



# Monarch Butterfly Chronicle

## Spring/Summer 2020

Statistics - success rate: 67%

Raised	Successful Release	Black Death	Other Causes
97	65	35	2

This is the summer of the human virus pandemic: COVID-19. It is also the summer of the Monarch Butterfly pandemic of the Black Death: nuclear-polyhedrosis-virus/ (NPV).

Oh, the pitfall of thinking you know everything. I fully understand the term "Sophomore" this year. I was a wise fool.

A single monarch came at the end of April. I began to collect eggs and baby caterpillars the first week of May.

I had 24 by the end of the month. And they were doing great until...I found one caterpillar writhing on the bottom of a hatchery.



### **Black Death!**

This is too early! Black Death usually happens later in the summer. I had been too casual about washing the Milkweed leaves, and now I paid for it.

I kept moving the caterpillars around trying to separate them and stop the spread of the virus.



They died one-by-one. I euthanized them as they went into their spasms by freezing them. I burned the leaves and paper liners from their hatcheries and sterilized everything. I dipped the hatcheries in a Clorox water solution and set them in the sun to dry. The virus is killed by 6 hours of sunlight.

I managed to have five make cocoons.

Hatchery	Cocoon Date	Hatch Date	Male/Female
Hatchery 1	1-a 6-24	7-5	Male
Hatchery 4	4-a 6-21	7-4	Female
	4-b 6-21	7-4	Male
Hatchery 6	6-a – 6-22	7-4	Female
Hatchery 7	7-a 6-28	7-8	Female

July

July 1-4: More Monarchs are coming to my garden. I brought in a branch with eggs and several leaves with babies. I am being very careful to sterilize the leaves before I use them. I even dipped the leaves with eggs in a Clorox solution (9 parts water to 1 part Clorox).

There are a few methods which seem to work for destroying the crystals. One such method is to rinse all leaves being fed to the caterpillars with a weak (less than 10%) chlorine bleach solution followed by a water-only rinse to remove the bleach. This method is also effective for all containers and other instruments which may be used in handling or containing the caterpillars. One note: Your hands are also a means of spreading the virus. If you fear your hands have become covered in the virus, I would suggest washing them in as much bleach as you can personally stand.

According to some research done on the virus, it has been found that ultraviolet light is effective at killing the virus as well. If you suspect that rearing tanks or other instruments are possibly infected with the virus, it would be wise to expose them not only to the bleach solution (which destroys the virus), but also to strong ultraviolet light to kill any still-living viruses left behind. (Or if you feel that using bleach will damage or destroy the equipment, or otherwise render it unsuitable for use with caterpillars.)

<https://www.internationalbutterflybreeders.org/nuclear-polyhedrosis-virus/>

New information: In going through the messages on my phone, I saw that the tree service for our neighbor next door attempted to call me on June 22<sup>nd</sup>. They must have come to spray that day or the next (June 23<sup>rd</sup>) That is when my caterpillars began to die. Perhaps that is why they died? No, it was the black death, pesticides cause the caterpillars to vomit green fluid before they die.

Lost: 19





Released 5

### July 4<sup>th</sup>

Started a new group. Gathered eggs and first-born caterpillars. No count yet.

I am being extremely careful and attentive this time. All the containers are sterilized. The leaves are washed, and I am changing the leaves once or twice a day.

There have been a lot of butterflies on the Milkweed, which is blooming. There are more eggs to bring in.

Hatchery	Cocoon Date	Hatch Date	Male/Female
Hatchery 1	1a 7-13	Attempted to make a cocoon. Did not hang in a J.	Euthanized 
Hatchery 4	7-B 7-13	7-30	Male
Hatchery 6		Black death	
Hatchery 7		Black death	
Condo	7-4a 7-13 7-4b 7-13  7-4c 7-13 7-4d 7-14 7-4e 7-14 7-4f 7-14	7/30 Died  Black death Black death Black death Black death	Female Has a spot from the Clorox  This group all died. I removed then and sprayed the condo with a bleach solution. There are two cocoons left.

Lost: 7






Released: 2

## July 14 Group

New practice. Washing all leaves and sanitizing the cages/containers. Sunlight kills the virus, so just taking leaves from the top of the plants. Those that get lots of sunshine. Separating the caterpillars. Most containers have one or two caterpillars and no more.

