still a tentative one, as perigee, which coincided with the new moon planting dates almost certainly increased the size of the beets in this trial. I will continue to recommend planting below ground crops during new moon phases, but will also continue to conduct research to attempt to develop consistent results over time.

Unexpected results were produced by the apogee plantings of both beets and lettuce in this trial. Apogee total weights were almost as high as the expected strong yields two days before a full moon and at perigee for lettuce, and the apogee weights for beets were only bettered by the yields from the perigee data set. I believe that the reason the apogee results were strong for both beets and lettuce was because of the ideal temperatures of late May that occurred at the time of the apogee plantings.

DATE	4/30 - 3 DAYS BEFORE FULL MOON	5/1- 2 DAYS BEFORE FULL MOON	5/14- PERIGEE & 3 DAYS NEW MOON	5/15- 2 DAYS BEFORE NEW MOON	5/26- APOGEE
TEMP (C)	12.4	16.7	18.1	19.3	21.2

Total plants harvested in trial 2:

Beet trial 2	2a	2b	2c&d	2e	2f
# of plants	23	18	33	21	33
Lettuce trial 2	2a	2b	2c&d	2e	2f
# of plants	15	13	14	10	9

March 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6 Plant below ground crops- superior Mar 6-8	7	8 New Moon 05:55 All plant days March 9-10	9 Perigee 23:03 Solar Eclipse Mar 8- 17:57	10	11	12
13	14	15	16	17	18	19 Plant above ground crops Mar 19-20
20	21 No plant time Mar 21-23 Lunar Eclipse	22	23 Full moon 05:01 Lunar eclipse 1:39	24 Mercury ascending until April 19	25 Apogee 06:17	26
27	28	29	30	31		

Notes: All times PST

Bush Bean Trial 3

In this trial, there was also slug damage to some of the plants, as was the case in trial 1, but as time went on, most of these plants recovered and in the end produced a yield. The most severe damage occurred in trial 3a, where 5 plants were badly damaged. Only nine of sixteen seeds in this trial made it to full maturity. The damage occurred during a single night. The results from this trial should be considered as having being affected by an outside variable (slugs), and are therefore comprised to a certain degree. Perigee occurred six days after a full moon, and seven days before a new moon, in between these two synodic phases and should therefore not have a great influence on either of these phases.

Total plants harvested for this trial are as follows:

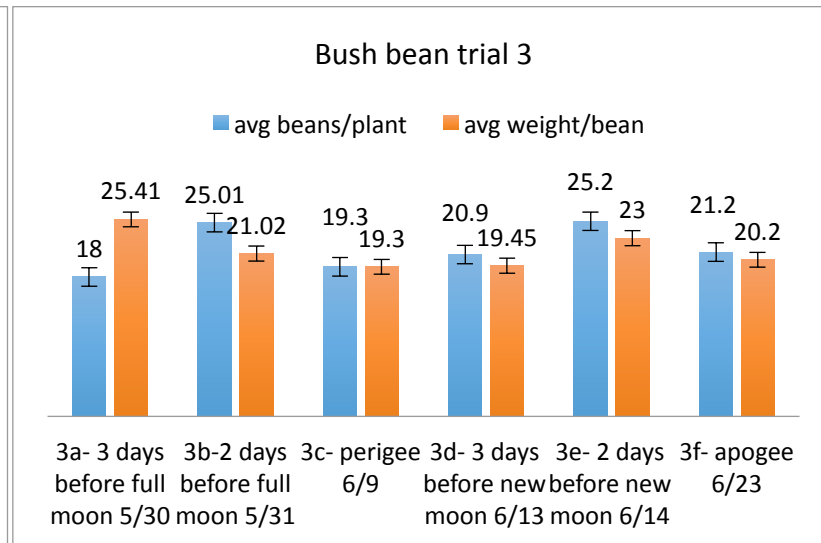
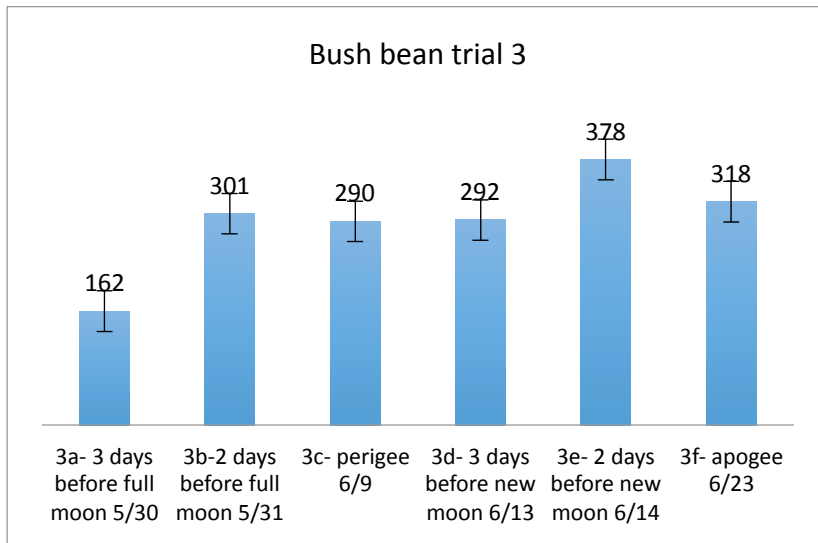
3a	3b	3c	3d	3e	3f
9	12	15	14	15	15

