



UTTERBACK FARMS, INC.

A Presentation in Defense
for allowing
the shipment of farm-reared Monarch Butterflies
for the purpose of Ceremonial Releases
and Butterfly Exhibits

By

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Utterback Farms, Inc.

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Synopsis

I have been informed that press releases have been made, and letters from individuals have been written implying that the release of farm-reared butterflies might be harmful to wild butterfly populations. Their claim is that farm reared Monarchs may spread diseases, as well as the protozoa “*Ophryocystis elektroscirrha*,” commonly known as Oe.

As a Western butterfly farmer raising Monarch butterflies, I have been asked to present a paper in defense of our farm rearing practices, which addresses the above conjecture, and provides proof that the stock, which we produce, is healthy and Oe free.

In the pages that follow, I will introduce my farm, and describe briefly our product and the protocol we follow for production. In addition, I will address all of the typical arguments regarding diseases, and conclude with an explanation of what we do to stay safe and free of disease causing pathogens, including Oe.

Introduction

We only do one thing at Utterback Farms – we raise Monarch butterflies. We are the largest Monarch butterfly farm in the United States. We have been raising Monarch butterflies for over 20 years, and are devoted to producing beautiful, healthy butterflies that are ecologically safe and friendly.

We are proud to see our butterflies used in so many positive ways. Our butterflies are used to bring joy and create beautiful memories at Weddings and other happy events, and they help inspire the sentiment of peace and comfort at Memorials and Funerals as well.

They are also used for education at exhibits and special school programs, and our released butterflies help the environment by replenishing the wild Monarch population with beautiful, healthy, disease-free stock.



Our Product – Monarch Butterflies



Our butterflies are often praised for their size and beauty. In order to maintain a safe record, we periodically have our butterflies tested at a qualified lab to verify their health. The tests consistently show that our butterflies are cleaner, healthier, larger, more vibrant in color, and are equal in vigor, when compared to those in the wild.



Another aspect to mass rearing Monarchs is the need to have lots of milkweed on hand to feed the caterpillars. We have 6 greenhouses of the finest quality milkweed available.

We clip, sterilize and feed 100 lbs. of milkweed every day. To run a Monarch farm of our capacity requires the best in agriculture facilities and experience.

Our Production Facility



One important aspect of operating an insectary where mass rearing takes place is the need to control the environment. This is necessary to assure health, and precision in timing.

Our labs utilize the most advanced technology and procedure in order to achieve our goals of producing the absolute finest and healthiest Monarch butterflies.



We not only follow a strict code of ethics and professional protocol in how we operate our production facility, but our stock is subjected to one of the highest quality standards in the industry. Each week, our stock is inspected and analyzed by our Quality Control Lab, and receives our specialized *Seal of Approved Quality*, before every shipment.

Ecological Questions

Because the Butterfly Release Industry is relatively new, we as an industry have been asked questions from time to time about our Butterfly Releases and the affect these practices might have on the environment. Because the Butterfly Release Industry takes its responsibilities seriously, each area of concern has been addressed with scientific facts from experts in their field. The IBBA has offered the results in a published document.

I have taken the most common of these questions and listed them below, and have summarized the Industries' scientific responses along with some of my own. In addition, I have also included what we at Utterback Farms are specifically doing to assure that our procedures and protocol are absolutely safe, and that our product is absolutely healthy.

After reading these questions and answers, I think you will be pleased with the steps we have taken to address all possible concerns.

Industry wide

1. Is releasing butterflies into the wild harmful to the environment?

No, nothing could be more natural. The Monarch butterfly is native to the entire United States. Actually, releasing farm-reared butterflies into the wild is similar in concept to releasing hatchery-raised trout into lakes and streams.

Both Butterfly Farms and Fish Hatcheries are rearing a species out of its natural habitat. Both practices are accomplished responsibly and safely. And both are helping to replenish the wild population numbers, while serving humanity in the process. Both are ecologically safe and friendly practices.

2. Do farm-reared butterflies differ genetically from those in the wild?

There are two primary mechanisms that can lead to changes in gene frequencies in a domestic colony: genetic drift and natural selection. The direction of change in allele frequencies with genetic drift is random, and is more prevalent in small populations. Selection, on the other hand, is deliberate and linear, modifying the population to emphasize already-existing characteristics that improve the population's fitness. In the long run, genetic drift and selection cause populations to be very specialized and adapted to their particular environment

The affect of these mechanisms are kept to a minimum in Monarch insectories, and are reversed after being returned to the wild,¹ for the same reasons that the affects of inbreeding are kept to a minimum as listed below.

3. Is inbreeding a problem?

No, for the following reasons: 1) Each colony starts over with new stock from the wild every year. 2) The breeding pool is kept respectively large. 3) Infusions of stock from the wild are made into the breeding colony several times throughout the season. 4) Relatively few generations are produced per season.

