

# Brandt's Greenhouse

## Growing indoors 101



**Introduction!**









# **Pumpkins that grew in our greenhouse in the past 4 years**

**Weight - Year**

**2185 lbs - 2015**

**2136 lbs - 2018**

**2095 lbs - 2017**

**2077 lbs - 2018**

**1965 lbs - 2015**

**1773 lbs - 2017**

**1768 lbs - 2018**

**1743 lbs - 2017**

# Advantages







Warmer  
early and late  
season nights

**In the early spring  
I'm able to get a big  
head start, now a  
day's fruit are  
capable of growing  
110 or more days, my  
target date for  
pollinations in 2012  
was june 20-30th  
now its june 5th-15th.**



**Squash vine  
bores and  
Cucumber  
beetles will  
become an  
afterthought  
inside a  
greenhouse**



**Animals will be kept at bay, before I grew indoors I had a big problem with deer munching on my grow tips.**



**You'll  
notice  
far less  
root  
diseases**

**I'm able to work  
on my plants  
during bad  
weather and  
during the night.**

**The biggest advantage of growing indoors in my opinion is the protection you get from big storms, that's how I'm able to grow big fruit year after year.**

**An outdoor grower can grow monster fruit but at anytime throughout the year their plants can be destroyed by high winds and hail, the peice of mind knowing your hard work wont be taken away by bad weather is worth it,**

**Strong winds  
knocked the  
canopy down  
on this  
otherwise  
healthy plant.**





**This young plant  
was demolished  
by hail in 2014**



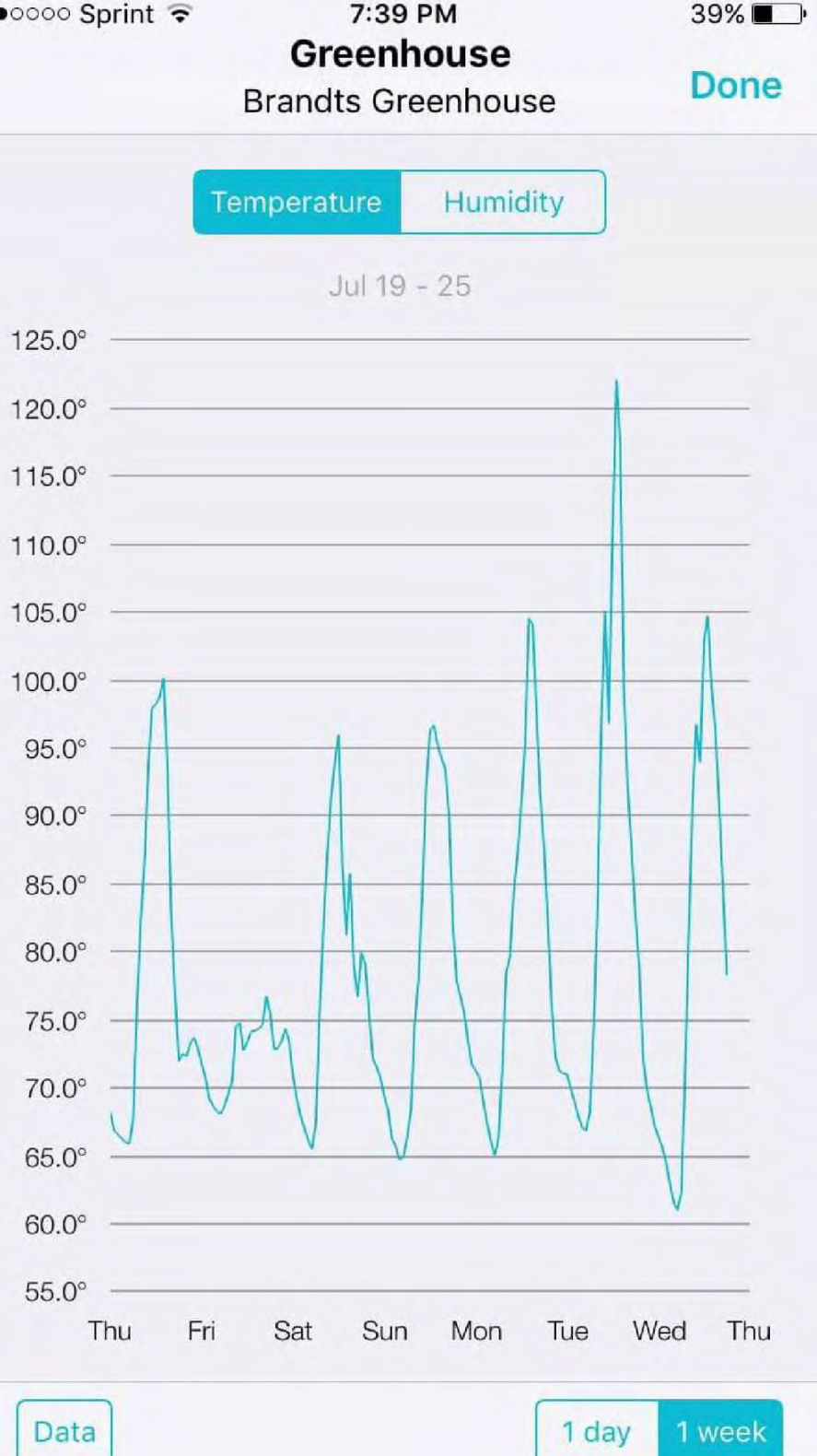
Question?