The number of beans per plant in this trial was highest two days before a new moon, and lowest three days before a full moon. The numbers for the other data sets were within a fairly close range. The average weight per bean was, conversely, highest three days before a full moon, followed by three days before a new moon, and then two days before a full moon. The plants with the fewest beans (trial 3a), which were also the plants that suffered the most damage, produced the largest beans. It seems like these plants, behind in their development due to early damage, focused on producing fewer beans, which then received more nutrients and water from the mother plant, and in turn grew larger as a result.

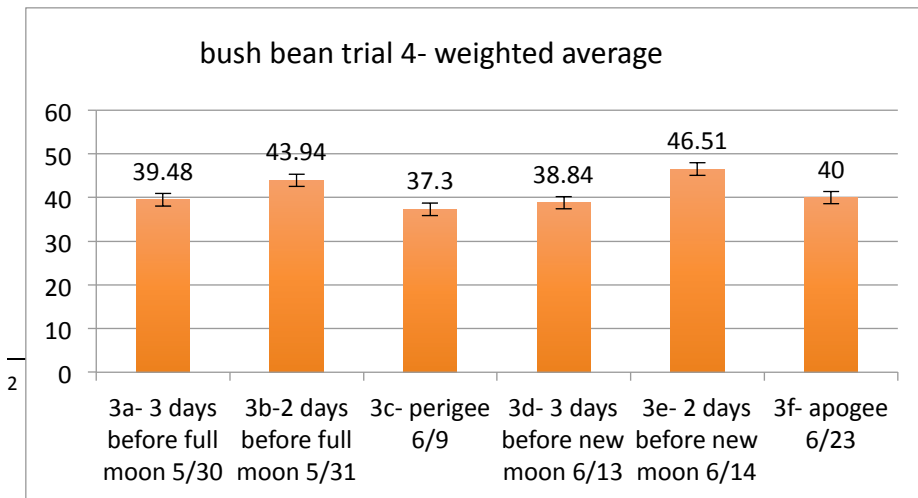
April 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Plant below ground crops- superior Apr 5-6 Trial 1a lettuce/radish	6 All plant days April 6-7	7 New moon 04:25 Perigee 09:37 Trial 1b lettuce/ radish	8	9
10	11	12	13	14	15	16
17	18 Plant above ground crops April 18-19 inferior	19 Mercury ascending phase Ends Trial 1c lettuce/radish	20	21 Full moon 10:25 Apogee 08:06 Trial 1d lettuce/radish	22	23
24	25	26	27	28	29	30

Notes: All times PST



The numbers for the rest of the trial were fairly uniform, with the exception of trial 3e, which produced the highest number of beans, and also had the second highest average weight per bean. I don't have an explanation for this, and this data should be considered somewhat of an anomaly, but given the fact that all of the trials with the exception of the last trial- 3f, received some slug damage to some of the plants, the speculation can be made that without this damage occurring, a more expected and regular pattern would have emerged. This pattern would have seen the strongest results occurring at perigee at the full moon phases. To give a more comprehensive picture of this trial, I decided to try using a weighted average of all the data. Each of the elements used (number of beans, total weight, average weight per bean, average beans per plant), were all given an equal weight, and then using the formula for calculating a weighted average², the graph on the left was produced. Again, this trial should be considered as



2

May 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Trial 2a- bush beans	3 Trial 2b-bush beans Plant below ground crops May 3- 5 superior	4 All plants days May 4-5 Trial 2c- bush beans Trial 3a- beets	5 Perigee 20:15 Trial 2d- bush beans Trial 3b-beets	6 New moon 12:31	7
8	9	10	11	12	13	14
15	16	17	18 Apogee 14:07 Trial 3c- beets Plant above ground crops May 18-19	19 Trial 3d-beets	20	21 Full moon 02:16
22	23 Mars ascending until Sep 10	24	25	26	27	28
29	30 Ash beetles and other insects with marrow in abdomen	31				

Notes: All times PST

somewhat compromised due the slug damage that occurred. To what extent this affected the results cannot be ascertained.

