

# HOW TO SELECT THE BEST TRIPOD AND MOST APPROPRIATE LIGHTING

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 FLAAR Reports



**Which Tripod is best?  
Which Lighting is best?**

**How to select the best tripod and most  
appropriate lighting**

**FLAAR Guatemala**  
August 2017

# Ipomoea alba

## Moonflower

### Opening Sequence

Dr. Nicholas Hellmuth

## Tripod and Lighting Review

Suggestions for what photography equipment is best for doing stop-action photos for making a subsequent video

**Camera must have burst-speed and super fast memory card technology**

The camera used is a Nikon D5, as this can use a really high ISO so you can shoot at a fast speed. The Nikon D5 has a special memory recording technology named XQD, probably similar to the C-Fast of Canon.

So far I have not had the Nikon D5 camera stop shooting just because it could not handle everything (and I am shooting RAW (NEF) and also top quality JPEG with every click). The Nikon D810 can't handle this many photos-per-second (and can't go very high ISO either). But I like my Nikon D810 for its large Megapixel file size. But for photographing the opening sequence of a flower, or a bird in flight, the Nikon D5 is great.

We also have a Canon EOS 1DX Mark II: high ISO and fast speed with C-Fast card. But I tend to use the Nikon since all the

other photographers at FLAAR prefer a Canon.

We used about a 500th of a second since the wind was blowing the flower every few minutes. We could not open up the lens since we needed as much depth of field as possible (for the length of the flower pod). I shot at about f10.

The lens was a Zeiss 100mm f/2 Makro-Planar T\* ZE Lens. It's great, except for two downsides: the lens cap has a serious engineering failure; it refuses to screw on. You have to use your finger to slide the metal sleeve about once a day to get it to screw onto the front of the camera. Second issue is worse: it's "macro capability" is only 1:2 and not even 1:1. And of course no auto-focus. But that I can live with.

I also have a Nikkor 105mm macro



## Good tripod is essential: 100% of our tripods are GITZO

We had a tall professional series Gitzo G1548GT tripod which has functioned well for over a decade. Maximum height is 91.3 inches, 2.32 meters. We prefer tripods with no center column. A center column is what most entry-level flimsy Made in China tripods offer: it makes wobble. Either get a taller tripod or find a shorter subject. However we do recognize that most people prefer to have a center column; I used a center column in the 1970's through 1980's. But once we began to use wide-format digital cameras such as tri-linear scanning Better Light, we had to use heavy studio tripods and these never come with a center column. Gradually I learned that a center it is best if you can do all your photographs with no center column.

Since Ipomoea alba is a morning glory vine, it grows as high up as it can. So a slightly higher tripod would be helpful (but with no center pole). We suggest the Gitzo GT3543LS Systematic Carbon



Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 200mm f/4, speed 1/15, F/11,  
ISO 1000



Fiber Tripod. It is 8.1 inches taller (45.9 centimeters higher) than the nice Gitzo G1548GT tripod.

I have never used a Benro tripod; never used an Induro tripod, because I started with a Gitzo tripod about 30 years ago and never went back. And I have not yet noticed any of Benro or Induro tripods being as tall, sturdy and long-lasting as the Gitzo G1548GT tripod.

In the 1960's I used a Tiltall tripod; they were so great (for my student budget, since after getting a Leica at Phil Levine Camera I did not have much money left for a tripod).

When Gitzo and Manfrotto tripods became better known, and after Leica dropped Tiltall, it seemed that the Tiltall brand tripods were Made in China. I will try to learn where they are made today. Since our student interns use lightweight point-and-shoot cameras (such as Nikon CoolPix B700), would be nice to review a Tiltall tripod being used by the Mayan student interns out in the jungles of Guatemala).





## Lighting (for a fast opening flower)

Forget flash: as no normal battery operated flash can operate quickly enough to handle burst speed. Besides, you need to have your eyes on the entire length of the flower to determine when it is getting ready to BURST open. So you need to see the entire flower the entire time (meaning you need lights on the entire time).

The flower unfurls over a 40 minute period, but in the final 5 minutes it unfurls even more, and the actual opening is in milli-seconds

Forget tungsten halogen lights: as they are too hot. The flower would wilt.

We have used Lowel Lights for over 40 years. Plus we have Dedolight systems. They are great for studio photography when you needed strong light. But for flowers I prefer Westcott fluorescent lighting.

Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 200mm f/4, speed 1/15, F/11,  
ISO 1000



Yes, nowadays LED lights are readily available: we have two sets of four lights each of two brands. But, their cheap junky Chinese batteries wear out before the flower would open. Plus, you never know when the batteries will wear out in any given session. And, their color temperature is too variable; too uncertain.