Comments?

# Disadvantages!



**If not properly ventilated  
your greenhouse can reach  
temperatures that'll kill your  
plants, without an  
evaporator cooling system  
even the best ventilated  
greenhouse will be above the  
ambient temperature**



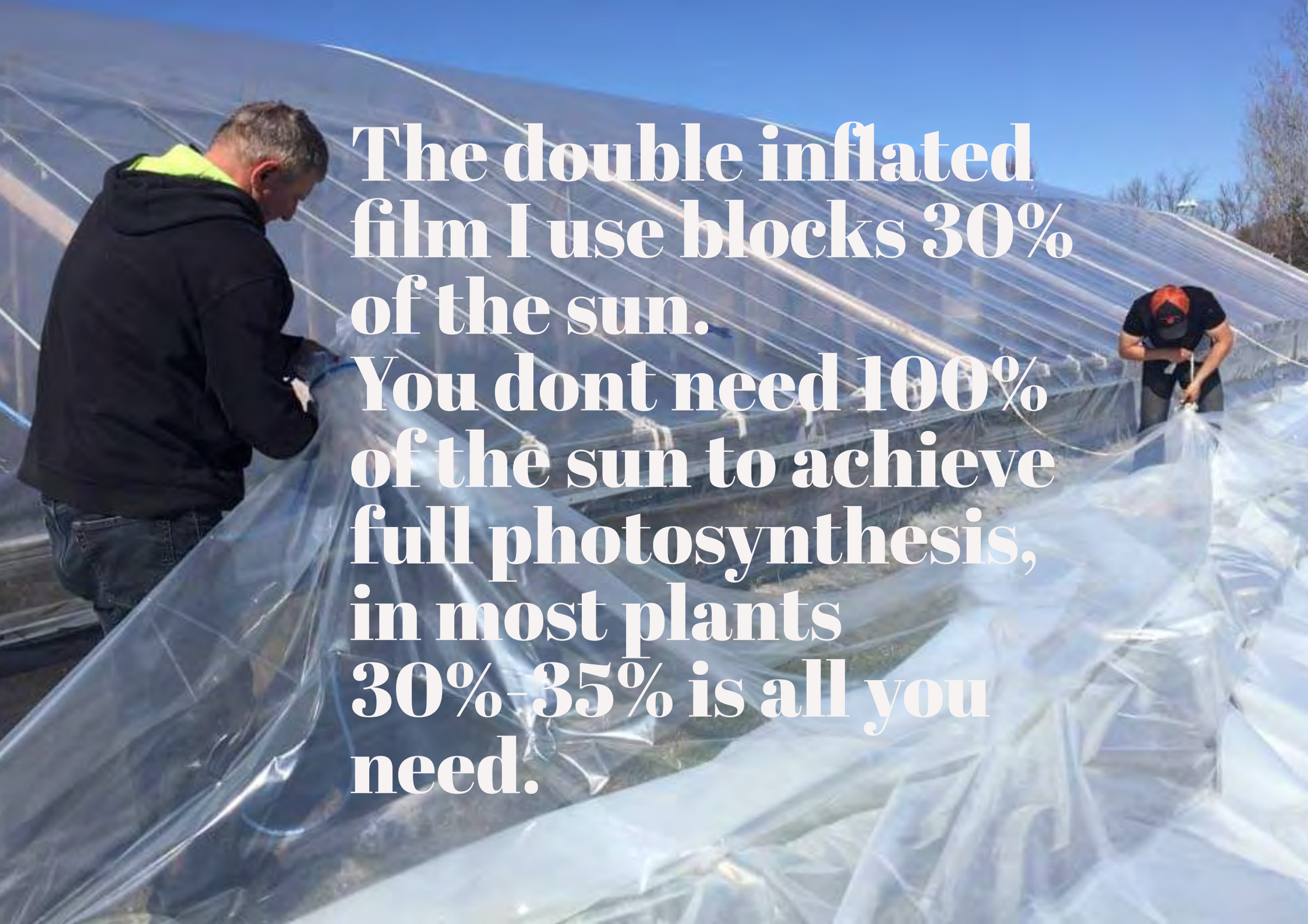
**If you get a hot spell your plants will be scorched, last year was the hottest summer we've had in recent years.**