Carrot Trial 4

In this trial, I had originally wanted to include a planting date that was deemed significant by Harmut Spiess- Moon in Virgo before a full moon. This alignment did not occur in 2015, and the date that I had originally given in the calendar as a date where the moon was in Virgo- June 6th, was an error. The moon at that time was in Capricorn. Having said this the planting dates that remained provided good data.

Total number of carrots:

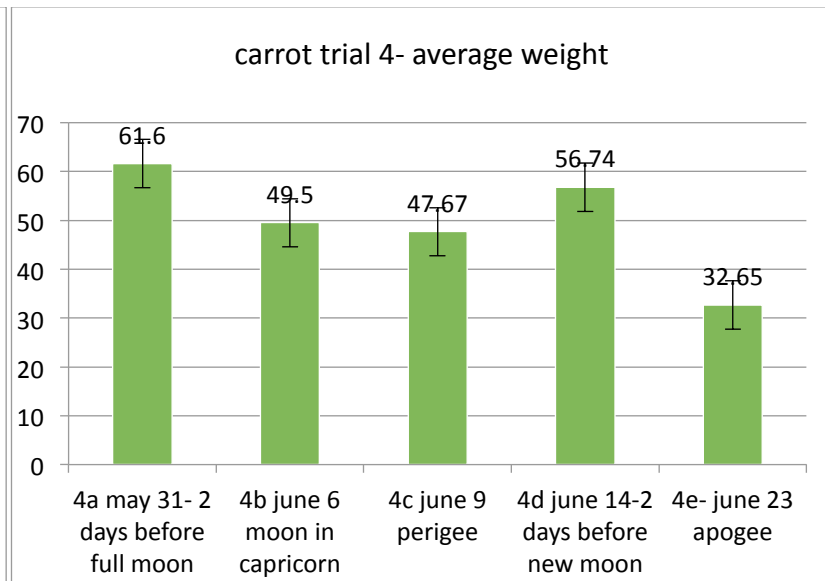
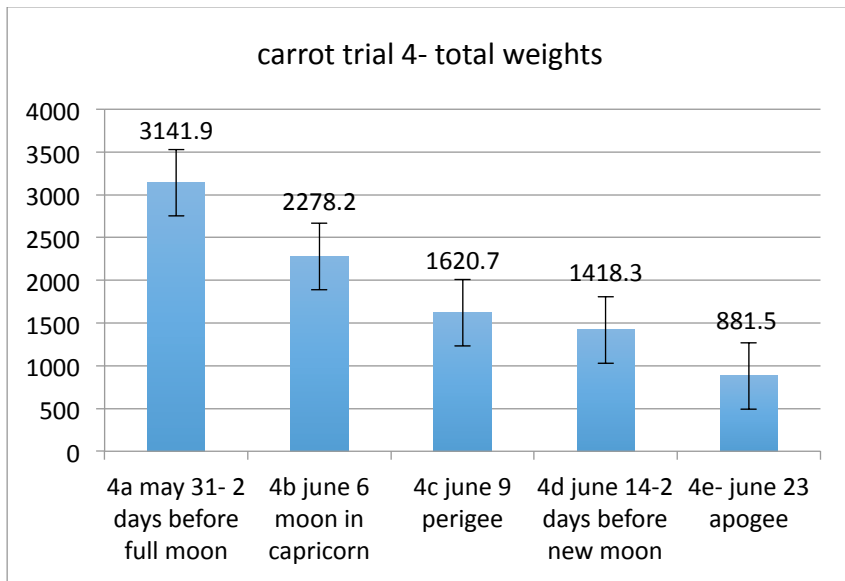
4a	4b	4c	4d	4e
51	46	34	25	27

In this trial I planted carrots and did no thinning at all, allowing all plants to grow to full maturity. These plants were often close to one another, and I expected that this would affect the average weights of each carrot, as the rows with more carrots would have to compete for water and nutrients with other carrots in close proximity. This was not the case for trial 4a, which had the most carrots, the highest total weight, and also the largest average weight per carrot. The second highest average weight occurred in trial 4d, but this trial had the lowest number of carrots and also the second lowest total weight. I also included the data for the moon in Capricorn, which I believe has significance not because of the moon and its position in this