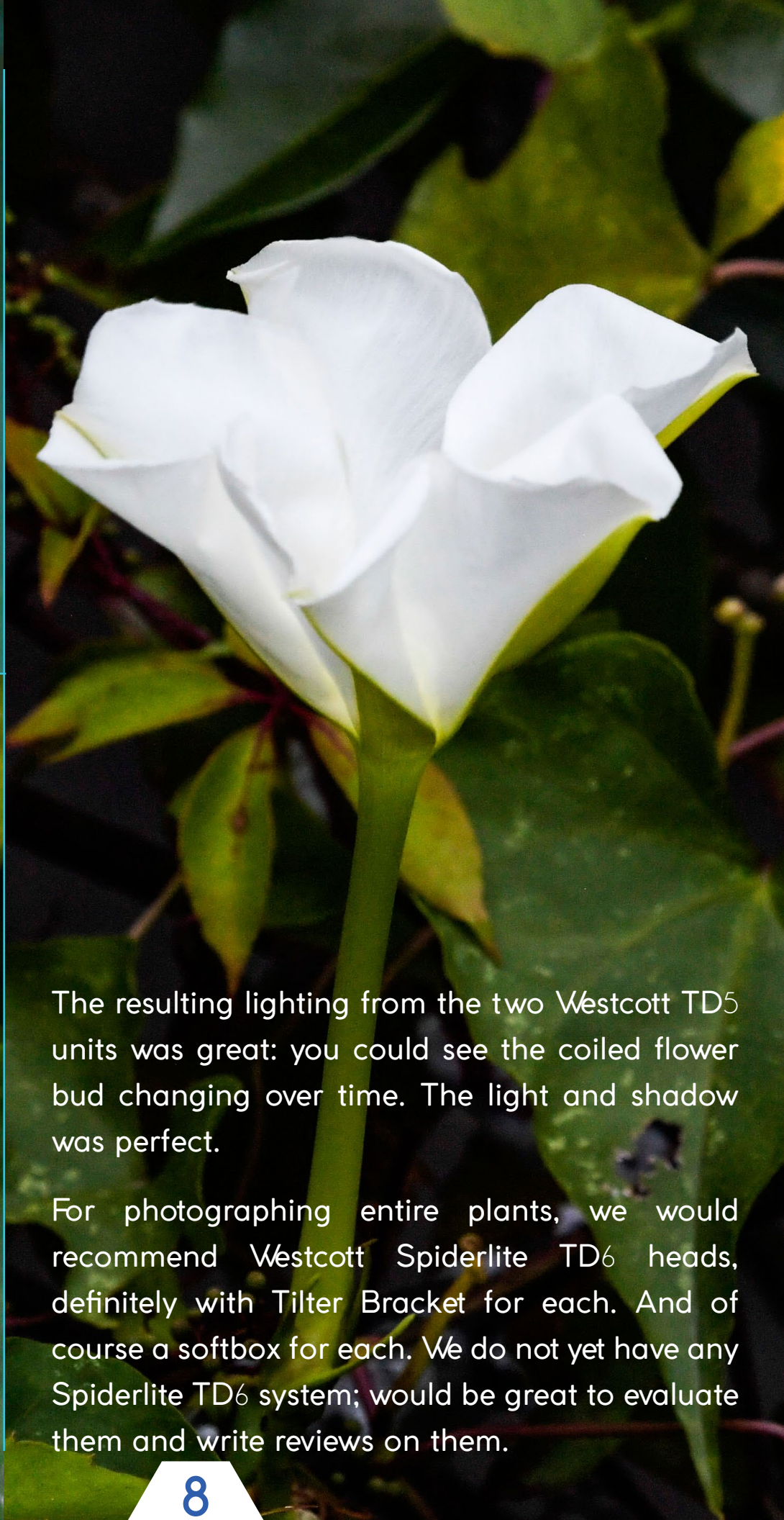
For all of these reasons we recommend F.J. Westcott lighting. We have a set of four Spiderlite TD5 lights. They are great for the studio and we often take them outside (into our Mayan ethnobotanical research garden).

For the flower we used two Westcott Spiderlite TD5 light units. There was not space in the thick jungle-like “garden” (it really is a jungle, since we want it to look natural). There are so many vines and there was an avocado tree and several cacao (cocoa, chocolate) trees in the way. So we could not use the nice lightboxes, so we used the lights with wrap-around aluminum foil.



Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 100mm f/2, speed 1/400, F/7.1,  
ISO 1000





The resulting lighting from the two Westcott TD5 units was great: you could see the coiled flower bud changing over time. The light and shadow was perfect.

For photographing entire plants, we would recommend Westcott Spiderlite TD6 heads, definitely with Tilter Bracket for each. And of course a softbox for each. We do not yet have any Spiderlite TD6 system; would be great to evaluate them and write reviews on them.



## Let's look at the flower opening sequence:

We have been raising *Ipomoea alba* for two years, so this is our second year. The first year we had only the Nikon D810, and it could not handle burst speed adequately (especially the memory cards, but also the electronics of that era of camera, with its high megapixel file size). Now we prefer to use the Nikon D5 and Canon EOS 1DX Mark II cameras.

Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 200mm f/4, speed 1/15, F/11,  
ISO 1000



\*Hr:min:sec



5:50:55 p.m



5:51:49 p.m



5:52:56 p.m



5:53:07 p.m



5:58:45 p.m



6:01:25 p.m



6:03:19 p.m



6:05:27 p.m



6:05:48 p.m



\*Hr:min:sec



6:09:34 p.m



6:12:29 p.m



6:15:32 p.m



6:18:35 p.m



6:21:40 p.m



6:24:32 p.m



6:27:47 p.m



6:30:09 p.m



6:33:45 p.m



\*Hr:min:sec



6:33:48 p.m



6:33:50 p.m



6:33:53 p.m



6:33:55 p.m



6:33:56 p.m



6:33:58 p.m



6:34:50 p.m



6:34:55 p.m



6:34:58 p.m



# Summary Views





The flower explodes open after this and within a minute the petals split wide open (to expose the pollen to attract pollinators). The flower is a bit wilted by morning time, and is curled up and dead-looking by the next late afternoon.

Tomorrow two more flowers will open and we will photograph the final minutes in detail for you.

Although Ipomoea are normally called Morning Glories, this one species blooms at night, usually opening between 6:20 and 6:45 pm. Sometimes as early as 5 p.m. or as late as 7 p.m. Probably depends on temperature, humidity, and what phase the moon is in, plus whether it is a sunny evening or a cloudy evening. Today was cloudy; it rained about an hour before we



Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 200mm f/4, speed 1/15, F/11,  
ISO 1000



started photography. June-July-August are part of the rainy season in the mountains of Guatemala. Our ethnobotanical garden is at 1500 meters elevation.

Because *Ipomoea alba* blooms in the early evening, it is called Moonflower. Actually it is usually still fading sunlight when it blooms. There is no Daylight Savings Time in Guatemala, so the setting sun is still lighting the sky at 6 p.m. But by 6 p.m. it is dark enough to need lighting, especially from below.



Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 200mm f/4, speed 1/15, F/11,  
ISO 1000



## Why do we photograph *Ipomoea alba* flowers?

The juice from the stem of *Ipomoea alba* was used by the Olmecs, Maya, and Aztecs thousands of years ago to provide sulfur to vulcanize sap from the Mesoamerican rubber tree, *Castilla elastica*. Today's rubber tires are made from a tree from Brazil, *Hevea brasiliensis*; the Olmecs, Maya, Aztecs, Zapotecs, Toltecs, Teotihuacans, Mixtecs, etc, all used sap from their local rubber trees, *Castilla elastica*.







Photography by Dr. Nicholas Hellmuth,  
Nikon D5, 100-400mm f/0, speed 1/200,  
F/9, ISO 500

It is ironic that the fruit of rubber trees looks like it is “made of rubber.” We have found rubber trees in El Peten, Alta Verapaz, and the Costa Sur areas of Guatemala. You can find it in other humid areas as well.



*Ipomoea alba* is in the botanical Family Solanaceae (same family as potatoes, which is actually the root (tuber) of a *Ipomoea tuberosum* L. We got our potatoes from Ireland; they got them through many countries but originally from Peru and adjacent Bolivia in Latin America. The Spaniards found potatoes being grown in many of the countries they brutally conquered.

*Ipomoea alba* is not edible and is no longer used to vulcanize rubber (modern chemicals are used in

factories). But we would like to suggest to local Mayan people to raise *Ipomoea alba* next to the rubber trees, harvest the native Mayan rubber, and produce rubber balls and sandal soles to sell to tourists. Tourists love products which are from renewable natural resources. And products which are traditional Mayan are super popular. As soon as we can receive grants from a foundation of funding from a corporation or considerate individual, we can start this project to help local Mayan people.

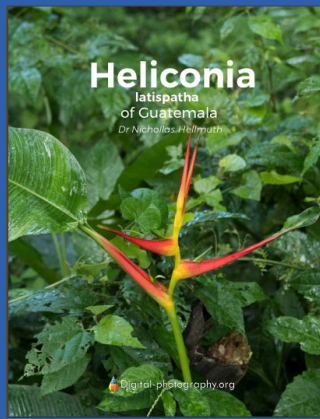




## Setup team

Pedro Chub brought the heavy ladder out. Cristian Garcia and Elena Siekvizza helped clear the thick “jungle” away so we could get the ladder and the almost 3-meter high tripod into a position to get the best angle directly in front of the flower. Photography assistant and Q’eqchi’ Mayan ethnobotanical research assistant Senaida Ba did all the final set up. She also took photographs the first 15 minutes.





[www.maya-ethnobotany.org](http://www.maya-ethnobotany.org)



[www.maya-ethnozoology.org](http://www.maya-ethnozoology.org)



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