Once the butterflies are released into the wild, any affects of inbreeding are “overturned by a single generation of outcrossing to a larger random-mating population.”²

4. Does releasing farm-reared butterflies spread diseases?

No, it does not. First of all, the introduction of insect pathogens into field populations is not an easy thing to accomplish. According to Dr. Kaya, numerous studies have attempted the intentional introduction of insect pathogens into field populations for the purpose of biological control of insect pest. Many of such attempts have failed, demonstrating that such introductions of diseases into the wild population is not easy - especially by small numbers.³ Secondly, a butterfly farm can not produce diseased stock on a sustained level. Should a disease, bacterial or viral, enter the colony of an insectory, production in every stage ceases to advance. And thirdly, Monarch butterfly farmers as a group are knowledgeable, responsible and careful in how they operate in order to assure their stock is always healthy, clean, and safe

Specific to Utterback Farms

1. What are we doing to assure that our stock is healthy and safe?

Utterback Farms has been raising Monarch Butterflies for 20 years. It is impossible to be in this business that long, producing faithfully and reliably each and every week during each season, unless you are doing everything right.

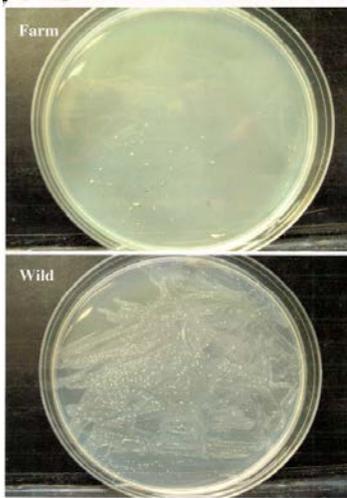
Disease avoidance

We spend thousands of dollars every week to keep our production facility operating safely. We sterilize our labs and equipment every day. We use the latest in technology in all of our labs, and a protocol that keeps us microbe free.

We also have our butterflies periodically tested at a qualified lab to verify their health. The tests consistently show that our butterflies are cleaner, healthier, larger, more vibrant in color, and are equal in vigor, when compared to those in the wild.

Please note the example of Lab Test Results, below:

Microbial Agar Dish
Showing bacterial growth from tissue samples both Farm and Wild Monarch samples

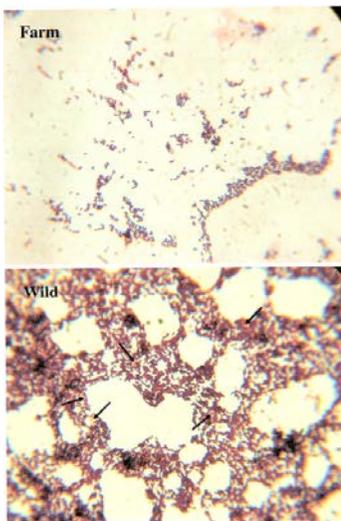


Lab Report Notes:

“There was a very small amount of bacterial growth on the microbial agar dish from the ‘farm’ butterfly, and gram-staining showed the bacterium to be gram-positive coccus. The agar dish from the ‘wild’ butterfly had more bacterium growth as well as the appearance of a second type of colony morphology.”

“Gram-staining showed the same type of gram-positive coccus bacterium as well as a small gram-negative bacterium cell.”

Gram Stains,
taken from bacterial growth on the previous Microbial Agar Dishes



Lab Report Notes:

“Both stains show the gram-positive (purple/dark) round coccus bacterial cells. The arrows in the ‘wild’ photo are indicating some of the gram-negative (pink/light) cells present in the culture.”

“Even after an additional 24 hours of growth, the ‘farm’ dish still had only a small amount of growth, but the ‘wild’ dish increased even more.”

Comments:

“There was a big difference in size and condition of the farm and wild insects.”

Oe avoidance

Our breeding stock is kept clean and free of any Oe spores, by way of sterilizing the eggs, and screening the breeder replacements. We also feed our caterpillars all they can eat of our homegrown host plants, which are very well maintained.

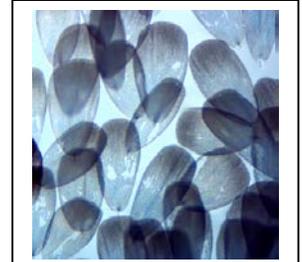
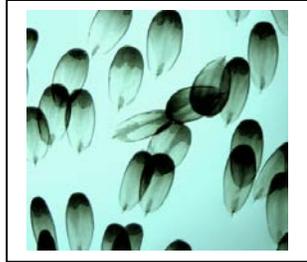
We have found that to have healthy stock, you must start with healthy, pest free host plants. We spend much time, effort, and expense in growing the healthiest and most nutritious milkweed plants possible. As an additional measure against the introduction of Oe, we clean and sterilize our milkweed plants before feeding.