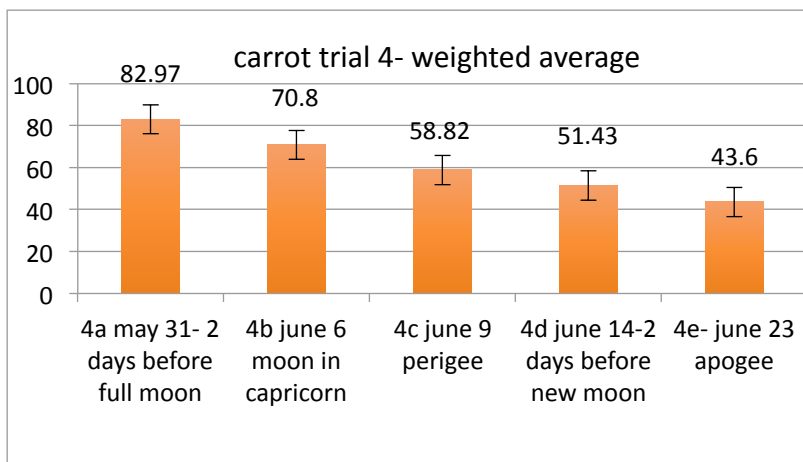
June 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 Plant below ground crops June 1-2	2 All plant days June 2-3 Trial 4a- carrots	3 Perigee 02:56 Jupiter ascending phase ends Trial 4b- carrots	4 New moon 20:01
5	6	7	8	9	10 Saturn ascending until Aug 30	11
12	13	14	15 Apogee 04:01 Trial 4c- carrots	16	17 Plant above ground crops June 17-18	18 Trial 4d- carrots
19	20 Full moon 04:04	21	22	23	24	25
26	27	28	29 All plant days June 29-30	30 Perigee 22:46 Trial 5a- carrots/beets/radishes		

Notes: All times PST



constellation, but because the date (June 6) was three days after a full moon, and three days before perigee. The overall results for this planting day, when all of the data is looked at using a weighted average, was second only to 4a, which was two days before a full moon. Two days before a full moon was found to be a good planting day by Speiss, accompanied by the moon in Virgo. He found the moon in Capricorn to have a negative impact on carrot growth, while I found that the moon in Capricorn gave the second best results of this trial. I believe this is because the moon and its relation to specific constellations does that affect the growth of plants. Speiss' finding that the moon in Virgo produced the highest yields corresponds also with the moon being at the ideal planting time (two days before a full moon) as indicated by Rudolf Steiner. More discussion of this will take place on the trigon comparison data later.



July 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 Plant below ground crops July 1-2	2 Trial 5b- carrots/beets/ radishes
3	4 New moon 04:03	5	6 Venus ascending for rest of year	7	8 Mercury ascending until Aug 22	9
10	11	12 Apogee 21:25 Trial 5c- carrots/beets/radishes	13	14	15	16 Plant above ground crops July 16-17
17 Trial 5d- carrots/beets/radishes	18	19 Full moon 19:59	20	21	22	23
24	25	26 All plant days- July 26-27	27 Perigee 03:26	28	29	30 Plant below ground crops July 30-31
31						

Notes: Ideal planting days for starting blueberries, raspberries, grapes and other short lived perennials, as well as fruit and nut trees from seed (or grafts?)- July 16-17, and on perigee July 26-27 All times PST

In the above discussed beet/lettuce trial, beets gave higher yields during the waning phase, but perigee also occurred three days before a new moon. In this trial, the waxing phase gave the best results for a below ground crop (carrot). Perigee has proven to be a strong planning time in almost all of the trials of the three year's of this planting calendar, and because of this, I believe that perigee helped in the growth and development of the beets in this trial 2. I advocated planting below ground crops at waning moon times in last year's calendar, due the previous year's results, but I feel that this is not yet confirmed to a strong degree, and that further research is still needed. I will conduct beet and carrot trials at the same time this year to see if there is a difference in these plants preference to a waxing or waning cycle.

Radish Trial 5

In this simple trial, I planted four sets of radishes as follows: perigee (July 5), two days before a new moon (July 13), apogee (July 21), and two days before a full moon (July 29). I was pleased with the data from this trial. Germination for all data sets was very good. A total of 24 plants were sown for each of the trials. As the below table demonstrates, germination was uniform, with the lowest germination rate being 20/24 (83%).