**On extremely hot days I'd have misters go off every 10 minutes for 15-20 seconds to cool the canopy.**

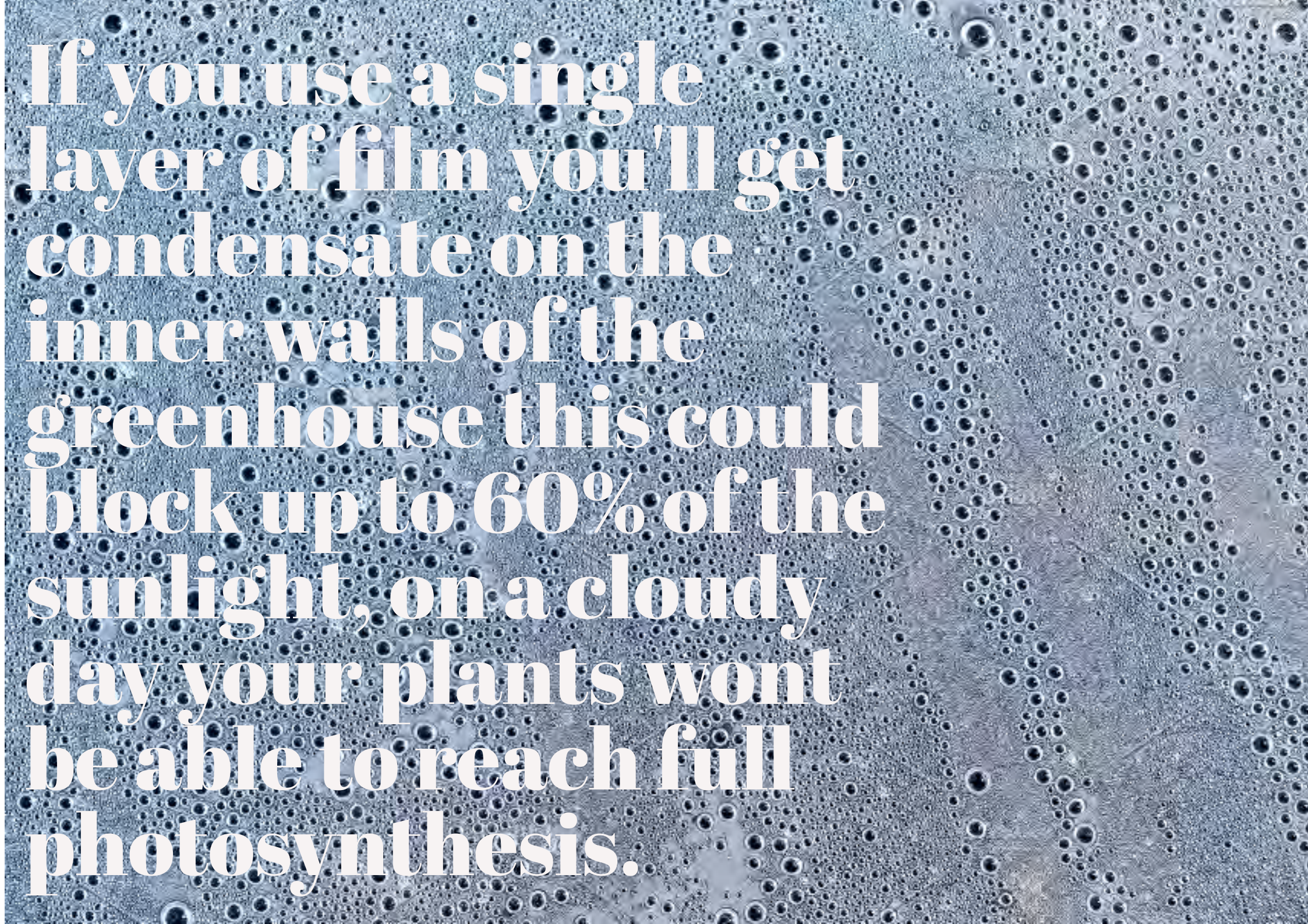
**Greenhouse film  
blocks some of the  
sun depending on  
the brand and  
thickness.**