To maintain an ongoing vigilance against Oe, we take a slide sample of our stock every week. The slide samples allow us to visually see if any Oe spores are present. We started archiving those slides two years ago, in order to maintain documented proof of our healthy stock.

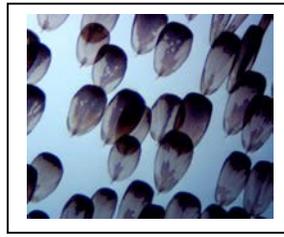
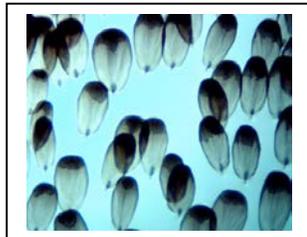
Since the avoidance of Oe is a relatively easy thing to accomplish, we have never had an Oe problem at our facility. We now have two years of archived slides that can easily prove, that we are 100% Oe free, week after week, year after year.

Please note the images below. I have provided images of our slide samples, for the beginning, middle, and end of the season for the last two years:

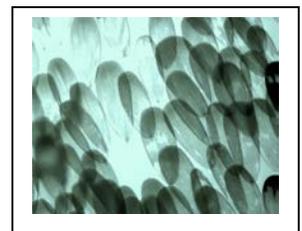
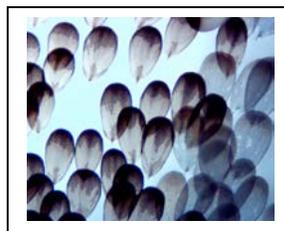
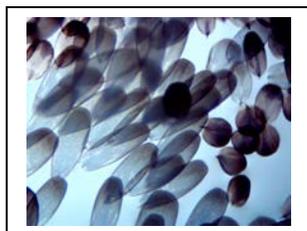
April -- 2012



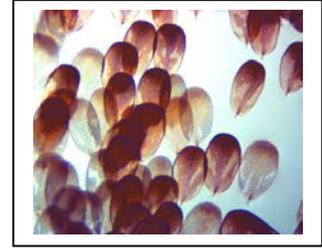
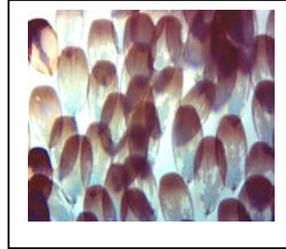
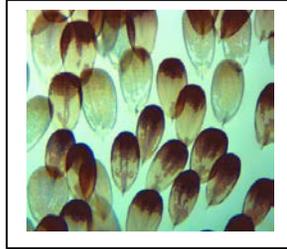
June -- 2012



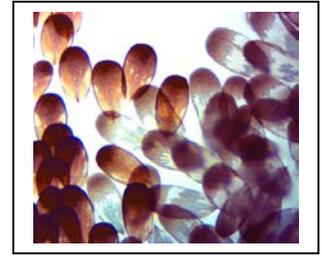
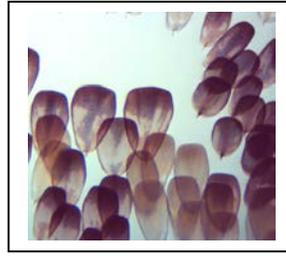
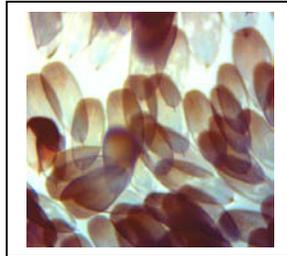
Sept. -- 2012



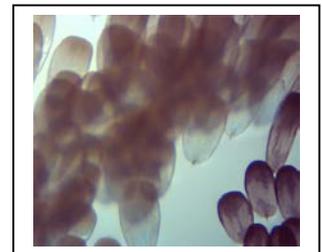
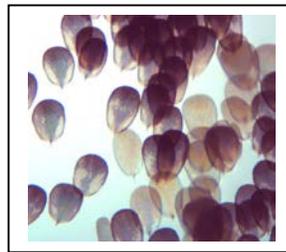
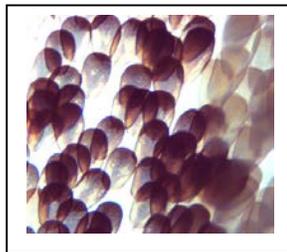
April -- 2013



June -- 2013



Sept. -- 2013



2. What are we doing to verify that our stock is a benefit to the wild population?

Testing for impact on the wild population

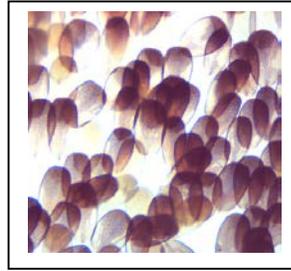
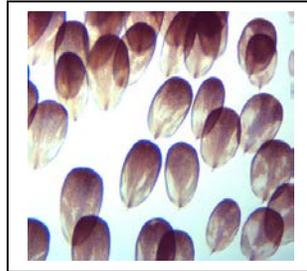
We have done some testing this year to see what kind of impact our clean, healthy stock would have on the wild population. We have allowed some of our stock to mate with wild Monarch Butterflies. We allowed this to happen in some of your greenhouses, so that we could take slide samples of the F1 generation in order to test for Oe, and also send samples to a qualified Lab to test for disease causing pathogens.