Trial 5 germination rates:

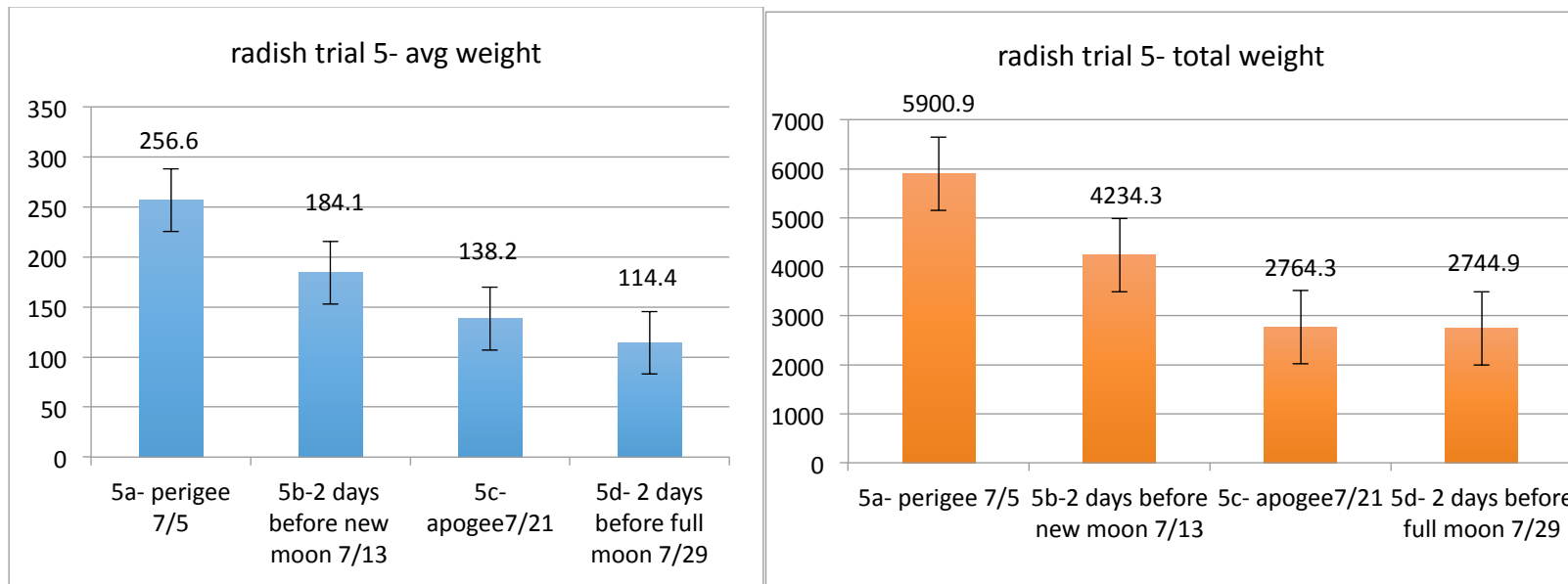
5a	5b	5c	5d
23	23	20	24

This trial was also one where the seeds were spaced 3 inches apart, and no thinning was done, so all of the plants in the trial had similar growing conditions. The average weights and the total weights in this trial coincided with one another, which adds further strength to the data of this trial. The highest to lowest total weight and average weight in this trial were as follows: perigee, two days before a new moon, apogee, two days before a full moon. It is interesting to note that perigee occurred very early on August 2nd, only three days after the July 29th full moon planting time. As has been discussed with planting trial 2, perigee occurred three days before a new moon, and may have aided in the growth of these plants in this part of the trial. Here, even with perigee being fairly close to the full moon planting time, these radish weights were low. The average weight per radish was lowest and the total weight was second lowest for this trial two days before a full moon.

August 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 Ash insect larvae and slugs	2 New moon 13:46	3	4	5	6
7	8	9 Apogee 16:06	10	11	12	13
14	15	16 Plant above ground crops Aug 16-17	17	18 Full moon 02:29	19	20 All plant days Aug 20-21
21 Perigee 17:22	22 Mercury ascending phase ends	23	24	25	26	27
28	29 Plant below ground crops Aug 29-30	30 Saturn ascending phase ends	31			

Notes: All times PST



This is good evidence that the best planting dates for below ground crops is during a waning phase. This is supported by the beet data from trial two, but is contradicted by the carrot data from trial 4. It also suggests that the positive affect that perigee has on plant growth may only be on the date of perigee itself, and perhaps one of two days before. There is a carrot/beet/radish trial planned for this year's calendar to further research these phenomena.

Trigon Data

As has been the case with past calendar data, I also compare trigon data (a theory of sowing/planting based on the relationship between the moon and the various constellations developed by Maria Thun). As with last year's calendar, I did not specifically attempt to compare/contrast trigon dates with Steiner's indications for best planting times, but simply compared the trigon dates of the plantings in this year's calendar, and used the already graphed data to make comparisons.

Trial 2- beets/lettuce

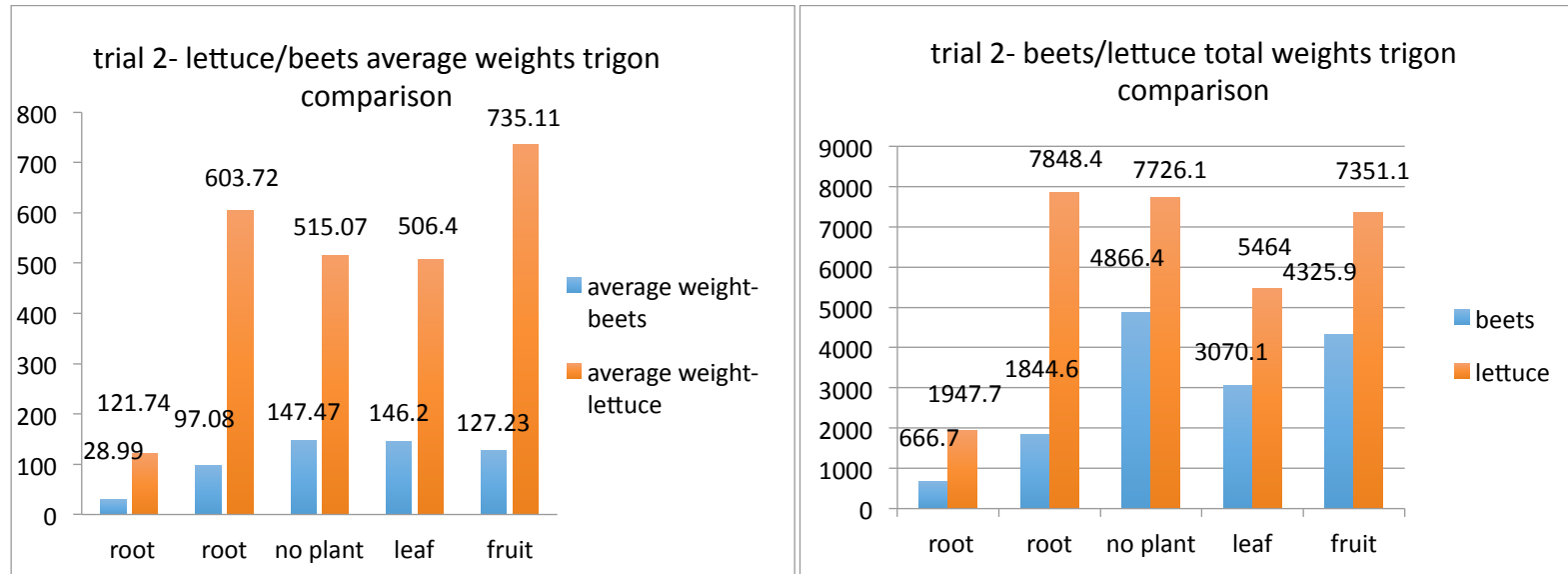
September 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 New moon 02:04 Solar Eclipse 1:06	2	3
4	5	6 Apogee 06:45	7	8	9	10 Mars ascending phase ends
11	12	13 Plant above ground crops Sept 13-14	14 No plant time Lunar eclipse 10:54	15	16 Full moon 12:07	17 All plant days Sept 17-18
18 Perigee 09:01	19	20	21	22	23	24
25	26	27 Plant below ground crops Sept 27-28	28	29	30 New moon 17:13	

Notes: All times PST

Trial 2- beets/lettuce

No clear efficacy of trigons appeared trial two. The largest lettuce average weights occurred on a fruit day, and the largest total weights for lettuce occurred on a root day. For beets, the largest average and total weights occurs on the same day, a no plant day (perigee).



The lowest beet results both occurred on a root day. No correlation between trigon planting dates and plant yields was found in this trial.