**The double inflated  
film I use blocks 30%  
of the sun.  
You dont need 100%  
of the sun to achieve  
full photosynthesis,  
in most plants  
30%-35% is all you  
need.**





**If you use a single layer of film you'll get condensate on the inner walls of the greenhouse this could block up to 60% of the sunlight, on a cloudy day your plants won't be able to reach full photosynthesis.**

**Depending your location you might have to take the plastic down for the winter, heavy snow loads could collapse your greenhouse, expect to spend a good week every spring and fall just on maintenance.**

**If you lose power to the greenhouse on a sunny day you have just a few hours to fix the problem or you'll lose your plants, in 2015 my dad turned the power off in the morning to do work inside that breaker box and never turn the greenhouse power back on.**

**It's more difficult  
to harvest the  
pumpkins inside  
a greenhouse.**

**The ends get  
opened up  
allowing us to  
back our trailer  
inside.**







**We set up  
our lifting  
arch over  
the fruit,  
and we add  
pallets so  
we're able to  
lift the fruit  
high enough.**



**It's important  
I set the fruit  
in the center  
of my  
greenhouse  
otherwise  
we'd have to  
take all the  
plastic off in  
order to lift  
the  
pumpkins.**





Question?

Comments?

controlling environment





**Three 30 inch exhaust fans, help cool and bring in fresh air to the greenhouse.**

**They turn on automatically at 9am and shut off at 7pm.**



**We heat during cooler nights especially if the fruit is at peak growth.**

**I have misters set up on timers to add humidity to the greenhouse, I believe fruit are like sponges if you grow in a low humidity climate the fruit holds less water and will be more likely to go under chart, my target humidity is 70% but it goes up to 95% quite often and rarely goes under 70%**

A photograph of a large, ribbed pumpkin growing in a greenhouse. The pumpkin is the central focus, resting on a bed of green leaves. Above it, several rectangular artificial light fixtures are suspended from the ceiling, emitting a bright, cool white light. The greenhouse structure, including wooden beams and translucent panels, is visible in the background. The overall scene is illuminated by the artificial lights, creating a high-contrast environment.

# Artificial lighting

**LED grow lights would turn on automatically at 5pm and shut off at 10pm, I targeted 200  $\mu\text{mol}'\text{s}$  at the leaf's canopy.**

**On overcast days the lights would be turned on by hand at 5am and shut off at 10pm**





$$200 \times 60 = 12000$$

$$12000 \times 60 = 720000$$

$$720000 \times 5 = 3600000$$

$$3600000 \div 1000000 = 3.6 \text{ Mol's}$$

**In 5 hours I would get  
the equivalent of 1  
hour full natural sun  
light**



**I have 30 inverted wobblers set up to do the majority of my watering, inverted overhead wobblers from senninger provide an even coverage of water mimicking natural rain fall.**



**20 oscillating tower fans ran 16 hours a day to get good air flow under the canopy and 8 high velocity fans for the tops of the canopy's, it's important to have good air flow around the canopy to prevent the air from becoming stagnant, stagnant air inhibits photosynthesis.**





**Shade cloth is set up on the sides of the greenhouse to block the sun which tends to be strong on the downward slop, almost acting like a magnifying glass.**

Question?

Comments?