Oe test results

We were pleased to find that all of the outdoor F1 generation was 100% free of Oe. This was verified by both our slide samples, and the Lab Test results. Even the resident wild butterflies themselves, caught outside our greenhouses are beginning to be nearly free of Oe. This is a good trend!

I have provided some slide samples below, in order to provide evidence of this positive impact of the F1 generation.

Sept., 2013



Lab test results

The lab tests also verified that both indoor and outdoor samples were free of any disease causing pathogens.

Conclusion

I strongly believe that our butterflies are having a positive impact on the wild population, by promoting good health, and reducing the level of Oe wherever they are released.

I hope you can see that our approach is a scientific one. I realize that such a small test isn't necessarily conclusive, but fundamentally, it offers more than those who simply speculate by using such terms as "might," or "could," or "is likely."

In conclusion, I'd like to add that we not only believe that the releasing of our stock into the wild is safe, but we believe that the releasing of our healthy stock is actually helping to "re-populate" a wild population that is said to be on the decline in numbers. This is a benefit, not a detriment.

To stop the releasing of healthy stock into the wild will not help the wild population grow. The halting of importation of farm-reared Monarchs, and disallowing ceremonial releases thereof, can only contribute to the said decline of the wild population numbers.

3. What kind of feedback do we get from our Wholesale and Retail customers?

Sample Accolades

"I wanted to let you know that this year's breeding season was a total success, and it had a lot to do with your great, prime healthy stock. I can always count on your stock giving us good results that lasts the entire season – thanks for being there." Dave

"Just finished transferring today's butterflies and just wanted to let you know what I've been seeing week after week of beautiful quality. Whatever you are doing, you are doing a splendid job! These butterflies look great – as usual! May God continue to bless your endeavors." Jake

"Just a note to tell you that we are having a banner year with Monarchs...thanks to your healthy starts you provided us in May and June. I think we have 400 flying in our new 48-foot flight room. I just wanted to tell you how much we appreciate you and your care with butterflies." Carol

"I just wanted to thank you again for your amazing generosity! Three friends and I taught a second grade class about life cycles, and they were so excited to see a real live egg(s) (just hatching today!), caterpillar, chrysalis, and adult butterfly! They named the adult butterfly Vladimir and were excited to see him fly away at the end of our lesson. Thank you again so much for helping me make a difference in these kids' lives!" Kara

"Once again, the most beautiful part of the evening's event's...thank you so much John! Attached are a few special photos...If you knew the story behind each one it would make you cry and smile all at the same time." Laurie



(This was at a "Butterfly Release Benefit" for a Children's Hospital for burned victims)

This event is similar to one we have been doing for a Hospice in Oregon every year.

Footnotes:

1. Dr. Sonia M. Altizer, Scientific Information Presented by International Butterfly Breeders Association, section 2, item 4).
 2. Dr. Bruce Walsh, Scientific Information Presented by International Butterfly Breeders Association, section 2, item 6).
 3. Dr. Harry K. Kaya, Ph.D., Scientific Information Presented by International Butterfly Breeders Association, section 2, item 7).
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Brief Bio of John Utterback, owner and operator of Utterback Farms, Inc.

- Raised on a Farm in New Mexico.
 - BS degree in Agriculture from NMSU, majoring in Wildlife Biology.
 - 10 yrs. in Conservation work - for 3 different Govt. agencies (2 within the USDA).
 - 13 yrs. In Aviation as a Missionary Pilot in Africa, and for an Airline Stateside.
 - 20 yrs. experience as a Butterfly Farmer.
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Insect Rearing Courses

“Principles and Procedures for Rearing Quality Insects”, Dept. of Entomology and Plant Pathology, Mississippi State University, Spring 2004

Credits

We have been raising Monarch Butterflies for over 20 years, and every step of the way, we have prayed for wisdom in our business. So, when we talk about our achievements in raising butterflies we would be remiss if we did not give God the credit for answering our prayers.

We believe that it is only because of His enabling grace, that we are able to do what we do. We, therefore, want to give God all the credit and glory for the success that He has allowed us to realize.

In addition, we would be equally remiss if we didn't mention that we learned much from Jacob Groth during our initial years of producing for his company.