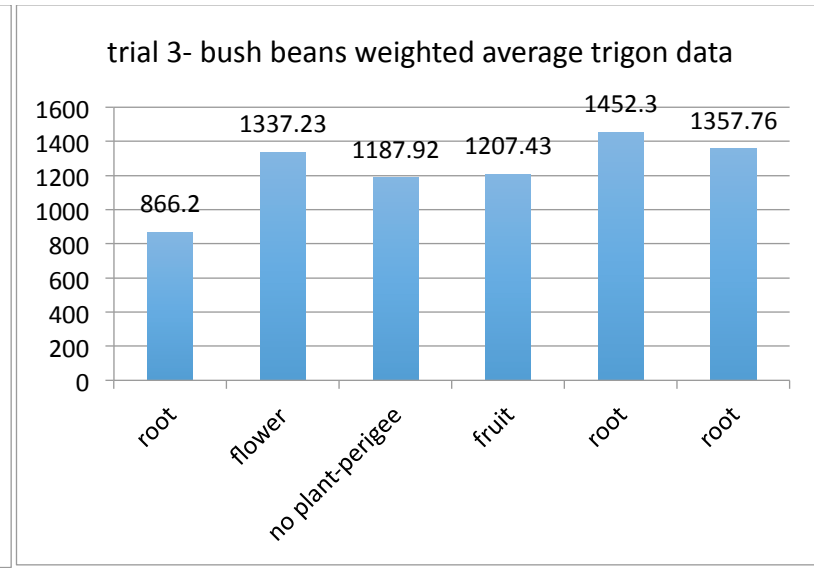
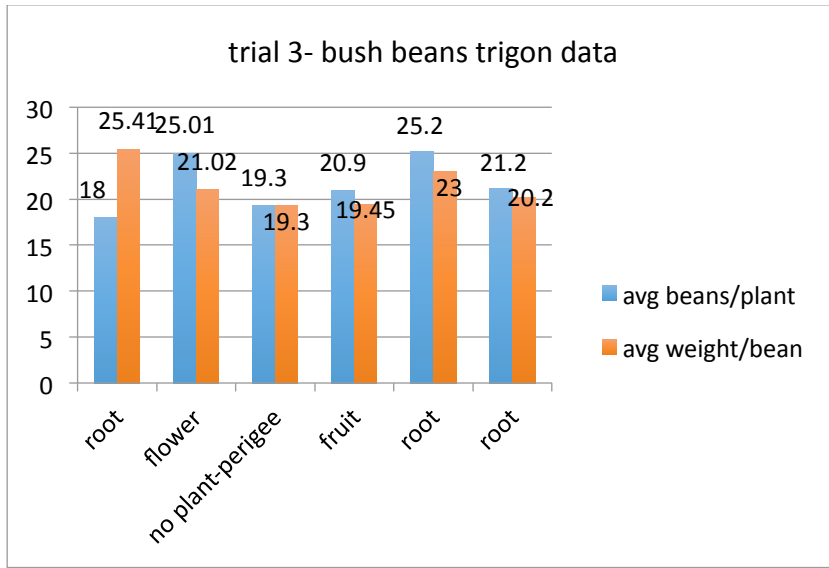
Bush Bean Trial 3

The largest average weight per bean, the greatest average beans per plant, and the highest weighted average for all occurred on a root day (all different root days). In this trial, three of the six day happened to be root days, and the occurrence the best days in the above

October 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4 Apogee 03:03	5	6	7	8
9	10	11	12 Plant below ground crops Oct	13	14	15 Full moon 15:25 All plant days Oct 15-16
16 Perigee 15:37	17	18	19	20	21	22
23	24	25	26	27 Plant below ground crops Oct 27-28	28	29 Mercury ascending until Dec 12
30 New moon 10:39	31 Apogee 11:30					

Notes: All times PST



categories should be considered as a random occurrence. It should also be noted that this trial did suffer significant slug damage, which limits the value of the data, as discussed above. No correlation between trigon planting times and plant yields was found in the trial.

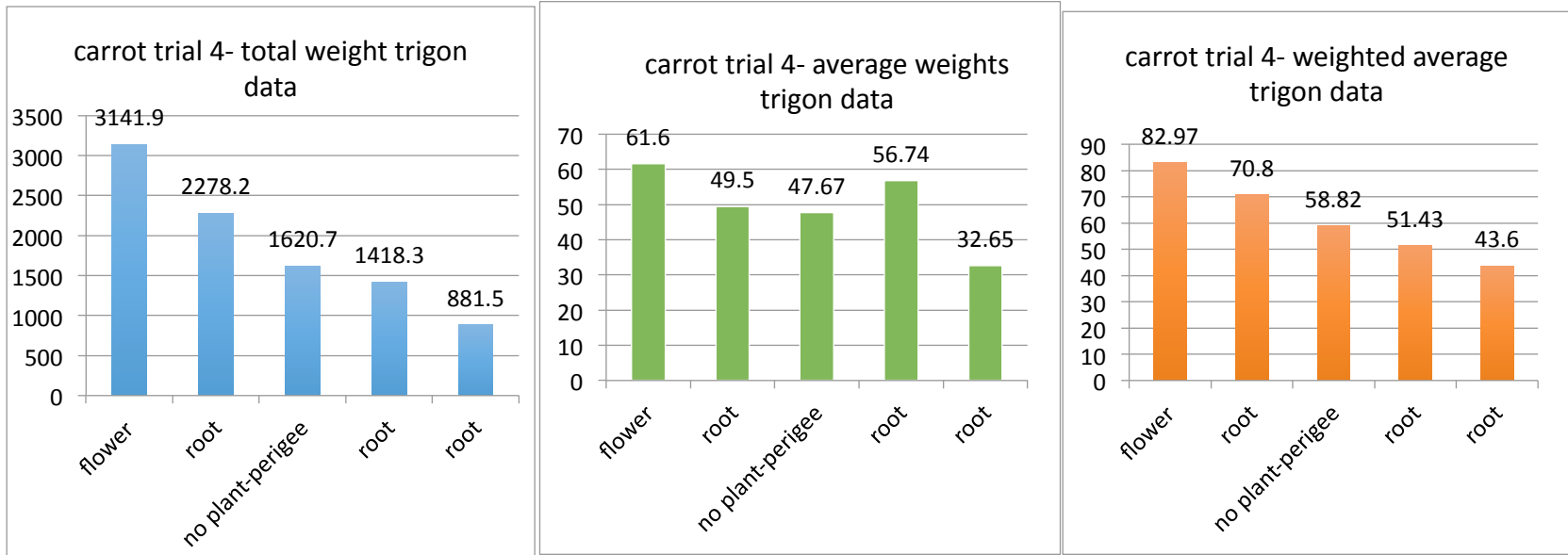
Carrot Trial 4

Trigon data for the carrot trial showed the best result during a flower phase, followed by a root day. There was a high number of root days in this trial (50%). This was a random occurrence as the dates of the plantings were done based on sidereal rhythms and on the date that apogee and perigee occurred. No correlation between trigon planting times and plant yields was found in this trial.

November 2016

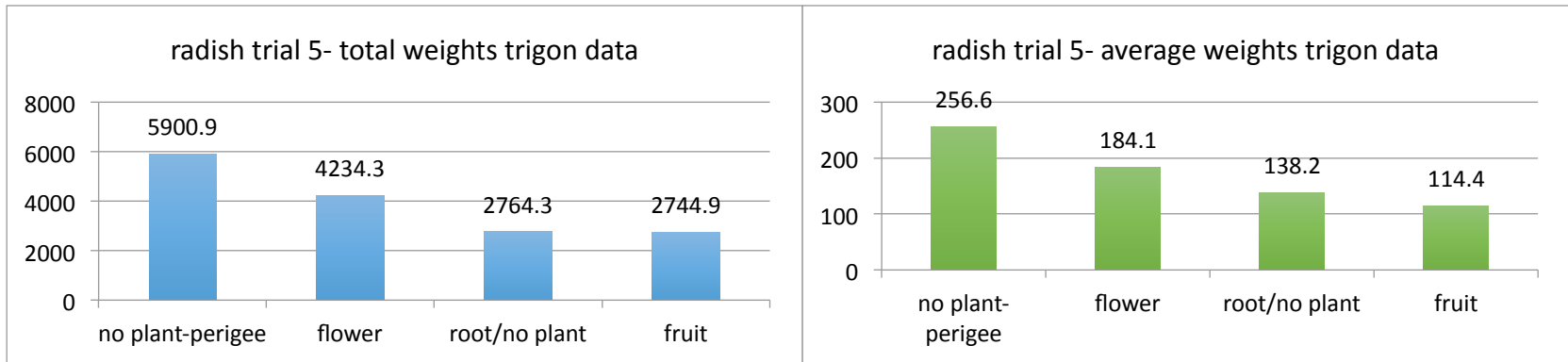
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11 Plant below ground crops Nov 11-12 (superior)	12
13 All plant days Nov 13-14	14 Full moon 05:53 Perigee 03:24	15	16	17	18	19
20	21	22	23	24	25	26 Plant below ground crops Nov 26-27 (inferior)
27 Apogee 12:09	28	29 New moon 04:19	30			

Notes: All times PST



Radish Trial 5

In radish trial 5, the best trigon results were obtained during the no plant time (perigee). The flower planting time gave the next best results. As mentioned above, I consider the data from this trial to be of very good quality. There were uniform germination rates for each of the trial, and no damage to any of the plants occurred. No correlation between trigon planting times and plant yields was found in this trial.



December 2016

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10 Plant above ground crops Dec 10-11 (superior)
11 All plant days Dec 11-12	12 Perigee 11:28	13 Full moon 16:06	14	15	16	17
18	19	20	21	22	23	24 Apogee 21:56
25 Plant below ground crops Dec 25-26	26	27	28 New moon 22:54	29	30	31

Notes: All times PST