# Cost to build and run





**Expect to  
spend  
\$600-\$1000  
on lumber.**



**Dimensions  
of my  
greenhouse  
are 100ft x  
60ft total  
cost of  
lumber was  
\$1100**



**Exhaust fans  
cost \$700  
Osculating  
and velocity  
fans cost  
\$800**







**Aluminum  
backing  
for the  
plastic  
plus  
wiggly  
wire was  
\$950**



**Plastic  
bought  
from  
farmtek  
was \$1450  
for the 2  
separate  
110ft x 65ft  
sheets**

**\$350 to run  
electricity  
to the  
greenhouse  
this includes  
the outlets**

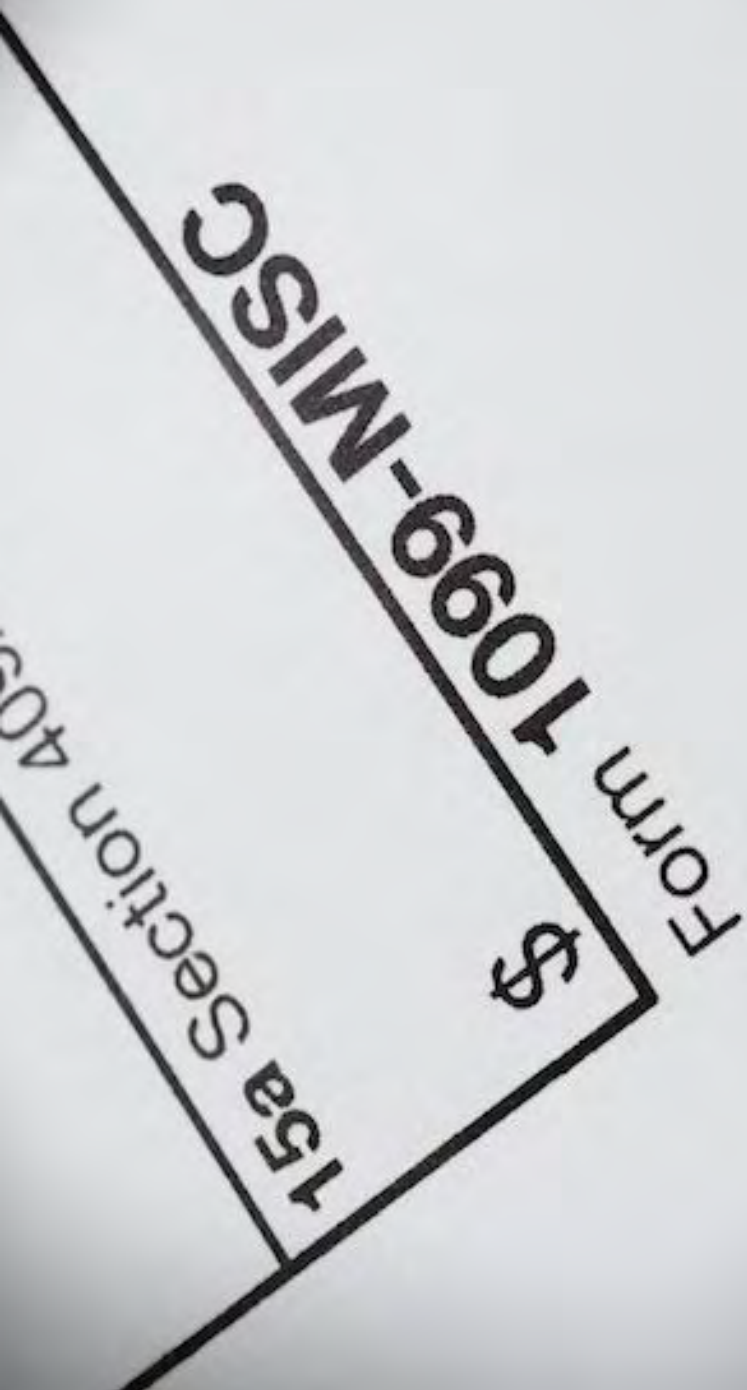


**I have the capability to run 100 amps of equipment inside the greenhouse, there's an outlet within 10 feet of me at anytime, my average electric big is around 300 dollars a month.**



**A nice  
door plus  
insect  
screen  
will cost  
\$400**

**My total build  
cost me \$6250,  
As the years go  
on you can add  
things to the  
greenhouse,  
irrigation,  
evaporation  
cooling,  
heating etc.**



Keep track of what you spend, save receipts and be professional, have buyers lined up to buy your fruit and write your greenhouse off on your taxes as a profitable hobby or small business.