Tracking which leaves are washed (W) when I bring in eggs or newborns. NW = NOT WASHED. ? = UNKNOWN

Hatchery	Birth/Cocoon Date	Hatch Date	Male/Female	Notes
1	1a 7/13 7/26	8-11	M	Healthy
	1b 7/13 7/27	8-11	F	
	1c 7/13 7/27	8-11	F	
2	2a 7/4 – 7/13	7/25	M	Healthy
	2b 7/19 – 7/28	8/11	F	
	2c 7/22 – 7/29	8/11	F	
3	3a 7/14 7/24	8/5	F	Healthy
	3b 7/17 7/26	8/6	M	
4	4a 7/8 -7/20	8/1	F	Healthy
	4b 7/10 - 7/20	8/4	F	
5	5a 7/8 – 7/20	7-31	M	Healthy
	5b 7/9 – 7/21	8/5	M	
6	6a 7/17 – 7/27	8-11	F	Healthy
	6b 7/17 - 7/28	8-11	M	
7	7a 7/8 – 7/20	7/30	M	Look healthy Made cocoons quickly
	7b 7/8 -/720	8/1	M	
8	8a 7/10 – 7/24	8/5	F	Had green fluid Black spot in cage This is a small cage and as I feared, the emerging butterfly fell. I caught her immediately and placed her on a stick to dry. She seemed healthy and made it.  Very Healthy – took off right away
	8b 7/16 – 7/27	8/8	F	


9	9a 7/16		Black death 7/24 Euthanized	Came from Terrarium – watching color 
9	9b 7/18 – 7/28	8-11	F	Healthy
10	10a 7/19	Attempted to spin – 7-28		Black death 
11	11a 7/26 – 7/27 11b 7/26 – 7/28	8/11 8/11	F M	NW
12	12a 7/22 – 8/2	8/14	F	NW
<b>Terrarium</b>	Ta 7/16 – 7/26  Tb 7/16	8-11  Attempted to spin – 7/28	F	1 healthy out of 4  Black death
<b>Mason Jars</b>				
M1	7/17 – 7/28	8-13	F	Gorgeous!
M2	7/20 – 7/30	8/14	M	Perfect I have a new faith in Mason jars.
<b>Containers</b>				<b>These are babies/newborns</b>
C1	C1a 7/17 – 7/27	8/11	F	?
C2	C2a 7/29 – 7/27	8/8	F	?
C3	C3a 7/19 – 7/27	8-8	F	?
C4	C4a 7/18 – 7/26	8-9	F	?
C5	C5a 7/19 – 7/29	8-11	F	NW
C6	C6a 7/18 – 7/28	8/10	F	NW
C7	C7a 7/19 – 7/29 C7b 7/22 – 7/30	8/11 Black Death	F	W 
C8	C8a 7/19– 7/28	8/12	M	NW
C9	C9a 7/29 – 8/12	Black Death		? 
C10	C10a 7/21- 8/1	8/13	M	W - Healthy


Released: 38

Lost: 6

## August 2020

### Babies and Butterflies

Hatchery	Birth/Cocoon Date	Hatch Date	Male/Female	Notes
1	1b 7/26 – 8/10 1c 7/27 – 8/10	8/23 8/24	M F	
2	2b 7/29 – 8/12 2c 7/30 – 8/13 2d 8/5- 8/24	8/24 8/25 9/6	M F F	Sept is turning cold and stormy. Not sure how these late hatchlings will do.
3	3b 7/29 -8/11 3c 8/8 – 8/25	8/23 9/10	F M	The porch temperature dropped into the 50s. I moved the cocoons into the house in a dark spot. When this one hatched, I kept it in a dark place until there was a break in the storms. It had about 12 hours to feed and find shelter. I placed it on a Phlox flower, hoping it would eat right away. I have no idea if this one will make it.
4	4b 7/28 – 8/12	8/24	M	
5	5b 7/29 -8/11	8/24	M	
6	6b 7/28 -8/12	8/23	F	Broken wing let her go in the flowers to die 

7	7b 7/21 -8/10 7c 8/11-8/25	8/23 9/10	F M	See 3c. These two emerged at the same time.
8	8b 7/30 – 8/15	8/25	F	
Yellow 11	Y11a 7/22 -8/10	8/16	M	
12	12b 7/22 – 8/4	8/18	F	Not a strong flyer
C9	C(b 7/24 – 8/10	8/23	M	
C11	8/12 – died 8/21			Died – may have been infected by a wasp. Hung from a thread. 
C12	C12a 7/28 – 8/11	8/22	F	
C13	C13a 7/26 – 8/8	8/19	M	
C4	C4b-1 7/27 – 8/11 C4b-2	8/22	F	
C6	C6b 7/21 – 8/11	8/22	F	

Released: 19

Lost: 4

## September

Hatchery	Birth/Cocoon Date	Hatch Date	Male/Female	Notes
4	4d 8/25 – 9/15	9/30  Kept it and fed it until 10/5  Released it. It flew straight to the Maple tree next door, and never saw it again.	F	The weather turned cold and this one is slow to grow. I brought it inside to warm up,  It took a long time to grow, spin a cocoon and to hatch

Released: 1

There was another egg on a Milkweed leaf on September 11, 2020. I left it alone, because the butterfly would emerge so late and the weather is so unpredictable.

Nope – brought it in. It spun a cocoon on Oct. 9<sup>th</sup>. The weather went from freezing to mild. Some days were up in the 60s. On December 10<sup>th</sup>, a day that was a high of 50 degrees, it hatched. It could not emerge fully from the cocoon. When it did free itself, its wings were crumpled. Its body was misshapen. Of course, it could not live. I euthanized it. At least it had a happy caterpillar-hood.

Key:

Black death (NPV)



Infected by Wasp:

